

An ANALYSIS of FACTS and FIGURES of THE CONSTRUCTION INDUSTRY ACCIDENTS in VICTORIA, AUSTRALIA

M. Asad Abdurrahman¹⁾ and Chandra Bhuta²⁾

¹ *Lecturer, Civil Engineering Department, Hasanuddin University, Makassar, Indonesia.
E-mail: asad@unhas.ac.id*

² *Associate Professor, School of Architectural, Civil and Mechanical Engineering,
Victoria University of Technology, Australia.
E-mail: chandra.bhuta@vu.edu.au*

ABSTRACT: This report reviews the occupational health and safety (OHS) issues in the Victorian construction industry. The key findings of the report are that the construction industry is one of the major industries with significant injury risk; moreover, the OHS performance of the construction industry is unacceptable. Since the last decade, the construction industry remains among the five most hazardous industries in Victoria. Construction industry contributes about 10% fatalities in all Victorian industries and 25% fatalities in the construction industry throughout Australia. However, it appears that the trend in OHS performance of Victorian construction industry has improved consistently compared with the other industries. The enforcement of OHS law and regulation, and the outcome of authority function to assist and promote health, safety education and training are the significant factors for the improvement of safety performance in construction industry. Data on occupational injuries from National Occupational Safety and Health Commission were combined with data from the Victorian WorkCover Authority. Statistical analysis reveals that the frequency of accidents does not have a positive correlation with the economic activity and the number of employment in construction industry.

KEYWORDS: safety, occupational injury, accident

INTRODUCTION

The construction industry is a key component of the Australian economy. In 2002-2003, the construction industry contributed an average 6.3% to the GDP and employed approximately 8% of the workforce. A National Occupational Safety and Health Commission study reveals that construction industry has one of the highest injury ratios of all Australian industries. Between 1989 and 1992, among 100,000 workers there were an average 10 people employed in the construction industry died in work-related accidents. This figure is double the all industry average of 5.5 deaths per 100,000 workers (NOHSC 1995). Furthermore, a survey by the Australian Workers' Union in Victoria found that 60% respondents believed their work was dangerous, 57% respondents had sustained some kind of injury in 2002, and 41% respondents had worked on site on which someone had been seriously injured in that year (Cole 2003). The above figures shows that individuals employed on the construction industries find themselves confronted with dangerous and life-threatening work conditions.

While construction industry has been able to largely meet the challenges associated with rapid physical development, it still lags in occupational safety and health. It is not for lack of effort that the safety performance of the construction industry has remained obstinately poor. Various safety legislation and regulative institutions have been put in place by the government in its drive to emulate industrial safety performance.

OBJECTIVES AND METHODOLOGY

Quinlan and Bohle (1991) stated that workplace injuries are far from chance or random events; therefore, workplace accidents are the events that controllable and avoidable. On the other hand, Einarsson (1998) stated that strong economic activity in construction industry which stimulates the

number of workers may result in an increased frequency and severity of construction site accidents. Hence, the frequency of accidents has a positive correlation with the economic activity and the number of workers. This report examines the above opinions within Victorian construction industry to find out whether the frequency of accidents has a correlation with the economic activity and the number of employment in construction industry

The study analyses accident statistical data which is acquired from the National Workers' Compensation Statistics Databases provided by National Occupational Safety and Health Commission (NOHSC), and from Victorian WorkCover Authority (VWA). Information about economic activity in construction and the number of employment during the last decade are obtained from Australian Bureau of Statistics (ABS) and then they are correlated with the accident record.

PROFILE OF THE CONSTRUCTION INDUSTRY

This report defines the scope of construction industry in accordance with the Division E of the Australian New Zealand Standard Industrial Classification. It is widely accepted that the occupational health and safety performance of the construction industry throughout Australia is unacceptable (Cole 2003, McWilliams 2001). The construction industry is highly competitive so that principal contractors are willing to award contracts to subcontractors with poor or untested safety practices. Once the subcontractors have started work on the site, unrealistic progress programs are then enforced on them. This situation creates a culture where the objective of many contractors is to get the job finished as quickly as possible and move on to the next project. Safe work practices are commonly being seen as time-consuming, costly, and something that slows down the work (Durham 2002).

A number of factors have contributed to the poor OHS performance in the construction industry, such as the nature of the work conducted that is potentially high-risk hazards; the willingness of some principal contractors to award tenders to subcontractors who have poor OHS practices; time pressures to complete jobs; inadequate systems and resources for managing OHS risks in some contractors; and lack of understanding of OHS legal obligations to contractors (Durham 2002, Frick 2004, Meerman 2004).

Related to the risks in Victorian construction industry, study by Larsson and Field (2000) found that construction workers have the higher incidence of injury among the other industries. Falls from roof, ladders and scaffolding represent the most prominent accidents at work. Injuries sustained in contact with powertools, machinery, handtools, vehicle, and material are also very severe. Furthermore, McWilliams (2001) identified occupational groups and the matching hazards for each group. From an analysis of these occupations the direct causes were identified. For example, the risk of fall from heights to bricklayers was related to non-compliant scaffolds while for painters the risk resulted from hazardous work performed on ladders.

REGULATORY FRAMEWORK AND ITS RELATIONSHIP TO OHS OUTCOMES

Currently, the principal occupational health and safety statute in Victoria is the Occupational Health and Safety Act 2004, which repeals the Occupational Health and Safety Act 1985. For the most part, regulations under the Victorian OHS Act impose more particular duties in relation to specific type of hazard. OHS Act is premised on the notion that occupational safety should be self-regulating, that is to say employers should comply with the regulations because of self-interest rather than official sanction. Those who create the risks and those who work with them should play the pivotal role in the consultative, co-operative and participative process in ensuring that workplaces do not marginalise health and safety.

One of the most critical areas of reform for OHS Act is the provision of entry permit for formal employee organisation in the workplace in certain circumstances. The Act establishes a regime under which such an officer or employee of a union may apply to the Magistrates' Court for an entry permit and then, in tightly controlled circumstances, gain access to workplaces for the purpose of inquiring into a suspected (specified) contravention of the Act or the regulations. This provision ignited a disagreement between unions and employer groups. Employers argued that industrial relations environment and the management of OHS cannot be mixed. On the other hand, unions argued that

their activity in the area OHS has a positive effect upon safety performance in industry generally. (CCF 2002, CFMEU 2002, Australian Financial Review 7 April 2004, The Age 16 November 2004,). This argument reflects the debate about the integration of OHS into industrial relations. The impacts of this reform upon safety performance in Victoria have not been known.

Under the Occupational Health and Safety Act 1985 (old Act), approved Codes of Practice were made to help people who have duties or obligations under Victoria's health and safety laws. A Code of Practice provides practical but not mandatory guidance. Codes of Practice do not have the same force of law as a Regulation. However, failure to follow a relevant code may be used as evidence to support prosecution. A Code of Practice can achieve legal status if adopted by a regulation. Most of these acts, regulations and codes require the contractor to identify hazards, and then to assess and control the identified risks. They provide guidance as the types of control mechanisms that might be chosen by the contractor. However, many medium and smaller contractors have expressed major problems with the regulations that they are too complex and many of the current codes of practice require updating. Consequently, small and medium-size contractors still tend to rely on inspectors to tell them what to do (Johnstone 1999, Frick 2004). Moreover, numerous laws, standards and codes of practice covering health and safety left employers and unions dissatisfied with the effectiveness of the existing legislative framework (The Age 7 May 2002, Business Review Weekly 27 May 2004). At the moment, the legislative framework makes it difficult for contractors to work in various states due to the fact that the legislation changes from state to state. Additionally to the legislative framework in Victoria, there are other laws that require plumbers and electricians to be licensed or registered.

Figure 1 shows the chain of impact model developed by Hillage J., et.al (2001). Their study revealed that legislation and associated guidance is a major form of leverage over employers in terms of bringing about change in their health and safety policies and practices. Most employers are motivated to change their practices to comply with the law. Moreover, awareness of the legislation is a key initiator of action. Not surprisingly, the evidence suggests that the more aware employers are of a piece of legislation, the more likely they are to put in place relevant control measures. This model is consistent with the approach to understanding OHS performance in Victoria. Understanding of hazards is related to awareness raising, information, education and training strategies used by Victorian WorkCover Authority.

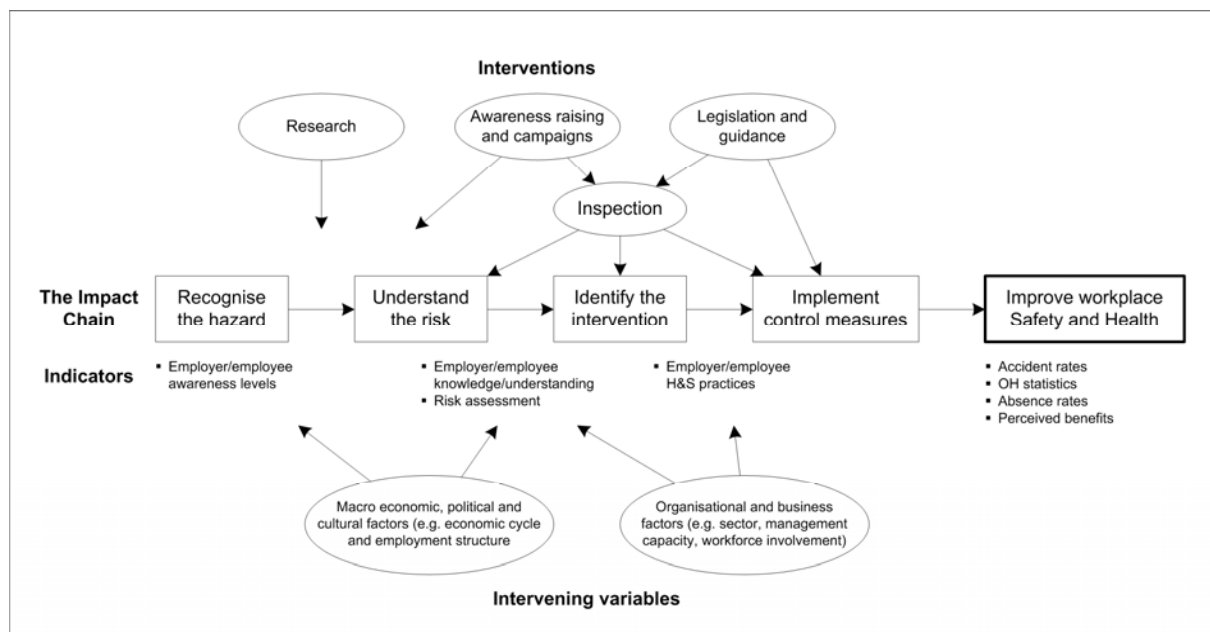


Figure 1 Interventions Network Model

RESULTS AND FINDINGS

Total construction industry economic activity in Victoria increase of 166% in a decade. Growth in the value of construction economic activity in Victoria during this period was driven mainly by residential building and engineering construction. Victoria leads Australia with a 5% increase in engineering construction work for 2004 compared to the 4% national average. The growth is being driven by road and rail construction, such as the regional fast rail link project, and new energy projects including wind farms and Snowy Hydro project.

Currently, the construction industry employs over 200,000 people that is 8% of the Victorian workforce. Among these workers, about 85% are employed full time and 15% employed part time. The number of employees in construction industry increases by 62% in a decade. The trend is driven by the economic activity in the construction industry.

Figure 2 shows the number of accident cases in all industries and the construction industry. It can be seen that the pattern is similar; the accidents decline during 1994 to 1999 and fluctuate thereafter. The number of accident claims over nine years in the construction industry has been of the order of 9% of the total.

The incidence rates suggest that persons employed in the construction industry have a greater risk of employment injury than the average Victorian workers in the last decade. However, it appears that the trend in safety performance in the construction industry has improved (Figure 3). Despite the encouraging trend, the number of fatalities in the Victorian industry still remains unacceptable. Over the period, the average annual figures are 106 fatalities per year in all industries and about 12 of these fatalities are in construction industry.

To assess the significance of the improved safety performance for the construction industry since the last decade, analysis of other industries is undertaken. Comparison is conducted with the mining industry (MIN), and agriculture, forestry and fishing industry (AFF&F). These industries have many relevant similarities to the construction industry; for instance, the nature of these industries worksites is that they are frequently changing, the level of OHS hazard is high, and also engage large numbers of contract labour. Since 1996/1997, the incidence rate in agriculture, forestry and fishing industry remains steady. On the other hand, mining industry have experience a great improvement in its safety performance (Figure 3). The safety improvement of mining industry is the outcome of national OHS campaign program by the Executive Committee of the Minerals Council of Australia since 1997. The partial correlation coefficients of construction industry that controlling the incidence rate of all industries are fairly high (0.707 and 0.690) and statistically significant ($p < 0.05$). It indicates that safety performance of construction industry is a variable which dominantly drives the trend of incidence rate in all industries in Victoria.

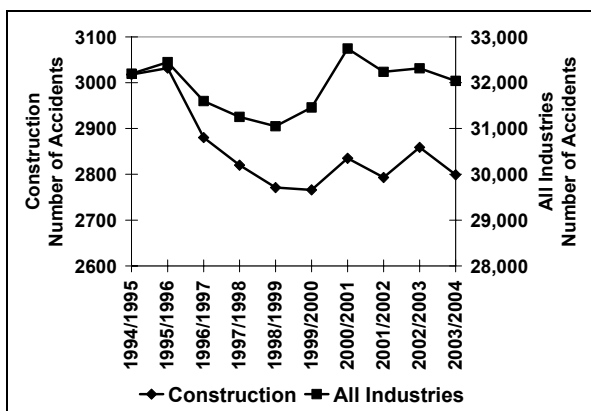


Figure 2 Accident Cases in Victoria

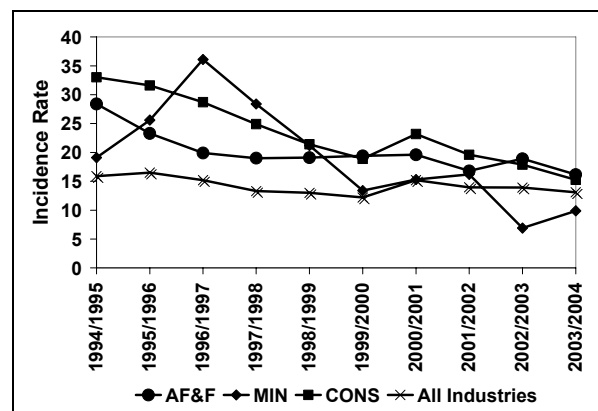


Figure 3 Comparison of Incidence Rate

Scatterplots in figure 4 and 5 reveal that there is a linear relationship between the variables. The trend indicates that these variables are in inverse proportion. Analysing the number of construction workers

data from the 1994–2004 yields that Pearson correlation coefficient (-0.59) is not significantly different from the reference value 0 ($p > 0.05$). Similarly, Pearson correlation of economic activity and number of accident is -0.62 and it is not significantly different from 0. Based on the statistical test, number of employment and economic activity in construction industry does not have correlation with the frequency of accidents.

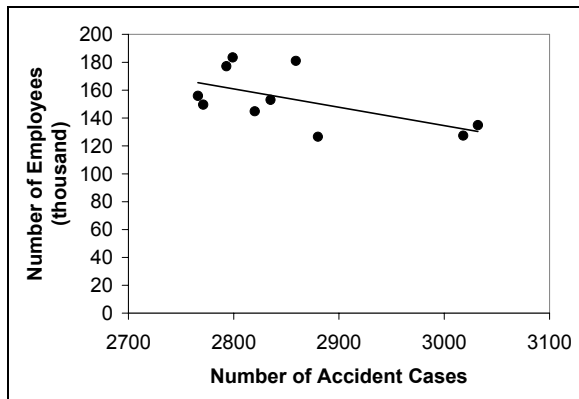


Figure 4 Accident Claims vs. Employees

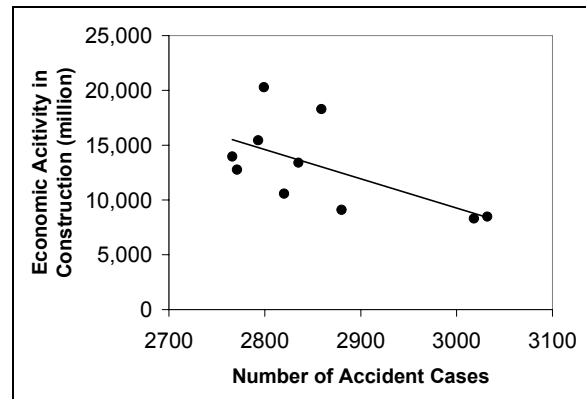


Figure 5 Accident Claims vs. Economic Activity

As stated, there has been a consistent improvement of safety and health performance in Victorian construction industry during the last decade. It seems that the enforcement of OHS law and legislation, and function of the authority to assist and promote health, safety education and training are the significant factors that drive this outcome. Although OHS legislations and the intervention of the authority have had positive impact to the improvement of safety culture; nevertheless, the overabundance of OHS laws raises a question that to what extent the effectiveness of the existing legislative framework had impact to the improvement of safety culture. Further research is needed to answer this question.

Efforts to lower both the fatal and non-fatal injury rate in the construction industry are ongoing in all part of Australia and Victoria in particular. For example, NOHSC's National OHS strategy 2002-2012 sets out two national targets to: (1) sustain a significant, continual reduction in the incidence of work-related fatalities with a reduction of at least 20% by 30 June 2012 and; (2) reduce the incidence of workplace injury by at least 40% by 30 June 2012 (NOHSC 2002). The Falls Prevention in Construction: A Joint Compliance Project aimed to reduce the underlying causes of death and serious injuries to construction workers. This project was coordinated by WorkSafe Victoria's Construction & Utilities Program and involved all state and territory workplace safety authorities (WorkSafe Victoria 2005).

CONCLUSION

Improving occupational health and safety in the Victorian construction industry is not an easy task despite adequate safety legislation and regulative institutions. Significant health and safety hazards in the industry and the culture that is not adjusted to effective management of workplace health and safety risks are the major reason, which drives the poor performance in this industry

Correlation analysis reveals that the frequency of accidents does not have a positive correlation with the economic activity and the number of employment in construction industry. However, at the moment, the limitation of this conclusion is only applied to Victoria as the scope of the report. It should not be generalised to the other countries where OHS is not a significant issue.

The common factors and circumstances associated with many fatal incidents in the construction industry over a decade provide a focus for strategies aimed at preventing further fatal incidents. Focusing on the most prominent injury mechanism, that is falls from a height, the prevention efforts should be directed towards developing improved scaffolding solution and better fall prevention techniques and equipment.

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