In 2007, the Workplace Safety and Health (WSH) Advisory Committee and the Ministry of Manpower (MOM) released the WSH 2015 Strategy to guide stakeholder efforts in improving WSH standards and outcomes for Singapore. A key prong in WSH 2015 is the building of strong capabilities to better manage workplace safety and health.

In April 2008, PM Lee Hsien Loong set a new target for WSH, challenging stakeholders to bring the number of workplace fatalities to below 1.8 per 100,000 workers by 2018. In order to achieve this outcome, capability building is even more imperative. We must equip employers, employees and WSH professionals with the right skills and capabilities to manage WSH and take responsibility for WSH outcomes. Supporting institutions – such as professional associations, industry bodies and training institutions – must also be in place in order to identify the skills required, and guide the development of such capabilities.

“Our original aim had been to halve the workplace fatality rate to 2.5 by 2015. This looks well within reach…we should set a more ambitious goal, to reduce the rate to 1.8 within a decade. We should aim not only for as good a safety record as the developed countries, but to have one of the best workplace safety records in the world. I am confident that we can achieve this, because if we analyse the accidents which are taking place, we can find many creative and innovative ways to tighten up safety standards and practices, to put right what we are still not doing properly, and to get our employers and workers trained and imbued with safety consciousness.”

Prime Minister Lee Hsien Loong at the Launch of the Workplace Safety and Health Council, 29 April 2008
Prior to the establishment of the new WSH framework in Singapore, WSH was largely seen as the sole responsibility of the Government, given its oversight on diverse issues such as standards setting, training delivery, outreach and promotion, and enforcement. Today, the Government remains an important stakeholder within the WSH ecosystem, given its role in overseeing the general direction of WSH through its policymaking, as well as its regulatory and enforcement role. However, it is recognised that to improve WSH standards and outcomes, we must involve and engage other stakeholders in the WSH ecosystem as well:

- **Industry** is a diverse group that includes business and employer associations such as the Singapore National Employers Federation, Singapore Business Federation and Association of Small and Medium Enterprises, trade associations such as The Singapore Contractors Association Limited and Association of Singapore Marine Industries, and broader industry-led bodies such as the WSH Council. Given its intimate knowledge and experience of the environment and processes at the workplace, industry is best placed to chart out the relevant WSH skills and capabilities required by workers in order to meet the demands of the job. Industry stakeholders also play a critical role in providing an environment which emphasises and rewards WSH excellence.

- **Unions** represent the interests of workers, and they are well-placed to proactively promote WSH awareness and WSH training. Together with industry, unions play a critical role in jointly creating an environment that emphasises and rewards WSH excellence.

- **Employers**, in particular the senior management, play an influential role in raising WSH capabilities within the company. They are accountable for the WSH outcomes of their organisations, in the same way that they are accountable for other business
In 2008, the total size of the Singapore workforce was about 2.9 million, of which 1.9 million were residents and 1 million were non-residents. 

Workers form the group that often suffers the most when safety and health lapses occur at the workplace. Failure to observe WSH procedures at this level can also result in adverse consequences. It is therefore critical that this group is provided with adequate training to understand the importance of WSH and how to work safely.

WSH professionals and specialists are another important group of stakeholders, providing assistance to employers in monitoring and improving safety management at the workplace. They can drive capability building efforts, by identifying WSH gaps within the organisation. WSH professionals include WSH auditors, officers and coordinators, while WSH specialists include diverse occupations ranging from industrial hygienists to noise control officers.

Professional and educational institutions and service providers play a supporting role within the WSH ecosystem. Professional institutions help set professional standards and raise the professionalism of WSH practices by providing continuing education and training to their members. Training providers and consultancies provide training and expert advice to raise safety standards. The tertiary educational institutions also provide WSH training – at the pre-employment stage and through continuing education – and also conduct research into WSH issues.

Approximately one-third of the workforce has received some form of WSH training. Most of them are workers and supervisors in riskier sectors such as construction, shipbuilding and ship-repair, oil and petrochemicals and metalworking, where WSH training is mandated by law. The focus of the training – through courses such as the Construction Safety Orientation Course or the Forklift Driver’s Training Course – is to educate the workers and supervisors on the risks inherent in their work and how they can manage these risks to work safely. WSH professionals and specialists are another key group of recipients of WSH training.

### WSH Professionals and Personnel Supporting the Industry

<table>
<thead>
<tr>
<th>Professional and Competent Persons</th>
<th>Estimated Number</th>
<th>As of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent persons for management of hazardous substances</td>
<td>1511</td>
<td>2008</td>
</tr>
<tr>
<td>Competent persons for sampling and monitoring of airborne contaminants</td>
<td>390</td>
<td>2008</td>
</tr>
<tr>
<td>Designated factory doctors</td>
<td>672</td>
<td>2008</td>
</tr>
<tr>
<td>Noise control officers</td>
<td>348</td>
<td>2008</td>
</tr>
<tr>
<td>Noise monitoring officers</td>
<td>994</td>
<td>2008</td>
</tr>
<tr>
<td>Occupational health nurses</td>
<td>205</td>
<td>2007</td>
</tr>
<tr>
<td>Occupational hygienists</td>
<td>20</td>
<td>2008</td>
</tr>
<tr>
<td>Occupational physicians</td>
<td>32</td>
<td>2007</td>
</tr>
<tr>
<td>Occupational physiotherapists</td>
<td>500</td>
<td>2007</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>320</td>
<td>2007</td>
</tr>
<tr>
<td>Workplace safety and health auditors</td>
<td>161</td>
<td>2008</td>
</tr>
<tr>
<td>Workplace safety and health coordinitors</td>
<td>2038</td>
<td>2008</td>
</tr>
<tr>
<td>Workplace safety and health officers</td>
<td>1580</td>
<td>2008</td>
</tr>
</tbody>
</table>

Note: The table above is not exhaustive as it does not include supervisors who perform safety and health functions.

1. These are doctors who have undergone training in occupational health and are registered with the Ministry of Manpower.
2. Medical specialists registered with the Singapore Medical Council.
The Structure and Delivery of WSH Training

There have been many changes to the WSH training landscape in recent years. Up to 2005, MOM’s Occupational Safety and Health Training and Promotion Centre had been the major provider of WSH training in Singapore. It trained some 130,000 workers, supervisors, managers and WSH professionals annually. It also accredited private training organisations under the Accredited Training Providers (ATP) Certification Scheme to conduct WSH training courses mandated under the law. In 2006, MOM devolved its training function to the ATPs in order to focus on setting the curriculum and standards for WSH training.

In September 2006, another step was made towards greater industry involvement in WSH training, with the establishment of the WSH-Manpower, Skills and Training Council (WSH-MSTC) under the auspices of WDA’s Workforce Skills Qualifications (WSQ) system. The WSQ system is designed to facilitate adult learning, make skills upgrading more accessible to the workforce and provide career progression pathways for them. The WSH-MSTC, which comprises 18 representatives from industry partners, was tasked to take the lead on manpower and capability development issues relating to WSH. Its role includes identifying the skills and capabilities required by WSH professionals, and a framework to deliver them. With the formation of the industry-led WSH Council in April 2008, industry’s role in WSH training has been further strengthened.

Notwithstanding these shifts towards greater industry ownership and involvement in matters relating to WSH training, MOM continues to play a significant role in this area. The WSH Act requires employers, as part of their duty to take “reasonably practicable” measures to ensure the safety and health of their employees at work, to ensure that their employees have adequate training to perform their work. It also prescribes mandatory WSH courses for various groups of workers, supervisors and managers. Moreover, MOM continues to ensure the quality of the training delivery through the ATP scheme, under which about 100 private training organisations are accredited as of December 2008. In addition, MOM sets the standard for WSH professionals by regulating the types of qualifications and training they must attain and prescribes through legislation the appointment of such professionals by companies.

WSH Training Courses Currently Conducted By Accredited Training Providers

<table>
<thead>
<tr>
<th>Workplace Safety and Health Personnel</th>
<th>Managers</th>
<th>Supervisors</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confined Space Safety Assessor Course*</td>
<td>Risk Management Course</td>
<td>Basic Industrial Safety and Health Course for Supervisors</td>
<td>Compressed Air Works Course (Man Lock Attendant and Medical Lock Attendant)*</td>
</tr>
<tr>
<td>Industrial Audiology Course*</td>
<td>Safety Instruction Course for Ship-repair Managers</td>
<td>Building Construction Supervisors Safety Course*</td>
<td>Construction Safety Orientation Course for Workers*</td>
</tr>
<tr>
<td>Industrial Noise Control Course*</td>
<td>Workplace Safety and Health Management System Course</td>
<td>Building Construction Safety Supervisors (Tunnelling) Course*</td>
<td>Explosive Powered Tools Operators’ Course*</td>
</tr>
<tr>
<td>Management of Hazardous Substances Course*</td>
<td>Workshop for CEO / Top Management</td>
<td>Formwork Safety Course for Supervisors*</td>
<td>Forklift Driver’s Training Course*</td>
</tr>
<tr>
<td>Manhole Safety Assessors Course*</td>
<td>Lifting Safety Course for Supervisors*</td>
<td>Marine Metal Scaffolding Course for Scaffolders*</td>
<td>Metal Scaffold Erection Course*</td>
</tr>
<tr>
<td>Noise Monitoring Course*</td>
<td>Marine Metal Scaffolding Course for Supervisors*</td>
<td>Oil/Petrochemical Industries Safety Orientation Course for Workers*</td>
<td></td>
</tr>
<tr>
<td>Occupational First Aid Courses (formerly Industrial First Aid Courses)*</td>
<td>Metal Scaffold Erection Supervisors Course*</td>
<td>Oil/Petrochemical Industries Safety Orientation Course for Workers*</td>
<td></td>
</tr>
<tr>
<td>Safety Co-ordinators Training Course*</td>
<td>Oil/Petrochemical Industry Safety Course for Supervisors*</td>
<td>Riggers Course*</td>
<td></td>
</tr>
<tr>
<td>Safety Officers Training Course*</td>
<td>Safety Instruction Course (Manhole) for Supervisors*</td>
<td>Safety Orientation Course (Manhole) for Workers*</td>
<td></td>
</tr>
<tr>
<td>Shipyard Safety Assessors (Hot-work Certification) Course*</td>
<td>Shipyard Supervisors Safety Course*</td>
<td>Safety Orientation Course (Tunnelling) for Workers*</td>
<td></td>
</tr>
<tr>
<td>Workshop for Safety Auditors</td>
<td>Suspended Scaffold Supervisors’ Course*</td>
<td>Safety Orientation Course for Workers (Metallworking)*</td>
<td></td>
</tr>
<tr>
<td>Signalmen Course*</td>
<td>Suspended Scaffold Riggers’ Course*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Courses mandated under the law
In order to develop Singapore as a Centre of Excellence for WSH and to attain our target of bringing the number of workplace fatalities to below 1.8 per 100,000 workers by 2018, we must first create a stronger and more inclusive WSH ecosystem in which each stakeholder plays an effective role.

Good WSH outcomes can come about only through the conscious efforts of all relevant stakeholders to improve safety and health management. By 2018, most members of the workforce should have a basic knowledge of WSH issues relevant to their work. Workers in traditionally riskier sectors should be equipped with the appropriate WSH competencies to manage the risks in their work, while workers in less risky environments – such as retail shops or office environments – could be equipped with a basic awareness of safety and health at the workplace.

The WSH training provided to stakeholders should be world class. This will ensure that our workers and WSH professionals are highly regarded internationally for their understanding and management of WSH issues and highly sought after.

By 2018, we will see a larger pool of WSH professionals catering to the increased demand for their services from Singapore-based companies placing a growing emphasis on WSH. We are targeting to grow the size of the local pool of WSH professionals to 19,000-strong by 2018. To attract new entrants to the profession, we will work to position the profession as a choice career. Our pool of locally-trained WSH professionals will also be supplemented by WSH expertise from abroad; even as some of our locally-trained professionals venture abroad to offer their services internationally, our WSH institutions will serve as a magnet to attract WSH practitioners from overseas to Singapore. The flow of WSH expertise through Singapore will help create a vibrant community of practitioners in which a lively exchange of ideas and best practices on WSH can take place.

Equipping a growing pool of WSH professionals and a broader range of stakeholders with core WSH skills that are in tune with latest developments at the workplace will entail a deepening of our capabilities to provide WSH training and support. We will work closely with WDA and other partners to increase our...
By 2018, we will also see industry taking on a more prominent role in driving the provision of WSH training. While MOM and WDA will continue to play a role in WSH training through the WSQ framework, the trade associations and industry bodies will take the lead in developing courses that could fall outside the WSQ framework given their small target audience or the depth of knowledge required. Such courses will include those focusing on topics such as landscape orientation and occupational safety first aid.

Apart from strengthening industry’s role in ensuring WSH outcomes through the provision of training, 2018 will also see personal ownership of WSH strengthened. All stakeholders will regard WSH as a matter of course and view safety and health as a way of life, rather than as a set of rules and procedures to be adhered to, with penalties imposed for non-compliance. At the workplace, WSH management will therefore be a team effort, rather than a supervisor-led initiative, with workers watching out for one another and proactively correcting any lapses in safety.
and standards, the assessment of course graduates across different ATPs and from different batches can be inconsistent. The new WSH Professionals WSQ framework addresses this issue by providing a common benchmark against which the knowledge and skills of different trainees from different ATPs can be measured objectively.

Providing A Definitive Path For WSH Professionals To Upgrade Themselves
Under the design of the new WSH Professionals WSQ framework, the training curricula for WSH auditors, officers, coordinators and representatives are complementary and build upon each other. This provides a clear pathway for WSH professionals to upgrade their skills.

Greater Flexibility For WSH Professionals
The following features of the new training framework offers WSH professionals greater flexibility:
- The new framework will adopt a modular approach. For instance, where course participants previously had to take an entire course covering issues relating to occupational safety, occupational health and safety management systems, they will in future be able to break up their learning into different modules on say, investigation of WSH incidents, risk assessment and hazard identification. This allows WSH professionals to better manage their pace of learning. They may also be exempted from specific modules if they have demonstrated competencies in these areas, thereby allowing them to customise their learning.
- Where previously, entry into the various WSH training programmes was based mainly on training and academic credentials, the new competency framework recognises work experience.
- The new framework also offers industry-specific elective modules to allow WSH professionals in a particular sector to develop specialised skills relevant to their area of work. For example, courses focusing specifically on risk management in the construction industry could be designed for WSH professionals from that sector.

Equipping Stakeholders With The Right Skills And Capabilities
It is essential that WSH professionals, management, employees and other relevant stakeholders take responsibility for WSH outcomes. For them to do so effectively, they must be equipped with the appropriate WSH competencies to manage WSH issues. WSH competencies go beyond technical knowledge of WSH matters. Specifically, they refer to the skills and behaviours that stakeholders must demonstrate or acquire, in order to achieve high levels of WSH performance.

It is not enough, for instance, for a WSH officer to know in theory the various aspects that a safety management system should cover. He should also be able to communicate to his co-workers the procedures required to effectively implement the WSH management system in the company. Similarly, it is inadequate for a construction worker to just know the safety rules when working at height. Instead, under a competency-based training framework, he must appreciate the need for the safety rules, like donning a safety harness, and act accordingly in a safe manner.

WSH Professionals
WSH Professionals WSQ Framework
To equip WSH professionals with the relevant technical competencies, the WSH-MSTC has developed a competency framework under the WSQ system. The new WSH Professionals WSQ Framework has the following key features:
- Competency-Based Learning
Previously, WSH training courses focused on delivering technical knowledge of safety management systems, rather than a set of competencies for WSH professionals to manage their duties. The new WSH Professionals WSQ framework places emphasis on a competency-based, rather than theory-based, approach to training, by setting out expected competency outcomes for the various training modules.

- Establishing A Common Framework For Assessment
Previously, ATPs would adopt the course outlines specified by MOM but set their own assessment frameworks. In the absence of a common assessment framework and standards, the assessment of course graduates across different ATPs and from different batches can be inconsistent. The new WSH Professionals WSQ framework addresses this issue by providing a common benchmark against which the knowledge and skills of different trainees from different ATPs can be measured objectively.

There are two prongs to our efforts to building WSH capabilities in Singapore:
- Equipping stakeholders with the right skills and capabilities; and
- Building strong supporting institutions to guide the identification and development of such skills and capabilities.
By providing a clear pathway for career progression and upgrading, the framework will raise the stature and professionalism of WSH practice, thereby supporting our efforts to attract more people into the WSH profession. To help bring more people into the profession we will provide funding support for new entrants to the profession – such as scholarships – training under the WSH Professionals WSQ framework. We will work closely with WDA and other partners to increase our training capacity on this front.

Upgrading Competencies Of Existing WSH Professionals
We will also provide support to existing professionals to upgrade their competencies. Companies sending their workers for training under the WSH Professional WSQ framework will be given funding support. We will also introduce bridging courses for existing WSH professionals. These courses will help align their competencies with those under the new WSQ framework, by addressing any competency gaps in specific areas such as the management of internal WSH audits and behavioural safety programmes.

Strengthening Continuing Professional Development
The current continuing professional development (CPD) system is focused on WSH officers registered with MOM, awarding them credits when they undergo relevant courses, which in turn count towards the renewal of their registration. Moving forward, the CPD system will be expanded beyond registered WSH officers, to include other WSH professionals such as WSH auditors and coordinators. The awarding of credits will also be better structured and geared towards ensuring that the competencies of WSH professionals remain relevant and keep pace with the latest WSH developments. Firstly, to encourage WSH professionals to identify and address any competency gaps, more credits can be awarded for courses serving to plug such gaps. This is an approach that has been adopted in the UK. Secondly, to encourage WSH professionals to strengthen their sector-specific competencies, more credits can be awarded for courses that are directly relevant to the industry that the WSH professional is working in. Thirdly, to help newly-qualified WSH professionals or WSH professionals who have switched industries assimilate into their new roles, the CPD system can award credits for on-the-job training.

Developing WSH Consultants And Specialists
The WSH Council will also work with the relevant professional bodies to gradually expand the competency framework to address the professional development of not only WSH auditors, officers, coordinators and representatives, but also WSH consultants and specialists such as industrial hygienists and competent persons involved in the assessment and control of WSH risks (such as noise and chemical monitoring and control officers).
Broad-based WSH competencies refer to the basic competencies and management tools that are portable across different industries, such as developing WSH policies and procedures, managing work behaviors, identifying and eliminating WSH hazards.

Meanwhile, WSH trade-specific competencies refer to WSH competencies required to work in a particular industry such as construction or marine. An example of this would be signaling and rigging.

The General Workforce

Members of the general workforce should be equipped with the relevant broad-based, as well as trade-specific WSH competencies that will enable them to manage WSH risks and respond to these risks appropriately. However, the tools and competencies that members of the workforce are equipped with must be tailored to their respective roles within the company – as a leader, middle manager or a worker on the ground.

- **Senior Management**
  The commitment of senior management is vital in driving WSH improvement efforts towards the targeted WSH outcomes. Commitment to WSH can be demonstrated through various avenues, such as reinforcing a company’s WSH policy and goals and publishing a company’s WSH performance in its annual report, conducting management audits on WSH and rewarding employees for good safety outcomes. To facilitate the exchange of ideas between industry leaders on this issue, the WSH Council could launch a CEO roundtable on WSH.

- **Line Supervisors, HR And Middle Management**
  This group of employees is typically responsible for translating management commitment into concrete WSH efforts for workers. They have a strong influence on workers’ behaviour and play an important role in establishing a strong WSH culture that permeates throughout the organisation. Accordingly, they should be equipped with WSH management skills that will enable them to identify potential hazards in the workplace, coach workers to deal with these hazards and ensure that safety procedures and programmes are properly implemented on the ground. They will also need to be trained in behavioural observation skills to identify and correct any unsafe acts and behaviours. To support the development of these competencies, the WSH Council will work with the industry and trade associations to develop WSH management tools that managers can refer to in their daily work. This includes WSH management guidelines to help managers understand and discharge their WSH responsibilities such as the conduct of observation audits on WSH practices. The WSH Council and WSH MSTC will also explore incorporating WSH modules into the HR WSQ to help HR managers develop a better appreciation of WSH issues and their management.

- **Workers**
  All workers should be equipped with basic WSH skills – such as the identification of safe and risky work behaviours to enable them to perform their tasks safely. They should be educated on their rights to a safe and healthy workplace, coach workers to deal with these hazards and ensure that safety procedures and programmes are properly implemented on the ground. They will also need to be trained in behavioural observation skills to identify and correct any unsafe acts and behaviours. To support the development of these competencies, the WSH Council will work with the industry and trade associations to develop WSH management tools that managers can refer to in their daily work. This includes WSH management guidelines to help managers understand and discharge their WSH responsibilities such as the conduct of observation audits on WSH practices. The WSH Council and WSH MSTC will also explore incorporating WSH modules into the HR WSQ to help HR managers develop a better appreciation of WSH issues and their management.

To inculcate safety consciousness in the general workforce at an early stage, we will work towards integrating WSH awareness modules into the pre-employment training framework, i.e. in the syllabi of schools and tertiary institutions. Basic WSH competencies can also be further integrated into the technical courses at tertiary institutions such as engineering and nursing.

Building Strong Supporting Institutions

Enhancing the Role of Industry Bodies

Greater industry ownership of WSH outcomes is one of the key principles underpinning Singapore’s WSH framework. In parallel with recent moves for the industry to play a more prominent role in various aspects of WSH management, from the setting of acceptable practices to outreach and engagement, industry has also been playing a larger role in WSH competency building. Industry bodies such as the
Creating a World-Class WSH Institute

The emergence of new technologies will bring about changes to both the workplace and work processes. Our capability building efforts must keep pace with these changes to ensure that the workforce is prepared to meet the challenges that such shifts may present. The creation of a world-class WSH Institute focussed on the pursuit of WSH excellence in various areas such as training, research and development and the provision of WSH services will be an important aspect of such efforts. The WSH Institute will bring together different stakeholders and segments of the WSH ecosystem ranging from industry leaders to WSH professionals to academics, to exchange ideas and expertise on WSH matters. For instance, these institutes can provide consultancy and research services to industry, developing tailored programmes and tools to address the WSH challenges that companies may be facing. WSH practitioners can upgrade their skills at these institutes through specialised WSH programmes, or broaden their exposure by working with researchers to translate their experience into new tools and processes. They can also be engaged as trainers to share their experience on the ground. In summary, our vision is for the WSH Institute to serve as:

• Provider of advanced and/or specialised WSH training courses;
• Centre for curriculum development and world class research on WSH;
• Nexus between academia and industry;
• Resource centre for WSH; and
• Platform to showcase and eventually export Singapore's WSH capabilities.
CONCLUSION

This document proposes initiatives to strengthen and deepen WSH capabilities within the workforce. It will guide our efforts - the Government, industry, WSH professionals, employers, workers and other stakeholders alike - to achieve the new WSH target of bringing the number of workplace fatalities to below 1.8 per 100,000 workers by 2018 and our vision of a safe and healthy workplace for everyone and a country renowned for best practices in WSH.