The role and effects of representing miners in arrangements for safety and health in coal mining: a global study

Volume 1: A comparative analysis of findings from five countries

David Walters[1], Emma Wadsworth[1], Richard Johnstone[2], Katherine Lippel[3], Michael Quinlan[4], Syamantak Bhattacharya[5], and Phil James[6]

[1]Cardiff University

[2]School of Law, QUT

[3]University of Ottawa

[4]School of Management, UNSW

[5]Solent University, Southampton

[6]Middlesex University

Acknowledgements

Table of Contents

1.   Introduction

This report presents a study of the role of worker representation in arrangements for safety and health in coal mines in five countries. In this introduction, we briefly explain the rationale for the study, provide something of its background and contexts, and outline the structure of the report that follows.

1.1   The rationale

Mining is a hazardous industry; indeed, for many it is the epitome of dangerous work. As such, mining, and coal mining in particular, has also been one of the most important historical settings for the development of professional knowledge concerning occupational safety and health (OSH). At the same time, it has been an important locus for contestation between labour and capital over safety and profit. As our review of historical sources in the following chapter will show, one clear manifestation of this politicisation can be found in debate on statutory support for the representation of miners' interests in matters of safety and health.

These historical developments are, of course, no coincidence. Coal mining was both a dangerous and very unhealthy occupation and miners' bodies were undoubtedly exploited for profit. Large numbers of miners were damaged as a consequence, both as the result of major catastrophic failures, which caused multiple casualties and, more insidiously, through life-shortening and disabling impairment to health as a result of exposure to dust and other physical hazards of work in mines. All of this was well-known in the close-knit communities that had been established around coal mines in the early period of the industrial revolution in Europe and in other industrialising countries around the world, and this awareness, and the class identity that accompanied it, was a powerful factor in the mobilisation of coal miners and in the development of trade union organisation among them. Not surprisingly, therefore, calls for the right to represent the interests of miners in their safety and health were a prominent feature of labour relations.

Times have changed enormously since the 19th century, but coal still provides a major source of energy for both industry and domestic use in many parts of the world, despite concerns about environmental/climate and health effects. While both the location and means of its extraction have altered substantially, it is mined in enormous quantities by a considerable global labour force in both formal and informal employment. Miners still frequently live in social communities, often in close proximity to mines, and their social identity and organisation remain closely tied to the nature of their work and the risks it entails. Although there have undoubtedly been improvements in safety engineering and occupational medicine, along with better understandings of the cause and prevention of both accidents and ill-health in coal mining, the industry, globally, still experiences accidents resulting in single or multiple fatalities, and the substantial toll of fatal industrial diseases and physical impairment. Nothing in the development of safety science and engineering or mining medicine in the last two hundred years would seem to have rendered miners' rights to representation any less relevant to arrangements for the protection of their safety and health in the 21st century than was the case when these rights were first sought in the 19th century.

Such relevance begs several questions. Firstly, it is important to know something about the aim of the statutory provisions concerning these matters and what they were and are intended to achieve. Equally, it is important to know about their effects, both in relation to the extent of the presence of arrangements to implement them and their operation and effectiveness, in order to determine to what extent they achieve the purpose for which they were introduced. Secondly, and equally important, if these provisions *are* effective in supporting improved outcomes for miners' safety, health and welfare, we need to understand what it is that determines this effectiveness; and conversely, what hinders or prevents it. Thirdly, it is important to know something of the influence of these arrangements, which originated in formerly industrialised countries where nowadays mining often no longer features significantly, on practices in coal mining in other parts of the world where significant extraction of coal now occurs. After all, mining is both a global and globalised industry. Large mining corporations with global interests organise their mining operations in a number of different countries and, in theory, apply similar corporate safety management practices in each of them. Even in countries in which the interests of global mining companies are less prominent, the influence of global practices in safety and health are also felt, as understandings of what constitutes good practice in safety and health are ubiquitous and generally shared across the sector globally. In such circumstances, it is important to know how and with what effect measures to support the representation of workers' interests in these matters, originally established in social, economic and regulatory conditions that prevailed in countries in 19th century Europe, Australia, and North America, have been transferred to other parts of the world where social, economic, regulatory and labour relations conditions are widely acknowledged to be very different.

Fourthly, it is also important to know more about the guiding principles behind these statutory rights and their operation in modern coal mines. As we have alluded above, in the UK and elsewhere, the politicisation of miners' rights to safety and the role of arrangements for representation within this during 19th century debates is quite clear from historical accounts. Miners' organisations sought these rights for miners in order to be able to resist what they understood as the exploitation of their members' health and safety. At the time when these early campaigns were being fought, such polarised and politicised views were foremost in the dialogue, as even the most cursory reading of the records of parliamentary debates from this period will confirm. A hundred years later, by the time measures to achieve representative participation in arrangements for OSH management in other sectors were being debated the language of the discourse had changed substantially. Notions of 'joint consultation', 'workers' participation' and 'self-regulation' populate the lexicon of late 20th century reforms to introduce safety representatives and joint health and safety committees. Moreover, the literature on their operation is further peppered with notions of 'management commitment', 'trust' and 'good industrial relations' as pre-requisites for effective participation in joint arrangements for safety and health at work.

Yet mining, for the most part, remains a sector characterised by high levels of conflict in its labour relations and low levels of trust between union representatives and company managers. It also remains a sector in which incidents of serious physical harm resulting from workplace exposures are a prominent feature and where the occurrence of high profile, multiple fatality incidents has not been eradicated, even if they have been much reduced in affluent countries with strong

regulatory regimes (Quinlan 2014). In such scenarios, it is important to consider the guiding principles that inform the practice of worker representation on safety and health.

Equally important to a proper understanding of the role of worker representation in safety and health matters is setting it in its wider contexts. In 19th century Britain, for example, when the national legislature was first persuaded to include rights to representation in its provisions on mine safety, the canvas on which this occurred was much wider, and miners, their organisations and the communities in which they were embedded were acting collectively in a host of ways to shape the social and economic history of the period. In 20th century South Africa, as we document in the present study, the struggle to achieve effective representation for mine workers on matters of safety and health was inseparable from wider struggles to overthrow the apartheid regime in the country and in which the National Union of Mine workers played a central role. In India, as we will also detail in a subsequent chapter, social researchers have shown that the development of coal mining in the region we studied had a profound effect on the nature of urbanisation in the area, distinguishing its structure and forms of social organisation from other kinds of urbanisation in the country. While at the same time, studies in India, as well as in other developing countries, such as Indonesia, demonstrate the existence of several different but interlinked economies of mining, in which the formal sector, where rights to representation on matters of safety and health have been achieved, is but one element. These studies show that the occurrence of small-scale mining, artisan mining and undocumented informal mining also occur in these countries on a massive scale. But even more significantly for our purposes, they show that the formal sector is heavily and increasingly penetrated by influences arising from these other mining economies. Largely as a result of increased use of contracting, the formal and undocumented largely informal sectors operate alongside one another, although this often goes unacknowledged in official accounts. Proper understanding of what occurs in relation to representing workers' interests on safety and health is incomplete without an appreciation of this. In short, therefore, addressing the research questions posed in the present study concerning 'what works and for whom' in the implementation and operation of measures to achieve worker representation on safety and health in coal mining requires an appreciation of the wider social, economic and political contexts in which it occurs.

1.2   Research questions

The present study was conceived with this background in mind. At the same time, its rationale was strongly influenced by a recent analysis conducted in Australian coal mines by several of the present authors (Walters et al, 2016a; 2016b; 2016c). That study provided evidence that the representation of miners' interests in their safety and health by trade union representatives who had been appointed and elected under the detailed statutory provisions that apply to coal mining in Queensland, played an important role in improving OSH experiences in coal mines. However, the study also argued that the approach consciously adopted by the representatives in achieving these outcomes was one most appropriately understood as an effort to resist the perceived harmful effects of corporate power, rather than as an example of worker-management co-operation. As the conclusion to one of the publications that emerged from the study plainly states (Walters et al, 2016a):

In the coal mines we studied, the actions of representatives offering the strongest possibility for protecting workers' interests were more in line with organised resistance than with notions of trust and co-operation.

If this is the case in relation to the actions of representatives in Queensland mines, it begs questions concerning why this is so, and what are the preconditions for successful representation in such scenarios, as well as questions concerning how typical or transferable is such practice to mining in other locations.

The present study sets out to address these questions. It examines the nature and operation of arrangements for worker representation on OSH in coal mining in five countries with different economic profiles: Australia, Canada, India, Indonesia and South Africa. In each case, the relevant national statutory provisions concerning worker representation on OSH in coal mining provide the initial focus and starting point for a qualitative investigation of the practice of representing workers on matters of safety and health in coal mines. This investigation explores participants' experiences of the operation of arrangements to represent miners' interests in OSH in each country and identifies factors that were perceived by participants to support or constrain it. Drawing together the provisions and the experience of their operation from each of five countries with very different economic and labour relations profiles, allows some international comparisons to be made of the determinants of effective representative participation in OSH in coal mining globally. This further enables reflection on questions of transfer and sustainability of effective models of such participation in terms of affording protection to workers' safety and health in a global industry and the conditions that are necessary to support this.

1.3   Some caveats concerning focus

It is important to be clear from the outset concerning two further particular features of the approach taken by the study. Firstly, it is a wide-ranging global study that explores perceptions of the operation of arrangements for representation on safety and health in coal mining and the contexts in which they occur in five countries with very different political economies, histories, wealth levels, legal and labour relations systems, provisions for social welfare and so on. Since the aims of the study are to explore perceptions of processes whereby regulatory interventions impact on relations between institutional actors in labour relations, qualitative methods normally used in case studies are acknowledged to be appropriate. However, the breadth of the global coverage of the study presents substantial challenges for the depth of the data it is possible to collect and analyse in this way. Largely because of this and the substantial challenges presented for both the resourcing and practical operation of more in-depth case studies, the approach consciously adopted in this research has aimed to achieve *indicative findings* of sufficient breadth, rigour and comparative corroboration to support robust policy-related reflection, while at the same time recognising that further research might be required to add power and substantiate some findings to scientific standards. For example, a sufficiently well-resourced study might have sought to corroborate the views obtained from the substantial number of representatives of mine workers and key informants who were interviewed in the five countries in the present study. This might have been achieved by collecting additional data from representative samples of the workers that were their constituents in each of the mines and countries in the study, perhaps by means of a

questionnaire-based survey. However, the resource implications and methodological challenges of such an activity were well beyond the means of the present investigation. Nevertheless, as is evident from the wealth of detail in Volume 2 of this report, the findings from the field studies, triangulated and contextualised with those from key informants and extensive review of the relevant literature both globally and within each country, are of sufficient richness to support extensive original analysis of a subject which, until now, has hardly been researched at all.

Secondly, this study is focused on exploring the socio-legal, economic and labour relations contexts in which the provisions that are of interest are situated, with the aim of providing a comparative account of the factors that determine their applicability, operation and effectiveness. As such, it is not an attempt to describe or analyse corporate OSH management practices, or to evaluate corporate approaches to OSH in mining more generally. While these are obviously important matters and in part provide the contexts in which worker representation takes place on OSH in the sector, there is already quite an extensive and longstanding body of literature addressing them (see for example, Gunningham, 2007; Gunningham and Sinclair, 2012; Quinlan, 2014; Simpson et al, 2009; Yang, 2012; to name but a few recent contributions). In contrast, as noted briefly above, the research literature on the role of worker representation in safety and health in mining generally, and in coal mining in particular, is almost non-existent. This lacuna alone would provide some justification for a global study with the aim of providing a more informed understanding of the operation of arrangements for worker representation on OSH in mining and the contribution they make to supporting improved OSH outcomes. Such an examination takes as its point of departure the approach widely used in studies of labour relations and trade union representation on health and safety matters and focuses on the testimony of union safety and health representatives, other safety and health representatives, union representatives and officials, workers, and regulatory agency officials. While the views of some managers were included, these were additional to the main focus of the study's fieldwork, which was on safety and health representatives' own perceptions of the effectiveness of the arrangements under which they operated.

1.4   Situating further research questions and the theoretical approach

As the literature on participation in OSH in other sectors that is referred to in the following chapter makes clear, an examination of the effectiveness of such arrangements begs several further questions.

To begin with, there is the question of how regulatory measures to support worker representation on matters of safety and health in mining compare with those addressing the same matters in other sectors. Two issues are especially significant. The first concerns what role particular features of the measures themselves play in the practice of representation on OSH, while the second concerns the contexts in which such representation occurs and what influences these contexts have on its style, content and outcomes. In the case of the first of these questions, the present study explores the nature of the statutory requirements in a comparative way, identifying features that are particularly important in relation to the operation of arrangements for worker representation on OSH in mining, as well as similarities and differences between provisions that apply in different countries. In relation to the

contexts of representation, the study examines the role of arrangements for representation on OSH within the wider regulatory and labour relations contexts in which it is situated in the five countries studied.

In this respect, the theoretical approach adopted in the present study situates itself within understandings found in labour relations literature, somewhat more than in relation to those more commonly encountered in technical and managerially oriented research on occupational safety. The rational for this epistemological approach is quite simply that if we are to study the representation of workers' interests in OSH and understand the contexts and constraints that surround them, the wider literature that is likely to inform such a study, as well as that to which the understandings in the study will need to relate, is that which deals with the practice of representation of workers' interests more generally and the procedures that determine such practice. These matters are sometimes addressed in the regulatory literature as well as, to some extent, in the labour history literature, but they are both theorised and analysed most extensively in the literature of labour relations. Moreover, frames that are conventionally used to help situate and understand labour relations practice are also relevant and helpful in understanding the determinants of practice in the operation of representation on OSH. Thus, unitary, pluralist and conflict frames are adopted in situating the practices investigated in the present study.

Following from this, it will be appreciated that the international dimensions of the study are especially significant. Therefore, as well as undertaking a comparative analysis of the nature of statutory provisions governing worker representation on OSH and their operation in coal mining in different national economic, labour relations and regulatory settings, a further aim of the present study is to take into account the role of global institutions and processes in these matters. As already noted, nowadays coal mining is very much a global industry, in which the corporate strategies governing OSH arrangements are often developed at this level before being applied in national contexts. At the same time, standards on worker representation on matters of safety and health can be found in global measures, such as those of ILO Convention 176, intended to be delivered through regulatory provisions introduced and implemented at national levels. Exploring what effects these influences have on the relations of representation on OSH in coal mines in different countries is, therefore, a further dimension of the present study — as is the discourse on these matters at the global level.

1.5   The structure of the study

This report is structured in two main parts. Part 1, this volume, covers the background to the study, the overall research methodology, the main findings of the research, and their implications. Part 2 presents detailed findings on the development and operation of the systems for representing the interests of mine workers in their safety and health and the contexts in which they occur in each of the five countries studied. It is presented in a second volume of this report, which represents considerably more than an annex to this first volume and should be considered alongside it in order to appreciate the breadth and depth of the research, as well as the nuances of its conclusions.

In addition to the rationale and background to the study outlined in this introductory chapter, Part 1 of the study provides a review of the literature relevant to worker representation on safety and health in coal mining. This includes previous research on worker representation on OSH in other sectors, as well as in mining. It goes on to present an account of the historical development of the regulatory provisions that give miners rights to representation on matters of safety and health. This is necessary because, as the comparative narrative concerning forms of representation on OSH in different countries makes clear, the historical legacy of these rights is both considerably older than, and different to, that which applies in other sectors. The narrative presented in this report will argue that the way in which the influence of this legacy has been felt in the different countries in the study, as well as at global level, varies considerably and has had important effects on both the form and content of current provisions. It has also been an influence on the workplace practices adopted to implement and operationalise these rights at different times and in different countries. It is therefore important to give an account of the historical antecedents to these developments if they are to be understood properly.

The review of the literature and the historical development of the statutory provisions is followed by an account of their global dimensions and of the role played by global trade union confederations in supporting their implementation. Chapter 5 provides a detailed account of the research methods used in the study, while Chapters 6 and 7 present a comparative analysis of the key findings of the research in the five countries studied. Drawing on the material presented in greater detail in Volume 2, this analysis seeks to address several key issues including:

- the evidence for the effectiveness of arrangements for worker representation on safety and health in coal mining
- what determines this effectiveness in different national contexts, and what are the factors that limit it
- what is the role of organised labour, regulatory inspection and managerial commitment in supporting effectiveness
- and what does the research suggest concerning the role of global institutions and interests in supporting the sustainability and transfer of good practices in relation to worker representation on safety and health in mining

Part 1 ends with some conclusions concerning the implications of the findings of the study both for policy and future research.

Part 2 of the study presents the findings of the investigations in the five countries studied. Volume 2 therefore opens with a brief account of the methodology of the research and indicates that a similar approach to inquiry has been used in each country – as described above and reflected in the broad structure of the national accounts. These are presented in turn in subsequent chapters of Volume 2. They each begin with positioning the significance of coal mining for the national economy, continue with a review of the development and organisation of the industry, leading to identification and presentation of the key features of arrangements for OSH and review of their outcomes. Since we are concerned with the representation of miners' interests in these outcomes, as well as outlining the development of the legislative provisions giving them rights to such representation, each chapter also discusses the wider labour relations contexts in which this takes place, before presenting findings

from the qualitative fieldwork on the relations of representation on OSH at the mine, regional and national levels in each country. These findings are based on the analysis of data that were mostly drawn from interviews and group discussions with mine level representatives (as well as mine workers in some countries), and from interviews with senior trade union officials and regulatory inspectors. The analysis of the fieldwork material is situated in each case in relation to the relevant research literature in each country.

1.6   Summary

The research presented in the two volumes of this report represents an indicative, comparative study of an important but neglected area in the discourse surrounding safety and health in a major, but especially hazardous, global industry. The extensive review of the relevant literature presented in this volume, Part 1 of the study confirms the unique contribution it makes to knowledge in this field. The achievement of this contribution has required a framing of the application of ideas and understandings drawn from several epistemologies of research, including those that inform the study of labour history, labour relations, and regulation and development studies, as well as safety and health, and making supportable connections between them.

In short, the two volumes of this report present a contextualised, comparative account of the role and experience of worker representation in safety and health in coal mining in five countries representing a range of economic, regulatory and labour relations settings. They are based upon mainly qualitative field data exploring the experience of a wide range of participants, but mostly that of miners, active in a representative capacity on safety and health, in all five countries. The report aims to provide a nuanced understanding that addresses the related questions of 'what works' and in 'which contexts' for representation of workers' interests in OSH in coal mining in an account that situates its findings in relation to the literature on both comparative labour relations and regulatory studies, as well as that more specifically addressing the determinants of OSH management. The research therefore provides substantial insights into the operation of arrangements for worker representation on OSH in a major global industry which, despite their longevity in many countries, have been little studied. It explores in a comparative way the contextual determinants of the effectiveness of these arrangements in contributing to the protection of workers' safety and health in an industry that has long been acknowledged to be hazardous. But its analysis contributes to substantially more than solely providing better knowledge concerning the contribution of workers' participation in OSH arrangements in mining, because both its findings and their theoretical underpinnings have a wider salience, embracing, on the one hand, a comparative global analysis of regulation and labour relations and, on the other, seeking to contextualise these understandings within national frameworks in a range of countries at different levels of economic development.

2. Coal mining and the representation of workers' interests in their safety and health — a review of the literature

2.1 Introduction

In this chapter we examine the research literature, central to the concern of this research project, on the role of worker representation and consultation on health and safety in coal mining. However, before focusing on this literature, we need to place it within the wider context in which health and safety is situated in mining globally. To do so we need to first say something about various economies of mining more generally, and on the nature and organisation of work and employment within the sector globally, as well as outline the hazards and risks to which miners are exposed in the course of their work and the way in which the responsibilities for these hazards and risks are regulated. These are, however, no more that introductory remarks, as the relevant details of the organisation of the sector in the countries we have studied, as well as its OSH risks and their regulation, are addressed in greater detail in the country specific accounts presented in Volume 2 of the report.

2.2 The global coal mining industry

The most economically significant mining commodities in the world are coal, copper, iron ore and gold and they are mined in enormous quantities on a global scale in the formal sectors of the industry that includes a variety of privately-owned global companies, private and publicly owned national industries, as well as smaller private companies. Mining accounts for about one percent of the world's workforce, a total of some 30 million people, of whom about 10 million produce coal. It is estimated that a further six million people work in small-scale mines (ILO, 2015). Some mining companies are very large, employing tens if not hundreds of thousands of workers worldwide. For example, Vale employs something in the order of 200,000 workers; Anglo-American 100,000 workers; BHP Billiton 100,000 workers, including contractors; Glencore/Xtrata 100,000 workers; while over 300,000 workers work for the Coal Company of India. In addition, according to the ILO, there are between 10 and 15 million people working worldwide in artisanal and small-scale mining, in a largely informal economy in which women may provide as much as 50% of the workforce, and where a large number of children also work, with a further estimated 100 million people dependent on this part of the global mining economy for their livelihood (ILO, 2003). It is not clear how many of these are involved in informal/undeclared/illegal mining of coal, but it is likely to amount to a substantial number. Unfortunately, consideration of arrangements to protect the safety and health of these workers, and others dependent on the informal/illegal economy of coal production, falls well beyond the reach of the present research. The focus of the study on the role of representation and consultation in safety and health, along with the circumstances that determined access to participants, meant that the population of respondents was drawn from within larger organisations in the formal coal mining economies in all the countries studied. However, as research in developing countries shows, for the workers involved, these economies do not always operate entirely separately. Rather, they are interlinked and the interpenetration between them influences workers' experiences of work and working conditions in mines in these countries especially.

Coal contributes over a quarter of the world's total energy supply. The demand for it continues to be great, despite concerns over the environmental effects of coal generated power. Among the world's major producers of coal are India, Australia, Indonesia, and South Africa, and workers, trade unions and regulators in coal mines in these countries are among the participants in the present study. In addition we were further able to access participants from coal mines in the province of British Columbia in Canada, who provided a further perspective on representation and consultation in mining in an advanced market economy with different labour relations structures and procedures to those found in Australia — the other advanced market economy included in the study. Current features of coal mining worldwide include the presence of both underground and surface mining and this was the case in all the countries we studied. Mining technology nowadays allows for a large degree of mechanisation, and trends in many countries are towards further mechanisation. This, however, is not always so, and the nature of the technology and engineering adopted in the extraction of coal in any given situation will be influenced by a variety of historical, geological, environmental, economic and political factors. As a result, participants in the present study were able to share their experiences of the challenges to safety and health encountered in a range of different kinds of mining methods, from labour intensive manual mining of coal to mining that involved highly automated mechanical processes.

The global coal economy is such that the price sensitivity of the industry is a fundamental driver of its employment policies and labour cost reduction plays a major role in the business decisions taken by corporate interests. In line with the trend in most other sectors globally, therefore, it is not surprising that outsourcing, including the outsourcing of labour costs, is a strong feature of the business strategies evident in mining, or that their employment security is a major preoccupation of miners. We found a strong presence of contractors and a contractor labour force in coal mines in all of the countries we studied, but in some it was a considerably greater presence than in others, which at least in part seemed to be a result of the success or otherwise with which organised labour had been able to resist its development. Equally, there was considerable variation in the extent to which the representatives of workers who participated in the study felt able to influence the work environment and safety and health experience of these contract workers, whose OSH protection was widely felt to be less substantial than that afforded to directly employed mine workers.

As we noted in the Introduction to this report, labour relations in mining are generally less than cordial. There are, of course, several reasons for this, not least the labour cost cutting strategies mentioned above. But conflict in the labour relations of the industry is not new and in many countries in which mining has been established for a long time, such hostile relations are endemic and reflect both the strength of organised labour as well as the determination of employers to exercise managerial prerogatives over the control of mining operations. Indeed, during its history in developed former industrialised economies, the coal mining industry has been the site of some of the most emblematic struggles between capital and labour, struggles that are both difficult and incorrect to ignore when trying to understand the context in which relations on OSH between these actors operate in practice. In modern times, as other writers have frequently pointed out, strategies such as outsourcing and the location of mines in remote areas, combined with fly-in fly-out work organisational

practices, have in part been influenced by a corporate interest in regaining or maintaining control of contested territory in the relations of work in mining. Here is not the place to explore these observations in depth, but as we have already outlined in the Introduction, they provide compelling reasons to study the role of worker representation and consultation on OSH in mining and are important contextual influences on its operation and outcomes. We will have reason to return to them in the detailed country-based studies described in Volume 2 of this report, as well as to discuss their effects later in the present volume.

The character of the corporate approach in the sector has other related effects on the form and function of its arrangements for managing OSH and provides a further important contextual influence on representation and consultation on OSH. The global mining corporations, along with such bodies as the International Council on Mining and Metals and the World Coal Association, of which they are key members, produce a substantial amount of material describing the approach to delivering their responsibilities for managing safety and health in mining. Much of this material reflects 'state of the art' professional understandings about OSH management in high hazard sectors and, as the section that follows outlines, concerns itself with promoting the use of risk management strategies well-established as good practice in similar high-risk industries. However, the lexicon used in the documentation of such approaches in the global mining sector is interesting and is replete with commitments to a 'corporate safety culture', 'corporate values', 'leadership', 'engagement' and 'human behaviour'. Such terminology reflects both a unitary and behaviourally orientated approach to notions of worker participation, which may be at odds with the values and approach espoused by workers, as we explore further below.

2.3   The hazards of mining

Current features of the organisation of work in the coal mining industry worldwide, including the increased use of contract workers, together with the scale of workforce turnover in the mining industry (and at particular mines), make it difficult to track the long-term health effects of exposure to harmful substances, long hours and other health hazards. Nevertheless, the toll of death, injury and disease among the world's mine workers means that, in most countries, mining remains the most hazardous occupation when the number of people exposed to risk is taken into account. The ILO estimates that, although mining only accounts for one percent of the global workforce, it is responsible for about eight percent of fatal accidents at work (ILO, 2015). No reliable data exist on injuries, but these are significant also, as is the number of workers affected by such disabling occupational diseases as pneumoconiosis, hearing loss and the effects of vibration.

Knowledge of safety and health in mining is obviously dependent on the availability and accuracy of data. But there is widespread acceptance that such data are woefully incomplete. Even within the formal sector, injuries are underreported in many countries, or else injury rates cannot be calculated due to lack of information concerning working hours. Work-related ill-health is generally even more poorly reported and even so-called 'recognised occupational diseases' are frequently under-represented in statistics for a host of well-established reasons. And data for the informal sector are substantially more limited and incomplete. This makes it far

from straightforward to undertake meaningful international comparisons based on reported outcomes. However, the reputation mining has for danger is built on a litany of catastrophic events stretching back hundreds of years. Even disregarding its propensity for disaster, as already noted, it is also marked by a high incidence of fatal injury and, notwithstanding improvements over time, global data show that mining remains among those occupations with a conspicuously high incidence of fatal injury.

Mine workers can encounter an array of hazards capable of causing serious and fatal injuries including:

- fire/explosions
- inundation/inrush of water or materials (and drowning from other causes)
- falls of ground
- outbursts of poisonous gas
- contact with dangerous machinery or equipment (including transport incidents and pressure vessel explosions)
- electrocution
- falls from height and
- entrapment underground or in confined spaces

Coal mining is also hazardous because the material being mined is flammable (and may spontaneously combust) and relatively unstable; the gases associated with mining coal (most notably methane but also including others like hydrogen) can explode; and mine fires can be propagated by accumulations of highly inflammable coal dust. Fire and explosion have therefore long been and remain the most common sources of mass fatality incidents in coal mines. Accumulations of noxious gases (including carbon monoxide arising from spontaneous combustion, often referred to as a heating) or noxious gases collecting in faults and expelled by pressure (outbursts), can also cause death. Underground coal mining is more dangerous than open-cut mining due to the problems of confinement. However, open-cut mining still encounters most of the hazards just mentioned as well as other hazards, such as the failure of dams and the collapse of workings. In addition, it has, if anything, greater potential for transport incidents involving collisions between vehicles and between vehicles and pedestrians, as well as vehicles slipping off roadways or tipping points (and sometimes falling hundreds of metres in large open-cut pits).

A relatively high incidence of serious (acute and chronic) non-fatal injuries is also seen in many mines, including amputations and crushing resulting from contact with moving machinery; slips, trips and falls; and sprains and strains (Biswas and Zipf, 2000; Karra, 2005; Burgess-Limerick, 2011). Heat exhaustion and sun stroke (in open-cut mines) as well as fatigue are additional safety issues. Mining also entails serious risks to health. Dust diseases, including silicosis amongst metalliferous miners and pneumoconiosis or black lung amongst coal miners, were responsible for the deaths of thousands of mine workers in the 19th and early 20th century in industrialised countries. While these dust hazards have been mitigated in rich countries, they have not been completely eradicated as was previously thought. In both North America and Australia, new cases of dust-related lung diseases have been diagnosed, calling into question previous diagnoses and raising renewed

concern about dust-related disease in coal mines. But dust-related diseases remain a huge problem in poorer countries, where work in coal mines continues to expose workers to harmful quantities of dust. Miners are also exposed to other harmful substances, most notably diesel fumes, which are now listed as a human carcinogen (see, for example, Stewart et al, 2012).

Finally, we think it important to note in relation to the present study that while such risks are ubiquitous in mining globally, an important issue that cannot be over-emphasised is that they are not experienced equally in all countries. Aforementioned inconsistencies in the reporting of harmful effects of work on health, physical safety and well-being, make informed comparison difficult, but inequality in the experience of risk and its contexts is obvious. Although we did not set out to study the distribution of risk in the mines in the countries in which our fieldwork was undertaken, nor do we describe or analyse empirical data in relation to them in this report, it was clear to the researchers who visited mines in the five countries included in the study and talked to miners' representatives and others in each of them, that there was a huge difference in the risk profile and experience of everyday working conditions in these mines across the range of countries we studied. While some of the reasons for the scale of differences could be found in the nature of the mining technology and mining techniques employed, the age and depth of the mines, and the geological challenges involved, none of these features either singly or in combination served to entirely explain the scale of the difference between health and safety in mining as it was experienced on an everyday basis in the very different economic and cultural climates evident between richer and poorer countries. The multifaceted absence of resources obvious in the mines of countries like India, in comparison with those of advanced economies such as Canada and Australia, impacted strongly on almost every aspect of the work that went on in them and the substantial inequality in their risk profiles and the means with which they were addressed were obvious.

2.4   Regulation and management of safety and health in coal mines

The responsibility for the control of safety and health in mines rests with the employer. Modern regulatory approaches to safety and health in mining, as in other industries, tend to integrate prescriptive requirements within the broader framework of a process/systems approach (for example, they might be incorporated into major hazard plans developed by a mine and then monitored and enforced by the regulatory inspectorate). Prescription has also been retained with regard to well-known major hazards and known effective measures in relation to monitoring and controlling them (such as, for example, setting maximum methane levels, requiring fire suppressing machinery, requirements to notify specified events etc.).

Process-based regulatory regimes have been introduced into mining legislation in all the countries included in the present study in the relatively recent past, sometimes in response to catastrophic disasters. This was the case, for example, in Australia where the Moura No. 2 mine explosion in 1994 in Queensland and an inrush of water at the Gretley colliery in New South Wales in 1996 led to the introduction of the present regime. In Canada reforms were occasioned by the Ham Commission which investigated occupational health issues in a uranium mine and resulted in the Ontarian Occupational Health and Safety Act in 1979, the provincial law governing

health and safety in the workplace, and the introduction of the internal responsibility system — a process-based approach also leading to the institutionalisation of worker representation on safety and health. Meanwhile, in South Africa process-based reforms in the Mine Health and Safety Act 1996 came about following the overthrow of the apartheid regime in which organised workers' resistance, stimulated in part by reactions to major mining disasters, had played a prominent role.

The architecture of regulation on mine safety and health is broadly similar in all the countries we studied. Process-based approaches are in evidence in the primary legislation, regulation of mining is treated separately from that of other sectors of employment, and all countries have a regulatory inspectorate charged with monitoring and enforcing compliance. Within the regulatory architecture of all the countries, there are also provisions giving workers rights to representation and consultation on safety and health. Beyond these broad similarities, of course, there are substantial differences in the detail of the provisions and, as we will explore in the country studies reported in Volume 2, these include differences in the extent and detail of the rights and duties in relation to representation and consultation, which may have some impact on the ways in which these matters are practiced in coal mining in the different countries. In addition, there are further differences of detail between the countries in their requirements governing the role and functions of the mines regulator, including in those relating to their engagement with workers' safety and health representatives, and again we explore the consequences of these differences in the country studies.

In such process-based approaches to regulating OSH management in mines, the central elements of concern are the management systems and corporate architecture used to achieve improved health and safety outcomes. In practice, as we have alluded above, they are customarily accompanied by prominent aspirations towards improvement in OSH outcomes in corporate policy statements and in the pronouncements of corporate leadership (such as 'zero harm' objectives in corporate mission statements, along with notions of greater centrality for health and safety in organisational arrangements). International bodies with an interest in the mining industry globally, such as the International Social Security Association (ISSA) have produced extensive and influential materials to support mining companies in pursuit of such aspirations. Its 'seven golden rules' for example, embrace what is essentially a corporate risk management approach to improving so called 'safety culture' in mining companies. They include demonstrable leadership and commitment from senior management, methods to demonstrate commitment, identify hazards and control risks, target setting, OSH organisation, safe plant and workplace place strategies, improving competence and motivating 'people' through encouraging their participation.

Management strategies attendant to such corporate efforts emphasise greater accountability for health and safety performance at all levels of management and supervision and a greater focus on changing the attitudes and behaviours of workers to achieve safer work practices, ideally leading to measurable improvement in safety outcomes. Such approaches also pay considerable attention to monitoring and evaluation, continuous improvement and 'worker engagement'. However, as we have already noted, the research literature on this subject makes clear that not only are forms of such engagement varied, but so is the degree of support they receive

from organisational management. An important issue, therefore, is the extent to which the 'new' approach to health and safety management strategy evident in mining during recent decades relates to and integrates representative forms of worker engagement.

In parallel with these responses to regulatory development, another significant influence on corporate safety management comes from changes that have occurred in the bodies responsible for developing voluntary standards. While it is sometimes difficult to determine the order of their influence, it is obvious that corporate responses to both voluntary and compulsory approaches to process-based regulation of health and safety arrangements are related and have an effect on one another. For example, an emphasis on OSH management systems in the strategies of coal mining corporations is clearly reinforced by the same emphasis in current approaches to regulation. Moreover, the scrutiny of company OSH management systems by regulatory inspectors and their use in some jurisdictions (such as in Australia) as indicators of compliance with regulatory standards, clearly serves to reinforce their adoption by the companies concerned — even if companies claim to have adopted them independently of public regulation. Regulatory requirements for safety and health management systems in mining in some jurisdictions require the mine operator to appoint a senior person with responsibility to develop and implement a safety and health management system. The system must incorporate risk management practices to ensure the safety and health of persons who may be affected by the mining operation. It must be auditable, documented and include an organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, renewing and maintaining a safety and health policy. In particular, it must define this policy for the mine and set out a plan for its implementation, state how the mine operator intends to develop capacity to implement the policy, include principal hazard management plans and standard operating procedures, contain a way to measure, monitor and evaluate the system as well as to implement corrective measures, and contain a plan for the continual improvement of the system as well as for immediate review in the case of significant change in operations. At the same time, these are very similar to the requirements on OSH management standards developed internationally by standards organisations such as the International Organisation for Standardisation (ISO) and the national standards organisations that are affiliated to it. Many global corporate bodies appear comfortable adopting ISO standards on safety management as a means of also meeting the requirements of regulatory requirements. And regulators themselves are often happy with this approach.

However, in certain key respects there are differences between the requirements of voluntary standards on OSH management and those required by regulation. One that is of particular relevance in the present study is that, although voluntary standards on OSH management systems do promote 'participation', they usually do not specify forms of representative participation such as are required by statutory standards. As a result, systems that are adopted by corporate approaches to OSH do not necessarily need to embrace such forms of participation to meet the broad requirements of such standards. And indeed, many corporate approaches focus in practice on achieving more direct forms of participation. As we will explore in greater detail in Volume 2, this is what seems to occur at least in part in the countries we have studied mines where, as Gunningham and Sinclair (2012:26) have pointed out

in relation to Australian mines, mining companies actively pursued worker engagement through a variety of means including:

> … regular meetings and consultations between workers and senior mine management (both formal and informal and including WHS[1] committees); worker involvement in risk assessments and accident investigations; feedback through incident reporting and WHS suggestion programmes; and participation in internal audits.

These approaches are also often applied in an environment in which the development of the corporate architecture and systems of OSH management are characterised by the application of Behaviour-Based Safety (BBS). BBS systems strongly emphasise methods of direct participation in which managerial prerogatives and control are maintained in relation to OSH requirements and where the capacity for autonomous participatory action by workers and their representatives may be constrained or marginalised. In principle, such systems are not necessarily oppositional to forms of representative participation and the two can co-exist effectively within the same organisation. However, as researchers have also argued, an excessive focus on the former may serve to marginalise representative participation (Walters and Frick, 2000; Walters and Nichols, 2007). Moreover, as we discuss in some detail later in this chapter, while there is good evidence of the effectiveness of representative participation in arrangements for health and safety management, it is far less clear how successful are systems that emphasise other forms of worker participation.

BBS systems for managing health and safety are these days commonly adopted by large organisations. But such systems have attracted some criticism. For example, there are concerns that their recording and reporting systems tend to emphasise more visible safety incidents and thus reinforce a focus on safety issues at the expense of less visible work-related health. Most reporting systems are to some extent flawed, with under-reporting or misreporting a common experience (Zoller, 2003; Rosenmann et al, 2006). Where improved performance in these matters is a monitored objective, a further unintended consequence may be that emphasis shifts to the requirement to produce documented evidence of the activity, rather than remaining focused on the reason for the activity itself, thus leading to both over-bureaucratisation and further distortion of the outcomes (Knudsen, 2009).

An important element in the successful adoption of effective reporting systems, as well as other elements of BBS management, is the amount of trust that exists between workers and their management concerning their purpose and the use made of the information reported (Conchie et al, 2006). Where trust is low, as the evidence suggests in coal mining, outcomes are likely to be poor (Gunningham and Sinclair, 2012). This is even more the case in relation to monitoring safe behaviours, which is often a significant presence in BBS programmes, including those in coal mines. Thus, where monitoring of unsafe behavior and requiring workers to monitor and report the unsafe behaviours of others occurs in situations where trust between workers and managers is already low, there is a likelihood that it will fail to achieve whatever beneficial effects are intended.

---

[1] *WHS — Workplace Health and Safety.*

The limitations of BBS management are also displayed in its approach to the investigation of accidents and incidents. Research literature indicates that the focus of accident and incident investigation in such programmes tends to be at the point at which the accident occurred. That is, it establishes the unsafe behaviour that was its proximal cause. Yet virtually all of the serious literature on injury and ill-health prevention argues for two basic principles should inform any investigation of a harmful incident if its causes are to be properly understood. The first is that there is seldom a single cause of an incident leading to injury or death. Rather, such incidents are generally the result of multiple-causality. To understand them properly, therefore, requires investigation of deeper causes including issues of work organisation and payment systems[2] (see, for example, Bohle and Quinlan, 2000; Hopkins, 2000 and 2005a; Nichols, 1997; Perrow, 1984; Reason, 1997). Second, there is a widely accepted hierarchy of control for addressing prevention in which the most effective control is to entirely eliminate the hazard in question. Further down the hierarchy, in order of decreasing effectiveness, come engineering controls, still further down are managerial and administrative control and finally behavioural 'safe person' requirements on individuals to use personal protective equipment (PPE) and follow safety procedures. These are acknowledged to be the least effective form of control, and of course there are some situations, such as thermal stress in ultra-deep mines, in which they are the only possible control. Nevertheless, they are the ones often most emphasised by BBS management systems for widest use across all situations.

This, therefore, is the context in which arrangements are made to implement statutory requirements for the representation and consultation of mine workers on matters of safety and health. There is a body of research that has been carried out in various countries that has examined the operation of these practices in mining and in other sectors more generally and we turn to a review of the key findings from this research next.

2.5   Research on representing workers on safety and health

The authors have reviewed research on worker representation and consultation on OSH in several previous publications (see especially Walters, 2006; Walters and Nichols, 2007 and 2009; Walters et al, 2012 and 2014; EU-OSHA, 2017). In relation to mining more specifically, key findings of previous research on worker representation and consultation on OSH are highlighted in Walters et al, 2014 and 2016a, b, and c. It is widely accepted that, taken together, these reviews provide comprehensive and definitive understanding of the practices and contexts of worker representation and consultation on OSH internationally. The research literature they review includes a substantial number of contributions from studies in advanced market economies including Scandinavia, the UK and some other European countries, such as the Netherlands, Italy and Spain, as well as studies from other advanced market economies elsewhere in the world, including North America, Australia and New Zealand. We have drawn on this literature in the review that follows and therefore it includes reference to relevant findings on worker

---

[2] *For example, the Royal Commission (2012) into the Pike River mine explosion found a bonus payment scheme (which reduced as time targets were not met) contributed to the incident by encouraging mine workers to subordinate safety to production, including over-riding methane trip meters on machinery.*

representation and consultation in sectors other than mining, as well as in mining itself. However, it is acknowledged that research from less advanced economies is poorly represented in the literature to date.

2.5.1 The regulatory measures

Reviews indicate that statutory measures generally provide for a number of minimum legal rights for worker representation through:

- Selection of representatives on health and safety by workers
- Protection of representatives from victimisation or discrimination as a result of their representative role
- Paid time off to be allowed to carry out the function of health and safety representative
- Paid time off to be trained in order to function as a health and safety representative
- The right to receive adequate information from the employer on current and future hazards to the health and safety of workers at the workplace
- The right to inspect the workplace
- The right to investigate complaints from workers on health and safety matters
- The right to make representations to the employer on these matters
- The right to be consulted over health and safety arrangements, including future plans
- The right to be consulted about the use of specialists in health and safety by the employer
- The right to accompany health and safety authority inspectors when they inspect the workplace and to make complaints to them when necessary

In some countries there are other rights, such as the right to seek assistance, or be present at an interview between a worker and an employer or inspector. In a few countries, such as Sweden and Australia, for example, there is an explicit right for representatives to stop dangerous work and/or to report incidents to the regulatory inspectorate if managers refuse to take the actions they desire. In other countries, such as Spain, this right to stop dangerous work is not conferred on safety delegates but on general trade union representatives. In Australia, safety and health representatives have rights to serve provisional improvement notices on employers, which require them to take actions in relation to items the representatives require remedying.

In mining, in some countries, as we discuss in detail in Volume 2, representatives also have the right to order the cessation of work activities they regard as posing serious risk of harm to workers, such as in Australia, or to require the withdrawal of labour from such work, as in South Africa. In the main, the research literature that has examined how these rights are used suggests that they are important in the legitimisation of worker representatives in the eyes of both managers and their fellow workers (Walters et al, 2016a and b). It further indicates that the recorded incidence of their use (which suggests they are used rarely) probably seriously underestimates reality because generally such incidents tend to only be reported once a regulatory agency has become formally involved. There are many more incidents of their use

which are resolved within establishments, without the need to involve regulatory inspectors (Forseth et al, 2009). Other research findings suggest that the power conferred on worker representatives by such provisions is important. It results not so much in their excessive use, but in widespread awareness among managers of the potential disruption their use might cause, which leads them to respect the requests of representatives concerning remedial actions, without representatives having to resort to the use of these powers. At the same time, this encourages representatives to use these powers sparingly, often as a last resort or only in situations where there is an imminent risk of serious harm (Walters et al, 2016c).

There are several other ways in which regulation has been shown to support the rights of worker representatives to engage with their employers in ways that help counter the differences in the relative power of the two parties involved. Such engagement also gives worker representatives a chance to influence, for the collective benefit of workers, the ways things are done in establishments, even in scenarios where employers and managers may not see this as being in their own interests. For example, in the Netherlands regulatory requirements provide works councils with rights of approval in relation to employer actions on several aspects of OSH. In Belgium too there is a strong role conferred on the Prevention Committee, the employee members of which are elected from nominations provided by the trade unions. For example, as in the Netherlands in relation to the works council, the employer is required to obtain the agreement of the committee before appointing internal occupational health experts and works doctors, and also before deciding the amount of time the experts should spend on health and safety. In Spain, prevention delegates must be consulted by the employer in advance about various OSH matters including the OSH effects of work organisation, planning and the introduction of new technology. Consultation in this sense means that the employer must give the prevention delegates a period of 15 days to respond to proposals, and must provide the grounds for any rejection of the response. In the United Kingdom health and safety representatives must be consulted 'in good time' on new measures that might affect OSH and the regulations indicate the right of representatives to 'make representations' on OSH matters on behalf of their constituents.

Rights to representation also have some limits imposed upon them. In some countries, for example, there are minimum sizes of workplace below which rights to representation on health and safety do not apply. This is also the case in relation to mining. However, in the formal sector in mining in all of the countries in the present study, mines were generally large enough to be included in the statutory provisions on worker representation and consultation. Of course, the situation in artisanal and small-scale mining and in the informal sector is quite different. Conversely, in other countries, most notably Sweden, but also Norway, Spain and Italy, there are measures explicitly supporting peripatetic activities of representatives in representing the interests of workers in small and micro-sized workplaces in which representatives are themselves not employed.

However, most detailed studies point out that what occurs at the workplace level is frequently different from what is specified in legal regulation. Among the reasons for the difference are the variations found in the influence of broader institutional contexts in the wider political economy and labour relations environments in which the legal framework and ensuing practice are embedded. Therefore, while

comparison of legislation is useful, doing so without taking into account other influences on its operation is a fairly limited exercise and yields little understanding of likely determinants of practice. Such influences include:

- *The labour relations context of OSH management* — in which not only is the relevant legislation addressing worker representation and consultation on OSH and that influencing direct participation in OSH of interest, but also the key features of labour relations systems such as: the extent and form of trade union penetration; the role of workplace representation; national, sectoral and local arrangements for social dialogue; the position of OSH in trade union and employers' organisation policies; and the support provided for directly informing and consulting with workers in workplace relations.

- *The style and character of the national regulatory regime for OSH management* — in particular, the origins and character of the provisions made for participation on OSH, size limitations imposed on these requirements, and the length of time present arrangements have been embedded in the regulatory systems for OSH in the states concerned; the extent and for how long the regulatory environment could be described as being characterised by process-based and goal-setting requirements as opposed to prescriptive ones; and national infrastructures for OSH support (such as the availability and competence of OSH services, training, and information provision) in as far as they may have a bearing on the will and capacity of managers to manage OSH participatively.

- *Wider features of national socio-economic systems* — including country size and economy, features of the labour market and the structure and organisation of work, including the extent of restructuring of work, shifts in preferred business processes, the position of organisations in value chains and other aspects of work restructuring and reorganisation.

Research studies show that formal arrangements aimed specifically at worker representation on OSH therefore vary substantially according to the wider institutional arrangements for workplace labour relations and they are generally formulated in ways that fit with these existing wider institutional patterns. They are based around essentially three approaches, again largely reflecting national institutional labour relations practice. In the model most frequently found, workplace representatives are at its core and it is around these that the various provisions for joint arrangements for health and safety tend to revolve. This was the case in mining in most of the countries we studied. In a second model, it is the joint institutions — the health and safety committees — that form the main focus, with worker members of the committee acting as health and safety representatives. In mining, this was essentially the model found in the Canadian province of British Columbia and it reflected a pattern prevalent in other sectors in Canada more generally. Whether these different institutional focuses contribute to differences in practice is hard to say. Previous research on the practice of worker representation in the countries displaying these different approaches is patchy and has not been comparative in this respect. A third model evident in some countries (but not in mining or in those countries studied in the present research) extends the representational role of the

works council to health and safety and, in this manner, uses existing institutions of workplace representation rather than creating new ones specifically for OSH. However, in this respect, it is probably not hugely different in its operation from other models, where one of the preconditions for their successful practice has been shown to be their integration into the institutions for employee representation more widely.

The occurrence of representation on health and safety broadly follows patterns for representation generally. This means that, in most advanced market economies (and as far as the literature can ascertain, also in developing economies too) and across most sectors it is declining — in parallel with the decline in the representation of organised labour more generally. This is probably also the case in mining, although there is insufficient empirical data available to confirm this. Moreover, there are indications from some countries that this decline contrasts with simultaneous growth taking place in so-called direct methods of consultation with workers over OSH matters that, in previous sections, we indicated were also a significant element of the behaviour-based systems for safety management favoured by employers in mining. This was a conclusion from a recent EU-wide study for example (EU-OSHA, 2017). These challenges are in part the effects of the restructuring of work and employment during recent decades, which has included the emergence of greater numbers of smaller workplaces, a shift away from employment in sectors with traditionally high levels of worker representation and the increased proportion of non-unionised employees in the labour force, as well as the challenges to organising representation among contracted, subcontracted and casualised workers that we note also form an increasing presence in mines, where they are often found on the same worksites as organised, directly employed miners.

The review of the literature presented in the following sub-sections of this chapter, therefore, indicates what it is possible to conclude from previous research on various aspects of representing workers on OSH. These include: the character and activities of health and safety representatives and other workplace institutions for representation and consultation on OSH; the effectiveness of worker representation on OSH; what the mechanisms of such effectiveness are; what supports or constrains representation in its immediate and wider contexts; and what previous studies suggest might be learned from comparative study of all these matters. The review takes a broad perspective embracing not only coal mining in the five countries studied, but research on worker representation across a wide range of sectors and countries. It considers the implications of these findings for better understanding the practices and their contexts that are the subject of the detailed analysis of the empirical data gathered in the present study on coal mining.

2.5.2 The characteristics of health and safety representatives and representative institutions

Numerous studies include a description of the characteristics of health and safety representatives. They are likely to be reasonably experienced workers and the majority are usually men, although a substantial proportion are women, especially in sectors in which there is a high percentage of female workers[3].

Different regulatory frameworks and labour relations practices in different countries mean that there is a range of relationships between representatives and trade unions. In some cases, the health and safety representatives are by definition trade union representatives. In other cases, they may be elected candidates from trade union lists. In some situations, they are non-union representatives. However, for the most part, the relationship between representatives and the autonomous organisation of workers within workplaces is a close one. The literature further indicates that trade unions also play the major role in the provision of training and other forms of support for the majority of health and safety representatives in most countries. Although there are examples of non-union health and safety representatives operating as alternatives to trade union representatives in workplaces where employers are hostile to trade unions, the limited evidence on their activity suggests that to be successful such representatives require a level of support similar to that present in workplaces where there is some form (trade union or otherwise) of genuinely autonomous worker organisation in place (Walters and Frick, 2000).

The importance of training in supporting health and safety representatives is widely accepted and the subject of detailed study. Advantages of a labour education model for the pedagogy and delivery of training have been shown (Biggins and Holland, 1995; Raulier and Walters, 1995; Walters, 1996; Walters et al, 2001; Culvenor et al, 2003). Previous studies indicate that, not infrequently, representatives find difficulty getting time off to attend such courses. A less obvious problem reported in some in-depth studies (see, for example, Walters and Nichols, 2007) is that, although arrangements for time off for training are, in theory, in place, the lack of replacement for the representatives concerned means that they are unwilling to burden their colleagues with the additional workload that is perceived to be a consequence of their absence on training courses. In times of economic downturn or where the productivity of the establishment is under scrutiny, such as is the case in many coal mines, such pressures are likely to be even greater and further reduce attendance on such courses as a consequence.

---

[3] This overview is based on a number of sources including: Beaumont and Harris, 1993; Biggins and Phillips, 1991a and b; Blewitt, 2001; Hillage et al, 2001; McDonald and Hyrmak, 2002; Walters and Gourlay, 1990; and Walters and Nichols, 2007.

2.5.3 Activities

A range of studies and surveys undertaken in different countries have focused on the activities in which health and safety representatives have been engaged, the factors they perceive to support or constrain these activities, their perceptions of workplace risks and risk management, and what they consider to be their training needs.[4] Generally, they indicate a variety of health and safety representative activity, mostly orientated towards improved prevention. Despite this, common findings relate to limited involvement in risk assessment and sometimes in undertaking formal inspection procedures (although the latter does not seem to be the case in coal mines), and lack of consultation 'in good time' in relation to plans involving health and safety issues. Reasons given for the limitations to their activities are commonly related to the time allowed for them by employers, and lack of interest or understanding on the part of managers or supervisors — for example, older studies report evidence suggesting that many managers have considerably poorer knowledge of the work environment than health and safety representatives (Hudspith and Hay, 1998; Milgate et al, 2002). More in-depth studies have shown that the perception of insufficient time to undertake health and safety activities is more complicated than the straightforward denial of such rights by employers/managers. As with the experience in relation to time off for training mentioned in the preceding subsection, intensified and 'lean' work regimes may operate to prevent health and safety representatives from feeling that they can take time out of their normal work activities to carry out health and safety functions without inadvertently placing greater work burdens on colleagues. Shift patterns, lone working and travelling within and between worksites are also formidable barriers to health and safety representative activities (Walters and Nichols, 2007).

In-depth studies also point to a tendency towards a greater concentration on 'safety' issues than on 'health' issues by health and safety representatives. In many cases this may be a reflection of the limitations on what they are able to achieve, caused by poor understanding of the issues involved among their management counterparts (Walters and Frick, 2000; Walters and Nichols, 2007). Although trade unions and trade union-approved training often focus on the underlying issues of work organisation that lead to poor health and safety outcomes, such as stress and musculoskeletal injuries for example, it is not clear that more than a minority of health and safety representatives are able to engage successfully with their management counterparts on the resolution of these issues in their workplaces.

Overall, previous research studies tend to demonstrate the extent of a dependency on the existence of competent health and safety management arrangements and management commitment to participative approaches in order that health and safety representatives can meaningfully contribute to preventive activities (Walters and Nichols, 2007). Some recent studies of the activities of worker representatives in situations in which employers and their managers are hostile to representative participation, however, suggest that in these scenarios workers' representatives can nevertheless function quite effectively in the interests of their fellow workers by

---

[4] See, for example, Garcia et al, 2007; Biggins and Phillips, 1991a and b; Blewitt, 2001; Cassou and Pissaro, 1988; Frick and Walters, 1998; Hillage et al, 2001; Kawakami et al, 2004; Labour Research Department, 1984; Shaw and Turner, 2003; Spaven and Wright, 1993; Walters and Gourlay, 1990; Walters et al, 2005; Warren-Langford et al, 1993.

ensuring they act within the terms provided for in the regulatory provisions that govern them, and operating with the support and understanding of organised labour at their workplaces. Significantly, these studies were undertaken in coal mines (Walters et al, 2016a and b).

There has been some limited discussion in the literature concerning the mode of action of health and safety representatives. Early writings tended to focus mainly on conflict or consensus approaches (for examples see Bagnara et al, 1985; Gustavsen, 1988). That is, they suggested broadly that co-operation between safety representatives and managers was a key to successful outcomes and dependent upon them perceiving a shared interest in the resolution of OSH problems. More recent explanatory frameworks focus on the nature of participation in political and labour relations contexts and on power relations in organisations, as well as on different understandings of health and risk and their implications for action (Walters and Frick, 2000; Walters et al, 2016b), although some Scandinavian analysis has returned to these ideas of shared problem solving (see for example Hasle et al, 2016). Prominent in the analysis of the modes of action of worker representatives is the work of Canadian authors, who have suggested that 'knowledge activism' describes an ideal form of action for worker representatives on health and safety. This form of action allows worker representatives to engage in a kind of a 'politically informed activism organised around the collection and use of a wide variety of health and safety knowledge'. With such actions, they are able to avoid their marginalisation which is otherwise brought about by professional and managerial colonisation of technical knowledge, and at the same time also avoid polarising dialogue between themselves and employers into disputes in which occupational health strategies are simply a manifestation of the wider conflict between labour and capital (Storey, 2005; Hall et al, 2006 and 2016). Scandinavian researchers suggest that there are times when safety representatives diverge from managers in what they regard as appropriate actions and here they rely on their regulatory mandate to protect their fellow-workers; an approach Kvernberg-Andersen et al, (2009) refer to as being 'one of both boxing and dancing, not either or'.

More generally, European writers have suggested that health and safety representatives operate in practice at various points along a continuum of possible participatory processes according to a range of economic, labour relations and personal circumstances (Walters and Frick, 2000). Another view focuses on 'worker centred' experiences and distinguishes this way of understanding health and safety issues from that of professional and managerial approaches. It suggests that such understandings can be reinforced through labour education and through trade union meetings inside and outside workplaces, thus strengthening a particular conceptualisation of occupational health that is useful in representing the interests of workers (Walters and Frick, 2000; Walters et al, 2001; Jensen, 2002). Relatedly, understanding not only the formal representational activities of health and safety representatives, but also their roles as a part of workers' communities of practice involves similar issues (Knudsen, 2009). Such a broader perspective and its 'bottom-up' relationship with organisational learning are important conceptually, but somewhat underdeveloped in terms of empirical study. In the main, this kind of theorising concerning ways of conceptualising the actions of health and safety representatives is limited in the extent of its development in the literature, restricted to more sociologically orientated academic understandings, and not nearly as much

written about as are the mainly managerially orientated conceptualisations of safety culture, risk awareness, risk communication and so on in the wider literature on preventive health and safety.

2.5.4 Effectiveness

Surprisingly, much of the research literature does not address the question of the effectiveness of representation on OSH directly and, when it does, it focuses more on relationships between representation and proxy indicators of health and safety outcomes than on objective measures of outcomes such as work-related injuries, ill-health or mortality. There are some good reasons for this that are mainly to do with the reliability and interpretation of available data. Most of this literature concerns sectors other than mining, although there are some studies in mining too, as we note below.

For example, a number of studies consider the relationship between representative worker participation and better OSH management activities. The measures of such activity vary between studies but include such things as: the presence of health and safety policies and their communication to workers; the provision of improved safety and health information and training; the use of health and safety practitioners; the presence of written evidence of risk assessment; the existence of health and safety audits and inspections; accident investigations and so on (see, for example, EU-OSHA, 2017). Walters et al (2014) pointed out that previous studies of this sort indicate that participatory workplace arrangements are associated with improved OSH management practices which, in turn, might be expected to lead to improved OSH performance outcomes. A range of older studies of this kind was reviewed by Walters (1996).[5]

A series of Australian studies also generally support the positive relationship between the presence of representative participation and better health and safety management arrangements, as well as raised awareness of health and safety matters (Biggins and Phillips, 1991a and b; Biggins et al, 1991; Gaines and Biggins, 1992; Warren-Langford et al., 1993; Biggins and Holland, 1995).

In Canada, non-unionised workplaces had lower levels of compliance than unionised ones. Worker members of joint health and safety committees who had completed training were more likely to report improvements in a wide range of conditions (SPR, 1994:33, 56). Studies in the United Kingdom indicate that (trained) representatives participate in and stimulate workplace OSH activity through engagement with management structures and procedures, tackling new OSH issues and 'getting things done' to help resolve health and safety problems (Walters et al, 2001). Yassi et al, (2013), in a realist review of the effectiveness of joint health and safety committees (JHSCs), identified important determinants of JHSC effectiveness across various jurisdictions to include: adequate information, education and training; appropriate committee composition; senior management commitment to JHSCs; and especially a clear mandate with a broad scope and corresponding empowerment

---

[5] See, for example, Beaumont et al (1982) and Coyle and Leopold (1981) for the UK; Bryce and Manga (1985) for Canada; Roustang (1983) and Cassou and Pissaro (1988) for France; Assennato and Navarro (1980) for Italy; and Walters et al (1993) for EU countries generally.

(through legislation and/or trade union presence). In another recent study based on data from the VII Spanish Working Conditions Survey, Ollé-Espluga et al (2015) found that workers reporting having safety representatives in their workplaces were protected by greater preventive action than those who reported not having safety representatives.

Studies attempting to establish a relationship between the role of worker representation and indicators of improved health and safety performance such as injury or illness rates include studies of specific exposures, where incidences of ill-effects were greater in non-unionised situations (see, for example, Fuller and Suruda, 2000; Dedobbleer et al, 1990; Grunberg, 1983).

Historically, studies of joint arrangements and their relationship to OSH performance have not been entirely clear concerning the beneficial effects of such arrangements. Some found positive effects (Cooke and Gautschi, 1981), while others were less clear (Kochan et al, 1977:72). Overall, however, in the US 'committees with more involvement of non-management members, both in sheer numbers and in agenda setting, [we]re associated with fewer reported and perhaps fewer actual illnesses and injuries' (Eaton and Nocerino, 2000:288-89). While in Canada, researchers generally found joint health and safety committees were associated with reduced lost-time injuries (Lewchuck et al, 1996; Havlovic and McShane, 1997; Shannon et al, 1992, 1996 and 1997; O'Grady, 2000:191)[6].

Exceptionally in the United Kingdom, it has been possible to undertake multivariate regression analyses of the relationship between various workplace employment relations structures, such as the presence of trade unions, safety representatives and safety committees, and the incidence of injury and ill-health, by using data collected in the Workplace Industrial Relations (later Workplace Employment) Relations Surveys 1990-2004. Again, earlier studies showed mixed results (Davies and Elias, 2000:28; Reilly et al, 1995; Nichols, 1997; Litwin, 2000; Robinson and Smallman, 2000; Fenn and Ashby, 2004). Such mixed findings mirrored those in other countries that used similar surveys (such as Currington, 1986 in the United States; and Wooden, 1989 and Wooden and Robertson, 1997 in Australia).

Such lack of consistency prompted Walters and Nichols (see Nichols et al, 2007; Walters and Nichols, 2007:30-40) to conduct a statistical re-analysis of 1990 WERS data as part of their larger study to investigate the effectiveness of health and safety representatives in the United Kingdom (Walters et al, 2005). This sought to improve technically on previous multiple regression analyses.[7] Their results suggest, with a fair degree of robustness, that, as judged by serious injury rates in manufacturing, it is significantly better to have health and safety committees with at least some members selected by trade unions than to have such committees with no members selected by trade unions. This suggests that there is a mediated trade union effect on safety; and that the presence of health and safety representatives also has a

---

[6] A further caveat that needs to be borne in mind here is that the variety of socially constructed reasons for reporting injuries may themselves be a powerful influence on data based on lost-time injuries, making such measures less reliable than those of fatalities or serious injuries.

[7] Briefly, as compared to for example Reilly et al (1995), they reduced the large number of regional and industry dummies to make a more robust model; reduced the number of independent variables, some of which rested on fine and unclear distinctions; used a Poisson count method instead of a Cox zero corrected method (which entailed adding a bit to the many zero observations); and tested for endogeneity and interaction effects.

beneficial effect — and this after controls had been made for a number of variables including the percentages of manual and female employees, industry and region, union density and also size of establishment (which, as in many other studies, was found to have a negative relation to injury rate). These findings were supported in a further study based on the WERS series in which Robinson and Smallman conclude:

> *The empirical modelling of workplace injuries reveals that representative participation matters. Participation is associated with lower levels of injuries and, conversely, non-participation is associated with a higher incidence of injuries. This adds to the empirical literature on institutional arrangements by linking union effectiveness to the level and access to participation they enjoy vis-a-vis management. Specifically, this perspective reveals that some participation is better than none, higher is better than lower and that the alignment of voice between management and unions is fundamental to success.*

> *Robinson and Smallman, 2013:698*

This perhaps best sums up the current consensus in the published research concerning the effectiveness of worker representation on OSH. As we show in Section 2.5.6, similar challenges have beset the far more limited number of studies attempting the same thing in mining. Although here too, more sophisticated recent analyses come to similar conclusions concerning the positive nature of this association.

2.5.5   What makes worker representation effective?

If, as the evidence suggests, arrangements for worker representation on OSH are effective, it gives rise to the question: under which conditions and with what support is this so?

The answer seems clear from the previous sections. As is evident from both qualitative and quantitative studies, worker representation is more likely to be effective when there is a strong legislative steer which sets out respective rights and duties and provides a framework governing the required structure and functions of joint arrangements, to which representatives, their employers and managers can relate. These arrangements operate in accordance with the labour relations situation within workplaces, sectors and even countries and in accordance with the extent to which employers have the will and capacity to engage with participative approaches to OSH management. Arrangements are more likely to be perceived to function better in situations in which workplace labour relations are harmonious, but even where they are antagonistic and employers and managers are not supportive of cooperative approaches to OSH, worker representation may still play a strong role in protecting the safety and health interests of workers.

Adequate support from employers and managers helps to ensure that workers' representatives involved in joint arrangements have sufficient time to conduct their various OSH functions, possess the necessary competencies to do so, and receive appropriate training to ensure this. It also extends to the provision of information to enable representatives to undertake these functions. Trade unions also play a substantial role in the provision of support, through training and information, and in

addition provide the necessary security and protections afforded to representatives in situations of conflict with employers and managers.

Some studies have focused on the ways in which worker representatives conduct their activities. They reveal a range of approaches where, at one extreme, there are those in which individuals help provide a conduit allowing communication on safety and health matters between the management and workforce and sometimes vice versa, but do not adopt a more proactive or autonomous role. At the opposite extreme there are those in which representatives act as 'knowledge activists' who, with the support of their constituents and other workplace representative institutions, foreground their *representative* role*,* proactively pursue the *representation* of workers' OSH interests with their managers and employers, prepare themselves for this role independent of managers, and even go beyond the workplace for information and support to carry it out. And there are a variety of other approaches adopted by representatives in carrying out their functions, situated somewhere along a spectrum of actions between these two extremes. They would seem to be generally influenced by the climate of labour relations prevalent in the establishment, the nature of the safety management systems present and the style in which they are managed. Effective representatives determine the actions they pursue according to circumstances, and the same representative may be capable of adopting quite different approaches according to their understanding of what is most appropriate in any given context. These findings are largely replicated in studies with a specific focus on coal mining, as we outline below

2.5.6 Evidence of arrangements for worker representation in coal mines

As we noted in the Introduction, despite the longevity of statutory measures concerning the representation of miners' interests in their safety and health in coal mines, there has been surprisingly little study of their operation. Notwithstanding the acknowledged risks of coal mining, the relatively extensive unionisation of the industry and the longstanding presence of regulatory provisions on worker representation, little robust research directly addresses the operation and effectiveness of these participatory arrangements. Research from the United States is exceptional in this respect, in as much as there has been a series of research papers concerning the relationship between trade unions and safety outcomes over quite a long period. Early studies in this series presented somewhat mixed and conflicting findings on the effects of trade unions and joint arrangements on health and safety outcomes. Appleton and Baker (1984), using data from the 1970s, claimed unions had the effect of increasing accidents. However, this study was subject to considerable criticism concerning the limitations of its method (Bennett and Passmore, 1985; Weeks, 1985). A subsequent study undertaken for the National Research Council (1982) showed that this claimed effect disappeared when analysis focused solely on injuries that were least susceptible to reporting bias, such as fatal and serious injuries. Similarly, while a recent historical study focused on the early part of the 20th century demonstrated that the presence of trade unionism in mining, as measured both by membership and contract coverage, reduced fatal accidents by around 40 per cent — an effect the author further demonstrated to be highly statistically significant and argued that the 'union effect' probably operated at the mine level by unionised miners supporting one another in refusing to work in unsafe situations (Boal, 2009). This finding is to an extent supported by earlier British

qualitative historical research using the testaments of Scottish coal miners (McIvor and Johnston, 2002).

More importantly, however, Morantz's (2011) analysis of more contemporary data, which is both methodologically more rigorous than any of the previous studies and also takes account of a much wider set of circumstances, variables and possible influences, concludes that its results:

> *… are broadly consistent with the hypothesis that unionisation improved real mine safety levels (as reflected in traumatic and fatal injury rates) around the turn of the twenty first century; that reporting bias confounds empirical identification of the union safety effect, especially when outcome measures examined include minor and non-traumatic injuries; and that the union safety effect has become more pronounced since the early 1990s.*
>
> *Morantz, 2011:13*

In other words, the research evidence on the effects of trade unions on injuries and fatalities in coal mining in the US is consistent with that for other sectors across a range of countries. It demonstrates, as far as it has been possible to do so, that their presence is more likely than not to have a positive effect on health and safety outcomes. However, on the whole, the studies that demonstrate this in relation to US coal mines are themselves limited to the investigation of possible associations between unionisation and injury rates. They do not investigate *how* or *why* such an association occurs.

To explore these possible associations further, Walters et al (2014) undertook a detailed study of arrangements for worker representation on OSH in place in coal mines in Queensland. As the publications that emerged from that study made clear, the strong evidence that emerged showed that operation of the regulatory and labour relations systems for worker representation and consultation in Queensland coal mines was effective in supporting the safety and health interests of miners and also showed how these systems were used by representatives to help to enable both a focus on serious issues and a capacity to effect preventive actions in Queensland mines. We discuss the detail of these findings in Volume 2 of this report, but they point to several key conclusions that are relevant to the wider review presented in this chapter.

As well as detailed qualitative interviews with representatives and regulatory inspectors, and observations of training for representatives, this research analysed the content of a large number of records, required to be kept by law, of inspections undertaken by both representatives and mines inspectors. It showed that representatives made a strong and positive contribution towards effective approaches to safety and health in coal mines in several main ways in fulfilment of their statutory functions and powers. These included inspection of serious or fatal risk and review of safety and health management systems. Similar patterns of inspection were evident between senior representatives and the mines inspectorate. High potential incidents (HPIs) were also a recurring theme in representatives' reports. HPIs are widely seen as indices of increasing importance in health and safety practice in high-risk industries. Documentary evidence of representatives' use of their statutory powers in relation to deficiencies in safety management systems

and their powers to order work cessation, showed they rarely used such powers but when they did they related to potentially fatal risks. Formal notifications were therefore almost always used to address significant OSH risks, and they generally used specific risks as symptomatic evidence of inadequacies in the management systems that should ameliorate and control them. Such feedback constitutes a procedure widely accepted as good practice in OSH management and risk prevention. Therefore, documentary evidence supported the conclusion that representatives used their formal powers to suspend operations responsibly and in relation to serious OSH management systems' failings. Moreover, there was no evidence in the documentation that referral of these matters to the mines inspectorate resulted in any substantial change in the actions taken.

In short then, recent detailed research on the system for worker health and safety representation in Queensland coal mines suggests that the statutory measures were being implemented effectively and the two levels of representation, at site and industry level, worked well together in providing the necessary trade union organization and support to help make representation effective. However, the research also demonstrated that the system was not used without contention and that to make their presence effective, the representatives used strategies that were deeply embedded within those of their trade union organization at mine, state and national levels in their relations with the management of the mining companies in which they operated (Walters et al 2016a).

In two further accounts (Walters et al, 2016b and c), the same researchers analysed these approaches from a labour relations perspective and argued that the hostile labour relations that characterised the contexts in which the representatives operate caused them to place a strong reliance on regulation to support their actions. While previous scholars such as Gunningham and Sinclair (2012) conclude that the hostile labour relations in Australian mining lead to mistrust between managers and union representatives which undermines participative engagement in OSH management, Walters et al (2016b and c) argue differently. They suggest that, although hostile relations and limited trust between workers and their representatives and managers were evident in the coal mines they studied, seen from a pluralist perspective, representatives worked quite successfully within these contexts to give voice to their constituents' OSH interests. By careful use of their statutory powers, they were able to identify and request corrections to address fatal risks; to review and require modifications to OSH management systems; and order the stoppage of work in situations where consultative approaches had failed or serious and immediate risks were evident. The representatives' actions suggest that their strategies of representation on OSH were best understood not as failures of cooperation but rather as successful expressions of organised resistance to the experience of unsafe and unhealthy work, occurring in labour relations contexts in which corporate values promoting production and profit were perceived by mine workers to be prioritised by the mine ownership at the expense of their safety, health and well-being.

2.6   Conclusions

This chapter provides a review of the key elements of previous research to help situate the present study in relation to what is already known concerning worker representation and consultation on OSH and the determinants of its practice. Its aim was to provide the background to the empirical analysis of the data on these arrangements and their practice in coal mines in five countries, which is presented in some detail in Volume 2 of this report.

Before undertaking the review, the chapter outlined the contexts in which worker representation on OSH takes place in mining and briefly described the nature and organisation of work and employment within the sector globally, as well as the hazards and risks to which miners are exposed in the course of their work and the way in which the responsibilities for managing these hazards and risks are regulated.

Turning to the main focus of the chapter, several common themes emerge from its review of research concerning the operation of requirements for worker representation and consultation on OSH and the contexts in which this occurs. Importantly, the research demonstrates that, provided certain preconditions prevail, worker representation and consultation on OSH is effective in contributing to both leading and trailing indicators of improvement in terms of OSH outcomes. This holds across most of the sectors and countries that have been studied, including mining.

The research shows that the preconditions that are most critical in supporting the effective operation of worker representation and consultation include a strong regulatory steer, management commitment to participative arrangements for safety and health, the support of organised labour, and sufficient training and information to enable competent committed representatives to undertake the functions provided by regulation. But findings also suggest that these preconditions for the effectiveness of worker representation and consultation on OSH are frequently not present in their entirety, and sometimes not at all, in the workplaces to which regulatory requirements supporting representation and consultation on OSH apply. Moreover, recent findings further indicate that changes in the structure and organisation of work and employment have contributed to their continuing erosion in many sectors and countries.

If, as some of the contextual literature seems to suggest, current trends in the organisation of work and employment are moving towards more unitary models of managing human resources, and the same processes are extending to styles of management in relation to OSH, it gives rise to a number of questions concerning the implication for the role of representation on OSH. The regulatory requirements in most countries were (and still are) based on pluralist assumptions about their operation, including those concerning the nature of the labour relations processes that underpin its effectiveness. This applies as much to the situation in mining as it does in any other sector— and arguably more so, if the conflictual nature of labour relations is taken into account, and the longevity of the requirements on the representation of workers' interests on safety and health in the industry are borne in mind. Indeed, the operation of these approaches in mining is possibly a litmus test for different ways of framing and understanding what works in relation to participative approaches to safety and health in workplaces more generally. For, as the research

on this subject already undertaken in the sector in Australia points out, the pluralist and historical model on which regulatory requirements are based is still successfully representing the OSH interests of miners despite the corporate efforts of the mine operators to introduce more unitary approaches. It is therefore important to understand what are the preconditions that help determine the effectiveness of this approach, as well as to explore their existence in other national settings in which mining occurs, if conclusions concerning both transfer and sustainability of effective operational practices are to be addressed.

3. Historical and global considerations

3.1 Introduction

In the Introduction to this report we pointed out that the origins of statutory intervention on worker representation on safety and health in coal mines were the consequence of actions of the trade unions that represented the collective interests of coal miners. Such 'ownership' of rights to representation on matters of safety were central to the organised miners' political struggles in the UK during the 19th century, and by the second half of that century demands that they be given the right to select their own representatives to inspect safety arrangements in coal mines featured in UK Parliamentary debates over new mining statutes.

The earliest recorded legislative provisions to achieve this found their way onto the statute book in the Coal Mines Regulation Act 1872. Similar developments subsequently took place in other industrialising countries and it seems improbable they did so purely by co-incidence. They were more likely the result of cross-national communication between miners' organisations, with such actions 'globalised' through similar forms of communication undertaken by politicians, regulators and members of committees of inquiry into the reform of working conditions in coal mines. A further influence in this process may have also been the effects of economic migration. As miners themselves migrated to different parts of the world in search of work and economic survival, they would have been drawn to work where their skills were required and, once settled, they would also have been likely to become engaged with the collective concerns that were inherent in such work, while bringing with them experiences of how such matters were addressed in the mines where they had worked previously.

Therefore, it is clear that the origins of rights to representation and consultation on safety and health and their spread to other places was the consequence of the mobilisation of the collective interests of miners themselves. Yet in the literature and discourse around worker participation on safety and health we find little mention of this important history. A central theoretical proposition we wish to explore in the present research is that these historical developments are important considerations to bear in mind when trying to understand the contexts and determinants of approaches to the operation of the present-day versions of these measures in a range of different national situations and in an industry that is both global and, in large part, globalised.[8] Times have obviously changed, but it does not necessarily follow that miners feel any less need to have some say about the conditions under which they labour than they did in the 19th century. Nor does it mean that the relations of production that led to their original demands have altered fundamentally since those demands were first addressed by statutory reforms in the 19th century, even if the conditions of safety and health have improved in mining since those times.

What is less clear from historical accounts is any detailed picture of what constituted the extent of a corporate approach to safety among mine owners, how it evolved and

---

[8] They are of course equally important to bear in mind in the wider discourse on worker representation and consultation on OSH more generally. We reflect on this in the Conclusions to this report.

how much it was shared between mines, regions and countries. History is replete with accounts of legislative and technological developments to improve safety in mining (see for example Bryan, 1975; Mills, 2010), but the extent of corporate and managerial strategies in which these requirements and tools were implemented as part of the overall approach to managing safety has been less documented or subject to critical analysis. Nowadays this is not the case and, as the previous chapter outlined, one of the globalised features of mining is the strong presence of a more or less common corporate lexicon detailing safety management strategy, in different branches of mining, under different forms of ownership and in mining activities in very different national regulatory and economic contexts. As we have already suggested, this approach is framed with a unitary conceptualisation of safety culture, attitudes and behaviour, congruent with corporate organisational priorities and management prerogatives.

Several elements of the corporate approach acknowledge the need for 'participation', 'engagement' and 'buy-in' from what it refers to as 'our people' – which includes mine workers. But the meanings of these terms and the way they are used by corporate executives and managers with safety responsibilities are quite different from those employed by both statutory provisions and organised labour to describe *representative participation* in safety and health in mines. We think these distinctions are important and have implications for the practices we wish to explore in the fieldwork we have undertaken in the countries represented in this research. We further postulate that this background may help to explain support, or otherwise, for the implementation and operation of the statutory requirements on these matters. Understanding the historical background is therefore central to the present investigation and providing an account of the historical origins, development, spread and adaptations of these requirements is a key aim of the present chapter. It examines the extent to which that the statutory provisions on worker representation and consultation on OSH that are currently in force in the advanced market economies we have studied embody the legacy of these origins. It considers how these measures were adopted and adapted in the countries that feature in the present research and at the same time gained some global salience. It starts with the case of the UK and describes examples of further development in other European countries, North America and in Australia/New Zealand, before considering evidence of the influence of these developments on the other countries included in the present study, such as India, Indonesia and South Africa.

3.2   The origins and operation of statutory arrangements for the representation of coal miners on health and safety in the UK

We begin with the UK because, although in the present research we have not examined current practices on worker representation and consultation in what remains of the coal industry in the UK, historically it was in the vanguard of statutory provision in this area. During the more than one hundred years when the UK provisions on worker representation on safety and health in coal mining were in force, organised miners were among the most powerful and politicised trade unions in the history of labour relations in the UK. Their influence on how the measures came about, their content and how they were used may therefore be both influential and instructive in relation to practices elsewhere, including in the countries we have studied.

The UK Coal Mines Regulation Act 1872 was the first statutory instrument with requirements entitling workers to representation on health and safety. Section 51 of the Act stated that persons employed in a mine may appoint, at their own cost, two of their number to inspect every part of the mine, at least every month; that they should be afforded the facilities for doing so; and have a report of the results of their inspection recorded in a book kept at the mine. It was the consequence of public concern, articulated especially by representatives of miners' unions and the Members of Parliament they sponsored, about the number of serious, multiple fatality incidents that continued to occur in coal mines despite previous legislative intervention, along with frustration with the perceived failings of state regulatory inspection (originally introduced in 1842) to prevent the reoccurrence of such disasters. These measures were revised by the Coal Mines Regulation Act of 1887, which followed one of the many Royal Commissions on Accidents in Mines that reported during this period, and modified the wording of the previous Act to allow miners to appoint their inspectors from among those not necessarily employed in the mine they inspected. Following yet another Royal Commission inquiry between 1905 and 1911, the Coal Mines Act 1911 was a consolidating and amending statute, superseding most previous legislation. On workmen's inspectors, section 16 of the Act extended their rights to allow the investigation of accidents, in the course of which they could receive support from a legal adviser or mining engineer. These provisions remained the basis of the miners' rights to representation for the next forty or more years, until they were revised and replaced by those of the Mines and Quarries Act 1954.

At the time the statutory provisions were first enacted, miners and their unions were beginning to command some political power as both increased coal production and the growing numbers of workers involved in mining enhanced the role of their representation in the economy. Local miners' unions increasingly federated into regional organisations, while at the national level the Miners' Federation of Great Britain also grew in prominence. They played an increasing role in local politics and the institutions of mining communities, and the election of miners' leaders and spokespersons to Parliament helped to greatly raise their profile in campaigns for regulatory reform. But enacting the statutory reforms they achieved in practice was another matter and questions concerning their effectiveness remain. While there is little by way of robust historical research, such accounts that exist suggest that there were limitations to the ways in which miners could use the provisions supporting the appointment of workmen's inspectors effectively in practice. To begin with, they were required to fund the appointment of their inspectors, something that few local organisations could afford. John Williams, writing about these developments some decades later, quotes the words of a miner from South Wales — one of the more active regions for workers' inspections — from a source published in the 1930s:[9]

> *… we send Workmen's Examiners down occasionally, but our financial position is such that we cannot afford to keep this up.*
> *Williams, 1960:162*

In addition, the provisions effectively barred miners from using qualified persons to help them to inspect the mines and understand the legal and technical requirements

---

[9] The quote had originally appeared in Hutt, A. (1933), The Condition of the Working Class in Britain, London, Martine Lawrence Ltd, page 24.

of good safety practices. Given the very low levels of literacy and numeracy among the mass of uneducated miners in the second half of the 19th century, appointing miners with the necessary competencies to undertake these tasks effectively would have been quite challenging. But more than anything else, the well-documented harsh employment conditions and poor job security experienced by miners during these times, coupled with the way in which work was organised and productivity rewarded, would have seriously limited the ability of mine level workers' organisations to effectively represent the collective interests of miners in safety and health.

Nevertheless, the 1911 Coal Mines Act went some way to develop the details on the rights to the appointment of workmen's inspectors, as outlined above. They were entitled to inspect the mine at least once a month, to have access to any part of it, to examine statutory safety documentation and to investigate the causes of accidents. While again there is hardly any mention of the pressures or processes that led to these developments in the 1911 Act, and little robust analysis concerning their subsequent effectiveness, observers increasingly noted their positive effects in subsequent decades. Indeed, their activities caused the 1938 Royal Commission on Safety in Mines to comment:

> *… it was the opinion of the Mines Department that safety can be promoted by the workmen and their representatives taking an active part in matters of safety through the medium of these inspections and suggested as an important matter for our consideration, the question of how such inspections can be made more general and still more effective.*
> *Royal Commission on Safety in Mines, 1938:140*

The Royal Commission was itself in little doubt of the value of such inspection and the need for its promotion:

> *All the evidence we heard supported the view that periodic inspection of a mine by representatives of the workmen is a desirable safeguard, which ought to be encouraged in every way …*
> *Royal Commission on Safety in Mines, 1938:142*

In his seminal account of the early history of regulatory provisions on worker representation on health and safety, John Williams (1960[10]) also notes frequent comments of the Chief Inspector of Mines in Annual Reports from 1932 onwards. The Chief Inspector regularly reflected favourably on their role, claiming their inspections 'served a useful purpose' (1939:6). For example, Williams quotes the Chief Inspector writing with approval of the inspections undertaken by workmen's inspectors in 1947:

---

[10] In a comprehensive and lengthy account, Williams (1960) presents the history of the arrangements for health and safety at work in the UK in the first half of the 20th century, providing a wealth of detail on the policies and campaigns that led to them. His book is a particularly rich source of detail concerning the early history of policy on the support of workplace safety organization.

> *All these inspections….made by workmen's examiners are welcomed by
> and are of considerable value to the Inspectors of Mines and managers
> for not infrequently they bring to light defects which might otherwise have
> remained undetected and unremedied and which might well have
> seriously affected the safety of the mine.*
> *Annual Report of HM Chief Inspector of Mines, 1947:5*

Such expression of approval and support for the activities of workers' health and safety inspectors appointed under section 16 of the Coal Mines Act 1911 continued to appear regularly in the Annual Reports of the Chief Inspector in subsequent years.

The early part of the 20th century also saw parallel legislative attempts to create institutions for joint consultation on safety and health in mining. The Mining Industry Act 1920 contained provision for the establishment of pit committees, area boards and a National Board consisting of joint committees of owners and workers to deal with matters of safety, health and welfare and certain other matters in coal mines. Such measures were, however, never implemented because the unions and coal owners failed to agree on their operation. A second attempt to create joint committees at collieries to discuss, amongst other matters, safety measures, was made with the Mining Industry Act 1926. This also failed. However, following the Report of the Royal Commission in 1938, Joint District Safety Boards were set up under voluntary arrangements in collective agreements between the miners' unions and the coal owners. Under this scheme mine owners and the unions agreed to share the cost of a number of compulsory inspections on behalf of workmen carried out through the appointment of a full- or part-time Safety Board Inspector for each district. Such Inspectors could be mining engineers, but they needed to have had at least 10 years' experience in coal mining. They were chosen by the union and their appointment approved by the District Safety Board. The Safety Board Inspectors were to be accompanied on their visits to mines by a local Workmen's Inspector chosen by the union branch at the mine. These measures were in addition to the rights of the workmen to carry out inspections under section 16 of the Coal Mines Act 1911.

Like the presence of the workmen's inspectors, the coverage of these arrangements was somewhat patchy across the industry as a whole. Williams gives estimates of workmen's inspectors appointed under section 16 covering about 30 per cent of coal mines and compares this with estimates of inspection as a result of the activities of the District Boards in about 50 per cent of mines. He argues that the main reason for the incomplete coverage was employer hostility towards them (Williams, 1960:154), but acknowledges that a further reason was the cost of such arrangements for the trade unions involved. Safety Board Inspectors made their reports in a special book, similar to a deputy's pre-shift report, but there was no provision for sending a copy to H.M. District Inspector.

The 1938 Royal Commission had made a variety of recommendations in support of the system for Workmen's Inspectors and had been instrumental in the development of the voluntary approach to joint safety committees and more qualified inspection through the creation of District Safety Boards. There was obvious overlap between these systems and moves towards greater consolidation were anticipated. However, war and the subsequent nationalisation of British coal mining meant that it was over

a decade before the Mines and Quarries Act 1954 introduced some further modifications to the provisions for representation on health and safety. An attempt was made to bring together features of the two systems of statutory workmen's inspectors and voluntary District Safety Boards. Under section 123, it provided that a panel of persons with at least 5 years' experience be appointed by the miners' union for each mine or quarry and it obliged employers to allow two members of this panel to inspect mines at least once a month. Not all the members of the panel needed to be employed at the mine covered, although when two were inspecting a mine one needed to be employed there. They were also allowed to be accompanied by 'advisers' and to inspect documents, take samples of air, dust or water from the mine, be informed of plans for future work and, in a further development of the previous provisions, they were entitled to investigate accidents. Like the arrangements under the 1911 Act, there was provision for inspections to be recorded in a book provided for this purpose.[11] The full- or part-time Inspectors had to be qualified Mining Engineers and their appointment was the prerogative of the union. Subsequently, the main responsibility for the payment for the Inspectors was taken over by the union, although a small amount was still obtained from the National Coal Board for this purpose.

Thus, the consolidating effects of the 1954 Act created a dual level system for worker representation on health and safety in British coal mines, not unlike the one we would investigate in Australia some sixty years later. However, during the more than fifty years of its existence, there does not seem to have been any robust evaluation of its role and effectiveness, and with the closure of the collieries that were obliged to record them, most of the records of the operation of this system disappeared.

After 1954, published commentary on the effectiveness of the provisions is again limited to expert opinion, but there is a continuation of positive reports. From 1955 onwards the Chief Inspector's Annual Reports continued to acknowledge the usefulness of the inspections by workmen's inspectors, summarising the information to be found in each of the reports of the district mines inspectors, and calculating the overall number of inspections by workmen's inspectors that had taken place each year, as well as sometimes including information on the number of inspections by (trade union) appointees of the District Boards. The reports of mines inspectors at district level provide further information, with variable degrees of detail, on the activities of the workmen's inspectors. Although there is little consistency year on year as to what is included beyond recording the number of inspections, within the same districts the reports reflect the different kinds of inspections undertaken by workmen's inspectors as well as the proportions that led to follow-up by the state mines inspectors.

The National Union of Mineworkers (NUM) by this time was a relatively well-resourced and prominent element of the British trade union movement. It had been created from the former Miners' Federation of Great Britain (MFGB) in 1945 at the time of the nationalisation of the UK industry. Prior to this, although they were mostly members of the MFGB, miners' trade unions retained largely separate regional

---

[11] This suggests it may have been theoretically possible to do as we did in Queensland and examine these records to explore the role and effectiveness of such inspections.

identities — and organisations such as the such as the South Wales Miners' Federation, the Durham Miners Association, the Nottinghamshire Miners Association and so on, represented miners in dealings with local mine owners. While labour relations procedures changed with the creation of the National Coal Board, these regional miners' organisations nevertheless retained a lot of their separate identities. In relation to safety and health, for example, many had their own well-staffed Safety Departments. We have not been able to investigate their activities in detail in the present research, but just to give one example, the archives of the South Wales Miners' Federation[12] provide information in the reports of these Safety Departments to the Annual Conference, which give detailed accounts of their activities in relation to safety and health in the mines of the Area. These include lengthy discussion of their role in monitoring the occurrence of serious and potentially fatal risks in the mines, including water ingress, inspection of roof supports, firedamp, and ventilation issues, as well as further detailed discussion of actions taken in relation to respiratory disease and its prevention, including details of measurements of dust concentrations in the mines. They also contain information on the activities of workmen's inspectors within the mines, based on reports the Safety Department had received from the various Miners' Lodges in the area.

The section 123 provisions remained in force after the demise of the British coal industry following the mines closures and privatisations of the 1980s and 1990s, although it is far from clear how much they continued to be used in the privatised remnants of the industry. The aggressively anti-trade union policies pursued in the privatised coal mines in the UK from the late 1980s (see, for example, the account by Parry et al, 1997) would suggest their use is likely to have been minimal and, as Wallis's (2000) account makes clear, many miners themselves felt that their role and the protection offered for safety was substantially reduced. Ironically, during the last decade there were some signs that a poor safety record and a spate of fatal incidents in British coal mines may have led to a brief resurgence of employer and inspectorate interest in the supporting role of workmen's inspectors in UK mines (Hazards, 2011). However, the parallel pursuit of reducing regulation on OSH more widely, coupled with the further decline in the industry, meant that the future of the section 123 provisions was parlous.

Despite trade union opposition, these measures were eventually lost altogether when the Mines Regulations 2014 were introduced. The Regulations essentially merged the formerly separate provisions for workmen's inspectors in coal mines with the more general provisions for worker representation on health and safety that apply in other sectors — the Safety Representatives and Safety Committees Regulations 1977 and the Health and Safety (Consultation with Employees) Regulations 1996. The only remnant of the formerly enhanced rights of miners' representatives found in section 123 is in Regulation 18, which gives trade union safety representatives the right to make a written report to the mine operator if two or more of them consider there is imminent risk of serious injury or death, and they may provide a copy of the report to the regulator.

This account of the British antecedents of statutory arrangements for worker representation on safety and health is significant in several respects. First, this

---

[12] Held in the Miners' Library at Swansea University.

account of these provisions is important because of their very early introduction, over a century before anything similar was applied in other sectors. Second, it suggests that such arrangements were held to make an important contribution to improved health and safety practice by many who observed their operation, and not only by the miners' unions. Third, the form taken by these measures differed from, and was more powerful in several important respects than, those that followed and applied more widely in other sectors as a result of the Health and Safety at Work Act in the 1970s. In particular, they provided for workmen's inspectors at both mine and district levels and they granted them substantial powers of intervention in mine safety matters, as well as making provision for records of their actions to be kept. Fourth, these measures probably were a significant influence in determining the nature of measures elsewhere. And fifth and finally, the account is important because it demonstrates how, as a result of the demise of the industry and the pursuit of its deregulation by an unsympathetic state administration, eventually such enhanced rights for workers' representatives were removed from the UK Statute Book.

In the following subsection we turn to the situation in Australia and New Zealand, where we see some parallels with the UK, but also some interesting further development of the rights of representatives. Australia is of course of particular significance because it is a country that still mines coal extensively and is one of the world's largest exporters of the product. But also because, unlike the historical influences of the British experience, that of workers' representation and consultation on safety and health in Australia is both current and, therefore, of special interest to trade union strategists concerned with spreading successful systems for representation and consultation on safety and health globally.

3.3   Statutory arrangements for the representation of coal miners on health and safety in Australia and New Zealand

Australia is a federal country and the federal government does not have legislative power to regulate safety and health. The individual states have full legislative powers for matters not covered by federal legislation, which means the legislative history of worker representation on safety and health in coal mines is found at state level. There are two states, New South Wales (NSW) and Queensland, in which coal mining is a prominent part of the economy both currently and historically. Our account focuses on these. There is a more substantial record of historical commentary on the role of workmen's inspectors in the coal mines of both these states than is to be found on public record in the UK. Research shows that in Australia, independent of union and regulatory inspectorate records, the activities of the two types of worker representatives on health and safety in mining — district and mine check inspectors, as they were (and still are largely) known — were also extensively reported in the local and regional press. At the time of undertaking the research on which this study is based, it was possible to identify well over 16,000 newspaper reports referring to 'mine check inspectors' in the digitalised newspaper collection held by the National Library of Australia covering the period 1871 to 1995. They cover elections of district and mine check inspectors; often provide detailed summaries of their inspection reports, thus, documenting their involvement in health and safety issues, including injuries, deaths, disasters and rescue operations; refer to annual reports of safety activities to the union; and also outline their prominence in local community activities. Newspapers in mining regions, and especially coal mining

regions (such as the Newcastle Herald, Maitland Mercury, Illawarra Mercury and Queenslander, Queensland Times) carried frequent reports of their activities. Check inspectors also feature in the reports of major metropolitan newspapers (like the Courier Mail and Sydney Morning Herald), with regard to local activities, but more typically with regard to serious safety incidents, health concerns (for example relating to coal dust), and reforms to mine safety legislation.[13]

In NSW the introduction of laws providing for workmen's inspectors (check inspectors) in mines was almost contempraneous with developments in the UK. Agitation for these measures began in the Hunter Valley where coal had been mined since 1791. In December 1871 a meeting of all colliery delegates at Lambton, near Newcastle, demanded that the Coal Fields Regulation Bill, then before parliament, include provisions for miners 'to appoint, and if need be pay for a check inspector of coal mines' (Newcastle Chronicle, 23 December 1871:6). The legislation was delayed and over the next four years Hunter Valley coal miners agitated for provisions to recognise check inspectors. In late 1873 they held a series of meetings with colliery owners to resolve key provisions (Newcastle Chronicle, 16 December 1873:3). The miners' demands included that each mine have two check inspectors empowered to inspect the mine on a monthly basis (see for example Miners Advocate, 9 June 1875:2) and they succeeded in achieving this in the Coal Fields Regulation Act 1876 (39 Victoria No.31 May 1876). Section 30 of that Act provided that:

> *The persons employed in a mine may at their own cost appoint two of their number to inspect the mine and the persons so appointed shall be allowed once at least in every month to go to every part thereof ….. and the owner agent and manager (who may if they think fit accompany them) and all persons in the mine shall afford every facility for the purpose of such inspection and the persons so appointed shall make a true report of the result of such inspection and such report shall be recorded in a book to be kept at the mine for the purpose and shall be signed by the persons reporting.*

In other words, these provisions were almost identical to those found in the UK Coal Mining Regulations Act 1872. The legislation applied to all NSW coal mines, and within months of the passage of the legislation, detailed reports of check inspectors' activities at particular collieries in Wallsend, Lambton and Borehole appeared in the press. Activity appears to have been limited outside the Hunter Valley coalfields. In 1887, 81 men and boys died in an explosion at the Bulli Colliery south of Sydney – the second worst coal mine disaster in Australian history. This was followed by a disaster in 1889 at the Glebe Pit at Hamilton in the Hunter where 11 miners died following a roof collapse due to weak pillars. This led to a union push for more stringent coal mine safety legislation, including stronger provisions for check inspectors. However, coal owners were able resist and delay pressure for reform, especially after the Australian colonies (apart from Western Australia) entered a severe depression in the early 1890s. It was not until September 1896 that there was

---

[13] The number of reports is continuously growing as further newspapers are digitalised and added to the collection. The collection also makes reference to other records, including photographs, memoirs, biographies and check inspector reports.

a new Coal Mines Regulation Act (60 Victoria No.12), this time with provisions very similar to those found in the UK Coal Mines Regulation Act of 1887. Like the UK Act, the NSW Act extended previous legislation by stressing that, while qualified mining engineers were barred from being workmen's inspectors, these inspectors should nevertheless have practical mining knowledge. The scope of their inspections and facilitation of their activities were also more detailed and there was a further requirement that records of their reports in the mines record book should be copied and sent to the district mines inspector. The inadequacy of the 1896 legislation, however, was soon made manifest. In December 1896 nine miners died after being overcome by gas at the Stockton Colliery in the Hunter Valley. Less than two years later a further 15 died following an explosion at the Dudley Colliery in the Hunter Valley in 1898, and in 1902 an explosion at the Mount Kembla colliery killed 96 men and boys – the worst disaster in Australian coal mining history. Again, the union renewed its push both for more stringent legislation and increased powers of check inspectors, and again its efforts were largely stymied by politically powerful coal mining interests. In 1910, regulations made under the NSW Mines Inspection Act were amended to gives metalliferous miners the same rights to appoint check inspectors as found under the 1896 Coal Mines Regulation Act, while the 1912 Coal Mines Regulation Act confined itself to reproducing the provisions of the 1896 Act.

Following a disastrous explosion at the Bellbird colliery in September 1923 that killed 21 miners, the Coal Mines Regulation Act was amended in 1926, including specific reference to 'check inspectors' and giving them rights to investigate serious incidents (section 36(2)), involvement in sanitation (Rule 43), certification of eyesight of shot-firers, and the right to see inspector's reports (section 28). Another indication of the importance of the position was its inclusion in the key definitions section of the legislation. In April 1941 the Coal Mines Regulation Act (No. 16 of 1941) underwent further significant amendments including provisions further strengthening the role of check inspectors. Importantly, this legislation made specific reference to district check inspectors. Under amended Rule 35(z)(ii) it provided that:

> In the case of any mine in which two persons have not been appointed in accordance with the foregoing provisions of this general rule and a majority of the employees at which mine are entitled to vote generally in the election of the person holding the office of district check inspector, the person holding such office shall have the same rights and obligations as a check inspector appointed under the provisions of this general rule.

By 1982, the Coal Mines Regulation Act contained a separate division relating to check inspectors (sections 71-84), dealing with their powers to undertake inspections on behalf of workers, their election, the assistance to be provided to them, their reports and the reporting of dangers. Sections 77-79 dealt with the election and powers of district check inspectors, including their capacity to act as a mine check inspector, while sections 80-84 dealt with a new position of electrical check inspector (a qualified electrician and member of the then Electrical Trades Union) – the latter in no small part a response to the 1979 Appin mine disaster where 14 miners died in an explosion/fire widely attributed to an electrical fault (failure to properly seal a fuse box).

In early Queensland mine safety legislation there was no separate legislation for coal mines, with both coal and metalliferous mining being covered under a single statute, principally the 1910 Mines Regulation Act (1 Geo V 24). Like earlier NSW laws, this Act empowered miners to elect persons to carry out inspections on their behalf; to view the mine's record book (section 9(4)); to inspect the scene of accidents (section 28(2); to be notified by the mining warden of any inquiry into fatal accidents at the mine (section 31(2)); as well as to be notified of any special rules and lodge objections to them (sub-sections 51(2), (3) and (5)).

Following a disastrous explosion at the Mount Mulligan coal mine in North Queensland in 1921 where 75 miners died, separate coal mine safety legislation was introduced in 1925 which, while amended, remained in force until the substantial overhaul of coal mining safety legislation in 1999 (in the aftermath of the 1994 Moura mine disaster). On the representation of workers' interests in safety and health, the provisions of the 1925 Act were similar to the 1910 Act and provided for the appointment of miners' inspectors from among the workers in a coal mine. Significantly, they had the power under section 70(6) to suspend all operations in any dangerous place until such place had been certified by an inspector to be safe.

The Act was amended in 1938 to insert a new section 70a which empowered the union (at this point known as the Queensland Colliery Employees Union) to appoint, after a ballot of the members, three district union inspectors, each holding a deputy's ticket. These union inspectors were to have the powers, privileges, duties and remuneration of miners' officers and extended to all Queensland mines. The section also provided the Minister with the power to terminate any district union inspector's appointment if he was deemed to be not carrying out his duties in a satisfactory manner.

There is abundant historical evidence attesting to the importance of the check inspectors' role and the wide acceptance of this within the mining community in newspaper records in Australia. Several further illustrative examples are worth citing. First, in November 1921 the Queensland Times reported that the half yearly report of the trade union check inspector commented on ventilation trends based on 62 inspections of mines in the district. While describing conditions as generally satisfactory, the check inspector noted that bad conditions in one mine had been reported to the inspectorate and remedial actions had been taken, although conditions would remain hazardous until a new ventilation shaft was completed (Queensland Times, 10 November 1921). Second, with regard to the Bellbird colliery disaster in the Hunter Valley in 1923, newspapers commented that a check inspector's report had warned of dangerous levels of coal dust prior to the explosion and also that check inspectors had played an active role in the rescue and recovery efforts, the coronial inquest, and joint meetings with management and government inspectors to consider re-opening the mine (Maitland Mercury, 23 September 1923; Sydney Morning Herald, 1 May 1924). Third, newspapers also covered how union check inspectors were involved jointly with government safety inspectors in assessing the safety of re-timbering activities in the affected area following a gas outburst that killed seven miners at the Collinsville State Coal in Queensland in 1954 (Courier Mail, 19 October 1954).

In short, therefore, contemporary documentary evidence in both Australian states indicates that check inspectors were elected from the most experienced and knowledgeable miners, and this was especially so with regard to the district check inspectors (a number of appointees had, for example, held the position of union branch president). The progressive strengthening of their statutory recognition and powers over time (and particularly following serious deficiencies identified in the wake of mine disasters) was an indication of growing acceptance of the importance of their role. In addition to the activities already mentioned, on occasion check inspectors were at the forefront of calls for investigation of incidents or conditions at particular mines, as well as reviews of legislative provisions (including, for example, those relating to preventing disease in mines). Given their inspection activities and knowledge, they were also well-placed to identify gaps in regulation or to support calls for more wide-ranging reviews of mine safety (such as in relation to the Royal Commissions to which there are records of their evidence — see for example, Sydney Morning Herald, 14 September 1923). It was also not unusual for check inspectors and government inspectors to conduct joint inspections following a serious incident, including assessing hazards or in deciding rescue/recovery efforts.

In New Zealand miners were given powers to appoint workmen inspectors by the 1886 Coal Mines Act (50 Vic No.31) which followed the Kaitangata disaster in 1879 when 34 miners died in a methane explosion. They empowered miners to appoint representatives to inspect mines, again with provisions very similar to those in the British and Australian legislation that preceded them.

The New Zealand Coal Mines Act 1979 provided for a workmen's national inspector. However, when the Health and Safety Employment Act was introduced in 1992, all mine safety laws (and a separate mines inspectorate) were incorporated under the new Act which applied to all sectors. The workmen's inspector provisions were not carried over to the new regulatory framework, notwithstanding strong representations for their continuation from the union.

In a review of mine safety conducted in 2006-2009, the issue of worker involvement mechanisms was considered and proposals to adopt check inspectors attracted strong support in submissions principally from unions and workers' groups. However, the New Zealand Department of Labour did not recommend pursuing this option, preferring to develop guidance material to enhance employee involvement in small mines instead. This was still incomplete at the time of the explosion at the Pike River coal mine in November 2010 in which 29 miners died. A Royal Commission was appointed to investigate the causes of the disaster and make recommendations about improving mine safety. Its assessment of the underlying causes of the Pike River disaster pointed to an inadequate regulatory regime, manifest failings in mine management and the exclusion of workers from any real input into safety at the mine. Based on the Royal Commission's (2012) scathing criticism and recommendations, the New Zealand government undertook a major overhaul of mine safety regulation, and in 2013 New Zealand introduced new mine safety laws modelled on the Queensland and NSW laws and including provisions for both district and mine-site worker safety representatives with powers similar to those held by their NSW and Queensland counterparts.

Summarising the Australian (principally the NSW and Queensland) and New Zealand experience, therefore, provisions to give workers the right to conduct their own inspections were initiated and strongly supported by unions from the 1870s onwards, almost contiguous with the UK. Second, they were in many respects identical to the British provisions, suggesting the existence of likely communication and influence. Third, and again like the case in the UK, the provisions were progressively strengthened over time, changes generally following disasters that highlighted manifest failings in mine safety, regulatory enforcement and the need for miners to have some say in safeguarding their own health, safety and well-being. And fourth, by the mid-20th century the laws included provision for both mine-site and district/national inspectors, a two-tier system that the historical records suggested acted successfully to support itself.

In NSW and Queensland activities of both kinds of check inspectors were regularly reported in newspapers, especially but not exclusively those in mining regions. They indicate that check inspectors conducted regular inspections, were involved in debates about safety conditions at particular mines or more generally, and were also involved in accident investigations, Royal Commissions/Warden's inquiries, as well as reviews of legislation. Their views and expertise were acknowledged in the community, by mine inspectors and, if sometimes begrudgingly, by the industry itself. The value of their role was reinforced and strengthened over time – surely an indication that their input was valuable to mine safety. It is also noteworthy that, while the position of workmen's inspectors was removed as part of process-based reforms to New Zealand OSH laws, it was reintroduced in the wake of the Pike River Mine Disaster where the importance of worker input and the best mechanisms for securing this were considered at length by both the Royal Commission and the bodies overseeing the development of new mine safety laws in the wake of the disaster.

3.4   Developments elsewhere

The British and Antipodean history of statutory reform on worker representation and consultation in mining led to statutory support for a model of representation in which a two-tier system, owned entirely by the miners' trade unions, allowed organised mine workers to develop an autonomous approach to representing their interests in safety and health in the mines in which they were employed. As such, it displayed features supporting the 'knowledge activism' that researchers came later to associate with effective representation and consultation in other sectors and countries (see for example, Hall et al 2006 and 2016; EU-OSHA, 2017). However, further historical investigation suggests that the particular model developed along the UK-Australian axis, although influential, was not the only approach to statutory intervention in relation to the role of miners in inspection, representation and consultation on mine safety. For example, in Belgium, where in the 19th and early 20th centuries there was a substantial coal industry, workmen's inspectors in coal mines also have a long legislative history. Provisions for their appointment are found in an Act of 11 April 1897 (Moniteur Belge, 26 and 27 April 1897). The Act was the eventual result of a Bill tabled in March 1895 by Alfred Defuisseaux, a member of the Chamber of Representatives, to establish posts of worker inspectors for the supervision of underground work in mines. Initial refusal of the Government to endorse the Bill led to a wave of disputes, strikes and social unrest, in the mining areas of Belgium. According to the account of the development of the legislation by

51

Petre (1968), public outcry following an explosion in a coal mine in Hainaut forced the Government to reconsider its position and produce its own Government Bill in 1896 to establish posts of worker mine inspection delegates. Following a debate in which it and the previous Bill were both discussed, the Government Bill was finally adopted by Royal Assent in April 1897.

Under this Act, and different to the contemporaneous arrangements in place in the UK and Australia, the workers' delegates were required to comply with the instructions of the Inspectors of Mines and notify them of any infringement of work regulations. They were authorised to make visits to mines to inspect them and were required to note their observations in a special register kept at the office of the mine. Initial trade union proposals that the delegates be directly elected by their workmates had been rejected in the debate that led to the Act. It provided, instead, a system under which they were appointed by the Government on the basis of proposals made by the coal sections of the Councils of Industry and Labour — joint bodies on which employers and workers sat in equal numbers. This arrangement was eventually changed in a revision to the Act in 1927, which finally gave mine workers' trade unions sole rights to recommend candidates for appointment as worker inspectors by the Government Minister concerned. The provisions of this and subsequent Acts to modify the original measure on workers' mine inspection delegates were consolidated by a Royal Order of 31 December 1958.

The legislation specified the qualifications and experience criteria required of the workers' delegates; they were under the direction and supervision of the Inspector of Mines and must comply with the latter's instructions. Their duties included inspection of the health and safety of underground work in coal mines, and of surface installations directly related to the operation of a mine; assisting in recording accidents and in investigating their causes; and notifying the Mines Administration of infringements of the labour laws and regulations that the Inspector of Mines was responsible for enforcing. They had rights to inspect plans and other information concerning the safety of the mine and managers were obliged to facilitate their access to such materials, as well as to the Inspector of Mines. If it appeared that a particular case of non-compliance with mine safety regulations was likely to cause imminent danger, the delegate was required to confer with the responsible manager or his representative, and the manager was obliged to give immediate effect to any measures they decided on, which remained compulsory until modified or suspended by the Inspector of Mines, an action that should occur within 24 hours of the delegate's having noted the danger. However, there appears to be no published research concerning the operation of any of these provisions in practice.

There are, therefore, several points in common between the Belgian provisions and those in the UK and Australia, including the appointment of workmen's inspectors, and the eventual role of trade unions in their selection, as well as the requirement to keep records of inspections, and powers to order, in consultation with the responsible manager, the suspension of dangerous work. However, institutionally the Belgian practice differed significantly in the extent to which the workers' delegates functioned as an extension of the regulatory mines inspectorate, under its direction and supervision, rather as workplace trade union representatives. Lack of documented evaluation, however, makes it difficult to determine whether this was reflected in their practice or simply an artifact of the institutional appearance of the

legislation. It is nevertheless an interesting indication of the different directions pursued in the thinking around the form that workers' representation should take. This indication is confirmed by documents in the South Wales Miners Library, which indicate that delegates to the meetings of the Miners' International Federation (MIF) regularly discussed questions of the representation of miners' interests in safety and questions of workmen's inspectors appeared on the agendas of these meetings. The MIF was established in 1890 at a meeting in Brussels. It had a mainly European membership, with affiliations of unions from Austria, Belgium, France, Germany and the UK, although this extended to unions in other countries in which there were European immigrants, including North America. In the early part of the 20th century it was one of largest of the international union federations. The details and influence of its activities in relation to worker representation on safety and health are beyond the remit of the present research, but it is clear from the reports of its meetings in the early years of the 20th century that there was some debate within its membership concerning the most appropriate form such arrangements should take, and a division based on national experiences between those who valued the trade union identity of the workmen's inspectors, such as was evident from contributions from the UK, and those that favoured closer connection of such inspectors to the mines regulatory inspectorate, such as in Belgium and Germany.[14] It seems likely that these early different perspectives would continue to influence differences in national developments in provisions, as well as at a global level, in future decades.

The early history of statutory provisions on worker representation on safety and health in the other countries featured in the present study is somewhat more obscure. In Canada, for example, participation of worker representatives in the prevention process was prescribed in legislation in British Columbia in 1911 in the Coal Mines Regulation Act,[15] although interviews we conducted with miners' trade union officials there in 2016 show that there was no memory of these powers in the contemporary labour movement. Rule 37 of the 1911 statute provided for the appointment of workmen's inspectors with wording very similar to that found in British and Australian legislation of the same period, except that it also suggested:

> if the miners in any mine fail to appoint two of their number to inspect the mine, the Chief Inspector shall select from the men, in alphabetical order where possible, two competent miners, who shall comply with the provisions of the section, and the said owner, agent or manager may withhold from the wages of the underground employees a sufficient sum pro rata to remunerate the persons making such examination.

These provisions appear to have remained in place unchanged until 1969, when the wording was modified, before being replaced completely in 1973 by new measures referring to health and safety committees. Subsequent modifications have been increasingly in line with those supporting worker representation and consultation in the 'internal responsibility system', introduced more widely in Canada following the recommendations for reform of the Ham Committee and utilising joint safety and

---

[14] These debates can be followed in the record of the congresses of the Miners' International Federation, which in the early years of the 20th century were held in various European cities. The source for the information included here was the Archive of the South Wales Miners' Federation, currently held at the Miners' Library at Swansea University.

[15] Coal Mines Regulation Act, 1911 King George V, 2nd session, 12th Parliament of British Columbia, c.33, s. 37.

health committees as the central institution of joint arrangements on OSH in Canadian workplaces. There are no provisions for regional or national level representation on safety and health such as identified in the British, Australian and New Zealand legislation. However, in line with the North American approach to labour relations more generally, modern Canadian provisions in relation to representation and consultation on matters of safety and health are made with reference to collective bargaining arrangements in place in the mines to which they apply, which have a significant status in the operation of labour relations in Canada, and in which more specific and legally supported provisions on the conduct of representation on safety and health matters may be agreed.

In India there are provisions for workmen's inspectors and joint health and safety committees found in Chapter IV B of the Mines Rules 1955, made under the Mines Act 1952, and which provide further detailed requirements for the operation of the mines covered by the Act. Superficially at least, the provisions on workmen's inspectors suggest some influence from the legacy of British colonial administration. However, in operation, as the account of these arrangements based on fieldwork in India in Volume 2 makes clear, the role of workmen's inspectors was quite different to that of their namesakes in the UK and elsewhere.

For mines with 500 or more workers, designation by the owner, in consultation with the recognised trade union or, if there is no union, with the elected representatives of workers, is required of three workmen's inspectors, one each for mining operations, electrical and mechanical installations. As is the case elsewhere, such individuals are required to be experienced, technically competent and in possession of an Overman's or Foreman's Certificate granted under the Act. In larger mines there is provision for assistant inspectors. The inspectors have the usual range of rights to inspect the mine and the equipment therein, in the company of an official of the mine, and to be provided with the facilities to do so. They are required to be informed of accidents and dangerous incidents (although do not seem to have rights to investigate them) and are forbidden from exercising their powers to impede or obstruct the workings of the mine. Unlike the provisions for representatives in Australia, they do not have rights to order the cessation of operations they consider to be too dangerous. But similar to elsewhere, they are required to record their inspections in a register to be kept at the mine for this purpose and the owner of the mine is required to record the actions taken in response. Where there are differences of opinion concerning this, matters must be referred to the regulatory inspectorate for a decision.

These provisions were additions to the Mines Rules 1955, which, as Kejriwal (2002:341-377) has described, emerged following recommendations made by the Conferences on Safety in Mines held periodically in India and regarded by the Directorate General for Safety in Mines (DGSM) and the Ministry as important institutions of tripartite discussion in the industry. Briefly, the first of these Conferences, held in 1958, called for co-operation between workmen, their representatives and management in ensuring effective compliance with safety measures and for the right of workmen to have mines inspected by their chosen representatives. It also called for the establishment of pit safety committees in all large coal mines.

Subsequent Conferences appear to have been silent on the development of these or further measures to represent mine workers' interests on OSH until 1980. Then the Fifth Conference made recommendations that the Mines Act be amended to give statutory backing for Pit Safety Committees and Workmen's Inspectors, who it further recommended should be ex-officio members of the Safety Committees to improve liaison between them. In 1986, the Sixth Safety Conference recommended that there should be suitable organisation for the training of Workmen's Inspectors and for members of the Pit Safety Committees.

The Eighth Safety Conference, held in 1993, specified that members of Safety Committees should be given training of one week in duration, according to a syllabus drawn up by the mining company to reflect local conditions and work practices. It recommended that training for existing Safety Committee members be completed within a year of the Conference and from there on all new members of Safety Committees receive a similar level of training within the first six months of their membership. The same Conference further recommended that provision should be made for senior trade union officials to attend meetings of Pit Safety Committees at least once a year to help review recommendations made during the year and their implementation, as well as to review the main features of the reports of Workmen's Inspectors. It also recommended the establishment of area level meetings for the same purpose. The Ninth Conference, held in 2000, reviewed the status of the implementation of recommendations of previous conferences and called for means to increase the effectiveness of workers' participation in safety management through the appointment of Workmen's Inspectors in all mines where a hundred or more workers were employed — including in privately owned and open-cast mines — and for the establishment of sectional or departmental safety committees to operate under the aegis of the main mine Safety Committee in large mines. It indicated that the period of membership on a safety committee should normally last for two years and that arrangements were required to train the trainers of the members of safety committees. Similar recommendations appear in the records of the 10th Safety Conference held in 2007. By the time of the 11th Conference in 2013, interest in the implementation of safety management systems appears to have replaced direct references to participative arrangements.

Unlike the British and Australian requirements therefore, there seem to be no requirements in the Indian legislation covering the role of district or regional workers' inspectors for health and safety. However, as noted above, extension of the safety committees that are specified in the legislation to area level was among the recommendations of the Eighth Safety Conference, and as the account of worker representation in Indian mines in Volume 2 describes, this seems to have taken place, at least in the region in which the fieldwork for this report was undertaken, where in addition to this there were also safety committees operating at subsidiary and national company levels. But beyond the summaries of the Safety Conference discussions published in the book on safety in mines by B.K. Kejriwal (2002), there does not seem to be any further substantial published account of how all these measures came about or what was the detailed role of organised labour in securing them. Their operation in practice, as analysed in Volume 2, suggests that whatever this role may have been in securing the arrangements, it has been relatively limited in their implementation in practice, leaving it to Coal India and its subsidiary companies to determine their nature and operation.

In South Africa, there were arrangements in place for representation and consultation in mines prior to the overthrow of the apartheid regime and the election of a democratic government, but they applied to white miners. Since this meant they only covered a small minority of the workforce in South African mines, they are not considered here. The development of rights to representation on health and safety for black mine workers in South Africa emerged from the struggle to remove the apartheid regime. As we detail in Volume 2, calls for statutory arrangements to appoint safety representatives in coal mines were among the first actions of the then recently formed National Union of Mineworkers, led by Cyril Ramaphosa. For example, following a disaster at Hlobane Colliery, in a press statement in September 1983, it announced its proposed 'bill of rights' for mine workers and the then nascent union drew attention to rights to refuse dangerous work and for miners to have their own health and safety representatives, and called for the implementation of both these demands (Allen, 2003:142). In so doing, it appeared to be drawing on international practice rather than calling for the extension of existing South African provisions.

These demands were eventually met in the Mines Health and Safety Act (MHSA) 1996, amid a range of legislative reforms introduced by a new democratic government led by Nelson Mandela. They were part of the framework for radical change in structures and procedures for the conduct not only of consultation on safety and health, but for labour relations in South African workplaces more generally. As such, the requirements for representation and consultation on safety and health were both typical of, and no doubt influenced by, wider reforms simultaneously applied in other sectors, which borrowed from ILO standards and legislation already in place in advanced market economies to create a framework of statutory support for new institutions and procedures for labour relations — including those on safety and health. Indeed, it will be recalled that South Africa is the only country in the present study that has ratified ILO Convention 176. At the same time, and as we explore in greater detail in Volume 2, the measures on worker representation on health and safety at work displayed some features that were suggestive of the influence of statutory arrangements in mining in other countries. These included, for example, rights in relation to refusing dangerous tasks and for the creation of a two-tier system of part-time section representatives for different sections of mines, supported by full-time health and safety representatives for the whole mine, with wider responsibilities and greater powers. Further support for this suggestion of influence on these measures is seen in the relations between the South African miners' unions at this time and the big national miners' unions in countries like the UK. For example, delegates from the South African NUM regularly addressed Annual Miners' Conferences in the UK and other advanced market economies in the lead-up to the overthrow of apartheid. During the time following this, when the reforms that eventually found their way into legislation were being crafted, officials from the British NUM were among those who visited South Africa and acted as advisers to the South African NUM and it seems likely that their engagement may have had some influence on the form and content of the new South African framework for representation and consultation of miners on matters of safety and health.

In contrast to the background of current provisions in these four countries (as well as others we have mentioned), in Indonesia, the fifth country included in the present

study, there is little evidence of any long-term history of demands for regulatory reform to allow representation and consultation of mine workers on safety and health in mines. Indeed, the history of any form of autonomous representation of workers on matters of labour relations is quite short. As we outline in Volume 2, the presence of free trade unions and arrangements for collective bargaining reappeared in the country only in 1998, following a lengthy period of authoritarian rule in which the post-independence trade union movement and a pluralist system of labour relations had been replaced by a system dominated by the state in which so called 'trade union and employer organisations' were essentially its agents (Ford, 2009). Enormous changes have therefore taken place over the last twenty years, both in the regulation of safety and health and in that of labour relations, in all industries, including coal mining. As we detail in Volume 2, amongst them have been the extension of fairly generic requirements concerning the representation and consultation of workers and their representatives on safety and health across the range of sectors in the formal economy, including mining. Law No 1, 1970 requires the establishment of health and safety committees in workplaces with 50 or more workers and companies are obliged to register the establishment of such committees with the Department of Manpower and Transmigration. However, ILO reports written in the years following democratisation indicated that many companies had not established such committees and, even when they had, according to these reports they often 'do not function properly' (Topobroto, 2002; Markannen, 2004). It is therefore debatable whether, in the case of mining, these provisions entirely meet the requirements of ILO Convention 176, which Indonesia has in any case not ratified.

It was not possible to trace the origins and development of these generic measures on representation and consultation or what were the influences upon them, as there appears to be no commentary available in English addressing these matters. As we discuss in greater detail in Volume 2, other researchers who have observed such reforms more generally, attribute them in large part to the consequence of efforts on the part of the state to meet the requirements of international trade and investment as much as, if not more than, the result of the demands of labour or other indigenous pressures. They are, as such, mainly the consequence of top-down concerns to regularise structures and procedures in the formal economy, while providing workers with some legal basis for decent work, including the right to representation and consultation. While Indonesian trade unions may be involved in consultations on these matters at national levels, their organisation is itself fraught with so many problems that it is not a particularly strong, unified or consistent presence within the economy, making it difficult to evaluate its role and effects (Ford and Sirait, 2016).

3.5   In short — the influence of history

We have devoted a considerable amount of space in this chapter to exploring the antecedents to present day regulatory requirements on worker representation and consultation on safety and health in mining. As we outlined in the Introduction, we have done so because we think these antecedents have a bearing on ways of understanding the drivers of current practice. Our historical accounts based on the origins of provisions in the UK and extending to developments in other European countries such as Belgium, as well as in Australia, Canada and New Zealand, indicated that in these countries, statutory measures currently in place were the result of political actions following the mobilisation of miners around concern about protection for their safety and health. They provide a strong indication that miners and their organisations were not prepared to leave these matters entirely in the hands of their employers, or indeed of the relevant regulatory inspectorate. They wanted their voice heard and their preferred way to achieve this was through statutory rights to their own representation of their interests in safety and health in their workplaces.

The systems for the appointment of workmen's inspectors by trade unions and their subsequent development show remarkable similarities between countries as far apart as the UK and Australia, but they also demonstrate the development of some differences of approach, such as those between the UK/Australian model and that favoured in continental European countries such as Belgium. Archive records further indicate how international communication between miners' unions was already well-established by the beginning of the 20th century and how the various versions of the approach to the representation of miners' interests in their safety and health were actively debated by miners' representatives at this level too. Whatever the preferred approach to the detailed means of representing the interests of miners in their safety and health in mines, emergent in all these accounts is a strong sense of the ownership of these matters by miners and their organisations. And in relation to the ways in which these issues are framed, it is clearly apparent that a pluralist approach has been deeply embedded in the historical development of ways of understanding safety and health in mining.

As the provisions have spread to other countries in more recent times, we also see further variations in their form and function, as well as in the drivers that have determined their adoption. During this period, for example, the influence of more current understandings of joint consultation on OSH that are in use in other sectors have clearly been felt in some countries — as is seen by the adoption of systems that centralise the role of joint safety and health committees such as in Canada, or even, as in the British case, the removal of the special arrangements for mining and the simultaneous extension of provisions on representation and consultation on OSH that apply generally to other sectors to the remnants of the UK mining industry. It is also seen in the wholesale reforms of labour relations, including those on OSH, which took place following the election of a democratic government in South Africa. Although in this case it appears that the architects of the legislative reforms may have borrowed not only from best practices in regulation in OSH and labour relations across a range of sectors and countries, but also from those more specific to mining.

However, it is also the case that among the examples of developing countries included in the study, the influence of practice elsewhere seems to have either been quite limited, as is the case in Indonesia, or as in India it has been subject to substantial adaptation as it passed through processes determining the content of Indian legislation. Although detailed evidence is limited, it is difficult to avoid the conclusion that these effects are the product of differences in the national contexts in which regulatory reforms are undertaken, as well as the varying influence and capacities of the actors involved, and the balance of power between them.

3.6   Conclusions

In this chapter we have presented a detailed account of some of the historical antecedents of present day statutory approaches to representation and consultation of miners on OSH in coal mines, establishing the presence of several important themes in the national and global development of these measures.

Several common themes emerge from this review of what is known concerning the origins and effects of the provisions on worker representation and consultation in mining in the several countries in which we have explored their histories. First, on their origins, it is striking that in many countries measures on representing workers' interests in OSH in coal mining predate those that apply more generally in employment. This may be in part a reflection of the acknowledged hazards of coal mining and especially of the propensity of the industry for single disastrous events. Public consciousness of such events may have encouraged legislators to intervene specifically and separately in relation to these matters in coal mining. It is also, of course, a consequence of the separate existence of wider regulatory provisions on health and safety in mining — separate from those dealing with health and safety in other sectors — and again this probably owes its existence to how dangerous the industry is perceived to be. But we further suggest that the longstanding and separate identity of these measures may also be a result of an earlier and greater mobilisation of miners and their trade unions around health and safety issues than was the case more generally. This would no doubt have been aided by an awareness among miners of the obviously serious risks of working underground, and supported by public dismay at the occurrence of high profile mining disasters. It may have also been brought about by the conflictual nature of industrial relations in coal mining creating a perception of the need for greater recourse to regulatory intervention when corporate power and hostility left miners and their unions unable to achieve their ends through collective bargaining. A further important factor here, of course, has been the collective strength of the miners' unions in the countries we have studied. In part, this was the result of the importance of the industry to the national economies in which it was most prominent and hence the power this allowed to organised labour both within the industry and the economy more generally. But it is further clear that mine safety has been one of the important organising principles around which miners have been able to build their collective strength.

At the same time, the solidarity and support for health and safety provided among mining communities helped reinforce and embed both the miners' demands and the individuals who voiced them within both the public consciousness and the institutions of these communities. In this respect, for example, widespread local reporting of the

activities of check inspectors exemplified in Australian mining communities is a significant testimony to the public awareness of the safety and health risks faced by workers contributing the economies of such communities. This economic dependence of families and the community more widely on the provision of this economic basis by the miners, and the precariousness of its continuity in the face of the dangers associated with work in mines, may therefore have added a further dimension to concern over safety and the importance of representing workers' interests. A measure of the value attributed by the mining communities to the role of such representation and those who played it, is found in the way that the individuals who assumed these responsibilities often became prominent in public office within mining communities. As we have seen, historical accounts show that, for example, in the UK, not only did miners' leaders become elected to Parliament on the basis of the role they could play in legislative reforms on safety, but also at more local levels, district officials with OSH responsibilities often assumed other public and political roles in the institutions of mining communities. Representation on safety matters was thus recognised in coal mining communities from its earliest days as an important public office.

In other words, the history of the development of measures on worker representation in mining provides testimony not only to their pluralist nature but also to the way in which awareness of miners' rights to a safe and healthy workplace was embedded in the public consciousness not only among organised miners while at work, but also in that of their communities. And this occurred centuries before senior executives in the global mining industry began to adopt positions concerning the need for 'zero harm' strategies and other such corporate jargon intended to convey commitment to supporting the delivery of safety systems. We suggest that an awareness of the longstanding nature of the mobilising effect on the collective consciousness of miners is important in gaining a proper understanding of the labour relations of safety and health in the industry and, therefore, an important element of the background to the empirical studies of present day practices that we will explore in different countries in the remainder of this report.

This said, the chapter also shows that in countries in which organised labour is weaker, or where principles governing its organisation may be different to those in the formerly industrialised countries we have studied, the role of the statutory provisions would appear to be either less developed, as in Indonesia, or subject to somewhat different influences on interpretation, such as in India.

4.   Global considerations

4.1   Introduction

The previous chapter explored the historical dimensions of measures on worker representation and consultation that are the central focus of this research. It did so from a perspective of national developments, beginning with their origins in the UK and tracing their spread, first in relation to the coal mining industry in the developed world and then to their presence in the less developed countries included in the present study. In this chapter we take a different perspective on the role of regulation in securing the representation and consultation of mine workers on arrangements for their safety and health by looking at it from a global rather than national perspective. Here our focus is first on the role of the ILO and in particular the development of the approach to representation and consultation of miners on safety and health that is embodied by the requirements of ILO Convention 176 on mining. Second, we look at the public/private regulatory mix that serves to operationalise the global norms such as those of ILO Convention 176 and in particular on the international activities of miners' organisations that have been significant in furthering their demands for more effective representation of miners' interests in safety and health in mines across the world. In so doing, the chapter offers some reflections on the role and effects of the global representative bodies to which miners' organisations are affiliated, in the promulgation, adoption and operation of requirements and systems for representative participation on safety and health across the range of national economies, labour relations and regulatory capacities represented by the countries included in the present study.

4.2   The development and role of global standards on worker representation in coal mines — ILO Convention 176

Not surprisingly, coal mining has been the subject of ILO Conventions on health and safety for some considerable time. A series of these Conventions addressed various aspects of the arrangements for health and safety in a traditionally piecemeal and prescriptive way, including the Underground Work (Women) Convention, 1935 (No. 45); the Hours of Work (Coal Mines) Convention (Revised), 1935 (No. 46); the Labour Inspection (Mining and Transport) Recommendation, 1947 (No. 82); the Minimum Age (Underground Work) Convention, 1965 (No. 123), and Recommendation (No. 124); and the Conditions of Employment of Young Persons (Underground Work) Recommendation, 1965 (No. 125).

Given the long history of provisions for worker representation on health and safety in national mining legislation and the important position afforded to a participative approach to OSH found in other arguably more 'modern' Conventions on health and safety,[16] it might be anticipated that arrangements for workers' rights to

---

[16] Such as the Occupational Safety and Health Convention, 1981 (No.155), the Promotional Framework for Occupational Safety and Health Convention, 2006 (No.187), also the Occupational Health Services Convention, 1985 (No.161), which focus on the structures and processes for managing OSH; as well in as the ILO approach to the management of health and safety risks generally (illustrated, for example, by its guidelines on occupational safety and health management systems – see ILO, 2009).

representation would be addressed in its Conventions on health and safety in such a hazardous industry as coal mining.

However, until the introduction of the Safety and Health in Mines Convention, 1995, such matters were left to the requirements of the more general Conventions on Occupational Health and Safety, such as the Occupational Safety and Health Convention, 1981 (No. 155), and Recommendation (No. 164), which also applies to coal mines. In addition, there were a number of ILO Codes of Practice concerning safety and health in mining, and safety and health had also been a concern to its Coal Mines Committee. In 1990 the ILO published a collection of the Committee's conclusions and resolutions (of which there are nearly 100) in a Coal Mine Workers' Charter,[17] considered by the ILO to represent a minimum international social code stemming from a process of consensus characterising the deliberations of the Committee. Again, however, none of these measures dealt directly with the form or content of arrangements for workers' representation on health and safety in coal mines.

The measures on representation and consultation first made their appearance in mining Conventions in the Safety and Health in Mines Convention (176A), 1995, which entered into force in 1998. Under Paragraphs 13 (1) and (2) of Convention No. 176A, workers have the right 'to collectively select safety and health representatives'. These representatives shall, in accordance with national laws and regulations, have the further rights:

a) to represent workers on all aspects of workplace safety and health
b) to participate in inspections and investigations conducted by the employer and by the competent authority at the workplace; and monitor and investigate safety and health matters
c) to have recourse to advisers and independent experts
d) to consult with the employer in a timely fashion on safety and health matters, including policies and procedures
e) to consult with the competent authority
f) to receive, relevant to the area for which they have been selected, notice of accidents and dangerous occurrences.

The Convention requires that procedures for the exercise of these rights shall be specified: (a) by national laws and regulations; and (b) through consultations between employers and workers and their representatives. National laws and regulations shall further ensure that they can be exercised 'without discrimination or retaliation.'

The development of paragraph 13(2) of Convention No. 176A took place in 1994 and 1995, following an initial report and questionnaire to ILO members in 1993. It took the usual approach to the introduction of ILO Conventions, with a tripartite committee, consisting of membership from the Workers' Group, Employers' Group and Governments, drafting a text in co-operation with the ILO Secretariat, followed by further tripartite consultation with Member States and subsequent amendment,

---

[17] International Labour Organization (ILO). 1990. Coal Mineworkers' Charter: Collection of Conclusions and Resolutions. Geneva: ILO.

before final discussions, amendments and adoption by the International Labour Conference in 1995.

An initial draft of a proposed Convention was produced by the staff of the International Labour Office in 1993. Following consultations on this draft, the first proposals for the future Convention — which are documented in a report prepared by the ILO for the 81st Session of the International Labour Conference 1994,[18] taking into account the response received from governments and social partners to the initial draft, were somewhat different from the text finally adopted the following year. On the proposed arrangements for worker representation, they were limited to indicating:

> *Measures should be taken to encourage cooperation between employers and workers and their representatives, in accordance with national laws and regulations, to promote safety and health in mines*

Details of such measures were among the General Provisions of the document's 'Proposed Conclusions with a View to a Recommendation' which stated:

> *with reference to measures to encourage cooperation between employers and workers and their representatives:*
> *a) joint safety and health committees should be established and periodic joint inspection of the mine should be conducted, in accordance with national law and practice*
> *b) employers should:*
> > *i. consult workers and their representatives in establishing safety and health policy and procedures*
> > *ii. involve workers' representatives in the investigations provided for in Point 12 (d) (which referred to the notification and investigation of accidents)*

Explanation for the differences between this early text and what appeared in the final proposals appears to rest with the amendments introduced in subsequent discussions of the draft. In particular an amendment introduced by the worker members during the first standard-setting discussion in 1994 (and further amended by the employers' members) seem to have been especially influential.[19] These amendments required that the Convention should stipulate that national laws and regulations, and consultations between employers, workers and their representatives, provide mine workers with rights to representation that could be exercised without discrimination or retaliation. The wording used in this exchange was essentially that which found its way into the final text of Convention 176A concerning workers' rights to collectively select health and safety representatives; and for the health and safety representatives to be enabled to represent workers on all aspects of health and safety, to conduct inspections and investigations and

---

[18] International Labour Conference, 81st Session 1994 Report V (2) Safety and health in mines. http://staging.ilo.org/public/libdoc/conventions/Technical_Conventions/Convention_no._176/176_English/94B09_42_engl.pdf (accessed March 2016).
[19] Paras 97 to 100: International Labour Conference eighty-first session Geneva, 1994 Record of Proceedings, Fifth item on the agenda: Safety and health in Mines, Report of the Committee on Safety and Health in Mines http://www.ilo.org/public/libdoc/conventions/Technical_Conventions/Convention_no._176/176_English/09616(1994-81)Provisional_report_26.pdf (accessed March 2016).

participate in inspections and investigations by the competent authorities and employers, to have recourse to advisers and independent experts, to consult in a timely fashion with the employer over health and safety matters, including policies and procedures, to consult with the competent authority, and to be notified of accidents and dangerous occurrences, as defined by national law and regulations. In introducing the amendment, its importance and relevance to workers' rights was presented by various Workers' Group members from Sweden, the Philippines, Ukraine, Botswana and the United States. It had been developed in prior consultation with the Employers' Members, and so it received their consent, as well as being supported by various Government Members during the discussions concerning its adoption.

It is interesting that what seems to have been proposed and eventually accepted in Convention 176A, was from the outset more influenced by what could already be found in national provisions governing worker representation generally, rather than by those provisions that had been in place for a long time in coal mining in some countries. In this respect there is nothing in the Convention which resembled the provisions peculiar to mining found in the national legislation of longstanding in the UK, Australia and elsewhere. In particular, measures allowing two levels of representation in coal mines (or the access of trade unions to mines) were absent, as were any requirements to record the inspection of mines by these inspectors. And perhaps even more telling, there is no mention of powers to review health and safety management systems, or to stop operations or even the whole mine if worker representatives consider activities pose significant serious risks to the miners involved.

During the conduct of fieldwork for the present research, we were able to interview a few of the members of the Workers' Group and explore their reflections on their memory of the debates that led up to the adoption of the wording of the final Convention. Their impressions confirmed the above conclusion that, in fact, it was the delegates' understanding concerning the wider experience of arrangements for joint consultation nationally that tended to inform their views, rather than that which applied in their countries specifically in relation to mining. It is not entirely clear why this was so, or why a significant opportunity to introduce the higher level of requirements already well-established in British and Australian mining into a global standard was seemingly eschewed by the Workers' Group. Further historical research on the development of the Convention than was possible during the present project would be required to address these questions with anything more certain than speculation.

4.3 Implementing and operationalising global standards on worker representation and consultation

There is no published research exploring the role of Convention 176 in facilitating or supporting the development of worker representation among the countries which have ratified it. However, it is evident that the Global Union Federation (GUF) IndustriALL, to which mining unions are mostly affiliated, has a comprehensive global campaign demanding ratification of ILO Convention 176 and the implementation of its recommendations.

The International Trade Union Confederation IndustriALL claims to represent around 50 million workers in 140 countries in the mining, energy and manufacturing sectors who are members of the unions that are affiliated to it. It was created in 2012 following the merger of the International Metalworkers' Federation (IMF), the International Federation of Chemical, Energy, Mine and General Workers' Unions (ICEM), and the International Textiles, Garment and Leather Workers' Federation (ITGLWF). The majority of miners' trade unions had been affiliated previously to the ICEM and so the new amalgamated GUF embraced their continued representation globally.[20] Like many other GUFs, IndustriALL has a global structure comprising:

- an Annual Congress composed of representatives of affiliated trade unions that decide issues of policy
- an Executive Committee
- Regional Structures that decide regional Action Plans and policies as well as assisting the implementation of general policies and priorities as decided by the Congress and the Executive Committee
- Sections (of which mining is one) which comprise representatives of affiliated unions in the Sections which may, for administrative purposes, be grouped into clusters and which have elected Co-Chairpersons who work with the Executive Committee and the Secretariat to organize the section and arrange necessary meetings and actions to carry out international work, and work on specific cross-sectoral issues, and
- a Secretariat under the supervision of the General Secretary that is responsible for supporting and co-ordinating operations globally and regionally as well as management of the organisation's finances, the organisation of Congress and other statutory meetings

On its approach to supporting worker representation in safety and health, IndustriALL[21]:

---

[20] Here is not the place to discuss the complex history of global union federations. But affiliation to federations that are members of the ITUC is not the only options available to national unions. The World Federation of Trade Unions (WFTU), established in 1945, is made up primarily of unions affiliated with or sympathetic to communist parties or from countries with communist regimes. Following the collapse of the Soviet Union, membership of the WTTU declined dramatically, but more recently it has undergone a resurgence and is especially active among affiliates in poor and developing countries, where its membership includes a number of mining unions that are federated in the Trade Union International of Energy Workers and the Trade Union International of Workers in the Mining, Metallurgy and Metal Sectors. Its activities include a substantial focus on education and training activities in support of its affiliates and include a focus on safety and health.

[21] All quotes from IndustriALL have been taken from its website, last accessed April 2018.

> *….works consistently to achieve safe and healthy working conditions for all workers and pursues strong and comprehensive health and safety provisions in Global Framework Agreements (GFAs) and other global agreements with Multi-National Companies (MNCs). We insist on respect for workers' rights to know about all of the hazards of their work and to receive the education and training to do it safely; to refuse or shut down unsafe work; and to be a full partner in the development and implementation of all health and safety measures.*

In relation to mining especially, focus on the ratification of the ILO Convention 176 is central to its approach:

> *We demand strong and enforceable regulatory frameworks that call for stricter OHS measures and stiffer penalties against OHS violations and call on governments to implement the ILO conventions and to monitor implementation by MNCs and to sanction violations…. and to demand ratification of ILO Convention 176 on Safety and Health in Mines.*

Supporting trade union organisation is the basis of its approach, and therefore in relation to safety and health the proper implementation of arrangements for worker representation and consultation are fundamental to its approach. Specifically on health and safety matters, it has supported the actions of affiliated unions in mining largely through education, training and coordinating activities, as well as through the provision of research information on particular issues. These are all continuations of various strands of activity initiated previously by the ICEM in the mining sector and they are also typical of the coordinating and informing role played by trade union international secretariats more generally.

However, observers of the work of the ICEM, and by extension that of IndustriALL, have considered its activities to also include directly initiating interventions, including on matters related to occupational health, through engaging with MNCs (multi-national companies) and affiliated national unions in mining (Croucher and Cotton, 2009). Significant contributions in this respect are suggested to have included, in particular, work with the mining multi-national Anglo-American in jointly addressing the problem of HIV/AIDS among miners in Ghana and South Africa. As we discuss in more detail in Volume 2, in South Africa, as well as in other African countries, HIV/AIDS, like tuberculosis, is very much a work-related problem, in which the structure and organization of employment in mining has contributed to rapid spread and high incidence especially among the male temporary migrant workers that have traditionally made up a large proportion of the workforce in the mines (Croucher and Cotton, 2009 and 2013) and in their families and the communities to which they return between spells of work activity. The literature points to several significant elements in this HIV/AIDS strategy, including the signing of a Global Framework Agreement between the parties involved in 2002 and a succession of subsequent interventions initiated by ICEM with the involvement of national unions and the mining companies in Ghana and in South Africa, claiming tangible results in terms of HIV/AIDS testing and treatment.

Another related example of its safety and health activity which has been the subject of published analysis is in Colombia where, according to Cotton and Royle (2014),

since the mid-1990s ICEM's Global Health and Safety Project sought to establish occupational health structures in the large Cerrejón mine, in addition to campaigning for ratification of ILO Convention 176. Through its efforts it was able to support the miners' union Sintracarbon to establish itself as a partner with the mine management in health and safety and develop a good working relationship with company management and its occupational medical staff in this way. Cotton and Royle (2014) suggest that, despite the complex employment arrangements caused by the presence of many contractors (which had also led to the demise of the union's previous negotiating positions in the mine), by using the entry point of health and safety, the campaign was able to establish that there were serious and genuine OSH problems at the mine that were the responsibility of the Cerrejón mine management to resolve. They argue that this created a sense of injustice, and a clear line of responsibility and attribution (Kelly, 1997; Badigannavar and Kelly, 2004), establishing acceptance within the union of the moral importance of adopting a 'field-enlarging' strategy (Wever, 1998) which would include contract workers. Addressing their issues came to be regarded as an important social value within the union, raising internal and external support for its campaign. The initial focus on health and safety also addressed genuine problems that contract workers faced, facilitating easier engagement with them as well, and highlighting potential membership benefits. Because of Sintracarbon's health and safety expertise developed through the ICEM's Global Health and Safety Project, the union was regarded by the contract workers as instrumental in improving working conditions. The health and safety focus was also strategically important in engaging Sintracarbon and Cerrejón management to take seriously the threat to safety in the mine from unprotected contract workers, as well as changing the perceptions held by the contract workers that the union was exclusively a workers' organization serving the interests of the permanent mine workers alone. All this helped provide a level of stability for a new union organizing campaign at the mine and formed the basis for re-establishing dialogue and, eventually, some collective bargaining within the mine.

More recently, IndustriALL has made plain that a key element in a developed health and safety culture in the mining industry is strong trade union representation. It argues in its campaigning that 'the stronger the union, the safer the mine', leading it to be particularly concerned that measures are in place at national levels to implement the provisions of Convention 176 on worker representation. To this end its current strategies include the continuation of the development of collaborative arrangements with mining MNCs and in relation to its co-operation with Anglo-American, IndustriALL stated in February 2018:

> *We are calling for a global collective bargaining agreement which will provide guarantees and safeguards on safety and health…*

It is currently supporting a joint global safety initiative with Anglo-American and is using this as the basis for the possible development of similar initiatives through the activities of its global networks in relation to other major mining MNCs. The success of these strategies, however, is yet to be evaluated.

These activities provide clear indications of a systematic approach adopted by the GUF to address improved OSH in mines through strategies that, on the one hand, operate at a global level by targeting large MNCs and supporting network-based

approaches to influencing corporate policies and practices on safety and health in mines operated by MNCs. These include using OSH in 'partnership' style approaches towards MNCs where they are deemed appropriate, but also in more confrontational approaches such as those that might create leverage, for example by exposure of activities that are potentially embarrassing for image conscious MNCs. On the other hand, other elements of these strategies act to support and develop communication and shared approaches among different national trade union affiliates, as well as providing concrete help by way of education and information activities on the ground. Together the approach aims for impact in which labour organising principles are central and in which the institutions of worker representation and consultation identified in ILO Convention 176 play an integral, prominent and sustained role. The literature in which examples of these approaches have been analysed suggests that they are most likely to be successful when used to support the activities of large and relatively strong trade union organisations in relation to large MNCs, but the extent to which these approaches are applied or might have some effect in other scenarios is less clear.

4.4   Conclusions

In this chapter we have shown how the global representative bodies to which miners' organisations are affiliated act to support the promulgation, adoption and operation of requirements and systems for representative participation on safety and health.

This chapter has offered some consideration of the nature of action and support at the global level for measures on worker representation and consultation. It suggested that there are several elements to this. Global institutions such as the ILO have a long history of engagement with producing Conventions on safety and health in mining, culminating with ILO Convention 176, which includes provisions on representation and consultation of miners on their safety and health, much in line with those found in other ILO Conventions. Similarly, notions of 'co-operation' on safety and health matters between workers' organisations and their employers lie behind the rationale for the measures on representation and consultation, as indeed Hilgert (2013) showed to be the case in relation to these measures in other Conventions.

But, as we have also seen, crafting global norms giving workers and their representatives rights to consultation on safety and health does not automatically lead to either their ratification or to national measures to implement them. Few countries have in fact done so in relation to Convention 176. Here is not the place to discuss the consequences of this, or of the role of the ethos of 'co-operation' fostered at the ILO in its deliberations on these measures, although we will return to these matters later in the report.

For the moment, it is sufficient to acknowledge that for such global norms to have an effect at the national and workplace levels, the engagement of a public/private mix of both global and national regulatory influences is required. Among these influences is that of global trade union organisation and we have provided a brief consideration of the role of global trade union federations in influencing national and workplace level practices concerning the representation and consultation of workers on safety and health in mining.

Perhaps the most obvious feature that emerged from this consideration is how limited are the resources available to workers' organisations, including those organising miners, to undertake such actions on a global scale. Global union federations usually consist of small secretariats that attempt to co-ordinate and inform the collective actions of groups of affiliated national trade unions on a regional and/or sectoral basis, using a mixture of education, information and co-ordination and organising strategies to address particular issues. The literature demonstrates how this approach has achieved some significant successes in addressing current global issues in mining — such as the safety and health of contract workers and the effects on health of patterns of employment related migration commonly seen in mining. It also shows that while campaigning for the ratification of Convention 176 is central and prominent among its strategies to improve OSH in mining, current strategies of global organisations like IndustriALL take an increasingly targeted approach to making headway on OSH related matters. Like some other GUFs, it does so by focussing on the creation of networks of affiliates based around common interests in relation to employment of their membership by the same large multi-nationals and by attempting to reach agreements on joint actions on safety and health with these MNCs in which the role of worker representation and consultation is foregrounded. While the organising strategies evident in these initiatives are quite clear, and they would appear to demonstrate some potential to achieve progress in terms of outcomes, with the notable exceptions of those mentioned above, evidence of such effective outcomes remains somewhat elusive in the literature to date.

Moreover, while these initiatives are important, and if successful their influence may be significant, they only directly affect a relatively small portion of the mines in which miners work. In many others, in the absence of the preconditions shown by the research reviewed in Chapter 2 to be necessary for their effectiveness, miners and their organisations struggle to operationalise entitlements to representation and consultation. In many others, it appears that such entitlements are still either inadequately covered by the statutory provisions, or entirely absent from them.

All of which suggests that despite the notable historical successes in securing support for the representation and consultation of miners on matters of their safety and health at work, as well as the strategic orientation of global support for such initiatives by organised labour, there remains some way to go before any claims can be made for the universality of the presence of effective arrangements in coal mining globally. These issues will be revisited in later chapters in which the influence of global institutions and their processes are examined in the light of the findings of comparative analysis of current practices on representation and consultation investigated in detail in the countries that are the focus of the present study.

5. Study methods

5.1 Introduction

This was a complex and challenging research project. It sought to combine relevant historical research with review of current literature, qualitative investigation of workplace experiences in case studies undertaken in coal mining in five very different national settings, and documentary, interview and participant observation data gathered from global sources. The countries in which qualitative, case study based, empirical studies were conducted were selected because of their differing OSH regulatory, labour relations, economic and other contexts. The aim was to explore and compare the extent, practice and support for worker representation on OSH in coal mining, as well as the drivers for and barriers to its effective operation, in these differing contexts.

The project was carried out by the co-ordinated efforts of an international team of senior researchers, with the support of an advisory board of international experts. Findings were further explored and tested in workshops involving the researchers and research participants, as well as other key informants that were made possible during fieldwork in Australia and South Africa. Three further workshops were held during the course of the project: two in Cardiff, where the co-ordination of the project was located, and one in Canada, which was made possible by the generous provision of facilities by the University of Ottawa and the presence of all the key members of the research team at another function.

The empirical investigation that is presented and discussed in the following chapters explored experiences of those involved in arrangements to represent miners' interests in OSH in each of the five countries studied and the factors that supported or constrained them. The analysis included comparison of five countries with very different economic and labour relations profiles, in order to allow some international comparisons to be made of the contextual determinants of effective representative participation in OSH in coal mining globally. This in turn enabled reflection on questions of transfer and sustainability of effective models of engagement with the protection of workers' safety and health in a global industry, which are the subject of the final chapters of this volume of the report.

Since the aims of the study included exploring the processes whereby regulatory interventions impact on relations between institutional actors involved in the labour relations of workplace safety and health, the research methods used were those normally used in qualitative case studies. Case studies are generally employed in the social sciences when deeper understandings of the quality of the processes and relations being investigated are required. The approach allows the collection and analysis of rich data from several inter-related sources. While it may have some limitations in terms of representativeness, generalizability, reliability and validity (Flyvbjerg, 2006; Starman, 2013; Yin, 2003), these are commonly moderated by triangulation techniques using multiple data sources or methods and by examining different perspectives on the same process/relations to allow theoretical saturation (Eisenhardt and Graebner, 2007). However, a case study approach is not a

quantitative study and therefore neither its aims nor results can be validated by techniques applied in respect of such studies.

Ideally, multiple perspectives on the same set of processes are gathered from a variety of sources. To do this effectively, multiple approaches to data collection are taken, including not only interviews, but also the collection and analysis of documentary material, as well as site observations during field visits, that can support the full development of a nuanced, contextual view of reality which helps uncover the complexities embedded in the multi-faceted processes under investigation. The following pages outline the ways in which these methods were employed in the present study through a series of interlinked work packages.

However, it is important to remind the reader of caveats mentioned in the Introduction to the report. The research aimed to achieve indicative findings. It is therefore acknowledged that further research may be required to add power and substantiation. Nevertheless, the present research adds substantial knowledge of a subject which, until now, has hardly been researched at all. The focus of the analysis is concerned with comparative exploration of the socio-legal, economic and labour relations contexts in which provisions on worker representation and consultation on safety and health in the global coal mining industry are situated, since it is these factors that are likely to determine their applicability, operation and effectiveness. This means it does not attempt to describe or analyse corporate OSH management practices, or to evaluate corporate approaches to OSH in mining. Methods used in this analysis adopt an approach widely used in studies of labour relations and trade union representation on health and safety and focus on understanding the experiences of union safety and health representatives, other safety and health representatives, union representatives and officials, workers, and regulatory agency officials.

5.2　The research team

Reflecting the comparative nature of the research, the research team comprised partners from institutions in most of the countries that were the focus of the project. Where this was not possible, additional collaborators were found from among academic research contacts established during the planning stages of the project. The team was led from the Cardiff Work Environment Research Centre, at Cardiff University in the United Kingdom. The research partners and their institutions included Professor Katherine Lippel, University of Ottawa, Canada; Professor Phil James, Middlesex University and Professor Syamantak Bhattacharya, Southampton Solent University, United Kingdom; and Professor Michael Quinlan, University of New South Wales and Professor Richard Johnstone, Queensland University of Technology, Australia. Additional collaboration was received from Ms Nancy Coulson, Centre for Sustainability in Mining and Industry, University of Witwatersrand, South Africa, and Dr Mila Tejamaya, Universitas Indonesia, Indonesia.

The methodological approach to the project was designed to maximise the effective deployment of the expertise within the research team. This involved the participative development of the detailed methodology by the whole research team through three workshops held in Cardiff and Ottawa. As is described in the following sections, a

collaborative developmental approach to the research design and delivery was central to the effective completion of the study.

5.3 The work packages

The research was undertaken in four work packages over a two-year period between 2016 and 2018. The work packages are outlined below and further details of the methods they employed are presented in the following sections. They were undertaken roughly in the sequence in which they are presented below; however, there was considerable overlap between the scheduling of the activities in the first three packages.

Work Package 1 — A literature review including historical and global perspectives

There were three elements to this activity which were undertaken in parallel. The first involved a review of the research and regulatory literature concerning the practice of worker representation on safety and health. The second was a historical study of the origins and spread of the provisions on worker representation and consultation in the countries studied and more widely. Online sources, in combination with visits to specialist archives, were employed to search the relevant material. This second element merged with a third in which global perspectives on the content and role of provisions were considered. In the main this meant examining the origins and development of ILO Convention 176 and its possible relevance in the countries studied, along with the role of global actors, such as global trade union federations to which miners' unions are affiliated, in promoting and supporting arrangements for worker representation and consultation. Here again online sources of both academic and grey literature were searched and relevant material reviewed. A limited number of interviews were undertaken with global trade union and ILO officials, and researchers also took part in three global/regional/sector workshops organised by the GUF to discuss OSH issues, including those of representation and consultation arrangements.

Further review of literature was undertaken in relation to each of the national studies in order to provide a better understanding of the contexts in which worker representation and consultation on safety and health in coal mining took place. The approach taken to this is outlined in Section 5.5.3 below.

Work Package 2 — Fieldwork studies in five countries

The fieldwork interviews and other data collection activities were all undertaken between September 2016 and March 2017 by various members of the research team in the five countries studied, with the exception of one earlier field visit to India, carried out by Professor Bhattacharya, to undertake a preliminary scoping study of possible location and participants for the Indian fieldwork. The fieldwork periods and researchers responsible for them are outlined in Table 1. Normally each field visit was of one week to ten days duration, during which interviews were arranged with the assistance of trade union officials and local research collaborators who had been contacted well in advance. Several of the field visits required further follow-up to complete the data collection. This was normally carried out by the researcher resident in the country concerned. Additional interviews were all undertaken by

Professor Walters in visits to the ILO and IndustriALL in Geneva and London. Interviews were all recorded.

Table 1   Fieldwork visits

Researcher	Fieldwork period and location	Additional research collaboration
Lippel and Walters	Canada (British Columbia) Lippel and Walters October 2016 — preliminary work and follow-up by Lippel	
Johnstone and Walters	Australia (NSW and Queensland) Two phases: NSW Johnstone September 2016; Queensland Johnstone and Walters November 2016; NSW Walters November 2016.	
Bhattacharya	India, (West Bengal) Bhattacharya Jan 2016; Bhattacharya and Walters, West Bengal, December 2016	
Walters and James	Indonesia (Jakarta and West Kalimantan) February 2017	Dr Mila Tejamaya, Universitas Indonesia
Johnstone and Walters	South Africa (Johannesburg area) March 2017	Ms Nancy Coulson, Centre for Sustainability in Mining and Industry, University of Witwatersrand

Work Package 3 — National analysis

The practice and contexts of the arrangements for worker representation were analysed separately for each of the five countries. However, as outlined below, as far as possible the same analytical structure was used for each country. The detailed nationally based accounts are the subject of Volume 2 of this report, while in Volume 1 we have concentrated on a comparative analysis of the national findings. Following a research workshop in May 2017 to discuss and agree the structure of the national reports, drafts were prepared and shared between research collaborators, and comments arising from this process were addressed in the final texts prepared by the Principal Investigator.

Work Package 4 — Comparative analysis

The final work package was the comparative analysis that is reported in the remaining chapters of Volume 1 of this report. Again, the first draft was written by the Principal Investigator and shared with the research team. Comments from this consultation were addressed in the final version of this report.

5.4 Reviewing the literature on contexts and effectiveness of worker representation in safety and health in coal mining in five countries

There is a fairly extensive literature in all of the areas relevant to the study. It was therefore necessary to be selective and to prioritise areas of this literature according to their relevance to the research interests. The literature on the role of worker representation in health and safety at work has been reviewed in several previous publications by the authors of the present report (see especially Walters, 2006; Walters and Nichols, 2007 and 2009; Walters et al, 2012; EU-OSHA, 2017). Similarly, the literature on worker representation on OSH in mining has been the subject of previous reviews by some of the same authors (see for example Walters, et al 2014 and 2016a, b, and c). These reviews were comprehensive and are widely regarded as authoritative. The review of the literature undertaken in the present research drew on these sources, updating them with reference to more recent study.

Review of the literature further included that addressing the various economies of mining, the nature and organisation of work and employment within the sector globally, and the hazards and risks to which miners are exposed and how they are regulated. Here standard methods employed in undertaking literature searches were used, but selection and prioritisation of material according to relevance was undertaken. As is clear from the material reviewed in Chapter 4, the study encompassed a substantial global element and here too literatures concerning the role of global institutions involved in regulation and governance, as well as those concerned with worker representation at this level, were consulted, as was the literature concerning the global profile of coal mining.

As is evident from Chapter 3, a particular focus for the study has been on the historical origins and development of measures addressing worker representation and their spread across the countries included in the study (as well as to other similar places). Since published sources contain scant reference to these matters, the researchers were obliged to conduct a substantial level of historical archive research in the UK and in Australia in order to access contemporary accounts of the developments that were of interest. In Australia this task was aided by the substantial digitalisation of newspaper records as well as regulatory debates involving the legislature. In the UK such sources were also used in documenting the regulatory history, but it was in addition necessary to make visits to specialist libraries and archives to conduct further more detailed inquiries. The Health and Safety Executive's library and archives at the Health and Safety Laboratory in Buxton and the Miner's Library at Swansea University were particularly useful sources visited by the researchers on a number of occasions.

In addition to these sources used to present the analysis in Chapters 2 to 4, further materials were gathered and analysed in order to provide a more complete understanding of the national contexts of experiences of representation explored in the fieldwork conducted in the five countries we studied in detail. Again, the nationally specific relevant research literatures concerning worker representation on OSH and its wider labour relations, regulatory and economic contexts in the mining industries were searched in all the countries studied, as well as searching the literature on mining in these countries. The results of these searches and subsequent reviews helped inform the national analyses presented in Volume 2.

5.5   The structure of the country studies

The following account is generalised to describe the fieldwork methods used in all five country studies. Further country specific details of these methods are included in the accounts of the research for each country that are found in Volume 2.

5.5.1   Data collection and analysis

Ethical approval for the conduct of the whole study was given by Cardiff University as well as additionally and separately by the relevant universities in Australia and Canada for the conduct of the fieldwork in those countries. As is normal practice in relation to approval, prior to their interviews, the researchers undertook to provide all the research participants with clear written information concerning the conduct of the research and its purpose, and obtained their written consent to record and analyse the information they provided while safeguarding its confidentiality and that of the participants who provided it.

Empirical data for the national analyses were gathered by means of qualitative interviews in all five countries. Participants in the study were sourced via contacts with the main miners' trade unions in each country. Sometimes these contacts were themselves facilitated with the help of individuals in miners' unions from other countries or at a global level, with whom good relations were already established. Additional participants at mine level often volunteered themselves during visits to conduct interviews and in most countries more participants were obtained for the study than had been initially anticipated. Researchers were aware of the possible bias that these approaches would introduce into the selection of respondents, but since the sample was a deliberately purposeful one, such bias was considered to be acceptable. As is well understood in qualitative research, purposeful (or purposive) sampling is normally used when selection of information-rich cases related to the phenomenon of interest is desired (Palinkas et al, 2015).

The number of participants varied by country. On average around 20 trade union representatives took part in each country. Additionally, one to three trade union officials and at least one senior regulator were also interviewed in each country. Further 'key informants' were also occasionally interviewed where necessary and possible. As the national accounts make clear, in most countries there were more participants than this in most of these categories, with only British Columbia, in Canada, having fewer. Because of the variation in size and complexity of the coal mining industries in each country, combined with the limited resources available to the researchers to undertake qualitative studies in each of them, our investigations were limited to case studies in particular regions and therefore also to experiences in the companies in which the participants were active. While we made no attempt to be numerically representative, we ensured that the information sought from participants would provide sufficiently detailed and comprehensive material to allow an understanding of the processes involved in workers' representation, including its supports, constraints and wider contextual determinants, as is typically required of case study research.

Interviews took place with worker representatives, trade union officials and senior representatives of regulatory authorities with responsibilities for the enforcement of

regulatory requirements in coal mines. As we explain elsewhere in this report, the aim of the study was to explore the issues of representation and consultation on safety and health as seen from the standpoint of workers' representatives. We did not seek to obtain the views of their managers, although inevitably in several countries managers and often senior managers became aware of our interest and sought out opportunities to be interviewed themselves. Where information pertinent to our inquiry was obtained in this way, we have indicated so in the national reports. In several of the countries we also interviewed workers as well as, where relevant, worker representatives whose functions did not include safety and health. In all cases we sought to protect the confidentiality of the interviews and to encourage confidence among respondents to speak freely. To these ends we seldom conducted interviews on mine premises. For the most part interviews took place in venues in which some privacy was assured, such as in the participants' houses, community centres in the respondents' villages, or in hotels or trade union offices. Occasionally they took place in cafés or other communally shared meeting places. But in these situations, and if an interview was conducted on premises belonging to the mine in which the respondent was employed, we tried to ensure the privacy of the process.

Interviews took various forms. The majority for the study overall were face to face exchanges between one or two of the research team and a single interviewee. In the case of interviews with trade union officials and with regulatory inspectors, this was virtually always the form they took, but in a number of the interviews with representatives and workers we found it was more informative to hold the interview in the form of a discussion between two interviewees and one or two researchers, while in several countries we also held larger group discussions, usually including respondents we also interviewed separately. We found it helpful to use these different approaches to data collection because they served to draw out different aspects of the respondents' experiences in ways that the use of a single interview failed to achieve. Occasionally, such as in Australia, Indonesia and South Africa, we took part in wider training events and seminars which also provided further useful material that was relevant to our inquiry.

Interviews were conducted in English in Australia, Canada and South Africa. In India they were conducted mainly in Bengali or Hindi, while in Indonesia they were mostly conducted in Bahasa Indonesian. In India one of the researchers was able to speak and understand the languages in which the interviews were conducted and he acted as both the main interviewer and interpreter for the Principal Investigator when the latter took part in interviews and group discussions. In Indonesia all interviews with trade union representatives and miners were conducted in the presence of an interpreter who was one or other of the two national trade union officials who facilitated all the interviews. Interviews with these officials and with senior regulatory inspectors were conducted in English.

In addition to data collection via interviews and group discussions, in all of the countries we obtained unpublished documentation that was germane to our analysis from regulators, trade union officials and occasionally from mine management. Again, the details of this information varied between countries and further details are found in the national accounts in Volume 2.

5.5.2 Information sought

In each country we sought information concerning participants' experience of the systems and practice of representation in the mines in relation to which they were active. To ensure some degree of consistency in the collection of data, not only was the Principal Investigator involved in the majority of the activities in gathering data in each country, but we also used the same generic interview schedule which we tested and adapted for use in interviews in each of the different countries. By means of the initial research workshop in which all the key researchers participated, an interview schedule, based on those we used successfully in the study of worker representation on health and safety in Queensland that preceded the present research, was adapted for more generic purposes. Where interviews were to be carried out in the absence of the Principal Investigator, written guidance was provided concerning the interview schedule and the likely need to be sensitive to the particularities of national practices in the countries in which it was used and adapt it accordingly.

The same generic schedule was useful in gathering data on the experience of worker representation on health and safety directly from representatives, as well as from mining trade union officials in all the countries studied. It was further useful as guidance to the topics that were addressed in interviews with other key informants such as mining inspectors, trade union leaders and the like.

Information was sought on who the representatives were, their background (age, mining experience, mining and OSH qualifications); how, when and why they became representatives; how experienced they were as representatives; and the training and/or other support they had received. Further information was sought concerning mines and mining in the area (size, age, ownership, history of unionisation, employment arrangements, living arrangements, position of mining in the local labour market etc.). Interviews with key informants at regional and national levels focused a lot more on these latter issues and this was emphasised in the adaptation of the interview schedule used for these participants – but these topics were covered with all participants to some extent – so their perspectives were also obtained.

Further information was sought concerning:

- Health and safety issues participants most typically dealt with
- How they used their various statutory consultation, inspection, enforcement etc. powers:
    - This included information to enable comparison of practices, for example in the use of functions/powers, which vary between countries or might be used differently in different countries. Detailed prompts concerning this were included in the schedule. For example: on systems of inspection and how they are reported, on review procedures in place at the mine; on methods to detect unsafe practices and conditions; to investigate complaints by fellow workers; on the exercise of rights to information, such as inspecting documents and plans relating to health, safety and welfare, required to be kept at the

        coal operation; on their role in incident investigation; on record keeping and on the practice of special powers like stopping dangerous work

- The extent to which participants focused on OSH management issues and processes compared with how much they concerned themselves with the hazards and risks of the mine itself – the physical conditions
- How participants' roles had changed over time
- Significant obstacles faced when performing functions or exercising their powers
- Participants' roles in relation to joint health and safety committees; and their perception of the relationship between them and the joint health and safety committee
- Procedures and experiences of consulting with fellow workers and representing their interests, including the perceptions of support from colleagues
- Relationship with other trade union officials with health and safety functions (if there were any)
- The trade union role in supporting representation, for example:
    - The union's role in the provision of training and information – relative to other sources of these things;
    - Perceptions of the training experience; how much training, what is valued about it;
    - the representative's overall perception and judgment about the union's supportive role
    - Changes in the relationship with the union over time
- Information was also sought concerning structural and organizational changes (outsourcing, contracting, labour hire etc.), and government policies (including deregulatory strategies) leading to different organizational and political settings in which representation on OSH occurs
- Ways in which such changes affect: (i) OSH in the mines; and (ii) representatives' roles and activities and ability to undertake them. Challenges for representatives in the use of contractors
- Broader industrial relations contexts within which representatives operate and how this affects the way they carry out their roles
- Relations with the mine management, its commitment to OSH and the support it provides for representatives or the obstacles it places in their way
- Representatives' relationship with, and experience of working with, mines inspectors, including: how often they see them; how contact is initiated; what happens when they see them; how supportive inspectors are; and how has the relationship changed over time
- Representatives' perceptions of what they achieved with their powers, including examples of the successful utilisation of their powers; examples of what they see as their most important interventions/successes; and how they see their activities 'adding value' (for example, their role in reporting and disseminating information on serious incidents, such as high potential incidents etc.)
- What representatives consider to be necessary to improve their role and what they think would most improve health and safety in mines

5.5.3 Analysis of the national cases

The form and content of regulatory provisions was a helpful guide to structuring the analysis of the qualitative data thus collected. Our analysis was essentially focused on two main issues. The first concerned how representatives went about delivering the functions ascribed to them by statute, how they used powers bestowed upon them by the legislation to do so, and what supported or constrained this in the immediate labour relations of OSH in the mines. The second concerned the contexts in which such representation occurs and what influences these contexts have on its style, content and outcomes. Taking this into account, therefore, all the national studies devote a substantial effort to presenting the key elements of both proximal and more universal contexts in which representation and consultation on OSH operated. This involved further review of the relevant wider literature concerning the economy, labour relations and regulation in each of the countries studied, as well as being a significant element in the information that was sought from the key informants and its subsequent analysis.

We have made clear in previous chapters (see both the Introduction and the review of literature in Chapter 2), that these contexts were fundamentally different in the countries studied. It is therefore important that this is reflected in an evaluation of the contribution of worker representation and consultation towards improving OSH for miners. As we have previously noted, while it is possible to develop a universal classification of the risks of mining to workers' safety and health, this is of little value on its own because there are a host of additional factors that mean these risks are not experienced equally in the mines of all countries. Differences in the sophistication and requirements of reporting (not only in mines but in societies more widely) make properly substantiated comparison of the true extent of harmful effects difficult. Nevertheless, the inequalities in the experience of risk and its contexts are starkly obvious to any observer who is able to visit mines and talk with miners in the range of countries such as that included in the present study. These inequalities were therefore abundantly clear to the researchers who undertook this study. Some effort to provide qualitative indications of this has been made in the analysis in order that wider elements of the multifaceted absence of resources that were obvious in the mines of countries like India, in comparison with those of advanced economies such as Canada and Australia, are acknowledged. The substantial inequality in risk profiles and the means with which they were addressed that results from this are therefore important influences on the actions of representatives, as well as on their possibilities for effective representation. Efforts to account for this are important concerns of the present analysis.

As we also outlined in the Introduction to this chapter, the approach taken in conventional qualitative case studies usually involves the process of triangulation of different sources of evidence, which is widely accepted as a powerful means through which reliable understandings of the nature and strength of inter-connections can be obtained. And this was the approach we adopted in all the national studies. In each case, we had already sought to explore the background to the origins and development of the provisions on worker representation and consultation (see Chapter 3 in this Volume), but in addition, during several of the interviews with key informants we explored wider contextual details concerning the economy of the country, the role of mining, including the type of mining and nature of mines

predominant in the country, its ownership, employment, labour relations and safety and health outcomes. These concerns are reflected in the analysis presented in the first part of each of the national studies collected in Volume 2.

Analysis of the practice, supports and constrains of worker representation followed a similar pattern in each country. Its point of departure was the regulatory provisions and their position within the wider regulation of OSH and labour relations in the industry. Research on the role of worker representation on health and safety generally (see for example EU-OSHA, 2017), as well as that in coal mining (see for example Walters et al, 2016a, b, and c) suggests that there are a number of 'preconditions for effectiveness' (Walters and Nichols, 2007) that help to determine the outcomes of the regulatory provisions on worker representation on health and safety. It will be recalled from Chapter 2 that these include a strong legislative steer, which sets out respective rights and duties and provides a framework governing the required structure and functions of joint arrangements, to which representatives, their employers and managers can relate. Such arrangements operate in accordance with the labour relations situation within workplaces, sectors and countries and in relation to the extent to which employers have the will and capacity to engage with participative approaches to OSH management. Arrangements are more likely to be perceived to function better in situations in which workplace labour relations are harmonious, but even where they are antagonistic and employers and managers are not supportive of co-operative approaches to OSH, worker representation may still play a strong role in protecting the safety and health interests of workers, and we explore if and how this occurs in the cases we studied.

Adequate support from employers and managers helps to ensure workers' representatives involved in joint arrangements have sufficient time to conduct their various OSH functions, possess the necessary competencies to do so, and receive appropriate training to ensure this. It also extends to the provision of information to enable representatives to undertake these functions. But employers and managers are not the only source of support. Trade unions play a substantial role in the provision of training and in determining the kind of training that representatives receive. They are also important in the provision of information, but in addition provide the necessary security and protections afforded to representatives in situations of conflict with employers and managers. All of these things help to enhance the legitimacy of representatives in their own eyes, as well as in the eyes of their fellow workers and those of managers and employers. Arguably, the extent of union engagement — whether through the workplace organisation or through support for it by the trade union from outside the workplace – helps to create a worker-centred construction and sense-making for the consciousness of health and safety representatives, that previous research has shown to be a positive support for confident action on the part of these representatives. The aim of our analysis in the present study was therefore to try to explore the extent of the presence of this sense-making among the representatives who took part and the supports and constraints to its operation.

We also noted, from previous studies and the literature more generally, that there are a number of important structural determinants that influence practice of representation and consultation on OSH and we wished to explore the effects of such possible determinants in our analysis. Issues concerning the organisation of

employment in the mines and the role played by contractors and their workers were commonly raised in the mines we studied, as were the effects of common managerial approaches to safety rules in the mines and role conflict experienced worker representatives who participated in the study. Issues of employment security were another focus for common concern that we have tried to understand in our analysis of the national cases. In addition, there were several features of concern relating to safety and health matters and the role of representation that were more pronounced in some countries than in others, and we have tried to capture these matters in our analysis. For example, the question of the health status of mine workers and the support representatives provided in this respect was clearly a more explicit issue for participants in South Africa than in other countries, while the role of workmen's inspectors in India was quite different to that of representatives in other countries.

However, overall there were a number of common themes that emerged from the national cases and we have focused more especially on these in the comparative analysis presented in the following chapters. We outline our approach to this next.

5.6   Comparative analysis

In relation to the content of the statutory provisions on worker representation and consultation on OSH in coal mining, comparative analysis provides an opportunity to explore the nature of the statutory requirements in a comparative way, identifying features in common that are particularly important in relation to the operation of arrangements for worker representation on OSH in mining, as well as similarities and differences between provisions that apply in different countries. This is true in relation to the details of the effects such similarities and differences have on the practice of representation, as well as those that are influenced by its contexts, and based on findings in the five countries studied, we have sought to explore these matters comparatively.

As we pointed out in the Introduction to this report, findings from a previous study undertaken by several of the present authors in Australian coal mines were a significant influence on the theoretical conceptualisation of the present study (Walters et al 2016a, b and c). The Australian study had shown that the representation of miners' interests in their safety and health by trade union representatives played an important role in improving OSH experiences in coal mines. It argued that the approach consciously adopted by the representatives in achieving these outcomes was one most appropriately understood as an effort to resist the perceived harmful effects of corporate power, rather than as an example of worker-management co-operation. If this were the case in relation to the actions of representatives in Queensland mines, it begs questions concerning how typical or transferable is such practice to mining in other locations. It was to explore these questions that the present comparative study was conceived and it was with this aim in mind that we organised the comparative analysis.

Therefore, drawing on the detailed findings presented in Volume 2, analysis in the subsequent chapters of the current volume has been structured around several main themes. We have begun by presenting a comparative understanding of convergence and divergence in the origins and development of the statutory provisions on worker

representation and consultation on safety and health in mining in the five countries we studied and the factors that influenced it. We then sought to compare the operation of these provisions in the different countries studied by using essentially the same structure for the analysis that we had used in the country studies themselves, but again focusing on those elements of convergence and divergence and their contextual determinants. Additionally, in the comparative analysis we have considered the ways in which representation on OSH is able to relate to the structural elements in the organisation of both employment and corporate arrangements for OSH that seem to present the greatest challenges to its continued effectiveness in the mines we have studied.

Finally, we have once again resorted to a process of triangulation in our analysis. This is not only in relation to convergence and divergence of operational practices and their influences, but also to help to understand the influence of global standards and their drivers in supporting good practices in countries that are at different levels of development in relation to the presence of these determinants within their own national contexts. This means we have analysed the effects of measures on representation and consultation found in ILO Convention 176 and what are the drivers of influence here too.

5.7   Limitations

Any research study has its limitations and issues it identifies that might be explored further in future studies. This one is no exception. We have already pointed out that case studies, by definition, can rarely be claimed to be quantitatively 'representative' and the present research is no exception to this. This was not its aim, and we have already presented our justification of this. Our research also has a further significant limitation to which we have also already alluded. This is that it is very much an 'indicative study'. Our choice of this approach was deliberate, as we wished to embrace notions of 'breadth' rather than 'depth' with our methods. As we have also already argued, we believe this decision was justified in terms of the aims of the study to produce policy-relevant indicative findings that were of sufficient reliability to influence policy discourse. At the same time, we acknowledge that more in-depth detailed study may be required to test the robustness of some of our findings and we hope that, overall, they will provoke sufficient interest to stimulate commission of further research to achieve this.

However, one further caveat is important to mention. Case study research of this type often faces the problem that its participants are, by definition, likely to be drawn from 'the better end' of whatever it is that is under investigation, since access to them and their willingness to participate is partially determined by them and their organisations having an interest in sharing their experiences, which in turn usually means they feel in some way positive about them. Other less positive subjects and situations are often more difficult for researchers to access, and those involved are often less willing to co-operate. Interpreting findings from such qualitative research involves acknowledging these limitations while attempting to identify and understand underlying explanatory processes that may apply not only to the scenarios to which researchers have access, but also to some extent in those to which they do not. In making such interpretations, researchers need additional sources of data — for example, data from previous research, from statistical measures, or from other

documents addressing contexts. With the help of these data, the researchers' analysis triangulates findings and seeks to determine the role of the processes and their determinants identified in the field research as explanatory of the situations investigated and, by extension, more generally.

In concrete terms, this means that the processes we have sought to evaluate in the fieldwork in the present study as determinants of outcomes are those our analysis indicates likely to also be most relevant in explaining outcomes in scenarios to which we have not had access. Thus, putting the experiences of the participants in our study together with those reported in other research on mining and on the activities of health and safety representatives in other sectors and countries, we have sought to examine the presence and effects of known preconditions for the effectiveness of worker representatives in health and safety and their operation in this respect in coal mining more generally. In so doing, an indicative evaluation is provided concerning practices, their comparability, transferability and determinants. In addition, some areas in which there remain gaps in knowledge that might be usefully explored in further work are also identified.

6. A comparative analysis of arrangements for the representation of miners' interests in their safety and health in coal mines in five countries

6.1 Introduction

In this chapter we discuss how statutory provisions for worker representation and consultation are operationalised in practices in the coal mines of the five countries on which the study focused. The statutory provisions themselves are only one determinant the form that these practices take. Nevertheless, they provide a useful framework around which to present a comparative discussion of key elements of the activities of worker representation and consultation in coal mining in the five countries studied, drawn from the more detailed analysis of our empirical studies presented in Volume 2.

As we have described already, there are regulatory requirements on worker representation and consultation on safety and health in all five countries studied, as well as global standards in ILO Convention 176. While there are substantial differences in these requirements in the different countries, the comparative account in this chapter is structured around a framework provided by a synthesis of their main provisions. Thus, we begin with a comparative account of features of the origins and development of the statutory provisions, also exploring something of what helped to shape them in order to help us to understand how they work today. Then, using the same framework for organising the structure of the chapter's narrative, we turn first to the arrangements for appointing worker representatives and joint committees for safety and health in mines. Next, the chapter considers participants' experiences of representation and consultation on OSH by examining and comparing how and with what effect they undertake inspections and investigations, and make representations to managers on OSH matters in mines in different contexts. The role played by additional features of regulation found in some countries but not in others is then further explored in terms of how helpful these features are in achieving more effective representation and consultation. The chapter concludes with a discussion of what the comparative analysis indicates to be effective representation and consultation on safety and health in coal mines in the countries we have studied.

6.2 The origins and nature of the statutory provisions

As indicated in the detailed account in Chapter 3, statutory requirements providing coal miners with rights to forms of representation on matters of safety and health have a comparatively long history, one that is certainly a lot longer than provisions to achieve broadly the same effects in other sectors. In this section, the present statutory requirements in the five countries are compared, as are the key features of their origins and development. A certain degree of commonality is identified, as well as some significant differences which we argue are relevant to understanding variation in practice, both in terms of the arrangements in place to achieve and support representation on safety and health, and in features of its operation, in the five countries studied. As already noted, in keeping with findings from other sectors, our evidence, presented in detail in Volume 2, suggests that the statutory provisions

contribute to the success of systems for worker representation in supporting the OSH interests of miners in all of the countries we studied. Although we suggest that the contexts in which provisions are applied are all-important in determining practice and outcomes, we also identify some elements of the provisions that are regarded by representatives across all countries as more useful than others in supporting their activities, even when the contexts of practice are quite different. Finally, we note that there is a relationship between national statutory provisions and those of global standards. We will discuss each of these issues in turn below.

Two features of the statutory provisions that are especially relevant to an inquiry concerning their operation and effectiveness are the length of their history and the extent of their separateness from similar provisions in other sectors. As documented in Chapter 3, in the countries in which the provisions originated, the relevant legislation is much older than that in other sectors. Partly because of this, but also because of the separate trajectory of the development of provisions on OSH in mining from that in other sectors, in some countries the measures differ from those in other sectors in several important respects. This separateness and difference is relevant to our inquiry, not least because they are most prominent in mining in the country in which evidence indicates that the activities of representatives have been most successful. That is, we can still see features of the current provisions on worker representation in mining in both Queensland and New South Wales that can be traced to their origins in Australian mining legislation from the late 19th century. This in turn has direct links to similar approaches, evident in even earlier British provisions, on which the Australian measures appear to have been based (or possibly developed in tandem). Although they have been aligned with modern provisions in other sectors, they remain different in several important respects from legislation covering worker representation on OSH elsewhere in Australia. Moreover, it appears from our evidence that some of these differences may be especially important in the role played by statutory support in influencing successful strategies for representation on OSH matters in Australian mining.

The reasons for the separate approach to the provisions in mining are, of course, in part institutional. Regulatory systems for OSH in mining commonly have both separate origins and development from systems that apply to regulating OSH other economic sectors. But perhaps it also reflects differences in the ways in which the institutions and procedures of labour relations have developed and continue to be operated in the industry. Thus, the widespread poor relations evident between organised labour and corporate interests in the sector may have helped to institutionalise more formal statutory provisions from the outset of their development in some countries. That is, where there is a long history of coal mining as an important support for the economy, and where organised labour has had the opportunity to establish a strong presence, statutory intervention has been greatly influenced by the nature of the relations between trade unions, corporate interests and the concern of the state to ensure the continued role of mining in the economy. In countries where organised labour is weaker and/or where the formal coal mining sector is more recent in origin, the situation is more complex. But even here, in most cases in the present study, regulatory approaches to addressing safety and health in mining are often institutionally separate from those that cover other sectors.

In the countries studied, and at global level, the development of these arrangements can be seen to follow two trajectories. On the one hand, those largely reflecting the influence of the original British measures, such as represented by Australia and India among the countries included in the study, have developed from provisions originally made for the appointment of workmen's inspectors by workers and their organisations in mines where the latter existed. These evolved through various statutory iterations to include appointment by trade unions of workmen's inspectors who were not necessarily employed in the mines they inspected. The led to the provisions currently in place in Australia, in which there are two levels of representation — the site (mine) and industry level representatives in both Queensland and New South Wales. As we documented in Chapter 3, similar approaches were adopted in the UK when, from the 1930s onwards, the National Union of Miners organised a substantial system of representative engagement on safety and health matters at both mine and regional levels.

On the other hand, in India there may have been an original British colonial influence on the legislation a somewhat different trajectory in its development led to the present separate arrangements for the trade union approval of workmen's inspectors and union members of safety committees at mine level that are found in the measures made under the Coal Mines Regulations, which also facilitate trade union representation on joint committees at district and company levels. The measures on worker representation in mining here predate reforms of wider OSH regulation to increase emphasis on arrangements for *managing* OSH which have taken place internationally from the last quarter of the 20th century in the shift from prescriptive to more process-based OSH regulation. In Australia (and also in the UK while coal mining remained a significant element of the economy), the measures on worker representation on OSH in mining weathered such reforms and were adapted to their introduction —for example, by giving representatives a more explicit role in monitoring their employers' arrangements for safety management. As we have seen, these arrangements are among those shown to be used successfully by miners' representatives to air their concerns and contribute to improvements in OSH practice. Also, more recently in NSW in Australia, there have been attempts to link the provisions on worker representation in mining with reformed requirements in other sectors, while at the same time retaining the special features of the mining provisions. How successful this has been is still too early to measure. In India, however, our field studies indicated that the statutory measures on workmen's inspectors were implemented in practice in the mines of the two subsidiary companies of Coal India in a rather different way. Although the statute indicates that these inspectors should be designated in consultation with the trade union (as is also the case for worker members of safety committees), in practice they were appointed by the management of the mine and situated within the safety department of the mine. They performed tasks delegated to them by and under the control of the persons responsible for the safety management systems in place in the mine. As such, while they were selected from among the mine workers and expressed sympathy with them during interviews, they largely functioned as agents of the mine management and not in a *representative* capacity. Nor did the legislation detail representative functions for them, as was the case with the provisions in Australia. The consequences of this are analysed in detail in the account of the fieldwork in India in Volume 2, and we return to them in subsequent sections of the present chapter.

The more recent establishment of current measures on representation in some countries occurred at the same time or after wider reforms and was more directly influenced by them. In South Africa, for example, the relatively recent implementation of the first ever measures on worker representation on safety and health matters that apply to all workers in mines were part of the widespread reforms in the institutions of labour relations following the demise of apartheid and the democratic election of a new government in the late 1990s. The architects of these reforms were thus able to take advantage of a wide ranging and international inquiry into best practices before introducing the provisions of representation of mine workers on safety and health matters. By the time the Leon Commission[22] was undertaking its review leading to its recommended reforms, as we discuss in detail in Volume 2, the shift from prescriptive to process-based regulation of OSH was well established internationally. The South African reforms situate measures on worker representation on safety and health in mines within the introduction of wider reform that has a strong focus on achieving improved OSH management in mines. Nevertheless, here too we observe arrangements requiring two levels of representation (albeit within the same mine), in which the higher level effected the appointment of full-time representatives. And, as we show in the account of this trajectory in Volume 2, this detail which is specific to mining was something that was especially sought by the trade union, the NUM, and influenced by contacts with the NUM in the UK.

In Canada, a somewhat different direction was taken. Although it seems that older measures giving workers some rights to representation on OSH dated from 1911, as in South Africa, current measures on joint consultation on OSH were the result of policy recommendations modernising OSH regulation more widely and introducing process-based provisions. But unlike in other developed countries in the study, these measures do not focus specifically upon the role of representatives, but rather on that of joint safety and health committees. In this respect, they reflect the approach to joint consultation in other sectors in Canada in which the so-called, 'internal responsibility system' is the key feature. As Chapter 3 recounts, they were derived from the same policy recommendations that led to the reforms of provisions in these sectors too. As we also note in that chapter, these provisions are made with reference to collective bargaining arrangements in place in the mines to which they apply, which are the basis of labour relations in Canada, and in which more specific and legally supported provisions on the conduct of representation on safety and health matters may be agreed. In this respect, it is important to recognise the centrality of the role of these institutions of collective bargaining and its significance in determining the operation of the statutory provisions in coal mines in Canada

In short, therefore, while there is considerable variation between countries in the detailed nature of measures for representation on OSH in mining, they generally specify somewhat more elaborate systems for representation on OSH than in other sectors in most of the countries in the study. In addition, they are nowadays generally in tune with wider process-based provisions, either because they have adapted to these wider reforms or because the present versions of these requirements have been introduced as part of them. This said, global influence, such as that of ILO Convention 176, on their content seems to have been relatively minimal. International influence, such as it is, seems to have been derived from older

---

[22] *Available at: http://www.cwbpi.com/AIDS/reports/LeonCommissionV1.pdf and http://www.cwbpi.com/AIDS/reports/LeonCommissionV2.pdf*

influences, such as that of British colonialism, and a more recent trend towards regulated self-regulation, in which the representation of workers' interests is regarded as integral.

As far as the functions of health and safety representatives and worker members of joint health and safety committees are concerned, as we have seen, while in most countries there are requirements entitling representatives to inspect safety and health matters in mines, statutory provisions vary considerably between countries in the extent to which they provide further detail of their functions. In all the countries in the study, regulatory requirements specified at least some details concerning the functions of health and safety representatives and the trade union members of joint safety committees that should be facilitated by their employers in the mines in which they held office. Even in Indonesia, where such provisions were least developed, Chapter 6 of the Indonesian Mineral and Energy Ministry Decree No 555.K/26/M.PE/1995 states in Article 25 that all structural levels in mining should appoint OSH representative/s, and their responsibilities are to take part in regular joint inspection as well as to recommend control measures. Thus, they provide more specific legislative support for the detailed arrangements in mining than was evident in the general requirements on consultation found in Ministry of Mining and Energy Law No 1 requiring the establishment of health and safety committees in larger workplaces in other sectors.

This focus in the legislation on the role of representatives in inspection of the physical safety of mines is evident from the very earliest regulatory provisions. As we explain in Chapter 3, it was included in the UK 1872 Coal Mines Act and has reappeared repeatedly in the national regulatory provisions of many countries since that time. For most of the countries in the study, there was a regulatory framework in place, such as that outlined in Chapter 2, which generally entitled worker representatives to:

- inspect the workplace, either jointly with managers and/or separately
- investigate complaints from workers on health and safety matters
- carry out their own independent investigation of OSH matters
- make representations to the employer on these matters
- be consulted over health and safety arrangements, including future plans
- receive adequate information from the employer on current and future hazards to the health and safety of workers at the workplace

The detailed findings presented in Volume 2 suggest that the study participants had experienced these arrangements being enacted to varying degrees in the mines in which they held representative functions. Here again considerable differences in this experience were reported in different countries. We compare these experiences in the following sections. We begin with the appointment of representatives and worker members of joint safety and health committees. From this, we move on to comparatively discuss representatives' experiences of joint inspections, accident and incident investigation, and making representations and obtaining information. Lastly, we draw some conclusions concerning the extent of representation on safety and health in the countries studied.

6.3   Who are the coal miners' representatives?

The worker safety and health representatives who participated in the study included both part-time and full-time representatives. Although the majority were fairly experienced in the role, overall the respondents had held the position for varying lengths of time and they also varied in terms of their training and experience of undertaking actions to represent their fellow miners on safety and health. They were mostly men, and were or had been mine workers in either underground or surface mines. Their age varied, but most commonly they were between 30 and 45 years old and had worked in mining for a number of years before becoming safety and health representatives. Their education and mining skills levels also varied considerably, and there was a substantial difference in this respect between the majority of the respondents interviewed in Australia and Canada and those who took part in the study in India and Indonesia. The former were relatively well-trained, qualified and experienced miners, and the latter had a much narrower experience of mining combined with quite low levels of literacy, education and work-based competencies. The situation of the respondents from South Africa was somewhat more complicated, for while the large majority of our respondents were experienced, literate and articulate trade union activists on safety and health, they themselves pointed out that they were not necessarily typical of the majority of the representatives in the large mines in which they functioned. In their view, these representatives, especially at the section level, often included a substantial proportion who were, unlike themselves, often poorly educated, with limited work skills and competencies and a relatively narrow experience of wider operations in the mines in which they worked, and this limited their overall capacity to function effectively.

Statutory provisions normally call for workers' representatives to be elected by their colleagues or nominated by their trade unions or other workers' organisations at the work site. The presumption here is that, as they are the *representatives* of workers, the same workers can be anticipated to have some say in their appointment. Such practices were more or less followed in all of the coal mines in the countries studied. In Australia, site safety representatives were elected by fellow mine workers, and industry representatives, who were required to possess certified higher levels of mining competency, were appointed by the trade union following a ballot of members. In Canada, worker representative members of the joint health and safety committee were either elected or chosen by the union joint chairperson of the committee, whose own position was ratified and supported by the Union Local at the mine. In South Africa, sectional and full-time representatives were reported by respondents to have been elected in accordance with regulatory requirements. While in India, respondents indicated that, although trade union representatives who sat on the safety committee were elected or appointed to that role by the trade unions, as noted above, workmen's inspectors had been selected by management without the direct involvement of the trade unions. In Indonesia, the situation seemed somewhat less clear. Generally, members of the trade union structure within the mine took on health and safety representational functions, but those who seemed to be most active in this respect among the respondents were generally members whose main job in the mine was often connected to, or based within, the safety department.

However, this general pattern does have several further nuances. Firstly, in several countries, as we have seen, regulatory provisions allow two tiers of representation. They were present either at mine and sector levels in Australia, where there were site safety and health representatives (SSHRs) and industry safety and health representatives (ISHRs). The position was similar, albeit in a more limited way, in India, where there were members of area and company level joint safety committees, as well as trade union members of joint safety and health committees in individual mines. Further, there were two levels in the very large mines in South Africa, in which there were sectional and full-time representatives. In Canada, in practice, there were also two levels, with the ordinary safety and health representatives and members of the joint safety committee supported by the, union selected, Joint Chair of the safety committee, as well as sometimes by the president or deputy president of the Union Local. Only in Indonesia was there no sign of such arrangements. The primary function of the two tiers in all cases was to provide additional trade union support to site level representatives, and in all cases at the more senior level, activities were more or less full-time and the representatives were often both highly skilled and experienced in their role. Moreover, there are parallels here between these current practices and those found in the history of arrangements for representing safety and health in mines in some countries, as documented in Chapter 3. We will have reason to return to these parallels later in the present chapter.

A further nuance concerned the relationship between the representatives and the trade union structures for wider representation in the mines. Here again, in the case of arrangements in Australia and Canada, respondents at all levels reported a substantial and supportive integration of their role on safety and health and that of the wider activities of the lodge or local union. Similarly, in South Africa, there was a strong connection made by respondents between their perception of what supported the activities of full-time safety representatives and their engagement with the trade union structure at the mine. In India and in Indonesia, such relations were far less in evidence.

It was further clear from the testimony of the participants in the study that the process of selection and the competencies of those selected were sometimes influenced by corporate strategies concerning their appointment. In Australia and Canada, the effects of such influence seemed to be minimal in the cases we studied and the mine management generally supported the procedures for the appointment of representatives that were required by the legislation and operationalised through the demands and actions of the trade unions. But in other countries the position was often less clear. In South Africa, for example, respondents alluded to variations of practice in which sectional representatives were frequently, in effect, selected by the mine management. They also sought to distinguish themselves from full-time representatives who they suggested were significantly influenced by the safety departments in the mines in which they functioned. In India, as noted above, workmen's inspectors were selected by managers and, despite the regulatory requirement that such selection should be 'approved by the trade union,' according to the Indian respondents, this had not been the case. In both these cases, as well as to some extent in Indonesia, the identity and actions of representatives were therefore substantially prone to influence by corporate safety management strategies.

6.4 What do coal miners' representatives do?

In this section we compare our findings concerning some of the main activities of worker safety and health representatives with those provided for in the legislative frameworks on worker representation on safety and health in coal mines in the five countries we studied. To do so we draw upon the more detailed analysis presented on each country in Volume 2 of this report.

6.4.1 Joint inspections

The significance of joint inspection in practices of worker representation on safety and health varies considerably between countries. For example, in both South Africa and India, participants recounted how routine joint inspections were a central aspect of their role. However, they often expressed concerns that the organisation and content of these practices were largely determined by the safety management and the roles of sectional health and safety representatives in South Africa or worker representatives on the joint safety committee in India were limited to participating in routines that were mainly established by managers. They also indicated that when they identified issues that needed to be addressed, this did not necessarily mean that they would be followed up to their satisfaction, since here again, the procedures for doing so rested with the management. Further issues that arose from their experiences included: the vulnerability of these representatives to reprisals from managers or supervisors who found their suggestions for safety-related actions unwelcome in relation to their production schedules; limited opportunity to speak privately with workers during joint inspections; and pressures from managers to monitor the safety behaviour of fellow workers, such as policing the wearing of personal protective equipment or identifying individuals as the immediate causes of safety failures. The patterns reported in the participants' more limited experiences of joint inspections in Indonesia were similar. Again, they highlighted the rather limited autonomy of workers' representatives to be able to act in a representative way on behalf of colleagues, and in most cases emphasised instead their role and that of joint inspection as part of the behaviour-based safety management systems that were a strong presence in the safety strategies deployed in these mines.

This said, there was a noticeable difference in the experience of full-time representatives in South Africa and the workmen's inspectors in India when compared with part-time sectional representatives or trade union members of the mine safety committees in these two countries. Both seemed to be able to exercise somewhat more control over their role in joint inspections than did the part-time representatives. But their positions were quite different in relation to their purpose and the way in which they did this. The South African participants who were full-time representatives acknowledged the problems facing sectional representatives involved in joint inspections, but indicated that their own experience of the training, facilities and information that were at their disposal enabled them to deploy a range of additional strategies to ensure their autonomous activity during joint inspections and to have a greater say in its follow-up. Rather differently, in India the workmen's inspectors played a stronger and more leading part in joint inspections than committee members, but at the same time they fully embraced their role of carrying out monitoring and disciplinary tasks that were part of the behaviour-based approaches to arrangements for safety in the mines.

The situation in Australia and Canada was somewhat different. In Canada in medium sized and large mines, arrangements for representation were formulated around the role of the joint safety and health committee, which among other things was mandated to inspect the mine on a monthly basis and to meet after the inspection. In Australia too, joint inspections were made possible by regulation.

In practice, however, as is clear from the accounts in Volume 2, while joint safety and health inspections took place in mines in both these countries and worker representatives were involved in them, they were not necessarily the main focus of their activities, as the experiences of participants suggested was the case for many representatives in other countries. In a number of cases in both Canada and Australia, representatives also appeared to be able to exert a stronger influence on the organisation and content of such inspections, finding opportunities to speak privately with workers appeared to be less of a problem and, although behaviour-based safety orientations were often strongly in evidence in the mines of these countries too, the testimony of representatives suggested that they were able to resist managerial coercion into becoming part of the monitoring function of such systems. They sometimes, however, shared the frustrations expressed in other countries concerning the follow-up to matters identified during joint inspections as requiring correction, but suggested the more effective use of a greater range of additional strategies in making representations to the mine mangers than was the case in other countries. As we see below, they were sometimes aided in this by the presence of additional regulatory provisions that were not available to support representation in other countries.

In Australia, for example, requirements on the functions of site safety and health representatives indicate that these include inspecting the mine, examining OSH documents, reviewing risk control procedures, detecting unsafe practices and conditions, taking actions to protect miners, and investigating their complaints. Those on the functions of industry level representatives indicate that they additionally include participating in investigations of accidents, HPIs (High Potential Incidents) and other OSH matters, and helping in initiatives to improve OSH at coal mines, as well as the power to make inquiries about OSH operations that affect workers, and to make copies of documents relating to safety and health management.

In Canada, in addition to joint inspection, the co-chairs of joint safety and health committees, or their designates, are also required to participate in the investigation of 'reportable occurrences', a list of which is provided in the legislation. In addition, they must be informed of events causing injuries. The committee is mandated to review and comment upon the health and safety programme developed by the management, and committee members must be given 'reasonable time' to carry out their duties as prescribed in the code. In smaller mines (with between nine and 19 workers), workers and/or their unions are required to choose a worker health and safety representative who has the same duties and functions as a joint safety and health committee. A further factor that is important to bear in mind in relation to Canada, however, as we detail in Volume 2, is that since arrangements embraced within collective bargaining agreements in mining have the force of law, the primary legislation is only required to facilitate this, rather than spell out the detail. This is left to the collective agreement which, at least in the mines that were the subject of the fieldwork analysed in Volume 2, allowed the arrangements made in practice in

Canada to align closer to those in Australia than to those in the other countries studied.

In South Africa too, requirements on the functions of safety and health representatives were somewhat wider than joint inspections. They included: identifying potential hazards and risks to health or safety; making representations or recommendations to the employer or to a health and safety committee on any matter affecting the health or safety of employees; inspecting any relevant document which must be kept in terms of the legislation; attending meetings of a health and safety committee, of which the representative is a member or which will consider a representation or recommendation made by that representative; requesting inspectors to conduct investigations; participating in consultations or inspections on health and safety with employers and/or inspectors; participating in internal health or safety audits; investigating complaints by employees relating to health and safety at work; and examining the causes of accidents and other dangerous occurrences in collaboration with the employer or a person acting on behalf of the employer, including visiting the site of an accident or dangerous occurrence at any reasonable time and attending a post-accident inspection. Here, however, while the full-time representatives indicated that they were usually able to undertake most of these activities, participants generally felt this to be far less the case for sectional representatives.

In comparison, in India the regulatory requirements address the duties of workmen's inspectors and the functions of members of joint safety committees separately. In the case of the former, they are mostly restricted to types of inspection activities to be performed (for example, inspection of different parts of the mine and the site of accidents), and for safety committees, the broad matters to be discussed and conduct of meetings. Similarly, Indonesian provisions, as already noted, are fairly circumspect concerning detailed functions of worker representatives. Of course, it is important not to assume too much concerning what these legislative differences in detailed rights and functions bestowed on worker representatives might imply about their operation in practice. Nevertheless, at least as far as an indicative study is able to demonstrate, it was evident that where the regulatory requirements specify the details of arrangements regarded as necessary or appropriate to achieve adequate forms representative engagement on OSH, such as is the case in Australia and to a lesser extent in South Africa, these arrangements seem to be more supportive and enabling of representatives' actions than where they do not, as is largely the case in Indonesia, or where they are more restricted to generic requirements on joint inspections, such as in India.

6.4.2 Independent investigations

In one way or another, all the representatives who participated in this study talked about their experiences of undertaking investigations or inspections of safety and health issues in the mines independent of the routine joint inspections they undertook with managers. However, there was considerable variation in the extent to which they did so, in their perception of the relative importance of these activities among the range of their functions and their effectiveness, and in the facilities and support they received to empower them to undertake these investigations independently.

Broadly, the pattern that emerges from an international comparison of the accounts of these activities presented in detail in Volume 2 resonates with the experiences recounted in the previous subsection on joint inspections. That is, participants in Australia, Canada and to some extent also in South Africa, were often able to furnish rich narratives of varied experiences of different types of investigations in which they had engaged on behalf of their fellow mine workers. These included undertaking independent investigations of matters they had noticed themselves, those that had been brought to their attention through complaints by their constituents, as well as those that new knowledge they had acquired or new procedures introduced into the mines had warranted:

> *The union guy can go out there and do a safety investigation on our own time* [during the paid time off paid for by the union to do health and safety work]
>
> <div align="right">*Representative, Canada*</div>

In India and Indonesia, the situation was less accommodating of independent actions by worker representatives and there did not seem to have been any formal arrangements in place in the mines to facilitate such actions. This did not mean that there were no such investigations, but they seem to have taken place on an ad-hoc and often opportunist basis, and in the representatives' own free time.

The representatives also discussed many of the challenges they faced in the course of such investigations and gave account of the strategies they used and actions they took to overcome them. There were two main types of problems they encountered, and both were more severe in the case of representatives whose activities were during brief periods of paid release from their normal job. The first challenge was to find the time and secure the permission to leave their normal work. If this was not available, representatives were unable to conduct investigations either on their own volition or as a result of complaints brought to them by their constituents. Time off facilities were both more well-established and supported in Australia and Canada, where in the latter case they were often the subject of detailed collective agreements, than in other countries, such as in India and Indonesia, where in some mines they were entirely absent in relation to these types of activity. But even in mines in which rights to time-off for safety related activities were well established, representatives often faced difficulties in using them in practice, especially where their normal work involved them in teams and in production orientated activities. Their absence from these activities was frequently not covered, leaving their fellow

workers to make up their work and threatening their supervisors and middle managers with missing their production targets.

The second challenge arose mostly from difficulties encountered with supervisory and middle management who were in various ways obstructive to the investigations of the representatives. In some cases, discussed in detail in Volume 2, representatives perceived the security of their employment to be threatened if they became involved in confrontations over their investigations. The extent to which they felt secure enough in their role to undertake these activities without fearing reprisal in terms of disciplinary actions or threats to future job security, was therefore a significant issue. Such issues were raised in all the countries in the study. In most cases, the statutory requirements governing worker representation on OSH, along with those covering labour relations and employment, offered some degree of protection from victimisation for representatives while carrying out their legitimate functions. However, these were widely regarded by representatives as insufficient in practice, while the degree of vulnerability they felt was more of a barrier to engagement for representatives in some countries than in others.

It was evident, for example, that safety committee members who took part in the study in India felt themselves to be seriously threatened by the possibility of disciplinary action for drawing attention to what they regarded as important failures of safety and health management in the mines in which they worked. Several interviewees made reference to their personal experiences of suspensions and threats of dismissal, while others felt unable to point out OSH issues to supervisors or managers for fear of victimisation, and did not feel protected from this by the statutory provisions under which they operated. In South Africa, hostility, especially from supervisors and middle management, to the actions of safety representatives was a frequent subject raised in discussion in interviews with them.

> *Sometimes you don't want to be trouble — you know they are going to penalise you….*
>
> *Representative, South Africa*

Sectional representatives were regarded as especially vulnerable, a finding confirmed in other current research on the role of representative participation on OSH in South African mines. For example, Coulson (2017) suggests a process of 'creeping responsibilisation' experienced by the sectional representatives. Her findings indicated that these representatives were coerced by managers and supervisors into feelings of responsibility for failure of their colleagues to comply with mine safety rules and given virtually no support for their autonomous actions in relation to representation. Moreover, they were made to feel very insecure in their employment and feared actions taken against them by supervisors and managers would result in the loss of their job.

In our own study, while interviewees acknowledged the presence of some degree of protection during the time they held office as representatives, they suggested that their future employment in the mines would be likely to be adversely affected if their actions as representatives came to the attention of managers. Similarly, Indonesian representatives spoke of concerns about their job security if they disagreed with supervisors and managers concerning safety and health matters and clearly did not

feel entirely secure as a result of statutory protections. And Indian representatives talked of the constant threat of suspension and possible dismissal if they raised contentious OSH issues.

> *I was suspended for four days once because I spoke out about the concerns. This is how they* [management] *undermine our value. But I do not fear being victimised as that is the only way ahead*
>
> *Representative, India*

Even in the Australian mines, where representatives acknowledged the strong backing for their actions from their trade unions, but also quite often from regulatory inspectors too, they nevertheless reported being threatened with litigation by mining companies when they attempted to use their statutory powers in matters of safety that were disputed by the company management.

These concerns are not entirely surprising, given the prevailing nature of labour relations in the sector globally, along with the pressures for production that were also strongly in evidence in all the countries studied. Representatives were thus especially concerned when they addressed what they perceived to be significant safety and health risks in the mines in which they operated, since these problems could easily lead to production processes being slowed or even stopped while they were more fully investigated and remedied. Such circumstances served to expose some representatives to hostility from their managers and supervisors, whose work was complicated by the identification of these problems and whose production schedules might also be affected as a result. It was at these times that the representatives felt especially vulnerable.

In these situations, the most effective strategies deployed by the representatives generally involved either potential or actual support from their trade unions. This served to help build confidence that they could undertake investigations without fear of reprisals, and in some more extreme cases, enabled them to rely on the intervention of either local, regional or even national trade union officials to support their position. As we will explore in more detail in the following chapter, such support served as a powerful precondition for the effective actions of the representatives.

6.4.3 Investigating accidents and incidents

Similar problems of securing adequate time off applied to the investigation of accidents and incidents as they did to other investigations. But there were also other barriers to such investigations in each of the five countries. In India, worker safety committee members said they were allowed no role in these activities, a view confirmed at least as far as accident investigations were concerned by the representative of the regulatory inspectorate who participated in the study. Workmen's inspectors were involved in the investigation of accidents, and they also liaised with the regulatory inspectors on this. However, they reported their findings to the mine management and did not seem to have much connection with the trade union side over these matters. This was in part understandable given their somewhat ambivalent position between the mine workers and their management and the highly contentious relations between labour and management that often followed workers being seriously harmed in Indian mines.

Similarly, in South Africa, where investigations of accidents and incidents were undertaken for company purposes of determining causation and accountability, there was little engagement sought from worker representatives. Mine workers were commonly blamed for causing accidents and disciplinary actions against mine workers were not uncommon. In such cases representatives often became involved in attempts to defend these mine workers, and recounted how investigating underlying causes of the accident or incident was not of interest to mine management. But here, as in most countries where mine safety committees existed, participants also reported that accident and incident investigations were the subject of discussion during health and safety committee meetings and there were usually procedures for reporting and following up accidents and incidents. Analysis of the documentation of inspections undertaken in the previous study in Queensland, showed that both site and industry representatives were involved in the investigation of serious (high potential) incidents, which is some indication of the way in which the representatives were engaged with serious OSH issues as opposed to trivial ones. These investigations also played a significant role in safety management systems in place in the mines (Walters, 2016a). Both these findings were confirmed by Australian representatives in the present study.

6.4.4 Obtaining information

Rights to information were a further common feature of statutory support in several countries and there was a relationship between the presence of these rights and the perceptions of representatives concerning the extent to which they felt informed or enabled to get access to information when they needed it.

Reported experiences in relation to accessing or using information occurred in tandem with the utilisation of other rights, such as those to training or support from full-time or industry level representatives. The description of an effective health and safety representative as a 'knowledge activist' such as discussed by Alan Hall and his colleagues (Hall et al, 2006 and 2016) is of some relevance here. For those representatives in Australia and Canada who seemed to be most effective, there were clear examples of the way in which they sought and used OSH information to help build their understandings and strategies to address the mine management concerning the changes to OSH arrangements they desired. In this respect, they valued sources of information that included those obtained through their trade unions as well as from regulatory authorities and OSH institutions, and they noted that their training had helped them in learning how to access, understand and use such materials. They also demonstrated capacities for strategic thinking in relation to obtaining information on OSH from the mine management and in corroborating or questioning this through the use of information they had obtained independently from other sources. In the case of the Australian representatives, there was a particular focus on learning to handle the complex compendium of mine safety regulations they referred to as 'the Bible'. In addition, there was evidence that their experience of learning to do this lent them considerable confidence and helped them to think strategically concerning how to address safety issues with the mine management.

However, the cases of well developed 'knowledge activists' among the mine level representatives were still not universally found even in Australia and Canada, and in the other countries in the study the picture was even more mixed. In South Africa,

occasionally in India, and even less frequently in Indonesia, we came across representatives who operated with some of the characteristics of Hall's 'knowledge activists', in the ways they independently sought and tried to use information on OSH in their relations with mine managers. But in South Africa, such activists were generally only found among full-time representatives and occasionally in the higher levels of the union branch structures in the mines or regionally. While in India, they were seen, but even more rarely, among trade union representatives who operated beyond the mine. Use of information was also observed among workmen's inspectors in India. In this case, however, although they were sometimes knowledgeable on safety matters, the independence of this knowledge from the managerial sources from which it was largely obtained was questionable, since as we have already made clear the workmen's inspectors did not function as autonomous representatives, but rather as instruments of the OSH management systems in the mines. In contrast, the trade union representatives who were members of health and safety committees often recognised their need for information and found that supplied by the mine management to be inadequate, but few of them knew where they might obtain such information other than through the mine management. Even among these few, experience of making effective use of such information that they had obtained from their trade union or independent sources was rare. In Indonesia, at mine level it was also unusual for representatives to demonstrate any independent access to information. Those that were able to obtain and use information did so by acquiring it mainly from the mining company management. Participants in the study were occasionally able to show they were aware that they may obtain information from their trade unions, but appeared to have made very limited use of this facility.

Apart from these issues of access and availability of information, one of the most significant barriers to its use was the level of education that had been received by the majority of representatives in the mines of South Africa, India and Indonesia. This seriously limited both their confidence and ability to know where to look for information and to interpret and apply its content to the issues in the mine in which they were interested. The absence of training in the skills and knowledge required of these representatives was a further handicap to their effective engagement with sources of information

6.4.5 Making representations

All the activities of inspection and investigation undertaken by worker representatives led them towards making representations to the management of mines concerning the safety and health issues that have been their focus. Moreover, they often resulted in representations requiring some form of remedial action from the mine management to resolve safety and health issues raised in this way. Indeed, the success of systems of representation of workers' interests in safety and health might, to a large extent, be judged by the outcomes of such representations. Many of the same supports and constraints identified in relation to inspection and investigation also applied in the case of making representations to managers.

In mines in most countries, there were processes that were meant to be followed in order to bring safety and health matters to the attention of the mine management, as well as to follow-up the action taken as a result. Interviewees explained how the

representatives' first point of contact might be with a supervisor to whom they reported a problem. If it was not possible to resolve it at this level, the supervisor might seek resolution at a higher management level. Or if this did not seem to be forthcoming, the representative might seek to do so themselves, or with support from a higher level of representation such as a full-time representative in South Africa, an industry representative in Australia, or the joint chair of the safety committee in Canada. During such processes, therefore, as with inspection and investigation, conflicts of interest might occur at any level of the interface with supervisors and managers, and many such conflicts and the strategies used to address them are documented in the analysis in Volume 2.

As with inspection and investigation, conflict was most frequent with supervisors, who often found their responsibility for the delivery of production schedules threatened by such representations and who also might not have the capacity or power of decision to resolve an issue to the representatives' satisfaction, but at the same time did not wish to request additional resources from more senior management. Despite the rhetoric of senior mine management concerning the prioritisation of safety matters, tensions between safety matters and those of cost and production priorities meant that the systems in place in the mines to resolve safety did not always operate in a straightforward way or in the absence of conflict. Strategies to overcome resistance in these systems for addressing preventive safety in the mines were central to the everyday functions of the worker representatives and occupied much of the time and the resources they used in order to engage with safety matters in all of the mines we studied. The effectiveness of the strategies they used to gain support and co-operation from mine managers and the ways in which they overcame obstacles, delays, resistance and even threats of reprisals in making representations on safety and health matters were key to their success in 'getting things done' in relation to representing the interests of their constituents. The means with which they did so and the supports they used to overcome these challenges are discussed further in the following chapter, where preconditions for effective worker representation in the different countries in the study are compared.

6.5 Using additional statutory rights — 'stopping the job' and the right to withdraw labour

In some countries, it will be recalled, there are several additional statutory rights for worker safety and health representatives, including reviewing safety and health management systems, stopping dangerous work, issuing provisional improvement notices and engagement with individual rights to refuse dangerous work. These additional rights were most developed in Australian statutory provisions, but were also found to some extent in Canadian collective agreements, as well as to a more limited extent in South Africa. They were, however, absent from both legislation and practice in the mines of India and Indonesia.

Among the most contentious of statutory supports are those that give representatives rights to require the cessation of activities or processes they regard to present serious and imminent risks of injury or ill-health, which also can include causing the stoppage of the production of part or all of a mine, and rights to instruct workers to withdraw their labour from situations deemed to be dangerous. Such measures are found, to varying degrees, in several jurisdictions. Since they were

most developed in Australia, it is instructive to explore the role they played in representative participation there, since it is quite clear from previous studies that this was significant, both in the ways in which these rights were exercised, and in the legitimacy and status they brought to the role of the representatives (Walters et al, 2016a). The present study confirmed these findings. As we have detailed in the analysis in Volume 2, representatives in both Queensland and New South Wales attached considerable significance to these powers, even though the powers themselves and who used them differed slightly between states.

The representatives were well aware of the contentious and serious nature of their powers to stop dangerous work, and of the objections from the mining companies to the existence of such powers. Looking at what representatives said in previous studies illustrates this. For example:

> *Look, as to our powers and functions to stop stuff, we will give the mine the option first. So we will go up and say we believe this is unacceptable, you need to do this, this and that and then we will go and see them or document it, send them an e-mail and then they usually, 99.9% of the time, say yeah we will fix this.*
>
> *Site representative, Australia[23]*

> *Yes, we don't take it lightly. ... It has got to be a high-risk area and a high-risk task…..*
>
> *Site representative, Australia[24]*

Representatives in the present study repeated similar views. They also made it plain that they took care not to stray beyond boundaries that are defined in the legislation and normally preferred to find solutions though consultation or negotiation with managers rather than resorting to formal and legally supported actions. Nevertheless, they were at the same time strongly convinced of the importance of their possession of such powers and the seriousness of the message this conveyed both to their fellow-mine workers and the mine management. As the findings of the previous studies also demonstrate, there was substantial evidence to indicate they were correct in this assessment:

> *I see the workforce gains a fair bit of confidence from what we do, if we're happy or if we consider it safe, they accept, that yeah, we've got the risk as low as is reasonably achievable, if we're not confident or happy with what's been decided or the controls, they know we've got the power to go further.*
>
> *Site representative, Australia[25]*

Again, these sentiments were repeated by the Australian representatives in the present study.

In Canada and in South Africa, representatives possessed slightly different, but nevertheless significant, powers to support workers' rights to withdraw their labour

---

[23] From Walters et al, 2016a.
[24] From Walters et al, 2016b.
[25] From Walters et al, 2016a.

from situations they thought to be dangerous. As the findings show, the use of these powers by representatives were subject to somewhat more complex pressures than were evident in Australia. In South Africa, for example, although the NUM representatives that participated in the study had various strategies with which to combat the effects of the 'creeping responsibilisation' identified by Coulson in relation to the activities of sectional representatives in gold mines, they were nevertheless acutely aware of the pressures being applied by supervisors and managers to the activities of the sectional representatives in the coal mines in which they worked. As the detailed discussion of the South African findings in Volume 2 also indicates, representatives had powers to act themselves to stop the use of plant or processes they regarded as too dangerous. Here too, however, the full-time representatives demonstrated that such actions were not straightforward and were often contested or subverted by mine supervisors and managers. Interviewees in Canada also spoke of ways in which efforts to support mine workers' rights to refuse dangerous work could be subverted by supervisors and managers in ways similar to those identified by Gray (2009) in his analysis of responsibilisation of the 'right to refuse' in other sectors in Canada.

Other additional powers that were significant in the activities of the representatives were, in particular, rights to review safety and health arrangements that are found in regulatory provisions in Australia. Here, both the present and previous studies showed representatives adopted approaches to making representations in which they were able to use the identification of specific risks as symptomatic evidence of inadequacies in the management systems that should ameliorate and control these risks and were able to suggest modifications to remedy systemic weaknesses. As we note in Volume 2, the greater attention paid to safety and health management systems approaches in the mines caused mine managers to often ask the representatives about changes that might be required to be made to procedures. Clearly, while this was a positive development in terms of participation, it also placed substantial demands on the site representatives, on the training they receive, and on the support they could call on from industry level representatives, and we explore some of the preconditions necessary to achieve effective participation at this level in the following chapter. Further implicit in these activities in the Australian mines were: firstly, representatives needed to engage with levels of mine management considerably higher than supervisors in order to review and suggest improvements to safety management systems; and secondly, to do so involved some degree of engagement in the planning of prevention as well as requiring 'consultation in good time'. Our evidence suggests that at least some of the Australian representatives succeeded in achieving both these things with the strong support of their trade union and the cooperation of the regulatory inspectorate. Some similar examples of activities at this level were reported from Canada, and to a lesser extent from South Africa, but there was little if any sign of them elsewhere.

6.6　Conclusions: what works?

We demonstrated in Chapter 2 that there is a large body of research evidence indicating that arrangements for worker representation on safety and health make a significant contribution to the effectiveness of regulated self-regulation. Although, for coal mines, evidence of the effectiveness of arrangements for representing workers on OSH is relatively scarce, essentially there are three bodies of such evidence. Firstly there are a few quantitative studies that suggest a positive association between OSH outcomes, such as injuries and fatalities, and the presence of trade unions in coal mines in the US. A second small body of evidence, drawn from studies undertaken in Queensland on which the present research was based, demonstrates through the analysis of the records of mine inspections by trade union representatives and regulatory inspectors that representatives were effective in addressing serious risks, as well as in intervening in the operation and review of OSH management systems. Interviews in the same studies helped to reveal how they did this, and how they used their statutory powers and representational skills to engage mine management in achieving improvement in OSH. The third body of evidence — which is also reviewed in Chapter 2 — is found in studies of safety and health management more generally in coal mining. These support conclusions that participative approaches to OSH management have been more effective than non-participatory arrangements, especially by comparing American and Australian experience in this respect.

The present study, therefore, provides a further contribution to what is already known about 'what works'. Firstly, by revisiting and extending the Australian field studies, not only to embrace new material from Queensland, but to also include an analysis of data gathered from New South Wales, it provides a considerable body of new qualitative evidence. This evidence confirms previous conclusions concerning the impact of representation on arrangements and outcomes in Australian coal mines, while at the same time deepening and broadening understandings of the contextual determinants of both the actions of representatives and their outcomes. Thus, it confirms that representatives in these settings operate most effectively by deliberately staying within a strict interpretation of both the regulatory framework governing their activities and that which identifies safety standards required in the mines in which they are active. They combine this approach with embedding their activities within those of the wider trade union organisation within the mine, and outside it, and in this way, in a hostile climate of labour relations, they are effective in representing mine workers and making a contribution to improved OSH practice. It suggests that the concerns of researchers who worry about the consequences of poor labour relations and the absence of trust limiting what is possible to achieve through participative arrangements in regulated self-regulation may be misplaced and reflect a failure to appreciate the wider and historical dimensions of embedded social relations in the industry. While of course conflict and the absence of trust influences the way things are done, it is endemic in the industry and our studies show that trade union representatives have developed effective ways in which they are able to 'get things done' to improve OSH despite these contexts.

Turning to other countries, and drawing on the detailed accounts in Volume 2, the first observation it is important to stress is that the empirical evidence of the actions of worker representation on OSH in mining in these countries is far less developed

than is the case in Australia. It is also necessary to acknowledge that limitations in resources available to the present research mean it has gathered indications of these actions through qualitative interviews with a comparatively small number of key informants in each country. Clearly, more robust and detailed research is required before these indicative findings can be properly substantiated. Nevertheless, when findings from these countries are examined in combination with those from Australia where more robust study was possible, as well as with the wider literature, strong indications of patterns in the effects of worker representation become clear for all of the countries studied. Above all they show how limitations to the success of arrangements for representing workers' interests in OSH may be imposed, on the one hand by the distribution of power in relations between capital and labour, and on the other by the much weaker regulatory steer evident in some countries when they are compared with that evident in Australia.

For example, the research concluded that in Canada — where it will be recalled the regulatory provisions foreground the role of the joint safety and health committee within the internal responsibility system for safety and health — there was a strong preference expressed in unionized mines for addressing the detail of arrangements for safety and health representatives, joint committees and other matters of OSH through the collective agreement, rather than through reliance solely on provisions of regulation. Where this had been done in the strongly organized mines where most of the mine level interviewees were employed, generally they were able to point to similar successes in the activities of health and safety representatives to those reported in Australia. That is, they discussed examples of intervening to stop dangerous work, their strategies for undertaking inspections with managers, reviewing OSH management systems, and acting independently in relation to investigating workers' concerns, as well as using information, mobilizing support from union members for their efforts and obtaining training from trade union sources. Although there were no industry level representatives present such as under the Australian system, the senior officers of the union local and the co-chair of the joint safety and health committee acted in tandem to provide long-term experience of negotiating with managers at a high level and something of a similar input to that of the Industry Safety and Health Representatives in Australia. Overall, the union representatives in these mines acted very much in line with the features of 'knowledge activists' that have been described by Canadian researchers as being the most effective form of representative on OSH found in Canadian workplaces in general (Hall et al, 2006 and 2016). From these indications, we think it reasonable to infer that where provisions of collective agreements served to enhance the regulatory framework Canadian representatives were as effective as their Australian counterparts in contributing to monitoring and improving OSH in the coal mines in which they were active.

In South Africa too, there were strong indications that under certain conditions the arrangements for worker representation on OSH matters in coal mines could be effective and contribute to improvement in OSH management and outcomes. Although there is an almost complete absence of research literature specifically addressing the activities of worker representatives in South African coal mines, the evaluation of more general OSH management arrangements in South African mines also points to the positive role of arrangements for worker representation in influencing OSH management. More specifically, however, our studies suggested

that there was a significant difference between the activities and effectiveness of the part-time sectional representatives in mines and those of the full-time representatives. The former were considerably more limited than the latter in most cases, both in terms of the tasks they performed in relation to representing workers on OSH and in their capacity to undertake them. They were also more vulnerable to both coercion from supervisors and managers and victimisation. In the case of full-time OSH representatives, the research suggested quite a mixed picture, in which some representatives were reported to be incorporated into the managerial systems for safety and health in the mine, while other representatives had managed to retain a more autonomous position even when they were physically located within the OSH department in the mine. The best-case scenarios described by interviewees were similar in several respects to those in both Australia and Canada. That is, the representatives were well informed and well-trained, they performed inspection activities both jointly with managers but also separately and in relation to investigation of mine workers' concerns. Some displayed considerable technical knowledge of safety, health and hygiene matters, a substantial part of which had been obtained through training organized by their employer. They were able to discuss concrete examples of serious health and safety issues they had identified in the mines, in relation to which they had participated in the development of remedial measures. They had clear strategies in mind to deal with the need to withdraw from dangerous work and to identify and stop using dangerous machinery and so on, while at the same time being well aware of the potential conflicts of interest on these matters between them and supervisors and managers who held responsibilities for production. They were also able to demonstrate a clear understanding of the support they could expect to receive from the institutional structures of the NUM both within the mine and outside it.

As this was not a systematic or quantitative study, and the selection of interviewees through their trade union undoubtedly meant that the sample was biased towards inclusion of some more prominent and effective 'knowledge activists' among the NUM representatives, we are not able to determine the extent of effective worker representation on OSH in the South African industry as a whole. Nevertheless, the findings of the study serve to indicate that, within the constraints of the South African context, there is strong indicative evidence that worker representation on OSH at times made an effective contribution to OSH arrangements and outcomes.

In all these examples of successful forms of representation on OSH, what emerges most prominently is that the actions of competent and committed worker representatives take them far beyond undertaking the functions prescribed for them by statute. A very strong sense of the dynamism of 'knowledge activism' was evident in their testimonies. As is clear from the many quotes presented in the national accounts, the mark of the success of these 'knowledge activists' was their possession of the knowledge, skills and confidence to be able to act autonomously in relation to safety and health issues that had come to their attention. This included not only undertaking routine inspections, but also hearing and investigating complaints from their fellow mine workers, and pursuing their own investigations of these matters or others that had come to their attention when undertaking their own independent investigations of safety and health issues in the mine. In all these activities, they were obliged to frequently engage with unsympathetic and sometimes overtly hostile supervisors and middle managers. The representatives often

demonstrated highly developed understandings of the ways in which they needed to pursue matters in the face of this hostility and of the tactics they needed to deploy in order to obtain the results they desired. Such tactics were almost always imbued with a sense of their position as trade union representatives within wider institutions and procedures for union representation within and outside the mines in which they were active. It often involved them in liaising with other union representatives and on some occasions with regulatory inspectors. These and other 'preconditions for effectiveness' are explored in greater depth in the following chapter.

In nearly all cases representatives demonstrated an awareness of their position within the contested labour relations of the mine and were often at pains to explain how they could take nothing for granted in relation to their employment security in this respect, and the necessity to ensure support for their position from their fellow workers and their trade union at the mine. They conveyed an impression of being engaged with these matters in ways that required the application of the skills and knowledge they had acquired through training, further honed by their experiences of making representations to supervisors and to middle and senior managers. But their testimonies also indicated that they undertook these activities with a strong sense of identification with the miners they represented. Such consciousness and awareness of their responsibilities for *representing* mine workers was a key characteristic of virtually all the representatives in the study who could be said to fit Hall and his colleagues' (2006) description of 'knowledge activists'.

Drawing conclusions concerning 'what works' in representing workers' interests in OSH in coal mining in the other two countries included in the study is more difficult. There was a huge gap between what the model of representative participation followed in varying degrees in Australia, Canada and South Africa was able to achieve, and practices of representation, their outcomes and the contexts in which they occurred in India and Indonesia. The research was unable to find any previous studies on the role of representative participation in OSH in mining in either country to help situate its findings, and the indicative accounts of the informants in the present study left many questions unanswered concerning the typicality of their experiences.

This was especially the case concerning the possible achievements of the arrangements that were in place in the mines where they worked, the extent to which such arrangements and their outcomes could be said to be representative of those in coal mining in the formal sectors more generally, and whether what determined such arrangements and their outcomes in the mines we studied was more generally applicable in coal mines elsewhere in both countries. More systematic and wide-ranging studies of these matters are clearly necessary.

This said, it was evident that arrangements for representative participation based along similar statutory lines to those found in the other countries in the study were present to varying degrees in coal mines of both countries. Regulators, policy makers and trade union leaders in both countries anticipated that they would play a similar role in regulated (or enforced) self-regulation of OSH to that observed elsewhere. However, it was equally obvious support for them was far less in evidence in either India or Indonesia.

For most of the Indian and Indonesian participants in the study, being a health and safety representative gave them little scope for the kinds of autonomous actions described in Australia, Canada and South Africa. For the Indian members of joint safety committees, for example, while they demonstrated awareness concerning poor safety and health conditions in the mine, the extent of their actions to address these conditions was more often than not limited to participating in joint inspections and discussing the results of such inspections at safety committee meetings. They felt there was little they were allowed or able to contribute to these discussions. This was partly because of the ways in which they felt the mine management controlled and manipulated the agendas, but also because of their own lack of confidence resulting from poor education, vulnerable employment and limited experience of safety in the mine beyond that of the narrowly defined tasks they were mostly employed to undertake. As a result, their participation in practice often appeared to amount to little more than being the recipients of information provided by the mine management concerning actions on OSH. Moreover, they had virtually no training, and displayed little capacity to act autonomously in seeking or using OSH information or in making representations to supervisors and managers outside of their engagement with joint inspections and the safety committees. As the account of participation in OSH in India further makes clear, while the workmen's inspectors who were also present in the Indian mines had more knowledge and decision latitude on OSH, as well as some training, in practice these individuals largely operated as part of safety arrangements put in place by the mine management and under the control of the mine safety department. They largely accepted the responsibilisation of their role in this respect, though it caused significant concern for some, and much of their activity appeared to be concerned with implementing managerial approaches to changing the behaviour of mine workers:

> *Maintaining a balance between the workers and managers is my responsibility and it is not easy*
>
> *Workmen's Inspector, India*

> *Please could you tell us whether I will go to jail if there is an accident or a fatality in the mine…? I worry about it a lot and think that even if I don't have any fault I may be dragged in the business and eventually end up in jail. Perhaps you know the answer to this question?*
>
> *Workmen's Inspector, India*

In Indonesia, a similar lack of support for autonomous actions was evident in the ways representatives spoke about their roles in the mines where they worked. Indeed, it was exceptional to find anyone among them who operated in ways similar to the knowledge activists in the Australian, Canadian and South African mines. Compared with India and elsewhere, trade union organisation in the mines was weakly developed and in the majority of mines, non-existent. But even where there was a structure of trade union representation in the mine, for the most part it had little capacity to address representation on OSH effectively. Those representatives who demonstrated some understanding of OSH matters and gave examples of actions in which they had engaged with the mine management on behalf of fellow workers were more often than not already employed in some safety capacity in the

mine and were able to bring the knowledge gained in this way to their role as a safety representative.

In both India and Indonesia it was plain that the experience among participants in the study of OSH conditions in the mines in which they were active, and the employment contexts in which they occurred, were extremely challenging. Conditions were described as extremely poor and the work hazardous. It is further clear that the nature of the employment relationships in these situations often undermined and limited the effective operation of arrangements for worker representation on OSH. In the coal mines in both countries there was little sign of the presence of procedures that might allow effective dialogue on safety and health in the mines. And while the miners' representatives conveyed a strong sense of awareness of a conflict of interest between themselves and the mine management over safety and health issues, there was little evidence of any procedures in place that would allow miners' representatives to make representations with some chance of influencing outcomes. The consequence of this was that when serious disputes took place over safety matters they usually followed a major incident, such as a serious injury or fatality, took the form of mass demonstrations or walkouts at the mine, involving not only the mine workers but the local community too. In this combination of circumstances, it becomes very difficult indeed to answer a deceptively simple question such as 'what works' in arrangements for representative worker participation in OSH.

In sum, therefore, while there is clear evidence of worker representation contributing to successful OSH practices and outcomes in the advanced economies included in the study, the situation in other countries is far less clear. It seems clear that the success of representation on OSH in coal mines in advanced economies, where statutory arrangements are of longstanding and where representation benefits from the strong support of trade unions, is owed in large part to these preconditions, even in situations in which labour relations are hostile and corporate approaches to managing OSH are unsympathetic. In other countries, where organised labour is either weakly developed or orientated towards different models of industrial conflict, and statutory provisions are either weakly developed or modified in practice, workplace representation and consultation on safety and health appears to have had far less impact.

In short, therefore, this research demonstrates that worker representatives have the potential to make a significant contribution to improving safety and health in coal mines in all of the countries studied. However, it also shows that the extent of this contribution varies considerably in practice and it was far more developed in some countries than in others. Our evidence further suggests that the effectiveness of the contribution of worker representation is strongly influenced by a set of determinants of practice that include, but go some way beyond, the relevant statutory provisions. It is to a comparative analysis of these determinants of practice that we turn next.

7. Support for the effectiveness of worker representation on OSH

7.1 Introduction

The national studies presented in Volume 2 of this report demonstrated that arrangements to implement statutory requirements on worker representation and consultation on safety and health in coal mines were dependent on the presence of a number of supports for their effective operation in the workplaces to which they applied. In this respect, they indicate that findings of previous studies in other sectors may also be relevant in mining. It will be recalled, from the review of the research literature in Chapter 2 that these studies showed that, along with the steer provided by regulation, there were several further preconditions for effective worker representation and consultation. They included: employer/management commitment to both improving arrangements in place for safety and health in the organisation and doing so in a participative way; the competence and engagement of the representatives themselves (something strongly influenced by their experience of training in the role) and good communication and support from their constituents — the workers on whose behalf they make representations; as well as support from organised labour, both inside and outside workplaces. Moreover, there is widespread agreement in the literature that the presence of well-established institutions and procedures for labour relations, along with a consensual climate in the organisation, is likely to provide a supportive environment for representative participation on OSH (EU-OSHA, 2017). Beyond these, Chapter 2 also indicated that there is a further set of determinants relevant to the effectiveness of worker representation on OSH, found both within and around workplaces. Within establishments, these include factors such as size, sector, risk profile, knowledge, unionisation, collective bargaining arrangements, OSH management systems etc. While those external to the establishment, or acting in more indirect ways, include: macro-economic factors, such as the structure and productivity of the sector and its position relative to the wider economy, as well as the nature and policies of corporate governance in the industry, the wider regulatory ethos and the resourcing of regulatory agencies in relation to it, and so on.

The literature suggests that together all these factors act to influence both the nature of managerial approaches to participative arrangements for OSH and the capacity of workers and their organisations to engage effectively with the operation of arrangements in order to influence which people are selected or appointed as worker safety and health representatives or committee members. Similarly, they are influential over the access to training and to the type of training the latter may be entitled to receive and hence the special skills they come to possess as well as what they are able to do with them in practice. As a result, therefore, these factors effectively determine the means used to operationalise the regulatory functions and entitlements of representatives, as well as the extent to which they are able to carry out their roles effectively.

The analysis in Volume 2 suggests that similar factors affect the effectiveness of worker representation on safety and health in mining too. But the extent of their influence and the outcomes that result may vary from country to country. The

present chapter, therefore, compares key findings from the national studies concerning the ways in which the presence or otherwise of these preconditions influenced the operation of arrangements to implement statutory provisions on worker representation on safety and health in coal mines in the countries concerned. This comparative analysis aims to identify supports and constraints to representation and consultation that might be regarded as universal in their application and effects across a range of different national contexts; as well as those particularities of processes and contexts that, at the same time, help explain why practices of representation and consultation and their outcomes might vary between coal mines in different countries.

The chapter begins with the role of employers and their management in facilitating the adoption and operation of measures on worker representation on safety and health in the coal mines of the countries studied. It then moves on to consider the role of support for the qualities and competencies of the worker representatives themselves, through a comparative examination of access to training and its quality among the examples we studied. Following this, the experience of support from regulatory inspectorates across the five countries is compared. Some common patterns are found in the relationship between the engagement of regulatory inspectors with worker representatives and the perceptions of both concerning the effectiveness of the latter.

The approach taken to the comparative analysis presented in this chapter takes as its point of departure ideas found in previous research that suggest that, to be effective, worker representatives are likely to possess a set of qualities that enable them to act as 'knowledge activists' in relation to their interlocutors both among the managers with whom they interact and among the constituents whose safety and health they represent (see for example Hall et al, 2006 and 2016; Kvernberg Andersen et al, 2009). These qualities help them exercise their judgement in selecting the strategies they deem to be appropriate in their relations with managers and supervisors from a spectrum of possible action that ranges from consensus to conflict depending upon the contexts of labour relations and personal communication in which their actions take place (see for example Walters and Frick, 2000). Such contexts are, of course, also very much influenced by the strategies of mining corporations towards their business, and the productivity and the organisation of work and employment in the mines they operate, as well as by corporate approaches towards arrangements for safety and health in these situations. Similar patterns in such strategies are evident globally and reflected in the experiences analysed in detail in Volume 2 in the reports of the five countries we studied. In the present chapter, therefore, we compare how these wider contextual influences were felt among the participants in our study, and how they influenced their effectiveness in representation on safety and health in the mines in which they were active.

This leads to some contemplation of the role of global influences on worker representation in the different countries in the study. From the outline presented in Chapter 4 it is evident both that there are international labour standards, such as those of ILO Conventions, that are relevant to supporting worker representation and consultation on safety and health in mining, and also that international trade union organisations deploy various strategies to support the implementation and operation of these standards. The present chapter, therefore, concludes with some

comparative reflections on the impact of such global influences on practices in coal mining in the countries studied.

7.2   The role of employers and their management

Requirements to facilitate the implementation of measures on worker representation in OSH are sometimes stated explicitly in national provisions, such as in the organisation of the election of representatives or the institution of joint safety and health committees, the provision of facility time without loss of pay for representatives to carry out their various activities and undertake training, the requirement to consult with representatives on safety and health matters in good time, and so on. It is already clear from the previous chapter, as well as the detailed accounts in Volume 2, that the extent and explicit nature of these requirements vary considerably between countries. But implicit in the statutory measures on worker representation and consultation everywhere is the notion that employers and their managers will co-operate to facilitate their effective operation.

However, the *leitmotif* most strongly evident in the testimony of participants in many of the national studies was a sense of the limited engagement of mine managers and supervisors with actively facilitating and supporting the form of participation provided for by national and global requirements (such as ILO Convention 176). Indeed, the accounts of their relations with supervisors and managers that were discussed in the previous chapter, were comparable in the ways in which they consistently found those relations problematic when they attempted to undertake autonomous actions to represent their mine worker constituents on matters of their safety and health. The detailed analysis in Volume 2 shows that in all countries the representatives themselves identified a host of different reasons for the difficulties they experienced. These included the relative ignorance of supervisory staff concerning technical or legal aspects of the safety or health matters in question; and the pressures that supervisory and middle managers felt themselves to be under in terms of production, which acted to generate unwillingness on their part to countenance any kind of action that might cause them to be unable to meet such requirements. Relatedly, and further, this pressure was often the reason for their unwillingness to allow representatives the necessary time away from these production tasks to enable them to properly investigate OSH issues that may have come to their attention.

These commonly experienced obstacles to representative actions in practice, suggest that while the regulatory provisions may have identified a host of functions for worker safety and health representatives, such as investigating complaints, information, undertaking inspections of dangerous incidents or accidents, and so on, their capacity to carry those functions out in practice was often constrained by negative attitudes of supervisors and managers to allowing them time to do so. Of course, representatives also provided numerous examples of how they found ways to overcome these obstacles. Generally, however, those who did so successfully were situated in mines where there was a more balanced distribution of power between organised labour and management, or were more senior and experienced representatives whose training and experience had helped them to find ways around the obstacles placed in their way by supervisors and middle managers. Indeed, as the national accounts demonstrate, representatives often felt they were more likely to be listened to by senior managers who had a both a better grasp of their

responsibilities for safety in the mine and a greater capacity to take appropriate action than that shared by more junior colleagues.

Overall, however, our findings strongly support the conclusion that, far from facilitating and supporting the forms of representation on OSH that were often required by statute, and which were not under the direct control of the employer, the layers of company management and supervision present in mining companies frequently displayed an embedded resistance to the operation of representative participation, especially at the supervisory management level, making the task of the representatives considerably more challenging and creating confrontational situations. This is in contrast to those driven by mutual trust and co-operation that other writers find to be supportive of participative approaches to OSH in mines and elsewhere (see for example Gunningham and Sinclair, 2012).

These findings were further exacerbated by the behaviour-based safety management strategies adopted in many of the mines in all of the countries we studied. Such approaches, as we have previously noted, which were often endorsed by the corporate leadership of the company and replete with aspirational slogans concerning commitment to higher performance and accountability for failure, were framed in unitary terms concerning shared belief in organisational goals in relation to both productivity and safety. They are especially prominent in employers' efforts to implement voluntary OSH management standards and in the OSH management systems based on them, which have occurred both nationally and globally alongside the growth of process regulation. This we have seen to be the case in coal mining as much as it is in other sectors of the economy globally. As we have detailed in this report, while process regulation often places the right to representation among the core elements of a pluralist approach to OSH management, voluntary standards and systems of OSH management are informed by an essentially unitary framing of labour relations on OSH and either ignore or incorporate worker representation and consultation within arrangements to manage OSH that are controlled by the company. In such approaches, which were largely what the behaviourally based OSH management systems favoured by corporate OSH strategies of most mining companies in the present study were based upon, workers' participation in OSH is largely regarded as a matter of following company rules on safe behaviour. These rules are directly communicated in various ways to employees who are required/encouraged to 'participate' by attending safety briefings, tool-box talks and the like. Safety representatives, if they exist at all under such systems, are incorporated into their operation to act as the 'eyes and ears' of the safety management in order to ensure compliance from workers on matters of safety behaviour. There is little room in these approaches for the forms of autonomous 'knowledge activism' that researchers have associated with effective actions on the part of worker health and safety representatives.

As has been observed elsewhere (see for example Frick, 2011), there is something of a paradox inherent in the application of these approaches because, while the broad goals of such systems at the corporate level are replete with process orientated aspirations to enhance efficiencies and effectiveness, in fact the processes thus introduced at the level of the workplace often entail highly prescriptive forms of rule following and behaviour controls for the workers upon whom they are imposed.

As is clear from the national accounts, especially in South Africa, India and Indonesia, such approaches were strongly in evidence in the mines in which participants in the present study attempted to engage in representative and consultative activities on OSH, and acted to counter such attempts. In South Africa participants suggested that a managerial expectation of safety representatives was that they would play a role in ensuring compliance from mine workers with health and safety rules and practices of safety behaviour and to some extent the safety representatives appeared to accept this role as part of their functions. At the same time, participants spoke about the double standards employed in seeking compliance from workers on matters of safety behaviour, with some workers subjected to heavy penalties for transgressions, and the general climate of fear and insecurity in the mines that was engendered by the use of such behaviour-based approaches:

> *Workers are worried about their names reaching the management, so they often choose not to mention their concerns*
>
> *Representative, India*

In India, experiences of representatives and workmen's inspectors were frequently described in relation to the behaviour-based arrangements made by managers for organising safety within the mines, and in this respect the workmen's inspectors were especially tasked with policing the behaviour of mine workers. Similarly, in Indonesia, audited OSH management systems, which are a statutory requirement in mines, appear to be in practice dominated by behaviour-based approaches. Miners' representatives indicated that these systems focused on rule-following and the behaviour of mine workers and frequently failed to adequately address the root causes of many of the risks to both their safety and health, especially when these required engineering or environmental controls.

Even in the mines in Australia and Canada, in which the trade union representatives more consciously resisted incorporation into such systems, the systems themselves were nevertheless often present. In Australia, representatives linked their use to deliberate attempts to marginalise representatives through discussing safety management procedures with individual mine workers of their choice rather than by following agreed consultative procedures. While in Canada, union officials also suggested that behaviour-based safety systems were widely used by mining companies and allowed employers to ignore both collective agreements and legislative provisions. The function of regulation was thus usurped by these systems, leading to the marginalization of labour in the management of OSH issues and reducing the efficacy of the health and safety committees, and was even being used by management to resist the application of OSH committee provisions that were detailed in collective agreements.

In short, behaviour-based approaches were perceived by many participants to militate against an autonomous role for worker representatives in consultation over OSH matters. They were especially prominent in cases where the presence of organised labour was limited. They deployed a variety of strategies in which direct methods of communication between management and workers were used: to ensure that safety awareness and safety behaviour among workers was in accordance with managerial expectations; to ensure that particular procedures for reporting incidents

were adhered to; and to set up particular organisational structures, such as group meetings, to allow such direct communication. Although many of these arrangements supposedly promote two-way flows of communication, as the previous paragraphs make clear, our findings indicate that their adoption was criticised because they marginalised the role of representation and allowed feedback from workers only under managerially determined control and in relation to managerial notions of how things should be done in relation to safety.

These reactions are not especially surprising. Behaviour-based safety (BBS) approaches to managing OSH are widely favoured by corporate interests and increasingly attract substantial support from OSH professionals/practitioners as well as regulatory agencies, although evidence for their success is mixed (see for example Dalrymple et al, 1998; Frick et al, 2000; Frick 2011; Hopkins, 2000, 2005a and b; Kogi, 2002; Dejoy, 2005). Frick and Kempa (2011) summarise concerns with this approach:

> *The prevention described more often revolves around … control of 'safe' procedures than the prescribed upstream prevention of eliminating risks at the design stage. And the worker participation described in these examples is more a top-down communication on why and how to obey management safety procedures than a genuine dialogue between management and workers …...*

BBS strongly emphasise methods of direct participation in which managerial prerogatives and control are maintained in relation to OSH requirements and where the capacity for autonomous participatory action by workers and their representatives may be constrained. Such systems are not necessarily oppositional to forms of representative participation and some observers report that the two can co-exist effectively within the same organisation (Lunt et al, 2008). However, other research studies show clearly that an excessive focus on the former does marginalise representative participation (Walters and Frick, 2000; Walters and Nichols, 2007; EU-OSHA, 2017). In these systems, which tend to regard 'worker engagement' as compliance with corporate rules, the preconditions for effective worker representation according to pluralist regulatory models are often undermined, even though regulatory frameworks supporting the latter largely remain in place (Quinlan, 2014). Thus, such schemes focus notions of participation exclusively on operational and implementation issues rather than on strategic and systemic ones (which remain entirely a corporate prerogative) This leads to situations, such as those observed in the present study especially in India, South Africa and Indonesia where, if they not marginalised, representatives are regarded as 'acting as the eyes and ears' of the safety management department.

A further influence on successful adoption of effective BBS management systems is the amount of trust that exists between workers and their management concerning their purpose and use — such as in relation to the role of reporting and monitoring within such systems (Conchie et al, 2006). Where trust is low, as Gunningham and Sinclair (2012) have argued to be the case in coal mines in Australia, and we have confirmed more widely in the present study, research evidence indicates that outcomes are likely to be poor. This is even more the case in relation to monitoring safe behaviours. Such monitoring and its encouragement are fundamental to BBS

programmes. We and others have noted it to be much in evidence in the management of safety in coal mines. But where monitoring unsafe behaviour, and requiring workers or their representatives to monitor and report the unsafe behaviour of other workers, takes place in situations in which trust between workers and managers is already low, there is a likelihood that it will fail to achieve the beneficial effects intended. Indeed, as Hopkins (2005b) concludes:

> *Where such distrust exists it is pointless for employers to seek to introduce such programmes. The evidence is that they will fail.*

Nevertheless, these systems are commonly adopted by large organisations, like most of the mining companies in which the majority of participants in our study held representative functions. While international bodies with an interest in safety in mining promulgate approaches such as 'vision zero' and the so-called 'seven golden rules' of ISSA to achieve voluntary engagement of corporate interest in systems to improve OSH, they do so with a conscious appeal to a unitarist corporate culture rather than the pluralism on which the regulatory measures supporting representative participation are based. Although the rhetoric of such approaches encourages a 'no blame culture' and claims that investment in people and their participation is one of their elements, in practice it is easy to see how they don't challenge a behaviour based approach in any fundamental way or empower the representation of workers interests. In such scenarios it is difficult for worker representatives to gain a purchase in participative approaches to health and safety management, and in such circumstances the alternative course of action for representation is to defend what representatives and their workplace organisations regard as workers' interests in the face of a perception of poor OSH management. That is, rather than operating proactively and initiating changes from within arrangements for OSH management, they are obliged to act outside of the management system from which managers have effectively excluded them. This seems to have been what took place in many of the mines in our study in which representatives were able to take autonomous actions on OSH. In others, representatives who lacked resources and support for autonomous actions, simply became incorporated into the management structures for safety management and functioned essentially as part of these systems and under the direct control of their managers. In both cases, the predominance of BBS was instrumental in driving these outcomes.

The success of representatives' efforts were therefore often highly constrained by dominant managerial strategies aimed at controlling safety through requirements for rule following to reduce unsafe acts on the part of workers. Such efforts often acted to further demonstrate the extent of the cognitive dissonance between the corporate management's notions of what constituted appropriate approaches to safety organisation and those of the representatives and their trade union. Incorporation of the representatives into these systems, where on the one hand, they could utilise such OSH skills they may have acquired to bring safety matters to the attention of the safety department, and on the other, act in a supervisory and correctional way themselves in relation to unsafe behaviours they might witness among their fellow workers, was how the management's aim was understood by representatives with experience of such approaches. In an even more institutionalised form, this seems to have been the role that the Indian workmen's inspectors who participated in the

study had accepted, but it was also widely found, for example among the sectional representatives in the South African mines.

Therefore, the overriding picture that emerged from the qualitative analysis of the experience of representatives in all five countries was that they perceived managerial commitment to supporting their actions as being at best limited and frequently absent or oppositional. In the main, they regarded relations between them and the mine management to be to varying degrees hostile and unhelpful. In the worst cases, in their representational role they felt marginalised, undermined and even vulnerable to reprisals from supervisors and managers for representing the OSH interests of their fellow-workers. Where they had been able to achieve an influence on safety and health matters, they most frequently attributed their success to overcoming resistance and obstacles placed in their way by unhelpful supervisors and managers rather than to successful co-operation with them. In this respect, their experience reflected the polarised labour relations in the mines — which were a strong feature of the wider scenarios in which representation on OSH played out in all of the countries we studied. And while national contexts were very different and often meant that, from the representatives' perspectives, their successful actions were limited, generally their experiences of managerial approaches to the labour relations of OSH confirmed those recounted in detail in accounts of the character of relations on OSH in Queensland mines (see Walters et al, 2016a, b and c).

This said, even if the perspective of representatives generally was one of obstruction to their actions on OSH and conflict with managers and supervisors, nevertheless managerial support and commitment to representation was forthcoming in a variety of ways in many of the examples studied. For instance, the mine management had not prevented the representatives who had participated in the study being elected or appointed and joint safety committees had been set up in which management played an active role in most of the situations described by our respondents. In many instances representatives had received some support for training (although they universally agreed they needed more training, and in some countries, such as India and Indonesia, the support for training was very limited indeed). Similarly, in the majority of cases, the activities of representatives were facilitated at least to some degree by time off from their normal work that was granted by their managers — although here too there were strong indications that, from their perspective, it was insufficient to perform their tasks to the levels they would have wished. And while the representatives recounted many examples of their vulnerability to reprisal from managers and supervisors, our respondents were themselves testimony to the capacity of representatives to survive such threats despite their perceptions of insecurity and vulnerability. The majority of representatives were also able to describe their engagement in tasks that were clearly supported by the mine management, such as joint inspections and safety committee meetings. Those in stronger positions were also able to report examples of their engagement on safety and health issues with high level mine management, indicating a degree of willingness by their employers to consult on safety and health issues at a variety of levels.

Generally, therefore, what emerges most strongly from the analysis of the representatives' testimony, reflected the considerable variation in the range of managerial commitment to supporting representation and consultation, along with a

sense that the quality of such commitment could not be assumed but had to be sought and won by the representatives and their trade union support. Moreover, it was determined by a multiplicity of additional factors influencing the precise nature of the labour relations around safety and health in the mines of the different countries studied. In the subsections that follow, we address some of the more specific ways of supporting the activities of representation and consultation covered by statutory provisions. In each of them, however, the nature and extent of support from the mining companies and their management remain underlying factors determining practice.

7.3   The importance of training

Virtually all the statutory provisions in the countries studied made some degree of provision for representatives (or trade union members of joint safety committees) to undertake functions that included inspection of the workplace and reporting of unsafe or unhealthy conditions. But the existence of such requirements did not necessarily lead to their successful operation. The qualitative evidence from the study strongly indicates that, in this respect, statutory measures alone were insufficient. Successful operation implied the engagement of additional means of support. In those countries in which statutory provisions dealt explicitly with forms of support and facilities to enable the operation of worker representation, some features were perceived as particularly helpful in this regard.

Foremost among them in all countries, was training for the role of representative. Participants in all countries found this to be the single most important support they received as representatives. Whatever the extent of their experience, or that of the amount of training they had already received, they were almost unanimous in their appreciation of its value in supporting the effectiveness of their actions. Equally, representatives who were able to demonstrate they had been effective in delivering their role, were most often also able to report they had received a significant amount of training. They valued this support and often attributed their achievements in a large part to its influence. Similarly, newly appointed representatives placed considerable value upon the induction training they had received, or to which they looked forward, while representatives who had not benefited from training reported feeling hampered and limited in their abilities to undertake their role, as well as lacking the confidence to do so because of this.

However, regardless of the amount of training provided, virtually all the representatives in all of the countries studied expressed a need for further and continuing training in support of their role. This said, while the statutory provisions or, more commonly, guidance that accompanied them, made mention of training provision for worker representatives or members of joint safety committees and their entitlements to receive such training in some countries, only rarely did these measures bear any strong relationship to either the extent or quality of the training actually provided. And while regulatory inspectors themselves attached considerable value to the role of training in supporting representatives, it was equally rare for either them or the representatives to report that these inspectors played a significant role in influencing the actual provision of training.

There was considerable variation in this provision. Generally, in poor countries and where collective bargaining arrangements were poorly developed or absent, the extent of training was considerably less than in countries in which trade unions and arrangements for collective bargaining were well established. In these latter situations, requirements on the provision for training were sometimes detailed in collective bargaining agreements. There was also quite a wide range of training providers that received varying degrees of approval from participants concerning their experience of the quality and focus of the training provided. Although this was not studied systematically, our impressions from the participants' observations were that the training that was most consistently valued was that provided by trade unions:

> *… since I was involved in the union … I am able to engage irrespective of any forum. Not with formal qualifications. Just to engage. I can debate issues. I can stand in front of people, and talk with them, irrespective of numbers…. I've learned even to educate myself… I was not a person that can go and look at the documents….*
>
> *Representative, South Africa*

The quantity of such provision varied considerably from, for example, being the main source of training (in Queensland), to being extremely limited (in India) or almost non-existent (in Indonesia). Other training providers ranged from those contracted via the employer, which received very mixed reports concerning the relevance and quality of their training, to trainers that were variously funded but which were obliged to meet standards of quality laid down by third party training standards bodies, or by agencies associated with the mines regulator, often in pursuit of legislative requirements. While, in the main, such training was regarded favourably, in some cases even here its relevance to the perceived needs of representatives and joint committee members was questioned.

While the quality and quantity of training was ubiquitously seen as a major form of support for representational activity, the capacity to receive training was dependent on access to it. This was in part a question of its availability, but it was also a question of receiving sufficient time off to be able to undertake it. Although the extent of their details varied, rights to time off without loss of normal pay to undertake the functions associated with being representatives and the training necessary to do so competently, were a feature of the legislation or its accompanying guidance in most of the countries in the study. Where such detailed rights were absent, they were identified as key improvements being sought by the representatives and their trade unions. However, even where rights to time off for training were in place, in practice many of the representatives that participated in the study reported problems of one sort or another with receiving sufficient time off to engage fully with training. Problems were essentially of two kinds. Either sufficient time off was simply not granted and therefore access to training was denied. Or, while in principle the right to training was agreed by the company, it made insufficient arrangements to replace representatives when they left their normal work to undertake training. This left them feeling unable to leave their workstations because it would place additional burdens upon their colleagues or because they would be unable to perform some vital task and therefore interfere with production.

There is not enough time because of production to release sectional safety representatives to attend meetings

Representative, South Africa

A similar situation was frequently reported when representatives needed to leave workstations to conduct investigations relating to safety and health. Although they were aware that they had the right to do so in principle, they often found this difficult in practice as no arrangements were made to cover their absence and this either placed additional workload upon their colleagues, or made it impossible for them to abandon key work tasks for which they were solely responsible.

7.4   Facilities to support the activities of representatives

There was also huge variation in the facilities provided by mining companies to support representatives in undertaking their activities. Generally, the statutory provisions do not detail the exact nature of such facilities beyond indicating that representatives should receive 'sufficient', 'adequate' or 'suitable' facilities to enable them to undertake them. But, in addition to arrangements for adequate time-off and training, such facilities often include access to relevant instrumentation, administrative support, dedicated phones, filing and storage space and so on. Among the representatives that participated in the study, full-time representatives were usually far better provided for in this respect than were those who undertook their roles in addition to their normal work. International comparisons suggest that, generally, representatives in Australia, Canada and South Africa were far better served than representatives in either India or Indonesia, and where collective bargaining agreements covering their role existed, they often further specified the details of the facilities deemed necessary to enable them to undertake their tasks that had been left unspecified in the legislation.

7.5   Support from a two-tier system

In countries where they existed, two-tier systems for representation were seen by participants in the study as being especially useful and a strong influence on effectiveness. Where sufficient data on practice was available, such as in Australia, our analysis confirmed this view. It was clear in Australia that the role of the industry level representatives in supporting the activities of representatives within coal mines was a critical factor in determining the effectiveness of the system for representation and consultation. This was the view of virtually all the participants in the study, including senior members of the regulatory inspectorate interviewed in the two states studied. It was also borne out by our analysis, in the present and previous studies, of robust quantitative indicators of the effectiveness of the system for worker representation derived from records of inspections across a range of mines and its triangulation with qualitative analysis of interviews with participants (see for example Walters et al, 2016a, b and c).

Also, the findings demonstrate a similar 'two-tier support effect' elsewhere. For example, the full-time representatives that took part in the present study in South Africa were clearly substantially better informed and experienced, both with regard to OSH and labour relations, than the 'sectional representatives'. They seemed to enjoy a degree of respect from the mine management which, together with their knowledge

and experience, enabled them to provide support for the sectional representatives, and this was an important element of their role. While limits to the availability of the empirical evidence for the success of the systems for representation on safety and health in the mines in South Africa meant it was less developed than in Australia, here too our qualitative data pointed to a perception that the two-tier system was a contribution to successful outcomes.

In other countries, while the statutory provisions did not provide formal requirements for two levels of representation, in practice such a system was nevertheless more or less followed, such as in the mines in which the Canadian participants in the study were active. Here, it will be recalled, the active engagement of both the trade union joint chair of the safety committee and the president of the trade union local in organising the trade union side of consultation on OSH was seen by participants as a major factor contributing to the success of union strategies on OSH in the mines.

In India there were also two types of worker engagement in representative arrangements for workers' health and safety: one through the election of trade union representatives to joint safety committees, and the other through the appointment, supposedly with trade union approval, of workmen's inspectors. In practice however, the arrangements to implement these provisions did not lead to the same levels of support for representatives found in the systems of other countries. While the workmen's inspectors were generally better trained and informed than the trade union representatives who sat on the safety committees, they did not perceive their role as one of providing these committee members with support. This was because, despite the requirements for trade union approval in the legislation, in all of the practices we were able to observe in the mines studied, the trade unions had not been involved in the appointment of workmen's inspectors. They had been appointed by the mine management and functioned as members of the safety departments in the mines. While their relations with the trade union safety committee members appeared cordial, as the findings of the study in India make clear they saw themselves primarily as responsible to the safety department in delivering elements of the behaviour-based safety programmes within the mine. In this respect, they were 'responsibilised' by the mine management in relation to serving the company's systems for safety in the mines where they worked, and were not in a position to provide anything more than informal and personalised support for the trade union safety committee members.

We conclude from our findings that two-tier systems are useful means of supporting representation and consultation. The key to their success lies in the extent of autonomous internal relations between the different levels of representation and the ways in which these relations are structured and organised by the trade union actors involved to deliver two-way communication of information, training, advice and other forms of support between the different levels of representation.

7.6   The engagement of regulators and regulatory inspection

Support from regulatory inspectors and their agencies more generally is widely held to be one of the key determinants of the effectiveness of health and safety representatives. Studies show it provides them with legitimacy and confidence, as well as giving them practical help on technical matters and mediating in relations between representatives and their employers/managers (see Walters et al, 2016c for a recent review). However, studies also show that contact between inspectors and health and safety representatives is often limited. For example, in Australia a detailed study of practice in regulatory inspection of safety and health indicated that in only about one third of workplace inspections did inspectors actually meet with health and safety representatives as well as with managers (Walters et al, 2011). Our findings show these patterns to be no less true in coal mining than in other sectors.

Positive views of relations between representatives and inspectors were especially the case for the more successful examples of worker representation on OSH in coal mines, illustrated, for instance, by the experiences of the 'knowledge activists' among the representatives we studied in Australia. Here, as the national report indicates, some representatives were able to describe how they accompanied inspectors when they visited mines, and also felt able to contact them when they had concerns about safety or health matters. The data collected on their use of the regulatory provisions enabling them to require the cessation of processes and practices they regarded as unacceptably dangerous, or to review the arrangements for safety and health management in the mines, showed that the majority of their actions were supported by inspectors when they were brought to their attention as a consequence of being disputed by the mine management. The findings further showed that the industry level representatives in Australia, in the main, enjoyed a productive and respectful working relationship with regulatory inspectors, often liaising with them on matters of inspection, sitting on industry level panels that advised on OSH practices and involving inspectors in the training they facilitated for mine level representatives. At the same time, interviews with senior inspectors in both Queensland and NSW indicated that the inspectorate valued the role of representatives both at mine and industry level and endeavoured to support them as best they could.

In most of the countries included in the study the stated policy of the regulatory inspectorate was to engage with the representatives of miners during mine visits, to discuss their observations with them and, in most cases, also to support the representatives with information as well as facilitating, approving and even participating in their training. However, according to the representatives who participated in the study the practices of inspectors themselves were often at variance with this policy position and there was considerable criticism of the role of regulatory inspection and its support for representation. Even in Australia, there were many examples of representatives who felt that the inspectors did not support them sufficiently and some who questioned the inspectors' impartiality in their approach to safety and health. They suggested, for example, that inspectors did not make sufficient effort to communicate their presence to the representatives during visits to the mines, which meant they were often unaware of such visits and the opportunity to communicate face to face with an inspector until after they had taken place. They

further pointed out that the practice of moving between positions in mine management and regulatory inspection, which was common in the career path pursued by many inspectors in Australia, did little to boost confidence in their impartiality.

In other countries, such as South Africa, some similar examples of supportive relations between inspectors and representatives were reported, especially by senior and experienced full-time representatives.

> *The inspectors in our region…. They don't ignore the sectional safety representatives or the full time representatives — these are the people they talk to.*
>
> *Representative, South Africa*

But, more commonly, there was criticism of their role as insufficient to help representatives. Similarly, in Canada representatives pointed to the lack of sufficiently strong enforcement actions on the part of the regulatory inspectorate and suggested the presence of regulatory capture in relations between the industry and the regulator:

> *Corporations can bend the safety rules and the Ministry looks the other way and you as a safety activist try to hold the company accountable* [and you get sued for slander by the corporation in Court]
>
> *Representative, Canada*

In India there were allegations made by representatives concerning corruption in the inspectorate:

> *We feel that the whole time the DGMS inspectors take no interest in the safety of the workers. Then, when something serious happens, such as someone dies, the duty officer in DGMS feels kind of happy. This is hard for me to understand. But we think that because they will have to conduct an inquiry over a death there is opportunity for the inspector to make some money.*
>
> *Representative, India*

There was also a contrast between the experience of the trade union representatives on safety committees, who felt they received no support from the regulatory inspectorate and claimed that inspectors made no effort to engage with them when they visited the mine, and that of the workmen's inspectors who appeared to enjoy a far more direct and supportive relationship with regulatory inspectors. These experiences were, to some extent, corroborated by the views of a senior member of the regulatory body who participated in the study and who made it plain that while the inspectors of the agency for which he was responsible engaged with workmen's inspectors in various ways, they distrusted the motives of the trade unions at the mines and were therefore more circumspect in their relations with union representatives. And in Indonesia there appeared to be no evidence of any significant or developed relations between mines inspectors and worker representatives:

When inspectors visit, the union is not invited

Representative, Indonesia

Overall then, the findings of the study confirm what studies in other sectors have suggested, that is, regulatory inspectors and inspection can be a powerful support for health and safety representatives, but the representatives' experience of such support rarely achieves such levels. In the experiences reported in mines in the present study, it was more often limited by the extent of the contact between them and regulatory inspectors. This in turn was a result of an absence of direct links between inspectors and representatives and the parallel failure of mine management to facilitate communication between them when inspectors visit mines. There was also evidence of a lack of trust in inspectors, partly because of a perception of their links with the industry and sometimes their previous employment as mine managers.

7.7   The consequences of contract work in mining

Statutory provisions for representation and consultation on safety and health are, as we have demonstrated, of longstanding in coal mining in nearly all of the countries studied. However, trends in the structure and organisation of work result in rapid changes to the character of the workplace relations that they address. This leads to some questions concerning their continued appropriateness and relevance to supporting representation and consultation in changed workplace scenarios. A common trend in the management of work and employment in coal mining that was widely in evidence across all five countries was the practice of contracting out labour. All of our participants, including representatives, regulatory inspectors, workers and senior trade union officials, expressed concerns about the quality of safety and health for contract workers, making a set of assertions, now widely supported in the literature, that working for contractors is for a host of reasons and at a variety of levels, of greater risk to workers than being directly employed. Even the few managers who were interviewed in the course of the study agreed that achieving and monitoring compliance from contractors with mine safety and health standards was a significant challenge for the OSH arrangements in their mines.[26] It was also noticeable that proportionally greater use of contractors was made in mines in countries such as India and Indonesia, where mining company work and employment strategies were less constrained by regulation and trade union presence than was the case in either Australia or Canada. And as we have seen, in terms of inequality in the distribution of OSH related risks, the situation in the mines of the former countries was, because of this, far more of a cause for concern.

It was evident from our findings that organised labour at mine, company and national levels sought to address the challenges the outsourcing of work presented for representing the interests of miners in their OSH in all the countries studied. In this section, we examine the consequences of these developments in a comparative way.

Numerous studies have pointed to the increased practice of contracting in mining in several countries included in the present study. In Australia, for example, the mining

---

[26] It is beyond the scope of the present study to present a detailed review of the research literature that addresses the now well-established link between poor OSH arrangements and outcomes and working conditions for contractors. But see Quinlan et al, 2001; James et al, 2007; Weil, 2014; for some examples.

industry has sought greater use of contractors to improve flexibility and cost efficiency. At the same time, along with increased use of fly-in-fly-out forms of employment related mobility for mine workers, these practices have served to assist in reducing trade union density and influence in the industry (Waring, 2013; Bowden and Barry, 2015). In the Canadian coal mines we studied, a similar pattern in the increased use of contractors was reported, in keeping with findings in the wider literature (see for example Hilson, 2000; Stark et al, 2007). Trade union representatives expressed concerns that this practice undermined safety generally and, in particular, the role of arrangements for representation and consultation on these matters – although it was also suggested that the OSH committees of some mines included the protection of contractors' OSH. While in South Africa, again in keeping with the literature (see for example Buhlungu and Bezuidenhout, 2008; Crush et al, 2001), representatives that took part in our study talked at length about the increasing practice of contracting out work activities leading to the presence of large numbers of contractors and their employees in the mines. As in other countries, they suggested that this was the effect of the outsourcing strategies of mining companies to achieve business benefits in price and production efficiency and reported many examples of poor health and safety practices that were the result of contracting companies trying to meet the price and delivery requirements of the larger mining companies that had purchased their services. In India, while in the main the nationalised industry remains responsible for the largest part of coal production, it makes use of a substantial number of private contractors and their workers, many of which are undocumented (Lahiri-Dutt et al, 2014). National trade union officials interviewed in the present study identified the use of contractors as the main challenge they faced and indicated that outsourcing was particularly prevalent in newer and open-cut mines. They indicated that mechanisation brought with it further outsourcing of labour, while the introduction of new machinery by contractors meant they supplied the labour to operate it, leading to increases in contract labour in underground mines too. The Mines Inspectorate indicated concern with the health and safety practices of contractors, and suggested that contract workers were often underprivileged and overworked. It was argued that decisions taken by the mine management to award contracts were made largely on the basis of price and, while in theory procurement requirements should specify the arrangements for health and safety matters, they were seldom adhered to. Similarly, in Indonesia, the organisation of work and employment involves substantial use of contractors to undertake mining activities (Budiman, 2011)t Lucarelli, 2010). Participants in the present study indicated that while union membership quite often extended to parts of the contractor workforce, the capacity of unions to influence OSH outcomes for the contractor workforce was limited. Unions had little influence on the terms of contracts drawn up between mine operators and their contractors. Indeed, union representatives at the national level were unsure about the details of these arrangements even in the mines where they had union members.

As is evident from the research literature cited above, the reduction of trade union influence is prominent among the effects of contracting out. This structural disempowerment was of considerable concern among trade union officials, from mine to national industry level. It was frequently identified by these officials as a deliberate effort on the part of mine ownership not only to outsource risks and achieve greater control of price and production, but also, as part of this, to reduce the influence of trade unions. Evidence gathered in the present study suggests that

this reduction of influence extended to that on the effective representation of mine workers' interests in OSH. There was widespread consensus among participants that these practices serve to both increase and complicate the risks to safety and health, while at the same time making it much more difficult for trade union safety and health representatives to effectively represent the health and safety interests of a growing proportion of mine workers. However, the strategies and perspectives of the trade unions involved in attempting to resist its influence were concerned with its wider effects in undermining their influence on pay and working conditions, as well as those that might affect safety and health matters in the mines

Analyses in the all countries included in the study suggest that contracting is a significant presence everywhere. In some countries, especially where trade unions were weaker, such as in Indonesia and India, the extent of the use of contractors in the mines was considerably greater than in other places, such as in Australia and Canada, where trade unions had managed to resist its effects somewhat more successfully. However, even in these countries contractors were consistently reported to be a growing presence in the industry. Its widespread adoption had two main effects on the effectiveness of representation on OSH. Firstly, it introduces a new cadre of workers into the mines whose employment relations are not governed by the nexus of rules established around the contract of employment between the mine operator and the directly employed workforce. These workers are often obliged to work in conditions that are inferior to those established for the directly employed workers, including conditions affecting their safety and health. At the same time, they are often in less secure employment than those directly employed, which causes them to tolerate poor conditions as the alternative may be to lose their employment altogether:

> *The contract workers can't be seen to demonstrate, complain or even show any form of dissent especially with our help. If they are found with us they would lose their jobs the very next day. We can help them in some areas but not on health and safety.*
>
> Representative, India

> *They* [contractor workers] *are very afraid because safety means punishment for them*
>
> Representative, Indonesia

Generally, trade union membership was much less present among the contractor workforce than among those directly employed and there was evidence in several countries in the study that, in many cases, it was actively discouraged.

Secondly, the effects of the presence of contractors and their workers on practices and arrangements for OSH often impacted on the safety and health of the directly employed workers. The accounts of directly employed participants in the study contained various examples of poor health and safety practices adopted by contractors which placed directly employed miners at greater risk, and the difficulties representatives faced in addressing these matters because of the absence of an employment relationship between them and the contractors and their workers.

Outsourcing is the main cause for all evils in the mines. After nationalisation, we started moving in the right direction but not anymore. Since the private workers came in together with the push to increase production we have seen more accidents…

Representative, India

Of course, such a situation also presented challenges for safety management in the mines. But the principal effect of these challenges on arrangements for safety in the mines mainly revolved around ensuring greater scrutiny and monitoring of adherence to rules concerning safe working behaviour in the mines, which sometimes created further problems for the role of the safety representatives.

This said, in all of the countries studied there were various strategies that trade unions adopted to try to ensure the effective representation of safety and health for *all* the workers in the mines. As the national accounts illustrate, and is reflected in the research literature referred to previously, in general they embraced efforts on the part of unions to resist further outsourcing and contract work, which were concerned with issues that were much wider than simply those of safety and health. The union approaches included negotiating with employers at company or even industry level to establish limits on the extent of the use of contractors, sometimes leading to industrial action by trade unions in efforts to retain jobs among the directly employed workforce. Such disputes were frequently reported in the accounts of trade union participants at mine level and had led to stoppages and often bitterly contested industrial action in a number of mines in the study. More specifically, at company and industry levels, unions reported efforts to reach agreements on safe working practice and work organisation on the part of contractors. At the mine level, in some countries, the trade union strategy was to try include contract workers within the ambit of the approaches to representation on safety and health either through provisions in the collective bargaining agreements or through the constitution of the joint safety committee (or both). In the case of the latter, however, it was noted in Canada, for example, that where the health and safety committee of the mine was made responsible for contractors, the relationship was a difficult one because, as the national account comments, contractors resented having their 'practices interfered with by the committee'. In other cases, the trade union organisation within the mine actively sought to recruit membership among the workers of contractors and thereby provide them with representation, or where they were already organised, to work with the representatives of the trade unions concerned. However, all these strategies were acknowledged to be only partially successful in tacking the problems of representation on OSH that were created by the increasing use of contractors.

There was no evidence from any of the countries in the study of the developed or sustained use of supply chain strategies to influence contractor behaviour, such as reported in the research literature on one or two other sectors (see for example Deakin and Koukiadaki, 2009).

7.8 Conclusions: determinants of practice and implications for global support

Writing about support for safety and health in mines, previous researchers have commented on the need for trust between representatives and managers. In so doing they have pointed to the links between good labour relations and the support of good practice in participative approaches to OSH (see for example Gunningham and Sinclair, 2012). However, while both trust and good labour relations are clearly beneficial in supporting good practices in participative OSH management, in situations where neither are found – and the wider operation of the industry suggests that there are a host of good reasons that explain why this may well be the case – then other means of protecting the collective interests of mine workers in their safety and health are necessary. One of the central conclusions of the present research is that this was essentially what took place in the historical development of measures to support the representation of miners' interests in health and safety. A further conclusion drawn from the analysis of the contexts of current practice across five countries is that the same hostile labour relations that led to these developments continue to prevail in the industry today. This has the consequence that the ideal scenarios sought by writers like Gunningham and Sinclair are unlikely to be the widespread basis for effective representation of miners' interests in OSH in the present-day industry any more than they were in the past.

At the same time, the findings of the present research indicate that legislative measures that detail miners' rights to representation on safety and health are not effective without considerable additional support for their application and operation in coal mining. The discussion in the present chapter has demonstrated that the same set of contextual determinants that influence the operation of measures on representation in other sectors prevail in coal mining too. Thus, the supports miners' representatives utilised in achieving successful outcomes include not only the legislative steer, but also the role of regulatory inspectors in its delivery, the arrangements of employers and their managers to facilitate and support representative participation in OSH, as well as the support of trade unions and workers both inside and outside and workplaces. As far as support from employers and their managers was concerned, comparison of experiences in different countries has shown that, while critical in determining the nature and extent of the arrangements in place, it is highly variable in practice. In many cases, the extent of the commitment of employers and managers to such support is often problematic and increasingly at odds with the main direction of the preferred strategies adopted to deliver corporate arrangements for safety and health in the mines they operate.

Moreover, arrangements for representation and consultation on OSH, based as they are around the legal nexus of the contract of employment, have limitations in the extent to which they can address challenges created by trends in the orientation of wider corporate business strategies, which influence the organisation of work and employment in mines, regardless of national contexts in which they are applied. Thus, we have seen increased use of contractors in all of the companies in which the participants in the study were employed, regardless of country, or whether they were part of global mining concerns, nationalised industries or nationally based private undertakings. In all cases this has proved challenging for representation and consultation on OSH.

It is clear from the comparisons discussed in the present chapter that approaches to implement and operate measures on worker representation and consultation are framed and determined by the wider nature of labour relations practices of both organised labour and employers, as well as by the approach of the regulator in supporting their operation. In this respect, the comparative success of arrangements in place in Australia owes a great deal to the effectiveness of the trade union in making the two-tier system that is required by statute both operationally coherent and clearly understood, as well as sustainable, prominent and well integrated into its strategies to influence miners' pay and conditions of work more generally. As Walters et al (2016a b and c) previously noted in their analysis of the success of trade union support strategies for worker representation and consultation in coal mining in Australia, this results as much from the determined resistance of the trade union to the will of corporate power in the Australian coal industry and to the solidarity of organised labour in the communities of the coalfields, as it does to notions of trust and co-operation on safety and health. Applying the same principles to the experiences analysed elsewhere in the present global study indicates the extent of the challenge workers and their organisations face in securing the representation of their interest in safety and health in scenarios in which supportive preconditions are even less in evidence than is the case in Australia.

This begs a number of questions concerning support from global players in what, after all, is a global industry. Current understandings concerning the provision of such support were presented in Chapter 4. Something of the challenge to the key actors involved was evident from this account. Looking at the experience of global initiatives in the countries we have studied provides a further dimension to these challenges. For example, as we have seen in both the present and previous chapter, as well as in the detailed accounts in Volume 2, there are variations in the nature and extent of the statutory provisions on representation and consultation on OSH between the countries we studied. One obvious matter for consideration at the global level, therefore, concerns ways in which support could be provided at this level to bring national legislation in all countries up to a standard in which key requirements are more explicitly included. The ILO has a key role in this process and, as we have discussed previously, ILO Convention 176 represents the current position concerning global measures on worker representation and consultation in mining.

But the impact of this Convention is difficult to discern. In the case of the countries included in the present study, there was no obvious evidence of its influence on the inclusion of requirements on worker representation in the national legislative provisions on health and safety in coal mines. The introduction of requirements in most countries in the study predated the adoption of the Convention by the ILO. Of the five countries studied only one — South Africa — had ratified the Convention. And while the regulatory provisions in South Africa were, along with those in Australia, probably among the most developed of the countries included in the present study, as the national account makes clear, there were other, more significant influences on their origins. Explicit regulatory provisions for representation and consultation on safety and health were least developed in Indonesia and it was only in this country that we found evidence of any significant awareness of the possible role of the Convention in improving the regulatory architecture addressing worker representation on OSH. Here there was also some evidence of campaigning strategies on the part of the trade unions in which demands for ratification of

Convention 176 were included. National level trade union officials interviewed in the study anticipated that such ratification might bring about legislative changes to improve requirements for representation and consultation on OSH. However, there was a substantial gap between these activities at national level and the practices and awareness of participants at the level of the mines in Indonesia, from which the existence of Convention 176 appeared to be somewhat remote.

Therefore, while Convention 176 might be of some use in influencing the adoption of national regulatory measures, its ratification remains limited (according to the ILO website, only 32 countries have in fact ratified it[27]) and, with the possible exception of Indonesia, there appears to be little relationship between ratification (or the absence of ratification) and the level of detail in the regulatory provisions in the countries included in the present study. Moreover, while the Convention outlines some general requirements on representation and consultation, its detail does not come anywhere near that provided in the regulatory provisions found in countries such as Australia and South Africa. Since our study has found that some of these details — such as for example, rights to intervene in dangerous operations, to support workers removing themselves from situations where they are at serious risk of harm, and for reviewing the effectives of OSH management systems — are particularly important in supporting the effectiveness of representatives, the absence of such detail in the requirements of global measures like ILO Convention 176 is unlikely to be helpful.

Aside from the regulatory provisions, the role of regulatory inspection is also important in delivering a regulatory steer on worker representation and consultation on OSH. It will be recalled that the extent of this support varied considerably between the countries in the study. In theory, greater consistency in these practices might be assisted by better co-ordination of inspection policies at global levels, such as is attempted by the International Association of Labour Inspection in relation to issues confronting labour inspection more generally. However, we found little evidence of the occurrence of any global level collaboration among mines regulatory agencies in supporting common policies towards addressing representation and consultation of workers on OSH in mines.

Support for representation and participation on OSH might also come from a global corporate level. In our national studies, however, more often than not, participants found corporate support for worker representation on safety and health to be limited. Even in situations, such as in Australia, where there was demonstrable evidence of the success of the strategies used by trade union representatives to represent the interests of mine workers on OSH, these strategies were often deployed in the face of limited cooperation or even hostility from the global corporations in which they were deployed. As we have already concluded, the commitment of these organisations to OSH was most manifest in their preference for approaches that emphasised technical or behaviourally oriented approaches to safety framed by a unitary understanding of shared corporate aims and in which mine workers 'participated' largely through receiving and following prescriptive rules and in which the institutions and processes of worker representation were marginalised.

---

[27] See ILO — http://www.ilo.org/dyn/normlex/en/f?p=1000:11300:::NO (accessed Mach 2018).

This was further reflected in the content of documentation on corporate approaches to OSH produced by the mining industry at the global level. Mine safety management research literature mostly follows a similar trajectory. More critical studies note that companies often understand worker participation in these processes to comprise of forms of direct participation that are controlled by managers (Gunningham and Sinclair, 2012). Yet Quinlan (2014) notes the limited presence of effective representation of workers' interests as critical among the underlying causes of fatal accidents in mining in a range of countries; while Phakathi (2017) suggests how competing demands of production and safety shape the ways in which miners informally organise themselves to balance these demands in scenarios in which the disciplinary elements of behaviour-based codes of conduct towards safety demanded by the mine management are dominant.

All this begs the conclusion that systems for the representation of workers' interests in safety and health are at best marginal to the corporate interests in mine safety prominent in guidance at the global level. Approaches to worker engagement and participation from these sources largely emphasise strategies in which some form of worker participation may be implicit but which is usually understood in terms of the direct participation of workers in systems orientated to encourage safe behaviour without questioning corporate culture or managerial prerogatives. As Quinlan (2014) puts it:

> *Notions of industrial democracy and worker participation that were fashionable in the 1970s have no traction in the current environment. New fashions like team-based production are seldom empowering in the ways sometimes described….. The notion that safety is largely about unsafe behaviour or rule-breaking and therefore programmes should focus on modifying behaviour is attractive to management because it largely revolves around changing the behaviour of workers (though managers are included) and fits very much within modern management leadership models.*

This, therefore, leaves it largely up to organised labour to provide global level support for worker representation on safety and health to help raise the capacity for negotiating improvements at national and mine levels in countries where the role of worker representation on OSH is especially weak. In addition, as is evident from our findings, while there was considerable variation between national experiences of the extent to which worker representatives were able to act effectively, there was a considerable degree of commonality in the issues they faced, especially, for example, in relation to patterns in the organisation of work and employment in the industry. Such similarities prompt further questions concerning the role of global support from organised labour in helping to determine common strategies to address these challenges.

As we outlined in Chapter 4, many national mining trade unions are affiliated to the global union federation IndustriALL. Among its stated aims is the creation of safer workplaces, and support for worker representation is central to its organising principles around health and safety. Campaigning for the ratification of ILO Convention 176 is pivotal in this respect. Chapter 4 outlined how IndustriALL and its affiliates have supported worker representation on OSH in various ways. These have

included contributions to labour education and to campaigns on specific OSH issues, both in the current form taken by the Global Union Federation (GUF), as well as previously when the mining unions that are currently among its affiliates were affiliated to the ICEM and even before this as the Miners' International Federation.

IndustriALL operates in a variety of ways, targeting both national and global level activities with the co-operation of its affiliates in mining. We have already noted that many GUFs have increasingly organised their collective bargaining strategies around establishing international framework agreements with (usually) multi-national corporations, based around core labour standards developed by the ILO, which may embrace matters of safety and health, including arrangements for worker representation and consultation. However, IndustriaALL has been largely unable to achieve such agreements with global mining corporations. Instead, as we have pointed out, it has acted through supporting several global networks that involve participation from affiliates with members in major global mining corporations. Health and safety matters feature among the concerns of these networks, being more prominent in some networks than in others, and one element of their approach to ensure that adequate arrangements for worker representation are included in corporate measures on managing health and safety. Although we have been unable to explore this in detail in the present study, it seems the success with which this has been achieved to date varies considerably between the different networks. The level of engagement they are able to achieve with the global mining corporations concerned, and the discourse at the global level, reflects the same issues as we have explored previously in relation to actions within countries.

Another way in which IndustriALL (and its predecessor the ICEM) provides support for its affiliates' engagement with health and safety in mining within countries is through contributions to education and training initiatives. As we noted in Chapter 4, a notable engagement here has been over HIV/AIDS in Africa, while another related strand of its global strategies contributed to noteworthy success in supporting trade union organisation in relation to contract workers in mining, where OSH issues were used in organising strategies among these workers (Cotton and Royle, 2014). However, there were several significant differences between the Colombian situation and that experienced in most of the countries we studied. They include among them, the size of the mines involved, the extent of organising awareness developed by the trade union representatives at mine and national levels and the extent of their engagement with the GUF at the global level, the history of national/global trade union collaboration around OSH issues and labour education, and the influence of these factors on raising awareness of the potential of OSH as an organising issue. While there was awareness of the problems of OSH and organising among our respondents in all of the countries we studied, in none of them were these additional factors as well-developed as in the case of the field-enlarging strategies (see Wever, 1998) deployed by the Colombian mining unions, as presented by the analysis of Cotton and Royle (2014). This is not to underestimate the possible significance of the joint approaches adopted in this case for more widespread application, but to point to the importance of context and the presence of preconditions necessary to support such development.

We have been unable to fully explore the role of global/national trade union collaboration in supporting and improving the role of representation on OSH in

130

mining during the present research. However, the strategies to achieve this that are analysed in the literature, including approaches that mix labour education, OSH awareness and organising, would seem to offer some means to address some of the current structural problems of employment relations that serve to weaken or marginalise the role of representation on OSH. While little use appeared to have been made of these strategies in the countries we have studied, this does not diminish their future potential, or the possible role of national/global trade union collaborations of this kind, in making a significant and substantial contribution to organising around the representation of mine workers' interests in OSH. This remains an important area for future research.

8.   Conclusions: what works, for whom and in which contexts?

8.1   Introduction

This research has investigated the institutions and relations of representation and consultation on matters of safety and health in coal mining in five different national economic, regulatory and political settings. It has done so largely through analysing the experiences and perspectives of worker representatives. In this way, we have been able to explore not only the practice of representing workers and consulting with their employers, managers and supervisors on safety and health in coal mines in different countries, but also its contextual determinants. This has enabled some conclusions concerning both 'what works,' as well as what determines this, in different contexts.

In achieving these outcomes, we also explored several ways in which to understand successful representation and consultation on safety and health in coal mining. The Introduction to this report noted previous research in this sector had adopted contrasting theoretical positions with which to frame an understanding of what occurs in the processes that are involved in representing workers on safety and health in mines and what determines both their nature and their outcomes. As we also indicated there, our own previous contribution to this discourse, based on findings on the effectiveness of representation and consultation on safety and health in coal mining in Queensland, suggested that not only were the strategies of representation highly effective in improving OSH, but, from a labour relations perspective, they were best understood as acts of resistance to corporate power (Walters et al, 2016a, b, and c). This was particularly the case when the unitary strategies of mine management were implemented in ways that representatives perceived to have negative consequences for the safety and health experience of their constituents, and where their strategies were deployed to challenge and change this. The present research has allowed us to revisit this theoretical discussion in a somewhat wider context, as we have extended our qualitative inquiry to four additional countries, and to another part of Australia, as well as revisiting the site of our previous investigation in Queensland. This added considerable breadth and variety to the contextual influences on actions of representation and consultation on safety and health that were the focus of the research.

Four overarching conclusions have emerged from this research. First, our research and findings in this project provide strong indications that, given an appropriate level of support, worker representation and consultation on safety and health in coal mines makes a significant contribution to improving the arrangements and outcomes for managing these matters effectively in mines. Second, it shows that such support and the preconditions that determine effectiveness are present far more obviously in coal mining in some countries than in others, although in all countries they have the potential to be both present and effective. Third, it demonstrates that the theoretical propositions that informed the understandings of our previous study can be extended globally and provide an appropriate way of understanding what makes representation and consultation effective as well as what constrains it. Finally, it suggests that there is a global dimension to policy and practice on safety and health

in mining in which nationally based state, corporate and individual actors are not the sole players, but where it is essential that global regulatory bodies, such as the ILO and global workers' organisations, also have a role. Support from these bodies is important to ensure that representation and consultation of miners on safety and health remains as central to the implementation of preventive strategies for safety and health in mining, wherever it takes place in the world, as the study shows it to have been in the history of these strategies in advanced market economies.

This chapter, therefore, summarises the key findings of the research and what they mean for practice in the protection of the safety and health of workers in the global coal mining industry. In doing so, it broadly follows the sequence in which these findings have been presented and discussed in the present volume. That is, following some reflection on the usefulness of global comparison, it begins with a brief reminder of what is already known concerning the significance of the representation and consultation of workers' interests in the arrangements made for protecting their safety and health in mining. It briefly outlines some key themes in the history of measures to support the representation of these interests, from the perspectives of both national development and global influence, before summarising findings on the current practices we have explored in the present research. We identify key points that emerge from this analysis and what they suggest to be effective in practices of representation and consultation on safety and health compared across the five countries in the study, as well as what constitute supports and constraints on such effectiveness. Finally, we end with some reflections on the strategies adopted by the actors involved in these processes within coal mines nationally and globally in the industry, and what they suggest concerning ways forward for the role of representation and consultation on safety and health in mines.

8.2   A question of comparison?

The key principle adopted in organising this research has been one of comparison. As has been evident throughout the discussion of its findings in previous chapters, there is great disparity between national experiences of current practice in safety and health in mining, in which differences in approaches to representation and consultation are but one aspect. Nevertheless, comparison between experiences of these approaches allows reflection not only on the role and effectiveness of worker representation on OSH in mines, and what makes it so and what inhibits it, but also on the consequences of these things for future prevention strategies in the industry and for the various actors involved. The latter include trade unions that represent workers in the sector, nationally and globally, and also the corporate interests responsible for protecting workers and delivering safe and healthy working conditions in coal mines, and the national authorities charged with ensuring compliance with regulatory requirements to ensure this.

National contexts must be taken into account when comparing the influences of worker representation on outcomes in different countries. Even where statutory requirements appear superficially to be quite similar, experience of practice can be seen to be quite different, such as, for example, is seen in the way these statutory requirements are operationalised say, in India, compared with the way that similar legislation works in Australia or Canada. As our comparisons demonstrate, differences between countries in these matters are important influences. Wider

issues, including differences in the nature of mining, such as, for example, in the number, size and type of mines and mining, its safety and health performance, the patterns of mine ownership, the position and performance of coal mining in the national economy, and its performance overall, and the relative richness or poverty this brings to resourcing of preventive approaches to OSH, are all important. Equally important are differences in regulatory frameworks for mining and in enforcement practices. These are seen for example in the extent to which decision latitude found in compliance promotion and enforcement strategies allow corporate interests to prevail. These are set within further important national differences in provision made for social welfare and health in different countries, in national variations in social expectations, in the distribution of risks to health and safety in different societies, as well as in the role of work and occupations in determining health outcomes. While studying these in any meaningful way is well beyond the resources of this research, it has nevertheless been important to recognise their relevance to an understanding of the conditions under which worker representation on OSH is practiced in different countries. As the detailed analysis of national experiences in Volume 2, combined with the discussion in previous chapters of the present Volume, has shown, an awareness of these matters is necessary before any meaningful comparisons between practices in different countries can be properly undertaken.

There are, of course, limitations to meaningful comparison between, for example, the impact on health and safety performance of well-established arrangements and practices that are embedded in the institutions of both labour relations and OSH regulation, such as those we have analysed in advanced market economies like Australia and Canada, and those that are both less extensive and of more recent origin in less developed countries such as Indonesia, where the multifaceted inadequacies of resources to support good practices in safety and health are much in evidence, not only in relation to systems for the representation of workers' interest in their safety and health, but for the organisation of safety and health more widely in mining. It was equally obvious, even from the briefest field visit to mines in the different countries of the present study, that wider national contexts play a major role in determining the very different character of mining in these different countries. Here, it is important to recognise and acknowledge the significant variation that exists in the health and safety performance of mining in different national settings. But more than this, it is important to acknowledge that the total experience of coal mining is completely different in, for example, the older mining communities of India, or in the recent open-cast workings in the cleared jungles of Kalimantan, and these differences are especially vivid when these situations are compared with the character and form of mining in post-apartheid South Africa, the Canadian Rocky Mountains or along the eastern coast of Australia. In each of these cases, the pay, employment and working conditions, standard of living, competencies and education, and the health and educational status of miners, as well as their position, and that of mining, in the wider economic, social and political environment in which it takes place, were all vastly different. So much so, in fact, that they beg questions concerning the value of comparative research under such hugely different circumstances in which the practice of representation on safety and health in mines occurred.

But what was equally evident in the present study was that while such contexts clearly affected expectations of the role of representation and consultation and their

possible outcomes, comparison of practices of representation and consultation on safety and health nevertheless revealed powerful indications of common features. These included, for example, some shared by the workers' representatives concerning their aims and aspirations in representing their constituents and the importance they attached to a collective identity; as well as common features in their approaches to the position of safety and health in workplace organisation and in their allegiance to wider institutions of organised labour. Indeed, such similarities were remarkable given the huge differences in the mines and in the economies in which they were found. There were further strong similarities, for example, in the ways in which workers' representatives for safety and health constructed their identities and framed their actions, regardless of whether they were members of a mine safety committee in India, former sectional representatives from coal mines in South Africa, or site safety and health representatives in Queensland. There were common features in the broad nature of their relations with their employers, managers and supervisors, how they positioned themselves in such relations and in the strategies they adopted when trying to effect changes in safety and health practice in the mines in which they were active. Equally there were some broad similarities evident in the consequences of common trends in the organisation of work and employment and corporate approaches to safety management for the task of representation and consultation on safety and health in the mines of all of the countries in the study.

In part for these reasons, in addition to comparative analysis of the experience of representation and consultation in the countries studied, we have argued further in this report that a global approach is also important when considering possibilities for improvement in supporting the representation of miners' interests in their safety and health. There are two main elements to this. One concerns the role of global institutions, such as the ILO, in providing standards in which participatory practices are supported as a preferred approach to OSH management. It is obviously important to take account of how differences between countries are likely to influence the ways in which such global standards are transplanted and applied in practice. As is clear from the five national accounts, the capacities of regulatory and labour relations systems, regulatory styles and the role of enforcement in both OSH and labour relations, along with the relative development, power and roles of the institutions of organised labour and the nature of procedures and practices in labour relations within the sector and nationally, all play a significant role in influencing the possibilities for applying global standards to the sector in different national settings.

The second reason to highlight a global dimension to worker representation on OSH is found in the role and influence of communication between corporate interests and organised labour at this level. In a global industry like mining, arrangements for bipartite consultation on labour relations and OSH and their outcomes at the global level have the potential to have widespread effects. The research has examined how the global trade union federation (GUF) IndustriALL is active in the sector and how it provides a structure through which its affiliates can operate in their relations with employers globally. It documents how the GUF has established several global networks, each in relation to a major mining corporation in which its affiliates organise workers. The research has found some indications of how safety and health issues have featured among the discussions that have taken place between these networks and the corporate representatives of the companies to which they relate, and it was clear that the role of arrangements for worker representation was central

to the GUF's global strategies. Previous chapters have discussed these perspectives in the light of our findings in the five countries we studied.

8.3   Arrangements for representation and consultation

In this section we summarise our key findings on the presence of effective representation and consultation on OSH in the coal mines of five countries studied.

8.3.1   Effective representation and consultation?

Chapter 6 compared and contrasted the activities of worker representatives in the five different countries studied, based on the detailed analysis of fieldwork findings presented separately for each country in Volume 2 of this report. It identified a number of features in common among the representatives, as well as similarities in the range of activities they undertake. Qualitative comparative analysis further found some of these activities to be pursued more effectively in some countries than in others. It explored the dimensions of such effective actions, situating them in relation to key elements of the statutory framework supporting representation and examining the contextual features of their application in practice in the different national situations examined in the study. While not claiming to be either a comprehensive or representative account of experience everywhere, overall it found the role of representation and consultation on OSH to be an effective contribution to OSH in mines, where it was given the necessary support to do so. By comparing findings from the previous analysis of national case studies, Chapter 6 was able to present a robust comparative account of *processes* involved in the representation and consultation on OSH practiced in the mines of countries studied, which allowed an identification and understanding of a number of key strengths and challenges for representation and consultation on OSH in coal mining globally. These are summarised below.

Who are the representatives?

As we have already alluded in Section 8.2, despite vast contextual differences in their situation, there were some remarkable similarities between persons who had been chosen to represent the interests of their fellow workers on matters of safety and health in all of the countries studied. These were seen, for example, in the way most of them had been elected into this role by their colleagues and therefore shared a sense of responsibility towards their fellow mine workers. They constructed their identity and role in representing their constituents on safety and health in relation to the workplace organisations within which they held this function, and also in relation to the trade unions outside the workplace to which they belonged, and in their orientations towards their employer and management to whom they made representations on safety and health on behalf of their fellow workers. This said, there were substantial differences in the effectiveness of their activities. These could be related to limits in the detail of the statutory support for them, and the extent to which the mine management exercised control over their activities, as well as to the multifaceted poverty of resourcing for them in some countries — as we explore in further detail in the following section.

But it was clear that the representatives who participated in the study in Australia, in Canada, and, to some extent, in South Africa, were considerably more conversant with the nature and range of their possible engagement with safety and health in the mines in which they were active, as well as with the strategies at their disposal to ensure that their actions would have some chance of impact on the matters of safety and health at which they were directed, than were representatives in other places. Participants in India and in Indonesia were, in contrast, mostly limited in their activities to those that took place around joint inspections, organised by the mine management as part of the safety programme in place in the mine, and, in the case of the Indian participants especially, in mine joint safety committees, which, like the joint inspections, were dominated and heavily influenced by managerial control. Participants from South Africa reported a somewhat mixed picture, suggesting that, although most of them were actively pursuing a range of quite sophisticated and informed approaches to representing the safety and health interests of mine workers, they were probably exceptional in this respect. For the majority of South African representatives, the dominance of managerial control and their limited facilities, combined with issues of employment insecurity, responsibilisation and the fear of victimisation, were likely to place substantial constraints on any ability to take autonomous action in relation to representing their constituents on safety and health matters.

Related to these constraints, another way of seeking to understand the representatives was through exploring with them the strategies they adopted to achieve useful outcomes in their efforts to influence safety and health in mines. The measure we used to make comparison here was that of the ideal 'knowledge activists' discussed by Hall and his colleagues in their Canadian studies of worker representatives in health and safety in other sectors. As we outline in Chapter 6, the term 'knowledge activists' as used by Hall et al (2006) describes some of the qualities of representatives (such as their negotiating, legislative and technical skills) and their strategies of representation, including the ways in which they are able to use worker-centred understandings of OSH to influence outcomes. It was obvious that, while our participants in India and in Indonesia were in little doubt concerning the problems of safety, health and welfare confronted by their fellow workers in the mines in which they worked, their capacities to act effectively to address them in these ways were limited indeed. While many were able to offer an understanding of the economic and political contexts surrounding the conditions under which miners laboured in these mines, few were possessed of the skills and competencies to act like the 'knowledge activists' described by Hall et al. Moreover, as we will discuss further in these Conclusions, the support needed to develop such competencies, such as education and training, provision of information, opportunities to make representations without feeling threatened by reprisal or threats to continued employment, was almost entirely absent from the resource impoverished situations that were typically found in the mines in which they acted as worker representatives on safety and health.

In contrast, in Australia, Canada and, to some extent, in South Africa, the presence of 'knowledge activists' was far more in evidence among our sample. Virtually all of the full-time representatives and many of the part-time representatives who took part in the study fitted this definition, as did others who played a role in the union structures in which safety and health activities were embedded in these countries.

They acknowledged that their abilities to operate in this way were greatly enhanced by the support they received from training and from their trade union. In the latter case, this was especially so in relation to supportive relations between part-time and full-time representatives. Whether between the industry safety and health representatives and the site representatives in Australia, full-time and sectional representatives in South Africa, or between the union co-chair of the joint health and safety committee and the mine level representatives in Canada, in all cases representatives commented positively on the support such two-tier systems of representation provided for worker representation on safety and health in the mines overall. This led us to the strong conclusion that statutory requirements supporting these arrangements would provide a valuable addition to those in countries that did not already include them in their regulatory provisions to support worker representation and consultation on OSH in mining.

Rights and functions

Following on from the above, for representatives in India and Indonesia the main activity in which they engaged was some form of routine joint inspection and, additionally in India, in their membership of mine joint safety committees. As also noted above, neither activity allowed them much autonomy of action and the strong sense conveyed by the testimony analysed in detail in Volume 2 was that they felt themselves to be largely disempowered in this respect by the dominance of managerial input. The details of statutory provisions in both countries were of little help since they provided for no more than these activities. Also, in India, as we discuss in Chapter 6, the regulatory requirements provide for both the appointment of workers' representatives to joint safety committees and the appointment of workmen's inspectors. The latter have more detailed functions prescribed for them in the legislation. But since the workmen's inspectors who participated in our study had been appointed by the management without the involvement of the trade unions (contrary to legislative requirements), their role was as the eyes and ears of the safety department in the mine, rather than as representatives of mine workers.

In contrast, worker representatives in other countries held office as a consequence of considerably more detailed regulatory requirements covering their appointment, functions, and the facilities required to undertake them. Not surprisingly, in these countries our participants were able to reflect on a more diverse set of activities in which they took part than was the case in either Indonesia or India. They were also able to demonstrate that they were considerably better prepared to undertake such activities than their equivalents in either of these countries.

As we have already indicated, these requirements were most developed in Australia, where they had enjoyed a long history and, as well as creating both full-time industry representatives and part-time site representatives for safety and health, they included provisions enabling them to undertake autonomous inspections and investigations, review arrangements made in the mine for safety management, make representations to their employers on matters arising from such activity and, if deemed necessary, order the cessation of dangerous processes. Although provisions were qualified with caveats to ensure they were used responsibly, only for safety and health purposes, and were not used to interfere with production, examples showed that the representatives could, if necessary, even call a halt to the

production of the mine if addressing serious risks warranted this. A similar set of rights were enabled in Canada as a result of the legal status of institutions and procedures of labour relations, in which bipartite arrangements carried some force of law. The mining unions in British Columbia were able to show how they had used negotiated standards in collective bargaining agreements to improve on the rather generalised provisions for worker representation and consultation in coal mines with specific details addressing their rights to autonomous actions similar to those seen in Australia.

These observations led to the conclusion that the detail of the regulatory steer was an important support for the activities of worker representatives in our study. However, the extent of this support varied considerably between countries, being in need of considerable enhancement in some. But it was by no means the only determinant of the effectiveness of worker representatives in any of the countries studied, as we conclude in the next section.

One final point that needs to be made concerning the role of the representatives is that, despite complaints often aired by persons responsible for safety management in mines, we found no evidence to suggest that the representatives who participated in this study over-used their rights or powers to intervene in situations they regarded as requiring remedial action to safeguard miners' safety or health. Indeed, in this respect our findings confirm those of previous studies, both in mining and elsewhere, that show worker representatives act responsibly, mainly address potentially serious OSH issues and are quite deliberately careful to stay within the constraints to their actions that are framed by regulation, mainly for fear of exposing themselves to reprisals that might threaten pay, promotion and job security if they do not. Their powers and activities are constrained, more than anything else, by the extent to which corporate interest in production and profit imposes demands on managers, supervisors and workers to prioritise these matters in the everyday organisation of their work activities, thus creating an environment in which the ways in which work is organised, monitored and measured in mining contribute to resistance to interventions on grounds of safety or health.

8.3.2 The determinants of effectiveness

Previous studies of the effectiveness of representation and consultation on safety and health point to the importance of the presence of a set of determinants that support effectiveness. The present study confirmed the existence of these preconditions for effectiveness in the coal mining case studies in all five countries, finding them far more in evidence in some countries than in others. Such determinants can be usefully analysed at a number of levels. One way of doing so is to see them firstly as those proximal institutional supports, such as the regulatory steer, employer and managerial support for participative OSH arrangements, access to training and other supports for competence among representatives, which directly influence the role and extent of the activities that constitute representation and consultation on OSH. This leaves a second category of contextual factors that determine the actions and effects of representation on OSH, present in the wider contexts in which representation takes place. Such determining factors include the effects of business and economic considerations on the way in which work and employment are organised in mining, the influence of the balance of power between

organised labour and capital in the labour relations of mining, as well as corporate attitudes to safety and health management more generally, combined with attitudes and priorities of regulators towards support for the role of representation in safety and health in mines. Moving more widely still would of course also embrace many of the factors in the national economic and regulatory climate identified in the Introduction to this chapter which set the context in which representation and consultation operate in the mines of any county and which have a determining effect on practice and outcomes. In the detailed accounts in Volume 2, we attempted to embrace all these levels of determinant in our country case studies. Here we present some broad conclusions from their comparison made in Chapter 7 of the present Volume.

As well as the presence of a regulatory steer in the form of both regulatory provisions and commitment from regulatory agencies to achieving compliance with them, previous research, reviewed in Chapter 2, indicated that other determinants of the effectiveness of worker representation and consultation on OSH include: employer/management commitment to participative arrangements for safety and health, the competence of the representatives themselves (something strongly influenced by their training), and good communication and support from their constituents — the workers on whose behalf they make representations. The present study found abundant evidence of all of these in the examples of effective representation it explored, as well as their conspicuous absence from situations in which worker representation and consultation struggled to achieve influence on arrangements and outcomes for safety and health in mines. As we indicated in Chapter 7, miners' representatives utilised not only the regulatory steer, but also the role of regulatory inspectors in its delivery, along with arrangements employers and their managers made to facilitate and support representative participation in OSH. This was strongly evident, for example, in the highly variable arrangements made by employers and managers in different countries for the provision and access to training, and for time off to support OSH investigations and to make representations. It was further apparent in the, by now unsurprising, finding that these matters were generally all catered for far better in mines in countries in which trade unions were a powerful presence, and where legal provisions supported them.

Looking somewhat more widely, we have noted that support from employers and their managers was also problematic because the pluralist basis of autonomous workers' representation and consultation was often at odds with the main direction of corporate strategies to deliver OSH arrangements. Such approaches were evident in both publicly and privately-owned mines in our study, where corporate strategies with a highly unitary character had been adopted to deliver arrangements for safety and health in mines in which behaviour-based approaches to safety were among the main means of doing so. We found much evidence of the effort of representatives and their local trade union organisations to continue to operate effectively in such scenarios, and of various strategies they had adopted to combat the marginalising effects of these corporate approaches. But it remains deeply disturbing that these approaches enjoy such traction among both mining companies and their safety personnel, bearing in mind the very limited evidence of their effectiveness and the various ways they serve to undermine the determinants of the effectiveness of the systems of representation and consultation on safety and health that can

demonstrate a somewhat more solid basis of evidence to support conclusions about their effectiveness.

While these systems were a challenge to representation and consultation in all the countries we studied, where strong trade union and regulatory support for representation and consultation was evident, such as in Australia and Canada, workers' representatives and their trade unions were able to point to success in offsetting some of their effects on arrangements for representation and consultation. However, as we discuss in Chapter 7, their effects were far more pernicious in the mines of countries where the union and regulatory presence were weaker, such as in India and Indonesia, as well as in South Africa. In these countries, participants recounted how the dominant safety arrangements in the mines emphasised prescriptive compliance with safety rules from miners and attempted to incorporate their representatives into encouraging behavioural change among their constituents, as well as monitoring compliance. This responsibilisation and deflection of their role as representatives, overall served to marginalise and weaken the position of representation on safety and health in the mine, as well as quite frequently threatening the employment prospects and job security of representatives themselves if they attempted to act as representatives in the legal meaning of the term.

Chapter 7 also showed that arrangements for representation and consultation on OSH, based as they are around the legal nexus of the contract of employment, have limitations in the extent to which they can address challenges created by trends in the orientation of wider corporate business strategies which influence the organisation of work and employment in mines regardless of the national contexts in which they are applied. Thus, the increased use of contractors, which was evident everywhere, presented major challenges for traditional approaches to representation. There was widespread acknowledgement of these challenges, but only limited evidence of successful strategies to address them. In this respect, we noted the importance of global initiatives described in the literature. While the specific features of these particular initiatives probably would have limited their application in some of the smaller mines with weaker trade union presence and arrangements for representation and consultation in the scenarios encountered in the present study, the general importance of such initiatives for the global dimensions of the challenges for effective representation on OSH cannot be overstated.

Indeed, they beg a number of questions concerning the future support for representation and consultation on OSH in a global industry. Variation exists in the nature and extent of the statutory provisions on representation and consultation on OSH between countries, as well as in trade union presence and power. One obvious matter for consideration at the global level, therefore, concerns ways in which support could be provided at this level to bring national legislation in all countries up to a standard in which key requirements are more explicitly included. The ILO has a key role in this process and, as we have discussed in this report, ILO Convention 176 represents the current position concerning global measures on worker representation and consultation in mining. But the impact of this Convention is difficult to discern. There was no obvious evidence of its influence on the inclusion of requirements on worker representation in the national legislative provisions on health

and safety in coal mines in any of the countries in the present study. Only one — South Africa — had ratified the Convention and, while the regulatory provisions in South Africa were among the more developed, there were other, more significant influences on their origins, as we discuss above in Section 3.4 in Volume 2 in Section 6.3.2. At the other extreme, regulatory provisions for representation and consultation on safety and health were least developed in Indonesia and it was only in this country that we found evidence of any significant awareness of the possible role of the Convention. But, while there was some evidence of its use in campaigning strategies on part of the trade unions, there remained a substantial gap between these activities and the practices and awareness of participants at the level of the mines in Indonesia, from which the existence of Convention 176 appeared to be somewhat remote. Moreover, while the Convention outlines some general requirements on representation and consultation, its detail does not come anywhere near that provided in the regulatory provisions found in countries such as Australia and South Africa. Since our study has found that these details — such as, for example, rights to intervene in dangerous operations, to support workers removing themselves from situations where they are at serious risk of harm, and for reviewing the effectiveness of OSH management systems — are particularly important, their absence from the requirements of global measures like ILO Convention 176 is unhelpful.

We have further concluded that systems for the representation of workers' interests in safety and health are, at best, marginal to the corporate interests in mine safety prominent in guidance at the global level. This leaves it largely to organised labour to provide global level support for worker representation on safety and health. We have explored the ways that the GUF to which many national miners' trade unions are affiliated operates to achieve this, by using strategies that mix labour education, OSH awareness and organising, and target both national and global level activities with the co-operation of affiliates in mining. Among other things, it has acted through supporting several global networks that involve participation from affiliates with members in major global mining corporations. Health and safety matters feature among the concerns of these networks, being more prominent in some networks than in others. One element of the approach is to ensure that adequate arrangements for worker representation are included in corporate measures on managing health and safety. Although we have been unable to explore this in detail in the present study, the success with which this has been achieved to date varies considerably and appears to reflect many of the same issues we have explored in relation to actions within countries.

This, therefore, would seem to offer some means to address some of the current structural problems of employment relations that serve to weaken or marginalise the role of representation on OSH. However, as far as the present research has been able to discern, little use has been made of these strategies in the countries we have studied. Of course, this should not diminish their possible future potential or the possible role of national/global trade union collaborations of this kind to make a significant and substantial contribution to organising around the representation of mine workers' interests in OSH. We conclude that this remains an important area for both future action and research.

8.4　Some final reflections

Mining remains a hazardous industry. Its toll of death, disease and serious injury continues to be comparatively high and especially so in the underdeveloped countries in which much of the global corporate interest in mining activity is concentrated. While the formal sector of coal mining is in many respects probably among the parts of the industry more responsive to the need to effectively assess and control the risks these hazards represent to workers, coal mining also remains a form of work with serious and substantial risks to safety and health for those employed in it. Controlling such risks has long been a statutory requirement for the owners and operators of coal mines and, from very early times in the history of protective regulation for industrial workers the notion of giving miners and their representatives some say in influencing the practice of such protection has been part of regulatory requirements. Based on a review of the historical literature concerning the early development of these measures, we have concluded they were brought about largely in response to pressure from organised labour, in a situation in which the continued occurrence of serious and multiple fatality incidents suggested that this was not something that could be reliably left to mine owners and operators to achieve by themselves. Our findings indicate that this occurred also as the result of the deeply embedded conflict that existed in relations between organised labour and capital in the industry; a conflict so profoundly entrenched that it remains a significant feature of labour relations today, not only in the countries in which the provisions originated but elsewhere too. Our findings further show that, despite the differences in national contexts, such features were significant determinants of the way in which representation and consultation on OSH were operationalised in practice in the mining industries in the five countries we studied.

We have argued that it was these contexts that led legislators towards framing regulation allowing the representation of mine workers' interests in their safety and health through giving them rights to appoint their own 'workmen's inspectors' with powers to inspect safety conditions in the mines, subsequently extending these rights to embrace the involvement of miners' trade unions in their operation. We show in Chapter 3 how, during the course of the 20th century, the legacy of these early provisions was continued in countries like the UK and Australia, where they had originated, as well as spread to other countries. There are some interesting variations on the role of path dependency and instances of its disruption in these experiences but overall we have argued, it has helped to shape the style and approach to representation on OSH in mining and to distinguish it from much of the thinking behind regulatory policies on later OSH reforms. These later developments led to more general provisions to include the participation of workers and their representatives in the post-Robens reforms to achieve more process-based regulation of OSH management across all sectors of employment. Such reforms were felt in mining too but, as our analysis in Australia demonstrates, the unique features of regulation and practice of worker representation and consultation in mining have been retained.

But the history of regulatory intervention is seldom a simple story and, while what led up to the present experience in Australia is one identifiable trajectory, we have also shown that it was not the only one. For example, we point out in Chapter 4 that meetings of the International Miners' Federation from the early 20th century record

how, internationally, miners' unions themselves had different interpretations of the meaning of 'workmen's inspectors'. Those influenced by the British perspective saw them as an extension of the function of trade unions, but some continental European miners' unions saw such inspectors as being miners appointed by the state to carry out such functions in a quasi-regulatory capacity on behalf of mine workers. Also, in more recent times, the inclusion of provisions for safety representatives and joint safety committees in new process orientated regulation of OSH more widely, provided a strong influence on national legislative reforms in mining in countries like South Africa, in which no such measures had existed previously. Chapter 4 shows they also provided a major influence in the debates that led to the adoption of these provisions in ILO Convention 176.

Nevertheless, we find it significant that the countries where both the present study and a previous study indicate that worker representation has been most successful in contributing to improved approaches to OSH management in mines are those where either the legacy of the earlier measures is still much in evidence — as is the case in Australia – or, as in the case of Canada, the trade union organisation has successfully influenced the content of collective bargaining agreements in similar ways to enhance the position of representation and consultation on OSH. Also, in other countries in which worker representatives have been able to demonstrate some success, such as in South Africa, here too this success is owed in good part to the competent full-time safety representatives in large mines, whose presence is itself more typically a result of the thinking behind the early reforms on workmen's inspectors than necessarily that of more modern process-based provisions. Therefore, our broad conclusion is that in labour relations contexts common in coal mining, the success of measures on representation and consultation on OSH is linked to their recognition of entrenched conflict in these relations and to the support they provide to enable representatives to deploy strategies that are appropriate to such a situation.

Writing about support for safety and health in mines, previous researchers have commented on the need for trust between representatives and managers. In so doing, they have pointed to the links between good labour relations and the support of good practice in participative approaches to OSH. However, while both trust and good labour relations are clearly beneficial in supporting good practices in participative OSH management, in the situations we have investigated in the present and previous study, we have concluded that neither are found to any significant degree. Moreover, if the wider operation of the industry is examined, it suggests that there are a host of good reasons that explain why they are unlikely to occur.

We have, therefore, concluded that other ways of framing 'what works' in protecting the collective interests of mine workers in their safety and health are necessary. It is clear from the comparisons we have made in the present research, as well as the historical dimensions we have explored in Chapter 4 and further discussed here, that approaches to implement and operate measures on worker representation and consultation are framed and determined by the wider nature of labour relations practices of both organised labour and employers, as well as by the approach of the regulator to supporting their operation. It follows that 'what works' and what would work better involves representation and consultation being supported by a strengthened and properly enforced regulatory framework governing these activities.

This works best when safety standards required in the mines, are combined with an embedding of the activity of representation and consultation within those of a wider trade union organization within mines and outside them. In this way, such approaches, where they already exist, have been shown to be effective in representing mine workers and making a contribution to improved OSH practice, even in hostile climates of labour relations.

Our study, therefore, suggests that the concerns of researchers who worry about the consequences of poor labour relations and the absence of trust limiting what is possible to achieve through participative arrangements in regulated (or enforced) self-regulation, may be misplaced and reflect a failure to appreciate the wider and historical dimensions of social and economic relations in an industry in which conflict and absence of trust are endemic. Our studies show that trade union representatives everywhere understand these scenarios very well. Where they have sufficient support from their collective organisations in and outside the mines, and from regulation and its proper enforcement, they have developed effective ways in which they are able to 'get things done' to improve OSH in such contexts. While the empirical evidence of the actions of worker representation on OSH in mining varies considerably in different countries, if the findings in this research are examined in combination and situated in relation to the wider literature, strong indications of patterns in the effects of worker representation become clear for all of the countries studied. Above all, they show how limitations to the success of arrangements for representing workers' interests in OSH may be imposed, on the one hand, by the distribution of power in relations between capital and labour, and on the other, by a weak regulatory steer. We therefore conclude that what would make things 'work better' for representation and consultation on OSH in coal mining in countries where, at present, there are limitations to these activities, would involve increasing the regulatory support for these activities and helping to redress the imbalance of power in the relations between labour and capital in mining.

References

Allen, V. (2003). The history of black mine workers in South Africa (Vol. 2). Moor Press.

Annual Report of HM Chief Inspector of Mines, (1947). Annual Report of HM Chief Inspector of Mines 1947. Stationary Office: London.

Appleton, W., Baker, J. (1984). The Effect of Unionisation on Safety in Bituminous Deep Mines, Journal of Labour Research, 5(2):139-147.

Assennato, G., Navarro, V. (1980). Workers' participation and control in Italy: the case of occupational medicine. International Journal of Health Services, 10(2):217-32.

Badigannavar. V., Kelly. J. (2004). Labour-management partnership in the UK public sector. In: Kelly. J, Willman, P. (eds). Union Organization and Activity. London: Routledge, 110-128.

Bagnara, S., Misiti, R., Winersberger, H. (eds) (1985). Work and health in the 1980s: Experiences of direct workers' participation in occupational health. Science Centre Berlin, Edition Sigma: Berlin.

Beaumont, P., Coyle, J., Leopold, J., Schuller, T. (1982). The Determinants of Effective Joint Health and Safety Committees. Centre for Research into Industrial Democracy and Participation, University of Glasgow, Report to ERSC.

Beaumont, P., Harris, R. (1993), Health and safety in union and non-union establishments. Occupational Health and Safety, 23(7):49-51.

Bennet, J., Passmore, D. (1985). Unions and Coal Mine Safety: Comment. Journal of Labour Research, 6(2):211-216.

Biggins, D., Holland, T. (1995). The training and effectiveness of health and safety representatives. In Eddington, I. (ed). Towards Health and Safety at Work: Technical Papers of the Asia Pacific Conference on Occupational Health and Safety. ICOH: Brisbane.

Biggins, D., Phillips, M. (1991a). A survey of health and safety representatives in Queensland Part 1: Activities, issues, information sources. Journal of Occupational Health and Safety — Australia and New Zealand, 7(3):195-202.

Biggins, D., Phillips, M. (1991b). A survey of health and safety representatives in Queensland Part 2: Comparison of representatives and shop stewards. Journal of Occupational Health and Safety — Australia and New Zealand, 7(4):281-286.

Biggins, D., Phillips, M., O'Sullivan, P. (1991). Benefits of worker participation in health and safety. Labour and Industry, 4(1):138-159.

Biswas, K., Zipf, R. (2000). Root Causes of Ground Fall Related Incidents in US Mining Industry. National Institute of Occupational Safety and Health.

Blewitt, V. (2001). Working together: A review of the effectiveness of the health and safety representative and workplace health and safety committee system in South Australia — Final report and recommendations. Consultative Arrangements Working Party, WorkCover Corporation of South Australia: Adelaide.

Boal, W. (2009). The Effects of Unionism on Accidents in U.S. Coal Mining, 1897-1929. Industrial Relations, 48(1):97-120.

Bohle, P., Quinlan, M. (eds.) 2000 (2nd Ed). Managing Occupational Health and Safety: A multidisciplinary approach. Macmillan: Melbourne.

Bowden, B., Barry, M. (2015). Re-casting industrial relations: Productivity, place and the Queensland coal industry, 2001–2013. Journal of Industrial Relations 57(1):48–71.

Bryan, A. (1975). The Evolution of Health and Safety in Mines, Letchworth, Hertfordshire: Ashire Publishing Ltd.

Bryce, G., Manga, P. (1985). The effectiveness of health and safety committees. Relations Industrielles, 40(2):245-57.

Budiman, A. (2010). Mining Regime in Indonesia Rejuvenated. Universitas Pelita Harapan Law Review, XI(1):51–64.

Buhlungu, S., Bezuidenhout, A. (2008). Union Solidarity under Stress: The Case of the National Union of Mine workers in South Africa. Labour Studies Journal, 33(3).

Burgess-Limerick, R. (2011). Injuries Associated with Underground Coal Mining Equipment in Australia. The Ergonomics Open Journal, 4 (Suppl 2-M2):62-73.

Cassou, B., Pissaro, B. (1988). Workers' participation in occupational health: the French experience. International Journal of Health Services, 18(1):139-52.

Conchie, S., Donald, I., Taylor, P. (2006). Trust: Missing Piece(s) in the Safety Puzzle. Risk Analysis, 26(5):1097-1104.

Cooke, W., Gautschi, F. (1981). OSHA, Plant safety programs and injury reduction. Industrial Relations, 20(3):245-257.

Cotton, E., Royle, T. (2014). Transnational Organising: A Case Study of Contract Workers in the Colombian Mining Industry. British Journal of Industrial Relations, 52(4):705-724.

Coulson, N. (2017). In our own voices: Worker representation in mine H&S in South Africa. Paper presented at: Worker representation in mine health and safety: global and local lessons symposium, Centre for Sustainability in Mining and Industry (CSMI), University of the Witwatersrand, Johannesburg, 8 March 2017.

Coyle, J., Leopold, J. (1981). Health and safety committees: How effective are they? Occupational Health and Safety, 11:20-22.

Croucher, R., Cotton, E. (2009). Global Unions, Global Business: Global Union Federations and International Business. Middlesex University Press, London.

Croucher, R., Cotton, E. (2013). Case study: Anglo-American and HIV/AIDS. In: International Management: Theory and Practice. Gooderham, P., Grogaard, B., Nordhaug, O., (eds). Edward Elgar: 341-360.

Crush, J., Ulicki, T., Tseane, T., van Veuren, E. (2001). Undermining Labour: The Rise of Sub-contracting in South African Gold Mines. Journal of Southern African Studies, 27(1):5-31.

Culvenor, J., Cowley, S., Harvey, J. (2003). Impact of health and safety representative training on concepts of accident causation and prevention. Journal of Occupational Health and Safety Australia and New Zealand, 19(3):279-292.

Currington, W. (1986). Safety Regulation and Workplace Injuries. Southern Economic Journal, 53(1): 51-72.

Dalrymple, H., Redinger, C., Dyjack, D., Levine, S., Mansdorf, Z. (1998). Occupational Health and Safety Management Systems - Review and Analysis of International, National, and Regional Systems and Proposals for a New International Document. International Labour Office: Geneva.

Davies, R., Elias, P. (2000). An analysis of temporal and national variations in reported workplace injury rates. Warwick University, Institute of Employment Research: Warwick.

Deakin, S., Koukiadaki, A. (2009). Governance processes, labour-management partnership and employee voice in the construction of Heathrow Terminal 5. Industrial Law Journal, 38(4):365-389.

Dedobbeleer, N., Champagne, F., German, P. (1990). Safety performance among Union and Non-union Workers in the Construction Industry. Journal of Occupational Medicine, 32(11):1099-1103.

Dejoy, D. (2005). Behaviour change versus culture change: Divergent approaches to managing workplace safety. Safety Science, 43:105-129.

Eaton, A., Nocerino, T. (2000). The Effectiveness of Health and Safety Committees: Results of a Survey of Public Sector Workplaces. Industrial Relations, 39(2):265-90.

Eisenhardt, K., Graebner, M. (2007). Theory building from cases: opportunities and challenges. Academy of Management Journal, 50:25-32.

EU-OSHA (2017). Worker participation in the management of occupational safety and health: qualitative evidence from the second European survey of enterprises on new and emerging risks (ESENER-2). European Agency for Safety and Health at Work, Bilbao. Available at: https://osha.europa.eu/en/tools-and-publications/publications/worker-participation-management-occupational-safety-health/view

Fenn, P., Ashby, S. (2004). Workplace risk, establishment size and union density. British Journal of Industrial Relations, 42(3):461-480.

Flyvbjerg, B. (2006). Five misunderstandings about case study research. Qualitative Inquiry, 12:219-245.

Ford, M. (2009). Workers and Intellectuals: NGOs, Trade Unions and the Indonesian Labour
Movement. Singapore: NUS/Hawaii/KITLV.

Ford, M., Sirait, G. (2016). The state, democratic transition and employment relations in Indonesia. Journal of Industrial Relations, 58(2):229–242.

Forseth, U., Torvatn, H., Kvernberg Andersen,T. (2009). Stop in the name of safety — The right of the safety representative to halt dangerous work. In Martorell, S., Guedes Soares, C., Barnett, J. (eds). Safety, Reliability and Risk Analysis, vol. 4. Taylor and Francis Group: London.

Frick, K. (2011). Worker influence on voluntary OHS management systems–A review of its ends and means. Safety Science, 49(7):974-987.

Frick, K., Jensen, P., Quinlan, M., Wilthagen, T. (eds.) (2000). Systematic Occupational Health and Safety Management – Perspectives on an International Development. Pergamon: Oxford.

Frick, K., Kempa, V. (2011). Occupational Health and Safety Management Systems: When are They Good for Your Health? ETUI.

Frick, K., Walters D. (1998). Worker representation on health and safety in small enterprises: Lessons from a Swedish approach. International Labour Review, 137(3):365-89.

Fuller, D., Suruda, A. (2000). Occupationally Related Hydrogen Sulphide Deaths in the United States from 1984 to 1994. Journal of Occupational and Environmental Medicine, 42(9):939-42.

Gaines, J., Biggins, D. (1992). A survey of health and safety representatives in the Northern Territory. Journal of Occupational Health and Safety Australia and New Zealand, 8(5):421-428.

Garcia, A., Lopez-Jacob, M., Dudizinski, I., Gadea, R., Rodrigo, F. (2007). Factors associated with the activities of safety representatives in Spanish workplaces. Journal of Epidemiology and Community Health, 61:784-90.

Gray, G. (2009). The responsibilization strategy of health and safety: Neo-liberalism and the reconfiguration of individual responsibility for risk. The British Journal of Criminology, 49(3):326-342.

Grunberg, L. (1983). The Effects of the Social Relations of Production on Productivity and Workers' Safety. International Journal of Health Services, 13(4):621-634.

Gunningham, N. (2007). Mine Safety: Law Regulation and Policy. Federation Press: Sydney.

Gunningham, N., Sinclair, D. (2012). *Managing Mining Hazards: Regulation, Safety and Trust.* Federation Press: Sydney.

Gustavsen, B. (1988). Democratising occupational health: The Scandinavian experience of work reform. International Journal of Health Services, 18(4):675-689.

Hall, A., Forest, A., Sears, A., Carlan, N. (2006). Making a difference: knowledge, activism and worker representation in joint OHS committees. Relations Industrielles, 61(3):408-435.

Hall, A., Oudyk, J., King, A., Naqvi, S., Lewchuk, W. (2016). Identifying knowledge activism in worker health and safety representation: A cluster analysis. American Journal of Industrial Medicine, 59(1):42-56.

Hasle, P., Sein, R., Refslund, B. (2016). From employee representation to problem-solving - Mainstreaming OHS management. Economic and Industrial Democracy, DOI: 10.1177/0143831X16653187.

Havlovic, S., McShane, S. (1997). The Effectiveness of Joint Health and Safety Committees and Safety Training in Reducing Fatalities and Injuries in British Columbia Forest Product Mills. Workers Compensation Board of British Columbia: Burnaby.

Hazards (2011). Safety in the Pits. Hazards, 116. http://www.hazards.org/deadlybusiness/deadlymines.htm.

Hilgert, J. (2013) Hazard or Hardship: Crafting Global Norms on the Right to Refuse Unsafe Work, ILR Press, Cornell University Press, Ithica.

Hillage, J., Kersley, B., Bates, P., Rick, J. (2001). Workplace consultation on health and safety. Health and Safety Executive Contract Research Report 268/2000, HSE Books: Sudbury.

Hilson, G. (2000). Sustainable development policies in Canada's mining sector: an overview of government and industry efforts. Environmental Science and Policy, 3(4):201-211.

Hopkins, A. (2000). Lessons from Longford: The Esso Gas Plant Explosion. CCH Australia: Sydney.

Hopkins, A. (2005a). Safety, Culture and Risk. CCH Australia: Sydney.

Hopkins, A. (2005b). What are we to make of safe behaviour programs? Safety Science, 44:583-597.

Hudspith, B., Hay, A. (1998). Information needs of workers. Annals of Occupational Hygiene, 42(6):377-390.

Hutt, A., (1933). The Condition of the Working Class in Britain, London, Martine Lawrence Ltd.

ILO (2003). Facts on Small-Scale Mining. ILO, Geneva.

ILO (2009). Guidelines on occupational safety and health management systems, 2nd ed. ILO, Geneva http://www.ilo.org/safework/info/standards-and-instruments/WCMS_107727/lang--en/index.htm.

ILO (2015). Mining: a hazardous work. ILO, Geneva, http://www.ilo.org/safework/areasofwork/hazardous-work/WCMS_356567/lang--en/index.htm.

James, P., Johnstone, R., Quinlan, M., Walters, R. (2007). Regulating Supply Chains to Improve Health and Safety. Industrial Law Journal, 36(2):163–187.

Jensen, P. (2002). Assessing assessment: The Danish experience of worker participation in risk assessment. Economic and Industrial Democracy, 23(2):201-227.

Karra, V. (2005). Analysis of non-fatal and fatal injury rates for mine operator and contractor employees and the influence of work location. Journal of Safety Research, 36:413-421.

Kawakami, T., Kogi, K., Toyama, N., Yoshikawa, T. (2004). Participatory approaches to improving safety and health under trade union initiative. Industrial Health, 42:196-206.

Kejriwal, B. (2002). Safety in Mines: a survey of accidents, their causes and prevention 1901-2000. Lovely Prakashan, Dhanbad.

Kelly, J. (1997). The future of trade unionism: injustice, identity and attribution. Employee Relations, 19(5), 400-414.

Knudsen, F. (2009). Paperwork at the service of safety? Workers' reluctance against written procedures exemplified by the concept of 'seamanship'. Safety Science, 47:295-303.

Kochan, T., Dyer, L., Lipsky, D. (1977). The Effectiveness of Union-Management Safety and Health Committees. W.E. Upjohn Institute for Employment Research: Kalamazoo.

Kogi, K. (2002). Work improvement and occupational safety and health management systems: common features and research needs. Industrial Health, 40(2), 121-133.

Kvernberg Andersen, T., Torvatn, H., Forseth, U. (2009). Safety representative and managers: Partners in health and safety? In Martorell, S., Guedes Soares, C., Barnett, J. (eds). Safety, reliability and risk analysis, vol. 4. Taylor and Francis Group: London.

Labour Research Department (1984). Safety reps in action. LRD Publications: London.

Lahari-Dutt, K., Williams, D., Imam, J. (2014). Revisiting coal cycles in Eastern India: Report of a 2012 survey. Available at: http://asmasiapacific.org/wp-content/uploads/2015/01/Coal-Cycles-Report-2114.pdf

Lewchuk, W., Robb, A., Walters, V. (1996). The effectiveness of Bill 70 and joint health and safety committees in reducing injuries at the workplace. The case of Ontario. Canadian Public Policy, 23(3):225-243.

Litwin, A. (2000). Trade unions and industrial injury in Great Britain. Discussion Paper 468, Centre for Economic Performance, London School of Economics and Political Science: London.

Lucarelli, B. (2010). The History and Future of Indonesia's Coal Industry: Impact of Politics and Regulatory Framework on Industry Structure and Performance. Working Paper, Program on Energy and Sustainable Development, Stanford University.

Lunt, J., Bates, S., Bennett, V., Hopkinson, J. (2008). Behaviour change and worker engagement practices within the construction sector. HSE Research Report 660, available at: www.hse.gov.uk/research/rrpdf/rr660.pdf.

Markkanen, P. (2004). Occupational safety and health in Indonesia. ILO Working Paper 9, International Labour Organisation, Sub-Regional Office for South East Asia and the Pacific, Manila.

McDonald, N., Hyrmak, V. (2002). Safety behaviour in the construction sector. Health and Safety Authority: Dublin; Health and Safety Executive: Belfast.

McIvor, A., Johnston, R. (2002). Voices from the Pits: Health and Safety in Scottish Coal Mining Since 1945. Scottish Economic and Social History, 22(2):111-133.

Milgate, N., Innes, E., O'Loughlin, K. (2002). Examining the effectiveness of health and safety committees and representatives: a review. Journal of Prevention, Assessment and Rehabilitation, 19(3):281-290.

Mills, C. (2010). Regulating Health and Safety in the British Mining Industries, 1800-1914. Farnham, Surrey: Ashgate.

Morantz, A. (2011). Coal Mine Safety: Do Unions Make a Difference. Stanford Law and Economics Olin Working Paper No 43: Stanford Law School.

National Research Council (1982). Towards Safer Underground Coal Mines. Academy Press: Washington D.C.

Nichols, T. (1997). The Sociology of Industrial Injury. Mansell: London.

Nichols, T., Walters, D., Tasiran, A. (2007). Trade Unions, Institutional Mediation and Industrial Safety – Evidence from the UK. Journal of Industrial Relations, 49(2):211-255.

O'Grady, J. (2000). Joint Health and Safety Committees: Finding a Balance. In Sullivan, T. (ed). Injury and the New World of Work, UBC Press: Vancouver.

Ollé-Espluga, L., Vergara-Duarte, M., Belvis, F., Menéndez-Fuster, M., Jódar, P., Benach, J. (2015). What is the impact on occupational health and safety when workers know they have safety representatives? Safety Science, 74:55-58.

Palinkas, L., Horwitz, S., Green, C., Wisdom, J., Duan, N., Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and Policy in Mental Health and Mental Health Services Research, 42(5):533-544.

Parry, D., Waddington, D., Critcher, C. (1997). Industrial relations in the privatized mining industry. British Journal of Industrial Relations, 35(2):173-196.

Perrow, S. (1984). Normal Accidents. Basic Books: New York.

Petre, R. (1968). Workers' labour inspection delegates in Belgium with particular reference to mining. International Labour Review, 97(5):429-445.

Phakathi, S. (2017). Production, Safety and Teamwork in a Deep-Level Mining Workplace: Perspectives from the Rock-Face. Emerald Publishing Limited.

Quinlan, M. (2014). Ten Pathways to Death and Disaster: Learning from Fatal Incidents in Mines and Other High Hazard Workplaces. Sydney: Federation Press.

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.

Raulier, A., Walters, D. (1995). Trade Union Training in Health and Safety: A Survey of European Practice in Training for Worker Representatives. Trade Union Technical Bureau: Brussels.

Reason, J. (1997). Managing the Risks of Organisational Accidents. Ashgate: Aldershot.

Reilly, B., Paci, P., Holl, P. (1995). Unions, safety committees and workplace injuries. British Journal of Industrial Relations, 33(2):273-88.

Robinson, A., Smallman, C. (2000). The contemporary British workplace: a safer and healthier place? Work, Employment and Society, 20(1):87-107.

Robinson, A., Smallman, C. (2013). Workplace injury and voice: a comparison of management and union perceptions. *Work, Employment and Society*, 27(4):674 - 693.

Rosenmann, K., Kalush, A., Reilly, M., Gardiner, J., Reeves, M., Luo, Z. (2006). How much work-related injury and illness is missed by the current national surveillance system? Journal of Occupational and Environmental Medicine, 48(4):357–365.

Roustang, G. (1983). Worker participation in occupational health and safety matters in France. International Labour Review, 122(2):169.

Royal Commission of Inquiry (2012). Royal Commission on the Pike River Coal Mine Tragedy, Volumes 1 and 2, NZ Department of Internal Affairs. Available at: http://pikeriver.royalcommission.govt.nz.

Royal Commission on Safety in Coal Mines (1938). Her Majesty's Stationery Office, London.

Shannon, H., Mayr, J., Haines, T. (1997). Overview of the relationship between organisational and workplace factors and injury rates. Safety Science, 26:201-217.

Shannon, H., Walters, V., Lewchuck, W., Richardson, J., Moran, L., Haines, T., Verma D. (1996). Workplace organisational correlates of lost time accident rates in manufacturing. American Journal of Industrial Medicine, 29:258-68.

Shannon, H., Walters, V., Lewchuck, W., Richardson, J., Verma, D., Haines, T., Moran, L. (1992). Health and Safety Approaches in the Workplace. MacMaster University: Toronto.

Shaw, N., Turner, R. (2003). The Worker Safety Advisors Pilot. HSE Research Report 144, HSE Books: Sudbury.

Simpson, G., Horberry, T., Joy. J. (2009). Understanding Human Error in Mine Safety. Ashgate, Farnham, Surrey.

Spaven, M., Wright, C. (1993). The effectiveness of off-shore safety representatives and safety committees: A report to the HSE. Health and Safety Executive: London.

SPR (1994). Highlights of the 1994 Ontario Survey of Occupational Health and Safety and Joint Health and Safety Committees. SPR Associates and Workplace Health and Safety Agency: Toronto.

Stark, A., Peralta, J., Arendse, L. (2007). Show Me the Money: Consultants, Contractors and Suppliers. Engineering and Mining Journal Jacksonville, 208(4):74-75.

Starman, A. (2013). The case study as a type of qualitative research. Journal of Contemporary Educational Studies, 1:28-43.

Stewart, P., Vermeulen, R., Coble, J., Blair, A., Schleiff, P., Lubin, J., Attfield, M., Silverman, D. (2012). The Diesel Exhaust in Miners Study: V. Evaluation of the Exposure Assessment Methods. Annals of Occupational Hygiene, 56(4):389–400.

Storey, R. (2005). Activism and the making of occupational health and safety law in Ontario. Policy and Practice in Health and Safety, 3(1):41-68.

Topobroto H. (2002). Policy and Condition of Occupational Safety and Health in Indonesia. ILO, Jakarta.

Wallis, E. (2000) Industrial Relations in the Privatised Coal Industry: Continuity, Change and Contradictions. Ashgate: Aldershot.

Walters, D. (1996). Trade unions and the effectiveness of worker representation in health and safety in Britain. International Journal of Health Services, 26(4):625-641.

Walters, D. (2006). One step forward, two steps back: worker representation and health and safety in the United Kingdom. International Journal of Health Services, 36(1):87-111.

Walters, D., Dalton, A., Gee, D. (1993). Worker representation on health and safety in Europe. European Trade Union Technical Bureau for Health and Safety, European Trade Union Confederation: Brussels.

Walters, D., Frick, K. (2000). Worker Participation and the Management of Occupational Health and Safety: Reinforcing or Conflicting Strategies? In Frick, K., Jensen, P.L. Quinlan, M. and Wilthagen, T. (eds.) Systematic Occupational Health and Safety Management – Perspectives on an International Development. Pergamon: Oxford.

Walters, D., Gourlay, S. (1990). Statutory Employee Involvement in Health and Safety at the Workplace: A Report of the Implementation and Effectiveness of the Safety Representatives and Safety Committees Regulations 1977. HSE Contract Research Report No. 20/1990, HSE: Bootle.

Walters, D., Johnstone, R., Frick, K., Quinlan, M., Baril-Gingras, G., Thebaud-Mony, A. (2011). Regulating Workplace Risks: A Comparative Study of Inspection Regimes in Times of Change. Cheltenham, UK: Edward Elgar.

Walters, D., Johnstone, R., Quinlan, M., Wadsworth, E. (2016b). Safeguarding Workers: A Study of Health and Safety Representatives in the Queensland Coal Mining Industry, 1990-2013. Revue Relations Industrielles/Industrial Relations, 71(3):418-441.

Walters, D., Johnstone, R., Quinlan, M., Wadsworth, E. (2016c). Representing miners in arrangements for health and safety in coal mines: A study of current practice. Economic and Industrial Democracy, DOI: 10.1177/0143831X16679891.

Walters, D., Kirby, P., Daly, F. (2001). The impact of trade union education and training in health and safety on the workplace activity of health and safety representatives. CRR 321/2001, HSE Books: Sudbury.

Walters, D., Nichols, T. (2007). Worker Representation and Workplace Health and Safety. Palgrave Macmillan: Basingstoke.

Walters, D., Nichols, T. (eds) (2009). Workplace health and safety: international perspectives on worker representation. Palgrave Macmillan: Basingstoke.

Walters, D., Nichols, T., Connor, J., Tasiran, A., Cam, S. (2005). The role and effectiveness of safety representatives in influencing workplace health and safety. HSE Research Report 363: Sudbury.

Walters, D., Quinlan, M., Johnstone, R., Wadsworth, E. (2016a). Cooperation or resistance? Representing workers' health and safety in a hazardous industry. Industrial Relations Journal, 47(4):379-395.

Walters, D., Wadsworth, E., Davies, O., Lloyd-Williams, H., Marsh, K. (2012). Analysis of the findings of the European Survey of Enterprises on New and Emerging Risks on the effectiveness and support for worker representation and consultation on health and safety. European Agency for Safety and Health at Work, Research Report.

Walters, D., Wadsworth, E., Johnstone, R., Quinlan, M. (2014). A study of the role of workers' representatives in health and safety arrangements in coal mines in Queensland. Research Report for the Construction, Forestry, Mining and Energy Union (CFMEU), Mining and Energy Division: Sydney Available at: http://cfmeu.com.au/the-role-of-worker-representatives-in-health-and-safety-in-qld-coal-mines-new-study

Waring, P. (2013). The Nature and Consequences of Temporary and Contract Employment in the Australian Black Coal Mining Industry. Labour and Industry: a journal of the social and economic relations of work, 14(2):83-96.

Warren-Langford, P., Biggins, D., Phillips, M. (1993). Union Participation in Occupational Health and Safety in Western Australia. Journal of Industrial Relations, 35:585-606.

Weeks, J. (1985). The effect of unionization on safety in bituminous deep mines: Comment. Journal of Labor Research, 6(2):209-210.

Weil, D. (2014). The fissured workplace, Harvard University Press, Cambridge Mass.

Wever, K. (1998). International Labour Revitalization: Enlarging the Playing Field. Industrial Relations, 37(3):388-407.

Williams, J. (1960). Accidents at Work. Staples Press: London.

Wooden, M. (1989). Workers Compensation, Unemployment and Industrial Accidents: An Inter-Temporal Analysis. Australian Economic Papers 28, December.

Wooden, M., Robertson, F. (1997). Determinants of Work Related Injuries: An Inter-Industry Analysis, Flinders University of South Australia: National Institute of Labour Studies, Working Paper 144.

Yang, B. (2012). Regulatory Governance and Risk Management: Occupational Health and Safety in the Coal Mining Industry. Routledge: London.

Yassi, A., Lockhart, K., Sykes, M., Buck, B., Stime, B., Spiegel, J. (2013). Effectiveness of joint health and safety committees: A realist review. American Journal of Industrial Medicine, 56(4):424-438.

Yin, R. (2003). Case Study Research Design and Methods, Vol 5. London: Sage Publications.

Zoller, H. (2003). Health on the line: identity and disciplinary control in employee occupational health and safety discourse. Journal of Applied Communication Research, 31(2):118-139.

IOSH is the Chartered body for health and safety professionals. With more than 47,000 members in over 130 countries, we're the world's largest professional health and safety organisation.

We set standards, and support, develop and connect our members with resources, guidance, events and training. We're the voice of the profession, and campaign on issues that affect millions of working people.

IOSH was founded in 1945 and is a registered charity with international NGO status.

PS0589/151018/PDF