



Occupational Safety and Health Profile

SINGAPORE

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1. Occupational Safety and Health (OSH) Framework

In 2005, the government undertook a fundamental reform in our OSH framework in order to achieve a quantum improvement in the safety and health for our workers. The target was set to halve the current occupational fatality rate within 10 years (from 4.9 fatalities per 100,000 workers in 2004 to 2.5 in 2015) and attain standards of the current top ten developed countries with good safety records. In terms of accident statistics, Singapore ranks below most of the countries in the European Union.

The intent of the reform was to address the stagnation in our safety performance. Since 2001, our accident rates have been hovering at around 2.2 industrial accidents per million man hours worked. We recognised that we would continue to stagnate if we were to only make incremental changes to the framework. Furthermore, major workplace accidents in 2004 also added impetus to the need for a fundamental reform.

The new framework is guided by the following 3 principles:

(i) Reduce risks at source by requiring all stakeholders to minimise or eliminate risks which they create.

Our former approach focused on addressing risks presented at the physical workplace instead of tackling them at source. The underpinning principle under the new framework is to prevent or mitigate risks at source, and not to merely accept or respond to existing risks. All workplaces thus need to conduct risk assessments to help identify the sources of risks, actions that should be taken and parties responsible for doing so.

In line with this principle, the parties who create the risks would be held accountable for managing and reducing those risks. Occupiers, employers, suppliers, manufacturers, designers and persons at work, will all be held responsible for identifying potential risks and taking appropriate actions to mitigate such risks at source. For instance, top management bears overall responsibility for the safety of the workplace. They have the responsibility to put in place adequate safety management systems and ensure these are complied with. They are also expected to appoint personnel with the right skills and experience to manage safety as well as provide them with adequate resources, training and powers to carry out their duties effectively. Architects and engineers are responsible for designing construction projects that are safe to build and maintain. Manufacturers and suppliers are responsible for ensuring that the machineries they supply or maintain are safe to be used in the workplace. Workers have a responsibility to adopt safe work practices. Every person at work is to accept responsibility for his own safety, for those under his charge and those he affects through his work.

(ii) Industry will be required to take greater ownership of safety outcomes.

The former legislation was more prescriptive, with safety requirements spelt out in detail. This created a mindset amongst the management and its employees to simply follow the “letter of the law” and not address safety issues that fell outside the legislation. Given the pace of technological changes and differing work processes across industries, legislation will always lag behind safety risks. This is an unsatisfactory situation.

Under the new framework, the legislation and enforcement will move from its prescriptive orientation to a performance-based one. Nonetheless, some prescriptive measures for hazardous sectors and activities will be retained. In general, the new framework will make it the responsibility of managers and workers to develop work and safety procedures suited to their particular situations in order to achieve the desired safety outcomes.

(iii) Prevent accidents through higher penalties for poor safety management

Under the former legislative regime, safety lapses resulting in mishaps were severely penalised but the penalties for offences were much lower in the absence of mishaps. Such a regime encourages the industry to tolerate sub-optimal safety practices until accidents occur. Hence, the new OSH framework seeks to impose greater financial disincentives and penalties on workplaces with unsafe practices and systems, even if accidents did not occur. This will create an environment where all workplaces find it more cost effective to improve their safety management systems.

2. Statistics on Workplace Injuries and Diseases

2.1 Workplace Safety and Health Indicators by Industry, 2006

Industry	Fatality Rate	Injury Rate	Accident Frequency Rate	Accident Severity Rate	Disease Incidence
TOTAL	3.1	469	1.9	125	33.3
Manufacturing (excluding shipbuilding and ship repairing)	1.7	662	2.6	93	105.1
Shipbuilding and Ship Repairing	9.8	622	2.2	257	66.3
Construction	9.4	945	3.5	272	20.4
Other Sectors	1.7	288	1.3	86	8.4

Source : Occupational Safety and Health Division, MOM

Notes:

- 1) Industries are classified according to the Singapore Standard Industrial Classification (SSIC) 2005.
- 2) Figures are based on incident reports made under the Factories Act (Jan-Feb 2006) and the Workplace Safety and Health (Incident Reporting) Regulations (Mar-Dec 2006).
- 3) Fatality rate refers to the number of workplace fatalities per 100,000 employed. Figures used are victim-based.
- 4) Injury rate refers to the number of fatal and non-fatal workplace injuries per 100,000 employed. Figures used are victim-based.
- 5) Accident frequency rate refers to the number of workplace accidents per million man-hours worked. Figures used are incident-based.
- 6) Accident severity rate refers to the number of man-days lost to workplace accidents per million man-hours worked.
- 7) Disease incidence refers to the number of occupational diseases (chronic confirmed cases) per 100,000 persons employed. A confirmed case of occupational disease is one where there is definite evidence that the worker suffers from a disease which is related to his occupation.

Refer to **Annex A** for a more detailed breakdown of statistics for 2006

2.2 Workplace Injuries by Industry and Degree of Disablement, 2006

Industry	Total	Fatal	Permanent disablement	Temporary disablement
TOTAL	9,261	62	168	9,031
Manufacturing (excluding shipbuilding and ship repairing)	2,748	7	82	2,659
Shipbuilding and Ship Repairing	638	10	16	612
Construction	2,415	24	27	2,364
Other Sectors	3,460	21	43	3,396

Source : Occupational Safety and Health Division, MOM

Notes:

- 1) Industries are classified according to the Singapore Standard Industrial Classification (SSIC) 2005.
- 2) Figures are based on incident reports made under the Factories Act (Jan-Feb 2006) and the Workplace Safety and Health (Incident Reporting) Regulations (Mar-Dec 2006).
- 3) Figures are victim-based.

Refer to **Annex A** for a more detailed breakdown of statistics for 2006

2.3 Workmen's Compensation

Table 1. Workmen's Compensation Claims Awarded by Degree of Incapacity, 2006

	Temporary Incapacity ¹	Partial Permanent Incapacity ²	Total Permanent Incapacity ³	Fatal	Total
Number of cases awarded compensation	10,066	5,649	23	79*	15,817
Amount of compensation awarded (S\$m)	3.77	58.40	3.19	7.42	72.78

Source: Ministry of Manpower, Singapore

Note:

The Workmen's Compensation Act (WCA) requires the employer to report all accidents including occupational diseases involving his workmen to the Ministry. A workman is defined as any person employed as a manual worker or as any person employed with a monthly salary of less than S\$1,600 as a non-manual worker.

¹ Refers to injury where the incapacity is of temporary nature. Such incapacity reduces the earnings of the workman in any employment in which he was engaged at the time of his accident resulting in his incapacity.

² Refers to injury where the incapacity is of permanent nature. Such incapacity reduces his earnings capacity in every employment which he was able to undertake at the time of his accident.

³ Refers to incapacity, whether of temporary or permanent nature, which incapacitates a workman for all work which he was capable of undertaking at the time of the accident resulting in such incapacity.

* The 79 fatal cases awarded compensation in 2006 include fatal cases that occurred in earlier years.

3. OSH Legal Framework

This section outlines the various legislations governing OSH in Singapore.

3.1 Workplace Safety and Health Act (WSHA)

In Singapore, the key legislation in OSH is provided for under the WSHA which is administered by the Commissioner for Workplace Safety and Health. The WSHA, which came into effect on 1 March 2006, replaced the Factories Act (FA). The WSHA is the key legal instrument to realise the new OSH framework, and is intended to inculcate good safety habits and practices in all individuals at workplaces. The new Act is designed to protect employees as well as any other persons who may be affected by the work being carried out at the workplace. In the first phase, the Act covers high risk workplaces such as construction sites, shipyards and general factories. These workplaces collectively employ around 700,000 persons. The coverage of the Act will be progressively expanded to all workplaces.

The new Act departs from taking a prescriptive stance under the former FA and introduces a performance-based regime. It emphasizes the importance of managing workplace safety and health proactively by requiring stakeholders to take *reasonably practicable measures* to ensure the safety and health of workers and other people that are affected by the work being carried out. The WSHA also assigns liability to those who create and have management and control over the safety and health risks. The stakeholders include the occupier, employer, principals, employees, manufacturers and suppliers as well as persons who erect, install or maintain equipment and machinery.

Under the Act, corporate offenders can be fined up to a maximum of \$500,000 while individuals are liable for a maximum fine of \$200,000 or an imprisonment for a term not exceeding 2 years or both.

3.2 Workplace Safety and Health Subsidiary Legislation

Besides the main Act, 7 subsidiary legislations have also been made under the new Act. Together with the remaining 18 subsidiary legislations made under the former Factories Act, they constitute the legislative framework to ensure workplace safety and health. The subsidiary legislations are listed and summarized in **Annex B**.

One of the key subsidiary legislation is the WSH (Risk Management) Regulations, which require employers to conduct risk assessment on the work they are undertaking and take steps to eliminate or reduce the risks that workers are exposed to. The intention of the legislation is to enshrine risk assessment as an integral part of business operations so that workplace safety and health risks are proactively reduced.

3.3 Workmen's Compensation Act (WCA)

The WCA complements the WSHA by regulating workmen's¹ right to compensation in the event of injury, death or occupational diseases contracted during employment. The WCA requires employers to insure their workmen, who are entitled to claim workmen's compensation. The workmen's compensation insurance (WCI) is provided by the private sector and the premiums are market-driven. The WCI offers a lump sum payment to the injured workmen for any degree of permanent incapacity sustained in the accident, as well as medical leave wages and medical expenses incurred in the treatment of the injuries. Coverage for compensation is also extended to the dependants of workmen who succumbed to fatal accidents.

Employers who fail to insure their workmen are liable upon conviction to a fine not exceeding \$10,000 or to imprisonment for a term not exceeding 12 months or both.

Some companies have offered the same entitlements under the WCA to workers who are not classified as "workmen" under the Act. Personal accident insurance or group insurance negotiated between employers and workers are alternative versions to the workmen's compensation insurance for these non-workmen.

3.4 Other Relevant Legislations

Other relevant legislations that have an impact on worker's safety and health include the Environmental Pollution Control Act, Radiation Protection Act, Fire Safety Act and subsidiary legislation. These are administered by other government agencies.

3.5 Codes of Practice & other Guidelines

Besides legislation, Codes of Practice (CP) provide practical guidance on what constitute safety practices for specific work areas. These CP are jointly developed by the industry and regulatory agencies under the auspices of the Standards, Productivity and Innovation Board (SPRING Singapore). The Ministry of Manpower also issues guidelines on specific subject matters such as handling and removal of asbestos to complement regulations on the subject.

Under Section 39 of the Workplace Safety and Health Act (WSHA), the Commissioner for Workplace Safety and Health may approve Codes of Practice for the purpose of providing practical guidance on safety and health to the industry. The Approved Codes of Practice (ACOP) are intended to be used as a yardstick to assess whether reasonably practical measures have been taken with regards to the upkeep of safety and health standards at the workplace.

Based on the recommendations of the Workplace Safety and Health Advisory Committee (WSHAC), the Commissioner has approved 23 Codes of Practice. The effective date of the implementation of the ACOP was 1 May 2007. A list containing the

¹ "Workmen" are defined as those employed by way of manual labour regardless of their earnings and non-manual workers earning \$1,600 a month or less, but exclude domestic servants, police officers, outworkers, and family members of the employer who dwells with him in his house.

ACOP as well as other relevant legislation and guidelines pertaining to occupational safety and health issues may be found in Annex C.

3.6 ILO Conventions

As a member state of the International Labour Organisation (ILO), Singapore is committed to observing internationally recognised core labour standards, including those related to OSH. Periodic reviews of our labour policies and laws are done to be in line with international standards. Out of a total of 20 ILO Conventions ratified (see table below), five are core Conventions relating to the fundamental principles of the freedom of association, abolition of child labour, equality and abolition of forced labour.

Table 2: ILO Conventions Ratified and In Force

S/N	ILO Convention Number	Convention
1.	8	Unemployment Indemnity (Shipwreck) Convention, 1920
2.	32	Protection against Accidents (Dockers) Convention (Revised)
3.	45	Underground Work (Women) Convention, 1935
4.	16	Medical Examination of Young Persons (Sea)
5.	19	Equality of Treatment (Accident Compensation) Convention, 1925
6.	22	Seamen's Articles of Agreement Convention, 1926
7.	29*	Forced Labour Convention, 1930
8.	50	Recruiting of Indigenous Workers Convention, 1936
9.	11	Right of Association (Agriculture) Convention
10.	12	Workmen's Compensation (Agriculture) Convention, 1921
11.	64	Contracts of Employment (Indigenous Workers) Convention, 1939
12.	65	Penal Sanctions (Indigenous Workers) Convention, 1939
13.	81	Labour Inspection Convention, 1947
14.	86	Contracts of Employment (Indigenous Workers) Convention, 1947
15.	88	Employment Service Convention, 1948
16.	94	Labour Clauses (Public Contracts) Convention, 1949
17.	98*	Right to Organize and Collective Bargaining Convention, 1949
18.	100*	Equal Remuneration Convention, 1951 (Ratified on 30 May 2002)
19.	138*	Minimum Age, 1973 (Ratified on 7 Nov 2005)
20.	182*	Worst Forms of Child Labour Convention, 1999 (Ratified on 14 Jun 2001)

* refers to ILO Core Conventions

4. Authorities or Bodies Responsible for OSH

This section describes the regulatory agencies and industry bodies that are responsible for OSH in Singapore.

4.1 Ministry of Manpower

Legislations relating to OSH are administered by the Ministry of Manpower (MOM). MOM's mission is to work with employers and employees to achieve a globally competitive workforce and great workplace, for a cohesive society and a secure economic future for all Singaporeans. Ensuring that our workplaces are safe and healthy for the workforce contributes to the overall mission of creating a great workplace.

The Occupational Safety & Health Division (OSHD) is the division within MOM primarily responsible for ensuring standards and promoting the safety, health and welfare of the workforce.

Occupational Safety & Health Division

OSHD promotes OSH at the national level. The Division works with employers, employees and all other stakeholders to identify, assess, and manage workplace safety and health risks so as to eliminate death, injury and ill-health. For financial year 2006, the OSHD operates on a budget of around S\$24 million.

The Division is headed by the Commissioner for Workplace Safety and Health and is staffed by approximately 270 officers with about 150 *gazetted* inspectors across six departments performing different functions:

- **OSH Inspectorate**

This department focuses on reducing risks from safety and health hazards through workplace inspections, investigation of accidents, conducting enforcement action where necessary and provision of advice and guidance through local programmes.

- **OSH Specialist Department**

This department provides specialist support and guidance in OSH to meet the needs of our stakeholders. It works in close collaboration with our partners, through programmes and activities in the areas of OSH standards, research and best practices.

- **OSH Policy and Planning Department**

Vision

A safe and healthy workplace for everyone; and a country renowned for best practices in Occupational Safety and Health.

Mission

To eliminate death, injury and ill-health from all workplaces

This department focuses on developing and reviewing policies and legislation in fundamental and strategic OSH issues. The department also oversees and coordinates the planning and development of major national programmes by the Division.

- **OSH Information Centre**

The Information Centre supports the development of OSH policies and strategic planning by providing relevant information and statistics through effective management of useful databases and IT systems, timely processing of incident reports, as well as research and analysis.

- **OSH Industrial Capability Building Department**

This department aims to create a strong OSH structure in workplaces through the promotion of OSH best practices and setting OSH competency standards for the workplace with the intention to build the capability of the industry to better manage workplace safety and health.

- **OSH Corporate Services Department**

This department assists injured workers and dependants of deceased workers to receive fair workmen's compensation for work-related injuries or deaths expeditiously, processes applications for various licenses such as registration of factories, pressure vessels, etc as well as provides corporate support services to the whole division.

4.2 Workplace Safety and Health Advisory Committee (WSHAC)

In order to leverage on the strong partnership with our stakeholders, a WSHAC comprising 14 prominent individuals with wide industry representation were appointed by the Minister for Manpower in September 2005 to boost the national effort to improve workplace safety and health. The WSHAC was set up to advise MOM on the following areas:

- a) OSH standards and regulations;
- b) Promoting OSH awareness and engage the industry to raise the level of OSH in Singapore;
- c) Training key stakeholders to raise competency and capabilities in OSH; and
- d) Working on any other matters relating to OSH, as prescribed by the Minister.

Since its formation, the Committee has embarked on several initiatives along the following key strategic thrusts:

- Promoting a business case for high OSH standards, and reviewing the current system to better recognise industry best practices in workplace safety and health;
- Engaging businesses to secure their participation and buy-in for the new OSH framework;
- Raising the level of OSH competency in industry, by developing an OSH competency framework as well as new training programmes across all levels of industry; and
- Working in partnership with MOM to set higher OSH standards for industry.

4.2.1 Sector-Specific Advisory Sub-Committees

To ensure all relevant stakeholders in various industrial sectors are engaged, the WSHAC has set up 4 sector-specific Advisory Sub-Committees for the construction, ship-building and ship-repairing, metalworking and healthcare in order to develop sector specific measures and increase OSH standards in the respective industries.

The focus of the sector-specific Advisory Sub-committees are to:

- a) Align sector-specific initiatives with the strategic thrusts of the WSHAC and MOM;
- b) Contextualise the WSHAC's recommendations for the sector;
- c) Champion and help implement recommended initiatives in the sector;
- d) Provide sector-specific inputs to the WSHAC on:
 - Setting of OSH standards and regulations;
 - Promotion of OSH awareness and engagement of industry; and
 - Training of key stakeholders
- e) Provide regular progress updates to the WSH Advisory Committee; and
- f) Advise on any other matters relating to OSH.

4.2.2 Functional Advisory Sub-Committees

Apart from the sector-specific Sub-Committees, 2 functional Sub-Committees were also set up to boost the WSHAC's overall efforts in engagement, promotion and competency building:

- **Engagement and Publicity Sub-Committee (EPSC)**

This Sub-Committee was formed to look into WSHAC's strategic outreach efforts to engage the industry and community for improvements in Workplace Safety and Health standards and performance. Made up of 9 key members from Singapore's media and design circle, this committee is tasked to advise and provide regular updates to the WSHAC on engagement and publicity programmes in relation to the following:

- a) Target audience and channels; and
- b) Timeline and desired outcomes; and
- c) Working with media partners and all other relevant stakeholders.

- **Competency, Education & Training Sub-Committee (CETSC)**

The role of this Sub-Committee is to review and assess the present competency roadmaps among all stakeholders. The CETSC is also tasked to advise and provide regular updates to the WSHAC on competency standards, education and training in relation to the following:

- a) Continuous skills upgrading of current Safety and Health training courses; and

- b) Integration of Safety and Health into all other professional education and training courses.

Overall, the formation of the WSHAC and its various sector-specific and functional Sub-Committees was part of the effort to foster greater coordination and collaboration between the regulator and the industry stakeholders. Members of the WSHAC and Advisory Sub-committees include representatives from trade and business associations, unions, employers, professional bodies, educational institutions, industry and business captains, academia, as well as leaders in legal and insurance professions. More information regarding the WSHAC may be found at www.wsh.sg.

4.3 Tripartite Coordination and Collaboration

A unique tripartite co-operative mechanism amongst workers, employers and the government is long practised in Singapore. This approach has been successful in cultivating constructive industrial relations in Singapore. It has helped companies and the economy to grow, as well as create jobs for workers.

This mechanism is also used for OSH. During the National OSH Week 2006, for example, MOM together with Singapore National Employers Federation (SNEF) and National Trades Union Congress (NTUC) organised a tripartite OSH Symposium to provide a platform for CEOs and senior management to understand the benefits of OSH to businesses and update on the latest strategies for bringing about a safety culture at workplaces. The tripartite partnership has been instrumental in bringing about close consultation and communication avenues between the government and representatives of employers and workforce on OSH issues.

4.4 Industry Associations and Professional Bodies

Besides the tripartite partners, various industry associations and professional bodies are regularly consulted during the formulation of policies or legislation. Besides dialogue sessions, all proposed legislations are also posted on the internet via an e-consultation channel to solicit industry and public feedback.

These associations and professional bodies are also regularly involved in co-organising various outreach programmes, seminars and workshops for the industry. A list of our regular partners can be found in **Annex D**.

4.5 Moving Forward Together – WSH 2015 Strategy

To guide the future development of programmes and initiatives, MOM in collaboration with the WSHAC, developed a WSH 2015 Strategy. This ten-year strategy document outlines the strategic outcomes and strategies that the country will undertake in order to improve our workplace safety and health standards and performance. The detailed proposals are in the WSH 2015 Strategy document.

This strategy document is currently being finalised and is the outcome of the views and feedback that the WSHAC and MOM have received from close to 1,500 key stakeholders including employers, industry lead bodies, unions and professional bodies or experts.

5. OSH System Implementation: Means and Tools

This section outlines the implementation of the various means and tools to enforce, engage, promote as well as build capability to achieve a safe and healthy workplace.

5.1 Strategic Enforcement Thrusts

There are 5 strategic enforcement thrusts, which are summarized in the diagram below:



National Programmed-Based Engagement (ProBE)

ProBE is an intelligence-led and targeted approach towards tackling safety and health problems at “hotspots” areas. These “hotspots” were identified from an analysis of past accidents trends, particularly those that contribute to workplace fatalities. The objective of the ProBE programme is to reduce the number of fatalities and injuries in the targeted areas through a systematic process of engagement and enforcement.

During the early phases of the programme, workplaces that fall within the scope of the “hotspots”, particularly those with high accident records, will be identified for the purposes of outreach and engagement. As part of the process, technical advisories are developed and seminars are conducted to reach out to the affected stakeholders. Thereafter, inspectors will conduct their enforcement exercises on the selected workplaces. The key learning points and outcomes from the enforcement actions are shared with the industry so as to further engage them in the effort to build up their capability to manage the safety and health risks of their workplaces.

In 2006, 4 ProBE programs were organized covering the following “hotspots”: scaffold, metalworking, confined space as well as falling from heights.

Business under Surveillance (BUS)

Factories with higher risks and those with poor safety performance (such as those with fatal or serious accidents) are put on this special monitoring and surveillance programme. Under the scheme, OSHD inspectors would closely monitor these establishments and where appropriate, assist them to improve the management of safety and health at their respective workplaces. Members of top management of these businesses are also required to develop action plans to improve their workplace safety and health.

Major Hazardous Industries (MHI)

Notwithstanding the BUS programme, factories that engage in high risk work such as the shipyards and the oil and petrochemical plants are also placed under this Major Hazardous Industries programme. Many of these sites are not identified as “hotspots” and may even have exemplary safety systems in place and good safety performance. Nonetheless, due to the nature of their work, they carry a risk of offsite consequences to the public. Any dangerous occurrences at such sites could endanger the public and cause widespread damages. Therefore, OSHI works closely with these sites to help supplement their safety protocols and prevent complacency from setting in.

Best Practices Workplace (BPW)

OSH inspectors conduct visits to workplaces that have demonstrated outstanding safety and health practices. In line with the strategy to recognise best practices, the intent of such visits is to build up the capabilities of OSH inspectors to augment the safety systems of the other worksites by promulgating best practices.

Reactive-Based Enforcement

OSH inspectors also attend to complaints raised by the industry or members of the public concerned over unsafe work practices or conditions. The Division has a safety hotline which is widely publicized and provides an avenue for valuable ground intelligence from whistle-blowers and interested members of public. All complaints are assessed and responded to in accordance with the severity of the safety lapses being reported.

5.2 Safety and Health Management System

Under the law, selected workplaces are required to implement safety and health management systems. These workplaces include:

- Construction worksites
- Shipyards
- Oil and petrochemical plants
- Semiconductor plants
- Metalworking factories

The safety and health management system is intended to be a self-regulatory tool so that companies are able to manage safety and health systematically. Nonetheless, the

management systems are periodically audited to ensure that the system is robust and properly implemented.

5.3 Accident Investigation

OSHD responds to fatal, serious accidents or dangerous occurrences by conducting investigations, with the objective of determining their cause(s) and identifying gaps and lapses in management of workplace safety and health.

A case management approach has been adopted when responding to the accidents. At the onset of an accident, a case management team would convene to first identify and strategise the scope of response actions in order for comprehensive plans and programmes to be drawn up. The case management provides a systemic and expeditious approach towards case resolution. Through such an approach, OSHD is able to intervene strategically in certain cases to bring about an improvement in the safety standards across the industry and not limited to localised improvements.

Upon the conclusion of the investigation, legal actions would also be initiated against the parties deemed culpable for the accident. Such legal actions would be publicised.

5.4 Legal Actions

In compliance with Article 13 of Labour Inspection Convention (No. 81), 1947, the Commissioner for Workplace Safety and Health has the authority to issue Remedial Orders and Stop Work Orders when required, particularly in instances where the workplace poses imminent dangers to the safety and health of the workers.

The Commissioner may also issue Notices of Non-Compliance, compound the offences or take prosecutorial actions against offenders for violations under the Act or its subsidiary legislations.

5.5 Licensing Requirements

Factories, construction worksites as well as shipyards are required to be registered with the Commissioner before they can commence their operation. This licensing regime enables MOM to monitor such workplaces through regular inspections and other activities.

Specific personnel such as safety officers, crane operators, boiler attendants, steam engineers and specific contractors such as cranes and scaffold contractors are also required by law to seek prior approval from MOM before carry out such works. Such licensing ensures that basic competency levels are met before undertaking the work as the nature of work can post significant safety and health risks.

Generally, equipment used at work is required to be properly designed, manufactured and safe for their intended use. In particular, pressure vessels and lifting equipment are also registered with MOM and subjected to periodic inspection by law. Equipment are to be used only by people who have received adequate information, instruction and training, accompanied by suitable safety measures like protective devices, markings and warnings.

5.6 Hygiene and Medical Surveillance of High Risk Workplaces

Exposure levels of workplace health hazards provide a good indicator of the conditions in the work environment. Workplaces with specific hazards are required to have regular industrial hygiene monitoring and medical surveillance, including biological monitoring of exposed workers. Factories with 10 or more workers exposed to excessive noise are required to monitor the environmental noise level at least once every three years. Regular workplace monitoring of air contaminants by a competent person is also required if there is exposure to toxic substances. Factory occupiers or employers must ensure that employees are not exposed to toxic substances above the Permissible Exposure Levels (PEL).

Industrial hygiene data from the department's assessments of high-risk workplaces, as well as from companies with in-plant industrial hygiene monitoring, is maintained in a National Database for Noise and Chemical Exposure. This enables MOM to identify such workplaces, evaluate trends in exposure levels and advise employers regarding control measures and appropriate monitoring programmes. Overall, the average noise levels in high risk workplaces remain satisfactory while most workplaces do not exceed the PEL in terms of chemical exposure.

In addition, under the Factories (Medical Examinations) Regulations, workers in occupations involving exposure to 19 prescribed hazards must undergo compulsory medical examinations conducted by Designated Factory Doctors. The medical surveillance programme aims to detect excessive occupational exposure to specific health hazards so as to prevent overt disease. It is an important part of Singapore's integrated surveillance strategy which involves evaluating and monitoring potential health risks, active identification of high-risk factories, biological monitoring of workers' exposure and implementing of measures to control exposure to hazardous substances.

In 2006, over 84,432 workers from 1,698 companies were monitored. The overall detection rate of new work-related abnormal medical results remains low, with an increase from 6.5 per 1,000 workers examined in 2005 to 7.3 in 2006. Detection of work-related abnormal results among workers examined for exposure to noise came mainly from the shipbuilding and metalworking industries. For exposure to chemicals, detection of workers with levels exceeding 80% BTLV was highest among those with perchloroethylene exposure from the dry-cleaning industry. There were 2 cases of excessive absorption of cadmium detected from the aerospace industry.

5.7 OSH Professional and Personnel Supporting the Industry

The industry is supported by groups of OSH professionals and other personnel providing various OSH services. They include WSH Officers and Auditors, Designated Factory Doctors, nurses, industrial hygienist, as well as other competent persons working in the industry. The list and estimated number of such personnel is in **Annex E**.

5.8 Incident Reporting

In March 2006, the new WSH (Incident Reporting) Regulations expanded the requirement for reporting work-related accidents, dangerous occurrences and occupational diseases to all workplaces in Singapore. This was done so that MOM is able to collect and analyze accident data and identify hotspot areas.

At the same time, an online incident reporting system (known as iReport) was introduced to replace the manual reporting of incidents to MOM. Through this reporting system, employers are now able to submit their incident reports to the Ministry for the purpose of the WSH (Incident Reporting) Regulations as well as for compensation purposes under the Workmen's Compensation Act.

In addition, a Safety Hotline was made available for members of the public and workers to report on unsafe work conditions. The hotline is widely publicize and is intended to keep employers on the alert in maintain a safe and healthy work environment for their workers and members of the public.

5.9 Information Dissemination

MOM also deploys a tool known as the "OSH Alert", which is used to disseminate OSH information to over 9,000 email and fax subscribers. This is the main channel of publicising learning points from selected accident case studies, new legislative and policy changes, revelant OSH conferences, seminars and courses, guidelines and other relevant information.

In addition, accident statistics, guidelines, case studies and other relevant documents are made publicly available on our internet (www.mom.gov.sg) for the purpose of disseminating and promoting safety and health awareness.

5.10 Capability Building - Training and Education

Under the law, employers are required to provide adequate instructions, information, training and supervision to their employees so that they can carry out their work safely. Thus, all employers should ensure that their workers, supervisors and managers demonstrate basic competencies in workplace safety and health. They should possess sufficient knowledge to enable them to recognise potentially hazardous situations, be aware of their responsibilities under the new WSHA and know their roles in creating safe work and safe working conditions. Such knowledge could be imparted through formal courses or through on-the-job training.

At present, specific categories of personnel such as riggers or scaffold supervisors are required by law to undergo specific training for the purpose of ensuring that the work they perform or supervise can be carry out safely. There are 36 such courses spanning various trades and occupation. A list of the courses is in **Annex F**. These courses are conducted by 66 external training providers accredited by MOM. Each year more than 100,000 workers, supervisors and other personnel undergo training in these training centres.

Workplace Safety and Health (WSH) Generic Training Framework

To assist the industry, MOM is working with WSHAC and the Workforce Development Agency (WDA) to develop competency standards expected for workers at the operations, supervisory and managerial levels. These include generic competency standards and industry, hazard and process-specific competency standards. The generic WSH competency standards have been co-developed with WDA as a module under WDA's Employability Skills System (ESS) which is part of the Workforce Skills Qualification (WSQ) System. The competency elements for the three levels include:

Table 3. Competency Elements for Different Levels

Operations Level	Supervisory Level	Managerial Level
▪ Identify responsibilities under WSH Act ▪ Observe hazard identification and risk control procedures ▪ Contribute through consultation and participation for the management of WSH	▪ Identify responsibilities under WSH Act ▪ Interpret WSH policies, procedures and programmes ▪ Educate workers on WSH policies, procedures and programmes ▪ Implement and monitor participation and consultation for the management of WSH ▪ Implement and monitor organisation risk management procedures	▪ Identify responsibilities under WSH Act ▪ Establish and maintain the framework for the WSH system ▪ Establish and maintain participation and consultation for the management of WSH ▪ Establish and maintain organisation risk management procedures ▪ Evaluate the organisation's WSH system, policies, procedures and programmes

Moving forward, the WSHAC, WDA and MOM will be engaging the industry to co-develop the competency standards specific for the various industries, processes and hazards.

5.11 Promotion and Outreach

Promotional activities, seminars, workshops are organized all year round to create interest, promote awareness and share best practices on OSH amongst the management, workers and members of public. Since its formation, the WSHAC had been very active in engaging the industry through its various promotional and outreach programs.

The National Workplace Safety and Health Week held from 28 April to 4 May 2006 was organized by the WSHAC together with MOM and its many partners. It was an event-packed week aimed to raise awareness of workplace safety and health among all CEOs, the human resource community, managers, supervisors, WSH professionals and workers. A series of seminars and activities got people thinking and talking about how they can make a difference. Companies also took the opportunity to organize WSH events to show their commitment towards the cause.

5.12 Awards and Incentives Scheme

The various award schemes administered by the Ministry were streamlined in 2006 with new awards introduced in 2007. Broadly, the awards recognised individuals and companies in the following areas:

Workplace Safety & Health Best Practices Award (WSHBPA)	Recognises companies for their efforts in eliminating or controlling workplace safety and health hazards.
Annual Safety & Health Performance Award (ASHPA)	Recognises companies or organisations that have performed well in safety and health through the implementation of sound safety and health management systems.
Safety and Health Award Recognition for Projects (SHARP)	Recognises projects or worksites that have achieved good safety and health results through implementation of good safety and health management system.
Developer Award	Recognises developers who play an active role in ensuring good OSH practices among their contractors.
WSH Innovation Award	Recognises project teams with innovative solutions which improve safety and health in the workplace.
Workplace Safety and Health Officer Award	Recognises registered WSHOs who help cultivate safe and healthy workplaces in Singapore.

The award winners are encouraged to share their experiences, best practices and innovative risk control solutions with their industry counterparts as part of the learning and sharing for the industry.

To assist small and medium enterprises (SMEs) in implementing risk assessment, the government set up a \$5 million Risk Management Assistance Fund in April 2006 to help them defray the cost of engaging a consultant to help build up their internal capability to conduct risk assessments. Successful applicants would be funded up to a maximum of 70% of the cost of the consultant or \$7,500 whichever is lower. Since its inception, around 110 applications have been approved.

At present, there are no direct monetary incentives for good OSH performance at the national level. Nonetheless, the industries are encouraged to adopt good OSH standards to reap benefits of higher productivity and to gain a competitive advantage. The government as a major infrastructure developer also places a premium on OSH

performance by evaluating construction tenders through a Price-Quality Method (PQM) where safety and health constitute part of the criteria during tender evaluation. This initiative constitutes part of the effort to drive home the message that adopting good safety and health practices is also good for business.

5.13 International Collaboration

One of the strategic outcomes for Singapore is to be renowned as a Centre of Excellence for OSH. MOM builds and maintains network and collaboration with key international and regional OSH organizations in the areas of information sharing, standards development, research and training.

Singapore has over the years conducted training programmes in OSH for member countries of ASEAN through ASEAN-OSHNET and the Singapore International Foundation. In participating in the activities of both the ILO-CIS National Centres' and WHO Collaborating Centres' networks, Singapore is contributing its part to the Global Strategy effort to achieve safety and health for all. The Ministry's online OSH case studies database linked through the WHO Global Web Portal provides good practice models of successful workplace hazards control. Other collaborative efforts involve attachment and exchange programmes between OSH specialists and civil servants from the other countries.

Singapore's commitment to OSH was demonstrated in the recent 19th ASEAN Labour Ministers Meeting (ALMM) convened on 5 May 2006 in Singapore, which had the theme of Occupational Safety and Health (OSH). The decision was taken at that meeting to list OSH as an agenda item in future ALMMs. A policy dialogue on National OSH Frameworks among ASEAN countries will be convened in Singapore in Jan 2007.

The International Congress on Occupational Health (ICOH) was held in Singapore in 2000. The Asia Pacific Occupational Safety and Health Organisations (APOSHO) Conference and the Asian Conference on Occupational Health (ACOH) will be held in Singapore in 2007 and 2008, respectively. Singapore will continue to learn and contribute to the region and to the world in OSH.

ANNEX A

WORKPLACE INJURIES BY TYPE OF ACCIDENT AND INDUSTRY, 2006

Type of Accident	Manufacturing (excluding shipbuilding and ship repairing)	Shipbuilding and Ship Repairing	Construction	Other Sectors	TOTAL
Fall of Persons	424	104	596	1,032	2,156
Struck by Falling Objects	327	102	362	335	1,126
Step on, Strike against or by Objects	851	179	661	750	2,441
Caught in or between Objects	511	115	275	284	1,185
Fire/ Explosions	7	4	4	24	39
Contact with Hot Substances/ Objects	51	15	14	110	190
Exposed/ Contact with Electricity	6	1	5	9	21
Exposed/ Contact with Harmful Substances	43	9	16	20	88
Others	528	109	482	896	2,015
Total	2748	638	2415	3460	9,261

Source : Occupational Safety and Health Division, MOM

Notes:

- 1) Industries are classified according to the Singapore Standard Industrial Classification (SSIC) 2005.
- 2) Figures are based on incident reports made under the Factories Act (Jan-Feb 2006) and the Workplace Safety and Health (Incident Reporting) Regulations (Mar-Dec 2006).
- 3) Figures are victim-based.
- 4) Figures include both fatal and non-fatal injuries.

**WORKPLACE INJURIES BY AGENCY OF ACCIDENT
AND PART OF BODY INJURED, 2006**

Part of Body Injured	Machines	Lifting Equipment	Transport Equipment/ Vehicles	Working Environment	Electrical Equipment	Others	TOTAL
Eyes	12	2	1	31	9	264	319
Head and Neck	38	22	35	176	11	349	631
Trunk	23	24	48	219	12	358	684
Hand/ Fingers	741	145	106	283	185	2,374	3,834
Arm/ Shoulder	84	28	59	372	32	519	1,094
Foot/ Toes	16	36	71	122	8	369	622
Leg/ Ankle	50	58	125	509	21	589	1,352
Multiple Injuries	22	34	44	212	6	255	573
Others	9	5	7	33	3	95	152
Total	995	354	496	1957	287	5172	9,261

Source : Occupational Safety and Health Division, MOM

Notes:

- 1) Figures are based on incident reports made under the Factories Act (Jan-Feb 2006) and the Workplace Safety and Health (Incident Reporting) Regulations (Mar-Dec 2006).
- 2) Figures are victim-based.
- 3) Figures include both fatal and non-fatal injuries.

**CONFIRMED CASES OF OCCUPATIONAL DISEASE
BY TYPE OF DISEASE, 2001 – 2006**

Type of Disease	2001	2002	2003	2004	2005	2006
TOTAL	546	504	414	357	517	657
Noise Induced Deafness	359	339	300	251	391	535
Industrial Dermatitis	118	99	67	81	84	89
Occupational Asthma	4	3	0	1	1	2
Compressed Air Illness/Barotrauma	0	30	16	10	10	8
Poisoning/Excessive Absorption of Chemicals	36	23	20	6	24	5
Silicosis	3	0	1	1	1	0
Asbestosis	1	0	0	0	2	0
Repetitive Strain Disorder of the Upper Limb	3	6	10	7	3	8
Others	22	4	81 ^a	23 ^b	1	10

Source: Occupational Safety and Health Division, MOM

^a Includes 77 work-related SARS cases

^b Includes 20 work-related SARS cases

Notes:

- 1) Figures are based on incident reports made under the Factories Act (Jan 2001-Feb 2006) and the Workplace Safety and Health (Incident Reporting) Regulations (Mar-Dec 2006).
- 2) Figures are victim-based.

List of Relevant OSH Subsidiary Legislation

	Title of Legislation	Brief Description
1.	Workplace Safety and Health (Composition of Offences) Regulations	Legislation to allow the Commissioner to compound an offence in lieu of prosecution
2.	Workplace Safety and Health (Exemption) Order	Legislation that exempts the Singapore Arm Forces from the provision of the Act
3.	Workplace Safety and Health (First-Aid) Regulations	Legislation that mandates the need for selected workplaces to provide first aid facilities
4.	Workplace Safety and Health (General Provisions) Regulations	Legislation governing basic safety and health requirements within factories
5.	Workplace Safety and Health (Incident Reporting) Regulations	Legislation that mandates the need for employers to report incidents to the Ministry
6.	Workplace Safety and Health (Registration of Factories) Regulations	Legislation that mandates the requirement for factories, construction sites and shipyards to be registered with the Ministry
7.	Workplace Safety and Health (Risk Management) Regulations	Legislation that mandates the need for employers to conduct risk assessment and to take steps to mitigate the risk
8.	Factories (Abrasive Blasting) Regulations	Legislation that regulates safety and health with regard to the use of abrasive blasting
9.	Factories (Asbestos) Regulations	Legislation that regulates safety and health with regard to exposure to asbestos
10.	Factories (Building Operations And Works Of Engineering Construction) Regulations	Legislation that regulates safety and health within construction sites
11.	Factories (Certificate Of Competency — Examinations) Regulations	Legislation that regulates the competency of personnel overseeing and operating pressurised equipment
12.	Factories (Persons-In-Charge) Regulations	
13.	Factories (Explosive Powered Tools) Regulations	Legislation that regulates safety and health with regard to the use of explosive powered tools
14.	Factories (Industrial Safety Helmets And Footwear) Notification	Legislation that regulates the quality of industrial safety helmets and footwear

	Title of Legislation	Brief Description
15.	Factories (Medical Examinations) Regulations	Legislation that mandates medical examination for personnel expose to chemical and hazardous substances.
16.	Factories (Noise) Regulations 1996	Legislation that regulates safety and health with regard to exposure to excessive noise
17.	Factories (Operation Of Cranes) Regulations	Legislation that regulates the safe use of mobile and tower cranes include the need for qualified operation, riggers, signalmen and lifting supervisors
18.	Factories (Qualifications And Training Of Safety Officers) Notification	Legislation that regulates the qualifications, training, registration, duties as well as mandatory appointment of Safety Officers
19.	Factories (Registration And Duties Of Safety Officers) Regulations	
20.	Factories (Safety Officers) Order	
21.	Factories (Safety Training Courses) Order	Legislation that mandates safety and health training courses to be undertaken by specific personnel
22.	Factories (Scaffolds) Regulations 2004	Legislation that regulates safety and health with regard to the use of scaffolds
23.	Factories (Shipbuilding And Ship-Repairing) Regulations	Legislation that regulates safety and health within shipyards
24.	Factories (Safety Committees) Regulations	Legislation that mandates the need for employers to form a safety committee
25.	Factories (Singapore Standards And Codes Of Practice) Order	Legislation that mandates compliance to specific Singapore Standards And Codes of Practice

Note:

All remaining Factories subsidiary legislation will be reviewed by March 2008 to align to the new Workplace Safety and Health Act

Approved Codes of Practice

1	CP 14:	Code of Practice for scaffolds
2	CP 20:	Code of Practice for suspended scaffolds
3	CP 23:	Code of Practice for formwork
4	CP 27:	Code of Practice for factory layout — safety, health and welfare considerations
5	CP 37:	Code of Practice for the safe use of mobile cranes
6	CP 62:	Code of Practice for the safe use of tower cranes
7	CP 63:	Code of Practice for the lifting of persons in work platforms suspended from cranes
8	CP 74:	Code of Practice for selection, use and maintenance of respiratory protection devices
9	CP 76:	Code of Practice for the selection, use, care and maintenance of hearing protectors
10	CP 79:	Code of Practice for safety management system for construction worksites
11	CP 84:	Code of Practice for entry into and safe working in confined spaces
12	SS 473 – 1:	Personal eye-protectors — General requirements
13	SS 473 – 2:	Personal eye-protectors — Selection, use and maintenance
14	SS 510:	Code of Practice for safety in welding and cutting (and other operations involving the use of heat)
15	SS 508 – 1:	Graphical symbols — Safety colours and safety signs — Design principles for safety signs in workplaces and public areas
16	SS 508 – 3:	Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas
17	CP 88 – 1:	Code of Practice for temporary electrical installations — Construction and building sites
18	CP 88 – 3:	Code of Practice for temporary electrical installations — Shipbuilding and ship-repairing yards
19	SS 98:	Industrial safety helmets 2005
20	SS 513 – 1:	Personal protective equipment — Footwear — Safety footwear
21	SS 513 – 2:	Personal protective equipment — Footwear — Test methods for footwear
22	CP 91:	Code of Practice for lockout procedure
23	CP 101:	Code of Practice for safe use of powered counterbalanced forklifts

List of Relevant Codes of Practices and Guidelines

Scope of Coverage	Legislation	Codes of Practice / Guidelines (not exhaustive)
Asbestos	- Environmental Pollution Control Act - Factories (Asbestos) Regulations	- Guidelines on the removal of asbestos materials in buildings - Guidelines on the handling of asbestos materials
Biological	- Infectious Disease Act - Private Hospitals and Medical Clinics Act	
Chemical Hazards	- Workplace Safety and Health (General Provisions) Regulations - Environmental Pollution Control (Hazardous substances) Regulations	- Guidelines on prevention and control of chemical hazards - Guidelines on risk assessment for occupational exposure to harmful chemicals - Guidelines on solvent degreasing - CP for Packaging and Containers for Hazardous Substances - CP for Distribution of Hazardous Chemicals
Confined Work Space	Workplace Safety and Health (General Provisions) Regulations	CP for Entry Into and Safe Working in Confined Spaces
Construction Safety	Factories (Building Operations And Works Of Engineering Construction) Regulations	- CP for Demolition - CP for Scaffolds - CP for Suspended Scaffolds - CP for Formwork - CP for Supervision of Structural Works - CP for the Lifting of Persons in Work Platforms Suspended from Cranes - CP for Temporary Electrical Installations - Construction and Building Sites - CP for Temporary Electrical Installations - Shipbuilding and Ship-repairing Yards
Diving		CP for Diving at Work
Environmental Pollution	Environmental Pollution Control Act	CP for Hazardous Waste Management

Scope of Coverage	Legislation	Codes of Practice / Guidelines (not exhaustive)
Ergonomics and Lighting		• CP for Office Ergonomics • CP for Manual Handling • CP for Artificial Lighting in Buildings • CP for Illumination in Industrial Premises
First Aid	• Workplace Safety and Health (First Aid) Regulations	• Guidelines on First Aid Requirements
Fire Safety	• Fire Safety Act • Workplace Safety and Health (General Provisions) Regulations	• CP for Fire Precautions in Buildings
Machinery Safety		• CP for guarding and safe use of woodworking machinery • CP for Lockout Procedure • CP for safe use of mobile cranes • CP for safe use of tower cranes • CP for safe use of industrial robots • CP for safe use of powered counterbalanced forklift
Medical Examinations	• Factories (Medical Examinations) Regulations	• Guidelines for Designated Factory Doctors
Noise and Vibration	• Workplace Safety and Health (General Provisions) Regulations	• Hearing Conservation Programme Guidelines • Guidelines on Noise Labeling • CP for Industrial Noise Control
OSH Management Systems		• CP for safety management system for construction worksites • Occupational safety and health (OSH) management system – Specification • Occupational safety and health (OSH) management system - General guidelines for the implementation of OHS management system • Occupational safety and health (OSH) management system - Requirements for the chemical industry

* CP = Code of Practice

List of Regular Partners

Employers' organizations:

- Singapore Business Federation
- Singapore Manufacturers' Federation
- Singapore National Employers Federation

Employees' organizations:

- Building Construction & Timber Industries Employees' Union
- Health Corporation of Singapore Staff Union
- Metal Industries Workers' Union
- National Trades Union Congress
- Shipbuilding and Marine Engineering Employees' Union
- United Workers of Petroleum Industry

Industry / Trade Associations:

- Association of Aerospace Industries (Singapore)
- Association of Singapore Marine Industries
- Association of Small Medium Enterprises
- Bedok Safety Group
- General Insurance Association of Singapore
- Real Estate Developers' Association of Singapore
- Singapore Association for Environmental Companies
- Singapore Contractors Association Limited
- Singapore Chemical Industry Council
- Singapore Institute of Surveyors and Valuers
- Singapore Shipping Association
- Association of Accredited Advertising Agents Singapore
- Designers Association of Singapore
- Access and Scaffold Industry Association
- Association of Process Industry
- Retail Fuels EHSS Industry Workgroup
- Society of Project Engineers
- Singapore Logistics Association

Professional bodies:

- Association of Consulting Engineers Singapore
- Back Society of Singapore
- College of Family Physicians Singapore
- Ergonomics Society of Singapore
- Institution of Engineers, Singapore
- Metalworking Industry Safety Promotion Committee
- National Safety Council of Singapore
- Occupational and Environmental Health Society
- Pharmaceutical Society of Singapore
- Singapore Association of Occupational Therapists
- Singapore Dental Association

- Singapore Institute of Architects
- Singapore Institution of Safety Officers
- Singapore Medical Association
- Singapore Nurse Association
- Singapore Society of Occupational Health Nurses
- Society of Acoustics
- Society of Naval Architects & Marine Engineers Singapore
- The Singapore Physiotherapy Association
- Singapore Institute of Surveyors and Valuers
- Singapore Chemical Industry Council
- Singapore Dental Association
- Singapore Human Resources Institute
- Singapore Institute of Directors
- The Law Society of Singapore

Academia

- Nanyang Polytechnic
- National Technological University
- National University of Singapore
- Ngee Ann Polytechnic
- Singapore Polytechnic
- Temasek Polytechnic

Healthcare Institutions

- National Healthcare Group
- Singapore Health Services
- Home Nursing Foundation

Government Ministries and Statutory Boards

- Building and Construction Authority
- Housing and Development Board
- JTC Corporation
- Land Transport Authority
- Ministry of Health
- Ministry of National Development
- National Environment Agency
- National Parks Board
- Singapore Workforce Development Agency
- SRING Singapore
- Ship Inspection, Maritime and Port Authority Singapore
- Health Promotion Board

OSH Professionals and Personnel Supporting the Industry

Professional group	Estimated number	As of Year
Authorised Examiners ¹	108	2006
Competent Persons for Management of Hazardous Substances ¹	1252	2006
Competent Persons for Sampling & Monitoring of Airborne Contaminants ¹	357	2006
Noise Control Officers ¹	295	2006
Noise Monitoring Officers ¹	851	2006
Occupational Health Nurses ²	204	2006
Occupational Health Physicians	649	2005
Occupational Hygienists	50	2006
Occupational Physiotherapists ³	487	2006
Occupational Therapists	280	2006
Workplace Safety and Health Officers ¹	1354	2006
Total	5887	

Sources:

- ¹ Occupational Safety and Health Division, MOM
² Singapore Society of Occupational Health Nurses
³ Singapore Physiotherapy Association

Note:

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

Definition of Occupational Titles

- Authorised Examiners**

Authorised Examiners are inspectors of statutory pressure vessels or lifting equipment authorised by the Commissioner for Workplace Safety and Health.

- Competent Persons for Management of Hazardous Substances**

Under the Workplace Safety and Health Act, toxic or harmful substances must be placed under the control of a competent person who has adequate knowledge of the properties and dangers of the substances. Such a person must have attended and passed a training course on Management of Hazardous Substances jointly organized by National Environment Agency and Ministry of Manpower.

- Competent Persons for Sampling and Monitoring Airborne of Contaminants**

Where toxic or noxious substances are given off from any process or work, regular workplace monitoring must be conducted by a competent person under the Workplace Safety and Health Act. Such a person must have attended and passed a training course on Sampling and Monitoring of Airborne Contaminants jointly organized by National Environment Agency and Ministry of Manpower.

- **Noise Control Officers**

Under the Factories (Noise) Regulations, factories with more than 50 persons exposed to excessive noise (equivalent sound pressure level > 85 dBA over an 8-hr work day) must appoint a competent person to advise the management on all noise control measures. Such a person must have undergone a training course on Industrial Noise Control conducted by Accredited Training Providers.

- **Noise Monitoring Officers**

Under the Factories (Noise) Regulations, factories with more than 10 persons exposed to excessive noise (equivalent sound pressure level > 85 dBA over an 8-hr work day) must appoint a competent person to conduct regular noise monitoring. Such a person must have undergone a training course on Noise Monitoring conducted by Accredited Training Providers.

- **Occupational Health Nurses**

An occupational health nurse is a qualified State Registered Nurse with or without additional qualification in occupational health, such as a Certificate or Diploma in Occupational Health Nursing. The numbers given are members of the Singapore Society of Occupational Health Nurses. Their main role is in the clinical nursing practice, disease prevention as well as promoting employee wellness at the workplace.

- **Occupational Health Physicians**

An occupational health physician is a doctor who is registered as a Designated Factory Doctor with MOM after successfully completing a course of training in occupational health (Certificate, Diploma or Masters' course in occupational health) approved by the Commissioner for Workplace Safety and Health. Designated Factory Doctors conduct medical examinations for workers exposed to specific risk hazards under the Factories (Medical Examinations) Regulations. They normally work in their own private clinics and on contract basis.

- **Occupational Hygienists**

An Industrial Hygienist may be defined as a person having a college or university degree or degrees in Engineering, Physics, Chemistry, or related physical and biological sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene.

- **Occupational Physiotherapists**

Individual industries do not employ physiotherapists. The numbers given are members of The Singapore Physiotherapy Association, an organization representing the profession of physiotherapy in Singapore. The majority work in the hospitals, while some are self

employed and in group practices. Their role is mostly in clinical treatment although they can provide consultation services on ergonomics in workplaces.

- **Occupational Therapists**

There are currently about 280 occupational therapists in Singapore, of whom 188 are members of the Singapore Association of Occupational Therapists. The purpose of occupational therapy is the development and maintenance of a person's capacity throughout life and to perform those tasks and roles essential to productive living, including self-care, daily living, leisure and work.

- **Workplace Safety and Health Officers**

These are persons who are registered as workplace safety and health officers with MOM who are responsible for ensuring the safety and health of persons employed in the workplace. They are employed on a full time or part time basis depending on the type of industries and the number of employed persons.

Training Courses Required for Specific Personnel

	Classes or Description of Persons	Training courses
1	Audiometric examiner: Any person who carries out audiometric examination of others	Industrial Audiometry Course
2	Construction Safety Supervisor: Any person who supervises safety of work carried out in a building and engineering construction worksite	Building Construction Supervisors Safety Course
3	Construction Supervisor (Tunnelling): Any person who supervises any process or work in a tunnel carried out in a building and engineering construction worksite	Building Construction Supervisors Safety Course (Tunnelling)
4	Construction Worker: Any worker employed in manual labour to carry out construction work in building and engineering construction worksites	Construction Safety Orientation Course
5	Explosive Powered Tools Operator: Any person who operates an explosive power tool	Explosive Powered Tools Operators' Course
6	First-Aider: Any person who is appointed as a first-aider in a workplace	Occupational First Aid Course
7	Forklift Operator: Any person who drives or operates a forklift truck	Forklift Driver's Training Course
8	Formwork Supervisor: Any person who is appointed as a formwork supervisor to supervise the construction, erection, alteration or dismantling of formwork structures in building and engineering construction worksites	Formwork Safety Course for Supervisors
9	Lifting Supervisor: Any person who is appointed as a lifting supervisor for any lifting operation by a mobile or tower crane	Lifting Supervisors Safety Course
10	Man Lock Attendant: Any worker performing the role of a Man Lock Attendant	Compressed Air Works Course (Man Lock Attendant)
11	Manhole Supervisor: Any person who is appointed as a manhole supervisor to supervise work carried out in manholes or confined spaces in building and engineering construction worksites	Safety Instruction Course (Manhole)

	Classes or Description of Persons	Training courses
12	Manhole Worker: Any worker who is carrying out work in manholes or confined spaces in building and engineering construction worksites	Safety Orientation Course (Manhole)
13	Medical Lock Attendant: Any worker performing the role of a Medical Lock Attendant	Compressed Air Works Course (Medical Lock Attendant)
14	Metalworking Industry Supervisor: Any person who supervises any process or work carried out in a factory engaged in the manufacture of basic metals, fabricated metal products, machinery or equipment and electrical machinery and apparatus	Basic Industrial Safety and Health Course for Supervisors
15	Metalworking Industry Worker: Any worker employed in manual labour to carry out work in a factory engaged in the manufacture of basic metals, fabricated metal products, machinery or equipment and electrical machinery and apparatus	Safety Orientation Course for Workers (Metalworking)
16	Noise Control Officer: Any person who is appointed to advise the occupier of a workplace on noise control measures	Industrial Noise Control Course
17	Noise Monitoring Officer: Any person who is appointed to conduct noise monitoring at a workplace	Noise Monitoring Course
18	Project Manager: Any person who is appointed as a project manager to be in charge of all construction activities in building and engineering construction worksites of a contract sum of \$10 million or more	Construction Safety Course for Project Managers
19	Rigger: Any person who is appointed as a rigger for any lifting operation by a mobile or tower crane	Rigger Course
20	Safety Officer: Any person who wants to be registered as a safety officer	Safety Officers Training Course
21	Scaffold Erector: Any person who is appointed as a scaffold erector to erect, install, re-position, alter or dismantle a scaffold	Marine Metal Scaffolding Course for Scaffolders Or Metal Scaffold Erection Course

	Classes or Description of Persons	Training courses
22	Scaffold Supervisor: Any person who is appointed as a scaffold supervisor to supervise the erection, installation, re-positioning, alteration or dismantling of a scaffold	Marine Metal Scaffolding Course for Supervisors Or Supervision of Metal Scaffold Erection Course
23	Shiprepair Manager: Any person who is appointed as a shiprepair manager in a shipyard or on board a ship in the harbour	Safety Instruction Course for Shiprepair Managers
24	Shipyards Hotwork Safety Assessor: Any person who is appointed as a hotwork safety assessor in a shipyard or on board a ship in the harbour	Shipyards Safety Assessor (Hot-work certification) Course
25	Shipyards Supervisor: Any person who supervises any process or work carried out in a shipyard or on board a ship in the harbour	Shipyards Supervisors Safety Course
26	Shipyards Worker (Painter): Any person carrying out spraying painting or painting in a confined space, in a shipyard or on board a ship in the harbour	Shipyards Safety Instruction Course for Workers (Painter Trade)
27	Shipyards Workers (General): Any person carrying out hazardous work in a shipyard or on board a ship in the harbour	Shipyards Safety Instruction Course for Workers (General Trade)
28	Shipyards Workers (Hot-work): Any person carrying out hot work in a shipyard or on board a ship in the harbour	Shipyards Safety Instruction Course for Workers (Hot-work Trade)
29	Signalman: Any person who is appointed as a signalman for any lifting operation by a mobile or tower crane	Signalmen Course
30	Supervisors in the Oil and Petrochemical Industry or factories engaged in manufacturing or storage of chemicals: Any person who supervises any process or work carried out in a factory of the oil and petrochemical industry or in a factory engaged in manufacturing or storage of chemicals	Oil and Petrochemical Industry Supervisors Safety Course
31	Suspended Scaffold Erector: Any person who is appointed as a suspended scaffold erector to erect, install, re-position, alter or dismantle a suspended scaffold	Suspended Scaffold Riggers' Course

	Classes or Description of Persons	Training courses
32	Suspended Scaffold Supervisor: Any person who is appointed as a suspended scaffold supervisor to supervise the erection, installation, re-positioning, alteration or dismantling of a suspended scaffold	Suspended Scaffold Supervisors' Course
33	Tunnelling Worker: Any worker who is carrying out work in a tunnel in building and engineering construction worksites	Safety Orientation Course (Tunnelling) for Workers
34	Workers in the Oil and Petrochemical Industry or factories engaged in manufacturing or storage of chemicals: Any worker who is carrying out work in a factory of the oil and petrochemical industry or in a factory engaged in manufacturing or storage of chemicals	Oil and Petrochemical Safety Orientation Course for Workers

Other General Information On Singapore

1) Area and Population

Singapore, with an area of 704.0 km² is home to a population of approximately 4.4 million (population density 6,369 per km²). The official languages are English (language of administration), Chinese (Mandarin), Malay (National Language) and Tamil.

Population Statistics	2006
Total Population ¹	4,483,900
Resident Population ¹	3,608,500
- Men (%)	49.5%
- Women (%)	50.5%
Labour force ²	1,880,800
Employed persons ²	1,796,700
- Men (%)	57.7%
- Women (%)	42.3%
Unemployment Rate (Seasonally Adjusted)	3.6%
Source: Singapore Department of Statistics Note: ¹ Total population comprises Singapore citizens and non-residents. The resident population comprises Singapore citizens and permanent residents. ² Refers to the resident population. ³ Employed persons refer to persons aged 15 years and over who worked for pay or profit or for family gains, as well as those who had a job to return to but were temporarily absent during the reference period.	

2) Economy

Selected Economic Indicators	2006
Gross Domestic Product (GDP), at current market prices (\$m)	209,990.9
Per Capita GDP (\$)	46,832.0
Exports (\$m)	431,559.2
Imports (\$m)	378,924.1
Growth in Labour Productivity	1.2%
Inflation rate (%)	1.0%
Source: Singapore Department of Statistics	
Note: All figures are in Singapore Dollars	

3) Manpower Statistics

Employed Residents, aged 15 and over by industry, 2006

Industry ¹	Number Employed ('000)	%
Manufacturing	301.7	16.8
Construction	95.0	5.3
Wholesale and Retail Trade	301.1	16.8
Hotels and Restaurants	128.8	7.2
Transport and Storage	174.0	9.7
Information and Communications	74.8	4.2
Financial Intermediation	106.3	5.9
Real Estate, Renting and Business Activities	217.3	12.1
Community, Social and Personal Services	375.2	20.9
Others ²	22.5	1.3
Total	1,796.7³	100.0³

Source: Manpower Research and Statistics Department, MOM

Note:

¹ Industries are classified according to the Singapore Standard Industrial Classification 2005.

² Includes Agriculture, Fishing & Mining, Quarrying, Utilities and Activities Not Adequately Defined.

³ Figures may not add up due to rounding.

4) Public Health and Healthcare System

Health Statistics	2005
Life Expectancy at Birth ¹ (years)	79.7
- Men	77.9
- Women	81.6
Infant mortality Rate ¹ (per 1000 live births)	2.1
Maternal Mortality Ratio ¹ (per 100,000 live births & still-births)	11
Human development index ²	0.916 ³
Total health expenditure (% of gross domestic product)	4.5 ⁴
Doctors per 1,000 population	1.6
Dentists per 1,000 population	0.3
Nurses (including midwives) per 1,000 population	4.6
Sources: a) Ministry of Health, Singapore b) World Health Organization c) Human Development Report ¹ Preliminary Figures. Data for Life Expectancy at Birth and Infant Mortality Rate refers to Singapore Residents only ² Measures the average achievements in a country in three basic dimensions of human development: longevity, knowledge and a decent standard of living. ³ Figures as of 2004. ⁴ Figures as of 2003.	