

A YOUNG NATION RISES TO CHALLENGES

(1965-1974)







TOP & RIGHT:
Yang di-Pertuan Negara
Mr. Yusof Ishak, former Prime
Minister Mr. Lee Kuan Yew and
officials surveying the Jurong
Industrial Estate (top), followed
by the group touring the
Estate (right).

TAKING THE FIRST STRIDES AS A YOUNG ECONOMY

In the 1960s, Singapore embarked on its first chapter as an independent nation. Economic survival was an urgent imperative in these early years, and industrialisation its key engine. Then a third-world nation with a modest domestic capital and poor infrastructure, the young nation stood against staggering odds as it vied to become a self-sustaining economy. Providing enough jobs for the growing population became its chief challenge.

To provide more jobs and spur economic growth, the Government embarked on a massive industrialisation programme. The development plan that was drawn up sought to transform the nation into a thriving industrial hub. From the success of the first industrial estate in Jurong, the momentum of industrial progress grew rapidly. More and bigger factories were built,

ushering rapid advances of modern technology and drawing many workers to labour-driven industrial jobs.

“Opportunities were plenty, especially in the oil and gas and marine sectors. There was never a lull moment. Welders, fitters and those involved in engineering works were in high demand,” recalls Mr. Leong Yee Hong, a pioneering businessman who took advantage of the vibrant economic climate to start his own business.

While the rapid pace of industrialisation helped drive the economy forward, it also gave rise to new challenges, particularly in the area of Workplace Safety and Health (WSH).

“

In the 1960s, workers and bosses [paid] little attention to health and safety issues as these cost money and time. People were working at elevated heights without proper safety gear. Tank erectors, riggers, welders were walking [or] working on roof rafters of storage tanks with canvas shoes and without harnesses or safety belts. They wore straw hats rather than hard hats. They felt the safety gears were more of a nuisance and restricted their agilities [or] movements.

”

Mr. Leong Yee Hong,
former Chairman and
Managing Director,
Meng Fatt Company Pte. Ltd.

RESPONDING TO THE WARNING SIGNS OF THE INDUSTRY

Some of these early challenges stemmed from the fact that WSH was not yet widely known. Many workers were unaware that they were engaging in unsafe working practices. The advancement of technologies employed in factories during this period also presented a steep learning curve. Workers who lacked prior training were left unequipped to operate sophisticated machineries and suffered serious accidents as a result. Between 1963 and 1970, the number of fatalities increased by about three-fold while the number of accidents increased nearly seven-fold.

In addition to hazardous working conditions, unhealthy working environments in these early days also took a serious toll on the labourers who spent most of their days toiling in enclosed spaces such as mining quarries or underground construction worksites. Respiratory occupational diseases such as silicosis, later dubbed the “number one industrial killer” in Singapore, became increasingly prevalent. In 1965, a radiological survey of 1,188 granite quarry workers revealed that 8 per cent of workers surveyed had silicosis.

This finding, as well as other industrial health issues that had begun to crop up at the time, prompted the Government to look into the matter more closely.



RIGHT:
Granite quarries were a common sight in the 1960s – 1990s.

RALLYING THE SUPPORT OF WSH AFFILIATES

In the following years, the beginnings of WSH in Singapore began to take shape, as different institutions came together to pave the way for better industrial safety and health practices.

In March 1966, the Government called upon the services of an industrial health expert from the International Labour Organization (ILO) to help conduct a study on occupational health problems in Singapore. A few months later, factory inspectors from the Ministry of Labour (MOL), along with health officers from the Ministry of Health (MOH), conducted factory visits during which they provided factory managers with industrial health information and held safety workshops. Following the factory visits, a mass X-ray examination of granite quarry workers in Singapore was organised with the aim of detecting cases of silicosis.

While there was a greater emphasis on monitoring and enforcement of laws in these industrial years, the Government also understood that engaging and educating the workforce was just as important. Hence, factories were encouraged to display safety posters, while bigger factories were required to set up safety committees in their factories.

BOTTOM:
Dr. Goh Keng Swee receiving a silk banner at the inauguration ceremony of the National Safety First Council.



TOP:
Former Minister for the Interior and Defence, Dr. Goh Keng Swee, inaugurating the National Safety First Council at Victoria Theatre.

Furthering the engagement effort, the National Safety First Council convened the first-ever public seminar on occupational safety in Singapore, marking a milestone in Singapore's WSH history. Inaugurated on 1 July 1966, the Council was first set up to focus only on road safety, but had since expanded to include all manners of safety promotion, including occupational safety.

Established in the same year, the Society of Occupational Medicine also proved to be a major ally and advocate in the push for greater occupational health standards. Through its public meetings, seminars, talks, conferences and introductory courses in occupational health, the Society helped educate the general public and industry members on the importance of adhering to health practices at workplaces.

In 1969, the push toward safer and healthier working conditions gained further momentum when the Occupational Safety and Health Committee was formed in the National Trades Union Congress. Led by Members of Parliament, the Committee took part in public discussions and provided in-house training courses for union leaders.

Their ardent participation helped galvanise a greater sense of consciousness of WSH among the public and general body of workers.

“

It's important because once you form [the Industrial Health Unit], there's a focus and concern about the industrial health problems in the country. So the first important thing on my part was to get the organisation going. You must start with the law [...] My first duty was to revise the Factories Act [to ensure it was] more up to date for that time. Once you do the legal framework, then okay – staff was important. You needed nurses, inspectors, engineers and the clerical staff. The beginning was slow, but we started to build up.”

”

Dr. Chew Pin Kee, former Chief Medical Adviser of the Industrial Health Unit, Ministry of Labour



TOP:
Former Minister for Labour, Mr. Jek Yeun Thing, opening the first Industrial Safety Seminar at the Mobil Oil Refinery in Jurong.

ASSEMBLING A CAPABLE INDUSTRIAL HEALTH TEAM

With so much work ahead and to streamline WSH-related efforts between different departments and stakeholders, MOL decided that a specialised department was needed.

The Industrial Health Unit (IHU) was set up in conjunction with MOH in 1967. At the helm of this pioneering team was Dr. Chew Pin Kee, who headed the Unit on a part-time basis before taking a full-time role as Chief Medical Adviser.

Working from its office at Halifax Road, IHU conducted investigations relating to reportable occupational diseases, provided advice on health and environmental problems to factory management, and engaged in training and research. Under the leadership of Dr. Chew, the Unit identified silicosis, Noise-induced

Deafness, industrial dermatitis and compressed air illness as major industrial illnesses of concern.

During the first half of 1968, Dr. Cressall, an occupational health specialist assigned from ILO, also assisted IHU in conducting surveys to assess the occupational health conditions in Singapore. Following up on previous studies on silicosis, the Unit also conducted a survey of 27 granite quarries in Singapore. The silicate dust count in these surveyed sites was found to be much higher than the maximum permissible exposure limits set by international standards. To mitigate the issue, the granite quarry occupiers were instructed to provide means to suppress dust in these working sites.

Two years later, on 15 December 1971, MOL took over IHU from MOH, consolidating the Government's occupational safety and health efforts under one Ministry.

MR. CHOY CHAN PONG

“Being young, we
were fearless. We
believed we could do
everything and solve
every problem.”

*Former Director of the Shipyards
Branch, Ministry of Labour*



Stories of the Early Years: Hurdles, Camaraderie and the Labours of Love

Mr. Choy Chan Pong looks back at his time in the Ministry with much fondness. His journey began in 1972, when Mr. Choy joined the Ministry as a mechanical engineer, working as a team alongside other young engineers. Then called the Factory Inspectorate, the team was newly set up by the Ministry to focus on checking and regulating worksites with occupational hazards.

As the nation's early gears of industrialisation began to pick up momentum in the 70s, the team had to grapple with many things unknown to them. "We had to learn about silicosis, asbestosis – all these terms, we learnt from scratch," Mr. Choy says. The Factory Inspectorate also took it upon themselves to understand the different manufacturing industries – all of which were new grounds to them – in a comprehensive manner.

Mr. Choy alludes to the period as one that was both exciting and dynamic. "Being young, we were fearless. We believed we could do everything and solve every problem."

This can-do spirit soon became a shared culture amongst the team. Mr. Choy described the rapport between him and his colleagues as one that was tight-knit and highly comradely. "I always make the effort to have lunch together. We would talk about the issues we had and the solutions." The team's closeness extended beyond office hours – Mr. Choy recalls many a day when they could be found at the office up till 8 o'clock playing carom. "To us then, the Ministry of Labour was like our second home."

"We [would] just lose track of time. We could be playing carom or badminton, go for a run or even a swim. So, when you have this kind of seamless work-life balance [...] whether it's work [or] play – you don't feel the stress. You can take on any problem."

However, it was not all fun and games. The early industrialisation days saw newspapers headlined with tragedies that resulted in numerous fatalities, especially in the shipyards. It was a challenge for the hard-working pioneers to keep up with and respond to each case quickly, always ready for the next move.

"There is a lot of pressure in doing a lot of things very quickly – to understand the shipyards, to intensify enforcement [...] because while you try to improve things, it takes time. You can introduce a procedure but the workers still do not obey it. And the system can still fail. It involves training, promotion, persuasion, coercion and finally, enforcement before we progressed," Mr. Choy contends.

Amidst the hustle and bustle of work, a surprising turn of events also came in the form of a serendipitous encounter for Mr. Choy. It was at the Ministry of Labour (MOL) that Mr. Choy met his wife, now Mrs. Maria Choy, the Head of Workmen's Compensation at the time. The two had the chance to work together in the Recreational Committee at MOL.

"I married my wife at the Ministry of Labour – one of the romantic successes," he says with a twinkle in his eye. Talk about being married to one's work!

Mr. Choy left the Occupational Safety and Health Division to take on a completely new challenge at the Urban Redevelopment Authority (URA) in 1990. Once again, he plunged head-on into a new area of work – government land sales and property market policy making. He retired in 2000, but continues to work as Senior Adviser in URA. His main focus is in documenting all the experience and knowledge that URA has accumulated over the decades for future learning and reference.

IMPROVING INDUSTRIAL HEALTH THROUGH REGULATIONS

The effort to curb industrial illnesses, with silicosis being one particular focus, began to make inroads as more industrial health regulations came into force.

The enactment of the Sand and Granite Quarries Regulations in 1971 played a pivotal role in combating silicosis. It required licensees of any quarry to install dust extraction systems, provide dust masks and organise annual chest X-ray examinations for all quarry workers. Mandating industry-sponsored chest X-ray examinations was a big step in protecting workers' health as it allowed early detection of silicosis before the affected worker's health deteriorated, without burdening workers with the cost of these medical screenings. In 1972, silicosis was also declared

a compensable occupational disease under the Workmen's Compensation Act.

Another key legislation, enacted in 1974, also proved to be an effective measure against silicosis. The Abrasive Blasting Regulations prohibited the use of sand as an abrasive for blasting. Since its enactment, there has been only very few cases of silicosis among sandblasters in Singapore.

A slew of measures aimed to protect the safety and health of workers in other ways were also released. One such measure was the Building Operations and Works of Engineering Construction Regulations introduced in 1971. Focusing on the health, safety and welfare of construction industry workers, the legislation provided MOL with the framework to regulate unsafe work activities that led to high accident rates between 1963 and 1970.

BOTTOM:

Unsafe working conditions in the 1960s often led to dangerous accidents at worksites.





TAKING A CLOSER LOOK AT SINGAPORE'S SHIPYARD INDUSTRY

While regulations and enforcement provided the necessary momentum for change, the Government knew that Singapore's WSH journey had barely begun. Many aspects of Singapore's industrial safety had yet to be addressed.

To gain more insight on these matters and decide the way forward, the Study Group on Accident Prevention in Shipyards was convened in 1973. Spanning two years, the study culminated with a four-volume report which was submitted to MOL in March 1975.

The report revealed that between 1971 and 1975, occupational accident levels were highest in the shipyard industry since 1971. It also recommended, amongst other things, more preventive safety measures, further safety legislation, a code of practice, safety education and a standardised accident reporting system in shipyards.

An Advisory Committee was subsequently formed in May 1975 to advise and assist in the implementation of the report.

LEFT:
The shipyard industry drew the highest accident rates in the 1970s, prompting increased safety measures, legislation and public education.

“
During our time, the 1970s and 1980s, employers were not so safety conscious, not so aware. Everything was new. I mean, the shipbuilding industry just boomed like that [...] It was a very rapid pace of industrialisation. You superimpose that with the transitional work site, the height, the heavy equipment. So it was just ripe for big accidents to happen. And workers were also not trained.

Everything [was also done] in a hurry. The shipyards [were] under pressure all the time to work. I mean, my father was a shipyard worker when I was a boy. Very often, he came home at 6 a.m. [...] He worked in a tanker overnight then came back in the morning. So the pressure of work, the tight deadline, the ad hoc nature of work – all these [added together], then you will have a very unsafe industry.

”
Mr. Choy Chan Pong,
former Director of the Shipyards
Branch, Ministry of Labour

“
I am of the view that programmes on safety and health in shipyards did not keep pace with the rapid growth of the industry in the 60s and 70s. Neither were they adequate in the face of pressure imposed by contracts to complete goals quickly. Priority [at that time] was given to skills development and productivity.

In the industry where activities were diversified and wide-ranging, and where hot works in potentially explosive and flammable environment [were] a normal daily operation, shipyards in fact faced a deterioration in occupational safety and health conditions because of the rapid expansion of the industry, influx of new workers, and new processes and activities.

”
Prof. Ang How Ghee, former Member of the Commission of Inquiry of Fatal Accidents in Shipyard and Chairman of the Committee on Accident Prevention in the Shipbuilding and Repairing Industry, Ministry of Labour

A photograph of Dr. Chew Pin Kee, an elderly man with short grey hair, wearing a light blue short-sleeved button-down shirt, a blue and white striped tie, and dark grey trousers. He is standing outdoors with his hands in his pockets, smiling slightly. Behind him is a chain-link fence. To his right, a black metal post supports a white sign with the number '1' and the text 'Halifax Road'. In the background, there are green trees and a brick building with a red roof. The sky is clear and blue.

DR. CHEW PIN KEE

“The new generation will face different challenges but they must continue to improve the health of workers.”

*Former Chief Medical Adviser of the
Industrial Health Unit,
Ministry of Labour*

PIONEER PROFILE

The Humble Visionary Who Started It All

Still waters run deep. No man embodies this proverb better than Dr. Chew Pin Kee.

Even as he sits down to recount his role as an industrial health pioneer, the affable Dr. Chew modestly deflects the spotlight away from his own achievements. For Dr. Chew, the work has always been more important than any accolade received.

And his legacy speaks for itself. Without Dr. Chew's tenacious efforts, Singapore's first chapter in industrial health would never have been written. This chapter started in the early 1960s, when the birth and rise of industrialisation in Singapore became the key driver in the growing concern for workers' well-being.

Those years were certainly not easy for Singapore's working population. This was especially true for blue-collar workers who had to cope with unsafe or unsanitary working conditions. As industry development was still new back then, there was almost no system to regulate workplace practices, and it was the workers who suffered the cost of this neglect.

The Ministry of Health (MOH) decided then that something needed to be done. However, there was one problem: the field of industrial health was still virtually unknown in Singapore.

As part of the Public Health Division, Dr. Chew was sent to the United Kingdom to study Occupational Medicine. Upon his return, he began to look into the matter of industrial health with MOH. However, it was apparent that the enormous work at hand could not be undertaken by a single person. The idea of creating an Industrial Health Unit (IHU) within MOH was then initiated.

Henceforth, the responsibility of leading this new unit fell on Dr. Chew's shoulders. From the very first day, Dr. Chew was keenly aware of the challenges to come. But he was equally optimistic of the possibilities that lay ahead.

The first hurdle, Dr. Chew recounts, was putting together the right team. "The beginning was slow. There were less than 10 people in the unit, but gradually we started to build up."

His determination paid off. Under the leadership of Dr. Chew, IHU managed to tackle the more pressing issues immediately. Addressing silicosis was one of their first priorities.

He recalls leading the team to conduct X-ray examinations for Singapore's granite quarry workers. "We used a mobile X-ray van to go to the granite quarries because it was very difficult for the workers to come out and go to Tan Tock Seng Hospital," explains Dr. Chew.

The partnership with Tan Tock Seng Hospital was something Dr. Chew welcomed with enthusiasm. "The hospital's chest physicians were very interested in learning more about these diseases. They also got the necessary treatment and facilities for follow-ups."

His open-mindedness proved crucial in 1971, when the Unit was transferred to its new home under the Ministry of Labour (MOL). For Dr. Chew, the transition was significant.

Having worked with MOH for a good part of his career, he had to quickly adapt to a new working environment. Being the leader, he needed to ensure that his team was able to adjust to their new 'home' smoothly.

In this time of rapid change, Dr. Chew remained a perceptive thinker, keeping his eyes on the big picture. Rather than dwelling on the challenges, he saw the move to MOL as a golden opportunity, providing the Unit with the capacity to carry out their role more effectively.

Looking back, what would he consider as his proudest achievements? Dr. Chew ponders this question with an earnest smile. "Well, I think the most important thing is I have trained doctors, nurses, inspectors, and the staff. That's what I think is important. Of course I also laid the infrastructure and laws."

Dr. Chew also beams with pride as he recalled the book that he had written during his time with the Unit – *A Guide to the Assessment of Traumatic Injuries for Workmen's Compensation*. "At the time, we had the law set up. However, there was no guide," Dr. Chew says. The development of the guide was of paramount importance to him. "I will always remember what my teacher told me: You have to set the standards first."

Speaking of the state of WSH in Singapore today, Dr. Chew expresses his delight at the progress that has been made. However, true to his forward-looking mindset, he prefers to set his sights on the future. "The new generation will face different challenges but they must continue to improve the health of workers," he says.

"Train staff to become skilled. Public education is also important to build awareness. Provide the services. Lastly, there is research. You must track the progress in stages; then if there is a lag, you will know why."

More than thirty years after leaving MOL in 1980, Dr. Chew remains active. He now juggles his time between helping out at his eldest son's family clinic, and studying and preparing for Sunday's bible study class at his church. Together with his wife, he also enjoys occasional travels, and minding and caring for their three grandchildren.

INCULCATING SHARED OWNERSHIP AND BUILDING CAPABILITIES

The beginning of the 1970s also marked a gradual shift towards a more nuanced approach to inculcating WSH. There was greater emphasis on shared ownership, self-regulation and empowering all stakeholders to take part in the WSH journey.

One example was the launch of the first National Industrial Safety & Health Campaign in 1972, followed by a series of targeted campaigns for critical, injury-prone industries such as construction and shipbuilding and repairing. A campaign on silicosis with mobile exhibits was also launched in 1973 to educate workers and factory operators on the disease and what could be done to prevent it.

MOL also produced a monthly newsletter, *The New Worker*, to help workers stay in touch with the latest in occupational safety and health news.

The Ministry also tapped on the expert insights of an ILO representative to design a formal training programme to groom people to be safety officers champions in the industry. The Safety Officers Training Course (SOTC) was officially launched in 1973.

Over the years, the initiative bore fruition as more companies saw the benefits of safety training. Subsequently, SOTC evolved into a relevant avenue for the training of WSH professionals today.

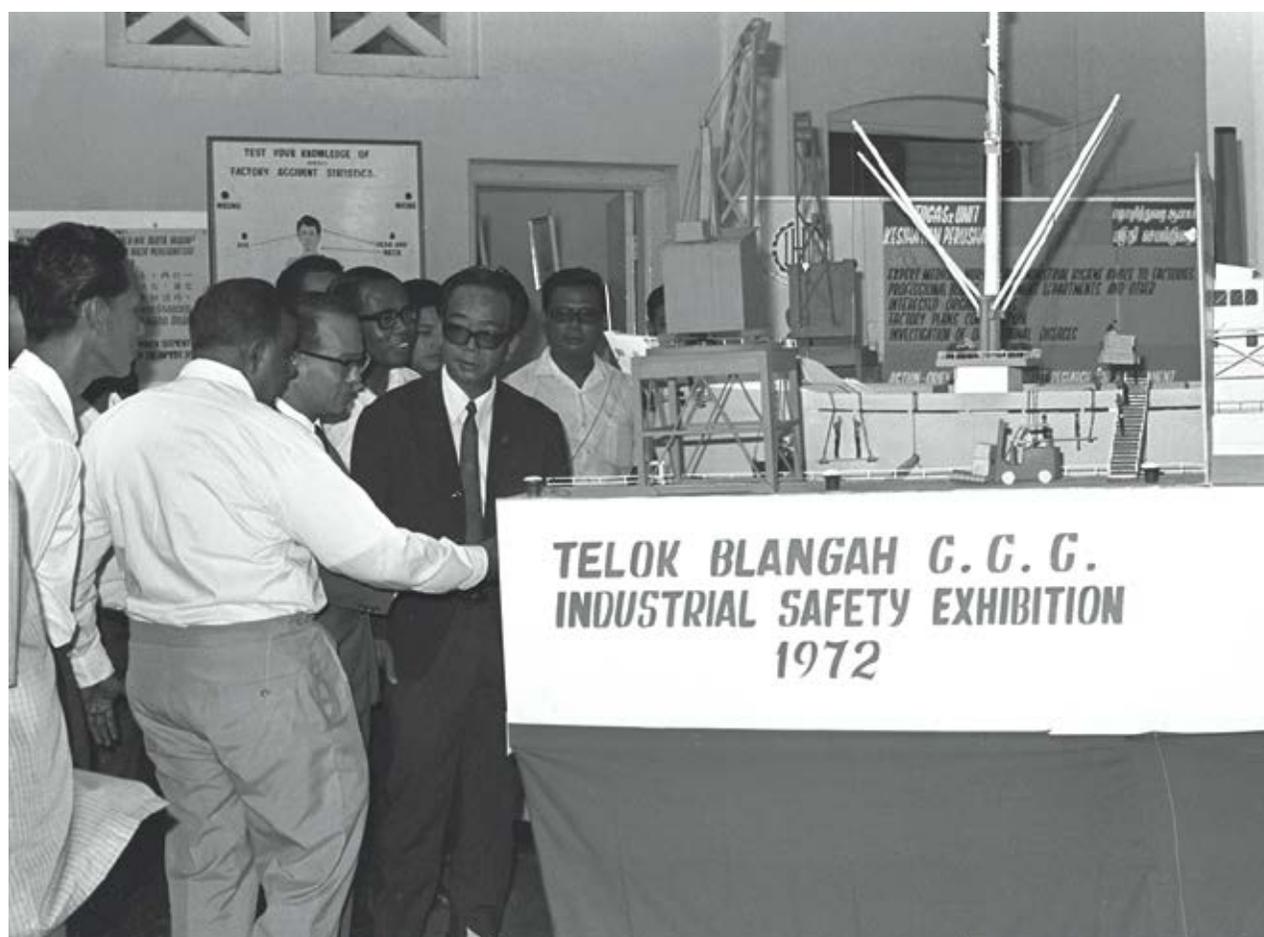
“

Capability building is the foundation of WSH in all workplaces. It is unlikely to achieve a high standard of WSH in all workplaces in Singapore without building up a sound and solid foundation.

Every individual in the industry – the employers, the workforce and the governing authority – must be well-equipped with the required WSH capabilities such as knowledge, positive mindset, good safety behaviour and practices, [and] sound technical knowhow in WSH, through proper training and well-designed continuous WSH education programmes.

”

Mr. Ang Tick Bing, former Administrator of the Safety Officer Training Course, Ministry of Labour



LEFT:
Former Minister of State for Labour,
Mr. Sia Kah Hui, at the opening of the
Industrial Safety Exhibition in 1972.

**TOP:**

Former Minister for Labour, Mr. Ong Pang Boon, visits the exhibition at the launch of the Building Construction Safety and Health Campaign at the Subordinate Law Court Complex Worksite in 1974.

BOTTOM:

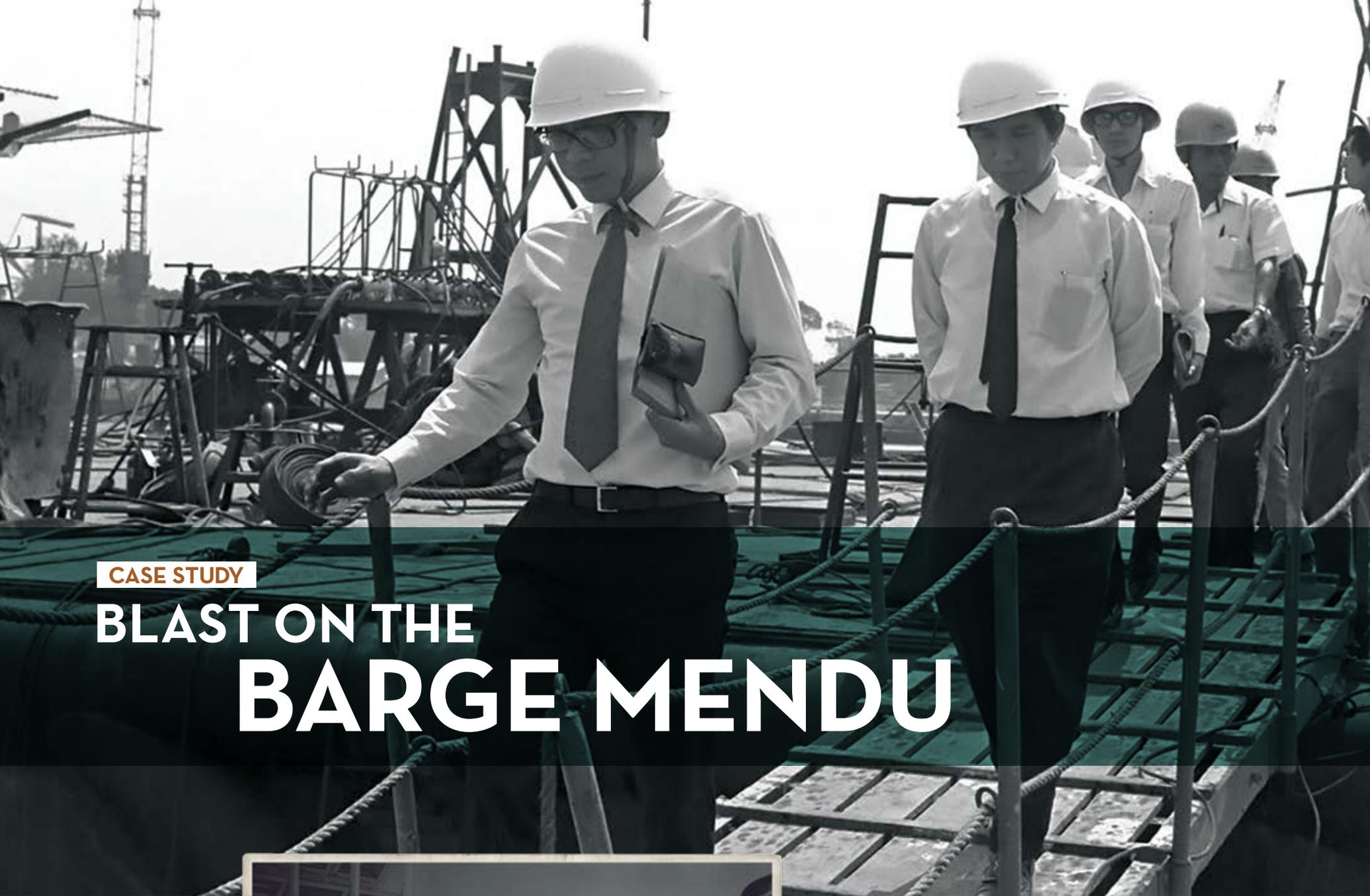
The exhibition received an enthusiastic response, drawing huge crowds to its premises.

CONTINUING A DECADE-LONG JOURNEY



MOL's multi-front efforts were relatively successful. Dust levels in granite quarries and silicosis cases in Singapore fell sharply after 1973. Furthermore, IHU recorded a 35 per cent decrease in notifiable occupational diseases in 1977. More industry stakeholders had taken up greater responsibilities to inculcate safety culture among their peers.

By the end of Singapore's first decade of independence, the foundation of occupational safety and health in Singapore had already been firmly put in place. However, high industrial accident numbers served as a powerful reminder that there was much work left to do and plenty of improvements to be made.



CASE STUDY

BLAST ON THE BARGE MENDU

TOP:
Five days after the tragic blast on Mendu, First Magistrate Mr. Tan Teow Yeow leads his inquiry team at Jurong Shipyard to investigate the explosion.

RIGHT:
Extending sympathies: Former Minister for Labour, Mr. Ong Pang Boon, visits injured workers of the blast at Outram Hospital.



An ordinary day at Jurong Shipyard was rocked by a catastrophic blast on the vessel Mendu. With five men killed and three seriously injured, the incident was a wake-up call for the shipyard industry.

On the morning of 5 March 1972, 10 workers were aboard the unfinished vessel Mendu, working on a series of painting and construction operations. Painting works in particular were being carried out at the bottom deck of the ship. The paint's highly flammable vapour and the lack of ventilation created a highly volatile environment, akin to that of a gas chamber.



TOP:
The inquiry into the Mendu blast revealed various levels of negligence.



RIGHT:
An official of Jurong Shipyard presenting a donation to families of the victims.

However, a trainee hull fitter who was working near the opening of the lower deck was unaware of the danger brewing beneath him. The risk of combustion did not enter his mind as he lit his arc welder, igniting an explosion that ripped through the bottom deck. The catastrophic incident resulted in five deaths (including that of the hull fitter) and three other seriously injured workers.

In the wake of the accident, a Committee of Inquiry was immediately formed to ascertain the cause of the accident and make recommendations to prevent similar incidents. The three-man inquiry panel was helmed by the First Magistrate, Mr. Tan Teow Yeow and two other assessors, Dr. Lee Kum Tatt and Dr. Pang Eng Fong.

Over a span of three weeks, the Committee found a series of probable causes that contributed to the blast. The first cause was attributed to the fact that no checks were carried out for flammable substances on deck before welding works were instructed.

The lack of communication between various parties – namely, the yard manager, workmen, supervisors, foremen and section chiefs – was also identified as a contributing cause. As a safety measure, no welding work was supposed to be carried out simultaneously

with painting work. However, due to the lack of work coordination, the hull fitter had been given instructions to do welding work, which resulted in the blast.

Lastly, the Committee was alarmed to find that no ventilation had been provided for where the painting works were being carried out.

Sections 14 and 35(3) of the Factories Act (Cap. 123, 1970 Ed.) were found to be breached. The former section required all workrooms onboard the vessel to be well-ventilated to prevent the build-up of vapour or other gases in the work area. The second section required that all explosive or flammable substances were to be rendered non-flammable before any welding operations were carried out. Otherwise, these substances could not be brought onto a ship if welding operations were taking place.

Subsequently, the shipyard was found guilty of negligence and fined a sum of S\$900 on account of breaching the Factories Act.

The danger posed by flammable substances and hot work sparked another tragedy two years later, when the bulk vessel Iron Parkgate was engulfed in flames due to regrettable acts of negligence.

CASE STUDY

A TRAGEDY AT THE GRAVING DOCK



LEFT:
One of the perished
victims of the deadly fire
being carried away.

RIGHT:
The engine room aboard
Iron Parkgate where the
flash fire occurred.



Thirteen lives were lost after shipyard workers failed to observe safety measures aboard the bulk vessel Iron Parkgate. It remains as one of the worst disasters in Singapore's early industrialisation period.

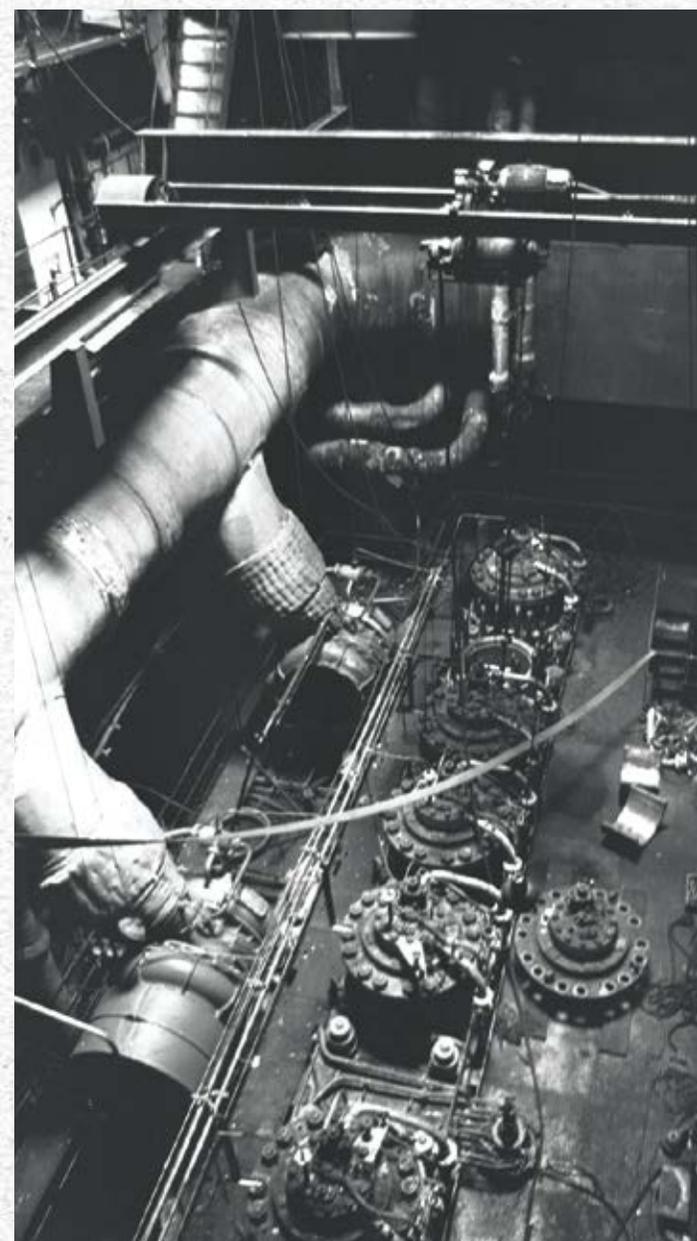
10 December 1974 will forever be remembered as a day of tragedy by the families of 14 workers after a series of negligent acts ignited a fire aboard Iron Parkgate – a bulk vessel undergoing dry docking survey and repair works at Jurong Shipyard. The incident took the lives of 13 workers and left another victim with critical injuries, shocking many in the industry.

In the aftermath of the incident, a Committee of Inquiry was appointed to inquire into the accident. Headed by district judge Mr. S. Chandra Mohan, the Committee submitted an 11-page report to then Minister for Labour, Mr. Ong Pang Boon. The findings determined that the fire was due to an ignition of flammable oil in the engine room, as opposed to an electrical fault. The shipyard was found to have violated Sections 14 and 35(4) of the Factories Act, No. 6 of 1973, as it failed to maintain adequate ventilation and to remove the flammable oil in the engine room while welding work was carried out.

A machinery engineer in charge of works done to the vessel was also found guilty of negligence as he had not ensured that a fireman was stationed at the work area while hot work was in progress, a requirement under the Act. Furthermore, despite the presence of flammable oil in the vessel's bilges, no steps were taken to remove the oil or render it non-flammable before the welding operations commenced. Had all these safety precautions been followed, the oil would not have been ignited and the accident would have been prevented.

While sharing their findings, the Committee pointed out the importance of maintaining a vigilant attitude to work safety. The Committee found that small fires had previously broken out aboard the vessel, and were quickly put out without any casualties. This might have led those working in the shipyard to underestimate the potential impact of such an occurrence.

In its report, the Committee proposed several recommendations. Enforcement of provisions contained in the Factories Act needed to be more stringent. Before hot work was carried out in any ship, the officer-in-charge must provide those supervising safety with a copy of the daily work schedule, as well as information on the nature and



location of the hot work. Adequate ventilation and safety measures should also be made a priority, and a fireman or workers trained in fire safety had to be present during the duration of the work. Educating workers was also seen as a way forward.

Heeding the Committee's recommendations, campaigns and educational programmes were subsequently introduced for workers of all levels, especially in the industries most vulnerable to injuries, namely construction and shipbuilding and repairing.

Establishing the Path of Worker's Protection and Compensation

From raising standards to looking after the safety and health aspects of every worker, regulations have always been an integral part of Singapore's WSH development. The genesis of these regulations can be traced back to the 1920s, when laws were established to protect workers in their course of employment, and provide them or their dependents with due compensation in the event of a work-related injury or death.

Over the decades, both the WSH Act and the Work Injury Compensation Act (WICA) have provided much headway in the course of its evolution. The laws are constantly reviewed, discussed and revised to service the nation's continually changing vocational environment. Today, these regulations continue to endorse Singapore's commitment to safeguard workers and their rights to a safe and healthy workplace.

WORKERS' PROTECTION

1920

THE MACHINERY ORDINANCE AND PROTECTION OF WORKERS ORDINANCE



- Enacted to safeguard the welfare of workers.
- However, the law became inadequate as factory working conditions changed with the advent of new technology.

1960

THE FACTORIES ORDINANCE



- Modelled after the Factories Act of 1937 and 1948 of the United Kingdom.
- Followed the recommendations set by the International Labour Organization convention, but with changes to suit Singapore's factory conditions.

1973

THE FACTORIES ACT



- Contained provisions to allow authorities to combat industrial pollution.
- Certain classes of factories were required to employ full-time safety officers to exercise general supervision and promote safe work conduct.
- Factories employing 50 or more persons were required to set up safety committees to promote safety, health and welfare in their establishments.

2006

THE WSH ACT



The WSH Act moves away from taking a prescriptive stance under the former legislation and introduces a performance-based regime. It has four key features:

1. It places the responsibility for workplace safety on all stakeholders along lines of control at the workplace.
2. It focuses on WSH systems and outcomes, rather than compliance.
3. It facilitates effective enforcement through the issuance of remedial orders.
4. It imposes higher penalties for non-compliance and risky behaviour.

WORKERS' COMPENSATION

1932



THE WORKMEN'S COMPENSATION ORDINANCE

Provided payment of compensation to injured workmen or, in the event of their death, to their dependents for personal injury arising out of or in the course of employment.

1955



THE WORKMEN'S COMPENSATION ORDINANCE (AMENDED)

Employers could be prosecuted for not complying with the provisions, such as failing to send reports of accidents to their workmen within 10 days of their occurrence or neglecting to appear before the Commissioner on being summoned for an enquiry.

1971



THE WORKMEN'S COMPENSATION ACT

- Increased the quantum of workmen's compensation payable three-fold.
- Provided for a more detailed list of injuries for a more accurate assessment of compensation.
- Included silicosis and asbestosis as compensable occupational diseases.
- Provided for the establishment of medical boards and panels to determine matters relating to medical evidence.

1975



THE WORKMEN'S COMPENSATION ACT (AMENDED)

- Streamlined administration and enforcement.
- Accelerated payment to injured workmen.
- Increased compensation amounts.
- Included Noise-induced Deafness and industrial dermatitis as notifiable and compensable diseases.

2008



THE WORK INJURY COMPENSATION ACT

- Extended coverage to almost all employees*.
- Increased compensation limit.
- Enhanced system to provide a quicker and more efficient way to process claims.
- Offered workers a capped compensation without involving a long drawn civil suit.

2012



THE WORK INJURY COMPENSATION ACT (AMENDED)

- Increased compensation limits to account for the change in nominal median wages and healthcare costs.
- Expanded the scope of compensable diseases.

* Officers from the Singapore Armed Forces, Home Team and domestic workers are excluded from coverage of WICA.

1968

- The Industrial Health Unit looked into various industrial hazards such as silicosis, asbestosis and dermatitis.
- Dr. Cressall from the International Labour Organization conducted surveys to assess the occupational health conditions in Singapore.
- After surveying 27 granite quarries in Singapore, the Industrial Health Unit discovered that the dust count in these quarries was in excess of permissible limits set by international standards. Afterwards, granite occupiers were instructed to control their dust levels.



1972

- The National Productivity Board was founded under the purview of the Ministry of Labour.
- The first National Industrial Safety & Health campaign took off. More campaigns followed suit, each focused on a specific industry.

1973

- The launch of the Safety Officers Training Course marked the advent of formal WSH training in Singapore.
- *The New Worker*, a monthly newsletter produced by the Ministry of Labour, was published for the first time.
- A campaign on silicosis, which included a mobile exhibition visit to 25 quarries, was launched.
- The Factories Act 1973 was enacted to raise the standards of safety, health and welfare among industrial workers.



1971

- The Building Operation and Works of Engineering Construction Regulations and Sand and Granite Quarries Regulations were enacted.
- The Workmen's Compensation Ordinance was amended and renamed the Workmen's Compensation Act 1971.
- The Ministry of Labour took over the Industrial Health Unit from the Ministry of Health on 15 December 1971.

1974

- The Abrasive Blasting Regulations was enacted, effectively nipping silicosis cases among industrial sandblasters.