EVOLVING ALONGSIDE THE INDUSTRY

(1985–1994)







A s the vocational landscape began to flourish towards the 1990s, industries became increasingly diversified with technologically-advanced sectors yielding more jobs for the population. Sunrise industries began to emerge and the nation's industrial sector began attracting bigger and more complex projects. As a result, the demand for sophisticated equipments increased.

Due to the increased Workplace Safety and Health (WSH) risks that followed the introduction of these new equipments, the Government sought appropriate measures to ensure that the machineries were safe for usage.

The late 1980s was also a time when the Government started building the nation's key infrastructures. The fundamental development in the nation's transportation network first took shape in 1983 at Shan Road, where tunnels were built between what is today known as the Toa Payoh and Novena Mass Rapid Transit (MRT) stations. Construction of the MRT tunnels spanned four years before the first stations were opened in 1987.

Amidst the trend of change, the period between 1992 and 1994 also saw a series of tragic fire and explosion cases in shipyards which led to multiple workplace deaths and casualties. These sombre tragedies served as an impetus for increased caution and a push for higher standards in WSH management. On top of a host of regulations and amendments to previous orders, an alternative approach of leveraging on self-regulation and industry engagement was further encouraged among stakeholders in a bid to spur WSH momentum.

LEFT: Mass Rapid Transit construction works at Raffles Place in 1987.



The Evolution of the Occupational Safety and Health Departments

The Occupational Safety and Health departments underwent several key changes as the scope and nature of industrial health and activities took on new directions. In 1985, the Industrial Health Division was renamed the Department of Industrial Health.

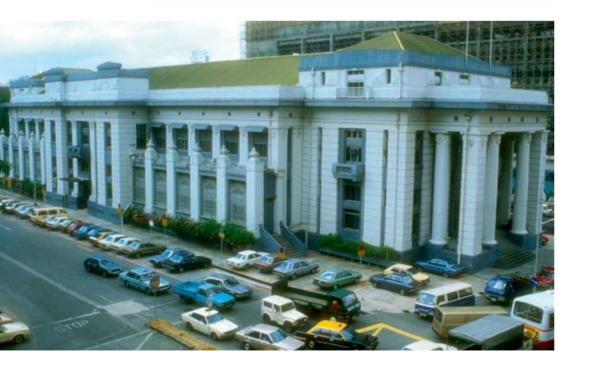
A year later, the Ministry of Labour (MOL) took over the running of the Occupational Safety and Health (Training and Promotion) function from the National Productivity Board.

In 1985, the Factory Inspectorate was renamed the Department of Industrial Safety (DIS) and in 1990, the Occupational Safety and Health (Training and Promotion) Centre which existed as a separate department before, was subsumed under DIS.

During the same period in 1990, DIS, together with other departments of MOL, moved into its new premises at 18 Havelock Road. Previously operating from different locations, the departments were housed together in the new building to foster a sense of unity and facilitate closer working relations.



BOTTOM: The Ministry of Labour Headquarters Building at Havelock Road in 1985.



KEEPING UP WITH THE ENGINES OF INDUSTRY

As the nation's industrial projects began to evolve in nature, so did the machines that were used, with pressure vessels and lifting equipments being introduced. Pressure vessels are containers that hold substances that need to be contained under pressure. Malfunctioning vessels could lead to injuries or death of workers working in the vicinity. Hence, it was important that the design, fabrication and usage of pressure vessels be stringently controlled. Lifting equipment, on the other hand, included a variety of machineries, spanning from cranes, lifts, gondolas to piling frames that helped transport and lift loads.

Inevitably, the risks involved with these equipments were higher. According to Er. Leong Shui Hung, former Senior Assistant Director (Engineering Branch) of the





LEFT:

To facilitate larger and more complex projects, the 1980s saw lifting equipment such as cranes sprouting up in the industrial landscape.

"

Last time, construction was very manual. We still have people physically carrying things up the stairs [...] Then government say 'mechanise'. The government [gave] grants to mechanise. Then suddenly you find a lot of cranes. Mobile cranes start coming in. Tower cranes start coming in. Overnight you see cranes everywhere, until, if people ask you, 'What is the national bird of Singapore?' You would say, 'Crane'.

"

Er. Hashim Mansoor, former Senior Assistant Director of the Department of Industrial Safety, Ministry of Manpower

"

The pressure vessel industry today has all procedures in place to design and manufacture safe pressure vessels. They also have qualified welders and personnel to ensure that the pressure vessels manufactured are safe to use. All that remains is to educate and ensure owners and users of pressure vessels are aware of their safety and health responsibilities and that the pressure vessels they use in their workplace are safe, well-maintained and regularly inspected."

"

Er. Leong Shui Hung, former Senior Assistant Director (Engineering Branch) of the Department of Industrial Safety, Ministry of Manpower

Department of Industrial Safety (DIS), Ministry of Manpower, pressure vessel accidents were caused by several factors, including the lack of proper design, design code knowledge and qualified welders.

To mitigate the risks, the Ministry introduced legislation to make it compulsory for these equipments to be inspected prior to usage by authorised inspectors. To allow companies to engage authorised inspectors with ease and autonomy, DIS began leveraging on technology and put in place computerised systems. In 1990, the Teleview System was set up, allowing the public to gain access to information of authorised inspectors so that they could be engaged to inspect pressure vessels, lifting equipment and other machinery used in factories.

In 1992, the Department put into operation an on-line computerised system for pressure vessels. With this system, the private authorised boiler inspectors could enter, retrieve and update inspection records of pressure vessels from their officers using personal computers.

Other provisions included the Factories (Crane Drivers and Operators) Regulations of 1993 which took effect on I January 1994. The Regulation required all operators of mobile and tower cranes to be trained to observe the necessary safety measures. The Regulations also provided for the appointment of a lifting supervisor to co-ordinate lifting operations. The Safety Instruction Course for lifting supervisors was also introduced to train lifting supervisors responsible for all lifting operations.

KEEPING MRT CONSTRUCTION ON THE RIGHT TRACK

Another large project that drew watchful eyes from the Government was the construction of the MRT tunnels. Spearheaded by the Mass Rapid Transit Corporation (MRTC) in 1983, the first section of the MRT railways opened up in November 1987.

Safety at MRT construction sites was accorded high priority for all parties involved and was a key performance indicator for the Project Director as well as for the staff at various levels. Near-misses were closely monitored, and the lessons learnt were always shared with the workers to ensure that the same mistakes did not occur again.

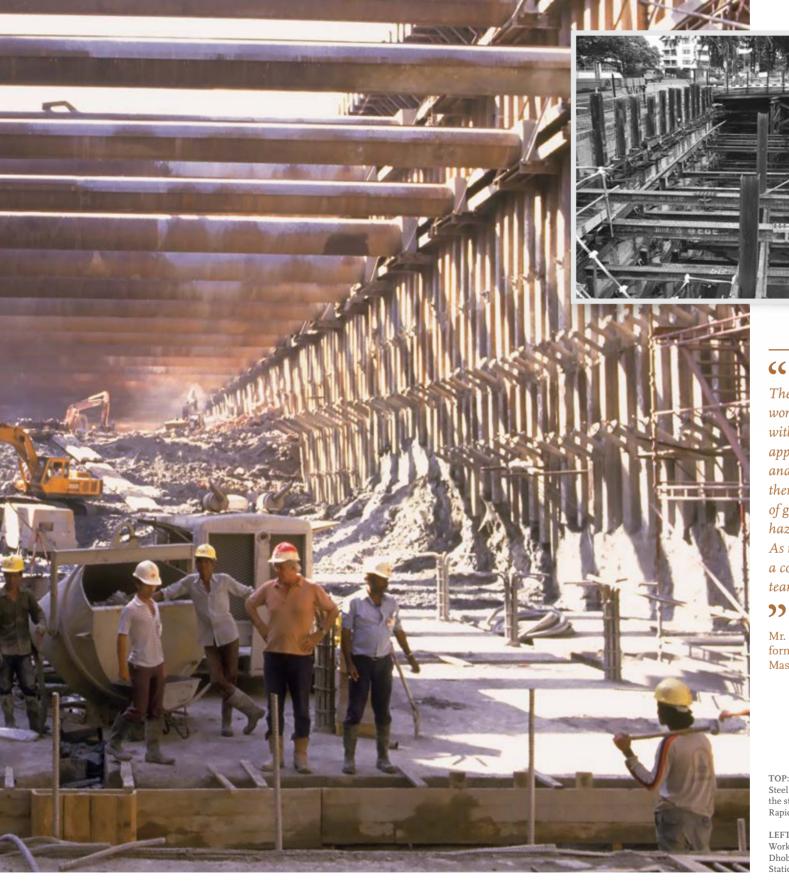
To bring about a framework of structured accountability, a full-time Safety Manager was also employed by the MRTC. The safety officer had the extensive responsibility of following a sturdy framework and reporting directly to relevant Project Directors. This essential check and balance method ensured that safety was never compromised to fast track construction progress.

With a diverse team made up of both local and foreign workers, working cultures differed and finding common ground was often a challenge. In light of this, the management worked to establish a consistent safety framework encompassing all levels of workers. This strengthened the synergy and teamwork between project and safety teams.



NOV.

RIGHT: Mass Rapid Transit tunnels works being carried out in 1985.



The criticality of the tunnelling works and the need to proceed with caution created an appreciation of how the works and safety incidents in relation thereto will contribute to loss of ground and potential safety hazards to the environment. As they say, there is nothing like a common threat to galvanise teamwork and effort.

"

Mr. Low Tien Sio, former Executive Director, Mass Rapid Transit Corporation

TOP: Steel beams and pillars provided the sturdy foundation for the Mass Rapid Transit tunnels.

LEFT: Workers at the construction of the Dhoby Ghaut Mass Rapid Transit Station in 1986.



MR. AMEERALI ABDEALI

"We must never forget that victims of workplace accidents are human beings with hopes and aspirations."

Former General Manager, Occupational Safety and Health (Training and Promotion) Centre and Deputy Director of the Occupational Safety and Health Division, Ministry of Manpower

PIONEER PROFILE

Championing Safety With Heart, Mind and Soul

 \mathbf{F} or Mr. Ameerali Abdeali, enjoying one's retirement years does not mean slowing down.

More than a decade after retiring from his post as Deputy Director of the Occupational Safety and Health Division at the Ministry of Manpower (MOM), the eloquent, sharp-witted gentleman remains heavily involved in his community, always ready to lend a helping hand or a listening ear to those in need. The spirit of public service that distinguishes his career continues to shine as he balances his time between various causes close to his heart, from mediating at the Family Court and fostering interfaith dialogue to providing support to kidney patients and the less fortunate members of our community.

Yet, no single cause resonates as deeply as that of workplace safety with Mr. Ameerali. To this former civil servant, championing safety is more than a job; it is a calling. This steadfast dedication was cemented early on in his career. As a safety inspector, he had witnessed firsthand how workplace accidents can tear workers away from their loved ones, or diminish a bright future.

One memorable highlight of his career happened in 1978, when Mr. Ameerali had the opportunity to serve as Secretary of the Committee of Inquiry that inquired into the Spyros disaster. Claiming the lives of 76 workers with many others suffering serious injury, the incident left an indelible impression on Mr. Ameerali.

"I remember Spyros vividly," recalls Mr. Ameerali. "Mr. Low Wong Fook, then Chief Inspector of Factories called me and said, 'Ameer, let's go!' A team of us went there to Jurong Shipyard, and we saw the rescue in progress. The scene was unforgettable and one has to be there to truly appreciate the devastating impact of accidents. It was a wake-up call to industry to take safety seriously and it reinforced my commitment for safety," he shares vividly.

The experience strengthened Mr. Ameerali's resolve to dedicate his life to promoting safety and work together with like-minded people to ensure that such tragedies would never happen again.

These sobering encounters set him on a journey to make safety a top priority in workplaces. Says Mr. Ameerali, "We must never forget that victims of workplace accidents are human beings with hopes and aspirations who, as a result of accidents in the workplace, tragically lost their lives or ended up being permanently crippled or psychologically damaged."

Mr. Ameerali firmly believes that every effort must be made to prevent accidents in the workplace. This should be done not just by the regulating authorities and employers, but by every person at all levels of the workforce. "There is no room for complacency as far as safety is concerned," stresses the staunch safety advocate. "It is imperative to keep abreast with the fast pace of change taking place in industry which can introduce new hazards. Hence, safety professionals must keep on learning so that the appropriate safety measures can be put in place proactively and not as a reaction to accidents."

This piece of wisdom was something Mr. Ameerali picked up on his personal journey with MOM – a journey that spanned more than three decades. When he started out as a young Factory Inspector in 1974, safety was still largely an afterthought in most industries. The government had to work hard to create awareness and enforce safety regulations in factories.

Gradually, as efforts to inculcate safety shifted from a prescriptive approach to one based on goal setting and the building of a strong culture, Mr. Ameerali was put in charge of the Ministry's Occupational Safety and Health (Training and Promotion) Centre (OSHTC).

As General Manager of OSHTC, Mr. Ameerali became more sensitised to the importance of inculcating the fundamentals of safety among workers.

It was not a role he took lightly. "I took that as a very important responsibility and I personally inspected these classes to ensure that the instructors were imparting the right messages and spoke to the participants myself on the importance of observing safety rules and using the right personal protective equipment."

As his participation in WSH training and promotion increased, Mr. Ameerali gained a deeper understanding on what it truly takes to build a deep-rooted safety culture. "I was impressed by the motto 'Leadership Saves Lives' which I saw when I gave a talk at a military base. Ultimately safety is about sincere and committed leadership." Says Mr. Ameerali, "If the top management merely provides lip service to safety and believes that accidents are inevitable, then they need to have a change of mindset. With the right mindset, they will be able to bring about a strong culture where everybody is serious about safety and will not only look after themselves but also look after one another."

Such precious insights are invaluable to Mr. Ameerali, who looks back on his time with MOM with a deep sense of satisfaction. "I'll always value and cherish my 32 years there because it was a great environment where everybody was encouraged to learn and develop to one's full potential."

Forty years on, safety remains a lifelong passion for Mr. Ameerali. He is currently the President of the National Safety Council of Singapore, and represents Singapore as a Full Member of the Asia Pacific Occupational Safety and Health Organisation. To this day, he is regularly invited to deliver papers and present talks at workshops and conferences both locally and in the region, a duty he is always happy to oblige.



TOP: Former Minister for Labour, Mr. Lee Yock Suan, launches the Construction Safety Campaign at the Lum Chang Building Contractors worksite in 1990.

IMPLEMENTING SAFETY AND HEALTH MANAGEMENT SYSTEMS AT WORKPLACES

The Ministry also paid close attention to the safety and health conditions of workers in other sectors. A common concern shared among the staff of the Ministry was the lack of safety and health awareness among workers and management.

To address this issue, the Department of Industrial Health sought to establish a legislation concerning statutory medical examinations of workers by designated factory doctors. Under this legislation, workers who had to carry out jobs encompassing certain hazards were required to undergo medical examinations.

These mandatory examinations ensured that these workers were medically fit to carry out the work. Workers who suffered from overexposure to hazards also had their ailments detected at an early stage. This helped prevent the development of overt occupational diseases. After the Factories (Medical Examinations) Regulations was set in motion in 1985, 749 more cases were detected that year compared to the previous year.

In 1991, DIS continued to make headway in reducing dangerous working conditions by rolling out the requirement for all factories to be registered with the Department before commencing operations. In addition, DIS implemented a safety management programme encouraging companies to prioritise safety as they would for other aspects of the company's operations. Companies were also encouraged to budget and plan their safety promotional activities and measure safety performances.

Three years later, the Factories (Building Operation and Works of Engineering Construction) Regulations were further amended. The Regulations spelt out requirements for contractors to employ parttime and full-time safety supervisors, and to appoint independent safety auditors to tighten the standards of worksite safety.

The Ministry was well aware that this prescriptive approach of WSH management alone was not enough to fully prevent accidents. Workers had to learn to be accountable for their own safety and of those around them. With that in mind, the Ministry began introducing training courses. By enrolling in these courses, employers and employees gained greater awareness of their role and abilities to prevent accidents.

"

From very early days when we hit a plateau in our efforts to reduce the accident rates, we realised that beyond addressing the problem of unsafe environment through engineering solutions (like the guarding of unsafe parts of equipment), we had to address human behavioural issues.

>>

Mr. Low Wong Fook, former Chief Inspector of Factories, Ministry of Labour

"

To the foreign workers, my message to them is: 'You have come here; we value you.' We want you to be safe. We care about you and we want you to go home to your family [with] good savings so that you can build a future for yourself and your children. Don't go home in a coffin. Don't break your parents' heart. Take care of yourself.

"

Mr. Ameerali Abdeali, former General Manager of the Occupational Safety and Health (Training and Promotion) Centre, Ministry of Manpower

TRAINING FOR A SAFER CULTURE

In 1991, Safety Orientation Courses (SOC) were rolled out for workers in the oil and petrochemical industries. Workers labouring in manholes and other confined spaces were also required to attend the courses due to the hazardous conditions of their work.

Designed to familiarise workers with the hazards in their respective industries, the SOC also trained participants to prevent accidents. More importantly, the courses also encouraged workers to develop a culture of looking out for their fellow workers in terms of WSH.

To bridge the gap of different working cultures, the SOC regime was extended to the construction sector where foreign construction workers were required to complete the SOCs before they could be issued work permits in 1993. Courses were conducted in various languages to ensure that participants were able to comprehend the curriculum.

Also made mandatory were the refresher courses. These workers had to attend these courses every two years to have their work permit renewed. All these measures ensured that workers were kept up-to-date with the latest WSH practices.

The Occupational Safety and Health (Training and Promotion) Centre (OSHTC) also conducted numerous WSH courses for managers, supervisors and professionals. Courses were tailored to provide participants with practical knowledge on ways to identify and evaluate safety and health hazards, and develop safety management systems to control accidents and diseases in the workplace. In 1991, a total of 86,903 persons were trained in various courses conducted by OSHTC. This number was double that of the previous year.

BOTTOM: Workers dealing with hazardous working conditions were required to attend Safety Orientation Courses in 1991.



PUSHING FOR BETTER STANDARDS IN SAFETY AND HEALTH

The 1980s and 1990s saw a major shift in WSH standards as awareness on the subject took off to new heights.

The string of major tragedies spanning from 1992 to 1994 also left a lasting impression on the industry. The impact was deeply felt in the shipyard industry in particular. Those within the industry developed a stronger sense of ownership of WSH, and saw the need to reform safety and health standards.

Additionally, safety and health began to present itself as a decisive element that would determine if shipyards would be contracted by prospective clients for shipbuilding and ship repairing jobs. According to Mr. Heng Chiang Gnee, former Chairman of Sembawang Shipyard, "[The] 90s was a big change for the shipyards because on the owner side, the demand on [the] safety system within the shipyard was elevated to a different level, principally because these customers have got their own safety demand. It has become a reputation and image of the company that they started addressing in the 80s, but in the 90s, it was brought up to a different level all together."

With a rapidly changing vocational landscape and a sequence of major external crises, the next decade would shore up a new wave of challenges. Despite its circumstances, the Ministry would continue to strive towards building a robust WSH framework, with self-regulation as the driving force.

ASTERN BRIGHT

BOTTOM: Despite the leaps in WSH standards over the decades, there was still much to contend with in many areas, with shipyards emerging as a distinct sector.

10 11



HARROWING TIMES CALLED FOR OVERHAULIN SAFETY STANDARDS

TOP: The aftermath of the fire onboard the M.T. Stolt Spur in July 1992. T he period spanning from 1992 to 1994 saw a series of five major tragedies that claimed multiple lives and fragmented many families. The disasters prompted a serious and comprehensive examination of the existing safety and health practices at the affected worksites.

The first accident occurred onboard the tanker M.T. Stolt Spur in July 1992 at Sembawang Shipyard. The cause of the fire was attributed to the flame from hotwork being carried out in contact with flammable liquids – blowing up the boiler flat level of the ship. Six lives perished and a total of 61 others were injured.

The second fire and explosion occurred at the uncompleted shopping centre Ginza Plaza in August 1992. The explosion that tore through the mall was caused by a build-up of flammable town gas that was ignited by the sparks from the welding work carried out by a gas pipe fitter. Four lives were taken while 61 others were injured.

The third fire erupted aboard another tanker docked at Sembawang Shipyard in November 1992. The Indiana oil tanker was undergoing repairs when an explosion ruptured on the deckhead level of the vessel. A worker was carrying out hotwork when the flame

"

These recommendations made a huge impact and changed the entire safety landscape for the shipbuilding and repairing industry. They targeted on [the] safety mindset and culture of the stakeholders and various aspects of the safety management system for the shipbuilding industry.

>>

Mr. Go Heng Huat, Secretary to the Committee of Inquiry for the accident at Sembawang Bethlehem







LEFT:

Ten people lost their lives in the fire aboard the British Adventure in February 1994.

TOP:

After the fire aboard the British Adventure, much of the items in the steering gear room (where the fire occurred) was covered in soot.

RIGHT: The path of the fire onboard the British Adventure.

LEFT:

The collapsed and charred remains of the uncompleted Ginza Plaza in August 1992.

RIGHT: The explosion at Sembawang Bethlehem claimed five lives and injured eight others.

heated up residual sludge, which burst into flames. A total of eight workers died and 14 others were injured from the blast.

The fourth tragedy occurred onboard the British Adventure – a vessel docked at Jurong Shipyard in February 1994. Welding work was being carried out around flammable vapour, which caused a fire to engulf the deck of the ship. The fire claimed 10 lives.

Lastly, Sembawang Bethlehem, a shipbuilding yard, suffered from a fire and explosion in August 1994 that was caused by unauthorised spray-painting work. Sparked off by the use of non-flameproof equipment where flammable vapour was present, the fire left five people dead and eight others injured in its wake.

With the period between each disaster so distressingly close, the call for better safety standards was pressing.

For each incident, a Committee of Inquiry was formed to discuss the factors that contributed to the accident. After investigations were carried out,





measures and recommendations were drawn to address the issues. Recurrent themes emerged with each report. Negligence, a lack of WSH training, weakness in safety and health management systems, and the absence of proper supervision surfaced as contributors to the accidents.

Mr. Lee Kah Bee, former Assistant Director (Legislation) of the Occupational Safety and Health Division, Ministry of Manpower, who was part of the teams investigating the fires at the four shipyard accidents, shed light on the slippery slope of complacency. "Very often, the industry becomes complacent when there is no major accident after a period of time. They start to bypass or overlook safety measures [and] procedures, thinking that nothing would happen."

These findings were not taken for granted. Based on the facts gathered, the Committee managed to ground out several recommendations, which were promptly set into legislation over the next few years. These included making WSH training compulsory for various classes of personnel, implementing permit-to-work systems for selected hazardous works and imposing statutory duties on competent persons.

Encouraging Greater Participation Through Awards and Recognition



The earliest iteration of the WSH Awards in Singapore dated back to the 1980s with the introduction of the Safety Awards scheme during the Safety Month of the manufacturing industry in June 1984. Within the same year, a safety competition for MRT contractors was also initiated.

In May 1986, an occupational safety and health promotion campaign with the theme 'Let's Zero In' was launched to encourage greater participation in WSH efforts, and the Accident-Free Awards scheme was introduced to help fulfil this objective.

Reflecting an emphasis toward safety management, the scheme was renamed the Annual Safety Performance Awards (ASPA) in 1990. The new name made clear that safety management systems would be the key determinant in how a company's safety performance should be assessed. The ASPA ceremony was held annually to honour companies with a laudable safety performance.

ASPA also provided an opportunity for knowledge sharing among members of industry. Those who had previously won the Gold Award at ASPA were invited to present their safety management systems at workshops organised by the OSHTC.

By 2005, participation levels had grown by leaps and bounds. The 2005 ASPA saw a record high of 382 participants, while its annual ceremony drew close to 1,200 guests. A year later, the WSH Awards was launched. In subsequent years, the qualifying criteria of the Awards were raised to account for Singapore's improving WSH performance. Since its inception, the WSH Awards have also broadened the number of categories from one to seven. The expansion saw a growing number of roles being recognised – further driving the message that WSH is a matter of teamwork.

In his speech during the 2015 WSH Awards ceremony, Mr. Lim Swee Say, Minister for Manpower, spoke of the need to recognise companies who have done well and spur others to higher standards. Mr. Lim also mentioned the inclusion of an "X factor" in the criteria "to assess if the WSH mindset is rooted within the company, and how it integrates WSH into its operations."

Other award schemes, introduced intermittently, have also contributed to creating better work environments. Among them was the Noise Control Awards, which addressed the prevailing issue of Noiseinduced Deafness by recognising the efforts of factories in reducing their noise levels.

We will continue to recognise and feature exemplary employers and workers who demonstrate good WSH practices and behaviours, and share their experiences with industry. Such sharing of best practices will further encourage cross-learning and facilitate an environment of continuous improvement. This will help build a strong safety and health culture and eventually elevate Singapore's state of WSH development. To instil the culture of WSH in Singapore, there was a need to engage the heart and mind of the industry. Award schemes with a focus on WSH were thus put in place, and have since evolved with the passing decades.

WHAT'S NEXT ?

By promoting higher standards of WSH management, we will continue to:

- Encourage companies to raise their WSH performance
- **Recognise** WSH-conscious employers and workers
- Facilitate sharing and learning of best practices
- Build a strong safety and health culture in Singapore

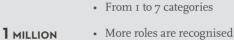
RAISING THE BAR

In 2006, the WSH Awards was launched. Reflecting the improvement of WSH performance in Singapore, the requirements to qualify for the Performance Awards were made more stringent.

Man-Hours

Before

Now



Category

• This underscores teamwork in WSH efforts!



AWARDS (WHAT'

OUR

JOURNEY

50 YEARS, ONE VISION: TRANSFORMING SINGAPORE INTO A NATION OF WSH EXCELLENCE 71

With more people being employed in various sectors, the urgency to improve WSH followed suit. Intent on combating the increasing accidents and improving WSH practices across the industries, the Ministry braved through the challenges that the era brought forth with renewed determination.



1985

- The Industrial Health Division was renamed the Department of Industrial Health.
- The Factories (Medical Examinations) Regulations was set in motion.
- The Noise-induced Deafness Health Education Programme was rolled out.

1986

- The campaign with the theme 'Let's Zero In' was launched.
- The Accident-Free Awards were introduced.
- The Ministry of Labour took over the Occupational Safety and Health Training and Promotion function from the National Productivity Board.



1987

- Circulation of the *Occupational Safety and Health News* began.
- Occupational diseases halved to 1,073 in 1987 compared to 2,068 in 1986.
- Noise-induced Deafness cases also dropped by 55 per cent compared to the previous year.

1990

- The Occupational Safety and Health (Training and Promotion) Centre was subsumed under the Department of Industrial Safety.
- Departments under the Ministry of Labour moved to their new premises at Havelock Road.

1992

- Guidelines on the Hearing Conservation Programme in factories were launched.
- The fire onboard M.T. Stolt Spur occurred.
- The fire onboard the Indiana occurred.
- The fire at Ginza Plaza occurred.







1991

- A committee for Occupational Safety and Health Promotion was formed.
- The first Safety and Health at Work Exhibition was launched.
- All factories were required to be registered with the Department of Industrial Safety before commencing operations.
- The Safety Orientation Courses were rolled out.

1994

- The fire onboard the British Adventure occurred.
- The fire at Sembawang Bethlehem occurred.