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# **Implementing WSH 2018 for Marine Sector in Singapore**

*- Towards a Progressive and Pervasive  
Safety and Health Culture -*

**DRAFT**

**Executive Summary of Implementing WSH 2018 for Marine Sector**

**Introduction**

The national Workplace Safety and Health (WSH) strategy WSH 2018 highlights a differentiated sector-specific approach<sup>1</sup> as a key strategy to bring down the workplace fatality rate to below 1.8 per 100,000 workers by the year 2018. At the launch of the National WSH Campaign on 28 April 2009, Minister for Manpower, Mr Gan Kim Yong, announced the intention to develop two sectoral strategies for the construction and marine sectors. These two sectors account for more than half of total workplace fatalities<sup>2</sup>.

2 The marine sector is the first to launch its sectoral plan for public consultation. Better WSH standards in the marine sector will benefit more than 140,000 workers currently employed in the sector. The plan provides a comprehensive guide for the collective efforts of the marine sector. It outlines initiatives to help the industry develop a progressive and pervasive WSH culture and to ensure sustainable continuous improvement in WSH.

**Key stakeholders in the marine sector**

3 The plan outlines the key stakeholder groups in the marine sector that play important roles on influencing overall WSH standards. They include:

- The Shipyard Occupiers (shipbuilding, ship repair, rig building and offshore engineering) who are major buyers for marine supporting services and can play a critical role in influencing their contractors' and sub-contractors' WSH performance.
- The Contractors (resident, common and external contractors) work closely with the shipyards, and need to ensure that their work is aligned with the shipyards' WSH management systems.
- The Ship Owners, Agents and Ship Crew are actively involved in shipyard and anchorage activities, as they test, commission and operate equipment onboard their vessels. As they are typically only in the shipyard or anchorage for a short period of time before moving on to other destinations, the lack of familiarity with the environment is a concern. Close co-ordination with the shipyards and the contractors they work with is critical.

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<sup>1</sup> The key rationale for this approach is the understanding that each sector has different WSH challenges and would require tailored solutions to address them.

<sup>2</sup> Based on the WSH National Statistics, the construction and marine sectors accounted for a total of 35 out of 63 fatalities in 2007. In 2008, the 2 sectors accounted for a total of 38 out of 67 fatalities.

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- The WSH Professionals need to ensure that the WSH management systems in the shipyards are robust and up-to-date, through workplace inspections and in-house audits. They identify WSH gaps and recommend solutions.
- The Ship Repair Managers and Supervisors oversee implementation of WSH practices on the ground and manage safe conduct of work daily.
- The Workers need to adhere to WSH rules and participate actively in safety and health programmes such as highlighting safety and health lapses to their supervisors for improvements.
- The Marine Sector Associations and Unions represent the diverse interests of the marine sector and serve as important platforms to reach out to industry stakeholders. They can also help to coordinate and drive self-regulation within the sector.

**Marine sectoral targets**

4 While the sector ultimately aims to achieve safe and healthy workplaces without any injuries, it has set intermediate goals. It aims to halve the workplace fatality rate less than 4.6 fatalities per 100,000 workers by 2013 and to less than 1.8 by 2018. For workplace injuries, it aims to reduce the workplace injury rate to less than 200 injuries per 100,000 workers by 2013 and less than 100 by 2018.

**Four key areas of work**

5 To realise these goals, four key areas of work have been identified under the sectoral plan:

- (i) Effective risk management (RM)
  - While most companies in the marine sector conduct at least basic risk management, accidents continue to take place due to gaps in the risk assessment and inadequate implementation of control measures.
  - To raise the WSH performance of the marine sector, the quality of risk management needs to be improved.
  - One area is to improve contractors' risk management and to tap on bizSAFE to facilitate implementation of risk management across the smaller shipyards.
  - Two other areas include the involvement of ship owners and crew in risk management as well as to improve incident investigation as well as near misses so to address systemic issues.

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(ii) Enhance WSH Capability

- As the marine sector is labour intensive, it faces challenges in the area of manpower capability building, given its large foreign and transient workforce.
- The smaller shipyards also encounter constraints in training facilities, resources and standards. Their needs will be met by a new Marine Industry Training Centre (MITC).
- There will also be enhancement of certification standards for supervisors and line managers, as well as other capability building efforts such as supplementing practical assistance and guidance materials to aid companies, and improving management of workplace health.
- The sector will also tap on benchmarking tools such as the WSH culture index that is being developed nationally to formulate in-house behaviour-based safety programmes for the sector.

(iii) Intervention Programmes

- The top three workplace hazards in the marine sector have been identified as fall from height, struck by falling objects, and fire and explosions. In-depth studies on these top concerns will be conducted, followed by apt recommendations and action plans. This can take place in the form of industry-led taskforces.
- A pilot self-regulation model, Marine Industry Safety Engagement Team (MindSET) will be developed for the participating companies to conduct 'cold eye' review on WSH management system and cross inspections of the workplaces amongst the shipyards.
- Employers will also be encouraged to specify the quality of their sub-contractors in their contract in terms of WSH competencies and performance so as to ensure that safety is further improved.

(iv) Strengthening Stakeholders' Involvement in WSH

- All stakeholders have a role to play in driving good WSH performance and take responsibility for the WSH outcome. The commitment of senior management is a critical element to set a strong WSH culture and this includes helping them engage ship owners and ship crew on WSH matters.

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- Platforms will be created for senior management to demonstrate their commitment and share best practices with the sector. In addition, there is a need to strengthen the engagement of ship owners and crew to ensure that there is alignment between the work directed by ship owners and the WSH management systems of the shipyard.

6 The sectoral plan also details an Action Plan implement the identified key areas of work to achieve the sectoral targets. Together with the commitment of the WSH Council (Marine Industries) Committee, WSH Council and Ministry of Manpower, the full implementation of this plan will mark a major milestone in driving the marine sector towards a safer and healthier workplace for all.

## **STATEMENT OF COMMITMENT**

We, the Workplace Safety and Health (Marine Industries) Committee, are committed to driving the implementation of the Workplace Safety and Health 2018 Strategy for the marine sector and achieving the targets set for this sector. The Committee is steadfast in the pursuit of continuous improvement of workplace safety and health standards in the marine sector.

This Plan provides a concrete and comprehensive plan to guide our collective efforts in developing a progressive and pervasive safety and health culture to produce a quantum leap in the workplace safety and health performance of the marine sector by 2018.

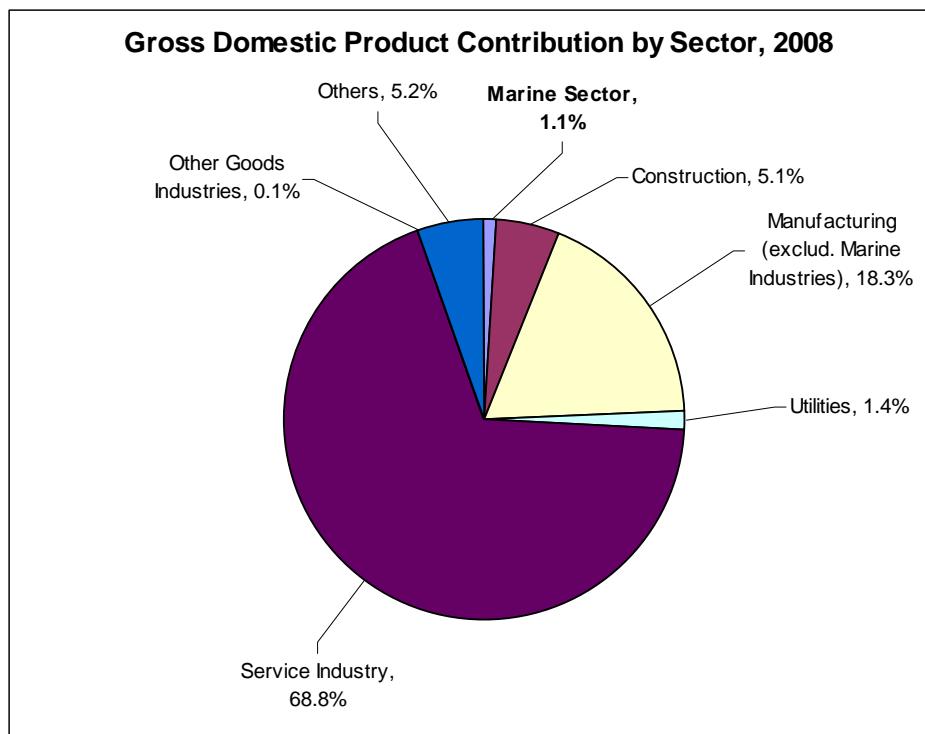
We are committed to garnering greater cooperation within the sector and aligning ourselves to the objectives and tasks outlined in this Plan. We will review the progress of our plan regularly against the targets and enhance it to meet the dynamics of the marine sector. Together, we will bring the safety standards of the marine sector in Singapore to be amongst the best in the world.

## SINGAPORE MARINE SECTOR LANDSCAPE

### THE SINGAPORE MARINE SECTOR LANDSCAPE

#### a. Economic Performance of the Marine Sector

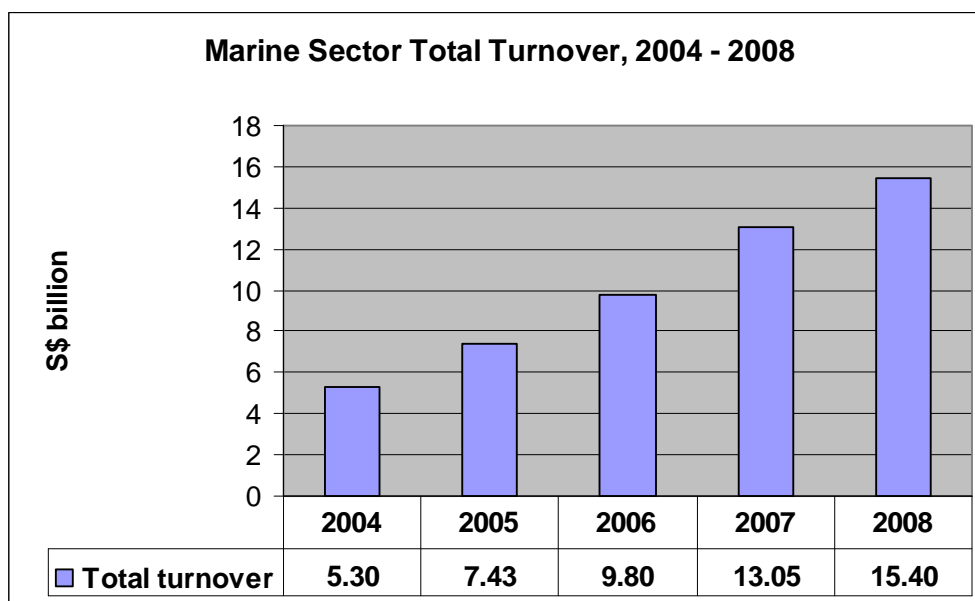
1. The marine sector comprises companies involved in diverse activities such as shipbuilding, ship repair, rig building, offshore engineering, marine surveying services (other than classification societies), salvaging of distressed vessels and cargo, as well as work done at anchorages. The sector has experienced strong and steady growth in recent years. In 2008, the sector contributed an estimated 1.1% of Singapore's Gross Domestic Product (GDP), up from 0.74% in 2005.<sup>3</sup>



<sup>3</sup> Source: Singapore Department of Statistics (Estimated based on available data on the GDP for Shipbuilding and Ship Repair)

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2. Over the past four years, the estimated total turnover<sup>4</sup> of the marine sector has more than doubled, from about \$5.3 billion in 2004 to about \$15.4 billion in 2008. (see chart below)



3. In line with the growth in business activity, the marine sector has seen a corresponding rise in employment. In 2008, the sector employed some 140,900 workers<sup>5</sup>, approximately 4.8 % of the overall workforce, up from about 82,600 in 2005. The marine sector continues to employ a significant number of foreign workers at production level.

### **b. WSH Performance of the Marine Sector**

4. Workplace safety and health (WSH) is a key challenge for the marine sector. Although the sector has made progress in its WSH performance over the years, there has been a rise in workplace fatality rates in recent years, from 8.4 per 100,000

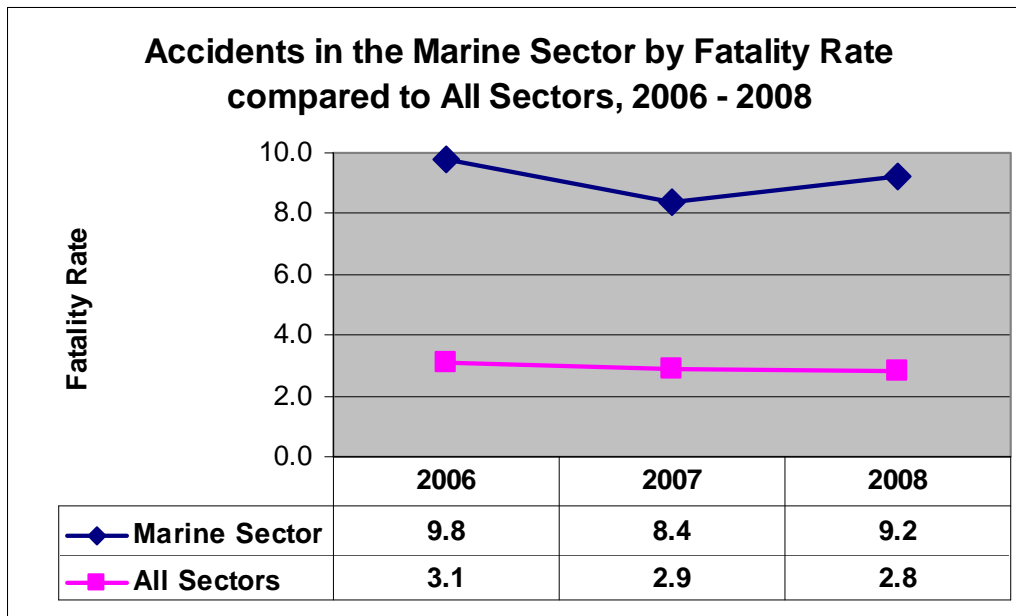
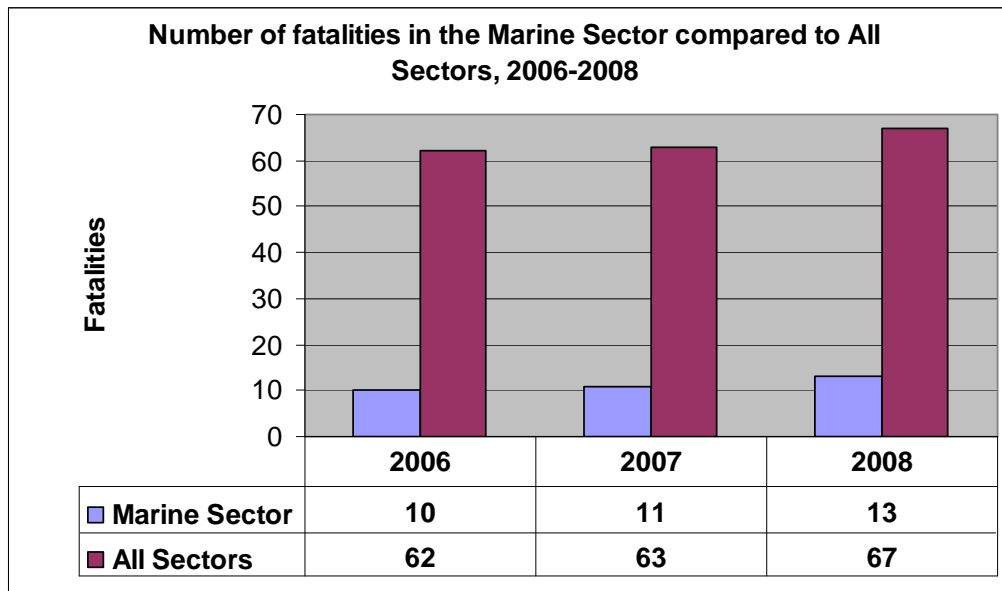
<sup>4</sup> Source: Association of Singapore Marine Industries (ASMI) Annual Report 2008 (Based on the marine and offshore industry)

<sup>5</sup> Source: Ministry of Manpower (MOM)

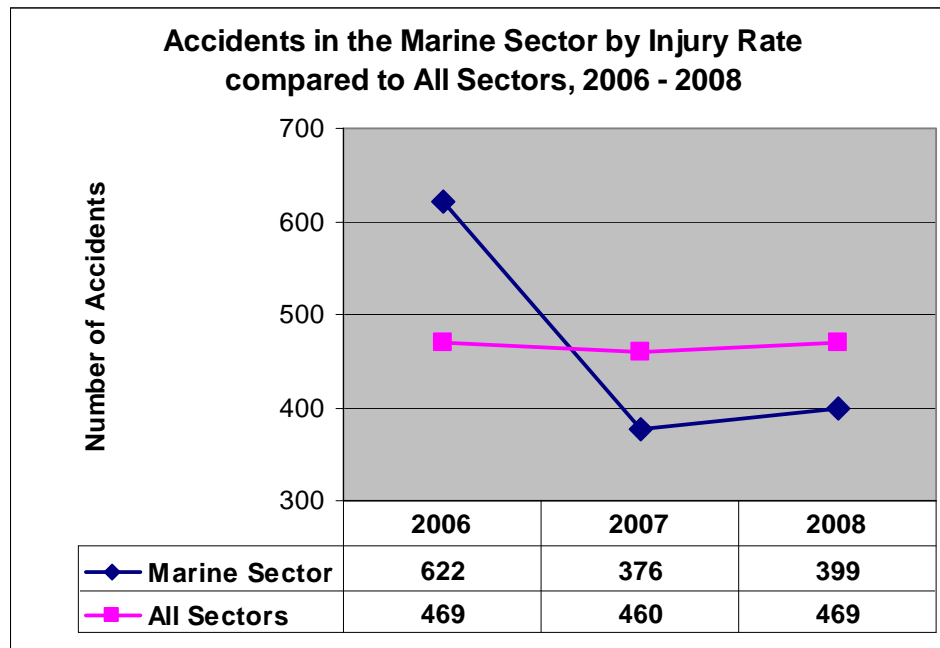


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workers in 2007 to 9.2 in 2008. The sector's injury rate also climbed from 376 per 100,000 workers in 2007 to 399 in 2008.



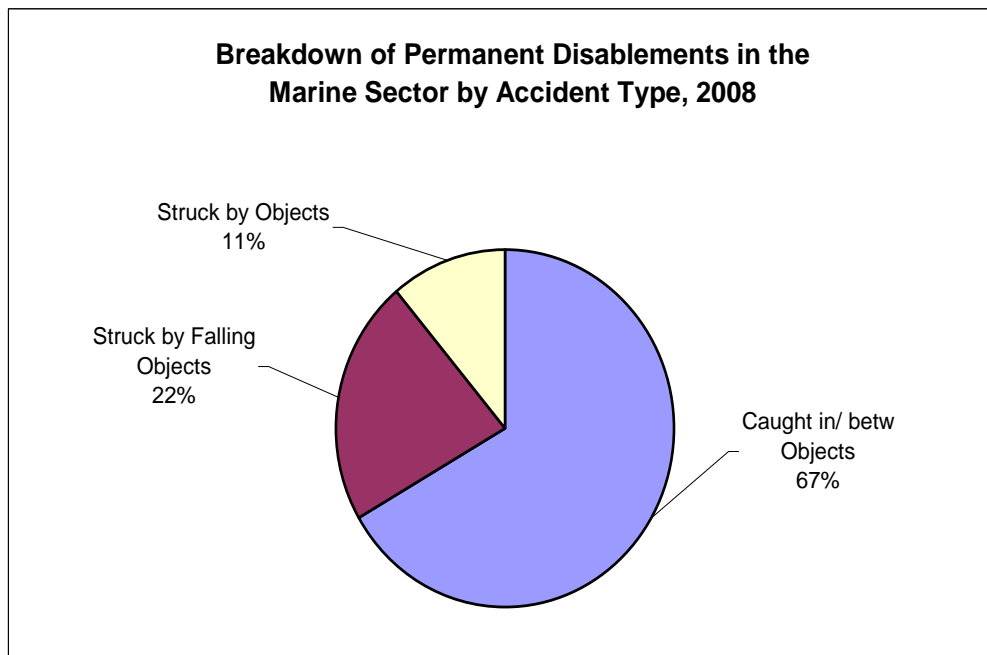
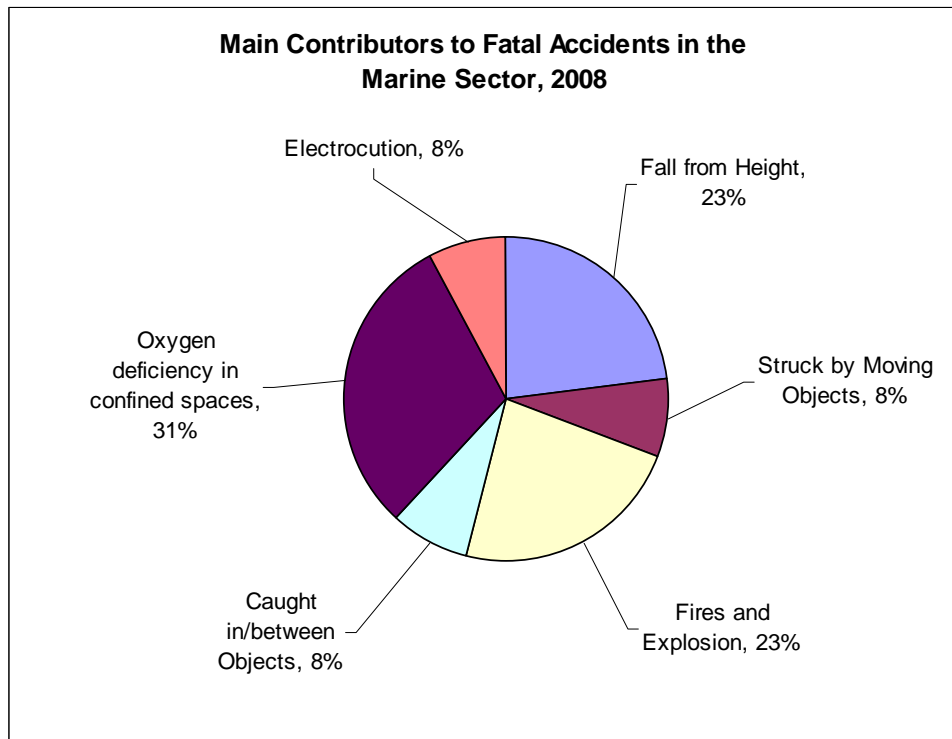
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5. The top three causes of fatalities are oxygen deficiency in confined spaces, falling from heights and fires and explosions, accounting for over three quarters of the 13 work-related fatalities seen in the sector last year. Other major causes of workplace accidents include being caught in/between objects, being struck by falling objects, and being struck by moving objects.

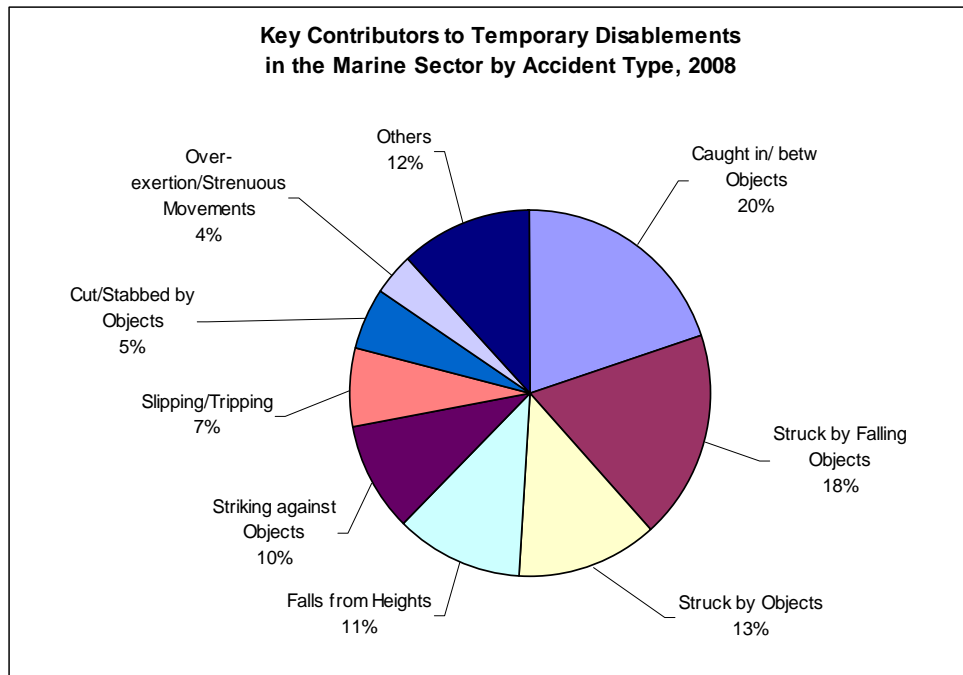
**SINGAPORE MARINE SECTOR LANDSCAPE**

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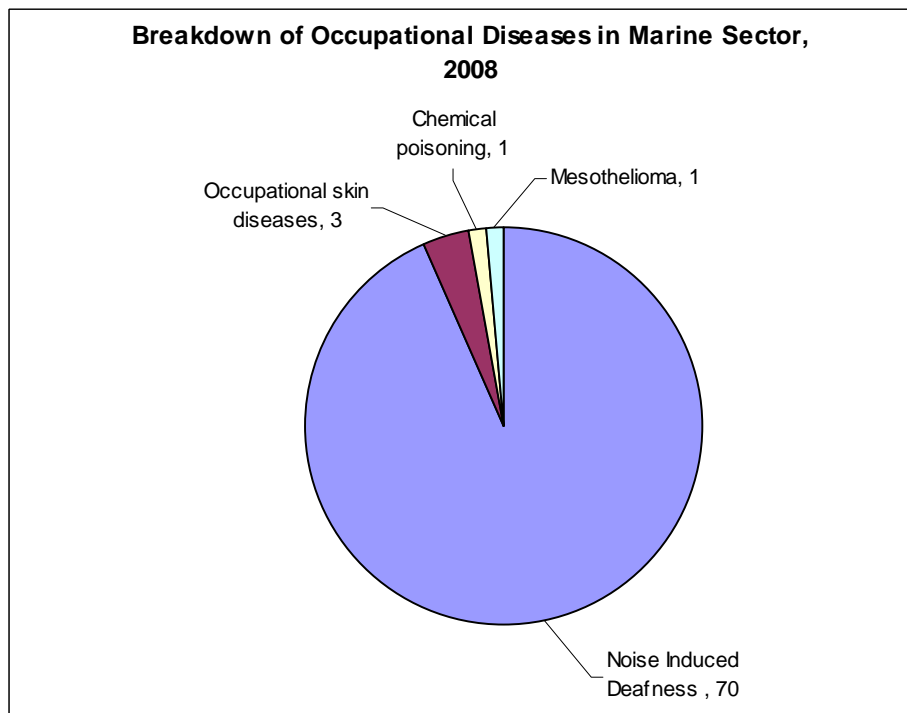
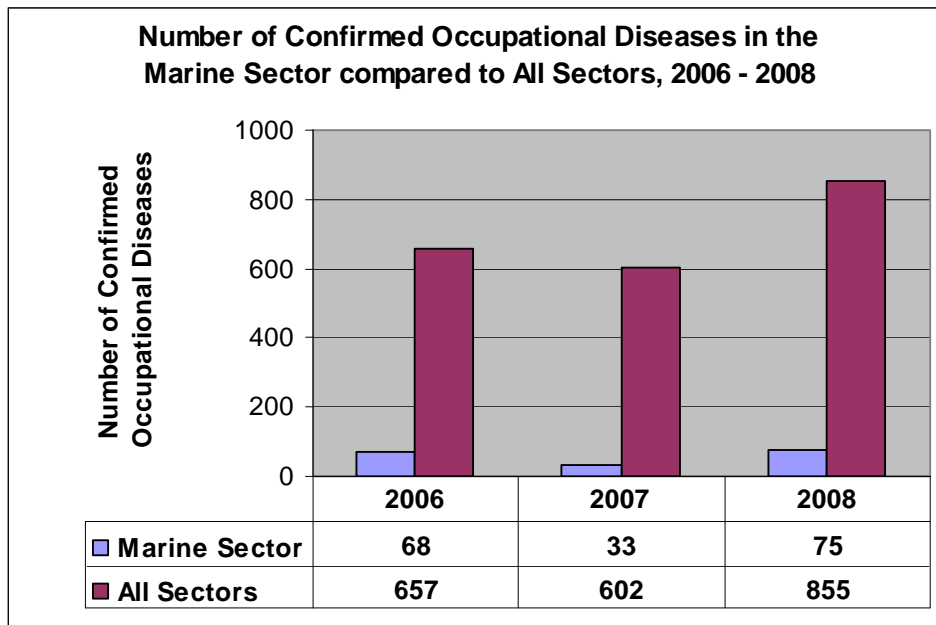
## **SINGAPORE MARINE SECTOR LANDSCAPE**

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6. Noise-Induced Deafness (NID) forms the bulk of occupational diseases cases reported in the marine sector. In 2008, 75 confirmed ODs were reported in the sector, of which 70 were NID cases (up from 30 cases in 2007). There were also 3 confirmed cases of occupational skin diseases, up from 1 case in the previous year.

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## **SINGAPORE MARINE SECTOR LANDSCAPE**

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### **c. Roles and Responsibilities of Stakeholders**

#### **Shipyard Occupiers**

7. The shipbuilding, ship repair, rig building and offshore engineering form the backbone of the local marine sector, accounting for more than half of the total sector revenue in 2008. Thus, the shipyard occupiers play a major role in shaping the sector's WSH culture.

8. As the major buyer for marine supporting services and with heavy dependency on outsourcing, the shipyard occupiers play a critical role in ensuring WSH outcomes. Shipyard occupiers can positively influence their contractors' and sub-contractors' WSH performance, by specifying WSH considerations in their contracts, in addition to financial and quality requirements. The shipyard occupiers are responsible in ensuring that their WSH management systems are robust, and that the contractors, workers and other relevant stakeholders such as ship owners and ship crew comply with the systems. The shipyard occupiers should also set the bar for the WSH competency standards for the various trades in the sector to provide benchmarks for other players within the sector such as anchorage repair services to aim towards.

#### **Contractors**

9. The marine sector has a well-established system of residential, common and external contractors. Residential contractors are typically permanently deployed within a particular shipyard, while common contractors are cross deployed around various shipyards. Their work is complemented by external contractors, such as those nominated by ship owners for more specialised works.

10. Contractors work closely with the shipyards, and ensure that their work is aligned with the WSH management systems of the shipyards and that their workers

## **SINGAPORE MARINE SECTOR LANDSCAPE**

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do not undermine or bypass these systems. However, contractors should not rely solely on the shipyards' WSH management systems, and should conduct thorough risk assessments of their own prior to starting work. The contractors should also be proactive in highlighting WSH lapses and areas for improvements to the shipyards. Main contractors who engage sub-contractors are responsible for overseeing and influencing the WSH performance of their sub-contractors.

11. At the systems level, the residential and common contractor network provides an ideal platform for the sharing of WSH best practices and knowledge, thus facilitating the uniform improvement of WSH standards across the marine sector.

### **Ship Owners, Agents and Ship Crew**

12. Ship owners, their agents and crew are actively involved in shipyard and anchorage activities, as they test, commission and operate equipment onboard their ships, oil rigs and Floating Production Storage and Offloading (FPSO) platforms, etc. Given their active roles, ship owners and agents should be aware of the impact of their work on the safety and health of others on board the ships and their obligations under the WSH Act (WSHA). Ship owners and agents should ensure that their work is aligned with the WSH management systems of the shipyards (e.g. by adhering to the permit-to-work system) and the WSH requirements set by the Maritime and Port Authority of Singapore (MPA).

13. Ship crew are brought in for their expertise in operating specialised equipment onboard the ships and are typically only in the shipyard or anchorage for a short period of time before moving on to other destinations. Therefore, they may be relatively unfamiliar with the environment in which their ships are berthed in. However, they may be required to perform high risk works, such as lifting work, to facilitate the building or repairing process. It is important that the ship crew are familiar with the WSH requirements and understand the WSH impact of their work on other ongoing activities onboard the ships and within the shipyard.

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### **WSH Professionals**

14. The marine sector leverages heavily on the expertise of the WSH professionals to identify and manage risks specific to the marine sector. The WSH professionals monitor the WSH management at the shipyards and drive WSH improvements beyond the minimum compliance with legislative requirements. They ensure that the WSH management systems in the shipyards are robust and up-to-date, through regular workplace inspections and in-house audits by identifying WSH gaps and recommending cost-effective and practical solutions.

### **Ship Repair Managers, Supervisors and Workers**

15. Ship repair managers perform a role within the shipyard similar to that played by project managers in a construction site. In overseeing the management of a project, they play a critical role in engendering a strong WSH culture within the shipyard. They can do so by making WSH a key agenda item in meetings they preside over, closely monitoring accident statistics for their projects, and reviewing these accidents to ensure that the team learns from the accidents and makes improvements in WSH management.

16. As a key link between management and workers, supervisors help translate management commitment to WSH into concrete practices on the ground, by advocating good WSH practices within their team and correcting any unsafe acts or conditions they come across. Likewise, workers also have a role to play in WSH, as WSH improvements should not be solely driven from top-down. Workers should participate proactively in safety and health programmes not only to improve the WSH performance of the company, but for their own personal development as well. They should also take personal responsibility to protect themselves and their co-workers by highlighting any safety and health lapses to their supervisors and helping to ensure that the necessary measures are taken to rectify the lapses.



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### **The Marine Sector Associations and Unions**

17. There are several marine sector associations in Singapore. The Association of Singapore Marine Industries (ASMI) represents a large proportion of shipyards and marine contracting companies in Singapore. The Singapore Shipping Association (SSA) represents the interests of ship owners and agents operating in Singapore. These associations represent the diverse interests of the marine sector and serve as important platforms to reach out to industry stakeholders. They can also help to coordinate and drive self-regulation within the sector, e.g. by securing the community's commitment to adopt higher WSH standards or coordinating cross-shipyards audits to ensure compliance with established standards.

18. Key professional bodies supporting the marine sector include the Singapore Institution of Safety Officers (SISO), the Institution of Engineers Singapore (IES) and the Society of Naval Architects & Marine Engineers Singapore (SNAMES). Given the role their members play in providing WSH advice to shipyards, it is important that these associations continue to build up a core pool of professionals with expertise in managing the WSH risks peculiar to the marine sector.

19. As the key marine sector union, the Shipbuilding and Marine Engineering Employees' Union (SMEEU) is an important channel for feedback on worker issues. The SMEEU is also an important partner in engagement activities to raise the WSH awareness and capabilities of marine sector workers.

## **TARGETED OUTCOMES**

20. To achieve our long-term sectoral goal of a safe and healthy workplace with a vibrant WSH culture and zero injury, we have identified the following intermediate goals for the marine sector:

- a. Halve 2008 marine sector fatality rate to less than 4.6 fatalities per 100,000 workers by 2013 and less than 1.8 fatalities per 100,000 workers by 2018.
- b. Reduce workplace injury rate to less than 200 injuries per 100,000 workers by 2013 and less than 100 injuries per 100,000 workers by 2018.

## **IMPLEMENTING WSH 2018 FOR MARINE SECTOR**

21. We have identified four key areas of work to improve WSH standards in the marine sector.

### **Key Area of Work #1**

#### **Effective Risk Management**

22. Currently, the majority of companies within the marine sector conduct at least basic risk management for their work activities. However, accidents continue to take place due to gaps in the risk assessment and in the implementation of proper control measures. In order to raise the WSH performance of the marine sector, the quality of risk management needs to be improved. This includes ensuring that the risk assessment conducted is comprehensive and that there is proper identification of control measures using the hierarchy of controls i.e. to consider the possibility of eliminating the work activity, substituting the work process or hazardous material involved, implementing engineering controls or taking administrative measures before resorting to the provision of personal protective equipment. This would involve work in the following areas:

- a. Improving risk management conducted by contractors. It is a common practice in the shipyards for shipyard occupiers to assist their contractors in identifying the key risks involved in their work. Many contractors adopt these risk assessments without further contextualising them to their actual operating environment. This may result in inappropriate or insufficient control measures being taken. Shipyards need to set up a system to improve their oversight of the risk management of their contractors. This can include conducting more in-house audits on the quality of the risk management and incorporating such checks at the vessel safety

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coordination committee meetings. Given that many of these contractors depend on the risk compendium to conduct the risk management, the quality of the compendium should be regularly reviewed and enhanced.

- b. Involving ship owners and crew in risk management. The ship owners and crew hold the domain knowledge of their vessels. It is important to involve them in the risk assessment activities as they are able identify the common pitfalls or hazards faced when working on the vessel. With their assistance, the risk can be appropriately identified, assessed and addressed.
  
- c. Driving implementation of risk management in the smaller shipyards. The bizSAFE programme provides a systematic process to guide companies in building their risk management capabilities. The programme can be an effective lever as it addresses the resources and commitment issues faced by the smaller shipyards and contractors. Contractors should undergo the programme and minimally develop the capability to conduct risk assessment and implement the risk control measures or attain bizSAFE level 3 status. Given that all shipyards are already required to have a safety management system, the smaller shipyards should leverage on the programme and ensure their system is robust or attain the bizSAFE Star status. The larger shipyards can also be engaged as bizSAFE partners and include WSH performance as part of their contractual terms during project tenders, as well as give more recognition to bizSAFE certified companies. Ultimately, they should aim to be bizSAFE mentors to lead and guide the smaller shipyards and contractors in raising their WSH capabilities. Assistance from the WSH Council such as the Risk Management Assistance Fund (RMAF) is available to help small and medium enterprises (SMEs) to implement risk management. We aim to get all contractors serving the sector to attain at least bizSAFE level 3

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status, all resident contractors from the major shipyards to attain bizSAFE Star status and have at least 10 bizSAFE mentors by 2012.

- d. Improving incident investigation. Most shipyards have incident investigation capabilities. However, current investigations are mostly focused on identifying the direct cause of an incident and does not assess whether there may be broader systemic failures within the shipyard. For instance, while the direct cause of a fall-from-height incident may be the failure to barricade the open side, the safety lapse may be due to a broader systemic failure of the shipyard occupiers in the coordination of work with the contractor. Uncovering these systemic failures during the incident investigation process will enable shipyards to reduce the risk at source, rather than taking ad hoc safety measures. To assist the sector in doing so, we will explore developing incident investigation courses with a focus on addressing systemic issues or integrating such modules into existing risk management courses. In addition, it is crucial that we go beyond accidents and look at near-misses to have a comprehensive understanding of the root causes of accidents. We will therefore develop a near-miss management system to provide a structured means for the sector, particularly for the smaller shipyards, to report, analyse, retrieve, share and learn from incident investigation findings.

**Key Area of Work #2**

**Enhance WSH Capability Building**

23. Being labour intensive, the sector faces challenges in the area of manpower capability building. The largely foreign and transient workforce adds to the complexity in building and sustaining WSH capabilities in the sector. The sector associations and professional bodies work closely with relevant agencies such as

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the WSH Council and WDA in addressing the WSH capability gaps in the sector. Critical trades and professions within the sector are identified to focus efforts in building its WSH training framework and standards. However, there is a distinct disparity in the training standards between the larger shipyards and the smaller ones, as the larger shipyards have more resources to support their training facilities and uphold their training standards. Hence, more efforts need to be drawn to help the smaller companies to raise their WSH capabilities and bridge the difference in competencies.

24. Workers must be familiar with the complex marine work environment as many of the hazards in the sector are insidious. For instance, the use of non-flame proof lights can spark a flash fire during normal painting works in a confined space. Basic safety training for workers should therefore go beyond explaining the legal requirements under the WSHA and basic safety measures. The training should familiarize the workers with the environment they will be deployed in and its inherent hazards, and be able to explain what measures and work processes should be undertaken to mitigate these risks.

25. To help stakeholders raise the level and better contextualize the training provided to workers, we will focus on the following areas:

- a. Marine trade-specific competency courses. The development of trade-specific competency courses for the marine sector is a useful starting point to provide workers with training that enhances their understanding of the marine work environment and contextualises their work to this environment. In 2009, the WSH Council (Marine Industries) Committee and Workforce Development Agency (WDA) co-launched the 13 trade-specific competency courses for the marine sector, covering trades such as welding, tank cleaning and scaffolding. The WSH Council and WDA will

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work closely with the shipyards to monitor the competency framework and ensure good take-up rates of these courses.

- b. Marine Industry Training Centre (MITC). The MITC would be a good platform to level up the training provided to workers across the marine sector. It will address the current situation whereby the bigger shipyards are better equipped with the necessary infrastructure to provide adequate training to their employees and contractors, resulting in disparity in training standards compared to the smaller shipyards. One of the focus areas identified includes providing training for the SMEs in the marine sector. The industry-led MITC is envisioned to be a one-stop centre in providing relevant trade-specific and broad-based skills training for marine workers. It would provide more contextualized training by integrating components to familiarise workers with the marine work environment. The MITC can also be more responsive to the needs of the sector and introduce courses that address emerging WSH issues in the sector.
- c. Raising certification standards for supervisors and line managers. Supervisors and line managers play a critical role in helping workers to be aware of the WSH risks they face at the workplace and the control measures to be put in place. To raise their competencies, existing courses for supervisors have to go beyond merely articulating the legal WSH requirements. Instead, we will incorporate modules on hazards communication and worker management in the existing Shipyard Safety Instruction Course (SSIC), Safety Instruction Course for Ship Repair Managers and Shipyard Supervisors Safety Course (SSSC). The Ministry of Manpower (MOM) and the WSH Council will also increase their oversight on these courses and progressively raise the standard of the certification tests.

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26. Stakeholders should focus their enterprise capability building efforts in the areas that are most critical or that they are weakest in. To help stakeholders identify what these areas are, we will focus on the following:

- a. Supplementing practical assistance. Practical assistance programmes and guidance materials will be developed and implemented to aid the companies in the marine sector to achieve higher level of WSH standards. We will look into best practices within the industry and help companies integrate these practices into their operations. To ensure applicability to all workplaces, the nature and size of businesses will be taken in consideration. Communication platforms and learning aids such as forums and case studies booklets will be launched to educate and share lessons learnt from past incidents. More efforts will be placed on hot spots such as fire and explosions, confined space and work at height. We will also work with SPRING Singapore to develop and progressively review codes of practice for the marine sector.
  
- b. Improving management of workplace health. There is a need to improve the management for workplace health related matters. Raising industry awareness on occupational diseases through engagement and education continues to be the main lever, with particular emphasis on noise-induced deafness (NID). A workplace health baseline study will be commissioned to gain a better understanding of and address workplace health issues associated with the marine sector. To better track, analyse and manage the occurrence and trend of occupational diseases at workplaces, we will also explore expanding the coverage of workers' health screening. Examinations such as chest x-ray, hearing and colour blindness tests can be made mandatory for workers who may be at greater risk. Moving forward, we will strive to garner industry buy-in to the provision of periodic employment checks for workers.



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- c. Enhancing WSH statistics collection for the marine sector. Tracking leading indicators, rather than lagging indicators (such as accident statistics) can help the stakeholders to identify WSH concerns upstream and pre-empt the occurrence of accidents. We will widen the range of statistics captured, to include leading WSH indicators such as near-miss reporting. It is also important for marine sector stakeholders to be informed of the relevant developments within the sector and their impact on WSH, so that the stakeholders can identify areas where capability building needs to be enhanced. As a start, we will look into commissioning baseline studies into key areas such as workplace health. The outcome of the study will provide us with a better appreciation of the areas of concern; thereby enabling the devise of suitable programmes to improve workplace health management.
- d. Tools to benchmark WSH performance. Baseline studies and WSH indicators will help stakeholders identify, at the sectoral level, focal areas for WSH capability building. We can complement these with benchmarking tools, which can help companies identify areas of concern specific to their organisations. The WSH Council has announced plans to develop a WSH culture index to measure the state of WSH culture in Singapore. The WSH culture index will be used to measure and monitor the state of WSH culture at national, sectoral and organisational levels. We will participate in the development of the culture index for the sector and target for bigger companies to spearhead this initiative. As the envisioned WSH 2018 landscape of the marine sector is built on a strong WSH culture, it underscores the importance of raising industry capabilities in the areas of safety observation and intervention. As a follow-up from the Marine Industries Diagnostic Analysis conducted previously, we will

also build up these competencies by equipping companies with relevant tools to carry out their in-house behaviour-based safety programmes.

### **Key Area of Work #3**

#### **Intervention Programmes**

27. To gain better understanding of the sector and work specific hotspots, more in-depth studies on top marine concerns will be conducted and appropriate recommendations and action plans will be developed based on these studies.

- a. Industry-led taskforces. There is a need for greater industry participation to provide the ground intelligence for an appropriate and calibrated response. This can take the form of industry-led taskforces. These taskforces will work with the WSH Council and undertake the ownership to set industry standards for safe work, develop WSH capabilities and galvanise the sector's efforts and commitment by setting milestones and targets for the sector. In the immediate term, we will participate in the cross industry taskforces or form WSH Council (Marine Industries) Committee-led workgroups to focus on the following leading contributors to workplace fatalities in the marine sector:
  - (i) Confined space. Over the years, even though the marine sector has developed a good system in addressing confined space risks, we continue to see confined space related incidents. As there are still challenges to be addressed, a taskforce will have to drive the development of an effective confined space programme, e.g, leveraging on regular inspections and expert assessment of the workplace so as to identify possible confined spaces and evaluate

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its control measures. We will aspire to establish a plan on confined space works by 2011.

- (ii) Working safely at height. Despite our efforts over the past few years, fall-from-height continues to be a key problem in the marine sector. This situation is unsatisfactory. A proper system should be set up so that work can be performed safely at height. A holistic approach should be taken such that it does not merely address physical lapses. To do so, the taskforce will need to establish an engagement plan such that shipyards are encouraged to put in place a fall protection plan that outlines the shipyards' policy and measures to deal with the issues at the systems level. We will drive efforts to achieve the 100% implementation of the fall protection plan in the marine sector by 2012.
  - (iii) Lifting operations. Lifting activities form a bulk of the work within the shipyard. There is a huge difficulty in tracking the lifts conducted and enforcing established lifting procedures. For example, simple lifting works such as transferring waste bins from ships to the dock have caused incidents. A key challenge for the taskforce will be to develop a system for the shipyards to coordinate the lifts conducted. This can come in the form of a lifting plan coordinated by a dedicated lifting engineer and supported by the staff of lifting supervisors in order to maintain adequate oversight of all lifting work. We will focus our efforts to achieve 100% sector-wide implementation of the lifting plan by 2012.
- b. Enhancing self-regulation. Commitment to WSH must be illustrated through proactive actions to eliminate or reduce risks at workplace before they result in accidents. Self regulation is one such avenue. Recognizing

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this, we will be taking the lead in developing the Marine Industry Safety Engagement Team (MIndSET). Under this programme, participating companies will conduct 'cold eye' review on the WSH management system and cross inspection of the workplace amongst the shipyards. Through the participation in MIndSET, companies will gain a better understanding of their blind spots such that early intervention actions can be taken to close the gaps. This peer-to-peer sharing will create a robust exchange of WSH knowledge and practices.

- c. Ensuring the quality of sub-contractors. Many employers are not involved in the selection of sub-contractors when they engage the service of main contractors. While it is the responsibility of main contractor to ensure the quality of service to be delivered, it is often not the case. The main contractor tends to select sub-contractors who provide the services at the lowest cost. As a result, the sub-contractors will undercut to compete with their competitors. It is therefore important for the employers to specify the quality of sub-contractors required in the contract in terms of their WSH competencies and performance. Upon selection, the employers must continue to work closely with their sub-contractors to ensure they fulfill the expectations to carry out their work safely.

### **Key Area of Work #4**

#### **Strengthening stakeholders' involvement in WSH**

28. To ensure that improvements in the WSH performance of the marine sector are sustained, the commitment of all stakeholders to WSH in the marine sector is important. To create a sustainable culture whereby every worker is an advocate for WSH, we need to start from the top. Senior management plays a critical role in setting the tone for the WSH culture within their respective organisations. We can

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work with the marine sector industry associations to help senior management articulate and demonstrate their commitment to WSH, and translate their commitment into concrete initiatives. This would include helping them engage ship owners and ship crew on WSH requirements and matters.

- a. Creating platforms for senior management to demonstrate commitment.  
The “Pledge for Zero” (PfZ) aims to bring together the key players to achieve zero injury for the sector. As part of the PfZ, the top management who pledge their commitment to having a zero injury, will have to develop a structured plan for their company, detailing specific initiatives and milestones to meet the target of zero injury. The PfZ programme includes regular sharing platforms for the top management to share best practices and to benchmark their company’s safety performance against others. With the major shipyards signing the inaugural PfZ for marine sector, we aim to create a cascading effect to the smaller shipyards to likewise pledge their commitment towards improving their WSH standards. By 2018, we aspire for all registered shipyards to come on board the PfZ movement. With the strong commitment and involvement of senior management, we envisage that best practices will become the norm in shipyards and the marine sector will be able to take quantum leaps in terms of improvements in its WSH standards and performance.
  
- b. Strengthening the engagement of ship owners and crew. We need to address the challenge of ensuring that the work directed by ship owners is aligned with the WSH management systems of the shipyard. Shipyards must ensure that there is adequate oversight and coordination of the work of the ship crew, who are based in the shipyards on a short term basis and are relatively unfamiliar with the shipyard environment. They should brief ship owners on their WSH obligations and the shipyards’ WSH requirements before actual work on their ships commence. Any

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differences in the WSH procedures between the ship crew and shipyard must be addressed. The shipyard should also conduct regular briefings for the ship crew before and during their stay in the yard. Similarly for anchorage activities, the ship owners are obliged to align to WSH requirements set by MPA.

## **IMPLEMENTATION AND REVIEW**

29. An Action Plan has been charted out to implement the identified key areas of work. The details of this Action Plan can be found in Appendix A. The WSH (Marine Industries) 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 better reflect the changes in the operating environment and market sentiments.

## **CONCLUSION**

30. This document is the marine sector's plan to support the national WSH 2018. It sets out the targeted outcomes and key areas of work for WSH for the marine sector for the next ten years. This document was developed through extensive consultation with our stakeholders and partners, and we are committed to implementing this plan. The full implementation of this plan will mark a major milestone in driving the marine sector towards a safer and healthier workplace for all.



## **APPENDIX A – ACTION PLAN**

### **Key Area of Work #1: Effective Risk Management**

#### **Improving Risk Management (RM) Conducted by Contractors**

- Review and update the existing online Risk Compendium for the marine sector and include anchorage activities.
- Develop guidance materials to aid companies in conducting RM such as development of a step-by-step RM guide and pictorial illustration on RM implementation.
- Support WSH Council's effort in working with training providers and other relevant institutions to review training curriculum of RM training courses and customized them for better applicability in the marine sector.
- Establish regular feedback with industry associations and professional bodies through platforms such as the WSH (Marine Industries) Committee and Sub-Committees to get a better understanding of the demand for RM training courses in the industry and to ensure the market supply is sufficient to meet industry needs.

#### **Involving Ship Owners and Crew in Risk Management**

- To drive all shipyards to involve ship owners and crew in the risk assessment exercise

#### **Driving Implementation of Risk Management in the Smaller Shipyards**

- To achieve 100% RM implementation across the sector within three years. Encourage utilisation 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.
- To drive all larger shipyards to be bizSAFE partners within 3 years and encourage them to influence their downstream contractors to implement RM.
- To drive all contractors to attain at least bizSAFE level 3 and all resident contractors of major shipyards to attain bizSAFE Star,

## **ACTION PLAN**

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- To have 10 bizSAFE mentors in the marine sector within three years.
- To have all shipyards include WSH performance as part of the contractual term during project tenders within 3 years. One way is to establish industry buy-in to only engage bizSAFE-recognized companies during their selection of contractors
- Tap on large organisations and associations in order to reach out to anchorage repair contractors so as to raise their awareness on the importance of WSH.

### **Improving Incident Investigation**

- Assess gaps in organisations' incident investigation reporting system.
- Develop an incident management system to ensure proper reporting, analysis and sharing of incidents, including near misses.
- Develop incident investigation courses such that they focus on addressing systemic issues.
- Customise WSH statistical tool, originally developed by WSH (Construction and Landscape) Committee, for companies to track WSH performance.
- Develop and promote accident case studies.

### **Key Area of Work #2: Enhance WSH Capability Building**

#### **Marine Trade-specific Competency Courses**

- Evaluate effectiveness of the marine trade-specific competencies and regularly review the curriculum to ensure that it remains relevant.
- Integrate WSH into all trade-specific training courses.
- Develop WSQ-WSH professional competency standards for divers, crane operators and riggers.
- Promote and incentivise the adoption of WSQ courses
- Support WSH Council's initiatives to refine the WSH training framework for foreign workers to provide WSH training in the workers' home countries.

#### **Marine Industry Training Centre**

- Support the feasibility study of setting up a dedicated industry-led training centre for the marine sector.
- Work with industry associations, agencies and training providers to set up the Marine Industry Training Centre by 2013.

### **Raising Certification Standards for Supervisors and Line Managers**

- Explore the retention of a core pool of skilled and experienced supervisors and workers, and leverage on them to share their WSH knowledge and improve the WSH culture in the workplace.
- Enhance mandatory Shipyard Safety Instruction Course (SSIC) to anchorage sector, targeted at non-ship repairers.
- Raise the standard of the SSIC and include accountability and legal responsibilities of workers.
- Review and enhance the Safety Instruction Course for Ship Repair Managers and Shipyard Supervisors Safety Course (SSSC), incorporating legal accountability and responsibilities.
- Identify relevant soft skill trainings, such as effective communication skill, to be incorporate into supervisory and ship repair manager courses.

### **Supplementing Practical Assistance**

- Collaborate with MOM in the development and review of codes of practice and legislation to help the industry, especially the SMEs.
- Identify industry hot spots and develop guidance materials to educate the sector.
- Set good practices on accountability and responsibilities of various job functions in an organisation (e.g., senior management, line management, safety professionals).
- Supplement existing industry in-house orientation package by developing animated and pictorial guidance to aid learning for the new workers.
- Set up supporting industries to provide certification of activities. For example, to provide hot work assessors to smaller yards who may be constrained by resources.
- Compile best practices and develop tools to help companies implement these best practices.

- Gather feedback to improve existing programmes and initiatives, and further develop new ones.

### **Improving Management for Workplace Health**

- Develop programmes to raise awareness on occupational diseases, with particular emphasis on noise-induced deafness. This can include outreach activities and guidance materials to educate stakeholders on their obligations and measures for better workplace health management.
- Review and explore the feasibility of expanding the existing coverage for workers' health screening and to include periodic check-up during employment.
- Create awareness of workplace health among the management and communicate rising trends by incorporating workplace health components in general outreach efforts such as the CEO forums.
- Customise workplace health communication package to the marine sector and promote its implementation.

### **Enhancing WSH Statistics Collection for the Marine Sector**

- Identify missing information, measures and indicators in the current reporting system.
- Commission an in-depth study of the marine industries to develop suitable leading indicators and measures. The study will aim to develop a more holistic picture of WSH conditions and will also incorporate a human behavioural study.
- Support MOM's effort in conducting a workplace health baseline study to look into various health issues associated with the marine sector, including physical health (i.e. fatigue, ergonomics), psychological / mental health (well-being), adequate nutrition and hydration as well as other occupational diseases.

### **Tools to Benchmark WSH Performance**

- Develop a self assessment test sheet for companies to ascertain their existing WSH state. Depending on their WSH state, companies can then refer to a guide on how to address these gaps.

- Develop toolkits to assist companies in carrying out safety observation and intervention. This can comprise of checklists, samples for easy reference and guidance materials for observers in conducting effective safety observation and intervention.
- Support the development of the WSH culture index to measure and monitor the state of WSH culture in the marine sector.
- Promote WSH Council's efforts in developing a structured programme to help stakeholders build WSH culture within their respective organisations.
- Influence large organisations to pilot the culture building programme and share the experience with smaller companies so as to guide them through the programme.

### **Key Area of Work #3: Intervention Programmes**

#### **Industry-led Taskforces**

- Develop and execute programmes and measures based on findings of the diagnostic study to target efforts.
- Establish a plan on Confined Space Work to address associated WSH concerns within 2 years.
- Drive efforts of the national taskforce on Work at Height (WaH) safety to achieve 100% implementation of a fall protection plan within 3 years.
- Drive efforts of the national taskforce on safety in crane lifting operations to achieve 100% implementation of lifting plan within 3 years.

#### **Enhancing Self-regulation**

- Develop and pilot self-regulation model, Marine Industry Safety Engagement Team (MindSET) for the shipyards through 'cold eye' review where a neutral party reviews and critique on the WSH management of a shipyard.

#### **Ensuring Quality of Sub-contractors**

- To encourage employers to depict the quality of sub-contractor required, in terms of their WSH competencies and performance, in the contractual requirement when engaging main contractor.

## **Key Area of Work #4: Strengthening Stakeholders' Involvement in WSH**

### **Creating Platforms for Senior Management to Demonstrate Commitment**

- Provide regular platforms such as CEO forums to promote WSH to the management and to garner management buy-in. These platforms can also be used to influence the smaller shipyards or marine service providers to embrace WSH as integral part of business.
- Share information and conduct dialogue sessions with senior management of companies so as to facilitate exchange of innovative WSH ideas and best practices through platforms like the CEO round-table sessions.
- Implement the "Pledge for Zero" (PfZ) engagement programme and achieve 100% participation of all registered shipyards in the programme by 2018.

### **Strengthening the Engagement of Ship Owners and Crew**

- Promote WSH to ship owners through SSA such as seminars.
- Extend the requirements to undergo SSIC or similar WSH orientation courses to ship crew.
- Develop and disseminate pictorial guide and video on safe boarding of vessel at anchorage or dock. This is to improve the safety of contractors engaged by the ship owners.
- Develop and disseminate short guide on WSH Act for ship owners and their obligations.
- Enhance the communication on the requirements of WSH Act to ship owners.

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## **ACTION PLAN**

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