



Workplace Safety and Health Report 2018

National Statistics



MINISTRY OF
MANPOWER

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NOTATIONS

- : Nil or negligible
- n.a. : Not applicable/Not available
- * : Estimated rates. The employment data excludes self-employed persons.

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KEY FACTS

41 WORKPLACE FATAL INJURIES IN 2018, ONE LESS THAN IN 2017; BUT MORE MAJOR AND MINOR INJURIES

Overall workplace injury cases¹ increased from 12,498 cases in 2017 to 12,810 cases in 2018. The number of workplace fatal injury cases decreased from 42 cases in 2017 to 41 cases in 2018, corresponding to a decline in fatal injury rate although the rounded-up figure remains at 1.2 per 100,000 employed persons.

The number of workplace major injury cases increased in 2018 with 596 workers sustaining workplace major injuries compared to 574 cases in 2017. Likewise, workplace minor injuries saw an increase in 2018 with 12,173 cases compared to 11,882 cases in 2017.

Occupational disease cases and dangerous occurrences decreased by 236 and 12 cases respectively; from 799 occupational disease cases in 2017 to 563 cases in 2018, and from 35 dangerous occurrences in 2017 to 23 dangerous occurrences in 2018.

Table 1.1: Number of workplace injuries, dangerous occurrences and occupational diseases, 2017 and 2018

	2017	2018
Workplace Injuries	12,498	12,810
Fatal Injuries	42	41
Major Injuries	574	596
Minor Injuries	11,882	12,173
Dangerous Occurrences	35	23
Occupational Diseases (OD)	799	563

Table 1.2: Key safety and health indicators, 2017 and 2018

Per 100,000 employed persons

	2017	2018
Workplace Injury Rate²	369	373
Fatal Injury rate	1.2	1.2
Major Injury rate	16.9	17.4
Minor Injury rate	351	355
Accident Frequency Rate ³	1.6	1.6
Accident Severity Rate ⁴	69	66
Occupational Disease Incidence Rate⁵	23.6	16.4

¹ A workplace injury is any personal injury or death resulting from a workplace accident. Includes work-related traffic injuries. Please refer to Annexes D and E for the types of workplace injuries covered.

² Workplace Injury Rate = $\frac{\text{No. of Fatal and Non-Fatal Workplace Injuries}}{\text{No. of Employed Persons}} \times 100,000$

³ Accident Frequency Rate (AFR) = $\frac{\text{No. of Workplace Accidents Reported}}{\text{No. of Man-hours Worked}} \times 1,000,000$

⁴ Accident Severity Rate (ASR) = $\frac{\text{No. of Man Days Lost To Workplace Accidents}}{\text{No. of Man-hours Worked}} \times 1,000,000$

⁵ Occupational Disease Incidence Rate = $\frac{\text{No. of Occupational Disease Cases}}{\text{No. of Employed Persons}} \times 100,000$

In addition to reporting outcome indicators like workplace injury rates and occupational disease incidence rates, this report has included leading indicators from prevention activities. The proactive activities include workplace Medical and Hygiene surveillance which monitors health risks from exposures to physical and toxic or harmful substances at work, and Business under Surveillance (BUS), which guides poor performing companies to improve their WSH management system.

The main findings on workplace safety and health performance for 2018 are:

WORKPLACE INJURIES

- 41 workers were fatally injured, a rate of 1.2 per 100,000 employed persons.
- 596 workers sustained workplace major injuries, a rate of 17.4 per 100,000 employed persons.
- 12,173 workers sustained minor injuries, a rate of 355 per 100,000 employed persons.
- 530,961 man-days⁶ were lost, a rate of 66 man-days lost per million man-hours worked (i.e. accident severity rate).
- 1.6 incidents occurred for every million man-hours worked (i.e. accident frequency rate).

DANGEROUS OCCURRENCES

- 23 dangerous occurrences (DO) were reported to MOM in 2018.

OCCUPATIONAL DISEASES

- 563 occupational disease (OD)⁷ cases were confirmed in 2018, with an incidence rate of 16.4 per 100,000 employed persons.
- The leading OD was work-related musculoskeletal disorders (WRMSD) with 326 cases, with inclusion of back injury cases due to ergonomic risks.
- The second most common OD was noise-induced deafness (NID) with 163 cases.

BUSINESS UNDER SURVEILLANCE

- 28 companies entered the Business under Surveillance (BUS) programme in 2018.

MEDICAL AND HYGIENE SURVEILLANCE

- 121,219 workers from 2,137 workplaces were monitored under the Medical Surveillance Programme.
- Under the Hygiene Surveillance Programme, 82% of the workplaces had static noise levels greater than 85dBA.

⁶ For the purpose of this publication, MOM considers a fatal injury as equivalent to the loss of 6,000 man-days, similar to the U.S. National Institute of Occupational Safety and Health (NIOSH)'s table of scheduled charges.

⁷ An occupational disease is a disease contracted as a result of exposure to risk factors arising from work.

OVERVIEW OF TRENDS

WORKPLACE INJURIES

For 2018, the overall number of reported injuries⁸ increased by 2% compared to 2017. The workplace injury rate increased from 369 per 100,000 employed persons to 373 per 100,000 employed persons.

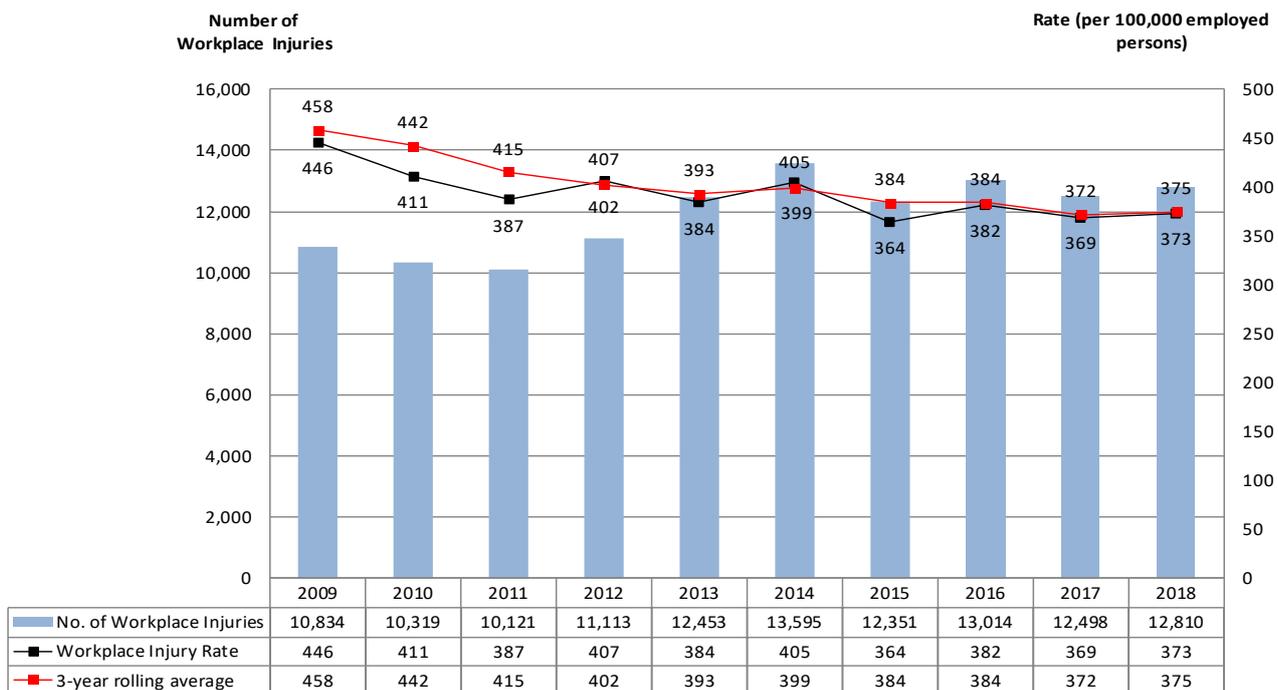


Figure 1: Workplace injury rate, 2009-2018

⁸ Employer or Occupier has to report work incidents to the Ministry of Manpower under the WSH (Incident Reporting) Regulations.

WORKPLACE FATAL INJURIES

There were 41 workplace fatal injuries in 2018, one case less than 42 workplace fatal injuries in 2017. This corresponds to a decline in fatal injury rate although the rounded-up figure remains at 1.2 per 100,000 employed persons in 2018.

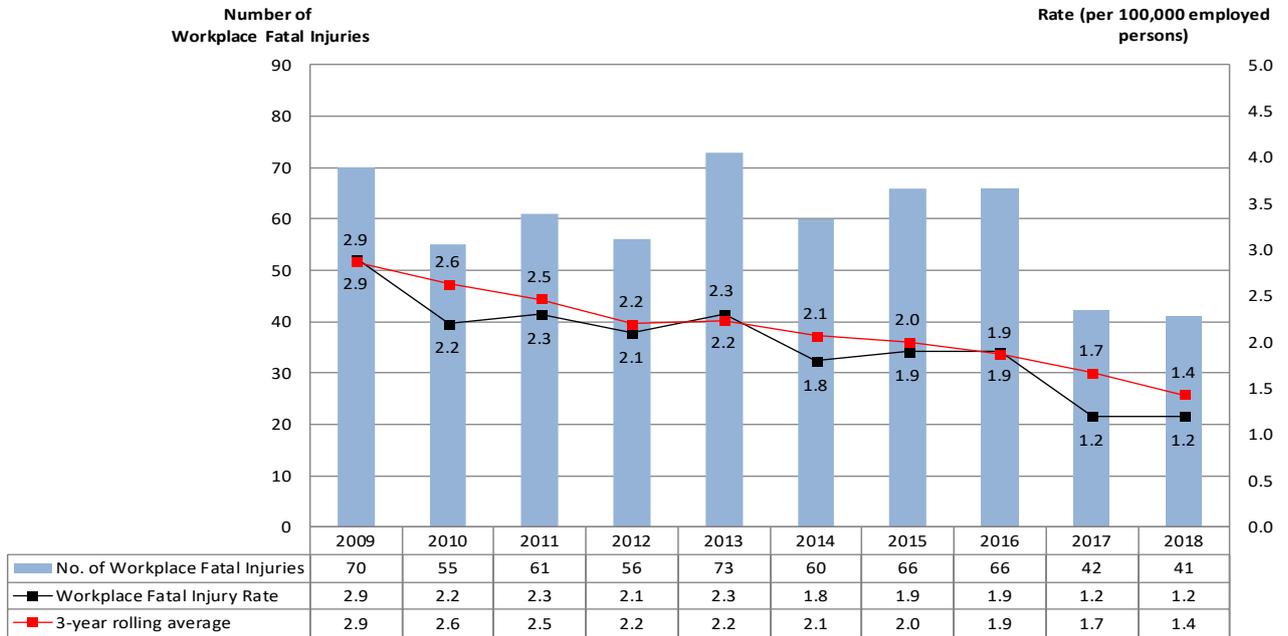


Figure 2: Workplace fatal injury rate, 2009-2018

The Construction sector remained as the top contributor with 14 workplace fatal injuries. There were three fewer fatal injuries in both Manufacturing and Transportation & Storage sectors in 2018 compared to 2017. However, fatal injuries in Wholesale Trade increased from three to five in 2018.

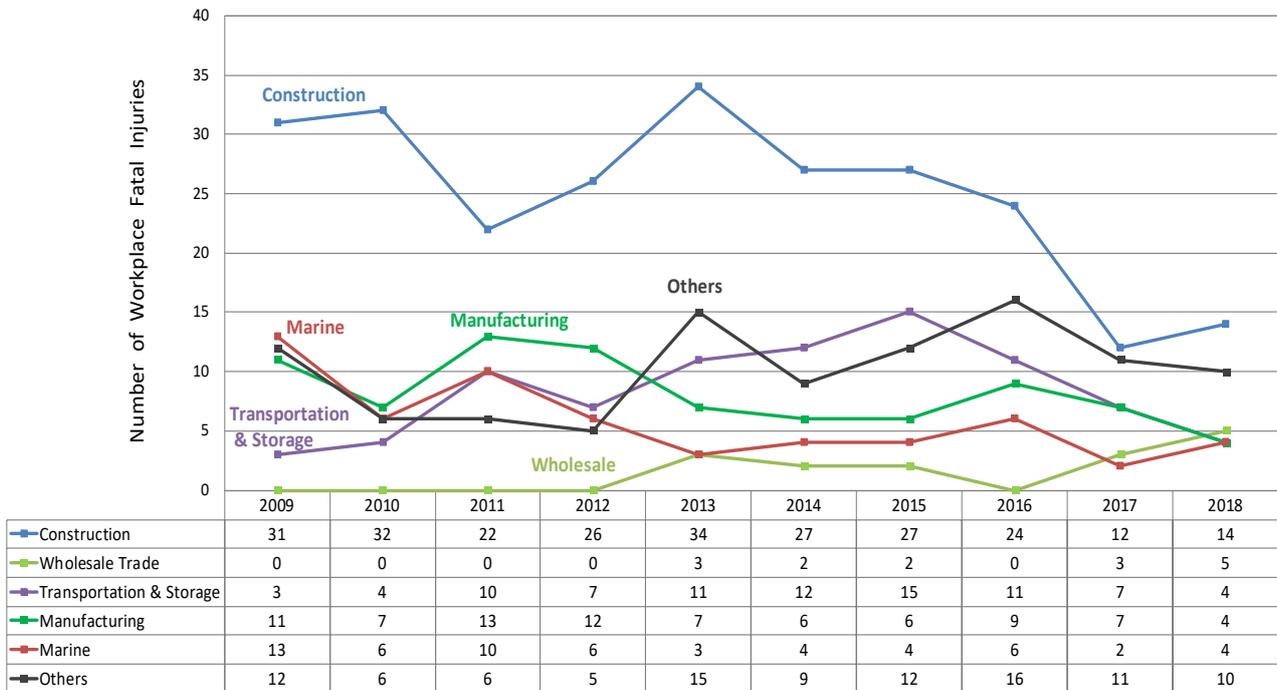


Figure 3: Proportion of workplace fatal injuries by industry, 2009-2018

CAUSES OF WORKPLACE FATAL INJURIES

In 2018, the top three causes of fatal injuries remained as Falls from Height, Slips, Trips & Falls and Vehicular Incidents⁹. Collectively, they accounted for 54% (22 cases) of all workplace fatal injuries in 2018.

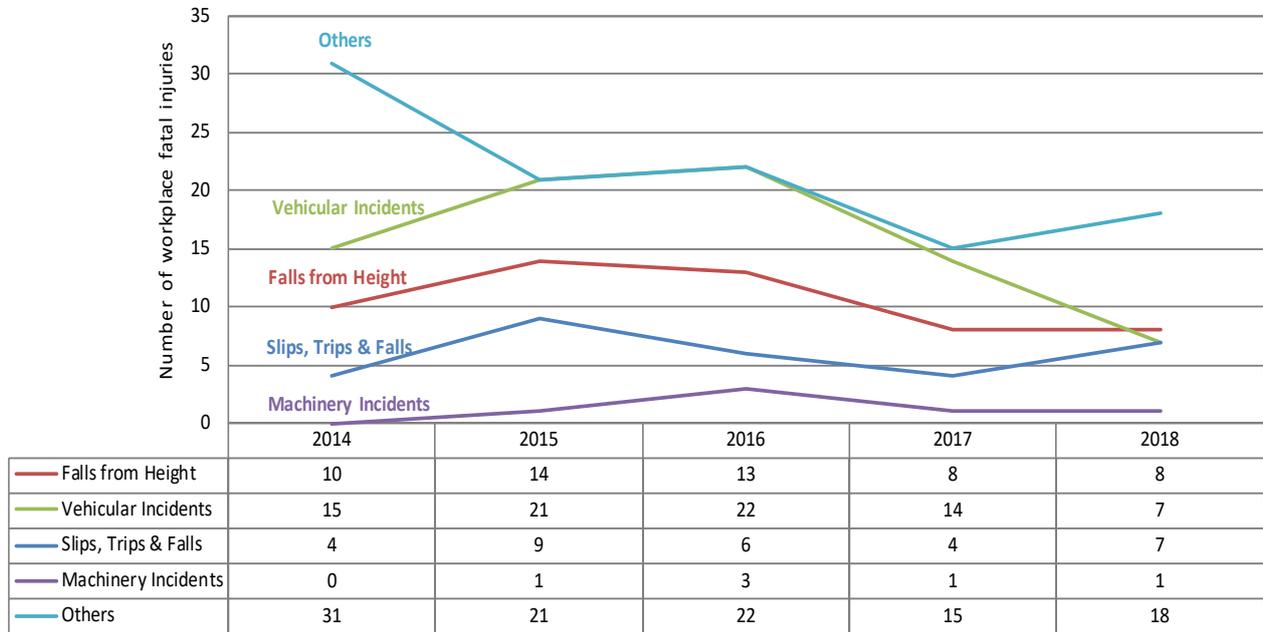


Figure 4: Proportion of workplace fatal injuries by cause of injury, 2014-2018

⁹Vehicular Incidents includes Struck by Moving Objects and Caught In/Between Objects where the agent(s) is a vehicle.

WORKPLACE FATAL INJURIES BY SECTOR

CONSTRUCTION

The workplace fatal injury rate in the Construction sector increased from 2.6 per 100,000 employed persons in 2017 to 3.1 per 100,000 employed persons in 2018. A total of 14 workplace fatal injuries occurred in the Construction sector in 2018.

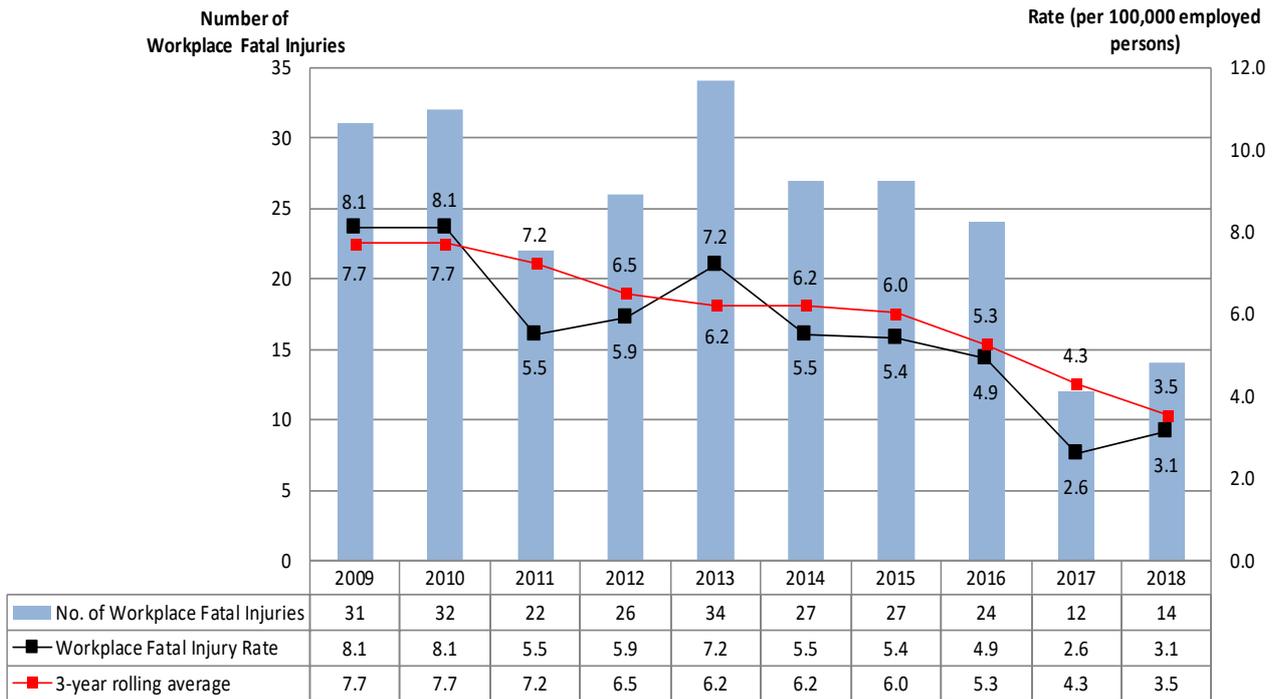


Figure 5: Workplace fatal injury rate for Construction sector, 2009-2018

MARINE

The workplace fatal injury rate in the Marine¹⁰ sector increased from 2.7 per 100,000 employed persons in 2017 to 6.2 per 100,000 employed persons in 2018. A total of four workplace fatal injuries occurred in the Marine sector in 2018.

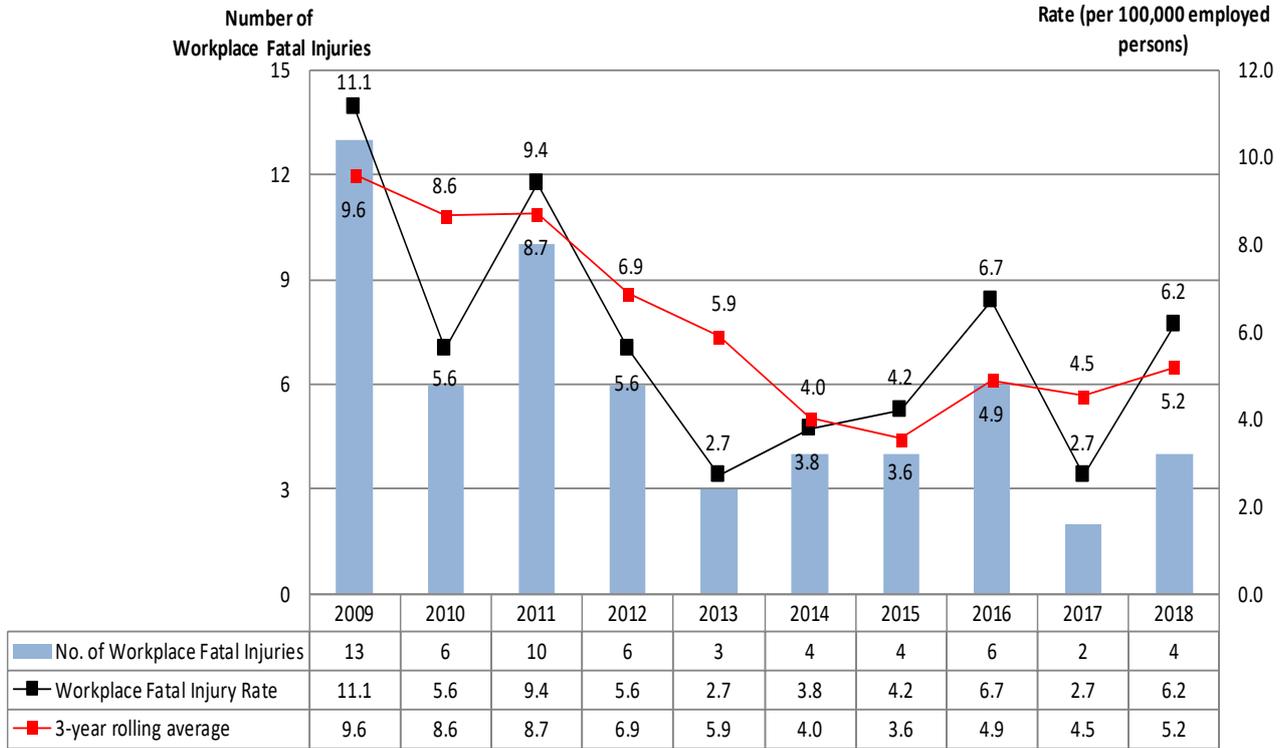


Figure 6: Workplace fatal injury rate for Marine sector, 2009-2018

¹⁰ The marine sector includes the following activities:

- Shipbuilding and Ship Repair
- Marine Surveying Services (other than classification societies)
- Salvaging of distressed vessels and cargo

Works carried out in the anchorage are also included.

MANUFACTURING

The workplace fatal injury rate in the Manufacturing sector decreased from 1.7 per 100,000 employed persons in 2017 to 0.9 per 100,000 employed persons in 2018. A total of four workplace fatal injuries occurred in the Manufacturing sector in 2018.

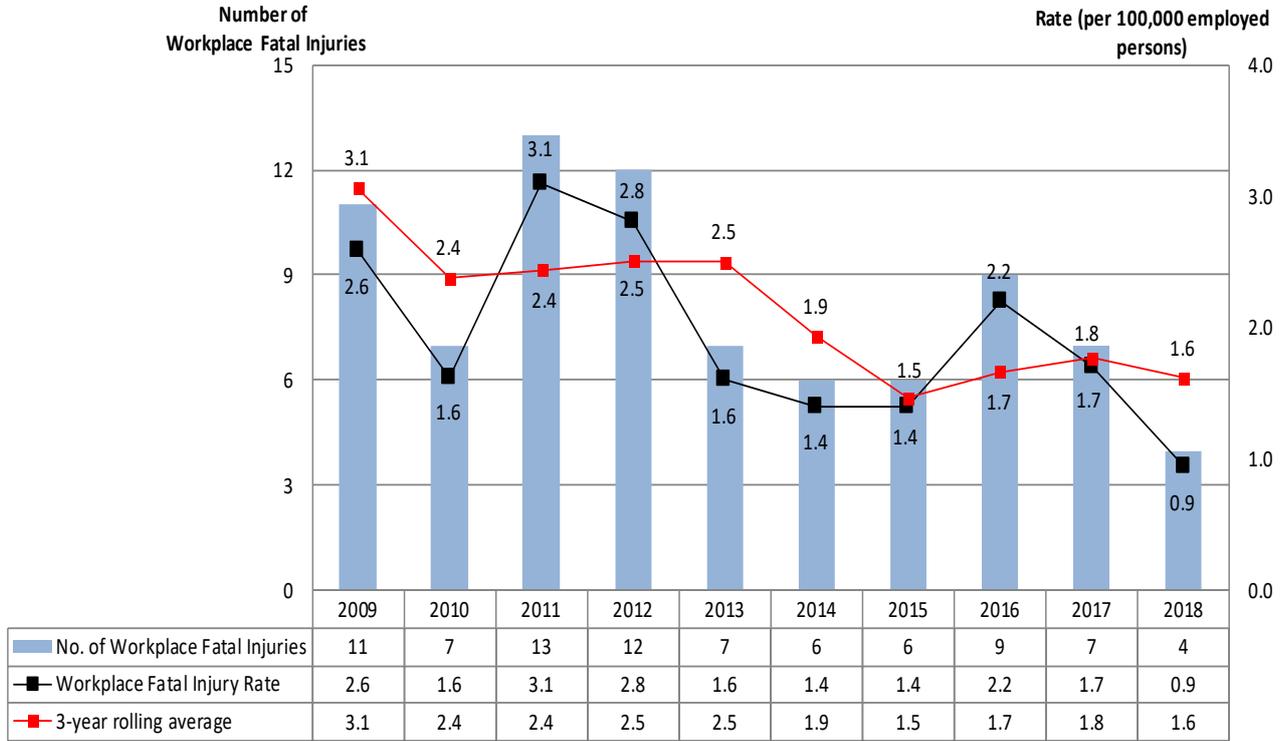


Figure 7: Workplace fatal injury rate for Manufacturing sector, 2009-2018

TRANSPORTATION & STORAGE

The workplace fatal injury rate in the Transportation & Storage sector decreased from 2.9 per 100,000 employed persons in 2017 to 1.5 per 100,000 employed persons in 2018. A total of four workplace fatal injuries occurred in the Transportation & Storage sector in 2018.

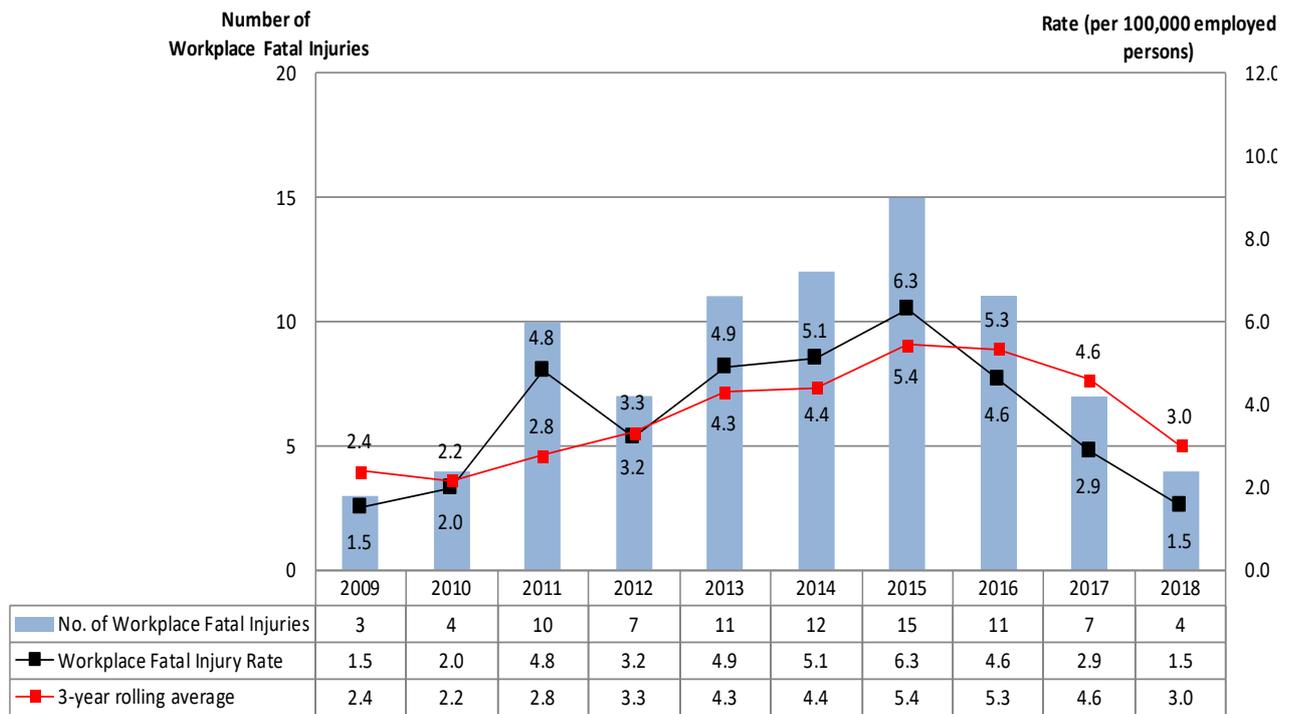


Figure 8: Workplace fatal injury rate for Transportation & Storage sector, 2009-2018

WORKPLACE MAJOR INJURIES

The number of workplace major injuries increased from 574 cases (16.9 per 100,000 employed persons) in 2017 to 596 cases (17.4 per 100,000 employed persons) in 2018.

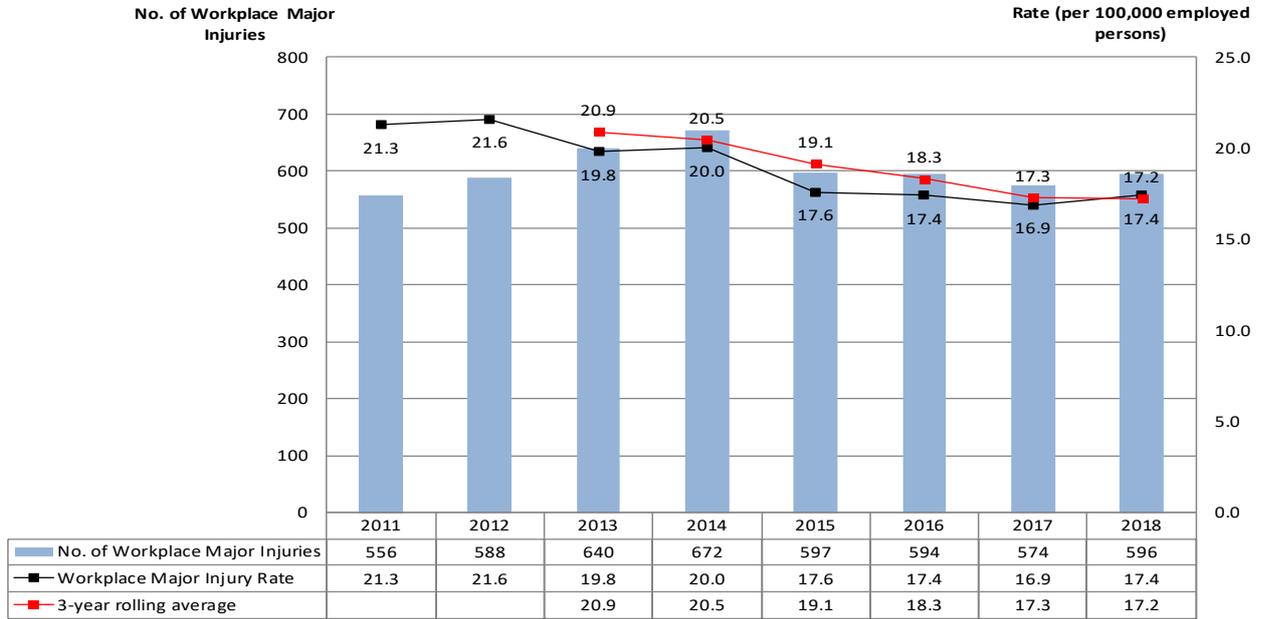


Figure 9: Workplace major injury rate, 2011-2018

WORKPLACE MAJOR INJURIES BY SECTOR

The Construction and Manufacturing sectors were the highest contributors in 2018, each contributing 124 and 123 workplace major injuries in 2018 respectively. They were followed by the Community, Social and Personal Services¹¹ sector with 59 major injuries. The three top contributing sectors accounted for 51% (306 cases) of workplace major injuries in 2018.

CAUSES OF WORKPLACE MAJOR INJURIES

In 2018, the top three causes of workplace major injuries were Slips, Trips and Falls, Machinery Incidents and Falls from Height. They collectively accounted for 59% (349 cases) of all workplace major injuries in 2018.

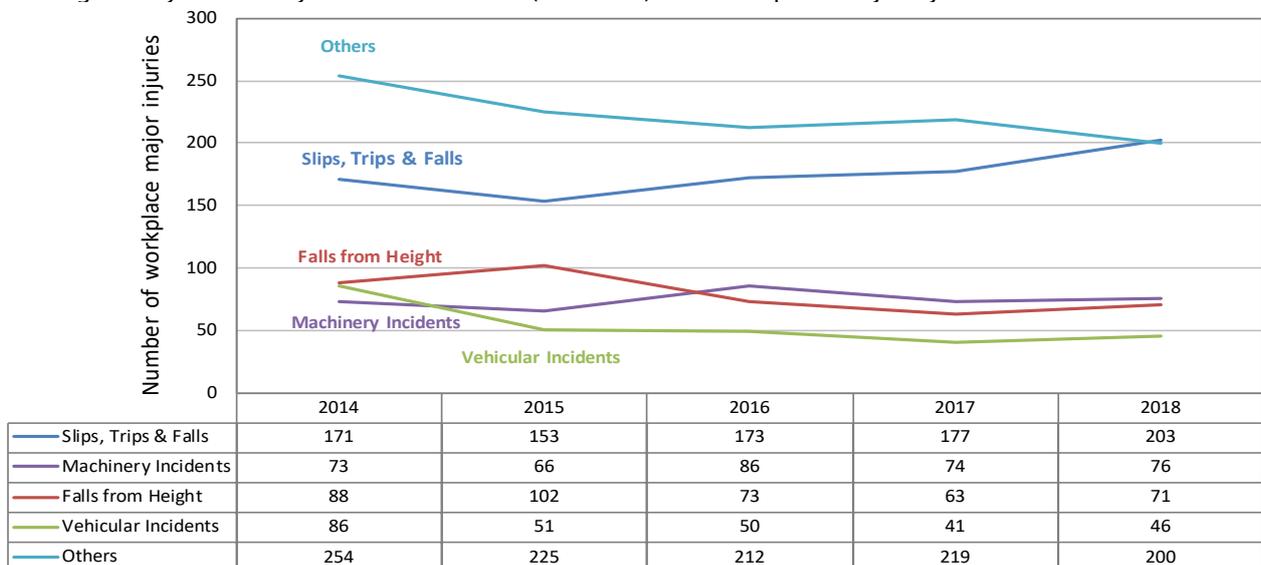


Figure 10: Proportion of workplace major injury by cause of injury, 2014-2018

¹¹ The Community, Social and Personal Services sector consists of the following sub-sectors:

- Public Administration & Education
- Health & Social Services
- Arts, Entertainment & Recreation
- Repair & Maintenance of Vehicles
- Other Service Activities

WORKPLACE MINOR INJURIES

The number of workplace minor injuries increased by 2% from 11,882 cases (351 per 100,000 employed persons) in 2017 to 12,173 cases (355 per 100,000 employed persons) in 2018.

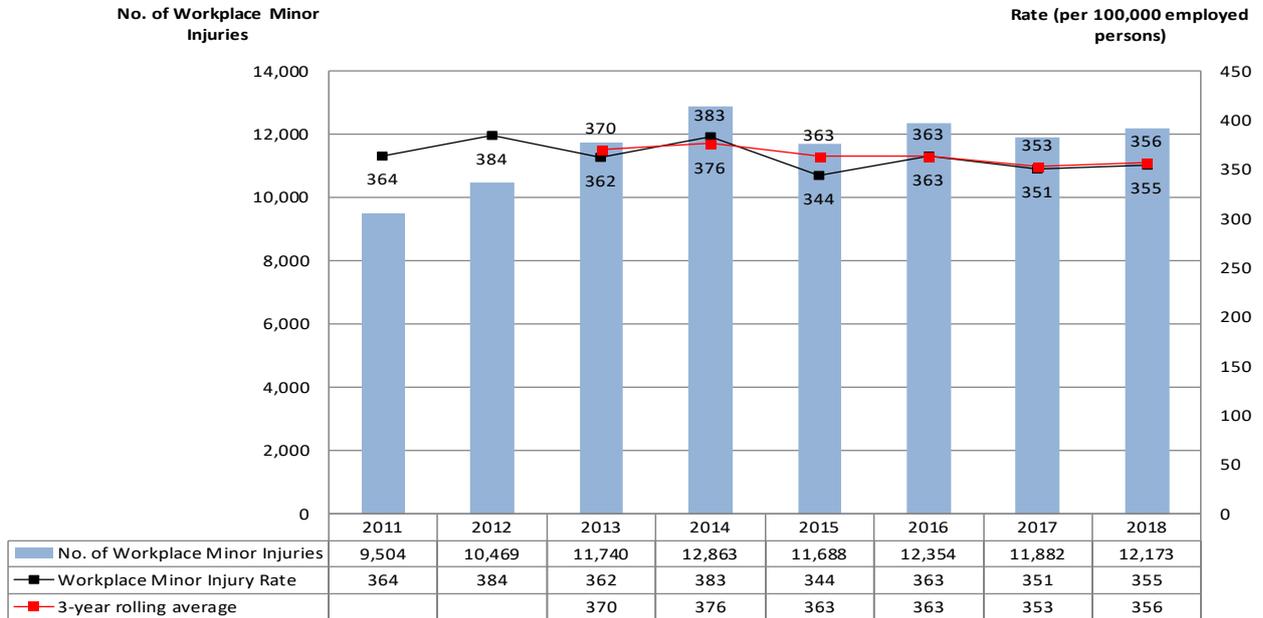


Figure 11: Workplace minor injury rate, 2011-2018

WORKPLACE MINOR INJURIES BY SECTOR

The top three contributing sectors were Manufacturing (2,473 minor injuries), Construction (1,656 minor injuries) and Community, Social & Personal Services (1,339 minor injuries). These three top contributing sectors accounted for 45% (5,468 cases) of workplace minor injuries in 2018.

CAUSES OF WORKPLACE MINOR INJURIES

In 2018, the top three causes of workplace minor injuries were Slips, Trips and Falls, Machinery Incidents¹² and Vehicular Incidents. They collectively accounted for 51% (6,188 cases) of all workplace minor injuries in 2018.

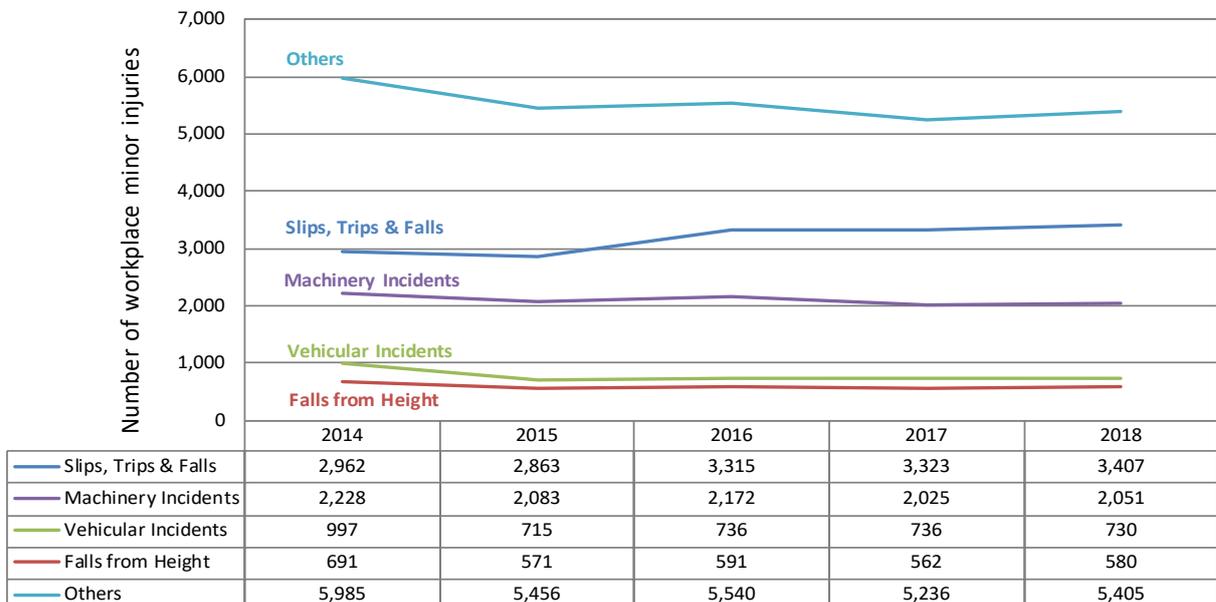


Figure 12: Proportion of workplace minor injury by cause of injury, 2014-2018

¹²Machinery-related Incidents includes Struck by Moving Objects, Caught In/Between Objects and Cut/Stabbed by Objects where the agent(s) is an industrial machine, industrial hand tool or other machines and tools.

DANGEROUS OCCURRENCES

In 2018, there were 23 reported cases of dangerous occurrences (DO); a decrease of 34% from 35 cases in 2017. Among the DO cases, 14 were due to Collapse/Failure of Structures & Equipment, where the vast majority (12 cases) were Crane-related. While the nine remaining DO cases were due to Fires and Explosion.

DANGEROUS OCCURRENCES BY SECTOR

The Construction sector remained the top contributor for the DO cases, accounting for 43% of total DO cases reported while the Manufacturing sector was the second top contributor accounting for 22% of total DO cases reported in 2018.

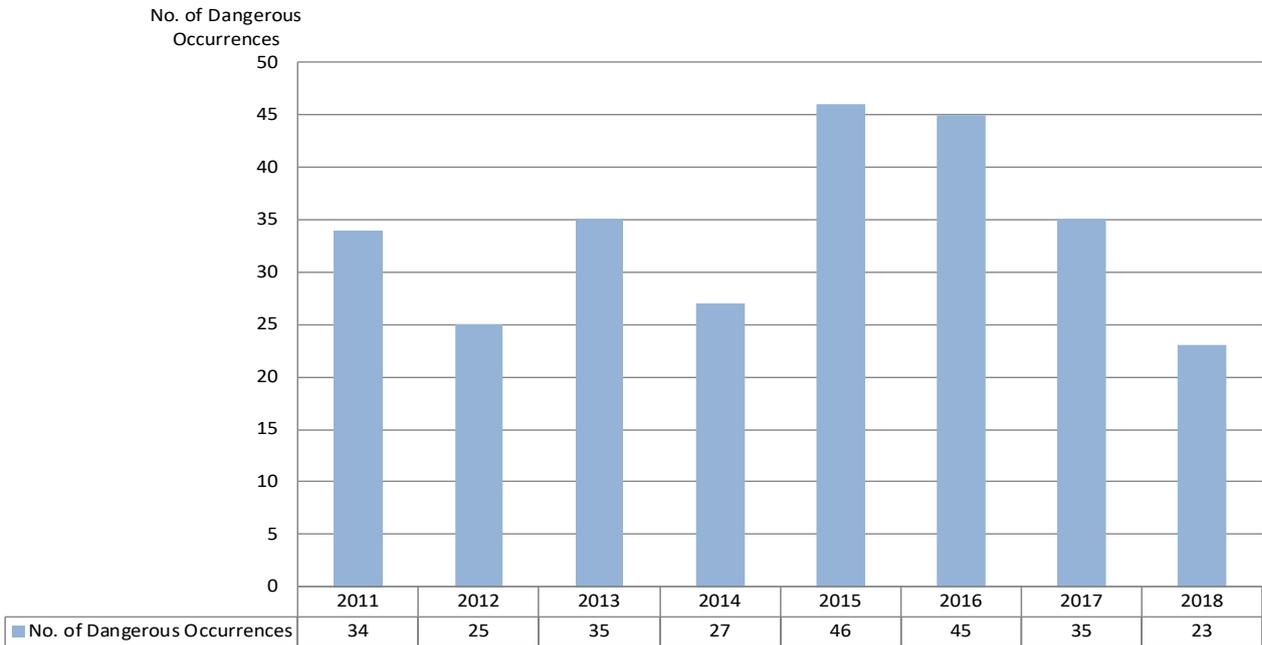


Figure 13: Number of dangerous occurrences, 2011-2018

ACCIDENT FREQUENCY RATE

The accident frequency rate (AFR), which measures how often work incidents occur, remained at 1.6 incidents per million man-hours worked in 2018.

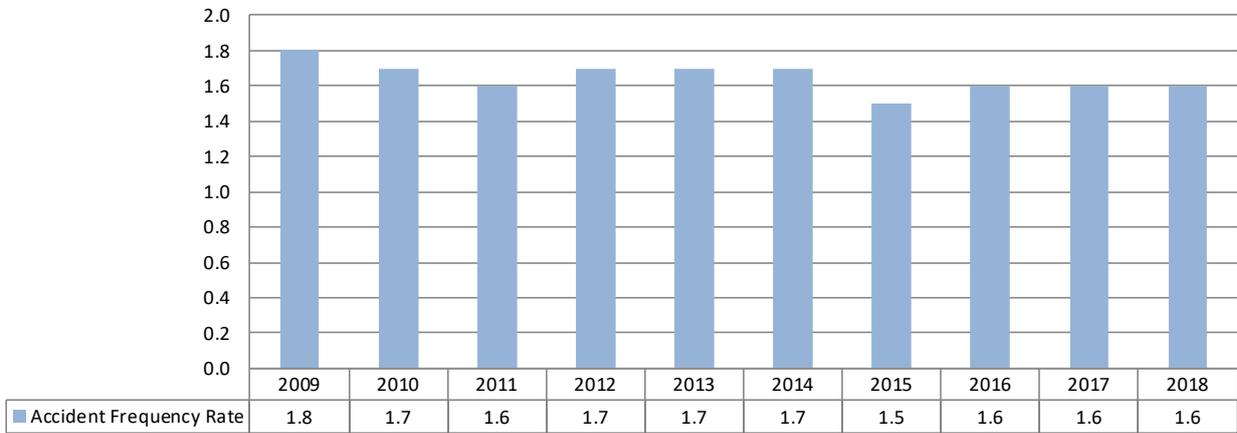


Figure 14: Accident frequency rate, 2009-2018

ACCIDENT SEVERITY RATE

In 2018, a total of 531,446 man-days were lost due to workplace injuries, a decrease of 2% in comparison to 2017. The accident severity rate (ASR) was 66 man-days lost for every million hours worked in 2018.

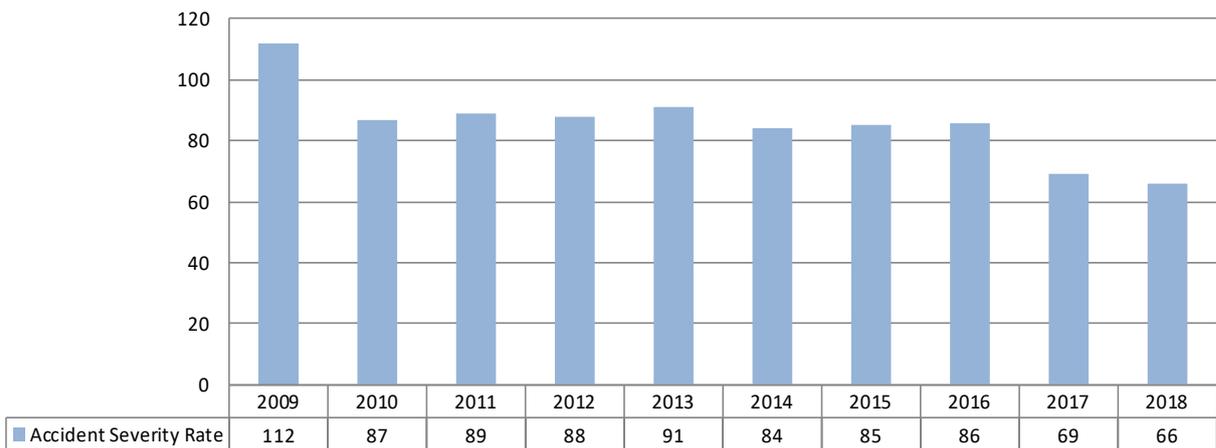


Figure 15: Accident severity rate, 2009-2018

OCCUPATIONAL DISEASES

563 occupational diseases (OD) cases were confirmed in 2018, a reduction of 30% as compared to 799 OD cases in 2017. Similarly, the OD incidence rate decreased from 23.6 confirmed cases per 100,000 employed persons in 2017 to 16.4 confirmed cases per 100,000 employed persons in 2018. Work-Related Musculoskeletal Disorders (WRMSD) remained as the leading OD since 2017.

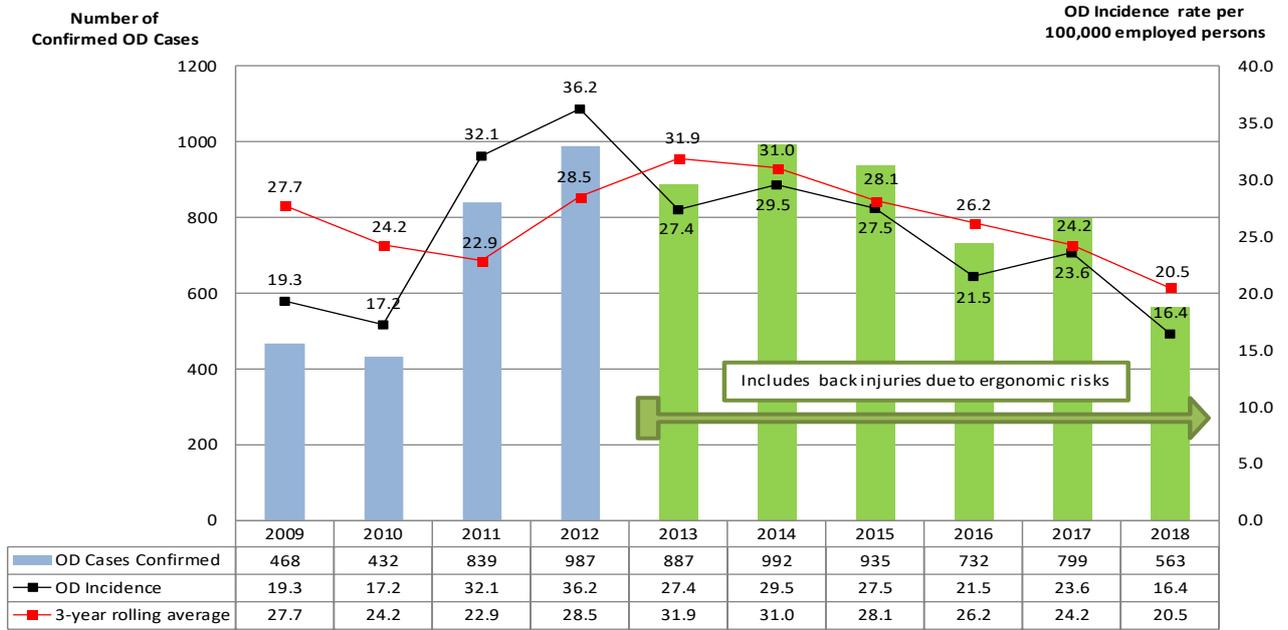


Figure 16: Occupational disease incidence rate, 2009-2018

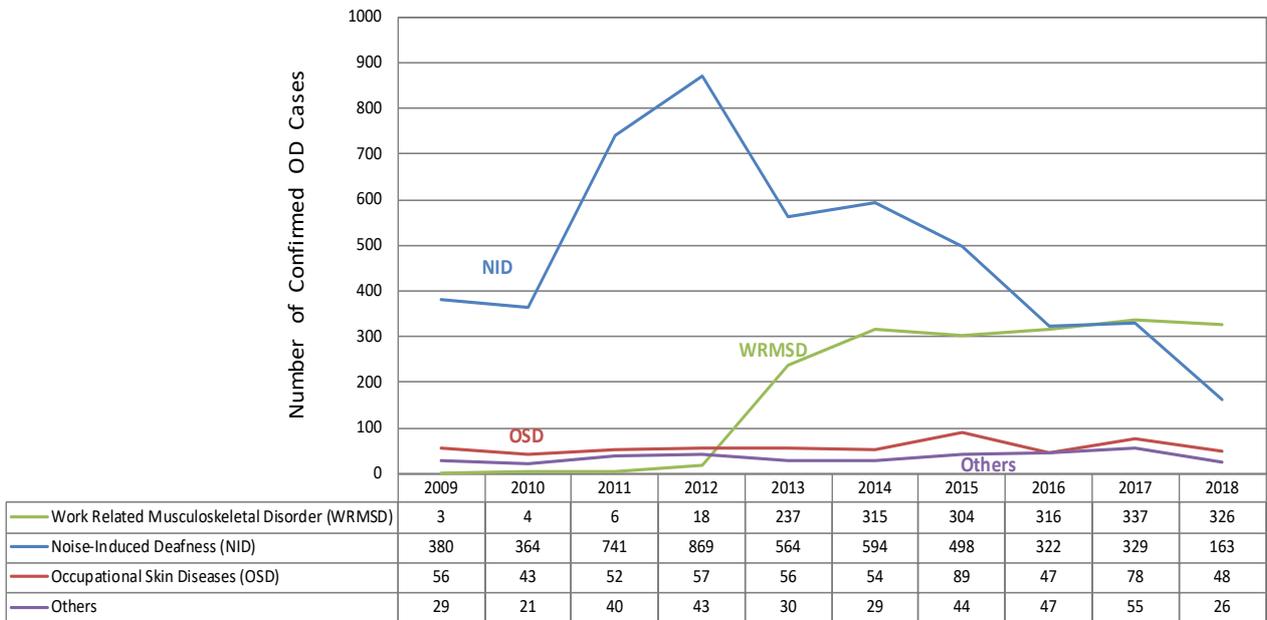


Figure 17: Proportion of occupational disease by type, 2009-2018

WORK-RELATED MUSCULOSKELETAL DISORDERS (WRMSD)

WRMSD cases reduced from 337 cases in 2017 to 326 cases in 2018. The Community, Social and Personal Services sector remained as the highest contributor at 14% (46 cases) followed by the Accommodation & Food Services sector at 11% (37 cases) and the Construction sector at 7% (24 cases).



Figure 18: Number of work-related musculoskeletal disorders, 2013-2018

NOISE-INDUCED DEAFNESS (NID)

NID cases had decreased from 329 cases in 2017 to 163 cases in 2018. The Manufacturing sector continued to be the top contributor to NID cases, accounting for 53% (86 cases) of all NID cases. Within the Manufacturing sector, more than half of the NID cases were from the Metalworking sub-sector.



Figure 19: Noise-induced deafness incidence rate, 2009-2018

OCCUPATIONAL SKIN DISEASES (OSD)

There were fewer OSD cases in 2018 with 48 cases confirmed in comparison with 78 OSD cases in 2017. The majority of the OSD cases came from the Community, Social and Personal Services sector at 42% with most of the cases contributed by the Health Activities, Social Services and Education subsectors.

OTHER OCCUPATIONAL DISEASES

There was a general decrease in all types of Occupational Diseases with the exception of Occupational Lung Disease which saw a rise from one case in 2017 to six cases in 2018 and Heat Disorder from one case in 2017 to three cases in 2018. Notably, there was a decrease in Compressed Air Illness from 15 cases in 2017 to two cases in 2018.

BUSINESS UNDER SURVEILLANCE

Proactive surveillance of high risk workplaces enables preventive measures to be taken early. The Business Under Surveillance (BUS¹³) programme focuses on improvement of WSH management systems.

BUSINESS UNDER SURVEILLANCE

More than 300 companies have been placed under the programme since inception in 2007. Companies on the BUS programme include those with serious accidents, and those which were issued with Stop Work Orders (SWO) for poor WSH management or which have accumulated a substantial number of demerit points. Companies exit the programme when their WSH standards have improved to a level where they can effectively manage their WSH risks.

In 2018, 28 companies entered the BUS programme. They were all from the Construction sector. For the 14 companies which exited the programme in 2018, they were under surveillance for an average of 17 months.

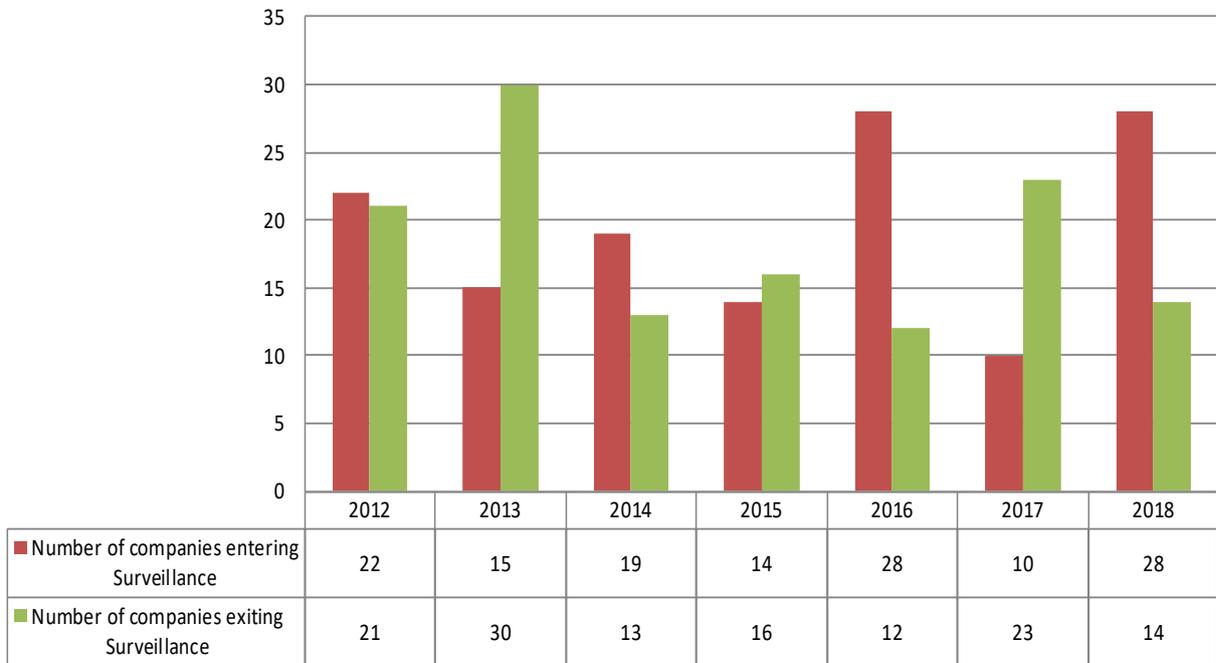


Figure 20: Number of companies entering and exiting surveillance, 2012-2018

¹³ Refer to Annex B and website <http://mom.gov.sg/workplace-safety-health/programmes/Pages/regulatory-programmes.aspx#bus> for information on BUS programme.

MEDICAL AND HYGIENE SURVEILLANCE

Hygiene¹⁴ and Medical¹⁵ surveillance programmes monitor workers’ exposure and health effects from exposure to the list of hazards under the Workplace Safety and Health (General Provisions) Regulations, Workplace Safety and Health (Noise) Regulations and the Workplace Safety and Health (Medical Examinations) Regulations.

MEDICAL SURVEILLANCE

Workplaces with hazards listed in the Schedule of the WSH (Medical Examinations) Regulations are required to send their exposed workers for pre-placement and periodic medical examinations.

There was a decrease of workplaces under medical surveillance from 2,147 in 2017 to 2,137 in 2018. Similarly, the numbers of workers under surveillance decreased from 124,101 in 2017 to 121,219 in 2018.

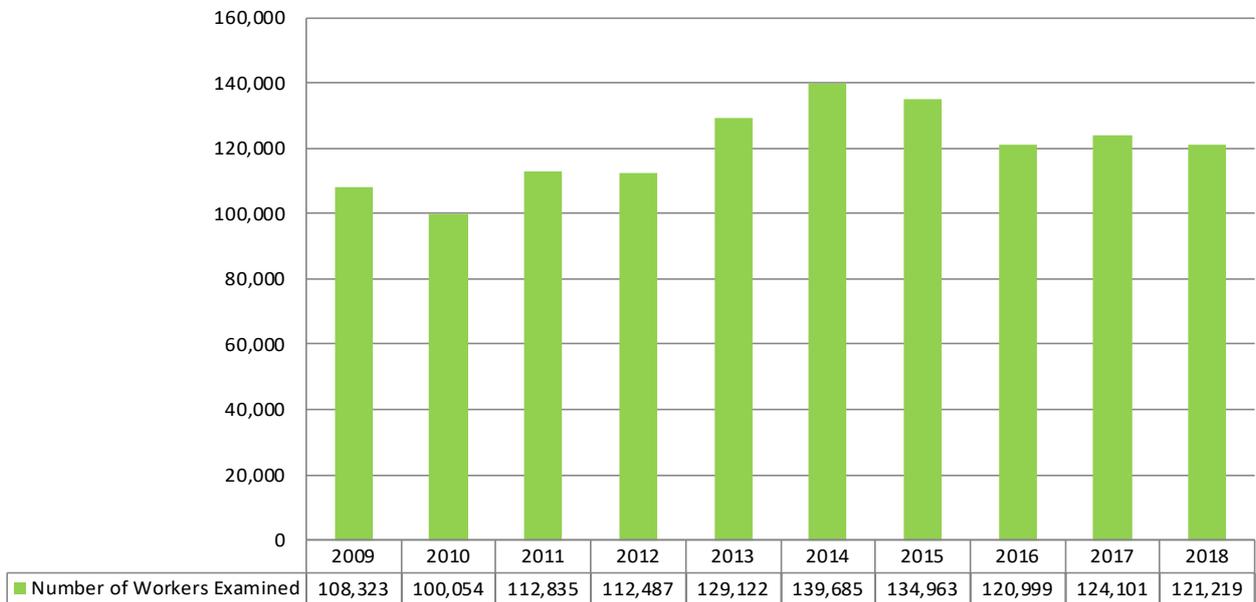


Figure 21: Number of workers under medical surveillance, 2009-2018



Figure 22: Number of workplaces under medical surveillance, 2009-2018

¹⁴ Hygiene surveillance determines the levels of persons’ exposure to noise and airborne toxic substances in the workplace. Refer to Annex C for more information.

¹⁵ Medical surveillance monitors the results of the medical examinations of workers who are exposed to specific hazards for early detection and prevention of potential ill health. Examinations are conducted by Designated Workplace Doctors (DWDs). Refer to Annex C for more information.

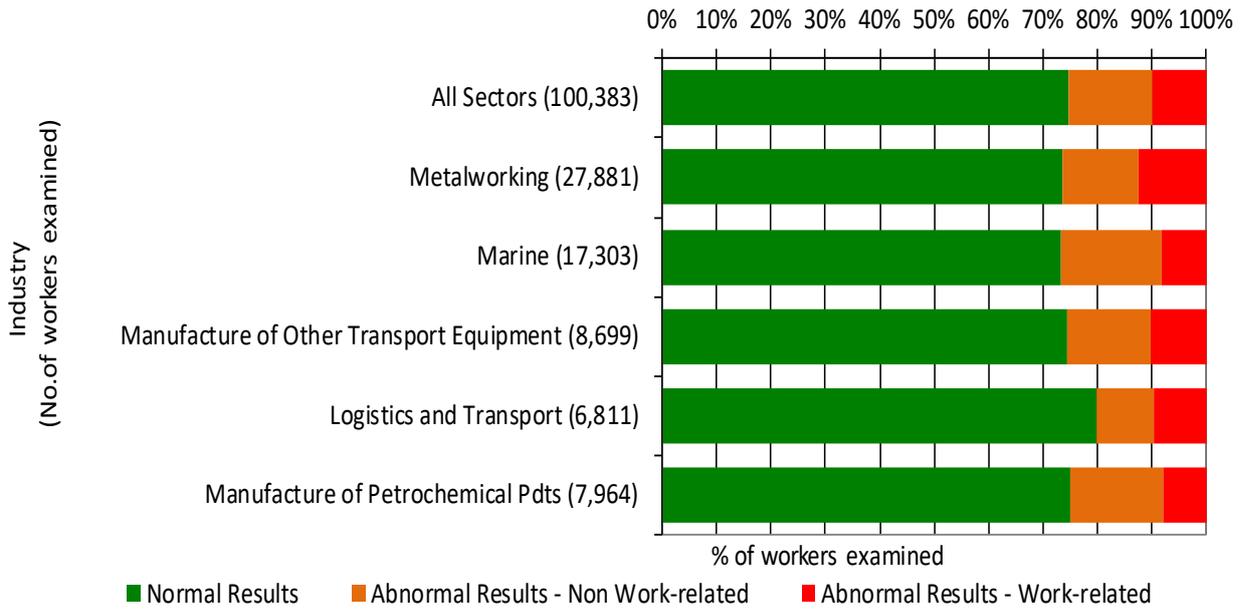


Figure 23: Results of medical monitoring¹⁶ for noise exposure for Top 5 industries, 2018

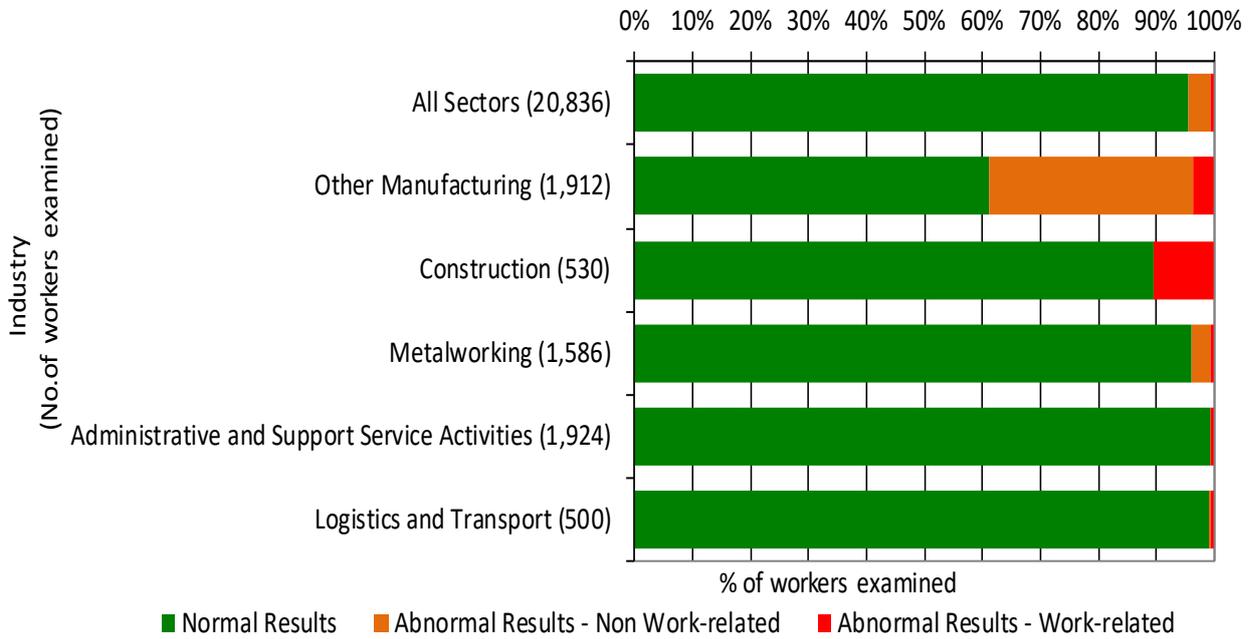


Figure 24: Results of medical monitoring for chemical exposure for Top 5 industries, 2018

¹⁶ Based on submissions received from Designated Workplace Doctors.

HYGIENE SURVEILLANCE

Workplaces where persons are likely to be exposed to excessive noise or toxic substances are required to conduct regular hygiene monitoring to check their workers' exposure to noise and chemicals respectively.

NOISE EXPOSURE LEVELS

Based on the noise monitoring results submitted over the past 3 years, 82% of the workplaces had workers who were exposed to excessive noise, i.e., above an equivalent sound pressure level of 85dBA over an 8-hour workday.

Workplaces with excessive noise levels will need to implement additional control measures and protect persons at work from noise exposure. Majority of the workplaces under the noise monitoring programme were from the metalworking sub-sector.

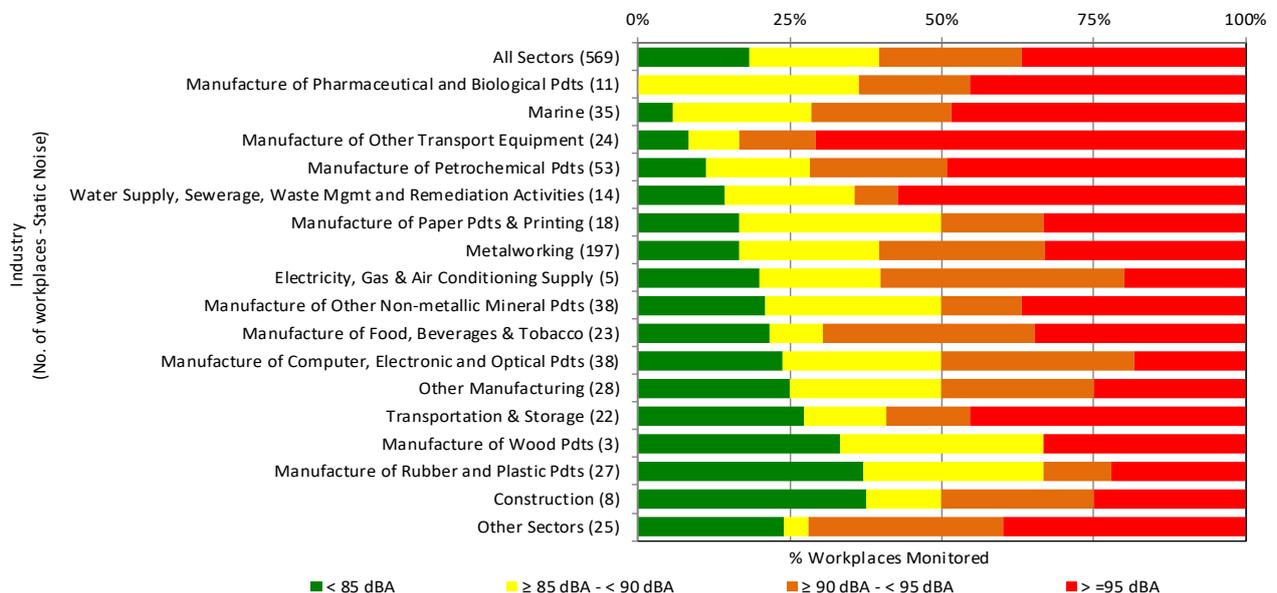


Figure 25: Static noise exposure by industry, 2016 - 2018

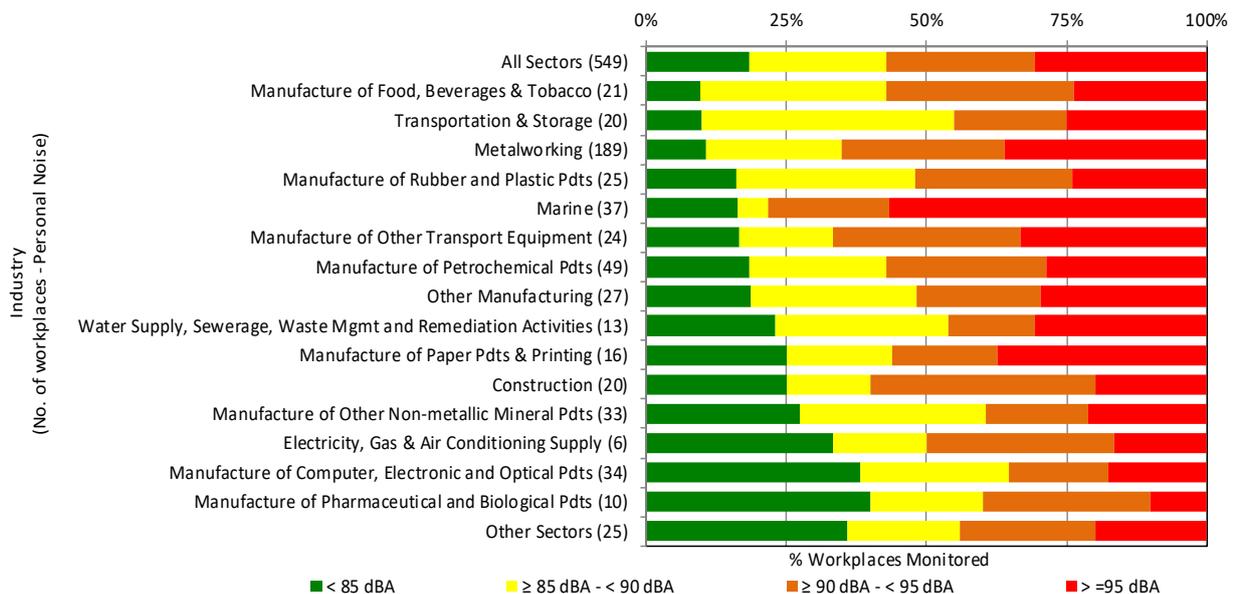


Figure 26: Personal noise exposure by industry, 2016 - 2018

CHEMICAL EXPOSURE LEVELS

A total of 1,162 chemical monitoring results were received in 2018, of which 13% of the results were from the Manufacture of Petrochemical Products sub-sector and 11% from the Manufacture of Computer, Electronics and Optical Products sector. There were a few workplaces with chemical levels higher than permissible exposure level (PEL)¹⁷ which required implementation of additional engineering and other control measures.

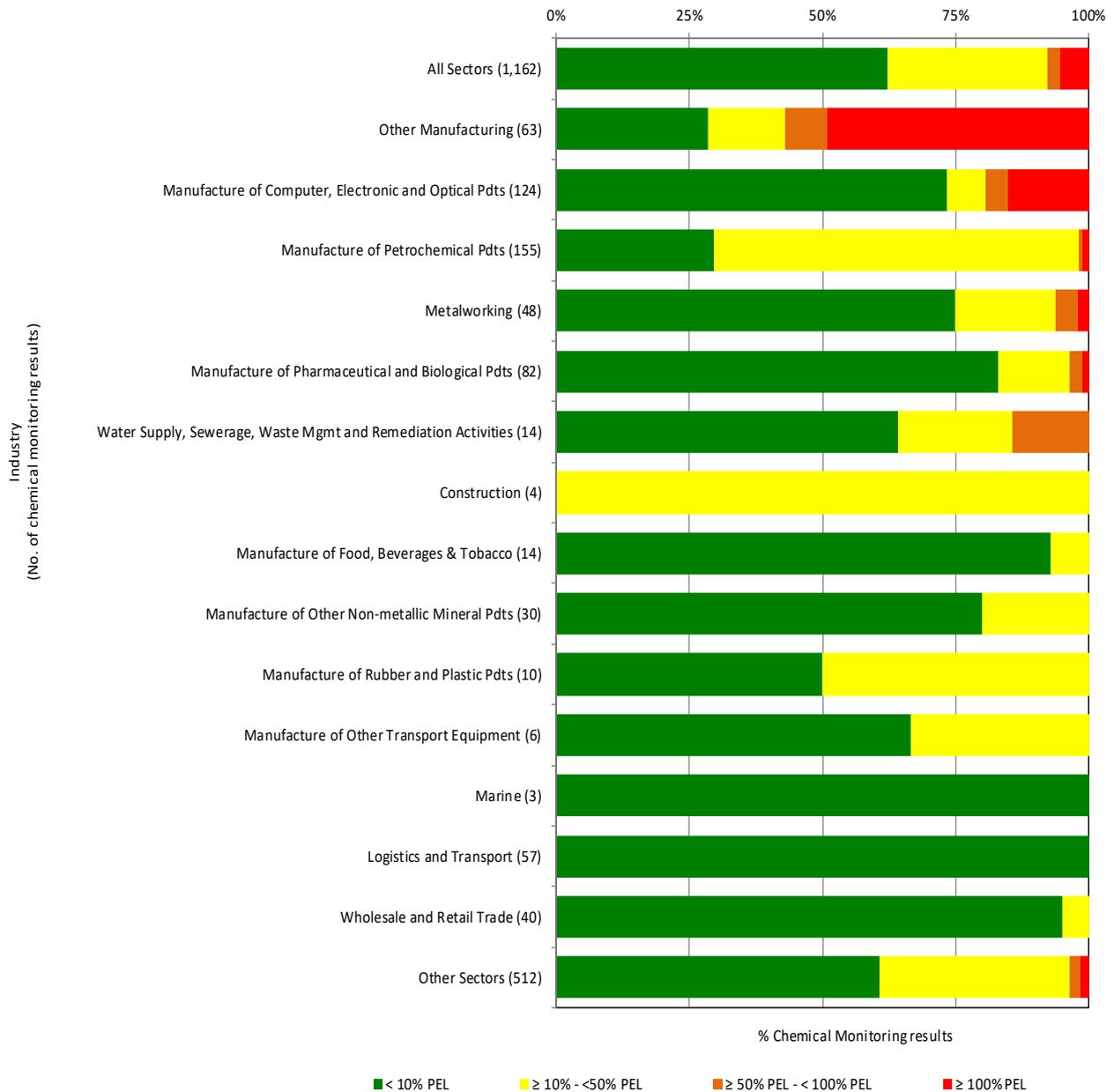


Figure 27: Chemical exposures by industry, 2018

¹⁷ Permissible Exposure Levels (PELs) refer to the maximum time weighted average concentration of a toxic substance to which any person may be exposed.

ANNEX A

STATISTICAL TABLES

Table 1.3: Number of workplace fatal injuries by industry, 2017 and 2018

Industry	2017	2018
All Sectors	42	41
Construction	12	14
Marine	2	4
Manufacturing	7	4
<i>Manufacture of Computer, Electronic and Optical Products</i>	1	1
<i>Manufacture of Food Products</i>	2	1
<i>Manufacture of Furniture</i>	1	0
<i>Manufacture of Rubber and Plastic Products</i>	1	0
<i>Manufacture of Wood Products</i>	1	0
<i>Manufacture of Other Non-metallic Mineral Products</i>	0	1
<i>Metalworking</i>	1	1
Fishing, Operation of Fish Hatcheries and Fish Farms	1	0
Electricity, Gas, & Air Conditioning Supply	0	1
Water Supply, Sewerage & Waste Management and Remediation Activities	2	1
Wholesale & Retail Trade	3	6
<i>Wholesale Trade</i>	3	5
<i>Retail Trade</i>	0	1
Transportation & Storage	7	4
<i>Logistics & Transport¹⁶</i>	6	3
Food & Beverage Service Activities	1	0
Telecommunications	0	1
Real Estate Services	1	4
Scientific Research and Development	1	0
Rental & Leasing Activities	0	1
Security & Investigation Activities	1	0
Cleaning & Landscape Maintenance Activities	2	1
Other Amusement and Recreation Activities	1	0
Activities not Adequately Defined	1	0

¹⁶ The logistics & transport sector includes the following activities:

- Warehousing and Storage
- Supporting services to land transport (exclude car management services, taxi booking services, towing services)
- Supporting services to water transport (exclude marine surveying services, salvaging distressed vessels & cargo)
- Supporting services to air transport
- Freight land transport (With effect from 2016. As such, workplace injury rates are not strictly comparable with the previous years.)

Table 1.4: Workplace fatal injury rates by industry, 2017 and 2018

Per 100,000 employed persons

Industry	2017	2018
All Sectors	1.2	1.2
Construction	2.6	3.1
Marine	2.7	6.2
Manufacturing	1.7	0.9
<i>Manufacture of Computer, Electronic and Optical Products</i>	1.1	1.1
<i>Manufacture of Food Products</i>	4.4	2.1
<i>Manufacture of Furniture</i>	8.8	0.0
<i>Manufacture of Rubber and Plastic Products</i>	8.5	0.0
<i>Manufacture of Wood Products</i>	24.4	0.0
<i>Manufacture of Other Non-metallic Mineral Products</i>	0.0	23.8
<i>Metalworking</i>	0.9	0.9
Fishing, Operation of Fish Hatcheries and Fish Farms	n.a.	n.a.
Electricity, Gas & Air Conditioning Supply	n.a.	n.a.
Water Supply, Sewerage & Waste Management and Remediation Activities	12.2	6.1
Wholesale & Retail Trade	0.6	1.2
<i>Wholesale Trade</i>	0.9	1.5
<i>Retail Trade</i>	0.0	0.6
Transportation & Storage	2.9	1.5
<i>Logistics & Transport</i>	5.9	2.9
Food & Beverage Service Activities	0.5	0.0
Telecommunications	n.a.	n.a.
Real Estate Services	1.1	4.6
Scientific Research and Development	n.a.	n.a.
Rental & Leasing Activities	n.a.	n.a.
Security & Investigation Activities	2.1	0.0
Cleaning & Landscape Maintenance Activities	3.0	1.3
Other Amusement and Recreation Activities	n.a.	n.a.
Activities not Adequately Defined	n.a.	n.a.

Table 1.5: Number of workplace fatal injuries by incident type and incident agent, 2017 and 2018

Incident Type		Incident Agent	2017	2018
Total Workplace Fatal Injuries			42	41
Falls	Total		12	15
Falls from Height	Total		8	8
	<i>Physical Workplace - Structures</i>		4	4
	<i>Physical Workplace - Roofs</i>		1	2
	<i>Means of Access - Ladders</i>		1	1
	<i>Means of Access - Scaffold</i>		0	1
	<i>Lifting Equipment - Mobile Work Platform</i>		1	0
	<i>Physical Workplace - Formwork</i>		1	0
Slips, Trips & Falls	Total		4	7
	<i>Physical Workplace - Floor/Level Surfaces</i>		1	5
	<i>Means of Access - Others</i>		0	1
	<i>Vehicles</i>		2	1
	<i>Means of Access - Stairs or Steps</i>		1	0
Caught in/ between Objects	Total		5	7
	<i>Vehicles</i>		2	5
	<i>Industrial Machines</i>		1	1
	<i>Lifting Equipment - Lifts & Hoists</i>		1	1
	<i>Physical Workplace - Structures</i>		1	0
Struck by Moving Objects	Total		14	5
	<i>Work-related Traffic</i>		7	2
	<i>Material & Substances - Metal Items</i>		0	1
	<i>Physical Workplace - Formwork</i>		0	1
	<i>Other Incident Agents</i>		1	1
	<i>Vehicles</i>		5	0
Collapse/Failure of Structure & Equipment	Total		0	4
	<i>Goods / Cargo</i>		0	2
	<i>Physical Workplace - Structures</i>		0	2
Cave-In of Excavation, Tunnel, Etc	Total		0	2
	<i>Other Incident Agents</i>		0	2
Drowning	Total		1	2
Electrocution	Total		1	2
	<i>Electrical Equipment</i>		1	2

(continued) Table 1.5: Number of workplace fatal injuries by incident type and incident agent, 2017 and 2018

Incident Type	Incident Agent	2017	2018
Total Workplace Fatal Injuries		42	41
Collapse of Formwork/ Failure of its Supports	Total	3	1
Crane-related	Total	0	1
	<i>Lifting Equipment - Mobile Work Platform</i>	0	1
Struck by Falling Objects From Heights	Total	2	1
	<i>Other Incident Agents</i>	0	1
	<i>Vehicles - Forklift</i>	1	0
	<i>Wooden Items</i>	1	0
Suffocation	Total	0	1
	<i>Dust, Gas, Liquids & Chemicals</i>	0	1
Fires and Explosion	Total	2	0
	<i>Materials & Substances - Explosives / Flammable</i>	1	0
	<i>Other Incident Agents</i>	1	0
Exposure to/ Contact With Extreme Temperature (Heat / Cold)	Total	1	0
	<i>Pressurised Equipment - Boilers</i>	1	0
Exposure to/ Contact With Hazardous Substances	Total	1	0
	<i>Corrosives</i>	1	0

Table 1.6: Number of workplace fatal injuries by industry and incident type, 2018

Industry	All	Construction	Marine	Manufacturing	Electricity, Gas & Air Conditioning Supply	Water Supply, Sewerage & Waste Management and Remediation Activities	Wholesale & Retail Trade
Total	41	14	4	4	1	1	6
Falls	15	7	0	1	0	0	2
<i>Falls from Height</i>	8	6	0	0	0	0	1
<i>Slips, Trips & Falls</i>	7	1	0	1	0	0	1
Caught in/between Objects	7	0	0	3	0	1	2
Struck by Moving Objects	5	2	0	0	0	0	1
Collapse/Failure of Structure & Equipment	4	1	1	0	0	0	1
Cave-in of Excavation, Tunnel, Etc	2	2	0	0	0	0	0
Drowning	2	0	1	0	1	0	0
Electrocution	2	0	1	0	0	0	0
Collapse of Formwork/ Failure of its Supports	1	1	0	0	0	0	0
Crane-related	1	0	0	0	0	0	0
Struck by Falling Objects From Heights	1	1	0	0	0	0	0
Suffocation	1	0	1	0	0	0	0

(continued) Table 1.6: Number of workplace fatal injuries by industry and incident type, 2018

Industry	Transportation & Storage	Telecommunication	Real Estate Services	Rental & Leasing Activities	Cleaning & Landscape Maintenance Activities
Total	4	1	4	1	1
Falls	1	0	3	0	1
<i>Falls from Height</i>	0	0	1	0	0
<i>Slips, Trips & Falls</i>	1	0	2	0	1
Caught in/between Objects	1	0	0	0	0
Struck by Moving Objects	1	1	0	0	0
Collapse/Failure of Structure & Equipment	1	0	0	0	0
Cave-in of Excavation, Tunnel, Etc	0	0	0	0	0
Drowning	0	0	0	0	0
Electrocution	0	0	1	0	0
Collapse of Formwork/ Failure of its Supports	0	0	0	0	0
Crane-related	0	0	0	1	0
Struck by Falling Objects From Heights	0	0	0	0	0
Suffocation	0	0	0	0	0

Table 1.7: Number of workplace major injuries by industry, 2017 and 2018

Industry	2017	2018
All Sectors	574	596
Construction	110	124
Marine	22	15
Manufacturing	124	123
<i>Metalworking</i>	46	35
<i>Manufacture of Food, Beverages & Tobacco</i>	32	29
<i>Manufacture of Petrochemical</i>	8	14
<i>Manufacture of Paper/ Rubber/ Plastic Products & Printing</i>	6	13
Water Supply, Sewerage & Waste Management and Remediation Activities	9	6
Wholesale & Retail Trade	35	30
<i>Wholesale Trade</i>	22	15
<i>Retail Trade</i>	13	15
Transportation & Storage	60	49
<i>Logistics & Transport</i>	42	33
Accommodation & Food Service Activities	41	37
<i>Accommodation</i>	6	7
<i>Food & Beverage Service Activities</i>	35	30
Financial & Insurance Activities	4	12
Real Estate Activities	7	15
Professional, Scientific & Technical Activities	8	13
Administrative & Support Service Activities	21	25
Community, Social & Personal Services	33	59
<i>Education</i>	7	14
<i>Health Activities</i>	7	11
<i>Repair & Maintenance of Vehicles</i>	5	10

Table 1.8: Workplace major injury rates by industry, 2017 and 2018

Per 100,000 employed persons

Industry	2017	2018
All Sectors	16.9	17.4
Construction	24.2	27.8
Marine	29.6	23.1
Manufacturing	29.9	28.9
<i>Metalworking</i>	42.6	31.6
<i>Manufacture of Food, Beverages & Tobacco</i>	66.3	57.0
<i>Manufacture of Petrochemical</i>	15.9	25.9
<i>Manufacture of Paper/ Rubber/ Plastic Products & Printing</i>	19.3	43.5
Water Supply, Sewerage & Waste Management and Remediation Activities	54.9	36.4
Wholesale & Retail Trade	7.2	6.1
<i>Wholesale Trade</i>	6.8	4.6
<i>Retail Trade</i>	8.0	9.2
Transportation & Storage	24.4	18.9
<i>Logistics & Transport</i>	41.5	31.4
Accommodation & Food Service Activities	16.5	14.6
<i>Accommodation</i>	17.3	20.1
<i>Food & Beverage Service Activities</i>	16.3	13.7
Financial & Insurance Activities	1.9	6.1
Real Estate Activities	7.6	17.3
Professional, Scientific & Technical Activities	3.4	5.3
Administrative & Support Service Activities	9.1	10.3
Community, Social & Personal Services	4.1	7.1
<i>Education</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Health Activities*</i>	6.7	9.9
<i>Repair & Maintenance of Vehicles*</i>	<i>n.a.</i>	<i>n.a.</i>

Table 1.9: Types of workplace major injuries, 2017 and 2018

Workplace Major Injury Types	2017	2018
Total	574	596
Crushing, Fractures and Dislocations	317	358
Amputations	125	106
Hypothermia/Burns, with more than 20 MC days	63	66
Multiple Injuries	33	38
Concussion, with more than 20 MC days	19	15
Exposure to/ contact with Electric Current	14	10
Blindness	2	1
Deafness	0	1
Paralysis	1	1

Table 1.10: Number of workplace major injuries by key incident type and key incident agent, 2017 and 2018

Incident Type	Incident Agent	2017	2018
Total Workplace Major Injuries		574	596
Falls	Total	240	274
Slips, Trips & Falls	Total	177	203
	<i>Physical Workplace - Floor/Level Surfaces</i>	75	84
	<i>Means of Access - Stairs or Steps</i>	18	33
Falls from Height	<i>Vehicles</i>	28	30
	Total	63	71
	<i>Means of Access - Ladders</i>	39	45
	<i>Physical Workplace - Scaffold</i>	3	6
Struck by Moving Objects	<i>Physical Workplace - Roof</i>	4	6
	Total	65	76
	<i>Work-related Traffic</i>	19	25
	<i>Vehicles</i>	15	16
Caught in/ between Objects	<i>Industrial Machines</i>	3	10
	Total	59	50
	<i>Industrial Machines</i>	21	26
	<i>Metal Items (excluding knives/needles)</i>	8	9
Struck by Falling Objects	<i>Vehicles</i>	7	5
	Total	42	45
	<i>Metal Items (excluding knives/needles)</i>	13	16
	<i>Goods/Cargo</i>	8	5
Exposure to/ contact with Extreme Temperatures	<i>Vehicles</i>	3	4
	Total	41	43
	<i>Hot scalding liquid/Steam</i>	32	36
	<i>Industrial Machines</i>	4	2
Cut/Stabbed by Objects	<i>Dust, Gas, Liquids and Chemicals</i>	1	2
	Total	40	33
	<i>Industrial Machines</i>	27	27
	<i>Industrial Hand Tools</i>	11	5
Over-exertion/ Strenuous Movements	<i>Knives and Needles</i>	2	1
	Total	12	16
	<i>Goods/Cargo</i>	9	6
	<i>Human Factors</i>	0	3
	<i>Metal Items (excluding knives/needles)</i>	1	2

Table 1.11: Top 3 incident types for workplace major injuries by industry, 2018

Industry	Top 3 Incident Types		
	1 st	2 nd	3 rd
All Sectors	STF	SBMO	FFH
Construction	FFH	STF	SBFO
Marine	STF	CIBO, ETET, FFH, SBFO	FE, SAO, SBMO
Manufacturing	STF	CIBO	CSBO
<i>Metalworking</i>	<i>STF</i>	<i>SBMO</i>	<i>CIBO</i>
<i>Manufacture of Food, Beverages & Tobacco</i>	<i>STF</i>	<i>CIBO</i>	<i>SBMO</i>
<i>Manufacture of Petrochemical</i>	<i>ETHS</i>	<i>CIBO</i>	<i>ETET, STF, SBFO</i>
<i>Manufacture of Paper/ Rubber/ Plastic Products & Printing</i>	<i>CIBO</i>	<i>SBMO</i>	<i>STF</i>
Water Supply, Sewerage & Waste Management and Remediation Activities	STF	CIBO, CSBO, ETET	-
Wholesale & Retail Trade	STF	FFH	ETET, SBMO
<i>Wholesale Trade</i>	<i>STF</i>	<i>SBMO</i>	<i>CIBO, ETEC, FFH, FE</i>
<i>Retail Trade</i>	<i>STF</i>	<i>FFH</i>	<i>ETET</i>
Transportation & Storage	SBMO	STF	CIBO, SBFO
<i>Logistics & Transport</i>	<i>STF</i>	<i>SBMO</i>	<i>CIBO, SBFO</i>
Accommodation & Food Service Activities	ETET	STF	FE, OESM
<i>Accommodation</i>	<i>ETET, OESM</i>	<i>CSBO, STF, SBFO</i>	-
<i>Food & Beverage Service Activities</i>	<i>ETET</i>	<i>STF</i>	<i>FE</i>
Financial & Insurance Activities	STF	CIBO, ETEC, ETET, FFH, OESM	-
Real Estate Activities	STF	ETET	FFH
Professional, Scientific & Technical Activities	CSBO	STF	CIBO, ETEC, ETET, FFH, OTH, SBFO
Administrative & Support Service Activities	STF	SBMO	CIBO, ETET, FFH, FE, OESM
Community, Social & Personal Services	STF	SBMO	FFH
<i>Education</i>	<i>STF</i>	<i>FFH, OTH, SBMO</i>	-
<i>Health Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>ETEC, FFH, FE, PA, OESM</i>
<i>Repair & Maintenance of Vehicles</i>	<i>STF</i>	<i>CIBO, PA, SBMO</i>	-

Legend:

CIBO	Caught In/Between Objects	ETHS	Exposure to/ Contact with Hazardous Substances	PA	Physical Assault
CSBO	Cut/Stabbed by Objects			SAO	Strike Against Objects
ETEC	Exposure to/ Contact with Electric Current	FE	Fires & Explosion	SBFO	Struck by Falling Objects
ETET	Exposure to/ Contact with Extreme Temperature	FFH	Falls from Height	SBMO	Struck by Moving Objects
		OESM	Over-exertion and Strenuous Movements	STF	Slips, Trips and Falls
		OTH	Other Incident Types		

Table 1.12: Number of workplace minor injuries by industry, 2017 and 2018

Industry	2017	2018
All Sectors	11,882	12,173
Construction	1,774	1,656
Marine	271	252
Manufacturing	2,413	2,473
<i>Metalworking</i>	995	985
<i>Manufacture of Food, Beverages & Tobacco</i>	432	497
<i>Manufacture of Paper/ Rubber/ Plastic/ Products & Printing</i>	182	188
Water Supply, Sewerage & Waste Management and Remediation Activities	118	111
Wholesale & Retail Trade	580	707
<i>Wholesale Trade</i>	308	351
<i>Retail Trade</i>	272	356
Transportation & Storage	1,025	1,038
<i>Logistics & Transport</i>	690	780
Accommodation & Food Service Activities	1,118	1,159
<i>Accommodation</i>	271	257
<i>Food & Beverage Service Activities</i>	847	902
Financial & Insurance Activities	139	163
Real Estate Activities	404	402
Professional, Scientific & Technical Activities	372	427
<i>Architectural & Engineering Activities</i>	152	195
<i>Legal, Accounting & Management Activities</i>	157	171
Administrative & Support Service Activities	490	580
<i>Cleaning & Landscape Maintenance Activities</i>	131	210
<i>Office Administrative, Office Support & Other Business Support Activities</i>	195	186
<i>Security and Investigation Activities</i>	131	140
Community, Social & Personal Services	1,252	1,339
<i>Health Activities</i>	427	481
<i>Education</i>	237	275
<i>Other Personal Service Activities</i>	145	166
<i>Arts, Entertainment and Recreation</i>	140	137
<i>Repair & Maintenance of Vehicles</i>	112	109

Table 1.13: Workplace minor injury rates by industry, 2017 and 2018

Per 100,000 employed persons

Industry	2017	2018
All Sectors	351	355
Construction	390	371
Marine	364	389
Manufacturing	582	581
<i>Metalworking</i>	922	891
<i>Manufacture of Food, Beverages & Tobacco</i>	894	976
<i>Manufacture of Paper/ Rubber/ Plastic/ Products & Printing</i>	585	629
Water Supply, Sewerage & Waste Management and Remediation Activities	720	673
Wholesale & Retail Trade	120	145
<i>Wholesale Trade</i>	96	108
<i>Retail Trade</i>	168	218
Transportation & Storage	417	401
<i>Logistics & Transport</i>	682	741
Accommodation & Food Service Activities	449	456
<i>Accommodation</i>	781	739
<i>Food & Beverage Service Activities</i>	395	411
Financial & Insurance Activities	66	83
Real Estate Activities	438	465
Professional, Scientific & Technical Activities	156	175
<i>Architectural & Engineering Activities</i>	258	324
<i>Legal, Accounting & Management Activities</i>	130	136
Administrative & Support Service Activities	213	239
<i>Cleaning & Landscape Maintenance Activities</i>	199	277
<i>Office Administrative, Office Support & Other Business Support Activities</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Security and Investigation Activities</i>	281	290
Community, Social & Personal Services	155	161
<i>Health Activities*</i>	411	432
<i>Education</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Other Personal Service Activities</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Arts, Entertainment and Recreation</i>	250	241
<i>Repair & Maintenance of Vehicles*</i>	<i>n.a.</i>	<i>n.a.</i>

Table 1.14: Number of workplace minor injuries by key incident type and key incident agent, 2017 and 2018

Incident Type	Incident Agent	2017	2018
Total Workplace Minor Injuries		11,882	12,173
Falls	Total	3,885	3,987
Slips, Trips & Falls	Total	3,323	3,407
	Physical Workplace - Floor/Level Surfaces	1,509	1,734
	Means of Access - Stairs or Steps	475	500
Falls from Height	Vehicles	298	276
	Total	562	580
	Means of Access - Ladders	386	426
	Means of Access - Scaffold	61	51
Struck by Moving Objects	Physical Workplace - Structures	32	44
	Total	2,168	2,388
	Industrial Hand Tools	379	415
	Metal Items (excluding knives/needles)	310	380
Cut/Stabbed by Objects	Vehicles	348	360
	Total	1,481	1,352
	Knives and Needles	535	534
	Industrial Machines	297	294
Struck by Falling Objects	Industrial Hand Tools	274	285
	Total	994	1,016
	Metal Items (excluding knives/needles)	272	319
	Furniture and Fittings	142	151
Caught in/ between Objects	Goods/Cargo	129	146
	Total	898	840
	Industrial Machines	271	269
	Metal Items (excluding knives/needles)	140	184
Over-exertion/ Strenuous Movements	Furnitures & Fittings	119	98
	Total	767	835
	Human Factors	287	469
	Goods/Cargo	193	163
Strike against Objects	Furniture and Fittings	49	32
	Total	655	669
	Metal Items (excluding knives/needles)	138	191
	Furniture & Fittings	185	182
Exposure to Extreme Temperatures	Industrial Machines	78	51
	Total	313	368
	Hot scalding liquid/steam	239	310
	Industrial Machines	25	17
	Dusts, Gas, Liquids and Chemicals	7	10

Table 1.15: Top 3 incident types for workplace minor injuries by industry, 2018

Industry	Top 3 Incident Types		
	1 st	2 nd	3 rd
All Sectors	STF	SBMO	CSBO
Construction	SBMO	STF	SBFO
Marine	SBMO	STF	CIBO
Manufacturing	SBMO	STF	CSBO
<i>Metalworking</i>	<i>SBMO</i>	<i>CIBO</i>	<i>SBFO</i>
<i>Manufacture of Food, Beverages & Tobacco</i>	<i>CSBO</i>	<i>STF</i>	<i>SBMO</i>
<i>Manufacture of Paper/ Rubber/ Plastic/ Products & Printing</i>	<i>SBMO</i>	<i>STF</i>	<i>CSBO</i>
Water Supply, Sewerage & Waste Management and Remediation Activities	SBMO	STF	SBFO
Wholesale & Retail Trade	STF	SBMO	CSBO
<i>Wholesale Trade</i>	<i>STF</i>	<i>SBMO</i>	<i>CSBO</i>
<i>Retail Trade</i>	<i>STF</i>	<i>CSBO</i>	<i>SBMO</i>
Transportation & Storage	STF	SBMO	CIBO
<i>Logistics & Transport</i>	<i>SBMO</i>	<i>STF</i>	<i>CIBO</i>
Accommodation & Food Service Activities	CSBO	STF	ETET
<i>Accommodation</i>	<i>STF</i>	<i>CSBO</i>	<i>SAO</i>
<i>Food & Beverage Service Activities</i>	<i>CSBO</i>	<i>STF</i>	<i>ETET</i>
Financial & Insurance Activities	STF	SBMO	CSBO
Real Estate Activities	STF	SBMO	CSBO, OESM
Professional, Scientific & Technical Activities	STF	SBMO	OESM
<i>Architectural & Engineering Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>OESM, CIBO</i>
<i>Legal, Accounting & Management Activities</i>	<i>STF</i>	<i>OESM</i>	<i>SBMO</i>
Administrative & Support Service Activities	STF	SBMO	CSBO
<i>Cleaning & Landscape Maintenance Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>CSBO</i>
<i>Office Administrative, Office Support & Other Business Support Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>CSBO</i>
<i>Security and Investigation Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>PA</i>
Community, Social & Personal Services	STF	OESM	SBMO
<i>Health Activities</i>	<i>STF</i>	<i>OESM</i>	<i>SBMO</i>
<i>Education</i>	<i>STF</i>	<i>SBMO</i>	<i>OESM</i>
<i>Other Personal Service Activities</i>	<i>STF</i>	<i>SBMO</i>	<i>CIBO, OESM, SBFO</i>
<i>Arts, Entertainment and Recreation</i>	<i>STF</i>	<i>SBMO</i>	<i>OESM</i>
<i>Repair & Maintenance of Vehicles</i>	<i>STF</i>	<i>SBMO</i>	<i>CIBO</i>

Legend:

CIBO	Caught In/Between Objects	ETBM	Exposure to Biological Materials	SAO	Strike Against Objects
CSBO	Cut/Stabbed by Objects	FFH	Falls from Height	SBFO	Struck by Falling Objects
ETET	Exposure to/ Contact with Extreme Temperature	OESM	Over-exertion and Strenuous Movements	SBMO	Struck by Moving Objects
		PA	Physical Assault	STF	Slips, Trips and Falls

Table 1.16: Types of workplace minor injury, 2017 and 2018

Workplace Minor Injury Types	2017	2018
Total	11,882	12,173
Cuts and Bruises	4,325	4,041
Crushing, Fractures and Dislocations	2,798	3,127
Sprains & Strains	1,974	1,724
Burns	369	433
Multiple Injuries	295	260
Puncture Wound	198	162
Bites and Stings	74	94
Concussion	64	74
Others	1,785	2,258

Table 1.17: Dangerous occurrences by industry, 2017 and 2018

Industry	2017	2018
All Sectors	35	23
Construction	16	10
Marine	0	1
Manufacturing	10	5
<i>Manufacture of Other Transport Equipment</i>	0	2
<i>Manufacture of Petrochemical Products</i>	7	2
<i>Manufacture of Computer, Electronic and Optical Products</i>	1	1
<i>Manufacture of Food, Beverages & Tobacco</i>	1	0
<i>Manufacture of Textile and Wearing Apparel</i>	1	0
Water Supply, Sewerage & Waste Management and Remediation Activities	0	2
Wholesale & Retail Trade	2	0
Transportation & Storage	3	1
<i>Logistics & Transport</i>	3	0
Accommodation & Food Service Activities	1	1
Real Estate Services	1	0
Cleaning and Landscape Maintenance Activities	0	1
Public Administration and Defence	0	1
Education	0	1
Activities of Membership Organisations	1	0
Repair & Maintenance of Vehicles	1	0

Table 1.18: Types of dangerous Occurrences, 2017 and 2018

Incident Type	Incident Agent	2017	2018
Total Dangerous Occurrences		35	23
Collapse/Failure of Structure & Equipment	Total	23	14
	Lifting Equipment - Cranes	13	12
	Physical Workplace - Formwork	5	1
	Lifting Equipment - Mobile Work Platform	2	1
	Lifting Equipment - Piling Machines	2	0
	Pressurised Equipment	1	0
Fires & Explosion	Total	12	9
	Dust, Gas, Liquid and Chemicals	1	2
	Electrical Installation	1	2
	Goods/ Cargo	0	1
	Hot Scalding Liquid / Steam	0	1
	Explosives/ Flammable Substances	4	0
	Pressurised Equipment	2	0
	Vehicles	1	0
	Other Incident Agents	3	3

Table 1.19: Number of confirmed occupational disease cases by industry, 2017 and 2018

Industry	2017	2018
All Sectors	799	563
Construction	123	55
Marine	49	35
Manufacturing	294	169
<i>Metalworking</i>	104	75
<i>Manufacture of Food, Beverages & Tobacco</i>	13	22
<i>Manufacture of Other Transport Equipment</i>	57	20
Water Supply, Sewerage & Waste Management and Remediation Activities	1	1
Wholesale & Retail Trade	27	32
Transportation & Storage	85	55
<i>Logistics & Transport</i>	39	46
Accommodation & Food Service Activities	46	41
<i>Accommodation</i>	28	14
<i>Food & Beverage Service Activities</i>	18	27
Information & Communications	1	6
Financial & Insurance Activities	11	5
Real Estate Activities	13	12
Professional, Scientific & Technical Activities	19	21
<i>Legal, Accounting and Management Services</i>	5	15
Administrative & Support Service Activities	11	13
Community, Social & Personal Services	71	75
<i>Health Activities</i>	37	45
<i>Other Personal Service Activities</i>	12	11
<i>Arts, Entertainment and Recreation</i>	2	6

Table 1.20: Occupational disease incidence rates by industry, 2017 and 2018

Per 100,000 employed persons

Industry	2017	2018
All Sectors	23.6	16.4
Construction	27.0	12.3
Marine	65.9	54.0
Manufacturing	70.9	39.7
<i>Metalworking</i>	96.4	67.8
<i>Manufacture of Food, Beverages & Tobacco</i>	26.9	43.2
<i>Manufacture of Other Transport Equipment</i>	235.5	71.4
Water Supply, Sewerage & Waste Management and Remediation Activities	6.1	6.1
Wholesale & Retail Trade	5.6	6.6
Transportation & Storage	34.6	21.2
<i>Logistics & Transport</i>	38.5	43.7
Accommodation & Food Service Activities	18.5	16.1
<i>Accommodation</i>	80.7	40.2
<i>Food & Beverage Service Activities</i>	8.4	12.3
Information & Communications	0.8	4.2
Financial & Insurance Activities	5.2	2.6
Real Estate Activities	14.1	13.9
Professional, Scientific & Technical Activities	8.0	8.6
<i>Legal, Accounting and Management Services</i>	4.1	11.9
Administrative & Support Service Activities	4.8	5.3
Community, Social & Personal Services	8.8	9.0
<i>Health Activities*</i>	35.6	40.4
<i>Other Personal Service Activities</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Arts, Entertainment & Recreation</i>	3.6	10.6

Table 1.21: Number of confirmed occupational diseases by type, 2017 and 2018

	2017	2018
Total	799	563
Work-related Musculoskeletal Disorders	337	326
<i>Back injuries due to ergonomic risks</i>	314	297
<i>Tendinitis</i>	12	10
<i>Nerve Disorder such as Carpal Tunnel Syndrome, Cubital Tunnel Syndromez</i>	3	4
<i>Trigger Finger/Thumb</i>	1	4
<i>Musculoskeletal Disorder of the Back</i>	1	3
<i>Lateral Epicondylitis (Tennis Elbow)</i>	4	2
<i>Tenosynovitis</i>	1	0
<i>Others</i>	1	6
Noise Induced Deafness	329	163
<i>NID (E) - Early</i>	303	148
<i>NID (A) - Advanced</i>	26	15
Occupational Skin Disease	78	48
<i>Eczema</i>	77	47
<i>Others</i>	1	1
Barotrauma	10	5
<i>Aural</i>	8	3
<i>Sinus</i>	2	1
<i>Pulmonary</i>	0	1
Cancers	6	6
<i>Mesothelioma</i>	6	6
Occupational Lung Disease	3	6
<i>Occupational Asthma</i>	0	3
<i>Asbestosis</i>	0	2
<i>Silicosis</i>	1	1
Heat Disorder	1	3
Infectious Disease	2	3
Compressed Air Illness	15	2
<i>CAI Type 1</i>	13	1
<i>CAI Type 2</i>	2	1
Excessive Absorption of Chemicals	1	0
<i>Trichloroethylene (TCE)</i>	1	0
Chemical Poisoning	18	0
<i>Carbon Monoxide Gas</i>	18	0
Others	1	1

Table 1.22: Number of confirmed NID cases by industry, 2017 and 2018

Industry	2017	2018
All Sectors	329	163
Construction	60	22
Marine	44	32
Manufacturing	191	86
<i>Metalworking</i>	79	49
<i>Manufacture of Other Transport Equipment</i>	53	15
<i>Manufacture of Paper, Rubber, Plastic Products and Printing</i>	20	9
Wholesale & Retail Trade	4	2
Transportation & Storage	14	11
<i>Logistics & Transport</i>	10	9
Information & Communication	0	1
Financial & Insurance Activities	4	0
Professional, Scientific & Technical Activities	4	2
<i>Architectural & Engineering Activities</i>	4	1
<i>Legal, Accounting and Management Services</i>	0	1
Administrative & Support Service Activities	1	4
Community, Social & Personal Services	3	3
<i>Repair and Maintenance of Vehicles</i>	3	2
<i>Education</i>	0	1

Table 1.23: NID incidence rates by industry, 2017 and 2018

Per 100,000 employed persons

Industry	2017	2018
All Sectors	9.7	4.8
Construction	13.2	4.9
Marine	59.1	49.4
Manufacturing	46.1	20.2
<i>Metalworking</i>	73.2	44.3
<i>Manufacture of Other Transport Equipment</i>	219.0	60.7
<i>Manufacture of Paper, Rubber, Plastic Products and Printing</i>	64.3	30.1
Wholesale & Retail Trade	0.8	0.4
Transportation & Storage	5.7	4.2
<i>Logistics & Transport</i>	9.9	8.6
Information & Communication	0.0	0.7
Financial & Insurance Activities	1.9	0.0
Professional, Scientific & Technical Activities	1.7	0.8
<i>Architectural & Engineering Activities</i>	6.8	1.7
<i>Legal, Accounting and Management Services</i>	0.0	0.8
Administrative & Support Service Activities	0.4	1.6
Community, Social & Personal Services	0.4	0.4
<i>Repair and Maintenance of Vehicles*</i>	<i>n.a.</i>	<i>n.a.</i>
<i>Education</i>	<i>n.a.</i>	<i>n.a.</i>

Table 1.24: Number of confirmed WRMSD cases by industry, 2017 and 2018

Industry	2017	2018
All Sectors	337	326
Construction	33	24
Marine	2	1
Manufacturing	53	66
<i>Metalworking</i>	17	20
<i>Manufacture of Food, Beverages & Tobacco</i>	10	19
<i>Other Manufacturing</i>	6	7
Water Supply, Sewerage & Waste Management and Remediation Activities	1	1
Wholesale & Retail Trade	18	28
<i>Wholesale Trade</i>	8	16
<i>Retail Trade</i>	10	12
Transportation & Storage	68	40
<i>Logistics & Transport</i>	26	33
Accommodation & Food Service Activities	25	37
<i>Accommodation</i>	9	12
<i>Food & Beverage Service Activities</i>	16	25
Information & Communications	1	4
Financial & Insurance Activities	7	3
Real Estate Services	12	10
Professional, Scientific & Technical Activities	11	17
Administrative & Support Service Activities	8	8
Community, Social & Personal Services	56	46
<i>Health Activities</i>	29	28
<i>Other Personal Service Activities</i>	9	6
<i>Arts, Entertainment and Recreation</i>	2	5

Table 1.25: Number of confirmed OSD cases by industry, 2017 and 2018

Industry	2017	2018
All Sectors	78	48
Construction	5	3
Marine	2	0
Manufacturing	47	11
<i>Metalworking</i>	7	5
<i>Manufacture of Pharmaceutical & Biological Products</i>	1	3
<i>Manufacture of Other Transport Equipment</i>	3	2
Wholesale & Retail Trade	5	2
Transportation & Storage	0	3
<i>Logistics & Transport</i>	0	3
Accommodation & Food Service Activities	3	4
Financial & Insurance Activities	0	2
Real Estate Services	1	1
Professional, Scientific & Technical Activities	2	1
Administrative & Support Service Activities	1	0
Community, Social & Personal Services	12	21
<i>Health Activities</i>	8	15
<i>Other Personal Service Activities</i>	3	3

Table 1.26: Top Causative Agents of Occupational Skin Diseases, 2018

Causative Agents	No. of Cases
Wetwork and Occlusion	22
Oils	4
Solvents	2
Coolant	2
Thermal	2

Table 1.27: Accident Frequency Rate (AFR) and Accident Severity Rate (ASR) in selected sectors, 2017 and 2018

Per million man-hours worked

Industry	AFR		ASR	
	2017	2018	2017	2018
All Sectors	1.6	1.6	69	66
Construction	1.6	1.5	104	115
Marine	1.5	1.5	95	171
Manufacturing	2.5	2.5	104	78
<i>Metalworking</i>	3.7	3.6	112	96
<i>Manufacture of Food, Beverages & Tobacco</i>	4.0	4.4	201	141
<i>Manufacture of Computer, Electronic and Optical Products</i>	0.9	0.8	46	42
Water Supply, Sewerage & Waste Management and Remediation Activities	n.a.	n.a.	n.a.	n.a.
Wholesale & Retail Trade	0.6	0.7	30	46
<i>Wholesale Trade</i>	0.5	0.5	36	51
<i>Retail Trade</i>	0.8	1.0	17	37
Transportation & Storage	1.9	1.8	126	84
<i>Logistics & Transport</i>	3.0	3.2	239	143
Accommodation & Food Services	2.1	2.2	43	32
<i>Accommodation</i>	3.3	3.2	56	50
<i>Food & Beverage Service Activities</i>	1.9	2.0	41	29
Information & Communications	0.2	0.2	5	23
Financial & Insurance Activities	0.3	0.4	6	8
Real Estate Activities	1.9	2.1	58	162
Professional, Scientific & Technical Activities	0.7	0.8	24	16
<i>Architectural & Engineering Activities</i>	1.1	1.4	20	30
<i>Legal, Accounting & Management Activities</i>	0.6	0.6	11	11
Administrative & Support Service Activities	0.9	1.0	55	43
<i>Cleaning & Landscape Maintenance Activities</i>	0.9	1.2	112	62
<i>Security and Investigation Activities</i>	1.1	1.0	70	20
Community, Social & Personal Services	0.7	0.8	17	16
<i>Health Activities*</i>	1.9	2.0	38	45
<i>Education</i>	n.a.	n.a.	n.a.	n.a.

Table 1.28: Number of man-days lost to workplace incidents in selected sectors, 2017 and 2018

Industry	2017	2018
All Sectors	544,687	530,961
Construction	125,122	135,013
Marine	18,574	30,288
Manufacturing	107,375	82,650
<i>Metalworking</i>	31,284	27,492
<i>Manufacture of Food, Beverages & Tobacco</i>	23,347	17,085
<i>Manufacture of Computer, Electronic and Optical Products</i>	10,231	9,414
Water Supply, Sewerage & Waste Management and Remediation Activities	14,839	9,349
Wholesale & Retail Trade	31,966	50,385
<i>Wholesale Trade</i>	25,919	37,078
<i>Retail Trade</i>	6,047	13,307
Transportation & Storage	73,603	51,613
<i>Logistics & Transport</i>	59,043	36,275
Accommodation & Food Services	23,198	17,338
<i>Accommodation</i>	4,629	4,142
<i>Food & Beverage Service Activities</i>	18,569	13,196
Information & Communications	1,287	6,997
Financial & Insurance Activities	2,878	3,359
Real Estate Activities	12,488	32,198
Professional, Scientific & Technical Activities	12,705	8,629
<i>Architectural & Engineering Activities</i>	2,823	4,256
<i>Legal, Accounting & Management Activities</i>	2,798	2,857
Administrative & Support Service Activities	30,990	24,745
<i>Cleaning & Landscape Maintenance Activities</i>	17,008	10,805
<i>Security and Investigation Activities</i>	8,789	2,566
Community, Social & Personal Services	30,452	28,684
<i>Health Activities</i>	8,446	10,896
<i>Education</i>	5,136	5,114

ANNEX B

BUSINESS UNDER SURVEILLANCE

The Business under Surveillance (BUS) programme consists of two phases – Assessment and Surveillance.

The Assessment phase involves rigorous and methodical review on companies that are of concern to ascertain the effectiveness of their Risk Management programme as well as the strength of their WSH Management Systems.

Companies that fail the Assessment phase would then be placed under the Surveillance phase. During the Surveillance phase, the Occupational Safety and Health Division (OSHD) of Ministry of Manpower (MOM) works closely with the senior management and WSH personnel of these BUS companies to carry out a gap analysis and to develop outcome-based action plans.

OSHD then conducts frequent inspections to verify the progress of the companies' implementation of their action plans and closely monitors the companies' WSH performance. BUS companies can only exit from the programme upon successful implementation of their Action Plan, achieved satisfactory audit outcomes, and have plans to build a strong WSH culture within the company.

ANNEX C

HYGIENE AND MEDICAL SURVEILLANCE

HYGIENE SURVEILLANCE

Measuring the exposure levels of specific workplace chemical hazards provide a good indication on whether the conditions in the work environment are within the Permissible Exposure Levels (PEL), as stipulated under the WSH (General Provisions) Regulations. Companies with chemical exposures exceeding 10% PEL are required to monitor the exposure levels at least annually, conducted by a competent person.

Under the WSH (Noise) Regulations, workplaces with 10 or more workers who are exposed to excessive noise are required to monitor their workers' noise exposure at least once every three years, or earlier when there are changes to the processes. The monitoring must be conducted by a competent person using calibrated equipment to ensure accuracy of results.

Industrial hygiene data from assessments conducted by MOM and results submitted by companies with in-plant monitoring are maintained within a National Database for Noise and Chemical Exposure. This enables MOM to proactively identify high-risk workplaces, evaluate trends in exposure levels and advise employers on control measures and appropriate monitoring programmes.

MEDICAL SURVEILLANCE

The Medical Surveillance Programme serves to monitor workers' exposure to specific hazards and to identify early and possibly reversible changes in health effects. The programme aims to prevent overt occupational diseases through early detection of cases with excessive occupational exposure to specific health hazards. It involves monitoring of workers' health and implementation of measures to minimise the risks. High-risk workplaces would be monitored more rigorously to ensure control measures are put in place.

This monitoring assesses the "internal dose" of the worker and the effects from exposure by determining:

- a) The concentrations of the chemicals or their metabolites in biological samples (measuring the absorption or body burden) indirectly via blood, urine, and/or end-exhaled air.
- b) The indicators of health effect related to the internal dose so as to identify early and reversible changes, such as degree of hearing loss, and effects on liver and kidney.

Central to the Medical Surveillance Programme is the WSH (Medical Examinations) Regulations which prescribe a list of 19 hazards requiring medical examinations which can only be conducted by Designated Workplace Doctors (DWDs) registered with MOM. In addition, Occupational Safety and Health Division (OSHD) of the MOM may also recommend the implementation of medical surveillance programmes for non-prescribed hazards if the health risk is significant and where biological indicators are available. Some of these hazards include toluene, trinitrotoluene, xylene, fluoride and hexane.

Based on the findings of the medical examinations, workers who are medically unfit or who are over-exposed to chemicals are suspended, either on a temporary or permanent basis. The objective is to ensure that all exposed workers remain healthy and fit for work while exposed to the hazards. Medical monitoring is conducted once every six months for lead and organophosphate, and annually for all other hazards.

ANNEX D

SOURCE OF DATA

Data on workplace and work-related traffic injuries, dangerous occurrences and occupational diseases were collated from incident reports made by employers, occupiers and medical practitioners in fulfilment of their obligations under the Workplace Safety and Health Act and Workplace Safety and Health (Incident Reporting) Regulations.

Medical and Hygiene Surveillance data were collated from reports submitted to OSHD, MOM as well as industrial hygiene data from assessments conducted by OSHD, MOM. Business Under Surveillance information was obtained from OSHD, MOM.

Employment data used in the computation of workplace fatal, injury and occupational disease incidence rates and data on the average weekly hours worked used in the estimation of man-hours worked were extracted from records within the Ministry of Manpower.

ANNEX E

DATA COVERAGE

The types of workplace and work-related traffic injuries and occupational diseases covered in the reported statistics include the following:

- Workplace and work-related traffic injuries sustained by employees and resulting in more than three days of medical leave, regardless of whether these were consecutive days;
- Workplace and work-related traffic injuries sustained by employees and resulting in at least 24 hours of hospitalisation;
- Workplace and work-related traffic incidents resulting in the death of employees and self-employed persons;
- Workplace and work-related traffic incidents resulting in the injury of self-employed persons who have to be taken to the hospital for treatment; and
- Occupational diseases listed in the Second Schedule of the Workplace Safety and Health Act and Work Injury Compensation Act.

ANNEX F

CONCEPTS & DEFINITIONS

Incident Type refers to the type of event which resulted in the injury of a victim. Where the event involves a chain of incidents, the incident type should be the one that triggered the chain of other incidents.

Incident Agent refers to the object or physical environment, which due to its hazardous nature/condition, leads to the occurrence of a particular type of incident. It is related to the incident, not injury.

Major Injuries refer to non-fatal injuries which are more severe in nature. Major injuries are defined using a combination of factors, including the nature of injury, part of the body injured, incident type and duration of medical leave. These include:

- amputation
 - blindness
 - deafness
 - paralysis
 - crushing, fractures and dislocations: head, back, chest and abdomen, neck, hip and pelvis
 - exposure to electric current
 - asphyxia/drowning
 - hypothermia
 - burns with more than 20 days of medical leave
 - concussion with more than 20 days of medical leave
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