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Occupational health and safety in national development — the case of Australia¹

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Over the last 15 years occupational health and safety has undergone a rapid transformation in Australia. This review discusses the changes, emphasizing, the sociopolitical and economic context, national developments in policy and practice, and the dialogue between the public and occupational health and safety agencies and professionals about occupational health and safety matters. First came the classical phase when activities followed the accepted hygienic, medical, and inspection traditions laid down early in the century. A phase followed in which modern legislation was introduced, new institutions were created, and research and data gathering on important issues was intensified. Finally came the current phase characterized by a performance paradigm. Emphasis was given to regulatory reform and the use of nonregulatory initiatives to facilitate better occupational health and safety.

Key terms annual reports of corporations, best practice, economics of occupational health and safety, history of occupational health and safety, paradigm shift, quality management, regulatory reform, risk communication, tripartite institutions, workers' compensation.

Occupational health and safety is an important component of national development, and it is influenced by national developments in other areas. Occupational health and safety policies and practices are not only shaped by advances in scientific knowledge, but also by changes in laws and in the social interplay between employers and employees. There are important economic and ethical dimensions to this field. Increasingly the links to the environmental sciences and to the political power of the environmental movement mold developments.

Occupational health and safety in Australia underwent considerable change recently after a long period of relative stagnation. To help understand these developments, I have classified them into 3 broad phases: the classical phase prior to about 1985, the neotraditional phase from about 1985 to 1991, and the phase of the performance paradigm from about 1992 onwards. For each phase I touch on 3 elements, the sociopolitical and economic context, the major developments, and the dialog with the public or the "selling of occupational health and safety". As in all social evolution, these phases represent broad-brush descriptions of changes in attitude

and behavior among those concerned. Such changes occur at different rates in different places and sections of the economy but usually move in the same general direction.

Classical phase

In the classical phase which lasted from the late 1890s to the early 1980s, the approach in Australia was similar to and borrowed from that which developed in Europe in the 19th century and in the United States in the early 20th century.

Context

In Australia, during this period, occupational health and safety was virtually entirely a state matter, not a national one. The nation of Australia had been formed by the federation of 6 British colonies, which became the 6 states in 1901. Legislation in the states establishing occupational health and safety inspectorates thus preceded federation; the first factory inspector having been ap-

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pointed in South Australia in 1894. Specific powers for occupational health and safety were not given to the federal government in the constitution of 1901. Moreover Australian courts generally interpreted extensions of federal power narrowly. Thus, in contrast to the United States, where the constitutional power to control commerce and trade between the states was used to introduce the Federal Occupational Safety and Health Administration Act, no such efforts were made in Australia, despite the fact that the sections of the respective constitutions were broadly similar.

Through much of this period Australian trade policy gave strong economic protection for a single county, island, continent. Public policy with respect to occupational health and safety followed the western hygienic tradition, particularly as interpreted in Great Britain. There were regulations, factory inspectors, and airborne exposure levels, mostly adopted in an ad-hoc manner, following evidence of problems. Postgraduate training of occupational physicians and other professionals followed the preventive tradition, especially at the School of Public Health and Tropical Medicine at the University of Sydney. Prevention was emphasized and occupational medicine was not seen as a clinical specialty.

Occupational health and safety developments

By the 1980s two territories with their own separate governments had been added to the 6 original states. These 8 political divisions had each developed separate and different occupational health and safety legislation and their own inspectorates responsible for enforcing the legislation, without any serious coordination or efforts at comparability. Each jurisdiction had very prescriptive but different legislation. In some states there were excellent occupational health and safety professionals (particularly in the disciplines of occupational medicine and occupational hygiene); however this situation varied. Substantial fines or penalties had never been given for occupational health and safety offenses. This situation was not surprising since a lack of significant enforcement or penalties was a feature of most business regulation in Australia during that time. Some large segments of the work force, for example, employees of the Federal government, were not directly covered by any occupational health and safety legislation, although they were eligible for and often received workers' compensation for injury. Each state had its own compensation system; most rarely, if ever, published statistical data; and in some cases, workers' compensation statistics were not even available to the relevant occupational health and safety inspectorate.

Dialogue with the public

During the classical phase there was generally a low media profile for occupational health and safety issues,

with some exceptions, which included substantial publicity in the 1980s about repetitive strain injury of the upper extremity (known in the press as "kangaroo paw"). Occupational health and safety agencies generally had a distaste for media attention and tried to avoid the press. In effect there appears to have been an operating principle that the agency, professor, or medical practitioner knew best.

Shortcomings of the classical phase

By and large, despite the professionalism and good efforts of a number of important pioneers during this time, the overall approach of the classical phase cannot be seen as successful. The evidence which leads to this conclusion includes (i) many workplace injuries and a high number of workplace fatalities for a developed country; (ii) the highest known mesothelioma rate for any country, apparently reflecting the poor industrial hygiene practices in the 1940s, 1950s and possibly 1960s (1); (iii) the first major epidemic of repetitive strain injury (in the world) or at least the first recognized as such (2, 3); (iv) a high direct cost of workers' compensation (Australian Bureau of Statistics and Australian National Accounts), reaching 1.62% of the nonfarm gross domestic product in 1986–1987 (without accounting for the indirect costs of loss of productivity, retraining costs, costs of administration, etc); and (v) a substantial number of industrial disputes involving health and safety matters.

However, because of the limited statistical and information base, the extent of the poor performance was not recognized and only became known during the next phase, the modern-traditional phase.

Modern-traditional phase

The modern-traditional phase lasted from the 1980s to the start of the 1990s. It was a time when procedures, systems, and approaches borrowed from overseas were applied in Australia, which had largely, but not entirely, escaped the profound changes in occupational health and safety that had occurred in many other developed countries in the 1970s, for example, the introduction of the wide-reaching Occupational Safety and Health Administration Act in the United States in 1970 and the Health and Safety at Work Act of 1974 in the United Kingdom.

Context

There were several important contextual changes for occupational health and safety in Australia in the 1980s. These included (i) economic globalization and the discrediting of protectionism as a policy, (ii) a period of intellectual globalism [there was Australian interest in learning from the reforms following the Roben's Report

in the United Kingdom (4), from the United States after the OSHA Act, and from the single-market occupational health and safety initiatives in the European Community], (iii) increased recognition of the need for scientific and social research and for data relating to occupational health and safety, (iv) the obvious success of quality initiatives in industry, (v) the election of labor party governments (at both the national and state levels) who saw occupational health and safety as a social justice issue and were committed to tripartite approaches, (vi) a buoyant atmosphere with the celebration of the 200th birthday of the European settlement in 1988, together with the abundance of corporate money characteristic of the 1980s, and (vii) a trend towards federalization in state-federal relationships.

Developments

Major legislative changes occurred in New South Wales in 1983 and also in other states and territories over the next 7 years as they introduced new, very different legislation, similar to that in the United Kingdom. This legislation established general duties of care for employers, employees, suppliers, manufacturers, designers, and installers and introduced worker participation in the form of health and safety committees or worker health and safety representatives. In addition, it allowed for a move to what was referred to as self-regulation but was probably more precisely coregulation. Such legislation spread around the country and eventually included the Act for Federal Government Employees, although it lacked comparable enforcement provisions.

The Australian approach was generally tripartite. At the enterprise level there were joint union and management health and safety committees or elected health and safety representatives. At the state, territory, and federal government level policy was determined or strongly influenced by tripartite bodies with advisory or, in some cases, direct administrative power. Australian tripartitism thus involved employers, unions, and government in setting policies for occupational health and safety, as well as for shop-floor health and safety.

In late 1985 the Federal government established the National Occupational Health and Safety Commission (Worksafe Australia) as the national tripartite body. The Commission consisted of representatives from each of the 8 states and territories, employers through the Australian Chamber of Commerce and Industry, unions through the Australian Council of Trade Unions, representatives of the Commonwealth ministers for industrial relations and for health, an independent part-time chairman, and a full-time chief executive officer.

Worksafe Australia adopted a collaborating and coordinating relationship with the state and territory regulatory bodies for occupational health and safety. It established advisory national standards, information products,

and educational and training initiatives. It administered the National Industrial Chemical Notification and Assessment Scheme (NICNAS) on behalf of all Australian governments. The National Institute of Occupational Health and Safety was established as part of Worksafe. Important early activities of Worksafe and the National Institute in the late 1980s included the following actions:

- A national compensation statistical data base, the National Data Set, was developed to be used by all workers' compensation systems (5). A uniform coding and classification system was implemented so that national workers' compensation data could be published.
- A national occupational fatality study was conducted (6). Coroners' records were used to identify accurately all deaths from occupational accidents. This study revealed that there were more than twice as many traumatic accidental occupational deaths than had previously been recognized at more than 500 per year; it identified mining and quarrying, transportation, agriculture, and construction as the highest risk areas; and it identified specific major causes of fatalities such as tractor rollovers and electrocutions in the rural sector. Analogous studies in both Australia and the United States allowed comparison of national performance (7).
- Detailed studies on mesothelioma were carried out using a unique national register based on pathology confirmation of all cases occurring in the country (1, 8).
- Belated but successful action was taken to modify work practices and changes in compensation practices and improved rehabilitation to stem the epidemic of repetitive strain injury (renamed occupational overuse syndrome) (9).

Following the lead of the National Institute for Occupational Safety and Health in the United States, in order to focus activities on the most important issues, the National Commission (in consultation with governments, unions and employers) identified 6 hazard-based priority issues for occupational health and safety for which national strategies were developed. These were occupational back pain, noise-induced hearing loss, occupational cancer, occupational skin diseases, the safe management of chemicals used at work, and injury from mechanical equipment.

The strategy for addressing and minimizing these hazards included changes in regulations, specific preventive initiatives, improved statistics, information, training and research (10–14). Most of these strategies had impact. For example, the strategy for the safe management of chemicals used at work helped direct the development of comprehensive national regulations and training for chemical management, as well as the coordination of these activities with NICNAS.

At the same time major changes were taking place in most workers' compensation systems. With a better sta-

tistical base, prevention activities could be linked to compensation. In an attempt to stem previously runaway costs, much more emphasis was placed on the rehabilitation of injured workers. In some jurisdictions the same agency was made responsible for compensation and prevention; in others the working relationship was enhanced. This action allowed both better targeting of problem areas, particularly in areas of increased compensation cost, and the better use of economic incentives through experience-rated premium reductions or penalties. Better coordination between compensation and prevention authorities also had the advantage of allowing prevention activities in some states to be funded from workers' compensation premiums. However the Australian experience does not yet allow for an answer to the question of whether a single integrated unit represents the most effective arrangement for administering these distinct areas.

These activities in occupational health and safety, together with a proactive approach to gaining press coverage for these reforms, raised the public profile of occupational health and safety and highlighted the need to improve national occupational health and safety performance. This need was recognized in an important political commitment in late 1991, when the heads of all the Australian governments (state and federal), as part of an agreement to improve the efficiency of industry, agreed to achieve uniform standards for occupational health and safety and for dangerous goods, with a target date of completion by the end of 1993. This was an important victory for occupational health and safety.

In large part, recognition that Australia needed uniform standards derived from the same logic that led the European Community to identify occupational health and safety as a first area in which to achieve uniformity in approach, namely, the inefficient business environment produced by disparate and conflicting state requirements for occupational health and safety was a barrier to effective competition in a global economy.

Dialogue with the public

Shortly after its creation Worksafe Australia was the subject of much adverse press, for reasons which included lingering resentment on the part of some industrial bodies and state officials against federal government intrusion into occupational health and safety. A content survey of the press for the first half of 1987 showed that, of 54 press reports explicitly naming Worksafe, 25 were negative, 17 were balanced or neutral, and only 14 were positive about the work and role of the agency. Newspapers were critical or even satirical about the agency and the efforts being made to improve occupational health and safety (15). This attitude posed a significant issue for the incoming chief executive officer in March 1988. A simple 3-point approach for dealing

with the media was adopted. Worksafe officials were always available to talk to the press about any occupational health and safety issue; they would acknowledge a problem or deficiency in approach; and they would always indicate that there were concrete actions which could improve the situation.

The results were dramatic. Since Worksafe was apparently the only official body which would communicate with the press, it became a valued source of comment. This strategy stemmed criticism without good cause since it might prejudice a major source of occupational health and safety communication and comment. Acknowledging problems up front ensured that officials were not placed in a defensive situation during a long embarrassing interview, but rather that occupational health and safety emerged as an area in which something positive could be done in the future. A content survey of press for the first half of 1989 showed that, of 181 press reports explicitly naming Worksafe Australia, 109 were positive, 67 balanced or neutral, and only 5 negative about the work or role of the agency. Significantly, the total number of citations had more than tripled, and much more attention was being given to occupational health and safety. Several state agencies and nongovernmental organizations began to follow this lead. There were two effects for occupational health and safety, an increased profile and public awareness of occupational health and safety as a substantive issue and a democratization of the dialogue with more people participating in the debate about pertinent issues.

Limitations of the modern-traditional approach

The major developments in the modern-traditional phase had been borrowed from other countries; however, several local considerations led to a substantial rethinking of the Australian national approach around early 1992 (9). As with any such rethinking, it was rather hard to identify where it started and finished. In no particular order, some of the important factors were (i) better statistical data which allowed targeting of problem areas; (ii) the recognition that, despite the efforts of the previous several years, costs were still very high and should be able to be reduced further; (iii) a realization that occupational health and safety was an area for "microeconomic reform" and could contribute to lower business costs and increased productivity [in Australia "microeconomic" reform usually referred to a concerted effort to enhance national competitiveness by reducing infrastructure costs in areas such as electricity and transport]; (iv) the most serious recession since World War II, so that all costs were carefully examined in both the public and private sectors; (v) data showing extremely variable occupational health and safety performance in apparently similar workplaces; (vi) the realization that "culture change", whereby managers, workers and the general public

needed to put more value on safety and health, was necessary if better occupational health and safety was to be achieved; and (vii) extensive workplace reforms throughout the economy so that both management and unions were looking at ways to improve the productivity and culture of Australian industry to ensure international competitiveness. The contemplation of such factors, together with contextual changes, led to a paradigm shift, with a new focus on occupational health and safety performance, which is still the predominant theme.

Occupational health and safety performance phase

Context

During the 1992–1996 period several important changes in the prevailing Australian social, economic, and political conditions impacted on occupational health and safety. These included (i) the increasing intensity of global economic competition, (ii) a number of fiscal disasters attributed to State Labor Party governments, which reflected negatively on labor party policies, (iii) an increase in fiscal and political conservatism, with a prevailing belief in market forces [this belief was particularly prevalent among government economists], (iv) strengthened desires for smaller “efficient” governments and for state’s rights, without excessive “centralism”, and (v) importation of deregulation arguments from the United States and of a sense of disillusionment with science from the United Kingdom. Collectively these changes in public sentiment created an increasingly different political climate to that seen in the 1980s.

Developments

Whereas the concepts and tenets behind the classical and neotraditional phases were borrowed from overseas, the phase of focus on occupational health and safety performance, at least so far as it applied in Australia, was a local development. Other countries, such as Sweden, were experiencing similar developments, but, broadly, they were independent phenomena. Australia was now taking its own path forward in occupational health and safety fueled by the analysis of local data. As with all pioneering efforts, changes were being created without a clear understanding of what the outcomes would be, but with definable objectives and a strong sense that this was the correct way ahead.

The new paradigm, simply put, was that the role of government was to facilitate the best occupational health and safety performance in the country and not merely to set and enforce regulations which were seen as a means to an end. A paradigm shift occurs because deviant phenomena force a rethink. Out of this emerges a new paradigm or model. Because a new paradigm involves a

fundamentally different way of looking at an issue, it challenges all the consequences accepted as flowing from the old model.

Particularly important to the analysis being made was the success of quality initiatives in industry. An analogy with quality control (16) was constructed broadly as follows. In the old approach to quality, workers produced products according to certain specifications. Failures were expected. There was an inspector at the end of the line to detect and reject the failures. Subsequently, it became apparent that the system did not produce the best results. The new, more successful approach maintained that all workers are responsible for the quality of their work. What constitutes quality is determined by the customer. Good quality is achieved by good systems at the workplace. Quality assurance is achieved through a systems-auditing approach.

When these concepts were applied to occupational health and safety, it appeared that the old approach to occupational health and safety was to accept that work was hazardous and that some injuries were expected. The government produced new rules whenever problems occurred, and an inspector was charged to enforce the rules and detect violators. Unfortunately, the rules were rarely repealed so there was always an increasing volume of regulation. In addition, it was not always clear that the increasing number of rules and the other help provided through public means was actually delivering better occupational health and safety performance, although there were some dramatic examples of effectiveness.

The new systems approach to occupational health and safety was crafted to be similar to the new approach to quality control. Employers, workers, and suppliers had responsibilities to avoid occupational injuries. It was not accepted that injuries, diseases, and deaths were an inevitable consequence of work. In the new systems approach all parties have a role in determining the acceptability of the regulatory framework and the regulations that are introduced, the key roles being those of the employers and workers. The government should merely provide the framework for action. The inspectorate should have a new advisory role with emphasis on performance, in addition to enforcement of the rules. Government agencies may also have a new role in auditing the occupational health and safety systems operating in the workplace.

Through adopting this new paradigm, Worksafe substantially redirected its activities. The major initiatives from the National Commission became regulatory reform, promotion of best practice, and other means to facilitate better occupational health and safety performance in Australian industry, and an improved research and informational base. Other important national advances were a better appreciation of the economic im-

portance of good occupational health and safety and improvements in workers' compensation initiatives.

Regulatory reform. The decision of the heads of the State and Commonwealth governments that Worksafe develop uniform national standards for occupational health and safety and for the storage and handling of dangerous goods presented a unique opportunity to introduce sense into a hitherto costly and chaotic regulatory system. But it also required some difficult decisions. The easiest way to achieve the goal might have been to select the "best" standard from the array already available in each state and territory and to cobble these together. However, it was decided that it would be better to start again to construct a new modern regulatory framework with a consistent regulatory philosophy, through a process of regulatory reform (16). The objectives of the process were (i) to achieve national uniformity through common uniform requirements under state and territory legislation and the laws covering federal employees, (ii) to obtain less overall volume of regulation and to ensure that old out-of-date requirements were replaced, (iii) to have regulations written in plain English to the greatest extent possible, (iv) to give both certainty of requirement and flexibility to industry [this was to be achieved by standards which set the performance requirements and by supporting codes of practice which gave detail on one acceptable way of achieving the performance goals], (v) to provide a consistent approach to managing hazards, by incorporating the 3 fundamental steps of hazard identification, risk assessment, and risk control into all standards, (vi) to ensure practical application in industry by involving unions and employers in the tripartite development process, (vii) to ensure compatibility with the standards of Australia's major trading partners [this necessity highlighted major international discrepancies which needed to be addressed, for example, the existence of 2 incompatible chemical labeling systems from agencies of the United Nations].

The priority for developing standards for particular hazards was ranked by taking the following 4 factors into account: (i) the estimated number of cases and costs, taking into account the likely underreporting of occupational disease cases, (ii) worker, employer, and community concerns, (iii) standards involving products and occupations, since these were the focus of concomitant activities to dismantle barriers to trade between the states, and (iv) priority for regulations which could be used to rationalize other regulations (ie, requirements which were common components of many regulations).

The importance of using a systematic process of risk-based priority setting like this has recently been emphasized (17). The first 7 national standards developed according to these criteria were for manual materials handling, certification of operators of dangerous equipment,

plant (including equipment), noise, hazardous substances, major hazardous facilities, and the storage and handling of dangerous goods. Interestingly these first standards covered the causes of between 65% to 80% of compensated occupational illnesses and injuries in Australia. It is of note that, by using this prioritization process, Australia has given more regulatory attention to ergonomics than has any other English-speaking country because it gave greater credence to the frequency and severity of occupational musculoskeletal injury.

Promotion of best practice and facilitation of improved industry performance. Efforts at regulatory reform during the occupational health and safety performance phase were complemented by efforts to encourage industry to take the initiative to improve its own performance. One of the first and most prominent initiatives was to encourage firms to achieve best practice in occupational health and safety (18–20). Worksafe identified workplaces which were considered to be leaders in occupational health and safety by unions, occupational health and safety inspectors, others in the same industry and by their own management and workers. Organizations were also identified which had turned around previously adverse health and safety performance to develop excellent programs and performance. In some cases the change in occupational health and safety had been the first step in a culture change which had made the whole organization successful. Detailed case studies were made of these enterprises and were disseminated widely. It was apparent that there were 7 core characteristics of enterprises with best-practice occupational health and safety. Health and safety were recognized as a part of doing business, senior management was committed to occupational health and safety, the whole workplace participated in improving health and safety, health and safety performance was measured, the concept that everything needs to be continuously improved was accepted, training provided knowledge and skills and work sites were designed to be healthy and safe (18).

Around the same time several states and nongovernmental organizations, including the National Safety Council, the Australian Mining Industry Council (now the Minerals Council of Australia), and the Australian Chemicals Industry Council, began to give awards for excellence in occupational health and safety. These awards helped focus attention on the advantages of good occupational health and safety to an enterprise.

Nevertheless, the challenge of getting good occupational health and safety into all workplaces, especially those of small and middle-size employers, remains great. There have been some successful initiatives. For example, in the agricultural sector, following a ministerial report (21), the National Farmers' Federation, the Country Women's Association, representatives of agriculture

and labor departments, and a number of highly motivated persons established the Farmsafe initiative with networks of local "farm-safety action groups" throughout much of the country. The overall effectiveness of this approach is only now being evaluated, but through this effort much more attention has been given to occupational health and safety in rural communities. The mining industry has also been proactive. The NSW Coal Industry has focused on the positive relationship between productivity and injury rates to improve safety, the Tasmanian mining industry achieved dramatic reductions in injury rates after introducing health and safety committees, and the Western Australian mining industry developed a relatively sophisticated system for reporting its occupational health and safety performance. However, other industries remain less motivated, and a national attempt to have each major industry develop its own strategy for improving its occupational health and safety has left few lasting benefits outside the primary industrial sector.

The need for changes in cultural and management systems in Australian industry was further emphasized by a 1996 report on a mine disaster at Moura in 1995 (22). This disaster, a mine explosion, was the third in 20 years which had killed more than 10 men, in the same small complex of coal mines in central Queensland. The report emphasized the role of slovenly management practices in setting up the conditions that resulted in the explosion.

Research and higher education. By the second half of the 1990s well over 20 Australian universities (over two-thirds of the total number of universities in the country) conferred undergraduate or graduate diploma degrees in occupational health and safety. Arguably this was excessive in relation to the need for specialist skills. On the other hand, there was relatively little occupational health and safety being taught to some key professionals, such as engineers, managers, and physicians.

Unfortunately, most of these universities with occupational health and safety programs had very small faculties in occupational health and safety (sometimes as few as one person), and their ability to produce quality occupational health and safety research was generally poor. Accordingly, Worksafe, which supported both intramural and extramural research, had difficulty expending its extramural research budget on research that met peer-reviewed standards. Indeed about half the published research in occupational health and safety was performed in the National Institute. To remedy the shortage of qualified researchers, emphasis was placed on funding doctoral scholarships in occupational health and safety. A program was also developed to encourage partnerships between the National Institute and universities so that resources would be pooled for research projects.

The impact of a political decision in 1996 to alter the funding formula to provide greater resources to universities through extramural grants and to reduce funding to the National Institute is not clear at this time.

Worker's compensation initiatives. The poor fiscal performance of several workers' compensation schemes, and the increasing availability of comparative data, which made it possible to compare performance, accelerated reforms in worker's compensation. It was evident from the national data set of workers' compensation statistics, for example, that rehabilitation after work injury was virtually nonexistent in Victoria, compared with other states. Such deficiencies led to legislative change and replacement of the then Workcare scheme with a new Workcover scheme and organization.

Greater interest in prevention as a means of reducing costs led some state workers' compensation schemes to fund prevention activities. Nevertheless, the most immediate way to reduce expenses was to cut benefits. In addition to the effects on individual persons, this cut served to shift costs to others (such as onto the welfare budget or back to the individual person). Since such actions have the effect of shifting costs from one department's budget to another, and from state to federal government budgets, changes in workers' compensation benefit structures have been controversial and are likely to remain so.

Quantifying the economic importance of occupational health and safety. Worksafe estimated the annual economic costs of occupational injury and disease at between AUD 15 billion and AUD 35 billion by taking the direct costs of workers' compensation and adding an estimated indirect cost component (23). With the use of different methodology (24) the annual costs were estimated by the Treasury Department at AUD 20 billion per year. The massive size of costs emphasizes the gains that could be made through the prevention of injury and disease. It was estimated (24) that 40% of these costs were borne by industry through workers' compensation, lost productivity, retraining, administrative costs, and such; 30% by the injured or ill and their families, through uncompensated expenses, loss of overtime, loss of future earnings, and such; and 30% by government, mostly by the Federal government in terms of social security expenses, unreimbursed medical care, rehabilitation services, and such.

This distribution of costs defined those who have or should have an interest in occupational health and safety. Such analysis also made obvious an important disparity between those who bear the costs and those who control the workplace conditions responsible for injury and disease. Direct control of the workplace conditions was mainly in the hands of the employer with the employee,

suppliers, installers, and others having an important but lesser role. Accordingly other parties have a critical stake in actions which only the employer can take.

Dialogue with the public

During the performance phase of occupational health and safety policy in Australia the raised public profile was sustained with some notable new developments and more sophisticated approaches. These included a need to articulate basic concepts and values as public attitudes changed, for example, through public information campaigns, and a new interest in corporate reporting of occupational health and safety performance.

The need to articulate basic concepts and values publicly became apparent as economists and others began to question whether occupational health and safety could be left entirely to market forces. Better statistics and economic analysis had allowed the profiling of the cost of occupational illness and disease in economic and personal terms. These poor outcomes were not only costly but could be seen to be at odds with fundamental values such as the sanctity of life and health, and the need for protection against the irresponsible actions of others, and community values such as equity, fairness, and individual freedom. Regulation served to put these community values into effect (16, 18). For example, it could be shown that regulation to eliminate coal workers' pneumoconioses had been very effective in Australia (9, 25), that regulatory compliance was still effective in avoiding injury and disease (26), and that regulations could not be entirely replaced by management systems (27). International comparative studies such as those of Michael Porter in his work *The Competitive Advantage of Nations* (28) were cited to show that high safety and product standards, rather than the undermining of national competitiveness, could, together with tough enforcement, be the best combination for national economic advantage. Thus regulatory reform needed to be a tool to modernize but not to destroy the regulatory system. Although these concepts had been accepted almost without question by occupational health and safety professionals, there was a need to engage in a sophisticated dialogue on these matters, particularly with economists and the business press.

Major funding from state workers' compensation authorities, particularly from the Victorian and South Australian Workcover schemes, was spent on media campaigns highlighting health, safety, and the importance of prompt rehabilitation and return to work after an injury. A national survey of attitudes, knowledge and beliefs in late 1995 showed substantially higher awareness of occupational health and safety issues in the states which had conducted such media campaigns. With this information support was gained for a national television campaign particularly directed toward the safety of new workers entering the work force. A postcampaign survey

showed somewhat increased public awareness of these issues among those who had been previously aware (ie, reinforced learning).

At the same time arguments by large corporations that they should be allowed to practice "responsible care" and enjoy an increasing degree of self-regulation led to an examination in 1995 of the degree to which they were reporting to the public and their shareholders on their occupational health and safety performance. A survey of the annual reports of the 10 largest Australian public companies revealed that the annual report of only one corporation (the Western Mining Corporation) included an honest and comprehensive appraisal of its occupational health and safety performance, 2 other corporations mentioned occupational health and safety (including one report which was potentially misleading) and 7 did not include occupational health and safety at all. Following a call for better occupational health and safety coverage in annual reports (29), 5 of the top 10 corporations included some reporting on their occupational health and safety performance in 1996. This remains an important area for development, as more responsibility for corporations in occupational health and safety should be accompanied by transparent and acceptable reporting of results.

Concluding remarks

In a relatively short period Australia has undergone a rapid transformation within the field of occupational health and safety policy and programs. This change has highlighted the important role of occupational health and safety in national development and the importance of this subject to Australians. As in this period, it is likely that contextual, social, legal, economic, and scientific developments will continue to be important determinants of the fruits borne from the work of occupational health and safety practitioners. High quality communication between those in the field of occupational health and safety and the general public will be essential.

References

1. Leigh J, Driscoll T, Baker G, Corvalan C. The Australian mesothelioma program, recent research results. *J Occup Health Saf Aust NZ* 1991;7:365—71.
2. Caple DC, Betts NJ. RSI — its rise and fall in Telecomm Australia 1981—1990. In: Queinnec Y, Damellou F, editors. *Designing for everyone*. London: Taylor and Francis, 1991.
3. Stevenson MG. Progress in the prevention of repetition strain injury (RSI). *J Occup Health Saf Aust NZ* 1987;3:265—72.
4. Robens Committee (Committee on Safety and Health at Work). *Health and safety at work*. London: Her Majesty's

- Stationery Office, 1972.
5. National Occupational Health and Safety Commission. National data set for compensation-based statistics. Canberra: Australian Government Publishing Service, 1987.
 6. Harrison JE, Frommer MS, Ruck EA, Blyth FM. Deaths as a result of work-related injury in Australia, 1982—1984. *Med J Aust* 1989;150:118—25.
 7. Stout N, Frommer MS, Harrison J. Comparison of work-related fatality surveillance in the USA and Australia. *J Occup Accid* 1990;13:195—211.
 8. Ferguson DA, Berry G, Jelihovsky T, Andreas SB, Rogers AJ, Fung SC, et al. The Australian mesothelioma surveillance program 1979—1985. *Med J Aust* 1987;147:166—72.
 9. Emmett EA. New directions for occupational health and safety in Australia. *J Occup Health Saf Aust NZ* 1992;8:293—308.
 10. National Occupational Health and Safety Commission. National strategy for the management of chemicals used at work. Canberra: Australian Government Publishing Service, 1989.
 11. National Occupational Health and Safety Commission. National strategy for the prevention of mechanical equipment injury. Canberra: Australian Government Publishing Service, 1990.
 12. National Occupational Health and Safety Commission. National strategy for the prevention of noise induced hearing loss. Canberra: Australian Government Publishing Service, 1989.
 13. National Occupational Health and Safety Commission. National strategy for the prevention of occupational back pain. Canberra: Australian Government Publishing Service, 1989.
 14. National Occupational Health and Safety Commission. National strategy for the prevention of occupational skin disorders. Canberra: Australian Government Publishing Service, 1989.
 15. Bell P. Analysis of Australian print media representation of issues related to occupational health and safety: report prepared for Worksafe Australia. Sydney: Macquarie University, 1990.
 16. Emmett EA. Regulatory reform in occupational health and safety in Australia. *J Occup Health Saf Aust NZ* 1995;11:607—16.
 17. Harvard Group on Risk Management Reform. Reform of risk regulation: achieving protection at less cost. Boston (MA): Center for Risk Analysis, Harvard School of Public Health, 1995.
 18. Emmett EA, Hickling C. Integrating management systems and risk management approaches. *J Occup Health Saf Aust NZ* 1995;11:617—24.
 19. Worksafe Australia. OHS building best practice. Sydney: Worksafe Australia, 1995.
 20. Worksafe Australia. OHS good for business: the sum of it, lessons from worksafe Australia's occupational health and safety building best practice case studies. Sydney: Worksafe Australia, 1995.
 21. National Occupational Health and Safety Commission. Ministerial advisory group on farm safety report. Canberra: Australian Government Publishing Service, 1989.
 22. Department of Mines. Warden's inquiry report on an accident at moura no 2 underground mine, on Sunday, 7 August 1994. Brisbane (Australia): Department of Mines, 1996.
 23. Worksafe Australia. The cost of work related injury and disease. Canberra: Australian Government Publishing Service, 1994.
 24. Australian Commonwealth Industry Commission. Work health and safety: an inquiry into occupational health and safety. Canberra: Australian Government Publishing Service, 1995:87—157. Report number 47, volume II.
 25. Leigh J, Wiles AN, Glick M. Total population study of factors affecting chronic bronchitis prevalence in the coal-mining industry of NSW, Australia. *J Int Med* 1986;43:263—71.
 26. Gun RT. The role of regulation in the prevention of occupational injury. *Saf Sci* 1993;16:47—66.
 27. Gun RT, Ryan CF. A case-control study of possible risk factors in the causation of occupational injury. *Saf Sci* 1994;18:1—13.
 28. Porter ME. The competitive advantage of nations. London: The Macmillan Press Ltd, 1992:47 & 648—9.
 29. Emmett EA. Prevention of major accidents in Australia. *J Occup Health Saf Aust NZ* 1996;12:581—9.

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