



Implementing WSH 2018 for the Construction Sector in Singapore

*Towards a Progressive and
Pervasive Safety and Health Culture*



STATEMENT OF COMMITMENT

We, the Workplace Safety and Health Council (Construction and Landscape) Committee, are committed in the pursuit of continuous improvement of workplace safety and health standards in the construction sector. We will drive the implementation of the Workplace Safety and Health 2018 Strategy for Construction Sector (WSH2018 for CN) to achieve the targets for our sector.

'Implementing WSH 2018 for Construction Sector in Singapore' encapsulates a comprehensive sector specific plan which identifies key levers and initiatives and aims to guide our collective efforts in achieving significant and sustained improvement in the workplace safety and health performance of the construction sector.

To achieve our sectoral targets spelt out in the Strategy, we will continue to garner greater cooperation within the sector and align ourselves to the objectives outlined in the WSH2018 for CN. We will closely monitor our progress and review and enhance the strategy taking into account the prevailing climate and dynamics of the construction sector. Together we will make Singapore renowned as a Centre of Excellence for WSH with the construction sector being amongst the safest in the world.

[To be signed by committee chairman and deputy chairmen]

INTRODUCTION

1. The construction sector has made progress in workplace safety and health performance since the introduction of the Workplace Safety and Health (WSH) framework in 2005. As part of the new WSH framework to drive industry-led improvements in WSH standards, the WSH Construction Sub-Committee was set up under the WSH Advisory Committee (WSHAC). With the formation of the WSH Council in 2008, the committee has also since been stepped up to the WSH Council (Construction & Landscape) Committee.

2. As part of the industry's effort to achieve better WSH performance, 'Implementing WSH2015 for Construction Industry' was launched in 2007 to guide the efforts of the construction sector. Considerable accomplishments have been made since the launch of the plan, including the development of the Construction Safety Audit Scoring System (ConSASS), the review and enhancement of the Construction Safety Orientation Course (CSOC), the publication of the construction accident case study booklet, the release of Guidelines on Design for Safety in Buildings and Structures as well as the Inaugural Construction CEO Summit, where CEOs from top companies in the construction sector signed the 'Pledge for Zero - A CEO Commitment Charter' to pledge management commitment for zero injuries, amongst others. While good progress has been made, the construction sector continued to report the highest number of workplace fatalities in Singapore. Hence, vigilant efforts to improve WSH in this sector must be continued to bring down the incident rate.

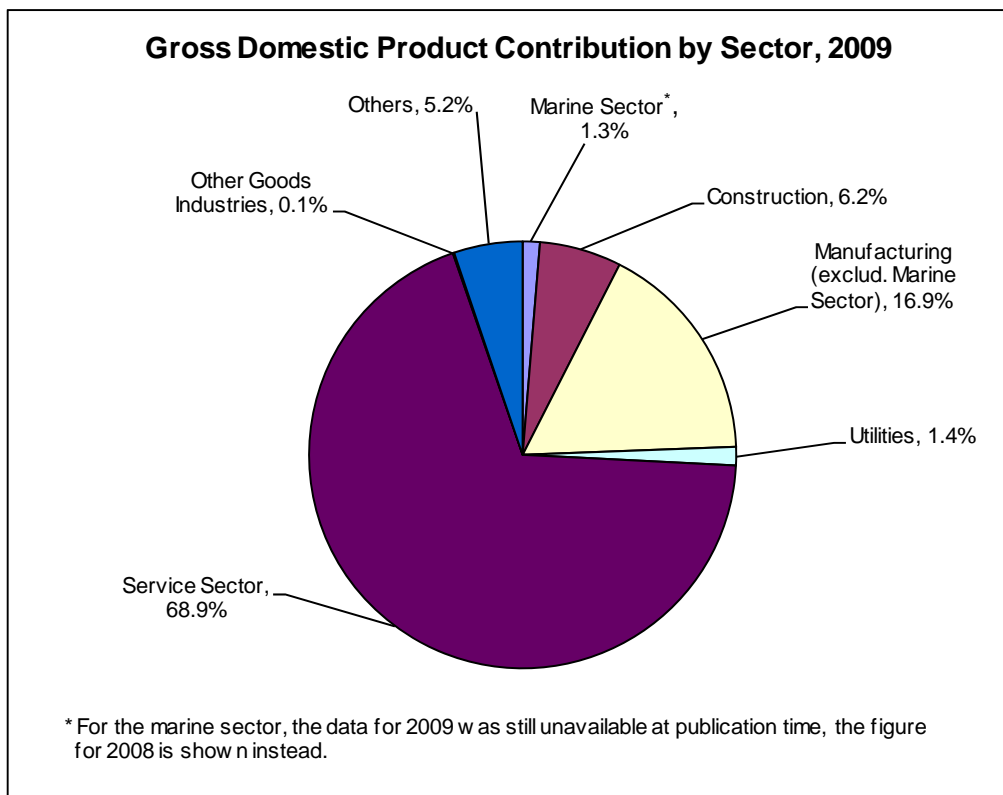
3. The characteristics of the construction sector present multi-fold and unique WSH challenges and require collective and focused efforts by the sector. While the strategies in WSH 2015 for Construction remain relevant, the WSH Council (Construction and Landscape) Committee has identified areas for enhancement and new areas of work to achieve our sectoral targets by 2018. The key initiatives to improve WSH performance and to build a strong WSH culture in the construction sector are encapsulated in the updated sectoral plan "Implementing WSH2018 for

Construction Sector” (WSH2018 for CN). Guidance was taken from the national WSH2018 strategy in the development of this enhanced sectoral strategy.

THE SINGAPORE CONSTRUCTION SECTOR LANDSCAPE

a. Economic Performance of the Construction Sector

4. The construction sector contributed 6.2%¹ of Singapore's Gross Domestic Product (GDP) in 2009. This is a significant increase in the industry's share of GDP as compared to 3.7% in 2005.



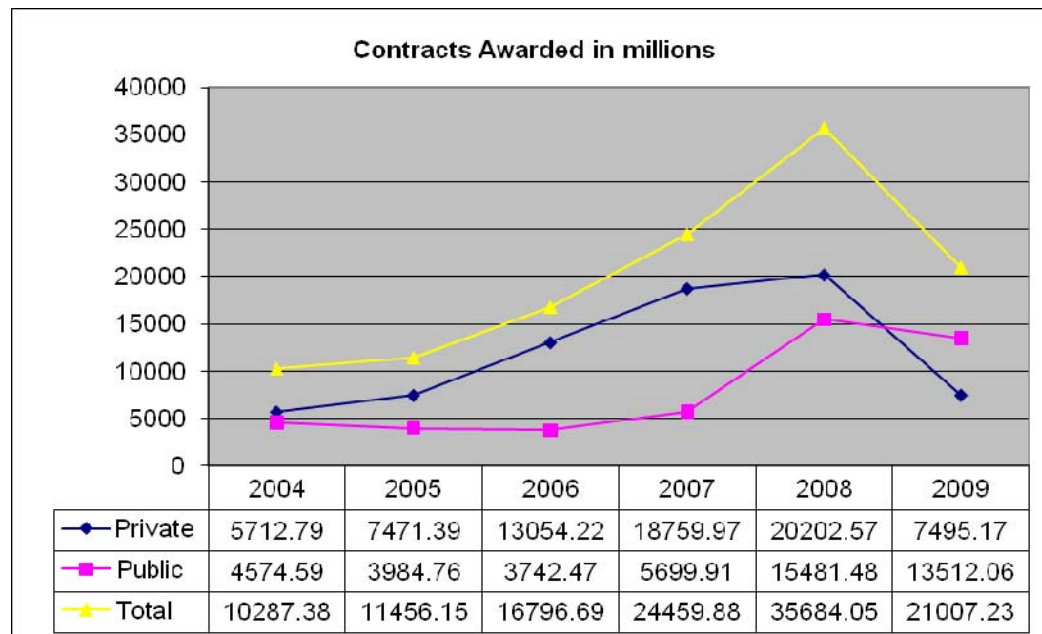
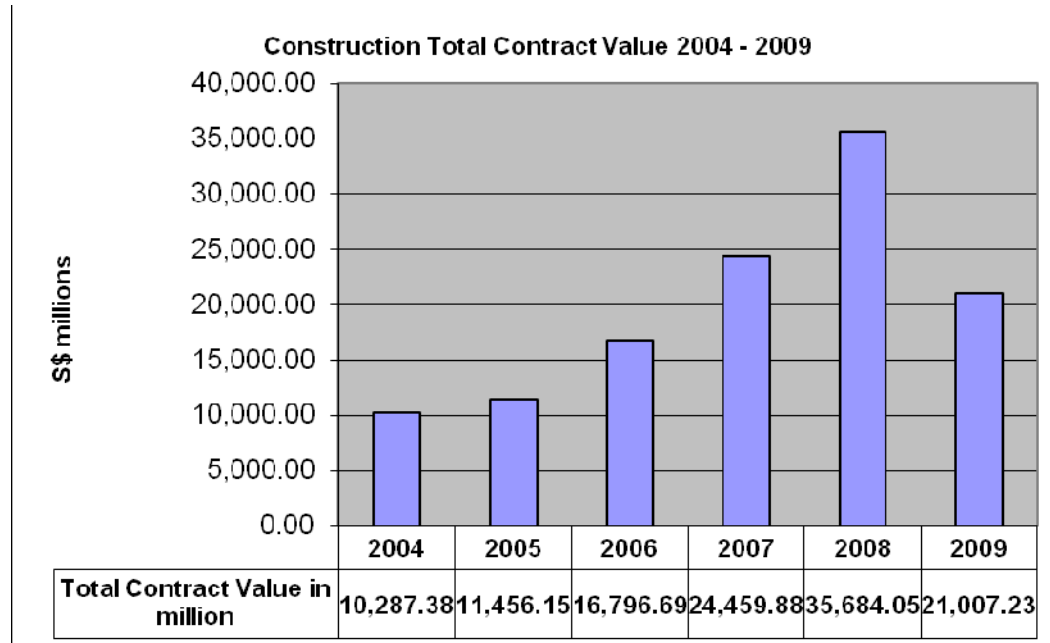
Total Contract Value

5. The total contract value of the construction sector had increased in recent years (see chart below). In 2004, the total contract value awarded was more than \$10 billion. This overall contract value increased to \$21.0 billion in 2009², of which \$13.5 billion were public sector projects and \$7.5 billion private sector contracts.

¹ Source: Singapore Department of Statistics

² Source: Building and Construction Authority (BCA) as at 27 Jan 2010.

Major projects accounting for the increase includes the Integrated Resorts and the Mass Rapid Transit (MRT) Downtown Line project.



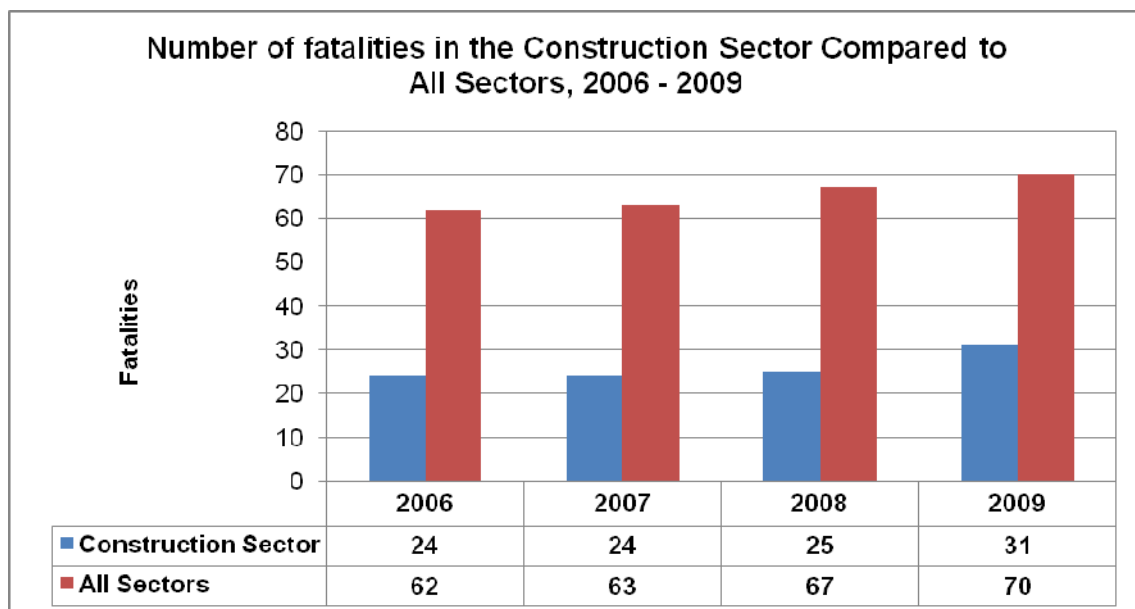
Total Employment in the Construction Sector

6. In 2009, the total employment in the construction sector was about 385,000³, up from about 234,000 in 2005. A total of 6,251 construction worksites were registered with the Ministry of Manpower in 2009⁴.

b. Accident Statistics in the Construction Sector

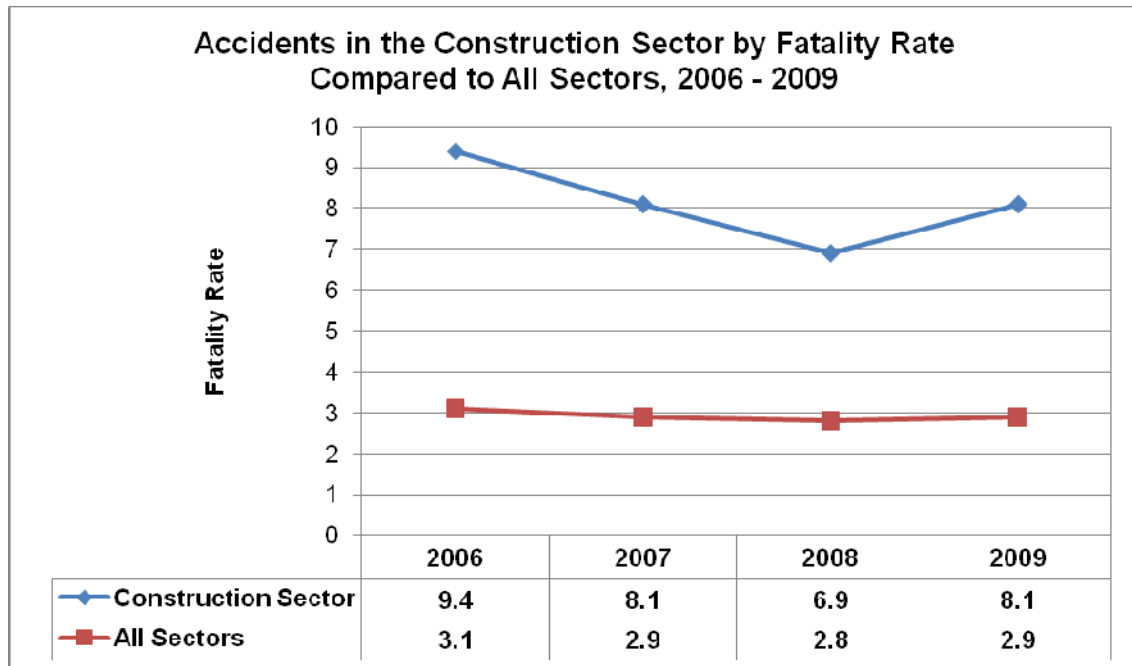
Workplace Fatalities

7. Although the construction sector continues to be an important sector of the Singapore economy, it is also one of the more hazardous and riskier workplaces. Over the past three years, the sector accounted for more than one third of all workplace fatalities, with a fatality rate of 8.1 per 100,000 workers in 2009 (see charts below).



³ Source: Ministry of Manpower

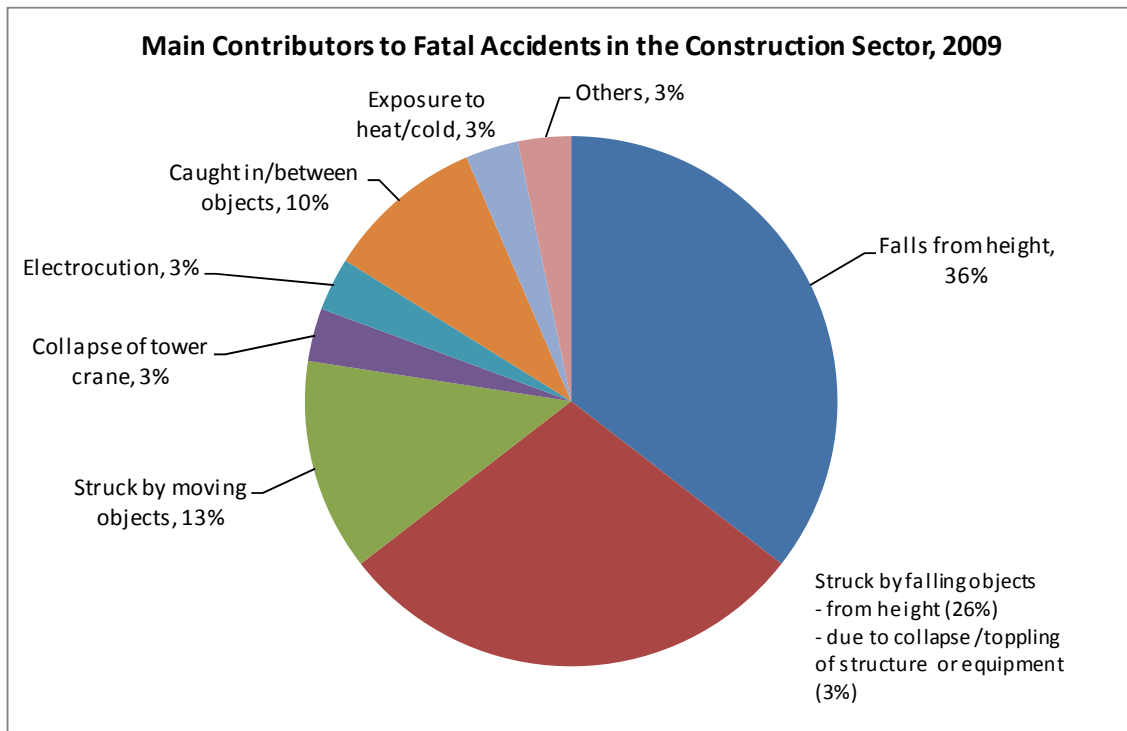
⁴ Source: Ministry of Manpower



8. In 2009, a total of 31 people were killed in incidents involving construction work. A significant proportion of these incidents were a result of falls from height (see chart below), mainly from inadequate protection from hazards such as open sides and floor openings at worksites. Struck by falling objects⁵ was the second highest incident type. Reflecting the risks associated with working beneath cranes and scaffolds, or where overhead work is being performed, struck by falling objects accounted for nearly one-third of the total construction fatalities in 2009.

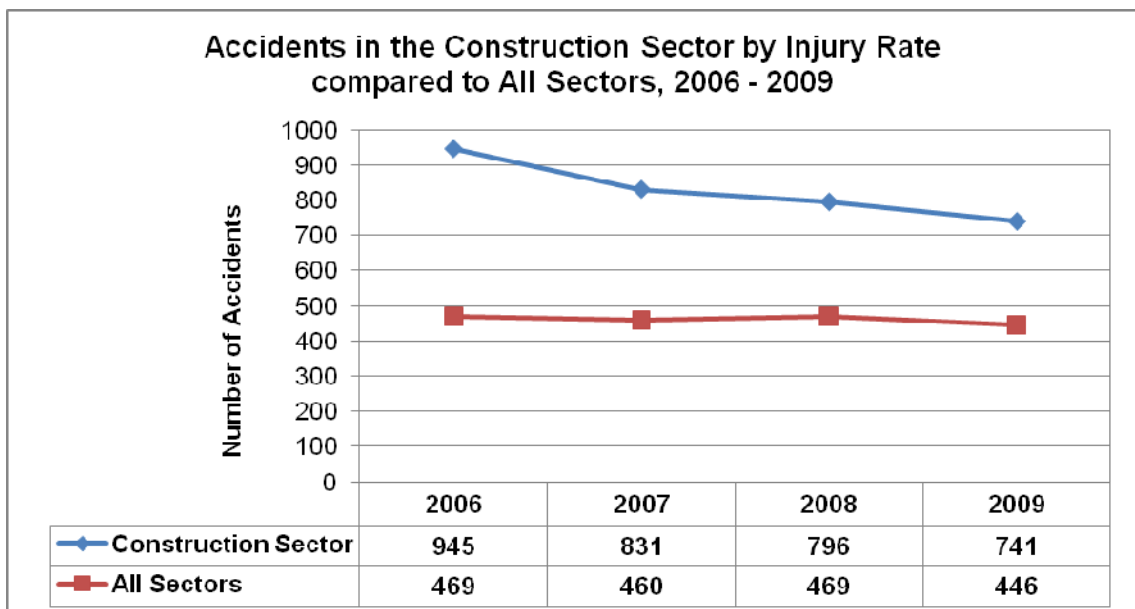
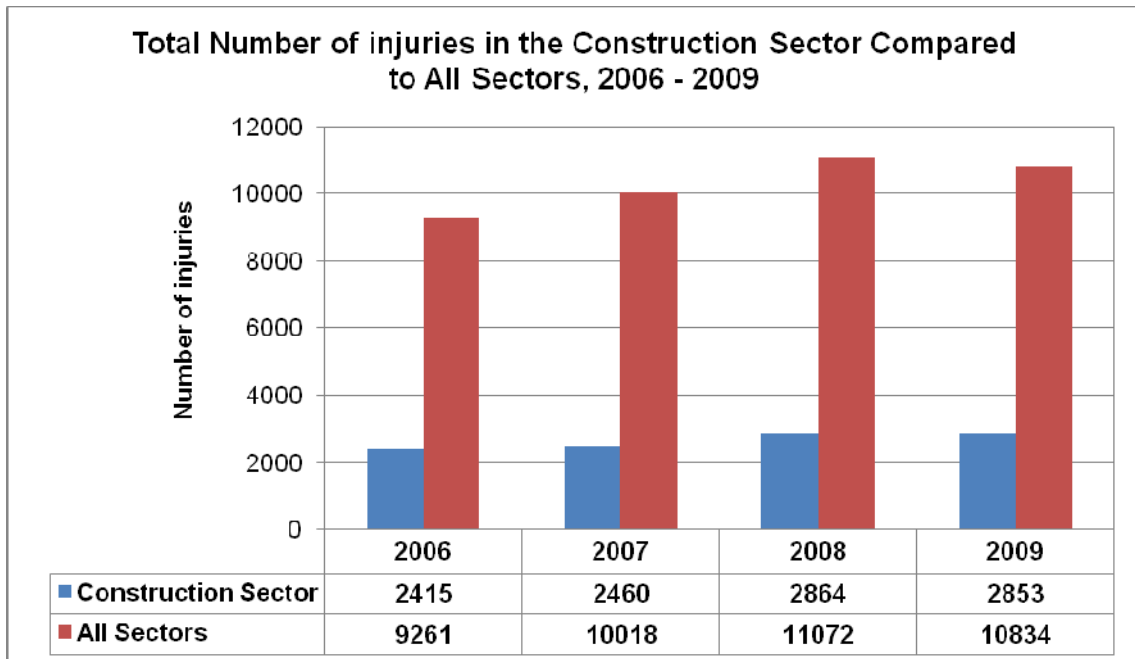
⁵ Falling objects include

- Objects falling from heights; and
- Collapse or toppling of structure or equipment



Workplace Incidents and Injuries

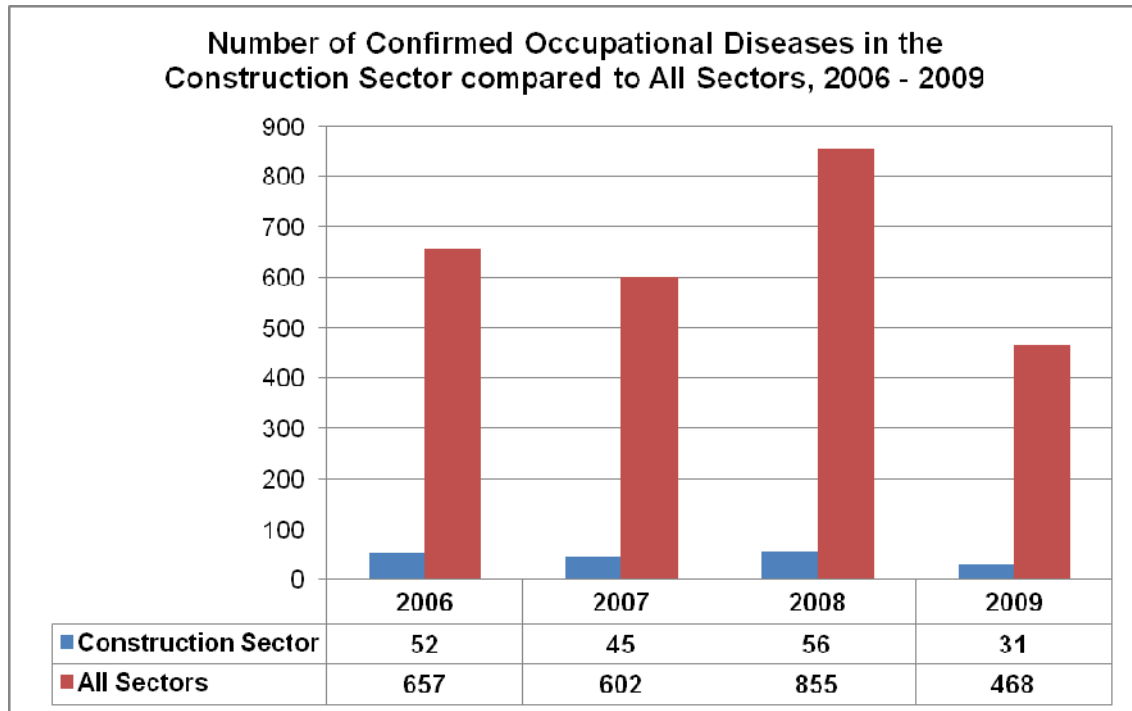
9. The number of injuries in the construction sector is the highest compared to other sectors. In 2009, 2,853 injuries occurred in the construction sector. This represents an injury rate of 741 per 100,000 workers, which is above the national average of 446 and one of the highest among all sectors (see charts below).



Occupational Disease

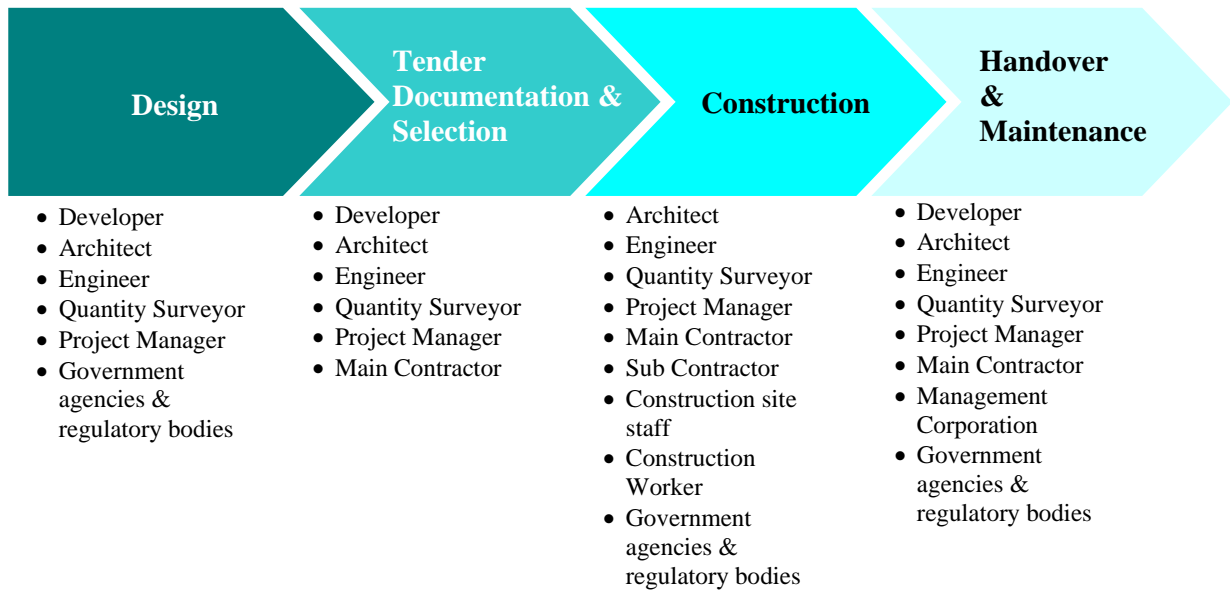
10. In 2009, 31 confirmed Occupational Diseases were reported in the construction sector, a decrease of 25 cases as compared to the previous year. 14 of the reported cases in 2009 were confirmed Noise-Induced Deafness (NID) cases, a decrease of 19 cases as compared to 33 cases in 2008. However, 15 cases of

occupational skin diseases (OSD) confirmed were reported, up from 10 cases in the previous year.



c. Roles of Stakeholders

11. Construction work is a systemic process involving a wide spectrum of industry players. It starts upstream with architects and designers, developers and engineers designing and financing the project. Downstream, processes include contractors, sub-contractors and project managers as well as workers executing the actual construction work before the handover and maintenance of completed projects. In a construction industry where WSH is not just an integral part of business, but a way of life, all stakeholders play an important role in reducing safety and health risks. The whole spectrum of key players and activities involved in construction is encapsulated in the figure below.



Developers

12. In the construction value chain, the developers are intimately involved in the construction project from acquisition through arranging financing to construction and ultimate sale or management of the property. As financiers of construction projects, developers have a big influence over the behaviour of downstream stakeholders. Developers can factor in WSH performance when selecting bidding contractors to compel them to improve WSH capabilities and performance. Developers can play an active role by addressing WSH risks during the construction phase through regular checks and dialogue sessions with their contractors. Developers should ensure that tenders are awarded to contractors who have the capacity and resources to deliver their projects within the stipulated time while maintaining high WSH standards.

Architects

13. To reduce WSH risks during the construction and maintenance phases of the construction process, designers and architects need to work closely with contractors and other stakeholders to identify potential construction and maintenance hazards,

and mitigate risks at the design stage. The residual risks must then be communicated to contractors so that these can be jointly managed.

Contractors

14. Contractors have to allocate sufficient resources for WSH and should seek continuous improvements in WSH management systems to achieve high WSH standards. Where they lack the in-house expertise, they should engage competent WSH professionals to help develop the necessary capabilities and systems. WSH considerations should also form part of the pre-qualification and selection process of their sub-contractors. During the construction phase, main contractors should oversee and co-ordinate the work of their sub-contractors. This will reduce the risks that sub-contracted projects pose to each other at the same worksite. Sub-contractors involved in specialist trades also have the responsibility to ensure that WSH standards are maintained in their products and services and alert the employer of any deficiency in design, drawing and method of construction that could impact WSH. Additionally, equipment providers need to articulate the risks involved in using the equipment and the maintenance requirements. At the same time employers will have to ensure that adequate information and training are provided to supervisors and workers so that such equipment can be operated safely.

WSH Professionals

15. WSH professionals play a central role in WSH management. WSH professionals need to be cognisant of the risks present in the various construction processes, and help companies continuously improve their WSH performance. In-house WSH personnel should ensure proper implementation of risk management measures, drive various WSH initiatives, including monitoring key WSH performance indicators, as well as provide regular feedback on improvements. To ensure sustainability of high WSH standards, they also need to contribute to the development and cultivation of WSH culture within the company. WSH auditors should conduct regular and comprehensive checks on WSH management systems and provide advice to drive improvements.

Project Managers, Resident Engineers, Clerks of Works, Supervisors and Workers

16. As personnel on the ground, project managers, resident engineers, clerk of works, supervisors and workers play an important role in workplace safety and health management, by being vigilant about WSH risks and managing hazards and WSH risks at an individual level.

17. Project managers play a particularly important role in the management of WSH at their projects as they are overall in charge of the running of a construction project. As such, it is essential for project managers to have a good grasp of WSH to better comprehend and manage the WSH issues that their projects may encounter. To maintain a safe and healthy environment as far as possible, project managers have to ensure that WSH risks are managed and properly communicated to all supervisors and workers, and that work is carried out safely on a daily basis. This also involves co-ordination of work among various sub-contractors.

18. To play their part in WSH adequately, resident engineers and clerk of works have to highlight WSH issues that would or have the potential to pose imminent dangers so that they can be adequately addressed promptly.

19. Supervisors and workers, who are directly involved in the construction work, have to take responsibility for their personal safety and health as well as that of their co-workers. They should not only practice safe and healthy working habits, but also identify risks at work and highlight WSH issues to the management.

Industry Associations, Professional Bodies and Unions

20. Industry associations and professional bodies play a crucial role in leading WSH outcomes. For example, the Singapore Contractors Association Limited (SCAL) represents a large proportion of contractors in Singapore. Given their intimate knowledge and experience of the environment, they are in a good position to lead

and drive WSH programmes through their members' participation. This is an important step towards industry taking ownership of WSH outcomes.

21. Professional bodies such as Singapore Institution of Safety Officers, Institute of Engineers Singapore, Singapore Institute of Surveyors and Valuers and Singapore Institute of Architects which represent the interests of technical and WSH professionals are also effective vehicles to steer WSH initiatives and provide WSH expertise.

22. Unions are well-placed to understand the WSH concerns on the ground and lend their assistance to address these issues, given the close interaction with workers. The Building Construction & Timber Industries Employees' Union is an example of a union that actively seeks to promote WSH awareness among workers in the construction sector.

23. Close collaboration will also be sought with the Construction Industry Joint Committee. This Committee, made up of institutes and associations in the construction sector, will be valuable in garnering support for WSH initiatives to develop the sector.

TARGETED OUTCOMES

18. Over the years, the construction sector has remained one of the riskier sectors in Singapore and continued to account for the highest number of work-related fatalities across all sectors in Singapore. It is therefore important to garner the focus of relevant stakeholders in making the construction sector safer and healthier. To anchor this focus, we will set ourselves WSH targets.

19. Our long-term goal is to achieve a safe and healthy workplace with a vibrant WSH culture and zero injury in the construction sector. Our more immediate goals for the construction sector are:

- a. A workplace fatality rate of less than 3.4 fatalities per 100,000 workers by 2013 and less than 1.8 fatalities per 100,000 by 2018. In order to achieve this, each company must strive for zero fatality.
- b. Workplace injury rate of less than 390 injuries per 100,000 workers by 2013 and less than 200 injuries per 100,000 workers by 2018.

IMPLEMENTING WSH 2018 STRATEGY FOR CONSTRUCTION SECTOR

20. Guided by WSH 2018 and taking into account the unique characteristics of the construction sector, key areas of work under each strategy to improve workplace safety and health standards in the construction sector have been identified.

STRATEGY 1: BUILDING STRONG CAPABILITIES TO BETTER MANAGE WSH

21. Since the last WSH strategy for the construction sector, progress has been made in raising the WSH competencies of the construction workforce. For example, we have enhanced the Construction Safety Orientation Course (CSOC) to ensure that new workers are equipped with basic safety knowledge as soon as possible, strengthened the certification process and provided greater flexibility to recognise experienced workers. Such initiatives have gone a long way to address the challenges of dealing with the construction workforce which is largely transient. To continue the efforts to build strong capabilities to better manage WSH in the construction sector, we will focus on the following areas.

Individual Level

22. Management. We need to renew our efforts to build WSH competencies at the management level, particularly the Project Managers. The Project Managers, typically, are intimately involved with the construction work. They have overall control over the construction work activities and can influence workers' behaviours. By displaying strong WSH awareness and commitment, they can effectively shape the WSH culture at worksites. To enable them to do so, we will enhance the current Construction Safety Course for Project Managers with greater emphasis on risk management and soft skills such as communication and supervisory skills.

23. Workers and Supervisors. Our efforts in upgrading the WSH competencies at the worker and line management levels have resulted in the development of a robust competency framework for this segment of the workforce. We will continue to expand and build on our previous efforts in the following ways.

- a. Firstly, we will focus more on developing trade-specific WSH competencies under the WSQ umbrella. Such schemes can help the industry develop and retain a core pool of construction workers who can guide new workers and ensure that the safety culture continues to permeate through the sector. The WSH Council, Workforce Development Agency (WDA), and Building and Construction Authority (BCA) have started developing WSQ for 2 key construction trades, Plumbing & Pipefitting and Electrical Wiring, with emphasis on key WSH aspects of the trades. These trades require higher skills levels and will benefit significantly from having better trained and more experienced workers.
- b. Secondly, we will leverage on BCA's Skills Evaluation Certificate (Knowledge) (SEC (K)) test for foreign workers at Overseas Testing Centres (OTCs) in their source countries to ensure that workers have a basic level of WSH competencies before arriving in Singapore. This would equip workers with a good grasp of WSH issues before their arrival. This can shorten their learning curve when in Singapore and help to reduce the occurrences of accidents among inexperienced workers.
- c. Thirdly, we will enhance the training syllabus for high risk works that have resulted in many fatalities over the past few years. These include courses associated with crane operations such as the crane operator, lifting supervisor and rigger/signalman courses, as well as courses covering work-at-height issues. Workers need to be trained to be fully aware of the consequences of non-adherence to safety procedures and requirements and how to mitigate the risks. Hence, the enhanced

courses will pay stronger focus on practical WSH experience and on instilling professionalism in workers.

24. WSH Professionals. The WSQ framework for WSH Professionals has helped in raising the competencies of the WSH professionals and the construction sector is beginning to see greater value in engaging them. Hence, we will need to focus on increasing the numbers of WSH Professionals available to support the sector in raising WSH standards. Schemes such as scholarships can be launched and we will also focus on developing the professionalism of the professionals as outlined under the “Building WSH Competencies” plan.

25. Designers and Architects. Potential safety and health hazards of buildings and structures can be reduced at the design stage or even designed out. With this in mind, we took reference from the UK’s Construction (Design and Management) Regulations (CDM) and successfully launched the Guidelines on Design for Safety (DFS) in Buildings and Structures in November 2008. As a next step, we need to encourage and build the competencies of designers and architects to use these guidelines and factor in WSH considerations at the design stage.

26. To do so, we will focus on ensuring that new architects and engineers are aware of and equipped with WSH skills and knowledge before they commence practice. We will work towards integrating the DFS concept into the syllabus of pre-employment professional courses such as architecture and engineering degree courses, as well as into project management courses at tertiary level. Discussions will be also held with the professional bodies such as the Professional Engineers Board (Singapore) and the Board of Architects (Singapore), to explore including the completion of a WSH course as a registration requirement for professional architects and engineers. For existing designers and architects, the professional bodies will also be engaged to work with training providers to develop specialised professional development WSH courses focusing on managing risks during the design stage.

Corporate Level

27. Self Investigation. Learning from past incidents such as accidents or near misses is indispensable in improving WSH. By helping stakeholders understand the rationale for WSH procedures and the risks of exposure to workplace hazards, individuals will also be encouraged to be proactive in taking responsibility for their safety and health at work.

28. Hence, we need to improve the self investigation capabilities in the construction sector, in particular among the many smaller contractors. For smaller contractors, self investigation is often resource intensive and there is little incentive to do so after each incident. To encourage more contractors to learn from past experiences, the role of main contractors is critical. Main contractors can provide the investigation expertise and advise their sub-contractors on the gaps in their WSH management following each incident. Investigation information kit such as checklists and guidance can be developed and disseminated to the industry to facilitate this process. Forums can be organised to allow the industry to share their experiences in conducting self investigations and the front-runners can be recognised for their efforts.

29. Managing Main and Sub-contractors. Good contractor and sub-contractor management is the basis for good site management, and can positively impact the overall WSH performance at individual sites. To enhance our ability to do so, we need to strengthen the tracking of WSH performance of contractors. We can develop a WSH Performance Tracking Tool to suit different contractors' needs. This tool can be used to capture information on near misses and identify potential trends. In addition, we will look into leveraging on technology to lessen the administrative burden amongst the main contractors in verifying the WSH certification of their sub-contractors' workers, their working hours and to check and track the usage of machinery and equipment in the worksite.

Industry Level

30. Enhancing Risk Management (RM). The industry's efforts to put in place risk assessments have been encouraging. Most construction companies are aware of

the need for risk assessments and many had done so. However, recent enforcement efforts by the Ministry of Manpower showed that gaps in conducting risk management continue to exist, in particular among the smaller contractors. The robustness of risk assessment conducted and the implementation of control measures can be further improved. To address this issue, we will develop practical assistance programmes to raise the quality of the risk assessment conducted. Under this programme, we can leverage on auditors or mobile WSH Clinics to check on risk assessment and raise the quality of its implementation. More advanced risk management training courses will also be developed to supplement the audit checks and raise the capability of the sector. Construction companies can also collaborate with the to-be-developed WSH Institute to conduct research and development on new and safer construction techniques and technologies to address existing or new risks posed by new or unfamiliar technologies.

31. Cultivating WSH Culture. A progressive and pervasive WSH Culture is fundamental for a safe and healthy environment where safety and health is a way of life. To better understand the current state of the WSH culture in the construction sector, we will commission an in-depth study of the construction sector in the form of a diagnostic analysis and develop new indicators and measures of the state of WSH conditions, such as a WSH culture index. This study aims to provide a more holistic picture of safety and health conditions at workplaces in the construction sector. Based on the research results, strategic programmes tailored for the construction sector's needs and circumstances will be developed and implemented to raise the current WSH culture to the next level.

STRATEGY 2: DEVELOPING A PERFORMANCE BASED REGIME

32. Our efforts in developing a performance based regime since the last strategy has been encouraging. We have succeeded in moving the WSH Officers framework towards a performance based structure and introduced the WSH (Safety & Health Management System and Auditing) Regulations to strengthen the focus on achieving good WSH outcomes. The increased participation of the construction sector in

driving WSH efforts further highlights the industry's commitment towards achieving better WSH performances. Our approach is a right one and we will continue to enhance it to encourage strong ownership of WSH outcomes within the sector.

Include Designers and Developers in the regulatory framework

33. We will continue to work towards including designers and developers in the regulatory framework. These are two key players within the industry whose duties have yet been highlighted, even though we have moved towards a performance based legislative framework to put the onus of managing WSH risks on those who create and control them. Notwithstanding, we recognise that these stakeholders require more time to build up their capabilities and we will accelerate such capability-building efforts. For those who are more ready, we will develop a recognition programme to recognise their efforts, which can include a DFS recognition mark. To achieve this aim, government bodies can take the lead in this programme and we target for all government developers to come on board the DFS recognition programme by 2013.

Improved Management of Workplace Health

34. Like most other sectors in Singapore, there has been little emphasis on Workplace Health (WH) issues in the construction sector. This is primarily contributed by a lack of awareness of WH issues as many occupational diseases (OD) have a long latency period and there are difficulties in establishing a causal link between many occupational diseases and work. Hence, our initial efforts will focus on helping stakeholders understand the main health hazards in the construction sector such as noise-induced deafness and carpal tunnel syndrome from usage of drills and heavy machinery, skin dermatitis, asbestos and physical health issues (for example, fatigue and heat). We will conduct regular thematic campaigns at dormitories and major construction projects (such as the sports hub and the downtown MRT line) to enhance awareness of these issues. We will explore broadening the extent of pre-employment health checks and introducing periodic health checks to monitor the health of workers. In the longer term, we can engage

construction companies through industry associations to integrate WH considerations more comprehensively in their WSH management system and ensure that WSH auditors check on these issues during mandatory audits.

Self-Regulation

35. Self regulation is a fundamental element under a performance-based regime as we work towards engendering a construction sector with a progressive and pervasive WSH culture. However, the fragmented nature of the sector, with multiple sub-contracting and numerous small players presents a major challenge. Hence, we will need to work with the sector and trade associations and unions to strengthen the sector's focus on WSH and improve the work coordination between the different parties. This can include establishing proactive WSH chapters in the various associations and unions to focus on progressively raising WSH standards for members and report on the progress regularly. Regular working groups between these chapters can also be established to share information and align expectations.

Setting Industry Standards

36. WSH standards form a key pillar in driving WSH performance in the sector by helping companies benchmark themselves and progressively improving their WSH practices. The establishment of the WSH Council has provided a good platform for the industry to work with to set WSH standards. The WSH Council, through the WSH (Construction and Landscape) Committee, will continue to play a proactive role in engaging the relevant stakeholders to develop and progressively review codes of practice and guidelines for the construction sector to achieve better WSH performance. To ensure relevance to the sector, the WSH Council will also continue to support the efforts of regulatory bodies by providing resources and feedback on WSH regulations, Technical Advisories and other practical guidance materials.

STRATEGY 3: PROMOTING THE BENEFITS OF WSH AND INTEGRATING WSH INTO BUSINESS

37. Integrating WSH into business is an important thrust of our efforts to engender a WSH culture where businesses are aware of the impact poor WSH performance has on bottom lines. Our efforts in this area can be further strengthened by, first, encouraging developers and contractors to allocate adequate resources for WSH; second, putting in place a robust WSH management system; and third, strengthening the business case for integrating WSH into business.

Driving Improvements through Large Organisations

38. We have worked very closely with the government agencies to place greater emphasis on WSH performance in its procurement process. Many government agencies have also taken very proactive involvement in monitoring and assessing the performance of their contractors. This is encouraging and we will persevere with these efforts to make this the prevalent practice across all agencies. At the same time, we will also extend our focus towards the large companies in the construction sector. These companies, like government agencies, can play a key role in influencing downstream suppliers and sub-contractors to enhance their WSH management. They can serve as role models and positively influence the WSH culture. Hence, we will encourage the participation of these large companies in the bizSAFE programme as mentors and partners. The bizSAFE programme can also be further enhanced to support the role of these large companies (for example, providing assistance to these companies to integrate the WSH performance of their downstream suppliers and contractors into their procurement process or showcasing WSH initiatives and performance in their annual reports).

39. These large companies will also be encouraged to show their commitment and positively impact their downstream contractors through the 'Pledge for Zero' (PfZ) initiative for the construction sector. Companies pledging for zero will also be encouraged to implement a PfZ plan within 2 years of the pledge. This PfZ plan will detail the action items and milestones that each company must achieve as well as

indicate the responsible party for each item. As a start, we aim to achieve full participation of the top companies from the construction sector in the 'Pledge for Zero' (PfZ) initiative by 2011.

Assessment of Safety and Health Management Systems

40. The quality of site management and WSH performance of individual worksites depends on the effectiveness and implementation of the WSH management system. It is important to ensure that the WSH management system is robust. Regular audits should be conducted to help companies understand the strengths and weaknesses of their systems and improve upon them. We have successfully developed and launched the Construction Safety Audit Scoring System (ConSASS), a checklist to help auditors assess the quality and effectiveness of WSH management systems in the construction sector. We will continue to encourage the use of ConSASS by leveraging on developers to factor in ConSASS results in their selection of contractors and regularly review ConSASS to ensure its effectiveness. To monitor and gradually raise the quality of audits conducted, the licensing regime (where construction sites are required to submit regular audit reports to the Ministry of Manpower) can further be strengthened. We aim to achieve the adoption of ConSASS at all worksites by 2015 with 80% of sites achieving at least ConSASS band III.

Business Case

41. To shape the behaviour of stakeholders towards proactively driving WSH improvements, the buy-in and commitment of the top management of companies has to be secured. This requires an environment where businesses appreciate the business case for good WSH performance. Therefore, we will continue to work with the relevant stakeholders on the development, publication and promotion of case studies and best practices to illustrate the application and benefits of WSH. Research pieces can be commissioned to illustrate the benefits of good WSH practices. We will also establish appropriate platforms for regular sharing by successful local and international companies which has WSH as one of their core

values. This can help businesses understand the positive effects of high WSH standards on productivity and competitiveness.

STRATEGY 4: CREATING AND BUILDING PARTNERSHIPS

42. Given the wide range of stakeholders involved in construction projects, we must continue to take a concerted approach to identify and manage WSH risks in the construction sector. We will also need to look beyond the construction sector to derive good WSH practices from the other sectors to further advance WSH standards in the construction sector. Intra-industry and cross-industry committees or taskforces are platforms we will continue to leverage on to push ahead in this endeavour.

Coordination of Work

43. We will better leverage on platforms such as the Construction Industry Joint Committee (CIJC) to discuss WSH issues faced by the various stakeholders in the construction process. This will facilitate greater synergy in managing WSH risks, allowing more effective and cross-cutting measures to be implemented.

Industry-led Taskforces

44. Industry-led, cross-industry taskforces such as the work-at-height and crane taskforces have been helpful in encouraging cross-fertilisation of ideas and coordination of efforts to improve WSH in specific areas of concerns. Such partnerships allow better optimisation of resources and greater synergy. We will continue to develop and leverage on these taskforces to raise the WSH performance of the construction sector. These taskforces can develop programmes and guideline materials from an industry perspective to raise capabilities and awareness to specific issues which the taskforce is engaged in. For a start, we will continue to focus our efforts on meeting the targets of the work-at-height and crane taskforces.

IMPLEMENTATION AND REVIEW

45. An action plan translating the proposed strategies into actual programmes is appended in Appendix A. The WSH (Construction and Landscape) Committee, together with support from WSH Council and MOM will monitor the implementation of the key areas of work and develop successive milestones based on feedback from key stakeholders to account for the changes in the operating environment and market sentiments.

CONCLUSION

46. This document complements the national strategies outlined under the national WSH 2018 Strategy and is the construction sector's plan to support the WSH 2018. It sets out the targeted outcomes, key strategies and initiatives to further enhance WSH standards in the construction sector and aims to guide the efforts of all stakeholders – government bodies, developers, service buyers, architects and designers, engineers, contractors, WSH Professionals and other stakeholders alike – to create a safer and healthier construction sector with a progressive and pervasive WSH culture.

APPENDIX A – ACTION PLANS

Strategy 1: Building Strong Capabilities to Better Manage WSH

Individual Level

Management

- Review and enhance the curriculum of the Construction Safety Course for Project Managers with greater emphasis on risk management and soft skills such as communication and supervisory skills
- Work with WSH Council and Accredited Training Providers (ATPs) to develop WSH courses specific to resident engineers, clerks of work and line managers.

Workers and Supervisors

- Develop trade-specific WSH competencies for the construction sector to equip workers with adequate WSH competencies
- Work with BCA to explore enhancing the safety awareness of foreign workers through incorporating WSH components into the SEC(K) certification test and conducting the Safety Orientation Course (SOC) at source
- Raise competency of personnel involved in high risk operations, particularly lifting operations. The effort will encompass including WSH training courses for crane operators, riggers and supervisors in the WSQ framework to ensure a higher level of competency
- Review the recruitment criteria for construction workers to ensure suitable level of competency

WSH Professionals

- Support the refinement of the Continuing Professional Development programme to cater to the needs of WSH Professionals, e.g. introduce bridging courses to enable professionals to handle the increased demands placed upon them.
- Encourage WSH professionals to tap on the WSH Workforce Skills Qualifications (WSQ) framework for WSH professionals and Continuing Professional Development programmes to develop and upgrade specialised WSH capabilities and soft skills
- Support WSH Council's effort in raising professionalism of WSH professionals through setting and ensuring standards in areas such as qualifications, training and codes of conduct to attract more WSH professionals to the profession

- Work with the Singapore Institution of Safety Officers on the development of capabilities of WSH professionals in advising construction companies on WSH provisions and impact on businesses
- Provide funding support to attract new entrants to the profession, such as scholarships

Designers and Architects

- Promote and encourage the adoption of Guidelines on Design for Safety (DFS) in Buildings and Structures
- Collaborate with tertiary institutions to integrate Design for Safety and WSH competencies into the curriculum of existing architectural, engineering, real estate development and project management courses. Such content can be introduced as a common module for these courses
- Develop specialised courses for existing designers, engineers to enhance their ability to identify WSH risks
- Work with the Board of Architects Singapore and Professional Engineers Board Singapore on including the completion of a WSH course as registration requirement for professional architects and engineers

Corporate Level

Self Investigation

- Develop investigation information kit to aid companies in incident investigation. The kit shall include checklists and guidance to facilitate incident investigation
- Encourage main contractors to take lead in providing expertise and advise their sub-contractors on the gaps in their WSH management following each incident
- Organise forums to allow industry to share their experiences in conducting self investigations
- Develop and promote accident case studies in the construction sector
- Explore with Institute of Engineers Singapore (IES) and Association of Consulting Engineers Singapore (ACES) to take on the confidential reporting of structural safety issues along the lines of UK's CROSS (Confidential Reporting on Structural Safety) and NZ's CRoMiE (Confidential Reporting on Matters in Engineering) to centralise collection of near misses and lessons learnt

Managing Main and Sub Contractors

- Encourage incorporating safety requirements into contractual agreements / tenders for construction projects by larger developers and service buyers setting examples
- Encourage the implementation of a WSH management system at the corporate/company level and to customise it before cascading it down to the worksites. This WSH management system should include plans to manage sub-contractors as well as mechanisms to help builders pre-identify WSH risks and devise control measures to mitigate the risks
- Work with industry associations to educate suppliers of equipment and personnel maintaining equipment, through workshops and seminars, on their responsibilities in ensuring that their equipment is safe for use, and to articulate its intended use as well as any risks involved
- Develop a WSH performance tracking tool for companies to track WSH performance
- Leverage on technology to lessen the administrative burden amongst the main contractors in verifying the WSH certification of their sub-contractors' workers, their working hours and to check and track the usage of machinery and equipment in the worksite

Enhancing Risk Management (RM)

- Promote and expand participation of all contractors and sub-contractors in bizSAFE programme to ensure basic competency in risk assessment and 100% implementation of risk management across sector. This effort will include ensuring that all trade contractors registered with BCA and Singapore List of Trade Sub-contractors (SLOTS) have at least bizSAFE level 3 by 2012
- Encourage utilization of the Risk Management Assistance Fund (RMAF) to help SMEs offset the initial costs of integrating WSH management and risk assessment systems into their business processes
- Develop guidance materials to aid companies in conducting risk management such as the development of a step by step RM guide and pictorial illustration on RM implementation
- Develop guidelines on the implementation of safety and health plans in individual worksites
- Leverage on auditors or mobile WSH Clinics to check on risk assessment and raise the quality of its implementation
- Sponsor researches to study WSH risks posed by new or unfamiliar technologies used in a local context and to look into evidence based measures to improve WSH in the construction sector
- Promote adoption of technologies and practices developed by the WSH institute

Cultivating WSH Culture

- Support the development of the WSH culture index to be used to measure and monitor the state of WSH culture in the construction sector
- Commission an in-depth study of the construction sector in the form of a diagnostic analysis
- Develop and drive strategic programmes tailored for the construction sector based on the outcome of the diagnostic analysis
- Develop and implement structured culture building programmes based on the results of in-depth diagnostic analysis to raise the WSH culture to the next level
- Identify and encourage a pool of large organisations to pilot structured culture building programmes. Encourage this pool of organisations to provide guidance to smaller companies and contractors to develop a strong WSH culture based on their experience

Strategy 2: Creating a self-regulatory framework in order to promote greater industry ownership

Include Designers and Developers in the Regulatory Framework

- Develop 'DFS mark' model for developer recognition and roll out programme by 2011.
- Achieve 100% adoption of 'DFS mark' by public developers by 2013, and adoption of the mark by private developers thereafter
- DFS concept to be integrated into pre-employment professional courses by 2015
- Promote Guidelines on DFS in Buildings and Structures through outreach initiatives and trade associations to highlight the roles and responsibilities of designers and developers in WSH outcomes

Improved Management of Workplace Health

- Support MOM's effort in conducting a baseline study to look into various health issues associated with the construction sector, such as noise induced deafness and carpal tunnel syndrome from usage of drills and heavy machinery, skin dermatitis, asbestos and physical health issues.
- Develop and customise workplace health communication package to the construction sector and promote its implementation
- Focus on fostering awareness to health hazards, right equipment and right usage through various outreach efforts such as road-shows, worker newsletters and health talks in dormitories
- Generate awareness of workplace health at management level and communicate rising trends by incorporating workplace health components in general outreach efforts such as the CEO Summit
- Look into enhancement of existing training courses for construction workers to include awareness of health hazards
- Assess feasibility for expansion of scope of pre-employment health checks and the introduction of periodic health checks

Self Regulation

- Study and review existing self-regulation* models to identify benefits and potential pitfalls. Pilot suitable self-regulation models in local context to assess feasibility of application
- Work with industry and trade associations to establish proactive WSH chapters

*Group of companies with common interests come together

Setting Industry Standards

- Identify and communicate the need for the development and review of specific codes of practices and guidelines with regard to construction standards
- Provide platforms such as workshops and seminars to educate the construction sector on relevant codes of practice and guidelines
- Provide resources and feedback on WSH regulations, technical advisories and other practical guidance materials during the project development stage

Strategy 3: Promoting the Benefits of WSH and Integrating WSH into Business

Driving Improvements through Large Organisations

- Promote bizSAFE participation through the construction value chain, leveraging on bizSAFE partners and mentors to achieve full participation of stakeholders
- Provide regular platforms such as CEO roundtables to promote WSH to top management and to garner management buy-in
- Regularly follow-up on top management commitment through the “Pledge for Zero” initiative and measurement of achievements
- As a start, garner top companies from the construction sector in the “Pledge for Zero” initiative by 2011
- Support phasing out of obsolete practices and adopting good practices by helping smaller companies involved in such works to adapt to changes
- Develop guidelines to help companies incorporate WSH into procurement
- Work with the Ministry of Manpower to encourage government agencies to audit their contractors’ WSH management system and conduct site inspections throughout the contract period
- Work with the Ministry of Manpower to encourage government agencies to place more emphasis on WSH at the tendering stage through pre-qualifying contractors on WSH performance and setting expected levels of WSH performance in contracts
- Work with the Ministry of Manpower to encourage government agencies to be proactively involved in managing WSH at the pre-construction stage and monitoring the performance of their contractors through regular audits

Assessment of Safety and Health Management Systems

- Promote widespread adoption of ConSASS by influencing developers to factor in ConSASS results in their selection of contractors
- Review ConSASS promotion and implementation approach
- Conduct study on ConSASS to assess its effectiveness and current status to ensure the system remains relevant for the industry
- Encourage adoption of ConSASS at all worksites by 2015 with 80% of sites achieving at least ConSASS band III

Business Case

- Publish case studies and research materials to generate awareness on the importance of considering WSH in procurement and its impact on the full lifecycle cost of a project. Reach out to developers to educate them on the business benefits in improving WSH
- Conduct joint research with industry associations on the benefits of integrating WSH into business through the study of accident rates and cost-benefit analysis. This research can cover international companies and can form the basis for case studies
- Encourage developers and contractors to adopt a WSH management system and achieve SS506 or equivalent-certified by showcasing the benefits of high WSH standards
- Provide platforms to promote the concept of WSH in procurement and its benefits through regular sharing of case studies and experiences by successful local and international companies with WSH as a core value
- Leverage on media to promote a business case for integrating WSH into business
- Consider recognition of early adopters of WSH (e.g. adoption of DFS by developers and designers) through WSH Awards

Strategy 4: Creating / Building Partnerships

Coordination of Work

- Work through the Construction Industry Joint Committee (CIJC) to solicit inputs from various stakeholders to identify WSH risks specific to the construction sector.
- Develop cross-cutting measures and solutions to manage the risks identified.

Industry-led Taskforces

- Lead and drive the industry-led task force on Work at Heights (WAH) to achieve 100% implementation of fall protection programme and to reduce work at height fatalities to zero
- Develop fall protection programmes to assist companies in the implementing effective fall protection plans
- Lead and drive in the industry-led task force on crane-related activities with the target of reducing crane-related fatalities
- Develop lifting plan and drive implementation of lifting plans at all worksites within the next 3 years
- Undertake in-depth studies into hotspot areas such as crane incident analysis to develop appropriate recommendations and action plans.

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