**YANGON UNIVERSITY OF ECONOMICS**
**DEPARTMENT OF APPLIED ECONOMICS**
**MASTER OF PUBLIC ADMINISTRATION PROGRAMME**

# OCCUPATIONAL SAFETY AND HEALTH PRACTICES IN GARMENT FACTORIES IN YANGON

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**JUNE, 2025**

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# OCCUPATIONAL SAFETY AND HEALTH PRACTICES IN GARMENT FACTORIES IN YANGON

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Public Administration (MPA)

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**JUNE, 2025**

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This is to certify that this thesis entitled **"OCCUPATIONAL SAFETY AND HEALTH IN GARMENT FACTORIES IN YANGON"**, submitted in partial fulfilment towards the requirements for the degree of Executive Master of Public Administration has been accepted by the Board of Examiners.

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# ABSTRACT

Occupational Safety and Health (OSH) is a critical element of sustainable industrial development, especially in emerging economies like Myanmar. This study explores OSH practices in Yangon's garment factories, a key sector employing a large, mostly female workforce from rural and low-income backgrounds. Despite its economic significance, the industry faces major OSH challenges, including inadequate safety standards, weak enforcement of labor laws, insufficient training, and limited access to protective equipment. Using a descriptive case study approach, the research relies on secondary data sources such as government inspection reports, national legislation, and international assessments. Findings highlight common workplace hazards—fire risks, lack of PPE, and weak emergency preparedness—particularly in locally owned factories with limited oversight. An analysis of three garment factories in Hlaingtharyar reveals disparities in OSH compliance, with foreign-owned factories demonstrating better safety practices due to external accountability. The study finds out OSH shortcomings are rooted in institutional, economic, and cultural factors rather than purely technical gaps. Suggestions include stronger regulatory enforcement, enhanced training programs, and multi-stakeholder collaboration to create safer workplaces and support sustainable growth in Myanmar's garment industry.

# ACKNOWLEDGEMENTS

First and foremost, I would like to express my heartfelt thanks and deep appreciation to Yangon University of Economics and the Master of Public Administration Programme Committee for providing me with the opportunity to undertake this postgraduate course.

I extend my sincere gratitude to Professor Dr. Tin Tin Htwe, Rector of Yangon University of Economics, and Professor Dr. Cho Cho Thein, Pro-Rector, for their continued support. I am also deeply grateful to Professor Dr. Tin Tin Wai, Pro-Rector, and Professor Dr. Su Su Myat, Programme Director of the Master of Public Administration Programme and Head of the Department of Applied Economics, for their invaluable guidance throughout the programme. Special thanks to all the teachers of the MPA Programme for their insightful instruction and for sharing their knowledge and experience during my studies.

I would especially like to express my deepest gratitude to my supervisor, Daw N Khun Ja Ra, Associate Professor in the Department of Applied Economics, for her professional advice, excellent guidance, patience, and for fostering an encouraging environment throughout my research and the completion of this study.

I would also like to thank all the industries that participated in the questionnaire survey. Without their contributions, this research would not have been possible. Additionally, I extend my thanks to the relevant regulatory authority, the Factories and General Labour Laws Inspection Department (FGLLID), for their timely coordination and support in facilitating awareness of workplace issues.

Finally, I wish to express my deepest gratitude to my parents, my partner, and the WSH Myanmar Team for their unwavering support and encouragement throughout my academic journey. I also sincerely appreciate my classmates for generously sharing their knowledge and insights during the thesis-writing process

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# LIST OF ABBREVIATIONS

AI Artificial intelligence

ALARP As Low As Reasonably Practicable

ALR Action Labour Rights

ASEAN Association of Southeast Asian Nations

ASEAN-OSHNET ASEAN Occupational Safety and Health Network

CMP Cute-Make-Pack

CMT Cut Make and Trim

CSR Corporate Social Responsibility

DISI Directorate of Industrial Supervision and Inspection

ESG Environmental Social and Government

FDI Foreign Direct Investment

FGLLID Factories and General Labor Laws Inspection Department

FSD Fire Services Department

GNP Gross National Product

ILO International Labor Organization

IoT Internet of Things

ISM Industrial Safety Management

ISO International Standard Organization

KPI Key Performance Indicator

MGMA Myanmar Garment Manufacturers Association

NGO Non-Government Organization

OEHD Occupational and Environmental Health Division

OHSAS Occupational Health and Safety assessment Series

OHSMS Occupational Health and Safety Management System

OSH Occupational Safety and Health

OSHA Occupational Safety and Health Administration

PDCA Plan-Do-Check-Act

PPE Personnel Protective Equipment

SMART SMEs for environmental Accountability, Responsibility and Transparency

SME Small and Medium Enterprise

SWOT Strengths, Weaknesses, Opportunities, and Threats

WHO World Health Organization

YCDC Yangon City Development Committee

# CHAPTER I
# INTRODUCTION

## 1.1 Rationale of The Study

In many regions, particularly highly industrialized nations, occupational injuries and diseases have become leading causes of mortality, with some even ranking as the primary cause of death. The societal toll of both minor and severe injuries, coupled with the human suffering and significant economic losses due to resulting disabilities, is profound and immeasurable. Occupational accidents, in particular, have emerged as a major public health issue requiring immediate and sustained attention. These incidents are especially devastating as they often affect young, productive members of the workforce individuals who represent the economic future of families and nations alike.

Beyond the human tragedy, the economic burden of occupational accidents and diseases is considerable. They lead to long-term disabilities, loss of income, high medical costs, and reduced productivity, thereby contributing to broader economic instability. In fact, many of these accidents are preventable through the implementation of safe working procedures and the establishment of rigorous occupational safety systems. A deeper understanding of the distinct causes of different accident categories can help in devising targeted prevention strategies.

Myanmar, currently undergoing rapid industrialization, has an opportunity to apply lessons learned from more developed countries. However, the nation's occupational safety and health (OSH) framework remains in its nascent stages. Sectors such as mining, construction, and manufacturing—including garment production—have seen an uptick in industrial activity, but OSH infrastructure has not kept pace. While new machinery and technologies increase industrial output, they also introduce greater risks, especially in the absence of adequate safety regulations and enforcement mechanisms. The integration of such machinery into Myanmar’s industries has come at a cost an increase in workplace-related illnesses and injuries.

In many factories, especially those that are labor-intensive, there remains a deeply entrenched attitude that workplace accidents are simply unfortunate byproducts

of industrial work. This normalization of occupational risk has led to widespread negligence. As a result, both minor injuries and fatal accidents continue to occur, with limited employer accountability or systemic change. The consequences ripple outwards: families are plunged into financial hardship, businesses suffer from reduced productivity and legal liabilities, and the broader society bears the economic costs through lost labor and rising healthcare expenses.

In this context, the garment sector holds particular significance. It is one of Myanmar's fastest-growing industries and a critical contributor to national exports. As of recent years, more than 70% of Myanmar's garment factories are located in Yangon, making it the hub of garment production in the country. The industry employs hundreds of thousands of workers, most of them young women from rural and low-income backgrounds. While the sector has provided much-needed employment, the growth has far outpaced the regulation and enforcement of safety standards. Consequently, the garment industry has become a hotspot for OSH violations.

Reports by organizations such as the International Labour Organization (ILO) (2020) and SMART Myanmar (2019) have consistently highlighted serious safety deficiencies in Yangon's garment factories. Common issues include fire hazards, poorly maintained electrical systems, lack of proper machine guarding, insufficient personal protective equipment (PPE), limited OSH training, and a lack of emergency preparedness. In many cases, workers are unaware of their OSH rights or feel powerless to report violations, fearing retaliation or job loss.

These challenges disproportionately affect women workers, who make up the majority of the workforce in garment factories. A 2018 study by Action Labour Rights (ALR**)** found that **over 60%** of surveyed workers in Yangon garment factories reported experiencing symptoms of work-related illnesses or injuries within a one-year period. These symptoms included respiratory issues, repetitive strain injuries, chemical exposure, and general fatigue. The study also pointed to high rates of psychological stress and burnout, linked to long working hours, tight production quotas, and unsafe conditions.

The lack of effective internal reporting systems and limited access to first-aid and occupational health services further aggravate these problems. Moreover, safety committees—where they exist—often lack decision-making power or are symbolic in nature. Government inspection agencies remain understaffed and underfunded, leading to infrequent inspections and poor enforcement of labor laws. Foreign-owned factories

tend to show slightly better compliance due to international buyer pressure, while locally owned factories often lag behind due to lower investment in worker safety.
As the garment industry becomes increasingly integrated into global supply chains, Myanmar faces growing scrutiny from international labor watchdogs and consumer advocacy groups. In this context, ensuring workplace safety is not only a moral obligation but also a strategic necessity for sustaining export growth and attracting ethical investment. A safe working environment improves productivity, reduces absenteeism and turnover, enhances worker morale, and protects brand reputation—making OSH a vital component of sustainable industrial development.

This study focuses specifically on occupational safety and health practices in garment factories located in Yangon, examining both the regulatory framework and real-world implementation. Yangon's status as the primary garment production hub, with a mix of domestic and foreign-owned factories, makes it an ideal setting for a case study approach. The research aims to explore the current OSH practices, identify implementation gaps, assess training and support systems, and evaluate the roles of various stakeholders—government, factory owners, labor unions, NGOs, and international brands.

By understanding the on-the-ground realities in Yangon's garment factories, this study seeks to contribute meaningful insights into how OSH systems can be strengthened not just in Myanmar, but in similar contexts across the Global South. Ensuring safe and healthy working conditions is a foundational step toward achieving equitable economic growth, protecting vulnerable populations, and aligning Myanmar's industrial policies with international labor standards.

This study was chosen due to the critical need to assess and improve OSH conditions in Yangon's garment sector—a vital part of Myanmar's economy that employs a large, vulnerable workforce. As Myanmar integrates further into global supply chains, ensuring worker safety is not only a legal and ethical requirement but also a strategic priority for attracting sustainable investment and maintaining export competitiveness. By identifying existing gaps in OSH practices, this research aims to support efforts toward safer, more equitable industrial development

## 1.2 Objectives of the Study

The main objective of the study is to assess occupational safety and health (OSH) conditions in selected Yangon garment factories by identifying issues and evaluating their compliance.

## 1.3 Method of Study

This study was mainly the descriptive methods of, simple random sampling with focusing on the analysis of secondary data to explore Occupational Safety and Health (OSH) practices within Myanmar's garment sector, with a specific emphasis on factories located in Yangon. The study investigates the intersection of legal frameworks, enforcement mechanisms, and practical implementation of OSH standards at the factory level. This localized focus on Yangon is strategically selected, as the city hosts the highest concentration of both domestic and foreign-owned garment factories, making it a representative setting for examining OSH conditions within the broader national context.

Data sources include a combination of legal documents, government inspection reports, international publications, and theoretical literature. National legislation—such as the Factories Act (1951), Social Security Act (1954), and the Occupational Safety and Health Law (2019)—forms the foundation for analyzing Myanmar's OSH regulatory environment. Inspection and compliance data from the Factories and General Labour Law Inspection Department (2010–2020) provide valuable insights into factory-level implementation. Additionally, international resources from the ILO, WHO, and SMART Myanmar offer benchmarking opportunities, while theoretical frameworks like Heinrich's Domino Theory and Bird's Loss Control Model guide the conceptual approach to workplace safety management.

Due to time and logistical limitations, primary data collection methods such as interviews or field surveys were only do three garment factories but all garment factories are not feasible. Instead, the study relies on triangulation of multiple secondary sources to enhance the validity and reliability of findings. By comparing foreign-owned especially China Owner factories, the research identifies trends in compliance, variations in OSH culture, and notable best practices. This methodology allows for a comprehensive and evidence-based understanding of the state of OSH in Hlaingtharyar's garment industry, and it informs practical recommendations to

strengthen policy and workplace safety interventions in Myanmar's rapidly expanding industrial landscape.

## 1.4 Scope and Limitations of the Study

This study focuses exclusively on occupational safety and health (OSH) practices within garment factories located in Yangon, Myanmar. The selected time frame for data analysis spans from 2010 to 2020, encompassing a decade of developments and trends in OSH implementation. While garment factories in Yangon represent a significant portion of Myanmar's industrial workforce, findings from this case study may not be fully generalizable to other regions or industrial sectors such as construction, mining, or agriculture. Nonetheless, references to these sectors are occasionally included for contextual comparison.

This study relies primarily on secondary data, including reports, government publications, and assessments from international organizations. This methodological choice presents inherent limitations, such as potential gaps in data reporting, lack of real-time field observations, and challenges in verifying the accuracy or completeness of some records. Despite these constraints, the use of secondary data provides a broad understanding of occupational safety and health (OSH) enforcement and compliance trends. It offers valuable insights into factory-level practices, particularly in Yangon, Hlaingtharyar Industrial Zone, which is recognized as the epicenter of the garment industry in Yangon.

## 1.5 Organization of the Study

This study is organized into five chapters, each focusing on critical aspects of Occupational Safety and Health (OSH) in Yangon's garment sector. Chapter One introduces the study by outlining its rationale, objectives, scope, methodology, and overall significance. It emphasizes the role of OSH in safeguarding workers' well-being in Myanmar's growing garment industry. Chapter Two presents a literature review covering both theoretical and practical foundations. It discusses key accident causation models such as Heinrich's Domino Theory and Bird's Loss Control Model as well as relevant international standards. Chapter Three examines OSH management in Myanmar's garment sector. It includes an overview of the industry, the use of PPE, risk assessment methodologies, and factors influencing compliance, supported by data from SMART Myanmar and ILO sources.

Chapter Four provides a survey-based analysis of OSH practices in selected factories in Hlaingtharyar Township. It highlights enforcement, training, and stakeholder roles through case comparisons. Chapter Five summarizes key findings and proposes recommendations at the policy, factory, and international buyer levels to improve OSH compliance and sustainability.

# CHAPTER II
# LITERATURE REVIEW

## 2.1 Evolution of Occupational Safety and Health Management Systems (OSHMS)

Occupational Safety and Health Management Systems (OSHMS) have evolved significantly over the past two centuries. Prior to the Industrial Revolution, workplace safety was largely informal, with most labor occurring in agriculture or crafts. Risk management was reactive and unstructured.

The Industrial Revolution (18th–19th centuries) introduced factories and machinery, bringing new hazards such as poor ventilation, toxic exposures, and mechanical injuries. This led to early legislation, including the UK's Factory Acts (1833, 1844), and early safety regulations in the United States. In the early 20th century, workers' compensation laws such as those in Germany motivated companies to adopt hazard-reduction practices. Health issues like silicosis and asbestosis spurred improved regulations.

Following World War II, industrial growth accelerated, prompting the creation of formal OSH organizations like the U.S. Occupational Safety and Health Administration (OSHA) and global bodies such as the ILO and WHO. By the 1990s, systems like BS 8800 and OHSAS 18001 standardized OSH practices.

In 2018, ISO 45001 replaced OHSAS 18001, focusing on proactive risk management, leadership, worker participation, and integration with other management systems (e.g., ISO 9001, ISO 14001). In 2021, ISO introduced ISO 45003, addressing psychological risks. Today, OSHMS are increasingly aligned with ESG (Environmental, Social, and Governance) frameworks, using digital tools like AI, IoT, and automation to manage and predict risks in real-time. This modern evolution reflects a broader corporate responsibility to protect both physical and mental health in the workplace.

## 2.2 Challenges in Occupational Safety and Health (OSH)

Occupational Safety and Health (OSH) has been an ongoing global concern, particularly within industrial workplaces. The International Labour Organization (ILO) launched its Global Strategy on Occupational Safety and Health during the 91st session of the International Labour Conference in 2003. This initiative aimed to guide countries in developing national OSH programs that address the specific safety and health needs of various sectors. In subsequent years, the ILO has continued to provide technical assistance to member nations, especially in the Asia-Pacific region, to strengthen national OSH frameworks and improve workplace conditions.

Despite substantial advancements in OSH awareness and practices, the situation remains dire globally, as evidenced by the following ILO estimates for 2024, over 2.9 million workers die each year from work-related accidents and diseases. Moreover, there are approximately 340 million non-fatal accidents and 190 million cases of work-related illnesses annually. These staggering statistics reflect the immense human cost of inadequate workplace safety. Furthermore, the economic burden of poor OSH practices represents more than 4% of the global Gross National Product (GNP), demonstrating the financial toll of workplace injuries and illnesses.

A major barrier to addressing these issues is the lack of investment in OSH measures. Often, businesses perceive safety programs as unnecessary expenses rather than essential investments. Several factors contribute to this reluctance, including insufficient data on occupational risks and the tendency for the financial consequences of accidents to be borne by workers and their families, rather than by employers or governments. The ILO has been working to promote the integration of OSH into national policies, encouraging governments to develop comprehensive OSH systems. These systems aim to establish clear goals for prevention, awareness, and worker protection, incorporating collaborative efforts from social partners—employers, employees, and governments.

## 2.3 Key Elements of Industrial Safety

A comprehensive safety management system integrates various elements that are crucial for maintaining a safe working environment in industrial settings. These elements typically include:

1. **Safety Planning**: A strategic action plan, aligned with the business plan, outlines the safety governance structure and ensures that all workers are

informed of their safety responsibilities. The safety plan should include a detailed budget for implementing safety measures.

2. **Policies, Procedures, and Processes**: These documents outline the safety protocols within an industry or company, setting expectations for behavior, incident reporting, and maintaining safety records.
3. **Training and Induction**: It is essential for all new employees, regardless of industry type, to undergo safety training upon entering the workplace. The level of training will depend on the risk profile of the industry and the tasks involved.
4. **Monitoring**: Monitoring the workplace for risks and hazards is crucial. This includes regular assessments, particularly when changes in processes or work conditions occur, to ensure that safety standards are maintained.
5. **Supervision**: Effective supervision is critical for ensuring that safety policies are followed. The degree of supervision required will depend on the risk level and the safety controls in place within the organization.
6. **Reporting**: Safety reporting involves documenting incidents, near misses, and safety reviews. These reports provide valuable insights into the safety performance of the workplace and help in ensuring compliance with safety regulations.

These components form the foundation of an effective industrial safety management system, helping organizations to minimize risks and prevent accidents.

## 2.4 Theories and Principles of Accident Causation

Theories of accident causation are integral to understanding how workplace accidents occur and how they can be prevented. One of the earliest and most influential theories is Heinrich's Domino Theory (1931), which posits that accidents occur as a result of a sequence of factors, much like falling dominoes. Heinrich identified five key factors: social environment/ancestry, personal faults, unsafe acts or conditions, accidents, and injuries. According to Heinrich, removing any one of these factors can interrupt the chain of events leading to an accident.

Another significant update to this theory was presented by Bird and Loftus (1985), who added managerial errors and the resulting losses, such as production delays or property damage, as contributing factors. The emphasis shifted from focusing solely on personal factors to a broader management perspective, highlighting the importance of proactive safety management practices.

Marcum's Seven Domino Sequence (1978) further expanded on the idea of misacts, which are mistakes or overlooked risks that lead to accidents. Marcum focused on both employee errors, such as failing to recognize risks, and managerial failures, such as neglecting to address hazards. His model underscores the importance of management's responsibility in maintaining a safe work environment.

Additionally, Reason's Swiss Cheese Model (1990) introduced the idea of "active" and "latent" failures. Active failures are mistakes made by workers, while latent failures exist in organizational structures, processes, and systems that make accidents more likely. This shift from blaming individuals to examining broader system failures has had a profound impact on how modern safety investigations are conducted, encouraging a no-blame approach to safety management.

## 2.5 Industrial Safety Management (ISM)

Industrial Safety Management refers to the strategies and practices implemented by organizations to ensure safe working environments. These strategies involve systematic approaches to managing safety risks, reducing hazards, and preventing accidents. The objectives of industrial safety management include promoting safety practices, improving organizational safety culture, and minimizing risks. Effective ISM encompasses four primary functions: planning, organizing, coordinating, and controlling safety activities within an organization.

A key aspect of ISM is the safety climate within an organization, which refers to employees' shared perceptions of safety-related policies, procedures, and practices. A positive safety climate is often associated with lower injury rates and a more proactive approach to safety management (Huang et al., 2006). On the other hand, safety culture reflects the collective attitudes, beliefs, and values regarding safety within the workplace. A strong safety culture encourages employees to prioritize safety and take ownership of their actions to mitigate risks. Building on these internal management practices, ASEAN has also developed region-wide standards to further harmonize and improve OSH outcomes.

## 2.6 Association of Southeast Asian Nations (ASEAN) ,OSH Standards and Guidelines f

To support member states in strengthening workplace safety standards and promoting sustainable industrial growth, the Association of Southeast Asian Nations

(ASEAN) has developed comprehensive guidelines for Occupational Safety and Health Management Systems (OSHMS)**.** These guidelines provide a structured and harmonized framework aimed at guiding governments, industries, and enterprises—particularly in developing economies—toward establishing safer, healthier, and more compliant workplaces.

The ASEAN OHSMS model is grounded in the internationally recognized Plan-Do-Check-Act (PDCA) cycle, which serves as the core methodology for implementing and continuously improving occupational safety and health practices. This cyclic model ensures that safety and health are not treated as one-time compliance obligations but as ongoing processes integrated into the broader management system of an organization.

1. **Plan**: In this initial stage, organizations are encouraged to conduct comprehensive hazard identification and risk assessments. Based on these findings, they develop a strategic OSH plan that sets clear objectives, allocates responsibilities, and outlines procedures and resources needed for implementation. Planning also involves complying with relevant legal and regulatory frameworks and consulting workers to ensure that the plan is both effective and inclusive.

2. **Do**: This phase involves the actual implementation of the OSH plan. It includes communicating safety procedures to workers, providing appropriate training, ensuring the availability and use of personal protective equipment (PPE), and integrating OSH responsibilities into daily operations. Strong leadership and employee engagement are critical during this stage to embed a proactive safety culture within the workplace.

3. **Check**: In the third phase, organizations systematically monitor, measure, and evaluate their OSH performance. This includes tracking key performance indicators (KPIs), conducting workplace inspections, auditing processes, and collecting incident reports. The aim is to compare actual performance against planned objectives to determine the effectiveness of the implemented measures.

4. **Act**: The final stage of the cycle focuses on analyzing deviations from planned outcomes and identifying root causes of OSH deficiencies. Based on these findings, corrective and preventive actions are taken to eliminate hazards and strengthen system weaknesses. This stage ensures that lessons learned from past experiences inform future planning, thereby reinforcing a cycle of continuous improvement.

The PDCA-based OHSMS framework promotes a preventive and adaptive approach to workplace safety and health management. Rather than responding reactively to accidents and violations, the system emphasizes foresight, preparedness, and resilience. Importantly, the ASEAN guidelines encourage integration with broader corporate governance and sustainability goals, highlighting that effective OSH practices are essential not only for worker well-being but also for organizational productivity and reputational value.

ASEAN member countries particularly by adopting this system and those undergoing rapid industrialization like Myanmar to do more effectively institutionalize OSH at both policy and enterprise levels. The ASEAN OHSMS thus serves as both a regional benchmark and an implementation tool**,** offering a unified yet adaptable structure that accommodates diverse economic contexts while maintaining core safety principles.

## 2.7 Reviews on Previous Studies

Ohnmar Kyaw (2012) carried out a study involving 150 randomly selected female garment workers from factories located in Hlaing Thar Yar Industrial Zone. The research highlighted several challenges faced by these women, with major concerns being long working hours, poor occupational safety conditions, and a lack of proper rest days. These factors contributed to adverse effects on the workers' health and well-being, indicating the need for improved workplace standards and better enforcement of labor rights. The study emphasized the need for stronger labor law enforcement and workplace safety improvements in the garment sector.

Aung Kyaw Thet (2017) examined safety management issues within Myanmar's construction sector. His study focused on high-rise construction projects, particularly those involving buildings of nine stories or more. Using questionnaire surveys conducted at 279 construction sites, the research found that many employers had limited understanding of safety management practices. Safety teams were often understaffed

and underfunded, which reduced their effectiveness. The study also identified major shortcomings, such as the lack of proper safety policies, insufficient safety training, poor dissemination of safety information, and minimal use of warning signs or hazard communication tools. Worker participation in training sessions was inconsistent, and overall risk management practices were found to be weak. These issues underscored systemic gaps in OSH knowledge and implementation across industries.

Than Lwin (2019) conducted research on industrial safety practices in Yangon, focusing on factories within the eastern district. The study assessed both voluntary and government-led safety initiatives across 150 industries through structured questionnaires. A combination of primary and secondary data was used for analysis. Key findings included the absence of accident records and the unavailability of first aid kits in many workplaces. Moreover, safety officers were reported to have limited experience and knowledge regarding the use of personal protective equipment (PPE). The study also found low levels of rule compliance among both managers and workers. Many employees demonstrated unsafe behavior—particularly younger workers, who often underestimated risks, ignored safety instructions, and engaged in hazardous actions due to overconfidence or immaturity. These findings point to the need for cultural and behavioral interventions alongside technical training

Lesniak (2017) conducted a detailed study on the impact of personal protective equipment (PPE) on firefighter performance, revealing its dual function as both essential protection against hazards—such as extreme heat and toxic exposure—and a physical burden that can hinder operational efficiency. The added weight and bulk of PPE were found to increase fatigue and reduce mobility, potentially affecting the speed, agility, and precision required in emergency situations. These findings highlight the trade-offs involved in PPE use and emphasize the need for ongoing innovation in protective gear design to optimize both safety and functional performance for emergency responders. This study reflects the broader challenge of balancing protection with productivity in industrial manufacturing

# CHAPTER III
# OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT IN MYANMAR GARMENT SECTORS

## 3.1 Overview of the Garment Sector in Myanmar

The garment industry is one of Myanmar's most vital and rapidly expanding economic sectors, contributing significantly to employment generation, export revenue, and industrial development. Following the country's economic liberalization in the early 2010s, Myanmar experienced a sharp rise in foreign direct investment (FDI), particularly in the garment sector under the Cut-Make-Pack (CMP) model. This labor-intensive production system, which emphasizes low-cost manufacturing, has attracted a wide range of international buyers and investors. As of October 2024, official data from the Myanmar Garment Manufacturers Association (MGMA) reports a total of 547 active garment factories operating nationwide. The ownership breakdown is as follows: 323 are Chinese-owned, 56 are South Korean-owned,17 are owned by Japanese firms, 15 are owned by other foreign investors,48 are domestic (local) factories, 25 operate as joint ventures. The industry employs approximately 700,000 workers, with over 90 percent being women, most of whom come from rural and low-income backgrounds. This demographic reliance highlights the sector's social and economic importance, while also raising concerns about labor rights and workplace safety.

Ownership structure plays a significant role in Occupational Safety and Health (OSH) performance. Foreign-owned factories, especially those producing for global brands, tend to demonstrate higher levels of compliance with OSH standards due to external audit requirements, reputational risk, and corporate social responsibility (CSR) pressures. Conversely, locally owned factories often face constraints such as limited capital, inadequate training, and minimal regulatory oversight—factors that contribute to substandard working conditions and inconsistent implementation of safety measures. Most garment factories are concentrated in industrial zones such as Hlaingtharyar, Shwe Pyi Thar, and Megaladon in the Yangon Region. While these zones have become hubs of economic activity, they are also associated with significant labor-related challenges, including long working hours, low wages, and persistent OSH deficiencies.

Understanding the ownership dynamics, workforce characteristics, and operational environment of Myanmar's garment sector is essential for contextualizing the occupational safety risks addressed in this study.

## 3.2 Legal and Regulatory Framework for Occupational Safety and Health (OSH)

The Myanmar garment sector is subject to the national OSH framework, including the Occupational Safety and Health Law (2019), which outlines safety standards applicable to all industries. Enforcement in this sector is primarily the responsibility of the Factories and General Labour Laws Inspection Department, though practical oversight remains limited in many factories. Legal and regulatory framework of Myanmar for Occupational Safety and Health (OSH) is composed of a wide array of legislative instruments spread across various sectors and ministries. While efforts have been made to modernize the system, the structure remains fragmented and primarily focused on formal employment settings.

The cornerstone of Myanmar's OSH legislation continues to be the Factories Act of 1951, which was last amended in 2016. This law outlines the fundamental requirements for workplace safety in manufacturing and industrial settings. However, several other legal instruments also contribute to the overall OSH framework. These include:

- Workmen's Compensation Act (1923, amended 2005)
- Oilfield (Labour and Welfare) Act (1951)
- Public Health Law (1972)
- Atomic Energy Law (1988)
- Private Industrial Enterprise Law (1990)
- Myanmar Marine Fisheries Law (1990)
- Social Security Law (2012)
- Prevention of Hazard from Chemical and Related Substances Law (2013)
- Electricity Law (2014)
- Myanmar Fire Force Law (2015)
- Myanmar Mines Law (2015)
- Boiler Law (2015)
- Shops and Establishments Law (2016)
- Pesticide Law (2016)

- Various municipal health and safety rules and orders issued by the Yangon City Development Committee and other municipal authorities

These legal instruments collectively address different dimensions of occupational safety and health, including chemical hazard management, fire protection, industrial equipment safety, and sector-specific conditions such as mining and agriculture. However, their coverage is primarily limited to employment within the formal economy. As a result, a significant portion of the workforce—particularly those engaged in informal labor—remains outside the protective scope of the existing legal framework.

The administration of OSH-related laws, particularly the Factories Act and legislation governing shops and establishments, falls under the purview of the Factories and General Labour Laws Inspection Department (FGLLID**)**. This department plays a central role in inspecting workplaces and enforcing compliance with labor standards.
In addition to the FGLLID, several other government agencies and departments are either directly or indirectly involved in regulating workplace safety and health. These include:

- The Department of Industrial Supervision and Inspection (DISI) under the Ministry of Industry, responsible for registering private industrial enterprises, inspecting boilers and electrical installations, and overseeing environmental safety in workplaces.
- The Department of Mines under the Ministry of Natural Resources and Environmental Conservation, which enforces safety and health standards in mining operations, including regulations on working hours and rest periods.
- The Occupational and Environmental Health Division (OEHD) within the Department of Public Health, under the Ministry of Health and Sports, which addresses health risks in workplace environments.
- The Department of Agriculture, under the Ministry of Agriculture, Livestock and Irrigation, which oversees agricultural safety, including pesticide use.
- The Fire Services Department, under the Ministry of Home Affairs, tasked with enforcing fire safety protocols.
- The Department of Building, under the Ministry of Construction, which regulates structural safety in building design and construction.
- City Development Committees, including the Yangon City Development Committee (YCDC) and similar bodies in other towns and cities, which issue

local rules and inspections relating to sanitation, waste management, and public safety in urban workplaces.

While the current legislative framework provides a basic structure for OSH, it remains fragmented and unevenly enforced. Strengthening inter-agency coordination, closing coverage gaps—particularly for informal workers—and enhancing enforcement mechanisms will be critical steps toward building a more comprehensive and inclusive national OSH system.

## 3.3 Occupational Safety and Health (OSH)-Related Law and Supporting Legislation

In Myanmar, occupational safety and health (OSH) is governed not only by the primary OSH-specific laws but also through various sectoral and supportive legislations. These laws address health, safety, and environmental aspects within specific industries and work environments. This section reviews the main OSH-related laws, highlighting their relevance and contribution to worker protection and workplace safety standards across different sectors.

**The Oilfields (Labour and Welfare) Act, 1951**

The Oilfields (Labour and Welfare) Act, 1951, serves as the foundational legislation for regulating occupational health and safety in the oil and gas sector. The Act applies to individuals directly or indirectly employed in oil and gas extraction operations. It mirrors many provisions of the Factories Act, including mandatory safety measures, accident and occupational disease reporting, child labor restrictions, and penalties for non-compliance.

Key safety-related requirements under this Act include the provision of potable drinking water, sanitary washroom facilities, machinery safeguards, fire and fume prevention measures in confined spaces, and the use of personal protective equipment such as protective eyewear.

**Public Health Law, 1972**

The Public Health Law of 1972 aims to safeguard public health through the regulation of food, drugs, cosmetics, and environmental sanitation. It also addresses the control of epidemic diseases and the operation of private clinics. Section 3 mandates the government to implement advisory services, inspections, and supervisory actions to mitigate adverse effects on public health. Although primarily concerned with public

welfare, the law supports workplace health and safety through environmental health control.

**Atomic Energy Law, 1988**

The Atomic Energy Law focuses on the safe use and regulation of atomic energy. It establishes the Atomic Energy Council, which includes relevant government officials and scientists. The law outlines procedures for the registration, licensing, and supervision of radioactive substances. It emphasizes safety protocols in handling, producing, storing, and transporting radioactive materials, with strong penalties for violations. It also promotes international cooperation for technological advancement in the field of atomic energy.

**Private Industrial Enterprise Law, 1990**

Enacted in 1990, the Private Industrial Enterprise Law regulates industrial enterprises that use machinery with a capacity of at least three horsepower or employ ten or more workers. Section 11 outlines OSH-related criteria for enterprise registration, including prevention of fire hazards, environmental pollution, and harm to workers' health. The law ensures compliance with existing environmental and labor legislation and mandates health and safety measures as prerequisites for industrial operation.

**Myanmar Marine Fisheries Law, 1990**

While primarily regulating fishing operations, the Myanmar Marine Fisheries Law incorporates OSH elements. Specifically, Section 31(e) assigns responsibility to vessel masters for ensuring the safety of onboard personnel such as inspectors, researchers, observers, and trainees. Though limited, this provision reflects the inclusion of safety considerations in maritime operations.

**Prevention of Hazard from Chemical and Related Substances Law, 2013**

This comprehensive law aims to protect living organisms and the environment from chemical hazards. It mandates systematic control of chemical use in businesses and workplaces. Key provisions include:

- Risk assessment and health monitoring of workers exposed to hazardous chemicals;
- Regulation of chemical emissions and waste management;
- Licensing procedures, including coordination with fire and environmental authorities;
- Mandatory insurance to cover damages to health or environment;

- Prohibition of activities deemed hazardous based on international and domestic data.

The law significantly contributes to the regulatory framework for managing chemical hazards in both industrial and environmental contexts.

**Electricity Law, 2014**

The Electricity Law governs the generation, transmission, and use of electrical power, with an emphasis on public safety. Originally enacted in 1984 and revised in 2014, it aims to prevent hazards associated with electricity usage in both public and industrial settings, thereby supporting OSH objectives indirectly.

**The Myanmar Fire Force Law, 2015**

This law establishes requirements for fire prevention and emergency response. Section 17 requires prior consultation with the Fire Services Department before the construction or operation of potentially hazardous facilities such as factories, workshops, and transport terminals. Section 25 mandates that owners or managers of such facilities must form a reserve fire brigade and provide appropriate fire safety equipment. Violations are subject to fines or imprisonment, underscoring the seriousness of fire safety compliance.

**Myanmar Mines Law, 2015 and Myanmar Mines Rules, 2018**

The Myanmar Mines Law (2015) and its subsequent rules (2018) comprehensively address mine safety. Section 13 requires permit holders to implement measures for accident prevention, worker welfare, and sanitation. Section 26 assigns inspection responsibilities to the Chief Inspector to ensure compliance. The Rules (particularly Chapters XXVIII to XXXIV) elaborate on mine safety procedures, including immediate interventions by inspectors when workers' safety is endangered.

**Boiler Law, 2015**

The Boiler Law seeks to prevent boiler-related accidents by regulating their safe operation, inspection, and maintenance. It emphasizes explosion prevention, efficiency, and lifecycle management, directly contributing to workplace safety in industries utilizing steam and pressure systems.

**Pesticide Law, 2016 and Related Regulations**

The Pesticide Law (2016) revises the 1990 legislation to strengthen protection for workers in agriculture and industrial pesticide handling. It governs pesticide formulation, repackaging, storage, and transport. Key safety measures include:

- Risk identification and exposure control;

- Surveillance of the work environment;
- Labelling standards and hazard classification;
- Notification procedures for hazardous work.

The supporting regulations issued by the Pesticides Registration Board further enhance the implementation of safety standards in this sector.

**Existing Laws for Toxic Chemical Control**

Several laws contribute to the control of toxic substances in various sectors:

- **Factories Act (1951)** – regulates hazardous chemical use in factories;
- **Chemical Hazards Law (2013)** – covers industrial chemical safety;
- **Public Health Law (1972)** – controls harmful consumer products;
- **National Food Law (1997)** – protects consumer health from toxic food substances.

Myanmar's regulatory framework aligns with international standards, such as the Stockholm Convention, by banning persistent organic pollutants (POPs) including 41 harmful pesticides.

**OSH Standing Orders**

The Ministry of Industry issued several standing orders to institutionalize OSH practices in state-owned enterprises:

- **Occupational Safety Plan (Standing Order No. 1/95)** – mandates the creation of safety management systems;
- **Occupational Health Plan (Standing Order No. 2/95)** – outlines health hazards and prevention strategies;
- **Water and Air Pollution Control Plan (Standing Order No. 3/95)** – establishes standards for waste discharge and environmental protection;
- **Food and Drug Control Plan (Standing Order No. 4/95)** – ensures safe production in compliance with public health legislation.

These orders provide essential guidance for promoting a safe and healthy working environment in state-run industries.

**Myanmar National Building Code (2016)**

The Myanmar National Building Code sets out occupational safety and health standards for the construction industry. Part 7 of the Code addresses worker safety during building operations. Although currently not mandatory, its enforcement is expected following the enactment of the upcoming Construction Industry Development Law, which will elevate the Code to a legally binding status.

**Occupational Safety and Health Law, (2019)**

The Occupational Safety and Health (OSH) Law, enacted on 15 March 2019 by the Pyidaungsu Hluttaw, represents a landmark development in Myanmar's legal framework for worker protection. This comprehensive legislation aims to promote safe and healthy working conditions across all sectors, and establishes a national legal foundation for occupational safety and health governance. Key features of the 2019 OSH Law include:

- **Scope of Application**: The law applies to a broad range of workplaces, including factories, construction sites, agricultural undertakings, transportation services, oil and gas fields, and offices—both public and private.
- **Employer Obligations**: Employers are mandated to provide safe workplaces, conduct risk assessments, ensure appropriate use of protective equipment, and offer OSH-related training to employees. Employers must also report occupational accidents and diseases to the relevant authorities.
- **Worker Rights**: Workers have the right to a safe working environment, to receive OSH information and training, and to participate in safety-related decision-making processes. They also have the right to refuse unsafe work without fear of retaliation.
- **OSH Committees**: The law requires the establishment of OSH Committees at workplaces employing more than a specified number of workers. These committees oversee OSH practices and facilitate dialogue between workers and management on safety issues.
- **National OSH Council**: A high-level **National Council for Occupational Safety and Health** is formed to develop policies, strategies, and guidelines. The Council includes representatives from government, employer groups, worker organizations, and technical experts.
- **Inspection and Enforcement**: The Ministry of Labour, Immigration and Population is authorized to appoint inspectors who can investigate compliance, issue orders for improvement, and enforce corrective measures. Administrative and criminal penalties are provided for non-compliance.
- **Occupational Health Services**: The law encourages the establishment of occupational health services and the provision of medical check-ups, especially in hazardous work environments.

- **Preventive Approach**: The law emphasizes a **preventive and proactive approach** to OSH management, encouraging hazard identification, control measures, and continuous workplace safety improvement.

The 2019 OSH Law provides a comprehensive and rights-based framework for ensuring the safety, health, and welfare of workers in Myanmar. It represents a significant shift towards international OSH standards and lays the groundwork for institutionalizing safety culture across diverse industries.

### 3.4 Industrialization and OSH Evolution In Myanmar

Myanmar, traditionally an agrarian economy, has been undergoing significant industrialization since the shift to a market-oriented economy in 1989. This transformation has been driven in part by the establishment of industrial zones, which have become pivotal to the nation's economic development strategy. As of 2024, Myanmar has developed 40 official industrial zones, incding 27 located in Yangon.

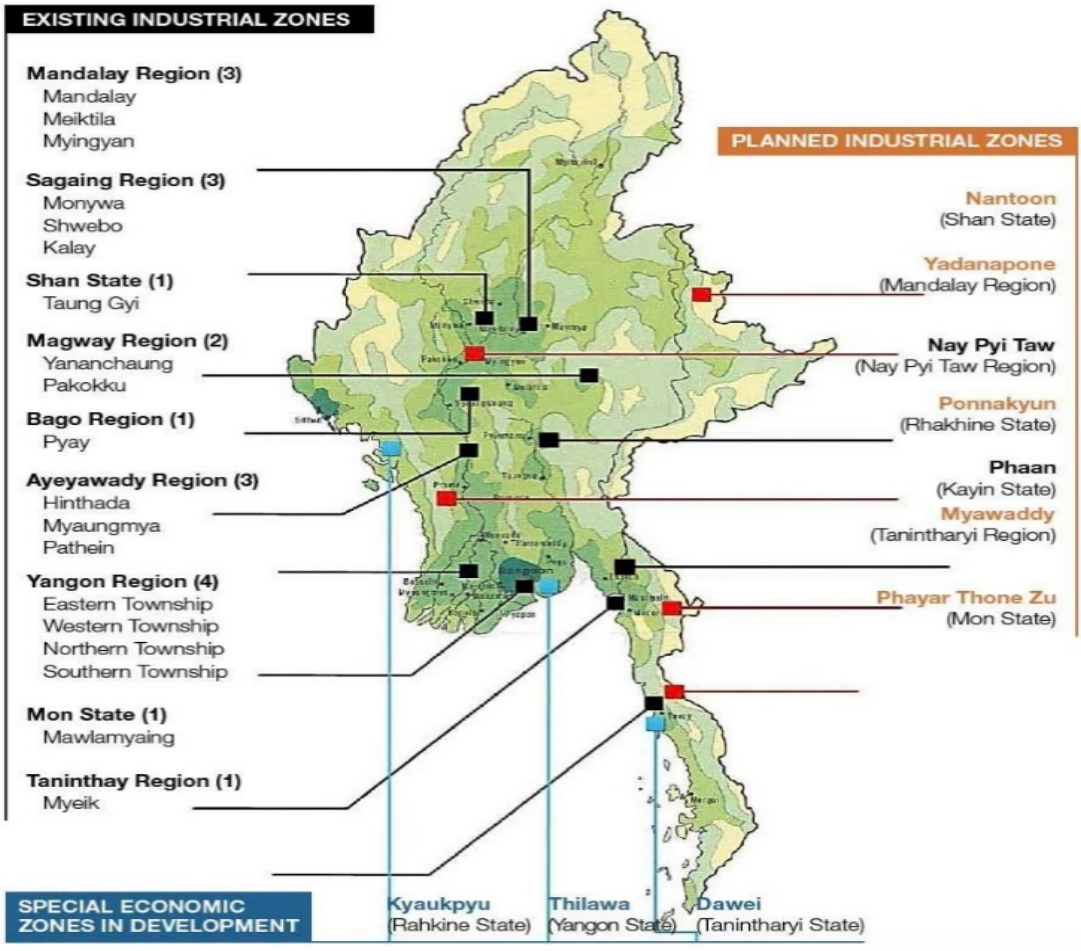



**Figure 3.1**: "Location map of existing and new industrial zones in Myanmar" showing key zones in Yangon, based on the Department of Urban Housing and Development, Ministry of Construction

The prominent Industries zones in Yangon that support its role as Myanmar's commercial and manufacturing hub. Key zones include the East Dagon, North Dagon, South Dagon (1, 2, 3), and Dagon Seikkan Industrial Zones, along with Kyi Su, Kyansitthar, and Dala Industrial Zones. Hlaingtharya hosts multiple zones (1 through 7), as do Shwepyithar (1 to 4) and Shwe Pyi Thar (1 to 4). Additional zones include Anawrahta, Shwe Than Lwin, Shwe Lin Ban, Wartayar, Thardukan, and Shwe Pauk Kan. Dagon Township also contributes with Dagon (East) and Dagon (South 1, 2) zones. Other important areas include the Mingaladon, Pyin Ma Pin, Hlegu, Hmawbi, Htantabin, Taikkyi, Kawhmu, Kayan, Kungyangon, Kyauktan, Thongwa, and Twantay Industrial Zones. Thilawa Industrial Zone is a major economic hub, while urban zones like North and South Okkalapa, Thaketa, and Ngwe Pin Lae also play significant roles. Shwe Lin Pan, Mya Sein Yaung, and War Ta Yar Industrial Zones further contribute to the city's industrial diversity, emphasizing Yangon's status as a key player in Myanmar's industrial development.

Across the country, more than 40,000 private industries are now operational, employing over two million workers. Approximately 90% of these are small- and medium-sized enterprises (SMEs), which are active across 13 different sectors. The growth of these industries particularly between 2010 and 2020—was driven by a surge in both local and foreign investments, particularly in import-substitution factories. These ventures significantly expanded employment opportunities, diversified the labor market, and accelerated the pace of urban industrialization.

The rise of these industrial zones has not only supported economic development but has also highlighted the urgent need for comprehensive occupational safety and health (OSH) frameworks. As industrialization intensifies, workplace safety becomes an increasingly critical issue. Many of the new enterprises operate in high-risk sectors such as manufacturing and construction, where OSH awareness and enforcement remain limited.

While the Occupational Safety and Health Law enacted in 2019 marked a positive step forward, implementation challenges persist due to limited resources, inconsistent enforcement, and a lack of awareness among employers and workers alike. Particularly in informal sectors and among SMEs, safety standards are often inadequate. Common issues include poor access to protective equipment, limited training on occupational hazards, and insufficient reporting mechanisms for workplace incidents.

The Ministry of Labour, Immigration, and Population bears the responsibility for enforcing OSH standards, but its capacity is constrained. The rapid industrial expansion has outpaced the development of regulatory infrastructure, leaving many workers vulnerable to occupational risks. Given the scale and complexity of Myanmar's industrial growth, especially in concentrated zones like Yangon, there is a pressing need for robust and proactive OSH systems that can adapt to the evolving industrial landscape.

Efforts to improve safety must focus on integrating OSH policies into the broader industrial development strategy. This includes enhancing training and education, increasing investment in safety infrastructure, and fostering collaboration between the government, industry stakeholders, and international organizations such as the ILO. Strengthening OSH in tandem with industrial expansion will not only protect workers but also contribute to sustainable and inclusive economic growth.

### 3.5 Safety Management Systems in the Myanmar Garment Sector

Occupational Safety and Health (OSH) systems form the backbone of a sustainable and ethical workplace. The establishment of structured safety management systems and personal protective equipment (PPE) programs are fundamental components of any OSH framework. The OSH landscape of Myanmar’s garment sector using empirical data derived from international brand suppliers, the SMART Myanmar program, and primary observations conducted by the International Labour Organization (ILO) research team. The objective is to assess how closely OSH practices in Myanmar’s garment industry align with the foundational principles of occupational safety systems.

A key element in evaluating OSH compliance is the presence of structured safety management systems within factories. According to self-reported data from an international brand operating in Myanmar. An international brand assessed 38 factories, incorporating OSH practices as part of their broader sustainability metrics. However, it is important to note that this data had not yet been externally validated at the time of analysis. Despite formal policies and procedures being reported, field research conducted by the ILO revealed a notable gap between these policies and their actual implementation on factory floors. The following table (3.1) show the data of OSH system and factory Ownership as follow.

**Table (3.1) OSH System and Factory Ownership**

| Ownership Type | % with Formal OSH Policy | % with Active OSH Implementation | % with Trained Safety Officer |
|---|---|---|---|
| **Foreign-Owned** | 82 % | 50 % | 70 % |
| **Local-Owned** | 35 % | 15 % | 20 % |

Sources: SMART Myanmar Project Report 2019

According to the table (3.1) suggests that foreign-owned factories, which make up the majority of Myanmar's garment sector (86% in the brand's dataset; 65% in SMART Myanmar's database), are more likely to report established OSH systems. These factories tend to be newer, better resourced, and more responsive to international buyers' compliance requirements. In contrast, locally owned factories often lack the necessary financial and technical capacity to implement comprehensive OSH systems. This disparity indicates that ownership plays a crucial role in determining OSH performance, with foreign and export-oriented firms leading in compliance. The following table summarizes key differences in OSH engagement based on ownership type, derived from both SMART Myanmar and ILO observational data.

**Table (3.2) OSH System based Factory Ownership**

| OSH Component | Foreign-Owned Factories | Locally-Owned Factories |
|---|---|---|
| Formal OSH Policies | 85 % | 42 % |
| Trained Safety Officers | 42 % | 19 % |
| Regular Risk Assessments | 68% | 31% |

Sources: ILO Myanmar Report (2021)

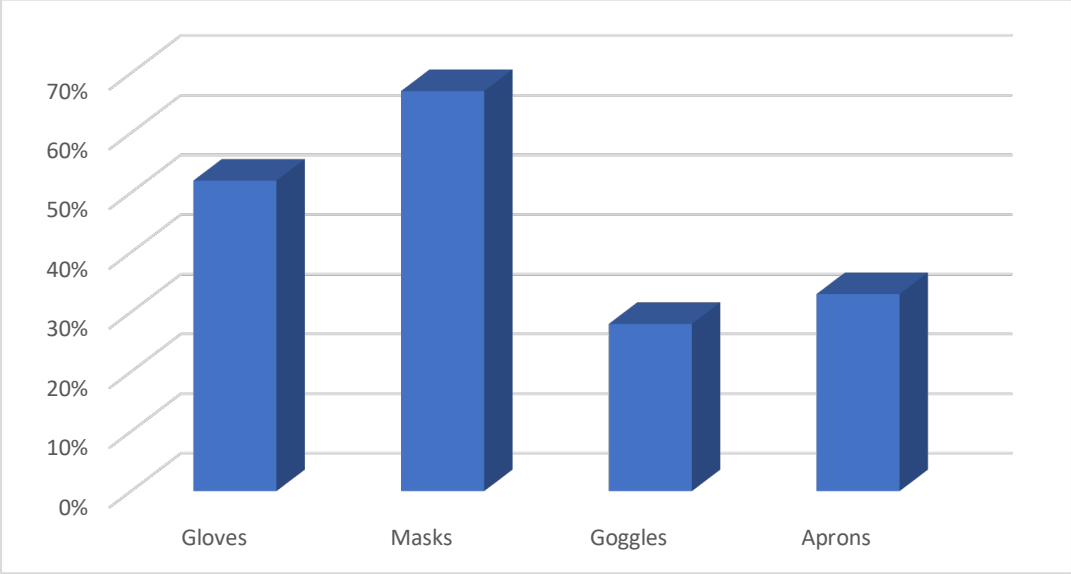
As illustrated, foreign-owned factories are significantly more likely to both formalize and implement OSH systems. Trained OSH personnel are present in 70% of foreign-owned facilities compared to just 20% of locally owned ones, reflecting disparities in resource allocation and buyer pressure. A significant compliance gap: foreign-owned factories in Myanmar are more than twice as likely to implement formal OSH policies compared to locally-owned ones, and nearly four times more likely to employ trained safety officers. These differences are consistent with findings from the ILO Myanmar (2021) and SMART Myanmar reports, which point to higher OSH adherence in factories supplying international buyers.

Nevertheless, direct observation by the ILO research team in six factories around Yangon found little evidence of fully operational OSH systems, even in foreign-owned facilities. Categories such as fire safety, machine guarding, electrical safety, and safe chemical handling were often deficient. This suggests that while safety policies may be formally in place, the translation of these policies into effective practice remains weak.

### 3.6 Personal Protective Equipment (PPE) and Risk Mitigation Practices

The use of personal protective equipment is a basic yet essential part of any OSH program. In high-risk environments such as garment factories—especially those involved in dyeing or chemical processing—the provision and proper use of PPE can significantly reduce workplace injuries and illnesses. However, the ILO's field research did not reveal a widespread or systematic use of PPE across the observed factories. The table 3.3 summarizes the availability of different PPE types across observed factories in Myanmar's garment sector.

**Figure 3.2 – Availability of PPE by Type Across Observed Myanmar Factories**




(Sources: ILO Myanmar Report(2021)

The availability of key personal protective equipment (PPE) types across garment factories observed in Myanmar. Masks are the most commonly available PPE, present in 67% of factories, likely due to heightened awareness from recent health concerns such as COVID-19 and exposure to dust. Gloves are available in just over half (52%) of factories, reflecting moderate adoption for hand protection. In contrast,

goggles and aprons are less commonly available, found in only 28% and 33% of factories respectively, indicating potential gaps in protection against eye hazards and chemical or liquid spills. This uneven availability suggests a need for greater emphasis on comprehensive PPE provision to better safeguard worker health and safety. Although masks were the most commonly available, other critical PPE such as goggles and aprons remained underused, especially in facilities with known chemical handling.

**Table (3.3) 1PPE Usage in Myanmar Factories With vs. Without Chemical Processing**

| PPE Type | Chemical-Processing Factories (%) | Non-chemical-Factories (%) |
|---|---|---|
| Gloves | 60 % | 22 % |
| Masks | 75 % | 32 % |
| Goggles | 30 % | 6 % |
| Aprons | 40 % | 18 % |

Sources: ILO Myanmar Report (2021)

PPE usage is significantly higher in factories that perform chemical processes. For example, masks and gloves are used in 75% and 60% of these factories, respectively, compared to just 38% and 22% in non-chemical settings. Goggles and aprons—critical for chemical splash protection—are also markedly more common in chemical-processing environments. This discrepancy highlights how risk perception and production type directly influence PPE adoption, though the overall figures still point to underuse even in high-risk facilities. Moreover, there was a lack of evidence that Few factories demonstrated integration of PPE programs within broader risk mitigation or safety training strategies. In factories where production processes involve chemical exposure, inadequate use of PPE presents a severe health risk. This problem is likely to intensify as the industry evolves and expands its use of in-house dyeing and finishing processes. Without proactive investment in PPE programs and education, workers will remain vulnerable to avoidable hazards. These gaps in PPE usage reflect broader weaknesses in risk assessment and hazard control.

## 3.7 Methodology of OSH Risk Assessment

The Occupational Safety and Health (OSH) risk assessment process involves six key steps: Preparation, Risk Analysis, Risk Evaluation, Implementation of

Measures, Review and Update, and Documentation. In the preparation phase, exposed worker groups are identified, existing preventive measures are reviewed, and relevant data are collected through observations, interviews, and document analysis. Special attention is given to vulnerable groups, such as pregnant women, young workers, and contractors.

Risk analysis involves identifying hazards and assessing potential consequences. Common tools include checklists, deviation analysis, and task analysis. Both physical and psychosocial hazards must be considered. Risk evaluation can be qualitative or quantitative. A frequently used qualitative method is the risk matrix, which assesses the severity of identified risks . Based on this evaluation, risks are ranked and compared against predefined acceptability criteria derived from legal standards, industry norms, and internal benchmarks.

Mitigation measures should follow the hierarchy of controls:

1. **Prevention** (engineering and administrative controls),
2. **Protection** (collective, then individual measures),
3. **Mitigation** (emergency preparedness).

The As Low As Reasonably Practicable (ALARP) principle guides decision-making, ensuring that risk is reduced to the lowest level reasonably achievable, considering cost, time, and practicality. Risk assessments must be reviewed regularly, particularly when operational changes occur (e.g., new equipment, procedures). Continuous review ensures the effectiveness of controls and responsiveness to evolving conditions. All findings including identified hazards, evaluated risks, implemented measures, and updates must be thoroughly documented for accountability, transparency, and legal compliance.

This study employs a mixed-methods approach, drawing on methodologies outlined in ILO guidance and implemented through both qualitative and quantitative tools. During the preparation phase, data were gathered from two key sources: (1) self-reported assessments submitted by brand-supplied factories, and (2) records of participating in a social compliance program. This stage involved mapping key actors, collecting OSH policies, and analyzing prior incident records. In the risk analysis phase, both physical and organizational hazards were identified through factory visits and structured management interviews. Key risk areas included machine safety, fire hazards, chemical handling, and general working conditions. The evaluation phase involved comparing direct observations with self-reported OSH data using qualitative

methods to assess likelihood and severity, revealing notable discrepancies between reported practices and actual conditions.

The findings emphasize the importance of regular, independent audits as both preventive and corrective mechanisms. These audits ensure alignment between documented OSH policies and actual workplace conditions. The study also stresses the necessity of ongoing review and update mechanisms, urging factories to revise risk assessments routinely in response to real conditions and evolving hazards. Proper documentation remains essential to support accountability and maintain compliance with OSH regulations.

### 3.8 Drivers and Barriers to OSH Compliance

Multiple factors influence OSH compliance within Myanmar's garment sector. Export orientation and foreign ownership are strongly associated with higher compliance levels, primarily due to pressure from Western brands and international buyers who enforce strict labor and safety standards. In contrast, factories supplying regional buyers—such as those in Korea or Japan—tend to follow less rigorous OSH requirements. Key barriers to compliance include local ownership with limited access to financial resources, weak understanding of OSH requirements among factory management, and the lack of dedicated OSH personnel. The nature of production also affects risk exposure: factories focused on Cut, Make, and Trim (CMT) operations are generally lower-risk, whereas facilities involving dyeing or chemical use pose greater hazards.

As Myanmar's garment industry evolves and moves toward more complex production processes, the need for comprehensive OSH systems will become increasingly critical. While some foundational safety elements are in place—particularly in foreign-invested and export-driven factories—the broader implementation of systematic OSH management, PPE usage, and worker training remains inconsistent. The findings underscore the need for capacity building, financial investment, and stronger regulatory enforcement to bridge the gap between formal OSH policies and actual practice. Without systemic and sustained improvements, the continued expansion of the sector risks compromising worker health and safety in pursuit of economic growth. These compliance dynamics provide a basis for further analysis of practical enforcement mechanisms and stakeholder roles.

# CHAPTER IV
# SURVEY NALYSIS

## 4.1 Survey Profile

This study employed a descriptive research method, with a focus on secondary data analysis to explore Occupational Safety and Health (OSH) practices in Myanmar's garment sector. The Hlaingtharyar Industrial Zone in Yangon was selected as the primary area of focus, as it hosts the highest concentration of garment factories in the country. As of 2024, the zone comprises approximately 1,151 factories, making it a representative and strategic location for examining OSH conditions.

Hlaingtharyar is particularly notable for its high number of foreign-owned garment factories, especially those owned by Chinese investors. To ensure a balanced perspective, the study adopted a simple random sampling method to select three garment factories for in-depth review. These included both foreign-owned and locally owned facilities, enabling comparative insights into how ownership structure may influence OSH implementation and compliance. The selected factories were assessed based on available documentation, including OSH policies, compliance records, and internal safety management systems.

Due to time constraints and limited access, large-scale primary data collection methods (such as surveys, interviews, or field observations) were not feasible. Instead, the research relied heavily on a triangulation of secondary data sources to ensure both credibility and depth in the findings. Limited primary input was obtained from factory managers, safety officers, and production staff during a one-month period (June–July 2025). Key sources of information included:

- National legislation (e.g., Factories Act, Social Security Act, OSH Law)
- Inspection reports from the Factories and General Labour Law Inspection Department (2010–2020)
- International publications from ILO, WHO, and SMART Myanmar

- Theoretical models, including Heinrich's Domino Theory and Bird's Loss Control Model

While the small sample size and restricted access posed limitations to the generalizability of findings, the mixed-source approach enabled the identification of key OSH trends, compliance gaps, and risk mitigation practices. These insights serve as a foundation for recommending targeted improvements in OSH management across Myanmar's garment industry.

## 4.2 Survey Design

A descriptive research approach was employed, primarily relying on secondary data analysis to evaluate OSH practices within the selected factories. The study adopted a simple random sampling method to ensure unbiased factory selection within the Hlaingtharyar Industrial Zone. The survey design for this study was developed to explore the enforcement mechanisms and practical realities of Occupational Safety and Health (OSH) within Myanmar's garment sector. The approach focused on the integration of secondary data analysis with targeted case studies to assess compliance, gaps, and enforcement effectiveness.

The primary design elements included:

- Scope and Focus: The survey concentrated on garment factories located in the Hlaingtharyar Industrial Zone, a hub of garment production in Yangon. This zone was selected due to its high density of both foreign-owned and locally owned factories, which allowed for comparative analysis across different factory ownership models.
- Sampling Method: A simple random sampling technique was used to select three garment factories for closer inspection. These factories represented a mix of ownership types and production scales to ensure a diverse perspective on OSH practices and enforcement realities.
- Data Sources and Tools:
    - The design incorporated a comprehensive review of OSH-related legislation, including the Factories Act (1951) and the Occupational Safety and Health Law (2019).

    - Analysis of inspection reports from the Factories and General Labour Laws Inspection Department (FGLID) provided insight into enforcement frequency, inspector capacity, and follow-up mechanisms.
    - Additional secondary data was drawn from ILO, WHO, and SMART Myanmar publications, which offered international benchmarks and contextual understanding of workplace safety in similar low- and middle-income contexts.
    - Limited qualitative inputs were collected from factory managers, safety officers, and selected workers, though these were not systematically structured interviews due to access constraints.
- Theoretical Frameworks: The survey design was guided by key OSH theoretical models, including:
    - Heinrich's Domino Theory – which emphasizes the chain of events leading to workplace accidents.
    - Bird's Loss Control Model – which identifies system failures as root causes of incidents.
- Enforcement Analysis: The survey paid particular attention to the role of enforcement agencies, such as FGLID, and the effectiveness of inspection regimes. Special emphasis was placed on identifying the "policy-practice gap"—i.e., the disconnect between formal compliance on paper and actual safety conditions in the workplace.
- Stakeholder Influence: The design also accounted for multi-stakeholder involvement, including foreign brands, NGOs, labor unions, and government institutions. These actors were examined in terms of their influence on OSH policy adherence and improvement efforts.

The survey design was constrained by limited time and access, preventing a broader implementation of quantitative or primary survey tools. However, the triangulation of multiple credible sources and real-world factory examples helped ensure that the findings remain evidence-based, relevant, and actionable.

## 4.3 Survey Results

To better understand the current Occupational Safety and Health (OSH) practices in the Yangon garment sector, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was conducted across three selected Chinese-owned garment factories in Hlaingtharyar Township. Each factory employs between 500 and 1,000 workers and shares similarities in size and industry, but they differ in their OSH performance and management practices. This approach allows for a structured comparison that highlights internal strengths and weaknesses within each factory, while also identifying external opportunities for improvement and potential threats to worker safety and compliance. The three factories—Myanmar Jiale Fashion Co. Ltd, Pak Chun Industrial Ltd, and Jessie Myanmar Apparel Manufacturing Company Limited—serve as practical case studies for evaluating OSH implementation in similar industrial settings. Table 4.1 provides an overview of their basic profiles.

**Table (4.1) Selected Chinese-Owned Garment Factories in Hlaingtharyar Township**

| Factory | Location | Size | Ownership Type |
|---|---|---|---|
| Myanmar Jiale Fashion Co. Ltd | Hlaingtharyar Township | 500 - 1000 | China |
| Pak Chun Industrial Litd | Hlaingtharyar Township | 500 -1000 | China (Hong Kong) |
| Jessie Myanmar Apparel Manufacturing Company Limited | Hlaingtharyar Township | 500 -1000 | China |

Source: Survey Data 2025

### 4.3.1 Myanmar Jiale Fashion Co. Ltd

Myanmar Jiale Fashion Co. Ltd is located in Garment Factories is located in No 44, Bamaw Ah Twin Wun St., Shwe Linban Industrial Zone, Hlaingthar Yangon Region. Myanmar Jiale Fashion Co. Ltd shows only a basic level of compliance with OSH standards. While the factory is equipped with essential fire safety equipment such as fire extinguishers and emergency exit, these are often poorly maintained and not regularly inspected. Emergency preparedness is minimal, with limited fire drills and

occasionally blocked exits, which puts workers at risk during emergencies. Personal protective equipment (PPE) is provided to workers, but there is little enforcement or supervision to ensure consistent usage. Machines are fitted with some safety guards, but their maintenance is inconsistent, raising concerns about mechanical hazards. The factory struggles with adequate ventilation, especially during hot seasons, and lighting is not optimal in all areas. Health services are minimal, with only basic first aid supplies available and no on-site medical personnel. Overall, Myanmar Jiale lacks a strong safety culture and would benefit from a more structured and proactive approach to worker safety and health. The follow survey showed the socio demographic Participants from Myanmar Jiale garment factory.

**Table( 4.2) Socio-Demographic Characteristics of Myanmar Jiale Fashion Co. Ltd Garment Factory Participants (N = 46)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Gender** | | |
| a | Male | 16 | 34.8 |
| b | Female | 30 | 65.2 |
| **2** | **Age Group** | | |
| a | 18-29 | 38 | 82.6 |
| b | 30 ≤ | 8 | 17.4 |
| **3** | **Marital Status** | | |
| a | Singular | 21 | 45.7 |
| b | Married | 25 | 54.3 |
| **4** | **Educational Level** | | |
| a | Graduate | 6 | 13.0 |
| b | High School | 20 | 43.5 |
| c | Middle School | 16 | 34.8 |
| d | Primary School | 4 | 8.7 |
| **5** | **Religion** | | |
| a | Buddhist | 43 | 93.5 |
| b | Christianity | 1 | 2.2 |
| c | Islam | 2 | 4.3 |

Source :Survey Data 2025

The table (4.2) summarizes socio-demographic characteristics of the 46 participants. The majority were female (65.2%), and most were between 18–29 years old (82.6%), reflecting the young and predominantly female workforce typical of garment factories. Over half of the respondents were married (54.3%), and the largest portion had completed high school (43.5%), followed by middle school (34.8%). Only 13.0% were graduates, and 8.7% had only primary education, indicating a workforce with limited formal education important for tailoring occupational safety training. Religiously, most participants were Buddhist (93.5%), with small minorities identifying as Muslim (4.3%) or Christian (2.2%). The work environment-related characteristics of the garment factory workers is also important to consider the safety process as shown in table (4.2).

**Table (4.3) Work Environment-Related Characteristics in Myanmar Jiale Fashion Co. Ltd Garment Factory.**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Type of Employment** | | |
| a | Permanent | 41 | 89.1 |
| b | Temporary/Contract | 5 | 10.9 |
| **2** | **Job Role** | | |
| a | Production | 20 | 43.5 |
| b | Maintenance | 3 | 6.5 |
| c | Packaging | 8 | 17.4 |
| d | Others | 10 | 21.7 |
| **3** | **Work Experience** | | |
| a | ≥3 Years | 21 | 45.7 |
| b | 3 ≤ Years | 20 | 43.5 |
| **4** | **Work Burden** | | |
| **a** | Low | - | - |
| b | Fair | 30 | 65.2 |
| c | High | 11 | 23.9 |
| **5** | **Job Satisfaction** | | |

| | | | |
|---|---|---|---|
| a | Satisfied | 41 | 89.1 |
| b | Dissatisfied | 5 | 10.9 |
| **6** | **Getting any kind of safety instruction as a result of a new job, new equipment, or other changes** | | |
| a | Yes | 20 | 43.5 |
| b | No | 26 | 56.5 |
| **7** | **Presence of safety recommendations** | | |
| a | Yes | 8 | 17.4 |
| b | No | 38 | 82,6 |
| **8** | **Belief that occupational health and safety should be existing in work places** | | |
| | Yes | 2 | 4.3 |
| | No | 39 | 84.8 |
| **9** | **Availability of protective equipment** | | |
| | Yes | 6 | 13.0 |
| | No | 35 | 76.1 |
| **10** | **Presence of regular supervision undertaken in the organization** | | |
| | Yes | 30 | 65.2 |
| | No | 11 | 23.9 |

Source: Survey Data 2025

The table (4.3) shows the majority of respondents were employed on a permanent basis (89.1%), with most involved in production (43.5%), followed by packaging (17.4%), and other roles (21.7%). Nearly half had three or more years of work experience (45.7%), and 65.2% reported a fair level of work burden, while 23.9% reported high burden. Although 89.1% of participants were satisfied with their jobs, only 43.5% had received any safety instruction when starting a new job or using new equipment. A large proportion (82.6%) reported no presence of safety recommendations, and 84.8% did not believe occupational safety and health (OSH) should exist in the workplace. Access to personal protective equipment was reported by only 13.0%, and while 65.2% stated that regular supervision occurred, the overall findings reveal a concerning lack of safety culture, training, and infrastructure despite high job satisfaction.

**Table (4.4) Myanmar Jiale Fashion Co. Ltd Garment Factory Knowledge on Occupational Health and Safety (OSH)(N=46)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Knowledge of any occupational health and safety information that can be described using graphics, signs, labels, or other means** | | |
| a | Yes | 17 | 37.0 |
| b | No | 29 | 63.0 |
| **2** | **Ways of occupational health and safety information described** | | |
| a | Symbol | | |
| | Yes | 18 | 39.1 |
| | No | 28 | 60.9 |
| b | Safety Color | | |
| | Yes | 25 | 54.3 |
| | No | 21 | 45.7 |
| **c** | Labeling | | |
| | Yes | 17 | 37.0 |
| | No | 29 | 63.0 |
| d | Guideline | | |
| | Yes | 13 | 28.3 |
| | No | 33 | 71.7 |
| **e** | Acoustic Signal | | |
| | Yes | 10 | 21.7 |
| | No | 36 | 78.3 |
| **3** | **How information mentioned gained.** | | |
| a | Training in the organization | | |
| | Yes | 20 | 43.5 |
| | No | 26 | 56.6 |
| b | Training in higher education | | |
| | Yes | 6 | 13.0 |
| | No | 40 | 87.0 |
| **c** | Work experience | | |
| | Yes | 34 | 73.9 |

| | | | |
|---|---|---|---|
| | No | 12 | 26.1 |
| **4** | **Knowledge of workers to report unsafe condition, emergencies, or accidents** | | |
| | Yes | 16 | 34.8 |
| | No | 30 | 65.2 |
| **5** | **Workers' knowledge of the presence of a regulation affecting their rights and responsibilities** | | |
| | Yes | 38 | 82.6 |
| | No | 8 | 17.4 |
| **6** | **Workers are aware that they have the right and responsibility to regulate their working condition** | | |
| | Yes | 39 | 84.8 |
| | No | 7 | 15.2 |
| **7** | **Knowledge toward safety information** | | |
| | Yes | 18 | 39.1 |
| | No | 28 | 60.9 |

Source: Survey Data 2025

The results in table (4.4) highlight significant gaps in workers' knowledge and understanding of occupational health and safety (OSH). Only 37.0% of respondents reported awareness of OSH information presented through visual means such as graphics or signs. While over half (54.3%) recognized safety colors as a form of safety communication, fewer were familiar with symbols (39.1%), labeling (37.0%), guidelines (28.3%), or acoustic signals (21.7%). Most workers gained their knowledge through work experience (73.9%), with fewer receiving formal training from their organization (43.5%) and even fewer from higher education (13.0%). Notably, only 34.8% knew how to report unsafe conditions or emergencies, despite 82.6% being aware of regulations affecting their rights, and 84.8% recognizing their right and responsibility to manage workplace conditions. Overall, only 39.1% showed general knowledge of safety information, pointing to a strong need for structured OSH training and awareness programs within the Myanmar Jiale Fashion Co. Ltd Garment Factory garment factories. The general safety signs and general safety conditions at the workplace is also essential for OSH.The following survey table shoed the Myanmar Jiale Fashion Co. Ltd Garment Factory condition of OSH.

**Table (4.5) Observed Safety Signs and General Safety Conditions at the Workplace in the Myanmar Jiale Fashion Co. Ltd garment factories**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Safety signs posted at the work site** | | |
| | Yes | 39 | 84.8 |
| | No | 7 | 15.2 |
| a | Wear personal protective equipment | | |
| | Yes | 15 | 32.2 |
| | No | 31 | 67.4 |
| b | Confined area | | |
| | Yes | 5 | 10.9 |
| | No | 31 | 89.1 |
| **c** | Toxic | | |
| | Yes | 10 | 21.7 |
| | No | 36 | 78.3 |
| d | Flammable | | |
| | Yes | 30 | 65.2 |
| | No | 16 | 34.8 |
| **e** | Irritant | | |
| | Yes | 8 | 17.4 |
| | No | 38 | 82.6 |
| f | Wash with water | | |
| | Yes | 43 | 93.5 |
| | No | 3 | 6.5 |
| g | Harmful | | |
| | Yes | 19 | 41.3 |
| | No | 27 | 58.7 |
| h | Explosive | | |
| | Yes | 30 | 65.2 |
| | No | 16 | 34.8 |
| i | Oxidizing | | |
| | Yes | 21 | 45.7 |
| | No | 25 | 54.3 |

| | | | |
|---|---|---|---|
| **2** | **Availability of general safety conditions** | | |
| a | Make a proper emergency exit sign list. | | |
| | Yes | 43 | 93.5 |
| | No | 3 | 6.5 |
| **b** | Fire extinguishers and fire alarms are conspicuous and easily accessible. | | |
| | Yes | 36 | 78.3 |
| | No | 10 | 21.7 |
| **c** | Corridors and stairwells are maintained clear of debris and are not utilized for Storage. | | |
| | Yes | 13 | 28.3 |
| | No | 33 | 71.7 |
| d | Electrical dangers are avoided in the workplace (no exposed wiring, faulty electrical cords, or the improper usage of extension cords/power strips. | | |
| | Yes | 30 | 65.2 |
| | No | 16 | 34.8 |
| e | Floors are dry and free of slip hazards; bench tops (including hoods) are clean and well-organized. | | |
| | Yes | 21 | 45.7 |
| | No | 25 | 54.3 |
| f | Different warning signals are easily recognizable and understandable | | |
| | Yes | 10 | 21.7 |
| | No | 36 | 78.3 |

Source: Survey Data 2025

The findings in table (4.5) shows the safety signage and general safety conditions of the Myanmar Jiale Fashion Co. Ltd garment factories. A high percentage of workers (84.8%) reported the presence of general safety signs at the workplace, and specific signs such as "wash with water" (93.5%) and "flammable" (65.2%) were relatively well-represented. However, critical safety indicators like "wear personal protective equipment" (only 32.6%), "confined area" (10.9%), and "toxic" (21.7%) were reported at alarmingly low levels, indicating major gaps in hazard communication. While most factories displayed emergency exit signs (93.5%) and had accessible fire extinguishers (78.3%), other essential safety conditions—such as clear corridors (28.3%) and organized, hazard-free workspaces (45.7%)—were far less consistent.

Only 21.7% of respondents felt that warning signals were recognizable and understandable. Overall, the results point to a partial implementation of safety measures, with critical improvements needed in signage clarity, workplace organization, and hazard communication to ensure a safe and compliant work environment. Based on the survey results collected from 46 participants across various departments at Myanmar Jiale Fashion Co. Ltd, a SWOT analysis has been conducted to assess the factory's occupational safety and health conditions.

**Table (4.6) SWOT Analysis of Occupational Safety and Health Practices in Myanmar Jiale Fashion Co. Ltd Garment Factory**

| SWOT Categories | Detail |
|---|---|
| Strengths | ▪ Basic fire safety equipment is present. (e.g., extinguishers, emergency exits)<br>▪ PPE is provided to workers<br>▪ Some machine safety guards are installed<br>▪ Infrequent emergency drills and low preparedness<br>▪ Inconsistent use and enforcement of PPE |
| Weaknesses | ▪ Poor ventilation during hot seasons<br>▪ Suboptimal lighting in some areas<br>▪ Only basic first aid available; no on-site medical personnel<br>▪ Lack of structured OSH management and safety culture<br>▪ Develop structured OSH management system<br>▪ Conduct regular OSH training and safety inspections |
| Opportunities | ▪ Enforce PPE use through better supervision<br>▪ Partner with NGOs, buyers, or OSH programs for support<br>▪ Use digital tools for safety monitoring and reporting |
| Threats | ▪ High risk to workers in emergencies due to poor preparedness<br>▪ Potential regulatory fines or buyer withdrawal due to non-compliance<br>▪ Increased risk of accidents and operational disruptions<br>▪ Greater scrutiny from stakeholders demanding better OSH compliance |

Source : Survey Data 2025

SWOT analysis of occupational safety and health (OSH) practices at Myanmar Jiale Fashion Co. Ltd, the Table 4.5 based on survey responses from 46 participants. The factory shows strengths such as the availability of basic fire safety equipment, provision of PPE, and some machine safety measures. However, weaknesses like poor ventilation, inadequate lighting, limited medical support, and the absence of a structured OSH system highlight critical gaps. Opportunities exist to improve safety through better enforcement, training, and collaboration with external partners. Nonetheless, threats such as potential regulatory penalties, buyer dissatisfaction, and increased accident risks pose serious concerns if current issues remain unaddressed.

### 4.3.2 Pak Chun Industrial Ltd

Pak Chun Industrial Ltd stands out as the most safety-conscious of the three factories studied. The company demonstrates a comprehensive approach to OSH practices, emphasizing both prevention and preparedness. Fire safety measures are robust, with regular fire drills, clearly marked emergency exits, and trained fire response staff. The use of PPE is strictly enforced, with routine inspections ensuring compliance. Machines are regularly serviced and safety-checked, minimizing risks from mechanical failure. The factory maintains a clean and organized environment, with proper ventilation and sufficient natural and artificial lighting. Notably, Pak Chun provides on-site medical support through a nurse and fully stocked first aid kits. In addition, safety training is held frequently, and educational materials such as posters and warning signs are prominently displayed throughout the workplace. These practices reflect a strong commitment to maintaining worker safety and health.

**Table (4.7) Socio-Demographic Characteristics of Pak Chun Industrial Ltd Garment Factory Participants (N = 32)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Gender** | | |
| a | Male | 10 | 31.3 |
| b | Female | 22 | 68.8 |
| **2** | **Age Group** | | |
| a | 18-29 | 27 | 84.4 |
| b | 30 ≤ | 5 | 15.6 |
| **3** | **Marital Status** | | |
| a | Singular | 20 | 62.5 |
| b | Married | 12 | 37.5 |

| | | | |
|---|---|---|---|
| **4** | **Educational Level** | | |
| a | Graduate | 5 | 15.6 |
| b | High School | 23 | 71.9 |
| c | Middle School | 3 | 9.4 |
| d | Primary School | 1 | 3.1 |
| **5** | **Religion** | | |
| a | Buddhist | 30 | 93.8 |
| b | Christianity | 2 | 6.3 |
| c | Islam | - | - |

Source :Survey Data 2025

The table (4.7 )presents the socio-demographic characteristics of the 32 garment factory workers surveyed from Pak Chun Industrial Ltd. The majority of participants were female (68.8%) and within the younger age group of 18–29 years (84.4%), indicating a predominantly young, female workforce. Most were single (62.5%), which may reflect their age range. In terms of education, a large portion had completed high school (71.9%), while only a small number held graduate-level education (15.6%). The religious background was overwhelmingly Buddhist (93.8%), with minimal representation from Christianity and none from Islam. These characteristics provide important context for understanding the workforce and tailoring occupational safety and health (OSH) interventions effectively and work environment as shown in table (4.7)

**Table (4.8) Work Environment-Related Characteristics of Pak Chun Industrial Ltd Garment Factory ( N =32 )**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Type of Employment** | | |
| a | Permanent | 30 | 93.8 |
| b | Temporary/Contract | 2 | 6.3 |
| **2** | **Job Role** | | |
| a | Production | 20 | 62.5 |
| b | Maintenance | 4 | 12.5 |
| c | Packaging | 5 | 15.6 |
| d | Others | 3 | 9.4 |

| | | | |
|---|---|---|---|
| **3** | **Work Experience** | | |
| a | ≥3 Years | 17 | 53.1 |
| b | 3 ≤ Years | 15 | 46.9 |
| **4** | **Work Burden** | | |
| **a** | Low | - | - |
| b | Fair | 20 | 62.5 |
| c | High | 12 | 37.5 |
| **5** | **Job Satisfaction** | | |
| a | Satisfied | 27 | 84.4 |
| b | Dissatisfied | 5 | 15.6 |
| **6** | **Getting any kind of safety instruction as a result of a new job, new equipment, or other changes** | | |
| a | Yes | 28 | 87.5 |
| b | No | 4 | 12.5 |
| **7** | **Presence of safety recommendations** | | |
| a | Yes | 20 | 62.5 |
| b | No | 12 | 37.5 |
| **8** | **Belief that occupational health and safety should be existing in work places** | | |
| | Yes | 19 | 59.4 |
| | No | 13 | 40.6 |
| **9** | **Availability of protective equipment** | | |
| | Yes | 25 | 78.1 |
| | No | 7 | 21.9 |
| **10** | **Presence of regular supervision undertaken in the organization** | | |
| | Yes | 28 | 87.5 |
| | No | 4 | 12.5 |

Sources: Survey Data 2025

The key work environment characteristics of the 32 respondents. Most workers are permanently employed (93.8%) and involved in production roles (62.5%). Over half have more than three years of experience, and the majority reported a fair workload (62.5%). A high proportion expressed job satisfaction (84.4%) and received safety instructions (87.5%). Additionally, most workplaces have safety recommendations

(62.5%) and regular supervision (87.5%). While 78.1% reported the availability of protective equipment, only 59.4% believed that occupational safety and health (OSH) should exist in the workplace, indicating room for improvement in safety awareness and culture.

**Table (4.9) Pak Chun Industrial Ltd Garment Factory Knowledge on Occupational Health and Safety (OSH)(N=32)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Knowledge of any occupational health and safety information that can be described using graphics, signs, labels, or other means** | | |
| a | Yes | 28 | 60.9 |
| b | No | 4 | 8.7 |
| **2** | **Ways of occupational health and safety information described** | | |
| a | Symbol | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| b | Safety Color | | |
| | Yes | 25 | 54.3 |
| | No | 7 | 15.2 |
| **c** | Labeling | | |
| | Yes | 28 | 60.9 |
| | No | 4 | 8.7 |
| d | Guideline | | |
| | Yes | 28 | 60.9 |
| | No | 4 | 8.7 |
| **e** | Acoustic Signal | | |
| | Yes | 20 | 43.5 |
| | No | 12 | 26.1 |
| **3** | **How information mentioned gained.** | | |
| a | Training in the organization | | |
| | Yes | 25 | 54.3 |
| | No | 7 | 15.2 |

| | | | |
|---|---|---|---|
| b | Training in higher education | | |
| | Yes | 20 | 43.7 |
| | No | 12 | 26.1 |
| **c** | Work experience | | |
| | Yes | 28 | 60.9 |
| | No | 4 | 8.7 |
| **4** | **Knowledge of workers to report unsafe condition, emergencies, or accidents** | | |
| | Yes | 28 | 60.9 |
| | No | 4 | 8.7 |
| **5** | **Workers' knowledge of the presence of a regulation affecting their rights and responsibilities** | | |
| | Yes | 25 | 54.3 |
| | No | 7 | 15.2 |
| **6** | **Workers are aware that they have the right and responsibility to regulate their working condition** | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| **7** | **Knowledge toward safety information** | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |

Sources: Survey Data 2025

The data in table (4.9 )reveals that a majority of respondents Pak Chun Industrial Ltd Garment factory of (over 60%) have knowledge of occupational health and safety (OSH) information, particularly through visual means such as symbols, labeling, and guidelines. Common sources of this knowledge include work experience (60.9%) and organizational training (54.3%). However, fewer respondents reported learning OSH information through higher education (43.5%) or recognizing acoustic signals (43.5%). Most workers are aware of their rights and responsibilities regarding safety regulations (54.3%) and feel empowered to regulate their working conditions (65.2%). Overall, the table indicates a moderate to high level of OSH awareness among the respondents, with some gaps in specific areas like acoustic signal recognition and formal education-based training. Garment internal observational safety and general safety conditions at the workplace is also important as shown in Table 4.9.

**Table (4.10) Observed Safety Signs and General Safety Conditions at the Workplace In Pak Chun Industrial Ltd Garment factory (N = 32)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Safety signs posted at the work site** | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| a | Wear personal protective equipment | | |
| | Yes | 28 | 60.9 |
| | No | 4 | 8.7 |
| b | Confined area | | |
| | Yes | 20 | 43.5 |
| | No | 12 | 26.1 |
| **c** | Toxic | | |
| | Yes | 27 | 58.7 |
| | No | 5 | 10.9 |
| d | Flammable | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| **e** | Irritant | | |
| | Yes | 25 | 54.3 |
| | No | 7 | 15.2 |
| f | Wash with water | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| g | Harmful | | |
| | Yes | 29 | 63.0 |
| | No | 3 | 6.5 |
| h | Explosive | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| i | Oxidizing | | |
| | Yes | 22 | 47.8 |

| | | | |
|---|---|---|---|
| | No | 10 | 21.7 |
| **2** | **Availability of general safety conditions** | | |
| a | Make a proper emergency exit sign list. | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| **b** | Fire extinguishers and fire alarms are conspicuous and easily accessible. | | |
| | Yes | 31 | 67.4 |
| | No | 1 | 2.2 |
| **c** | Corridors and stairwells are maintained clear of debris and are not utilized for Storage. | | |
| | Yes | 29 | 63.0 |
| | No | 3 | 6.5 |
| d | Electrical dangers are avoided in the workplace (no exposed wiring, faulty electrical cords, or the improper usage of extension cords/power strips. | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| e | Floors are dry and free of slip hazards; bench tops (including hoods) are clean and well-organized. | | |
| | Yes | 30 | 65.2 |
| | No | 2 | 4.3 |
| f | Different warning signals are easily recognizable and understandable | | |
| | Yes | 22 | 47.8 |
| | No | 10 | 21.7 |

Sources: Survey Data 2025

In Pak Chun Industrial Ltd Garment Factory table (4.10) shows that most workplaces have safety signs and good general safety conditions. Common signs like "flammable," "wash with water," and "explosive" are seen by over 65% of respondents, while less common ones like "confined area" and "oxidizing" are less observed. General safety features such as emergency exits, fire extinguishers, and clean, hazard-free areas are also present in most workplaces. However, fewer workers (47.8%) said that warning signals are easy to recognize, showing a need for clearer communication tools.

**Table(4.11) SWOT Analysis of Occupational Safety and Health Practices In Pak Chun Industrial Ltd Garment Factories**

| SWOT Categories | Detail |
|---|---|
| Strengths | ▪ Comprehensive and proactive OSH program<br>▪ Regular fire drills and trained fire response teams<br>▪ Clearly marked and accessible emergency exits<br>▪ Strict enforcement and routine checks for PPE use<br>▪ Clean, organized, and well-ventilated work environment<br>▪ Adequate natural and artificial lighting<br>▪ On-site medical support (nurse and first aid kits)<br>▪ Frequent safety training and visible safety signage |
| Weaknesses | ▪ May still face challenges adapting to newer risks (e.g., chemical use or tech upgrades)<br>▪ High compliance may result in increased operational costs<br>▪ Well-maintained machines with regular safety checks |
| Opportunities | ▪ Serve as a model factory for OSH best practices in Myanmar<br>▪ Collaborate with international brands for long-term partnerships<br>▪ Share practices through training local suppliers and subcontractors<br>▪ Leverage digital tools for further optimization of safety data and compliance tracking |
| Threats | ▪ External political or regulatory changes could impact operations<br>▪ Supply chain disruptions may introduce lower-standard subcontractors<br>▪ Worker turnover may challenge continuous compliance and training<br>▪ Rising costs of maintaining high standards without external support |

Source: Survey Data 2025

The factory demonstrates strong internal safety and health standards through its comprehensive OSH program, frequent drills, well-marked exits, and strong enforcement of PPE and cleanliness, creating a safe and well-managed work environment. These strengths position it well to become a model for workplace safety in Myanmar, opening opportunities to collaborate with international brands and share best practices across the supply chain. However, adapting to new risks such as emerging technologies or chemicals, as well as the operational costs tied to strict compliance, pose internal challenges. Externally, political or regulatory changes, unreliable subcontractors due to supply chain issues, and workforce turnover could threaten the sustainability of these high standards, especially without ongoing support or investment.

### 4.3.3 Jessie Myanmar Apparel Manufacturing Co. Ltd

Jessie Myanmar Apparel Manufacturing Co. Ltd shows moderate adherence to OSH standards, with some effective practices in place but notable areas needing improvement. The factory is equipped with basic fire safety infrastructure, including extinguishers and emergency exits, but staff training in emergency response is infrequent. PPE is distributed to workers, but its usage is not regularly monitored, resulting in inconsistent protection. While machines are mostly safe to use, some lack complete safety guards, posing a potential hazard. The overall cleanliness of the factory is acceptable, though storage areas can be disorganized, leading to possible tripping or falling risks. Ventilation is generally sufficient, but some areas suffer from poor lighting, which could affect both productivity and safety. The factory provides first aid kits, but does not have medical personnel on-site. Safety training is conducted, but only occasionally, and often lacks the depth or frequency required to foster a strong safety culture. With improved enforcement and regular safety education, Jessie Myanmar could significantly enhance its OSH performance.

**Table (4.12) Socio-Demographic Characteristics of Jessie Myanmar Apparel Manufacturing Co. Ltd Garment Factory Participants (N = 42)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Gender** | | |
| a | Male | 12 | 26.1 |
| b | Female | 30 | 65.2 |
| **2** | **Age Group** | | |
| a | 18-29 | 20 | 43.5 |
| b | 30 ≤ | 22 | 47.8 |
| **3** | **Marital Status** | | |
| a | Singular | 24 | 52.2 |
| b | Married | 18 | 39.1 |
| **4** | **Educational Level** | | |
| a | Graduate | 7 | 15.2 |
| b | High School | 19 | 41.3 |
| c | Middle School | 11 | 23.9 |
| d | Primary School | 5 | 10.9 |
| **5** | **Religion** | | |
| a | Buddhist | 35 | 76.1 |
| b | Christianity | 3 | 6.5 |
| c | Islam | 4 | 8.7 |

Source: Survey Data 2025

The demographic data shows that the majority of respondents are female (65.2%) and fall within the 30 years and above age group (47.8%)**,** followed closely by those aged 18–29 (43.5%)**.** Over half of the participants are single (52.2%)**,** and the most common educational level is high school (41.3%)**,** with fewer having a graduate degree (15.2%). In terms of religion, the majority identify as Buddhist (76.1%)**,** with smaller representations of Islam (8.7%) and Christianity (6.5%)**.** This demographic profile suggests a relatively young and educated workforce, predominantly female, with strong representation from the Buddhist community. These characteristics provide important context for understanding the workforce and tailoring occupational safety

and health (OSH) interventions effectively and work environment as shown in table (4.12).

**Table (4.13) Jessie Myanmar Apparel Manufacturing Co. Ltd Garment Factory Work Environment-Related Characteristics(N=42)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Type of Employment** | | |
| a | Permanent | 30 | 71.4 |
| b | Temporary/Contract | 12 | 28.6 |
| **2** | **Job Role** | | |
| a | Production | 24 | 57.1 |
| b | Maintenance | 6 | 14.3 |
| c | Packaging | 10 | 23.8 |
| d | Others | 2 | 4.8 |
| **3** | **Work Experience** | | |
| a | ≥3 Years | 14 | 33.3 |
| b | 3 ≤ Years | 28 | 66.7 |
| **4** | **Work Burden** | | |
| **a** | Low | | |
| b | Fair | 20 | 47.6 |
| c | High | 22 | 52.4 |
| **5** | **Job Satisfaction** | | |
| a | Satisfied | 27 | 64.3 |
| b | Dissatisfied | 15 | 35.7 |
| **6** | **Getting any kind of safety instruction as a result of a new job, new equipment, or other changes** | | |
| a | Yes | 22 | 52.4 |
| b | No | 20 | 47.6 |
| **7** | **Presence of safety recommendations** | | |
| a | Yes | 19 | 45.2 |
| b | No | 23 | 54.8 |

| | | | |
|---|---|---|---|
| **8** | **Belief that occupational health and safety should be existing in work places** | | |
| | Yes | 12 | 28.6 |
| | No | 30 | 71.4 |
| **9** | **Availability of protective equipment** | | |
| | Yes | 18 | 42.9 |
| | No | 24 | 57.1 |
| **10** | **Presence of regular supervision undertaken in the organization** | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |

Source: Survey Data 2025

The data in table (4.13) reflects key aspects of the respondents' work environment. Most workers (71.4%) are employed permanently, with the majority (57.1%) working in production roles and 66.7% having less than three years of experience. Workload is a concern, as over half (52.4%) report a high work burden. While 64.3% express job satisfaction, only 52.4% received safety instructions when starting new tasks or using new equipment. A majority (54.8%) also reported the absence of safety recommendations, and 71.4% do not believe that occupational health and safety (OSH) should exist in the workplace — indicating a significant awareness gap. Additionally, more than half (57.1%) noted the unavailability of protective equipment, and regular supervision is lacking for 52.4% of workers. Overall, the findings highlight the need for improved safety training, awareness, and enforcement of OSH standards in the workplace.

**Table (4.14) Jessie Myanmar Apparel Manufacturing Co. Ltd Garment Factory Knowledge on Occupational Health and Safety (OSH)(N=42)**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Knowledge of any occupational health and safety information that can be described using graphics, signs, labels, or other means** | | |
| a | Yes | 20 | 47.6 |
| b | No | 22 | 52.4 |
| **2** | **Ways of occupational health and safety information described** | | |

| | | | |
|---|---|---|---|
| a | Symbol | | |
| | Yes | 18 | 42.9 |
| | No | 24 | 57.1 |
| b | Safety Color | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |
| **c** | Labeling | | |
| | Yes | 25 | 59.5 |
| | No | 17 | 40.5 |
| d | Guideline | | |
| | Yes | 30 | 71.4 |
| | No | 12 | 28.6 |
| **e** | Acoustic Signal | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |
| **3** | **How information mentioned gained.** | | |
| a | Training in the organization | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |
| b | Training in higher education | | |
| | Yes | 12 | 28.6 |
| | No | 30 | 71.4 |
| **c** | Work experience | | |
| | Yes | 28 | 66.7 |
| | No | 14 | 33.3 |
| **4** | **Knowledge of workers to report unsafe condition, emergencies, or accidents** | | |
| | Yes | 12 | 28.6 |
| | No | 30 | 71.4 |
| **5** | **Workers' knowledge of the presence of a regulation affecting their rights and responsibilities** | | |
| | Yes | 18 | 42.9 |

| | | | |
|---|---|---|---|
| | No | 24 | 57.1 |
| **6** | **Workers are aware that they have the right and responsibility to regulate their working condition** | | |
| | Yes | 15 | 35.7 |
| | No | 27 | 64.3 |
| **7** | **Knowledge toward safety information** | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |

Source: Survey Data 2025

The data in table (4.14) indicates a generally low level of knowledge and awareness regarding occupational health and safety (OSH) among the respondents. Less than half (47.6%) reported knowing OSH information through graphics, signs, or labels, and only 42.9% recognized symbols, while 47.6% understood safety colors and acoustic signals. However, 71.4% were familiar with safety guidelines, and 59.5% understood labeling, suggesting that written forms of information are more recognized than visual or audio cues. Most respondents (66.7%) gained knowledge through work experience rather than formal training, with only 28.6% having received OSH education in higher institutions. Alarmingly, only 28.6% knew how to report unsafe conditions or emergencies, and a majority lacked awareness of their rights and responsibilities regarding workplace safety. These findings highlight a critical need for improved and consistent safety training, especially focused on reporting procedures, hazard recognition, and workers' legal rights.

**Table (4.15) Observed Safety Signs and General Safety Conditions at the Workplace in Jessie Myanmar Apparel Manufacturing Co. Ltd Garment Factory**

| No | Description | Number of Respondent | Percentage (%) |
|---|---|---|---|
| **1** | **Safety signs posted at the work site** | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |
| a | Wear personal protective equipment | | |

| | | | |
|---|---|---|---|
| | Yes | 18 | 42.9 |
| | No | 24 | 57.1 |
| b | Confined area | | |
| | Yes | 12 | 28.6 |
| | No | 30 | 71.4 |
| **c** | Toxic | | |
| | Yes | 10 | 23.8 |
| | No | 32 | 76.2 |
| d | Flammable | | |
| | Yes | 15 | 35.7 |
| | No | 27 | 64.3 |
| **e** | Irritant | | |
| | Yes | 5 | 11.9 |
| | No | 37 | 88.1 |
| f | Wash with water | | |
| | Yes | 30 | 71.4 |
| | No | 12 | 28.6 |
| g | Harmful | | |
| | Yes | 15 | 35.7 |
| | No | 27 | 64.3 |
| h | Explosive | | |
| | Yes | 20 | 47.6 |
| | No | 22 | 52.4 |
| i | Oxidizing | | |
| | Yes | 14 | 33.3 |
| | No | 28 | 66.7 |
| **2** | **Availability of general safety conditions** | | |
| a | Make a proper emergency exit sign list. | | |
| | Yes | 40 | 95.2 |
| | No | 2 | 4.8 |
| **b** | Fire extinguishers and fire alarms are conspicuous and easily accessible. | | |

| | | | |
|---|---|---|---|
| | Yes | 28 | 66.7 |
| | No | 4 | 9.5 |
| **c** | Corridors and stairwells are maintained clear of debris and are not utilized for Storage. | | |
| | Yes | 13 | 31.0 |
| | No | 29 | 69.0 |
| d | Electrical dangers are avoided in the workplace (no exposed wiring, faulty electrical cords, or the improper usage of extension cords/power strips. | | |
| | Yes | 30 | 71.4 |
| | No | 12 | 28.6 |
| e | Floors are dry and free of slip hazards; bench tops (including hoods) are clean and well-organized. | | |
| | Yes | 12 | 28.6 |
| | No | 30 | 71.4 |
| f | Different warning signals are easily recognizable and understandable | | |
| | Yes | 10 | 23.8 |
| | No | 32 | 76.2 |

Source: Survey Data 2025

The data in table (4.15) shows that safety conditions and signage in the workplace are inconsistent and need improvement. While a high percentage of respondents (95.2%) reported the presence of emergency exit signs and 71.4% confirmed efforts to avoid electrical dangers, only 47.6% observed general safety signs at the worksite. Common hazard signs like “toxic” (23.8%), “flammable” (35.7%), and “irritant” (11.9%) were rarely seen, indicating low visibility of important warnings. Only 28.6% stated that corridors were clear of obstructions, and the same percentage noted clean and hazard-free floors. Recognition of warning signals is also low (23.8%). Although some safety measures like “wash with water” signs (71.4%) are present, overall awareness and enforcement of visual safety communication are lacking. These findings suggest a need for improved placement of signs, better maintenance of physical safety conditions, and stronger safety communication strategies.

**Table (4.16) SWOT Analysis of Occupational Safety and Health Practices in Jessie Myanmar Apparel Manufacturing Co. Ltd Garment Factor**

| SWOT Categories | Detail |
|---|---|
| Strengths | ▪ Basic fire safety infrastructure is in place (fire extinguishers, emergency exits)<br>▪ PPE is provided to workers<br>▪ Most machinery is safe for use<br>▪ Acceptable overall cleanliness<br>▪ Ventilation is generally adequate<br>▪ First aid kits are available<br>▪ Some safety training is conducted |
| Weaknesses | ▪ Infrequent emergency response training limits preparedness<br>▪ PPE usage is not consistently monitored or enforced<br>▪ Some machines lack complete safety guards<br>▪ Disorganized storage areas create tripping hazards<br>▪ Poor lighting in certain areas affects visibility and safety<br>▪ No on-site medical personnel<br>▪ Safety training lacks consistency and depth<br>▪ Weak safety culture and low worker engagement in OSH |
| Opportunities | ▪ Improve training frequency and quality to build a stronger safety culture<br>▪ Introduce regular PPE compliance checks and machine safety audits<br>▪ Reorganize storage areas to reduce physical hazards<br>▪ Invest in better lighting and workplace ergonomics<br>▪ Collaborate with NGOs or buyers to strengthen OSH systems<br>▪ Use digital tools for monitoring safety practices and incidents<br>▪ Introduce incentives for staff compliance and safety suggestions |

| | |
|---|---|
| Threats | ▪ Risk of workplace accidents due to machine hazards or poor emergency preparedness<br>▪ Potential regulatory penalties or audit failures<br>▪ Increased buyer scrutiny may affect business continuity<br>▪ Reputation risks if safety incidents occur and are publicized<br>▪ Resistance to OSH improvements due to cost or lack of management commitment |

Source : Survey Data 2025

The factory has basic safety measures like fire extinguishers, PPE, and first aid kits, which provide a good starting point. However, there are still many safety issues, such as weak emergency training, poor PPE enforcement, unsafe machines, and messy storage areas. These problems are made worse by a weak safety culture and low worker involvement. On the positive side, the factory can improve by offering better training, organizing the workplace, checking PPE use more often, and working with outside partners for support. Using digital tools and giving rewards for safe behavior could also help. Still, there are risks like accidents, failing audits, and losing business if safety is not improved. Strong commitment from management is needed to make real progress.

Based on the SWOT analyses of the three garment factories—Myanmar Jiale Fashion Co. Ltd, Pak Chun Industrial Ltd, and Jessie Myanmar Apparel Manufacturing Co. Ltd—a clear contrast emerges in their levels of Occupational Safety and Health (OSH) performance. Pak Chun Industrial Ltd stands out as the most safety-conscious, demonstrating a structured and proactive approach with regular training, strict PPE enforcement, well-maintained equipment, and on-site medical support. In contrast, Myanmar Jiale Fashion Co. Ltd shows only basic compliance, with poorly maintained fire safety equipment, weak PPE enforcement, minimal emergency preparedness, and a lack of health services—highlighting a weak safety culture. Jessie Myanmar Apparel Manufacturing Co. Ltd falls in between, with moderate adherence: it provides basic safety infrastructure and occasional training but struggles with inconsistent PPE use, incomplete machine guarding, and poor lighting in some areas. While Pak Chun serves as a model for best practices, both Myanmar Jiale and Jessie Myanmar would benefit significantly from enhanced training, stricter supervision, and stronger management commitment to build a culture of safety and ensure sustainable OSH compliance.

**Table (4.17) Summary of OSH Compliance by Factory**

| OSH Criteria | Myanmar Jiale Fashion | Pak Chun Industrial | Jessie Myanmar Appare |
|---|---|---|---|
| Fire Safety | Poor | Strong | Moderate |
| PPE Usage | inconsistent | Strict | Regular |
| Emergency Preparedness | Weak | Robust | Limited |
| Machine Safety | inconsistent | Regular | Partially Adequate |
| Workplace Cleanliness | Cluttered in areas | Well-maintained | Acceptable but disorganized |
| Ventilation& Lighting | Poor | adequate | Fair |
| Health Services | Basic Only | On-site nurse available | Basic first aid only |
| OSH Training Frequency | Occasional | request and structured | Infrequent |

Source: Survey Data 2025

The survey study provide practical examples of how occupational safety and health (OSH) standards are implemented in garment factories. They show that the type of factory ownership affects the level of OSH compliance. For example, Pak Chun Industrial Ltd, with strong systems and oversight, shows good safety practices. In contrast, Myanmar Jiale Fashion and Jessie Myanmar Apparel struggle with weak training, poor enforcement, and limited health support. These examples highlight common problems seen in many factories and help explain why stronger policies and improvements are needed.

# CHAPTER V
# CONCLUSION

## 5.1 Findings

This study set out to assess the status of Occupational Safety and Health (OSH) in Yangon's garment factories, identify key challenges, and propose practical solutions. Based on a review of secondary data from the ILO, SMART Myanmar, WHO, and Myanmar government reports, as well as case studies of selected factories, several critical findings emerged:

Although Myanmar has a formal OSH framework—including the OSH Law (2019)—implementation across the garment sector is highly inconsistent. Foreign-owned factories tend to show higher compliance due to pressure from international brands and external audits, while locally owned factories often struggle due to limited financial resources, weak management capacity, and low awareness of safety standards. Enforcement mechanisms remain fragmented and under-resourced. The shortage of trained labor inspectors and irregular inspections significantly reduce the effectiveness of OSH laws. Furthermore, many workers are unaware of their rights and receive little to no training on workplace safety, which increases their vulnerability to accidents and occupational illnesses.

The lack of basic health and safety infrastructure, such as on-site medical services, adequate ventilation, emergency preparedness, and proper use of personal protective equipment (PPE), is common. As a result, workers frequently experience respiratory issues, injuries, and other preventable health problems, which not only affect their well-being but also reduce productivity and increase staff turnover.

On a broader scale, OSH deficiencies have serious economic consequences. Poor workplace safety reduces operational efficiency, increases recruitment and training costs, and damages Myanmar's reputation as a responsible sourcing destination. According to ILO estimates (2023), inadequate OSH practices can reduce a country's GDP by up to 4%, underlining that workplace safety is not only a human rights issue but also a critical economic one.

## 5.2 Suggestions

Based on the finding the garment sector in Myanmar is a key economic engine, employing hundreds of thousands of workers. However, this study has shown that occupational safety and health (OSH) standards are unevenly applied, with major gaps in training, enforcement, and workplace protection. Addressing these issues is not only a matter of legal compliance but one of human rights, ethical business, and sustainable industrial development.

To move forward, a multi-level strategy is necessary. At the Policy Level need **to** Expand and train the labor inspectorate to ensure more consistent, proactive oversight of factory conditions. Mandate regular safety audits in all garment factories to promote baseline compliance. And need to increase public investment in implementing and monitoring the OSH Law (2019), with dedicated resources for inspector training, digital monitoring, and cross-agency coordination. At the Factory Level needs to establish functional OSH committees within all factories to monitor risks, conduct safety drills, and provide worker suggestions and feedback for OSH training into daily operations, from onboarding to refresher courses, to build long-term awareness.by using digital tools for tracking injuries, identifying hazard trends, and generating transparent safety reports. At the International and Brand Level include OSH performance metrics in supplier selection and compliance audits. Provide funding and technical assistance to support supplier capacity-building, especially in smaller, locally owned factories. And Incentivize strong safety performance with long-term contracts and public recognition for compliant suppliers.

Ultimately, Myanmar's garment sector stands at a crossroads. Continued growth depends on building a safe and sustainable working environment. OSH is not just a compliance issue—it is essential to worker dignity, brand trust, and economic resilience. Closing the gap between policy and practice requires coordinated effort among government, factory owners, international buyers, and workers themselves. A culture of safety must be cultivated—not only through regulation, but through education, accountability, and mutual commitment. A safe worker is a productive worker. Ensuring their protection is not optional, it is fundamental to the future of Myanmar’s garment industry and its place in the global economy.

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# APPENDIX

## Occupational Safety and Health Practices Garment Factories In Yangon

## Survey Form

### 1.Socio-demographic characteristics of the study participants

1.Name ----------

2.Sex Male ( ) Female ( )

3.Age 18-29 ( ) 30 ≤ ( )

4.Religion ----------

5.Marital Status ----------

6.Educational Status ----------

### 2.Work environment-related characteristics of the study participants to assess knowledge and practice on safety information and its associated factors among factory workers

1.Pattern of Employment
- Permanent ( )
- Temporary/contract ( )

2.Job title or responsibilities
- Production ( )
- Maintenance ( )
- Packing ( )
- Other ( )

3.Work experience
- Less than 3 years ( )
- 3 and above years ( )

4.Work burden Low ( ) Fair ( ) High ( )

5.Job satisfaction Dissatisfied ( ) Satisfied ( )

6.Getting any kind of safety instruction as a result of a new job, new equipment, or other changes

Yes ( ) No ( )

7.Presence of safety recommendations

Yes ( ) No ( )

8.Belief that occupational health and safety should be existing in work places

Yes ( ) No ( )

9.Availability of protective equipment

Yes ( ) No ( )

10.Presence of regular supervision undertaken in the organization

Yes ( ) No ( )

## 3.Knowledge with regard to safety information among factory workers

1.Knowledge of any occupational health and safety information that can be described using graphics, signs, labels, or other means

Yes ( ) No ( )

2.Ways of occupational health and safety information described

| | | |
|---|---|---|
| Symbol | Yes ( ) | No ( ) |
| Safety Color | Yes ( ) | No ( ) |
| Labeling | Yes ( ) | No ( ) |
| Guidelines | Yes ( ) | No ( ) |
| Acoustic signal | Yes ( ) | No ( ) |

3.How information mentioned gained.

| | | |
|---|---|---|
| Training in the organization | Yes ( ) | No ( ) |
| Training in higher education | Yes ( ) | No ( ) |

Work experience Yes ( ) No ( )

4.Knowledge of workers to report unsafe condition, emergencies, or accidents

Yes ( ) No ( )

5.Workers' knowledge of the presence of a regulation affecting their rights and responsibilities

Yes ( ) No ( )

6.Workers are aware that they have the right and responsibility to regulate their working conditions

Yes ( ) No ( )

7.Knowledge toward safety information

Yes ( ) No ( )

## 4.Observed safety signs posted and availability of general safety conditions at the work site of the workers among factory workers

**1**.Safety signs posted at the work site

| | | |
|---|---|---|
| Wear personal protective equipment | Yes ( ) | No ( ) |
| Confined area | Yes ( ) | No ( ) |
| Toxic | Yes ( ) | No ( ) |
| Flammable | Yes ( ) | No ( ) |
| Irritant | Yes ( ) | No ( ) |
| Wash with water | Yes ( ) | No ( ) |
| Harmful | Yes ( ) | No ( ) |
| Explosive | Yes ( ) | No ( ) |
| Oxidizing | Yes ( ) | No ( ) |

**2**.Availability of general safety conditions

Make a proper emergency exit sign list. Yes( ) No ( )

Fire extinguishers and fire alarms are conspicuous and easily accessible.

Yes( ) No ( )

Corridors and stairwells are maintained clear of debris and are not utilized for

Yes( )No ( )

Storage.

Electrical dangers are avoided in the workplace (no exposed wiring, faulty electrical cords, or the improper usage of extension cords/power strips)

Yes( ) No ( )

Floors are dry and free of slip hazards; bench tops (including hoods) are clean and well-organized. Yes ( ) No ( )

Various hazard indicators are correctly posted in the right locations.Yes( )No ( )

Different warning signals are easily recognizable and understandableYes( )No ( )