



Environment, Health and Safety Myanmar (EHS Myanmar)

Assessing and Promoting Sustainable Opportunities in Myanmar MSMEs

A Qualitative Assessment on the Challenges and Opportunities of Myanmar MSMEs in Sustainability



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**by
EHS Myanmar**

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DISCALIMER

This research project was conducted entirely through self-funding, without any external financial support, sponsorship, or affiliations. Our primary objective is to contribute meaningfully towards sustainable development and promote environmentally friendly practices within Myanmar through this study.

All interviews with MSME experts and business owners were conducted with the highest ethical standards. Prior to participation, informed consent was obtained from each participant, with records securely documented and stored. Participants were fully informed about the purpose of the research, their rights, and the voluntary nature of their involvement.

In alignment with EHS Myanmar's "Policy on Data Protection, Research Ethics, and Privacy", all data collected is securely stored and will be permanently deleted six months after publication. No data will be shared, distributed, or disclosed under any circumstances, including official or informal requests, without the explicit consent of participants.

EHS Myanmar reserves the right to organize webinars, events, or public discussions based on this research paper. These initiatives aim to share the findings with the public, promoting further research, and support policy development or sustainable development efforts. Any such event will follow to ethical guidelines, ensuring participants' identities remain protected unless prior consent is given.

The insights, findings, and conclusions presented in this paper are derived exclusively from the voluntary responses and contributions of the participants. We affirm the authenticity and integrity of the information provided, ensuring it accurately reflects the perspectives and experiences shared.

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Thank you for your understandings and cooperation.

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CHAPTER 1: INTRODUCTION

1.1. Background of the study

According to the United Nations in 1987, sustainability is defined as “the practice of meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.” This concept encompasses the need to balance environmental, social, and economic factors to ensure long-term viability and resilience. For Micro, Small, and Medium Enterprises (MSMEs), sustainability is crucial as it addresses significant challenges while also presenting valuable opportunities (Lessidrenska, 2019). By adopting sustainable practices, MSMEs can enhance their reputation and competitiveness in the market. There is a growing preference among consumers and stakeholders for businesses that operate responsibly and make positive contributions to society and the environment. This shift can lead to increased customer engagement, attract investors, and forge beneficial partnerships, thereby enhancing market opportunities and financial stability (Gherghina et al., 2020).

Moreover, sustainability can lead to cost savings and improved operational efficiency. MSMEs can lower their energy and resource consumption while optimizing waste management, which in turn reduces costs and boosts profitability. Globally, there is a heightened awareness of the need for sustainable development, highlighting the importance of balancing economic growth with environmental protection and social well-being (Akkermans, 2023). As environmental and social regulations tighten, MSMEs that embrace sustainable practices can adapt more readily to these evolving legal requirements, minimizing the risk of penalties and reputational damage (JALAL, 2019). By reducing dependency on unsustainable practices and enhancing their flexibility, MSMEs can adopt sustainable sourcing and mitigate environmental and social risks, ultimately building long-term resilience.

In Myanmar, sustainability is crucial for Micro, Small, and Medium Enterprises (MSMEs). The country is renowned for its rich biodiversity, forests, and natural resources, making environmental preservation vital. By adopting sustainable practices, MSMEs can reduce carbon emissions and protect local ecosystems. This preservation is not only essential for maintaining Myanmar's biodiversity but also critical for the livelihoods of many local residents who rely on these resources for their income. Additionally, MSMEs significantly contribute to employment and foster inclusive growth within local communities.

1.2 Problem Statement

However, despite their importance, MSMEs in Myanmar face numerous challenges that impact the economy and hinder their performance, ultimately reducing the country's economic capacity (Hillol Bala, 2016). Under the ASEAN Free Trade Area (AFTA), MSMEs are likely to encounter intensified competition from businesses in other ASEAN nations. Operating with limited financial resources, these enterprises often struggle to access affordable financing options. Research interviews indicate that many MSME experts in Myanmar believe there is a general lack of awareness regarding sustainability and sustainable development practices among these businesses. To effectively implement sustainable measures, MSMEs may require

training and capacity-building programs to acquire the necessary knowledge and skills. Furthermore, the absence of reliable frameworks, such as effective energy and waste management systems, poses additional challenges for MSMEs in Myanmar. Understanding the factors that contribute to the success of MSMEs in Myanmar, along with the associated difficulties, is essential for providing targeted recommendations (Hillol Bala, 2016).

A significant challenge facing MSMEs in Myanmar is the widespread lack of knowledge and understanding regarding sustainable economies and practices among stakeholders. Many individuals are unaware of the potential benefits of adopting sustainability, which creates substantial barriers to its implementation. Furthermore, there is a pressing need for changes in policy and regulatory frameworks to establish clear guidelines and enforcement mechanisms (Sallem et al., 2017). Myanmar is committed to pursuing economic development in alignment with environmental preservation. In this context, MSMEs are crucial for exploring opportunities to enhance sustainable development while raising awareness about potential environmental impacts (Gherghina et al., 2020).

1.3. Research Objectives

This research project aims to achieve the following objectives:

1. To analyze the current status and landscape of Micro, Small, and Medium Enterprises (MSMEs) in Myanmar, providing a comprehensive overview of their operations and sustainability contributions.
2. To investigate the environmental practices of MSMEs across various sectors, assessing their ecological footprint and sustainability measures.
3. To identify the key challenges and opportunities faced by MSMEs in their pursuit of sustainability, examining both internal and external factors that influence their environmental impact.
4. To propose practical, eco-friendly practices and strategies that can be adopted by MSMEs to promote sustainable development, reduce the environmental issues, and increase their overall resilience and competitiveness.

1.4. Challenges and Limitations

Conducting research on involves several challenges and limitations:

- 1) MSMEs in Myanmar operate informally, which makes it hard to collect reliable data. Additionally, there is often a lack of records about the environmental impacts of sustainability practices, making it difficult to assess them fully. This absence of detailed documentation also complicates the establishment of a baseline to evaluate sustainability practices and their effects.
- 2) The political situation in Myanmar is marked by ongoing instability and restrictive policies, which pose challenges for research activities. Additionally, some areas are hard to access due to political or security issues, further limiting the research scope.
- 3) Due to safety issues and logistical challenges, it's essential to conduct expert consultations and data collection online. However, this virtual approach can create gaps

in understanding and lead to misunderstandings or incomplete information, which affects data quality. Additionally, relying on online methods limits the depth of data collection since face-to-face interactions typically provide richer insights.

- 4) The MSME sector is highly diverse, featuring significant differences in size, type, and scale. This diversity requires customized methodologies for different sectors to ensure that research approaches are relevant and effective.
- 5) Many MSME owners may be reluctant to participate in research due to the current socio-political climate, as they fear scrutiny or negative consequences. This hesitance creates engagement issues, leading to limited participation and hindering data collection efforts among some MSME stakeholders.
- 6) It focuses only on the major urban cities of Yangon and Mandalay; however, studying these cities provides valuable insights into the overall situation in the country.
- 7) Funding for research projects is often limited, which restricts the scope and depth of the studies and may impact their overall quality.

CHAPTER 2: LITERATURE REVIEW

2.1. Definition of MSMEs

What is MSMEs? Micro, Small, and Medium Enterprises (MSMEs) are defined in Myanmar based on their employee count and capital investment relative to their business activities. Specifically, micro enterprises employ up to ten workers (JALAL, 2019), while small enterprises typically have between 30 and 50 permanent employees, depending on the sector. Medium enterprises can employ up to 300 permanent workers, with small enterprises having capital investments ranging from 50 million to 500 million kyats, and medium enterprises ranging from 500 million to 1 billion kyats (Small and Medium Enterprises Development Law, 2015). According to the Myanmar Micro, Small and Medium Enterprise Survey (2019), creating a quality business environment is essential for MSMEs to succeed in investment, innovation, and growth, as the business environment significantly impacts operational costs and competitiveness.

Globally, MSMEs play a vital role in local economic development by driving job creation, reducing poverty, and fostering economic growth (Gherghina et al., 2020). In Myanmar, these enterprises significantly contribute to employment, with millions of individuals working within them. In 2015, Myanmar had approximately 23 million MSMEs, which collectively generated around 90 million jobs and an estimated 3.9 billion EUR in revenue. The adaptability of MSMEs allows them to adjust to technological changes, thereby enhancing income distribution across various sectors. Access to financing is critical for the sustainability and growth of MSMEs, as adequate financial support can significantly contribute to employment and economic development. However, despite the importance of financing, the implementation of effective financial support mechanisms is still developing, which poses challenges for MSMEs in accessing necessary funding (JALAL, 2019). Consequently, many MSMEs face difficulties in securing finance, which can hinder their operational capabilities and growth potential.

The characteristics of MSMEs in Myanmar typically include limited resources, small-scale operations, and flexibility (Small and Medium Enterprises Development Law, 2015). Unlike large corporations, MSMEs have fewer financial resources. However, they can quickly adapt to changing market demands and customers' needs due to their size and flexibility. This ability being quick in changing allows MSMEs to be involved effectively even if they have resource constraints. MSMEs have closer relationships with their customers and communities. Hence, MSMEs help to get local needs, making them fit their products or services. Therefore, MSMEs play a vital role in promoting economic diversity and resilience by offering a variety of goods and services across different businesses.

2.2. Environment Impacts from MSMEs

2.2.1. Positive Impacts

The 2030 Agenda for Sustainable Development, adopted by all United Nations members in 2015, is a call to action for people, the planet, and prosperity (FAO, 2015). This agenda includes 17 Sustainable Development Goals (SDGs). Among these, SDG 7 focuses on

affordable and clean energy, SDG 11 is about sustainable cities and communities, SDG 12 promotes responsible consumption and production, SDG 13 emphasizes climate action, SDG 14 concerns life below water, and SDG 15 is dedicated to life on land. MSMEs play a crucial role in achieving these goals, particularly SDGs 7, 11, 12, 13, 14, and 15. For SDG 7, which aims to ensure access to affordable, reliable, sustainable, and modern energy for everyone, MSMEs contribute by developing clean energy solutions like solar panels, wind turbines, and energy-efficient technologies. They also help create local markets for renewable energy, which increases access to clean energy in remote and underserved areas (FAO, 2015).

For SDG 11, which focuses on sustainable cities and communities, the goal is to create cities and human settlements that are inclusive, safe, resilient, and sustainable (The Global Goals, 2024). This is highly relevant for MSMEs, as they support urban sustainability by promoting green building practices, developing eco-friendly products, and providing sustainable urban services like waste management and recycling. Additionally, MSMEs can offer innovative transportation solutions and create local jobs, which helps foster economic resilience and reduce urban poverty. By 2030, SDG 11 aims to ensure access for everyone to sufficient, safe, and affordable housing and basic services, as well as improve living conditions in boarding houses (The Global Goals, 2024). Within SDG 11, there are ten specific targets to achieve by 2030, including safe and affordable housing and sustainable transportation systems.

Moving to SDG 12, which emphasizes responsible consumption and production, the aim is to ensure sustainable patterns of consumption and production. According to FAO, MSMEs can lead the way in this area by adopting eco-friendly manufacturing processes, minimizing waste, and promoting the use of recycled materials. They often pioneer sustainable business models, such as the circular economy, which focuses on minimizing resource use and reducing environmental impact. By prioritizing sustainability, MSMEs can enhance their competitiveness, meet the growing consumer demand for green products, and contribute to a healthier planet. Their innovative approaches can also inspire larger companies to adopt similar practices, creating a ripple effect throughout the economy (Curry & Haadii, 2023).

For SDG 13, which addresses Climate Action, there is a need for urgent action to combat climate change and its impacts. MSMEs contribute by developing and implementing low-carbon technologies and practices. It is crucial for them to adopt transformative plans that raise awareness, set ambitious goals, protect the environment, and tackle climate change, ultimately aiming for net-zero emissions (UN, 2015). Moreover, MSMEs can lead by example, demonstrating how small businesses can significantly reduce their carbon footprint. By integrating sustainable practices into their operations, they not only lessen their environmental impact but also drive innovation and efficiency. Their involvement in climate education and advocacy can mobilize communities, fostering a collective movement towards sustainability. Additionally, MSMEs can engage in carbon reduction initiatives, raise community awareness about climate change, and participate in reforestation and other carbon offset activities (UN, 2015).

SDG 14, which focuses on Life Below Water, aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development. MSMEs in the fisheries and aquaculture sectors can adopt sustainable practices that help prevent overfishing and reduce marine pollution. According to UN, they also innovate by developing eco-friendly marine products and participating in conservation activities, such as coral reef restoration and

protecting marine habitats. By implementing sustainable harvesting techniques, these enterprises ensure the long-term viability of marine populations and ecosystems. Additionally, MSMEs can collaborate with local communities and governments to establish marine protected areas, which help safeguard biodiversity. Through education and advocacy, they raise awareness about the importance of preserving marine environments for future generations (The Importance of Marine Protected Areas (MPAs), 2024).

Similarly, SDG 15 focuses on Life on Land and aims to protect, restore, and promote the sustainable use of terrestrial ecosystems. This goal includes sustainably managing forests, combating desertification, and halting and reversing land degradation while stopping biodiversity loss. MSMEs can support terrestrial ecosystems by practicing sustainable agriculture, forestry, and land management.

2.2.2. *Negative Impacts*

(1) Air Pollution

Despite their significant contributions to the economy and employment in many countries, MSMEs are also responsible for substantial emissions that impact the environment. Their environmental footprint, especially regarding air pollution, presents significant challenges. Reports indicate that MSMEs account for over 70% of industrial pollution in Europe (Baur et al., 2021) and released over 29 million tons of CO₂ in Southeast Asia in 2021 (Mun, 2022). To keep various sectors operational, MSMEs often rely on fossil fuels such as coal, oil, and gas. The combustion of these non-renewable energy sources releases harmful pollutants, including carbon dioxide, carbon monoxide, and nitrogen oxides. These pollutants degrade air quality and pose health risks to workers and nearby communities.

Additionally, air pollution, particularly small particulate matter, negatively impacts MSMEs, especially in the tourism sector. For example, Chiang Mai, known for its stunning natural beauty, has recently faced severe air pollution, even becoming one of the world's most polluted cities (Ng, 2024). This pollution arises from both natural and human activities, including wildfires, fuel combustion, and transportation. The high levels of particulate matter raise health concerns among tourists, diminish the area's attractiveness, and complicate transportation. As a result, there has been a decline in tourist numbers, leading to fewer customers for MSMEs. This drop in tourism significantly affects the country's economy; in 2018, tourism accounted for 16% of the gross domestic product, generating 1.1 trillion baht in revenue (Srinamphon et al., 2022). Data collected from a sample of 289 MSMEs in Chiang Mai revealed that air pollution in 2022 severely impacted businesses in the tourism sector, including accommodation, travel agencies, and souvenir shops, all of which rely heavily on tourist traffic.

A key challenge facing MSMEs is the lack of resources (OECD, 2021). They often do not have access to sufficient capital to enhance their operations for greener practices. Additionally, investments in a greener environment may not seem directly related to their core business objectives in the short term. To encourage MSMEs to invest in energy-efficient and environmentally friendly processes, the OECD suggests that governments offer grants, low-interest loans, and tax incentives. Another significant challenge in mitigating air pollution is the lack of awareness among MSMEs. Many businesses do not receive adequate information on how their industrial processes affect the environment or the ways they can improve their

operations to reduce these impacts. This knowledge gap can result in non-compliance with environmental standards and missed opportunities for effective emissions reduction.

(2) Water Pollution

Despite their growing role in the economy, MSMEs can also significantly impact water pollution. This impact varies across industries and regions. One of the main ways MSMEs contribute to water pollution is through industrial discharges. Manufacturing and processing industries, such as textiles, chemicals, and food processing, often release pollutants like dyes and organic waste into water bodies. Many of these industries lack adequate waste management facilities, resulting in the discharge of untreated or poorly treated wastewater.

According to a report by Gutierrez et al. (2019), food-related SMEs are particularly harmful to water sanitation systems. Many SMEs still practice traditional direct discharge methods, often releasing wastewater into ditches or the sea, despite this being discouraged. This pollution contributes to freshwater scarcity, which is essential for both SMEs and individuals. Climate change also exacerbates water-related issues, as highlighted by UN-Water (2019). Rising global temperatures lead to droughts, floods, and extreme weather events, posing significant threats to businesses and communities. SDG 6 aims to ensure access to water and sanitation for everyone, recognizing that safe and hygienic water is a basic human need for health and well-being. Currently, approximately 2.2 billion people lack access to safe drinking water according to UN. Additionally, businesses are becoming increasingly aware of the financial risks posed by water scarcity. A report by the Carbon Disclosure Project (2021) estimates that water scarcity, pollution, and climate change threaten about \$301 billion of business value.

Compared with larger enterprises, SMEs environmental behavior is different. Owner-managers in SMEs face numerous challenges in a competitive market, leaving them with limited time and resources to address environmental responsibilities. They often lack the resources for long-term planning and tend to delay or forgo investments in environmental improvements (Tevapitak & Helmsing, 2019). Despite significant environmental degradation, governments often fail to address this issue adequately. The study pointed out the misconception that small enterprises do not cause substantial environmental problems due to their size. It claimed that local governments on the management of environmental issues could be more effective.

According to research by Tevapitak and Helmsing (2019), a starch company established in Thailand in 2004 faced significant challenges related to water pollution. Due to inadequate water retention systems, the company discharged wastewater into public canals during rainfall, leading to severe contamination of a nearby lake. This lake, being a closed water system, accumulated pollutants that severely impacted water quality. The contamination affected two villages by polluting their piped water supply, killing aquatic life, and producing a foul odor, which resulted in considerable financial costs for the community. In 2008, after receiving complaints from the community about the pollution crisis, local governments organized a meeting with residents and reported the issue to the district office. Despite some efforts, such as administering effective microorganisms (EM) to the water, pollution levels remained high. In 2009, the "Local People of Four Regions Network." The NGO mobilized residents to assert their rights and pressured the provincial government for action. A major protest involving 500

locals eventually prompted the provincial government to order the temporary shutdown of the starch company for seven days and establish a committee to find solutions.

In response to this pressure, the company implemented several improvements, including the establishment of a bypass system, upgrades to its piped water system, and enhancements to its wastewater treatment processes by adopting a biogas system that generates electricity from methane gas. These changes were driven by a combination of community activism, government intervention, and the company's organizational capacity. This case highlights the importance of collaboration between government entities and MSME owners to effectively address the impact of SMEs on water pollution. Such collaboration is crucial for ensuring the security of freshwater resources for both current and future generations.

(3) Soil Pollution

Another critical problem caused by small and medium-sized enterprises (SMEs) is soil pollution. SMEs operate across various sectors of the economy, including manufacturing, agriculture, textiles, and chemicals. These industrial units often release pollutants into the soil, which can include toxic and hazardous substances (Dotaniya et al., 2020). While the operations of SMEs may be smaller in scale compared to large corporations, their cumulative impact on soil pollution is significant. Soil pollution, defined as the presence of toxic chemicals in the soil, adversely affects human health by causing headaches, nausea, fatigue, and increasing the risk of cancer and neurological damage. It also negatively impacts plant health by reducing nutrient availability. This issue is especially concerning given the rising global food demands associated with an increasing population. Despite their vital role in economic growth, the contribution of SMEs to soil pollution presents a pressing environmental challenge. The consequences of soil pollution are far-reaching, affecting both human health and agricultural productivity.

(4) Climate Change

MSMEs often produce more pollution than larger corporations due to their informal nature and the lack of regulations and oversight that typically govern larger businesses. Studies indicate that these enterprises can contribute up to 60-70% of pollution levels in developing countries (Stokes et al., 2007). Understanding the carbon emissions linked to MSME operations is crucial for devising effective strategies to reduce emissions. In particular, manufacturing sectors—including steel, cement, and food and beverage production—are significant sources of energy consumption and greenhouse gas (GHG) emissions. The transportation of intermediate goods and raw materials using fossil fuels also generates considerable amounts of greenhouse gases and other pollutants. The overall environmental impact of MSMEs includes waste production, air pollution, and transportation-related carbon dioxide emissions.

In response to these challenges, corporate and national climate plans are increasingly emphasizing the use of biofuels (Vainio et al., 2024). Unsustainable land use and intensive resource extraction, such as the direct exploitation of species, are primary drivers of biodiversity loss and ecosystem degradation. Other contributing factors include climate change, the spread of invasive species, and habitat contamination (IPBES, 2019). Notably, the extraction of biomass for district heating can also lead to biodiversity loss and is considered a form of direct exploitation (Vainio et al., 2024). The carbon footprint is a widely used metric

to assess the climate impact of human activities (Thomas & Minx, 2008). Climate change and biodiversity loss are interrelated global issues largely driven by MSMEs. The effects of climate change on biodiversity are increasingly evident, influencing species and ecosystems worldwide. MSMEs contribute to climate change by relying on fossil fuels and engaging in land-use changes like deforestation, which increase greenhouse gas emissions and destroy ecosystems.

Agriculture, as a key component of food production, significantly contributes to both climate change and biodiversity loss. Therefore, promoting sustainable practices within MSMEs is crucial for minimizing the impacts of climate change on biodiversity. By reducing their carbon footprint and adopting eco-friendly technologies, MSMEs can help decrease the greenhouse gas emissions that drive climate change and threaten biodiversity. Addressing the effects of climate change on biodiversity is a complex and urgent challenge that requires collaborative efforts from individuals, governments, and organizations worldwide (Saladi, 2024).

(5) Ecosystem and Biodiversity Loss

MSMEs can negatively affect ecosystems and contribute to biodiversity loss through their operations, especially in sectors like small-scale fishing and marine-based businesses. Small-scale fisheries, which encompass activities before, during, and after harvesting, employ men and women almost equally, with a significant portion of women working in fish processing and trading (UN, 2017). In some developing countries, such as Small Island Developing States (SIDS), small-scale fisheries provide more than 60% of the protein consumed and account for 90-95% of the catch for local consumption. This heavy reliance on small-scale fisheries can lead to overfishing and significant degradation of marine environments.

Furthermore, the global industrial food system is rapidly degrading soil, water, and biodiversity. The United Nations estimates that environmental damage caused by industrial and agricultural activities costs the world \$3 trillion annually (OECD, 2019). MSMEs involved in agriculture and food production contribute to this damage, as their practices often lack sustainability measures. Biodiversity-related actions can be particularly burdensome for MSMEs. Many of these enterprises struggle to take advantage of the opportunity's biodiversity presents, as they often lack the resources needed to address environmental issues or believe the costs would be too high. This resource constraint makes it difficult for MSMEs to implement biodiversity-friendly practices, leading to further ecosystem degradation.

The loss of biodiversity not only results in environmental damage but also directly impacts the economy and society by reducing productivity and the ability of ecosystems to support human needs. This decline can cause financial losses for MSMEs, which depend on healthy ecosystems to maintain operations, particularly in sectors like agriculture, fishing, and tourism. The broader environmental consequences of biodiversity loss threaten the long-term sustainability of these businesses and the communities that rely on them (Smith, 2022).

2.3. Social Impacts from MSMEs

The World Trade Organization claimed that MSMEs, which make up 95% of all businesses globally and 60% of the labor force, constitute the foundation of many economies.

They make up about 35% of GDP in poor economies and roughly 50% in wealthy ones. When we studied social impacts from MSMEs, we can categorize them into two groups i.e., positive impacts and negative impacts.

2.3.1. Positive Impacts

MSMEs are crucial drivers of economic growth in Myanmar, providing employment opportunities, especially for marginalized groups such as women, youth, and vulnerable populations. Globally, MSMEs account for up to 70% of employment, with the International Labour Organization (ILO) highlighting their essential role in generating livelihoods. Representing 95% of all companies, MSMEs contribute to 60% of employment worldwide. In developing economies, they typically contribute around 35% of GDP, while in developed countries, this figure rises to approximately 50%. For instance, in Peru, 98% of private enterprises are MSMEs, contributing 42% of GDP and employing 60% of the population.

In the wake of the 2008 financial crisis, MSMEs experienced rapid growth in countries like the UK, France, and Sweden, playing a pivotal role in job creation. However, in developing economies such as Myanmar, many MSMEs remain informal, and there is less empirical evidence on their growth. Despite this, MSMEs significantly reduce unemployment and poverty, particularly in regions where large corporations are scarce. They contribute to local economic development by generating income and tax revenue, stimulating broader community prosperity, and improving living standards. The success of MSMEs is linked to their ability to form strategic alliances, engage with stakeholders, and integrate sustainable production and commercialization practices into their value chains. This holistic approach not only benefits individual businesses but also contributes to the long-term development of the communities they serve. One of the key advantages MSMEs possess is their flexibility and ability to adapt quickly to market changes. This adaptability allows them to lead innovation, develop new products and services, and respond to emerging social needs, such as improving healthcare, education, and environmental sustainability. Their streamlined structures enable them to innovate rapidly, driving economic growth and promoting eco-friendly initiatives. Research shows that the competitiveness of MSMEs is closely tied to their commitment to sustainability, effective use of information and knowledge, and their openness to networking for innovation.

MSMEs also provide a platform for entrepreneurship, enabling individuals to pursue their business ideas, fostering both personal and community growth. Many MSMEs engage in sustainable production and consumption, aligning with SDG 12 on responsible consumption and production. By adopting resource-efficient and environmentally friendly practices, MSMEs actively contribute to environmental conservation and societal well-being. Furthermore, MSMEs are essential in advancing gender equality, aligning with SDG 5 (gender equality). They provide women entrepreneurs with access to financial resources and market opportunities, helping close the gender gap. MSMEs also support SDG 10 by reducing inequality through inclusive economic growth and job creation for marginalized communities. Their role in providing income to families and communities makes them vital for inclusive growth and poverty reduction. According to the ILO report "The Power of Small: Unlocking the Potential of SMEs," MSMEs are key contributors to employment generation, GDP growth, and social development. They often prioritize diversity in hiring, offering opportunities to underrepresented groups such as women, minorities, and individuals with disabilities. By

fostering inclusivity, MSMEs help reduce social inequalities and enhance cohesion, contributing to more equitable and resilient societies.

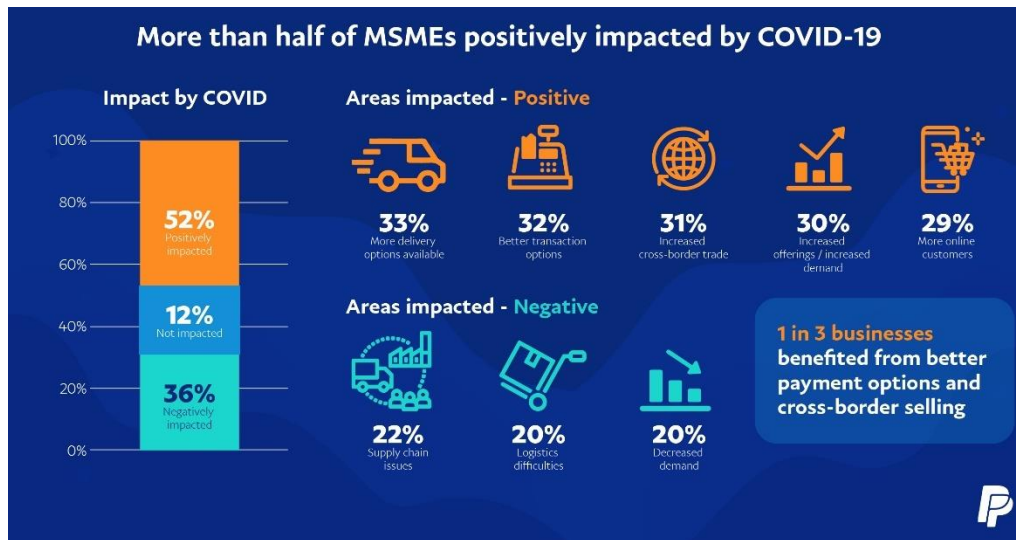


Figure 2.1. Impacts of COVID-19 on MSMEs (PaypalsNewsroom, 2022)

MSMEs contribute significantly to community development through various initiatives. They often participate in neighborhood projects, organize events, make philanthropic donations, and volunteer their time. This involvement fosters a stronger connection between MSMEs, their employees, and the community, encouraging a greater sense of social responsibility. This engagement not only benefits the community but also enhances the MSMEs' reputation, contributing to their long-term sustainability and growth. Additionally, the adoption of digital technologies plays a pivotal role in expanding the reach of MSMEs beyond their local markets. By leveraging social media, e-commerce platforms, and online marketplaces, MSMEs can access a wider customer base, leading to new business opportunities and increased sales. Digital platforms enable MSMEs to enhance their resilience by reaching a global audience, thus reducing their dependency on local demand and helping them navigate market disruptions.

Technological adoption also allows MSMEs to optimize their operations, reduce overhead costs, and increase overall productivity. For example, cloud computing offers flexible data storage and management solutions, automation streamlines repetitive tasks, and digital payment systems enhance the speed and security of transactions. These tools collectively improve efficiency, making MSMEs more competitive in the marketplace. A "digital-first" approach has been particularly advantageous for MSMEs during the COVID-19 pandemic. The MSME Digital Readiness Survey conducted by PayPal from October to November 2021 examines the effects of COVID-19 on small businesses with an online presence. This survey is based on interviews with 250 decision-makers from India's small and medium enterprises, which are characterized by an annual turnover ranging from INR 5 crore to under 250 crores. On average, these businesses report a turnover of INR 123 crore and employ approximately 386 individuals. The sample represents a variety of industries, which negatively impacts on

supply chain issues with 22%, Logistics difficulties (20%) and demand decreasing (20%) as illustrated in Figure 2.1.



Figure 2.2. MSMEs in the Digital Era (PaypalsNewsroom, 2022)

By moving their operations online, MSMEs have been able to maintain customer engagement and sales despite physical restrictions. According to surveys, MSMEs utilized various platforms for online sales, including social media (66%), marketplaces (62%), company-owned platforms (61%), e-commerce websites (54%), and third-party platforms (54%) as shown in Figure 2.2. This shift has not only ensured business continuity during the pandemic but also positioned MSMEs to thrive in an increasingly digital global economy.

The growing reliance on digital tools continues to support MSMEs' long-term growth, offering them a pathway to cost-efficiency, broader market access, and increased resilience. Many MSMEs, especially in developing countries, are increasingly adopting sustainable practices that contribute positively to environmental protection and social well-being. These practices include waste reduction, energy conservation, and the use of eco-friendly materials, all of which contribute to a healthier planet and ensure benefits for both present and future generations. By implementing these eco-conscious strategies, MSMEs align with global sustainability goals and enhance their overall resilience. Additionally, MSMEs often serve as protectors of local cultures and traditions by producing goods and services that reflect and preserve heritage. Traditional craftsmanship, artistry, and cultural practices are integral to many MSMEs, enriching cultural diversity within societies. This preservation of heritage not only adds value to local economies but also plays a vital role in maintaining cultural identity.

The digital transformation of MSMEs further enables them to adopt sustainable business practices. Digital tools facilitate energy-efficient operations, improve waste management through smart systems, and support eco-friendly production processes. This minimizes resource consumption and waste generation, contributing directly to the global sustainability agenda. Digitalization also offers opportunities for innovation, allowing MSMEs to create new, sustainable products and services that align with the circular economy. A comprehensive approach to sustainability is critical for businesses, including MSMEs, as

addressing environmental, social, and economic factors together is essential for long-term success. As Figure 2.3, study by Litvaj et al. (2023) indicates that environmental concerns account for 56% of sustainability indicators, social factors for 33%, and economic aspects for only 11% which is presented in Figure 2.2. This distribution highlights the growing focus on environmental sustainability, but it also underscores the need for balance between all aspects of sustainability.

In the European Union's non-financial business sector (NFBS), SMEs hold the majority of the market, representing 99.8% of enterprises and employing approximately 83 million people as of 2021. The Annual Report on European SMEs 2021/2022 showcases the sustainability challenges that SMEs face, including climate change adaptation and participation in the circular economy. Programs like the European Green Deal aim to reduce CO₂ emissions, with 24% of EU SMEs setting goals to reduce their carbon footprint and 32% offering green products. Although progress has been gradual since 2018, SMEs' sustainability efforts are on a steady upward trajectory, demonstrating their evolving role in shaping a more sustainable future.

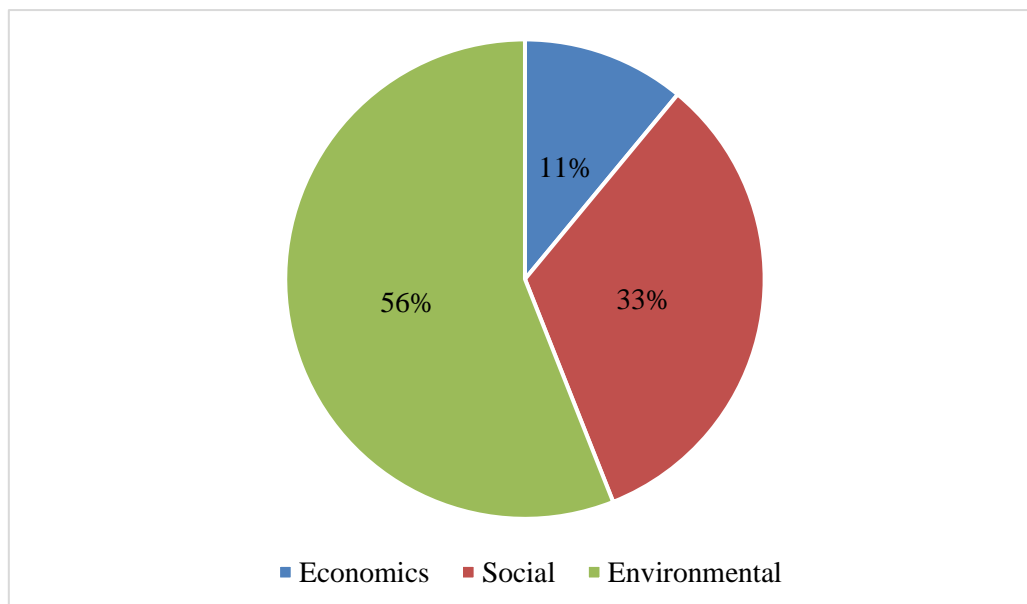


Figure 2.3. Variety of Indicators (Litvaj et al., 2023)

2.3.2. Negative Impacts

MSMEs, particularly in developing countries, often operate in environments with weak regulations concerning labor rights and safety standards, which can result in negative consequences for workers. These businesses may pay low wages, enforce long working hours, and fail to provide essential benefits such as health insurance. Such practices not only affect workers' livelihoods but also compromise their physical and mental well-being, perpetuating a cycle of unfair treatment and economic inequality. When MSMEs expand rapidly, their growth can significantly impact local communities. Increased traffic, noise, and changes in land use can disrupt neighborhoods, forcing long-time residents to relocate and weakening the sense of community. This rapid development often creates disparities, where certain groups—whether based on gender, race, religion, or socio-economic status—may be excluded from job opportunities or business ventures. Gender inequality, for instance, may manifest in unequal

access to good jobs or wage discrepancies, leaving women and marginalized communities at a disadvantage. These practices reinforce existing societal inequalities, making it difficult for vulnerable groups to improve their economic conditions.

In some cases, MSMEs may focus solely on profit without considering their broader social impact. This lack of community engagement can erode trust between businesses and local residents, leading to a strained relationship. When businesses fail to collaborate with their surrounding communities, they may face resistance, losing out on potential local support, which can further hinder their growth and economic development. To promote a more inclusive and equitable environment, MSMEs must strive to address these challenges by implementing fair labor practices, promoting diversity, and engaging with their communities. This will not only improve working conditions but also contribute to building stronger, more resilient communities where trust and collaboration can thrive.

MSMEs that operate without adhering to legal requirements, such as paying taxes, can undermine government efforts to provide essential services like education, healthcare, and infrastructure. When businesses evade taxes, governments struggle to fund these vital areas, exacerbating inequalities by deepening the gap between rich and poor. This tax avoidance undermines the equitable distribution of resources and impairs efforts to support marginalized communities. Furthermore, MSMEs often depend on external factors like market conditions, government regulations, and access to financial resources. Economic downturns or new regulatory changes can pose significant challenges for small businesses, leading to layoffs or even closures. In urban areas, MSMEs can inadvertently contribute to gentrification by buying property, increasing rents, or creating development projects that drive up the cost of living. As rents rise, lower-income residents are forced to move, eroding the community's unique identity and weakening social cohesion. This displacement can make it harder for residents to maintain strong ties to the neighborhood and collaborate on common goals.

Some MSMEs may prioritize profit over community well-being, neglecting the potential positive impact they could have on the neighborhoods they serve. When small businesses ignore the concerns of local communities, it creates friction, reducing trust and collaboration between the two. This lack of engagement not only weakens community ties but also limits the support businesses might receive in return. The absence of open communication and cooperation can fuel tensions and hinder both economic and social development. In industries such as construction, food processing, and manufacturing, MSMEs often face safety and health challenges. Workers in these sectors may lack protective equipment, be exposed to unsafe conditions, or work in environments with minimal safety regulations. The result can be serious work-related illnesses, injuries, and accidents that reduce quality of life and create long-term socio-economic challenges for both workers and their families. The lack of awareness or enforcement of safety laws can further perpetuate unsafe practices, putting lives at risk and amplifying socio-economic disparities.

Moreover, MSMEs in conflict-affected areas may become involved in illicit activities like smuggling or resource exploitation, contributing to instability and human rights violations. Engaging in such activities can entangle these businesses in corrupt networks that perpetuate cycles of violence, poverty, and social unrest. Operating within conflict zones often places MSMEs at risk of becoming part of a larger system of exploitation and insecurity, further aggravating the socio-political situation. Addressing these challenges requires robust

regulatory frameworks and a commitment to ethical business practices. By promoting fair taxation, ensuring worker safety, and fostering genuine community engagement, MSMEs can contribute positively to social, economic, and environmental sustainability. Comprehensive policies and responsible corporate behavior are essential to mitigating the negative impacts of MSMEs and ensuring that their growth aligns with broader societal goals.

For MSMEs to recover and succeed, they require access to digital tools, financing, and information. National figures illustrate the varying impacts; for instance, MSMEs in South Africa faced challenges due to social distancing measures and transportation delays, while many SMEs in Korea experienced business continuity issues because of quarantine restrictions. In conflict-affected regions such as Northern Myanmar, MSMEs may inadvertently contribute to instability and human rights violations by engaging in illicit activities like smuggling, arms trafficking, and resource exploitation. Businesses operating in these environments risk becoming entangled in intricate networks of exploitation, violence, and corruption, perpetuating cycles of social unrest, poverty, and insecurity.

2.4. Current Situations of MSMEs in Myanmar

Myanmar has the potential to grow its economy through resource-based industrialization, thanks to its rich natural resources and skilled workforce. In the fiscal year 2010-2011, agriculture, forestry, livestock, and aquaculture contributed nearly 37% to Myanmar's GDP (ADB, 2012). Meanwhile, the processing and manufacturing sectors accounted for around 26%, and the service sector made up 37.6% (Lwin et al., 2013). Like other ASEAN countries, MSMEs form a crucial part of Myanmar's economy. These MSMEs not only drive economic growth but also have significant social, environmental, and political impacts. They provide numerous job opportunities for local communities. In Myanmar, the early development of MSMEs is noteworthy, as approximately 99.4% of businesses fall into this category, highlighting their essential role in the country's economic progress.

Data collected between 2017 and 2019 by Myanmar Survey Research in 2019 indicated that the distribution of business sizes in Myanmar has remained stable. In this period, 74% of the surveyed businesses were classified as micro enterprises, 20% as small firms, 5% as medium-sized, and only 0.5% as large businesses. The distribution of MSMEs has not shown significant changes during this time. As of 2017, the industries with the highest number of businesses were food (MSIC 10), textiles (MSIC 13), and wood and wood products (MSIC 16). These three sectors accounted for approximately 60% of all industrial activity in the sample and involved about 70% of MSME owners in Myanmar. Labor productivity is crucial for the development of the manufacturing sector and its competitiveness on a global scale. A report by Myanmar Survey Research in 2019 highlighted notable growth among a specific group of MSMEs, referred to as the "Myanmar Tigers." This report used the data to identify and characterize 98 firms classified as Myanmar Tigers across various size categories (micro, small, and medium). These Tiger businesses, which fall within the top 5% of their respective size categories, demonstrated an increase in labor productivity from 2017 to 2019 (Myanmar Survey Research, 2019).

2.4.1 Overview of the Manufacturing Sector and Labor Productivity in Myanmar

This report examines the formal manufacturing sector in Myanmar from 2017 to 2019, based on data collected during both survey rounds. The analysis includes eight regrouped industries and a balanced panel sample of registered businesses categorized by enterprise size. Micro firms make up 71% of the total businesses, though this percentage varies across different industrial sectors. The "Textiles, Apparel, and Leather" sector has the lowest proportion of micro firms at 60%, followed closely by the "Coke, Chemicals, Rubber, and Minerals" sector at 61%. In contrast, the "Furniture and Other Manufacturing" sector has the highest share of micro enterprises, at 87%. Medium and large enterprises constitute only 6% of the sample, primarily found in the "Coke, Chemicals, Rubber, and Minerals" (10%) and "Textiles, Apparel, and Leather" (10%) sectors (Myanmar Survey Research, 2019).

Labor productivity is vital for the development of the manufacturing sector and its global competitiveness. A specific group of Myanmar's MSMEs is referred to as the "Myanmar Tigers," comprising 98 firms identified based on their labor productivity. The Tigers are categorized within each firm size category (micro, small, and medium) and are recognized for their increase in labor productivity from 2017 to 2019, placing them in the top 5% of their respective size categories. Labor productivity is measured as the value of production per employee. Notably, most micro-Tigers—representing 5% of 1,405 firms—are located in the construction industry, as the classification of Tigers is based on the share of each company size category (Myanmar Survey Research, 2019).

2.4.2 Regional Distribution of MSMEs in Myanmar

The Ministry of Planning, Finance and Investment (MOPFI) report revealed that quantitative surveys on MSMEs in Myanmar were conducted from 2016 to 2019. Figure 2.4 was illustrated from the Ministry of Industry's Directorate of Industrial Supervision and Inspection website shows how enterprises are distributed across different states, regions, and union territories in Myanmar. This table categorizes the enterprises as either small or medium, excluding micro businesses.

Overall, Mandalay has the highest number of enterprises, followed by Yangon and Bago, while Chin has the fewest. Mandalay is home to 7,775 businesses, consisting of 1,649 medium-sized and 6,126 small businesses, indicating a diverse economic environment that supports business growth. Yangon ranks second with a total of 8,856 enterprises. The distribution here is heavily tilted towards small businesses, with 5,011 small firms compared to 3,845 medium-sized ones. Bago follows closely with 3,720 enterprises, where the ratio of small (3,118) to medium-sized (602) firms is more balanced, showcasing a varied economic landscape that accommodates different business sizes as shown in Figure 2.4.

Ayeyarwady also plays a significant role in Myanmar's economy, having a total of 5,202 firms. Similar to Bago, it features a balanced mix of small (3,503) and medium (1,699) businesses, indicating an active entrepreneurial scene. In contrast, Chin has the lowest number of enterprises, totaling just 1,905. This lower figure may be due to geographical challenges or limited economic opportunities. The distribution of businesses across Myanmar's regions highlights the diversity of economic activity, with Mandalay, Yangon, and Bago emerging as

major centers for entrepreneurship, while Chin shows comparatively lower levels of business investment.

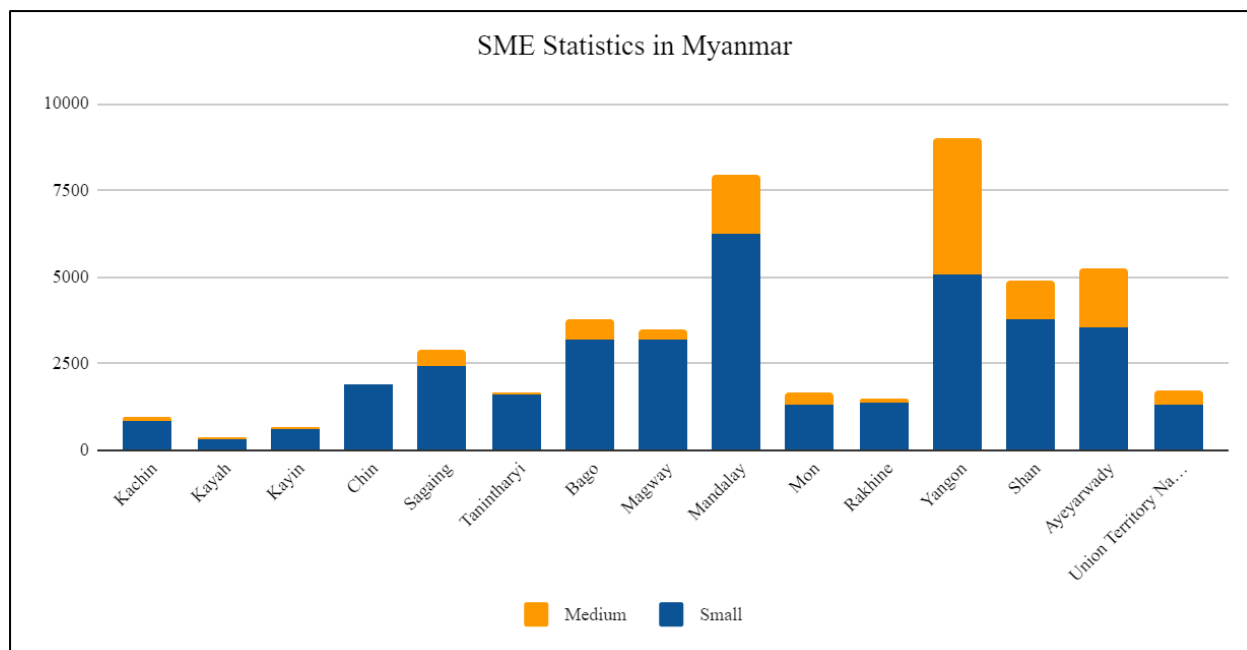


Figure. 2.4: SME Statistics in Myanmar by State/ Region (MOPFI, 2019)

2.5. Current Situations of MSMEs in ASEAN Countries

The study also assessed the current situation of MSMEs in ASEAN, as Myanmar is one of the ASEAN countries and shares many similarities with other member states regarding the MSME sector.

In the ASEAN economy, MSMEs play a crucial role, serving as the backbone of economic development by generating employment and contributing significantly to the region's GDP (Sallem et al., 2017). In Indonesia, an impressive 99% of businesses are MSMEs, which make a substantial contribution to the country's income, accounting for over half of Indonesia's total GDP and employing 97% of the workforce (Irijayanti and Azis, 2012). Similarly, in Malaysia, 99.2% of all businesses are classified as MSMEs, contributing 56.4% of the country's employment (Ibrahim et al., 2016). In Thailand, MSMEs represent 93.8% of all establishments and employ approximately 868,000 workers, or 38.9% of the total workforce (Chittithaworn et al., 2011) which can be all seen in Figure 2.5.

However, it has been observed that the activities of MSMEs often conflict with environmental protection goals and sustainable development, leading to significant CO₂ emissions (Yoshino et al., 2023). Sallem et al. (2017) also noted that many MSMEs have struggled to engage in sustainable practices in the marketplace. Consequently, MSMEs have emerged as notable contributors to environmental degradation, highlighting the need for a reevaluation of sustainability policies. Therefore, MSMEs in ASEAN countries face both challenges and opportunities in their pursuit of sustainability. Yoshino et al. (2023) recommend adopting green financial policies to promote sustainability, advocating for a zero-carbon or green economy to guide MSMEs toward environmental protection. These policies should offer financial incentives to encourage MSMEs to reduce pollution. Revisiting sustainability policies

is essential, and the government must play a central role in providing financial support, such as loans for MSMEs that aim to meet green development goals. Additionally, governments can establish free consulting services to assist MSMEs in aligning their operations with sustainable development objectives and fostering responsible business practices.

Regional and global cooperation is also vital, with an emphasis on forming partnerships with successful nations to share best practices and green technologies that can promote growth within the ASEAN region (Yoshino et al., 2023). Furthermore, the Enterprise and Stakeholder Engagement Division of the ASEAN Secretariat (2023) has provided guidelines to help MSMEs mitigate and adapt to climate change. This paper outlines a comprehensive approach to assess disaster risks and develop recovery plans, focusing on technological solutions and understanding the impact of business operations on climate change (The Enterprise and Stakeholder Engagement Division of the ASEAN Secretariat, 2023)

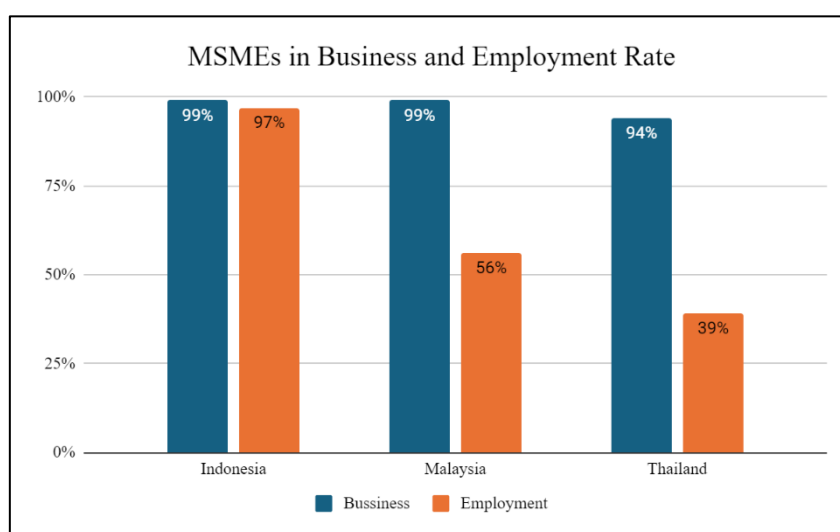


Figure. 2.5: MSMEs in Business and Employment Rate

2.6 Previous Studies from Developed Countries

In the EU-27 non-financial business sector in 2021, MSMEs accounted for an overwhelming 99.8% of all businesses and employed 83 million people, which is about 64% of total employment (Hope, 2022). Like many countries worldwide, the COVID-19 pandemic had a significant impact on micro-SMEs in the EU-27, leading to challenges such as economic uncertainty, limited financial and human resources, and the need to transition to digital and sustainable economies. A lack of human resources has resulted in insufficient expertise and awareness of environmental regulations and available support options. Additionally, issues such as delayed payments, liquidity constraints, and difficulties in obtaining loans hinder micro-SMEs' ability to invest in cleaner technologies. The economic uncertainties also make SMEs hesitant to invest in sustainable initiatives.

To tackle these challenges, the Annual Report on European MSMEs 2021/2022 (Hope, 2022) highlights measures implemented by the European Commission and Member States to improve access to finance, provide technical assistance, and simplify regulatory frameworks to reduce administrative burdens. The European Enterprise Network and Transition Pathways

Framework are designed to help micro-SMEs navigate their sustainability journeys (Hope, 2022). Through collaborative efforts among policymakers, businesses, and research institutions, the goal is to harness the potential of micro-SMEs as key drivers of the green transition, contributing to a more sustainable and resilient economy in the EU-27. MSMEs play a crucial role in promoting inclusive growth, particularly by creating employment opportunities. With many people globally seeking jobs, SMEs have become significant contributors to job creation. According to a report (Koirala, 2019), SMEs account for about 80% of jobs in low-income countries and 65% in high-income countries. However, despite their quantitative contributions to job creation and social inclusion, concerns have been raised regarding job quality and the potential impacts (Koirala, 2019). Employees in SMEs often receive lower wages and experience less job stability and security compared to those in larger businesses. Small firms frequently encounter barriers to providing benefits like insurance and maintaining consistent employment practices.

Additionally, MSMEs can get inclusive growth by adopting social entrepreneurship models. By incorporating underserved populations into their business practices, SMEs address various needs and unemployment issues. For instance, they provide essential goods and services, such as clean water and healthcare, while also creating job opportunities by employing locals or engaging them as distributors. However, the report (Koirala, 2019) emphasized that SMEs contribution to inclusive growth through other means, particularly in relation with greening, is limited. To transition to a green economy, MSMEs could protect the environment through their practices, producing goods and services by playing various roles. From improving their sustainable performances to providing sustainable products and services, SMEs can ensure environmental protection by acting as eco-innovators or eco-entrepreneurs or eco-adopters. SMEs as eco-innovators significantly improve products and practices that reduce negative environmental impacts. Through technological or non-technological, eco-innovators seize market opportunities by designing entire new solutions, modifying the existing models and changing specific functions without actually altering the fundamental regime. Similarly, SMEs as eco-entrepreneurs pursue new opportunities for green growth by prioritizing sustainable goals and exhibiting different motivations. Majority of the SMEs in the green economy are eco-adopters, practicing environmental technologies and sustainable business practices, although sustainability is not a core aspect of their business. Their main concern is to comply with environmental regulations. Thus, unlike eco-innovators and eco-entrepreneurs, eco-adopters lack strategic objectives for the green economy, and are focused on benefits.

CHAPTER 3: METHODOLOGY

3.1 MSMEs Business Classification

In Myanmar, MSMEs categorize various sectors, each with distinct characteristics and contributions (Khaing, 2023). According to the Myanmar SMEs Development Law of 2015, manufacturing industries such as food and beverages, construction materials, and machinery—employ between 50 to 300 workers, with capital or income ranging from 500 to 1,000 million MMK (Myanmar Kyats). In these sectors, innovation and production efficiency are essential.

Labor-intensive manufacturing, which includes handicrafts, textiles, and small-scale production, typically employs 300 to 600 workers while adhering to similar capital or income parameters. Wholesale businesses focus on product distribution and serve a broad market, employing 30 to 60 workers and generating capital or income between 100 to 300 million MMK. Retail businesses, ranging from clothing stores to supermarkets, help sustain consumer demand with 30 to 60 employees and capital or income between 50 to 100 million MMK. Service-oriented businesses, such as consulting and healthcare, depend on specialized expertise to serve their clients, employing 30 to 60 workers with capital or income from 100 to 200 million MMK. Other sectors, including entertainment and raw goods production, maintain similar workforce sizes and capital or income levels, contributing to the overall diversity and resilience of the economy. These classification criteria have been consistently applied to ensure reliability and relevance to the current context in Myanmar. The following table presents the classification that used in this study.

Table 3.1 SMEs Classification in Myanmar

Classification	Sub-Classifications	No. of worker	Capital (C) / Income (I) (MMK million)
Manufacturing Industry	Food & Beverages, Construction Material, Agriculture and Machinery, Industrial Tools and Equipment Production, Automobile Production.	50 - 300	500 - 1000 (c)
Labor-Intensive Manufacturing Industry	Handicrafts, Textiles, Furniture, Construction, Small-scale manufacturing.	300 - 600	500 - 1000 (c)
Wholesale Business	Products Distribution (supply chain), Wholesalers of clothing, Electronics, and Food products.	30 - 60	100 - 300 (I)
Retail Business	Clothing Stores, Supermarkets, Food & Beverages, Personal Goods, Consumer Produce	30 - 60	50 - 100

Service-Rendering Business	Consulting, Accounting, Legal Advice, Healthcare, Fitness, Education, Hospitality, Tourism, IT Services	30 - 60	100 - 200 (I)
Others	Entertainment, Literature and Art, Raw Good Production, Metal and Mineral Production, Environmental Services,	30 - 60	50 - 100

3.2 Selection of Study Area

When selecting cities in Myanmar to investigate the current situations, environmental practices, challenges, and opportunities of Micro, Small, and Medium Enterprises with a focus on sustainability, several key criteria should be considered. Therefore, for this study the study areas were selected based on these criteria.

1. **Economic Diversity:** Ensure the cities represent a variety of industries and economic activities.
2. **MSME Concentration:** Select cities with a high concentration of Micro, Small, and Medium Enterprises.
3. **Accessibility:** Prioritize cities with good transportation infrastructure and easy access for researchers.
4. **Stability:** Choose cities with relative socio-political stability and a conducive business environment.
5. **Environmental Awareness:** Prefer cities where there is growing awareness of environmental sustainability and a willingness to adopt eco-friendly practices.

Therefore, based on the selection criteria and consultation with experts, Yangon and Mandalay were chosen as study cities. They are major economic hubs with diverse industries, a significant presence of MSMEs, relative stability, and a growing focus on sustainability. These factors make them ideal for effectively fulfilling the research objectives.

3.2.1 Yangon

Yangon is located in the country's south, on the east bank of the Yangon River, also known as the Hlaing River. Formerly known as Rangoon, is a historically and culturally significant city. At more than five million people, Yangon is the largest city and the commercial center of Myanmar. It also has the highest concentration of colonial-era buildings in Southeast Asia. Yangon is the country's commercial hub even though it is no longer the capital. It is a dynamic urban tapestry that is both demanding and full of opportunity for development, where traditional and modern influences meet (Britannica, 2024). The city has been new set with 10 districts i.e., Twant, Thingangyun, Mayangon, Kyauktada, Insein, Dagon Myothit, Botahtaung, Mingalardon, Ahlon and Kamayut District as listed in Figure 3.1.

As Myanmar's primary urban area and commercial hub, Yangon offers a unique and essential research setting for analyzing the complex aspects of MSMEs, especially in relation to sustainability and environmental impact. The dynamic economic structure of the city offers an extensive framework for examining present practices and their environmental impact, as it is typified by a wide range of MSMEs across several sectors. Given its historical significance and rapid urbanization, Yangon is ideally situated to examine the potential and challenges that micro, small and medium-sized enterprises (MSMEs) have when incorporating environmentally sustainable practices (ADB, 2020). The city's efforts at finding a balance between environmental sustainability and economic growth are representative of larger national programs, such the Myanmar Sustainable Development Plan (2018–2030), which seeks to encourage sustainable practices in every area of the community. Thus, Yangon provides an ideal setting in which to examine the use of sustainable development strategies and the shift to more environmentally friendly business models that can reduce adverse effects on the environment while promoting inclusion and economic resilience.

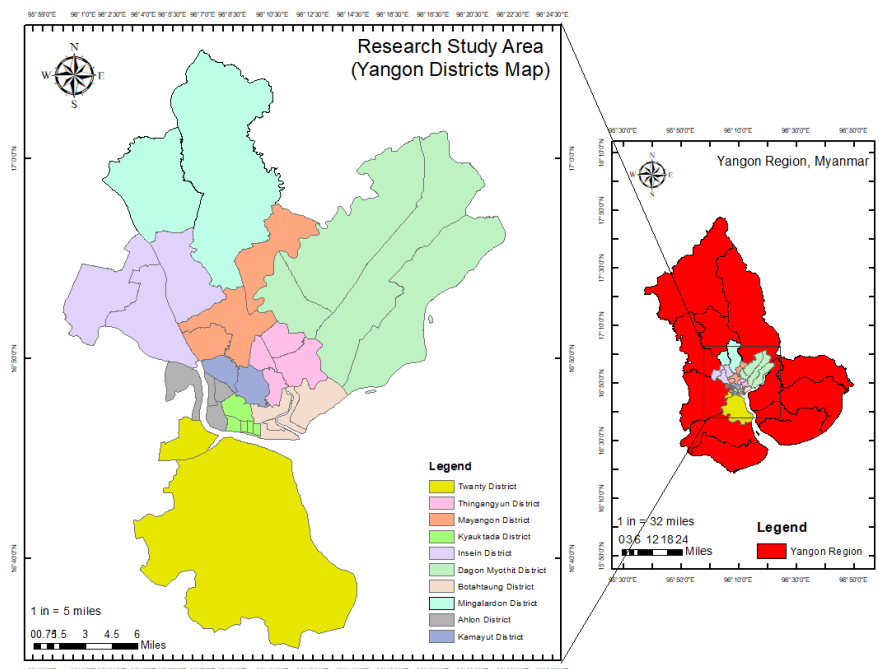


Figure. 3.1 Yangon City Map

Yangon's MSMEs have a lot of challenging problems that make it hard for them to run smoothly and be environmentally friendly. City services like water and trash collection aren't up to satisfactory levels, which makes it relentlessly for companies to keep things clean and healthy. Not only is it hard to get around, but there is also a lot of traffic², which makes the air polluted. The city often floods when it rains because the drainage systems aren't good enough. This can make it hard for businesses to run. Plus, the city doesn't have enough green space, which is bad for the environment and makes it harder for businesses to grow. Yangon's small businesses already have trouble with the environment, but they also have trouble getting loans, using public services, and getting power that works all the time (Fan et al., 2022). Power outages happen a lot, which makes it hard to run a business and make plans for the future.

3.2.2 Mandalay

Mandalay, the second-largest city in Myanmar, is famous for its history, being the last royal capital before the British took over in 1885. The city sits on the east side of the Irrawaddy River and is known for its art, lively markets, and religious sites like the Mahamuni Buddha Temple. Even though it's modernizing, Mandalay still has a special charm with its old palace and Mandalay Hill, making it a busy but beautiful place to be. Mandalay is located in the central Dry Zone of the country by the Irrawaddy River at 260 feet above sea level. As shown in Figure 3.2, the city is formed with five main townships such as Pyigy Tagon Township, Maha Aung Myay Township, Chan Aye Tharzan and Chan Myay Tharzi Township.

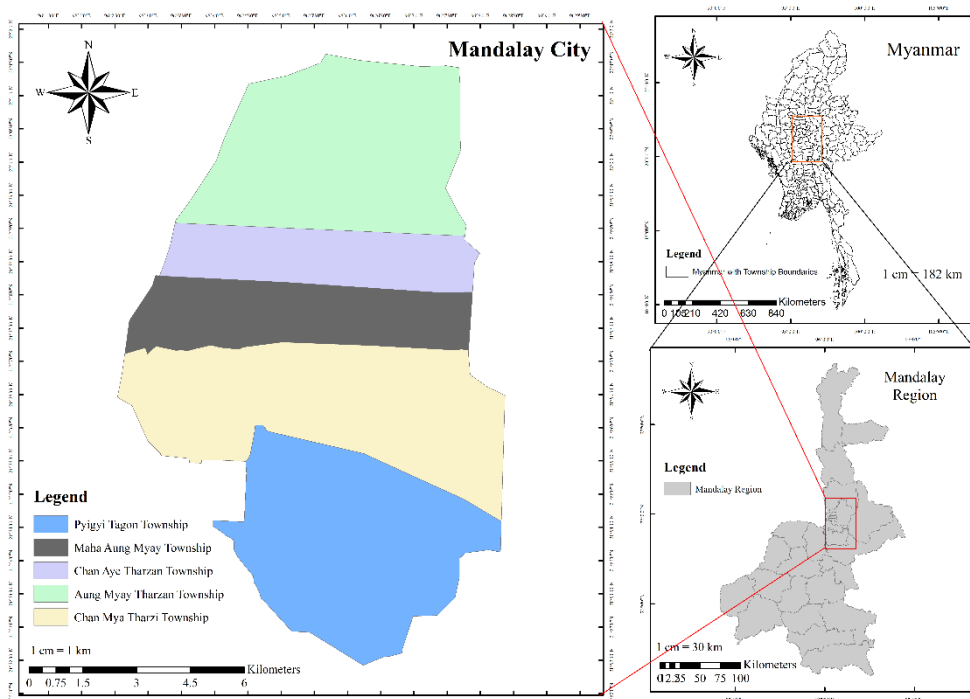


Figure 3.2. Mandalay City Map

The center of Myanmar's economy and culture, Mandalay, presents distinctive research setting for analyzing the complex characteristics of MSMEs, particularly in regard to environmental sustainability. Mandalay, the second-biggest city in the nation and a major economic hub, is home to a wide range of SMEs operating in many industries, from cutting-edge manufacturing to traditional crafts (Edmund et al., 2019). The city is a perfect place to investigate how SMEs may incorporate eco-friendly methods into their business operations because of its advantageous location and rich cultural legacy. In order to implement environmental practices that support the country's sustainability goals, Mandalay's SMEs must overcome both possibilities and problems as Myanmar places a greater emphasis on sustainable development. With its dedication to development and creativity, as well as its ability to appropriately utilize local resources, the city presents itself as a viable example of sustainable urban development in Myanmar (Raitzer et al., 2015). Understanding Mandalay can help one better understand how SMEs might support the country's economic growth while preserving its natural resources for future generations.

In Mandalay, MSMEs are dealing with a bunch of environmental issues that make it hard for them to keep going strong. Climate change is making things unpredictable, with more extreme weather on the way (UN Habitat, 2023). Droughts are common, especially in the Dry Zone, which includes Mandalay, making it tough to find enough water for businesses and farming. When the rainy season hits, flooding can mess up operations and damage buildings, which is extra hard for smaller businesses that don't have a lot of resources to bounce back. Plus, as Mandalay grows, it's getting hotter, which means higher cooling costs and health problems for workers. And to top it all off, managing waste properly is a big challenge that all businesses need to tackle to keep the environment healthy (Sobir, 2019). So, businesses in Mandalay really need to focus on managing these issues smartly to keep growing while taking care of the environment.

3.3 Data Collection Process

In this research project, we employed a qualitative research methodology, relying primarily on secondary data, supplemented by primary data collection. The secondary data utilized in this study were gathered from a variety of credible sources to provide a comprehensive understanding of the current landscape of MSMEs and sustainable development in Myanmar. These sources include:

- **Government Reports and Publications:** Data and insights from reports published by the Myanmar Ministry of Commerce, the Ministry of Planning and Finance, and other relevant government bodies provided foundational information on MSME policies, regulations, and economic contributions.
- **International Organizations:** Reports from organizations such as the United Nations Development Programme (UNDP), World Bank, Asian Development Bank (ADB), and International Labour Organization (ILO) offered perspectives on sustainable development initiatives, economic trends, and challenges faced by MSMEs in Myanmar.
- **Academic Journals and Research Papers:** Peer-reviewed articles from academic journals provided theoretical frameworks and empirical evidence on the intersection of MSMEs and sustainable development, both globally and within the regional context of Southeast Asia.
- **Industry Reports:** Publications by industry associations, such as the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI), provided sector-specific data, including market analyses, growth trends, and environmental impacts associated with MSME operations.
- **Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs):** Reports and case studies from NGOs and CSOs working on environmental sustainability and MSME development in Myanmar offered insights into grassroots challenges and opportunities.
- **Economic and Environmental Statistics:** Data from the Myanmar Central Statistical Organization (CSO), including environmental statistics, were used to analyze the

broader environmental impacts of MSME activities and to assess trends in resource use and waste generation.

To complement the secondary data, we conducted a two-part primary data collection process:

- **Expert Interviews:** We conducted online interviews with four experts and professionals who are deeply involved in the MSME sector. These individuals, including consultants and industry leaders, provided first hand insights into the challenges and opportunities MSMEs face in advancing sustainable development. The details of the interviewed experts and professionals are listed below.
 - i. She Creates Myanmar
 - ii. SME Hub Asia
 - iii. MSMEs Association of Myanmar (MSMEAM)
 - iv. Daw Aye Chan Moe
- **MSME Owner Interviews:** We interviewed seven MSMEs owners from the Yangon City and two from the Mandalay City. Despite attempts to reach a larger group, these nine participants provided sufficient and representative insights, capturing the diversity and commonalities of MSME experiences in the context of sustainable development. The details of the interviewed owners are listed below.
 - i. MAPLE -29, Daw Khon Ngon Chit, Yangon, Retail
 - ii. Handmade by Daw Theint, Theint Theint Myat, Yangon, Retail
 - iii. Hla Twar Mal, Yangon, Retail
 - iv. Venus Skinlus, Daw Yee Yee Mon, Yangon, Manufacturing
 - v. Sweetie Food Production, Dr. Tin Mar Lar Thein, Yangon, Manufacturing
 - vi. Awng Dang Awng, Daw Chan Mya Thida Kyaw, Yangon, Service
 - vii. MyMart, Daw Ya Min Thidar, Mandalay, Retail
 - viii. Mother Milk Production, U Yin Maung Thant, Mandalay, Manufacturing
 - ix. CreaNova, Daw Zu Zu Lwin Maung, Mandalay, Service

3.4 Potential Risks

The research team has also learned the details on potential risks from MSMEs based on several literatures. These risks must address a variety of potential environmental risks that could hinder sustainable development. Air pollution is a significant concern, as many MSMEs may rely on outdated technologies and practices that release harmful emissions. Water pollution is another critical issue, especially for industries that discharge untreated waste into water bodies, threatening both human health and aquatic ecosystems. Soil contamination can result from improper disposal of hazardous materials, affecting agricultural productivity and food safety. Noise

pollution, generated by industrial activities and machinery, can disrupt local communities and wildlife. Solid waste generation poses a substantial challenge, with many MSMEs lacking efficient waste management systems, leading to environmental degradation and health risks. Climate change is an overarching risk, as MSMEs contribute to greenhouse gas emissions through their operations, necessitating the adoption of more sustainable practices.

Resource depletion, driven by unsustainable extraction and use of raw materials, threatens long-term viability and environmental stability. The loss of ecosystems and biodiversity is a pressing concern, exacerbated by habitat destruction and pollution from industrial activities. Light pollution, often overlooked, can disrupt local wildlife and ecosystems, particularly in areas transitioning from rural to industrial landscapes. Thermal pollution, resulting from industrial processes, can alter local climates and harm aquatic life. Chemical pollution, involving the release of toxic substances, poses severe risks to both environmental and human health. Additionally, health and safety risks are prevalent, as many MSMEs may not adhere to rigorous safety standards, endangering workers and surrounding communities. Addressing these risks requires a comprehensive approach, integrating sustainable practices and robust environmental regulations to promote the well-being of both people and the planet.

CHAPTER 4: OUR FINDINGS

4.1 Current Challenges of MSMEs in Myanmar

MSMEs are critical to Myanmar's economy, driving innovation, providing essential services, and creating employment opportunities. These businesses are key in shaping both the economic and social landscapes of the country. However, MSMEs face significant challenges that hinder their stability and growth, worsened by the COVID-19 pandemic and ongoing political instability. To ensure their continued contribution to national development, it is crucial to identify these obstacles and implement targeted support strategies that foster a favorable environment for MSMEs. The following are our findings what we have done on the assessments MSMEs in Myanmar with current challenges, issues and problems.

(1) Energy

One of the most urgent issues MSMEs face is the unreliable electricity supply. Frequent power outages disrupt production, leading to inefficiencies and financial losses. For example, garment manufacturers have experienced severe delays and substantial losses due to power cuts, which not only hurt productivity but also damage the reputation of businesses, making it harder to gain and maintain client trust. Although some MSMEs have turned to backup generators or solar panels, the high cost of these alternatives is often unaffordable for smaller businesses with limited financial resources. Furthermore, solar power systems are less efficient during the rainy season, affecting production and service delivery. In addition to unreliable electricity, inadequate transportation networks delay the delivery of goods, driving up operational costs. Poor internet connectivity further limits market access and reduces operational efficiency, adding to the difficulties faced by MSMEs. These combined infrastructure challenges create a tough environment for MSMEs to thrive, limiting their ability to fully contribute to Myanmar's economic development.

(2) Economic

Economic instability has had a profound impact on MSMEs in Myanmar. Inflation and currency devaluation have led to increased costs for raw materials and fluctuating prices, which challenge MSMEs' ability to maintain profitability and plan for the future. The volatility in operational costs, particularly for raw materials and transportation, has placed an additional financial strain on MSMEs that often operate on narrow profit margins. The unpredictable economic environment has also made it difficult for businesses to secure investments and loans, further impeding growth opportunities. Economic instability contributes to a lack of consumer confidence, which can lead to reduced demand for products and services offered by MSMEs. This unstable economic environment makes it difficult for businesses to make informed decisions, plan for long-term success, and adapt to shifting market conditions.

Access to finance remains a critical challenge for many MSMEs in Myanmar, compounded by limited financial literacy and poor bookkeeping practices. These issues often lead to inefficiencies and mismanagement, making it difficult for businesses to thrive and grow. A lack of affordable financing options further exacerbates this problem, restricting MSMEs' ability to manage cash flow and invest in expanding their operations. Many MSMEs find it

challenging to secure credit from traditional financial institutions due to stringent requirements, such as collateral and high interest rates. This financial exclusion hampers their capacity to scale up, invest in new technologies, or adapt to changing market demands. While informal financing options like microfinance or peer-to-peer lending are available, they often come with additional challenges, such as high interest rates or limited loan amounts. To address these barriers, financial support mechanisms like grants and low-interest loans are crucial. These tools can provide MSMEs with the necessary capital to overcome financial constraints, helping them to grow, navigate economic uncertainties, and invest in sustainable business practices. Expanding access to financial education and promoting better bookkeeping can also enhance financial literacy, allowing MSMEs to better manage their finances and make informed decisions.

(3) Human Resources

Human resource challenges in Myanmar's MSME sector are multifaceted, with a shortage of skilled workers and difficulties in managing human resources being among the most prominent issues. Political and economic instability has driven many skilled individuals to seek better opportunities abroad, resulting in a significant talent drain in the local market. Despite high unemployment rates, especially among young people, manufacturing businesses struggle to attract young workers. This forces business owners to take on multiple roles—handling marketing, operations, and other tasks—which can strain resources and lead to lower profit margins, reduced salaries, or the hiring of less skilled workers.

The ongoing migration of talent, coupled with high turnover rates, exacerbates the challenge of attracting and retaining skilled employees. Financial constraints further complicate the situation, as businesses face disruptions in operations and increased recruitment costs due to frequent employee turnover. Additionally, many MSMEs lack adequate training programs and resources for employee development, limiting their ability to build and maintain a skilled workforce. This lack of investment in human resource development negatively impacts productivity and innovation, making it harder for MSMEs to remain competitive and grow in a challenging economic environment.

(4) Sustainable Practices

Despite recognizing the environmental impacts of their activities, many MSMEs in Myanmar struggle to implement sustainable practices due to various challenges. The pressure to ensure immediate business survival in a volatile economic climate often takes precedence over long-term sustainability goals. While some MSMEs have taken steps like adopting solar energy and reducing solid waste through digitalization, environmental awareness across the sector remains low. This issue is further exacerbated by poor waste management systems and the limited availability of eco-friendly resources.

Many MSMEs lack knowledge about sustainable practices such as waste management and recycling, mainly due to insufficient regulatory support and awareness. Implementing eco-friendly measures also requires significant financial and technological investments, which smaller enterprises often cannot afford. As a result, these businesses contribute to environmental issues like pollution and resource depletion. Addressing these challenges will require stronger government regulations, incentives, and support from NGOs and international

organizations. Offering training, resources, and technology for waste management and recycling can help MSMEs adopt more sustainable practices. This will not only contribute to environmental conservation but also ensure that their operations remain both economically viable and environmentally responsible.

(5) Technology and Resources

The adoption of modern technology presents a significant challenge for Myanmar's MSMEs. Many of these enterprises still rely on outdated technology, which negatively affects their efficiency and competitiveness. Limited access to advanced digital tools further restricts their potential for growth and market expansion. High costs associated with acquiring modern technology create a financial barrier for smaller businesses, making it difficult for them to compete with larger enterprises. The rapid pace of technological change adds to this challenge, as MSMEs often struggle to stay updated with industry trends and innovations.

To address these issues, MSMEs need access to affordable and scalable technological solutions that can enhance their operations and competitiveness. Offering support through technology grants, subsidies, and training programs can enable MSMEs to integrate modern technology into their business practices, driving innovation and allowing them to compete more effectively in the digital economy. In addition to technological challenges, MSMEs often face difficulties competing with larger enterprises due to limited resources and market reach. The resource gap prevents smaller businesses from making substantial investments in marketing, research, and development, putting them at a competitive disadvantage. Larger companies benefit from economies of scale and well-established market positions, making it hard for MSMEs to gain traction.

To help MSMEs overcome these barriers, support in market research, marketing strategies, and networking opportunities is crucial. Initiatives such as market access programs, business development services, and forming strategic partnerships can provide essential assistance. These resources can help MSMEs increase their visibility, attract new customers, and strengthen their market presence. Moreover, collaborations and alliances with other businesses can enable MSMEs to pool resources and bolster their market position, enhancing their ability to compete with larger enterprises. The ongoing crisis has also impacted the mental health of business owners and employees. Increased stress and uncertainty have led to decreased productivity and overall well-being. The mental health of individuals in the business community is often overlooked, yet it plays a crucial role in maintaining a healthy and productive workforce. The psychological impact of economic and political instability can lead to burnout, anxiety, and decreased motivation among business owners and employees. Providing mental health support, including counseling services and stress management resources, is important for addressing these psychological impacts. Creating a supportive work environment that prioritizes mental health can improve productivity, employee satisfaction, and overall business performance. Additionally, implementing wellness programs and encouraging open communication about mental health can help mitigate the adverse effects of stress and instability on the workforce.

(6) Climate Change

Climate-related hazards, such as extreme heat and frequent power outages, significantly affect the operations of MSMEs in Myanmar. During the summer, the country experiences intense heat waves and power shortages, which create numerous operational difficulties. These conditions disrupt business activities and result in health issues like heat exhaustion among employees, reducing productivity and driving up operational costs. High absenteeism due to heat-related illnesses further hampers efficiency, forcing businesses to take preventive measures. Many MSMEs invest in cooling systems and emergency health supplies to safeguard their workforce, but these necessary steps add to their financial strain.

The challenges faced by MSMEs in Myanmar are diverse and complicated, requiring innovative and adaptive strategies for survival. A holistic approach is needed to support their long-term success and growth. This approach should include financial assistance, infrastructure improvements, human resource management support, and the encouragement of sustainable business practices. By promoting eco-friendly initiatives and raising awareness, the government can help create a more sustainable and economically stable future for MSMEs. As MSME owners work to overcome these challenges and grow responsibly, cooperation and support from all stakeholders will be essential in building a resilient and thriving MSME sector in Myanmar.

4.2 Opportunities of MSMEs in Myanmar

The assessment of factors from Myanmar enterprises reveals five strengths that highlight resilience to sustainability. Despite the period of national instability, MSMEs in Myanmar are committed to sustainability through the consumption of locally sourced, recyclable raw materials. For example, Handmade by Theint and Venus Skinlux initiate natural materials such as essential oils, herb oils, and coconut shells into the products. These initiatives not only mitigate environmental impact by reducing carbon footprints but also reduce dependence on imported goods. Another effort is founded in CreaNova's adoption of an energy-efficient system using R32 gas and the shift to digital means rather than paperwork to minimize waste, showering a growing awareness of sustainable business practices.

Another identical strength evidenced found is the adaptability to changing external conditions. For instance, the business strategy of Maple-29 responds to economic pressures by adjusting operations, including taking on multiple roles within the business to ensure smooth functioning despite lower profit margins. To further control costs, the owner opted for bulk purchasing of materials needed, thus reducing extra costs amidst the fast fluctuation of the inflation rate and also preventing operational delay by ensuring a steady supply of materials. Handmade by Theint also adapts the business strategy by expanding a wider range of crafted accessories to ensure long-term stability. This shift showcases the adaptability of micro SMEs and the alignment of sustainable practices by diversifying product lines and minimizing reliance on a single revenue stream.

Another strength found is the strong local production focus amongst MSMEs in Myanmar. Since the COVID-19 pandemic, businesses have increasingly emphasized producing local products, integrating eco-friendly ideas, and combining creativity with entrepreneurial spirit. Some SMEs have not only succeeded in manufacturing high-quality products locally but have also attracted international consumers. This ability to appeal to

expanding markets stands as a testament to the innovation in domestic production. To achieve this, expanding business boundaries and reaching a broader audience through state-of-the-art technology and social networking platforms is also essential for business sustainability.

Effective material usage is also one of the strengths of these enterprises. In terms of resource regulation, businesses effectively manage electricity, material usage, water consumption, solid waste, and wastewater, as business actors have an unyielding attitude toward running a sustainable business. The business operations of Awng Dang Awng Co. Ltd. not only emphasize sustainable practices in the use of electrical bulbs and construction-related gas but also offer advice to clients on the application of eco-friendly materials during consultations. Another instance to be pointed out is Mother Milk Production, which exerts effort to reduce minimal waste by reducing unnecessary energy, ensuring proper waste disposal, and using solar panels to replace generators. Thus, effectively reaching the targets of systematic resource optimization ensures that these holistic approaches to sustainability can drive resilience for MSMEs in a competitive market.

In terms of employee welfare, both monetary and non-monetary means are evidenced. In the workplace of Mother Milk Production, workers are provided with lunch boxes and a supportive work environment by considering employees as business partners. Such commitments to valuing the contributions of workers significantly enhance overall employee satisfaction. Besides, it is evidenced that some enterprises contribute to supporting vulnerable groups, such as the elderly and single mothers, by ensuring these individuals have access to job opportunities within the workplace. Moreover, many enterprises also consider flexible working hours and negotiate salaries to support the employees amidst challenging times, further underscoring the dedication to ethical business practices.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The research on sustainable development in Myanmar's Micro, Small, and Medium Enterprises (MSMEs) highlights the significant role these businesses play in the country's economy, as well as the environmental challenges they face. MSMEs are vital for job creation, income generation, and reducing poverty in Myanmar, but their operations contribute to environmental issues like air and water pollution, soil degradation, and biodiversity loss. These impacts present obstacles to achieving long-term sustainability.

One of the key takeaways from the research is the critical importance of sustainability, not just for MSMEs in Myanmar, but globally. Sustainability, in this context, means that these enterprises can grow and succeed without compromising the ability of future generations to meet their needs. This is particularly important for Myanmar, where MSMEs form the backbone of the economy. However, the study found that many MSMEs in Myanmar struggle to adopt sustainable practices due to various challenges. Economic instability, driven by inflation, currency fluctuations, and unpredictable raw material costs, creates uncertainty for MSMEs. This makes it difficult for them to invest in sustainability efforts. Additionally, limited access to finance further hampers their ability to implement environmentally friendly technologies or practices. Many MSMEs operate with tight profit margins, making it hard for them to secure loans or other financial resources for sustainability initiatives. A lack of education and clear guidelines on sustainable business practices is another major challenge. Although many MSMEs are aware of environmental issues, they often lack the knowledge and tools to take meaningful action. This is made worse by inadequate infrastructure, including unreliable electricity and poor waste management systems, which further complicate the transition to sustainable operations. Despite these issues, some MSMEs are making efforts to embrace sustainability by using renewable energy or reducing waste. However, these efforts are often constrained by the same economic and structural barriers.

The research also identifies several opportunities for improving sustainability among Myanmar's MSMEs. One of the most promising opportunities is the potential to align with the United Nations' Sustainable Development Goals (SDGs), especially those focused on clean energy (SDG 7), sustainable cities (SDG 11), and responsible production and consumption (SDG 12). By adopting sustainable practices, MSMEs can not only reduce their environmental footprint but also enhance their competitiveness, attract investment, and improve their resilience to future challenges.

To fully realize these opportunities, our research highlights the need for greater policy and regulatory support. The government has an important role in creating an environment where sustainable development is prioritized. This can be achieved through clear regulations, financial incentives, and access to resources and technologies that help MSMEs adopt more sustainable practices. International organizations, NGOs, and other stakeholders also have an important role to play. They can offer capacity-building initiatives, technical assistance, and funding to help MSMEs transition to more sustainable business models.

In conclusion, while the path to sustainable development for MSMEs in Myanmar is fraught with challenges, there are also significant opportunities for these businesses to

contribute to both economic growth and environmental protection. With the right support from the government, international partners, and other stakeholders, MSMEs in Myanmar can lead the way in driving sustainable development, ensuring a thriving future for the country's economy and its environment.

5.2 Sustainability Recommendations

As MSMEs are the vital pillar of the national economy and environmental sustainability of Myanmar, capitalizing on the strength and opportunities to overcome the hindrance along the path of achieving sustainability is of utmost importance, therefore, the following recommendations suggesting multifaceted approaches are outlined to be considered.

(1) Financial Resilience

Financial assistance programs from non-governmental organizations (NGOs), international organizations, and industry-specific bodies can provide essential support to MSME owners. For instance, grants from organizations such as the United Nations Development Programme (UNDP) and the Asian Development Bank (ADB) can facilitate specific projects aimed at upgrading technology or improving infrastructure, thereby enhancing the operational capacity of MSMEs (E. Riyani, et al., 2023) (Ramadhona D et al., 2023). These financial resources are vital as they help overcome the financial obstacles that many MSMEs encounter, which can severely limit their ability to secure loans from traditional financial institutions (K. Rajamani et al., 2022).

Moreover, financial counseling services provided by local business development centers and international organizations can significantly aid MSMEs in improving their financial management and strategic planning capabilities. Such services often encompass financial education initiatives that aim to enhance financial literacy among MSME owners, enabling them to make informed decisions regarding their finances (A. Fauziyah et al., 2022) (Ririh Anggraini Setyahety et al., 2023). Research indicates that financial literacy is positively correlated with better financial performance in MSMEs, as it equips owners with the necessary skills to manage their resources effectively (Ratih Puspitasari & Danti Astrini, 2022). Furthermore, the integration of financial education programs can lead to improved financial behaviors, which are critical for sustainable business practices (Tim Kaiser et al., 2020).

In the case of Microfinance Institutions, they provide microloans that are often more accessible than traditional bank loans, particularly benefiting Micro, Small, and Medium Enterprises (MSMEs) facing cash flow challenges or requiring capital for essential improvements. These loans are tailored to meet the specific needs of MSMEs, often featuring flexible repayment schedules that align with the cash flow cycles of small businesses. This flexibility alleviates financial pressure, allowing MSMEs to manage their finances more effectively and focus on growth (Lwesya & Mwakalobo (2023) (Toyin Olufolahan et al., 2023). Furthermore, MFIs can assist MSMEs in acquiring necessary technology and infrastructure, addressing operational inefficiencies that may arise from outdated systems or power outages (Dessy Isfianadewi, 2023). Many MFIs also offer financial literacy programs, which are crucial for improving bookkeeping practices and financial management skills among MSME owners,

thereby reducing inefficiencies and the risk of financial mismanagement (Isaac Tope Awe & Oluwatoyin Babatunde Omoniyi, 2023).

Venture Capital (VC) presents another viable option for MSME owners. VC funding can address significant financial and operational challenges by providing substantial capital that helps businesses cope with the rising costs of raw materials and currency fluctuations, particularly in economically unstable regions like Myanmar (Garry Bruton et al., 2015). This funding can be strategically utilized for investments such as diversifying supply chains or hedging against currency risks. Beyond financial support, VCs often provide strategic advice and industry connections, which are invaluable for MSMEs navigating market challenges and seeking to expand their market presence (Garry Bruton et al., 2015). Moreover, VC funding enables MSMEs to invest in modern technology and digital tools, which is essential for overcoming the limitations posed by outdated systems and enhancing overall competitiveness (Garry Bruton et al., 2015).

Crowdfunding emerges as another innovative solution for MSMEs to alleviate financial constraints. By launching crowdfunding campaigns, MSMEs can raise funds for specific projects, such as infrastructure improvements or technological upgrades, without the limitations typically associated with traditional financing (Azhar Alam et al., 2022) (Rifaldi Majid & Rizky Aditya Nugraha, 2022). Crowdfunding not only provides financial resources but also serves as a platform for validating business ideas and generating public interest, which can attract potential investors or partners (Mohammed Hassen Yimam, 2022) (Rudolf Haiti & Lu Sudirman, 2022). This approach allows MSMEs to engage directly with their customer base and community, fostering a loyal following that supports their initiatives. Successful crowdfunding campaigns can also yield significant marketing and public relations benefits, enhancing market visibility and brand recognition (Mohammed Hassen Yimam, 2022) (Rudolf Haiti & Lu Sudirman, 2022).

(2) Electricity

Given the current electricity challenges in Myanmar, one of the possible solutions to handle electricity issues is adopting renewable energy sources like solar power. The installation of solar panels on the premises of MSMEs can significantly enhance their access to a stable and reliable energy source, particularly in regions like Myanmar where the national grid is inconsistent. By utilizing solar energy, MSMEs can reduce their dependency on erratic power supplies, which is crucial for maintaining operational continuity. Additionally, providing technical support and training on the maintenance and optimization of solar systems is essential to ensure that these businesses can effectively utilize the resources available to them. Such training can empower MSME owners to manage their solar installations efficiently, thereby maximizing the benefits derived from renewable energy sources (Linda Obiero et al., 2021).

Moreover, MSMEs should consider investing in backup power solutions, such as battery storage systems and backup generators. Battery storage systems can capture excess solar energy for use during cloudy periods, ensuring that businesses have a consistent power supply even when sunlight is not available. Generators can serve as a reliable backup during extended outages, providing an additional layer of security for business operations. Financial incentives or collaborations with technology providers could help reduce the costs associated with these solutions, making them more affordable for small businesses (Bilal Khalid et al.,

2021). The implementation of such backup systems not only addresses immediate electricity challenges but also contributes to long-term operational efficiency.

Promoting energy efficiency is another critical strategy for MSMEs to manage their electricity consumption effectively. Conducting energy audits can help identify opportunities for reducing energy consumption and improving operational efficiency. By implementing energy-saving practices, such as using LED lighting, energy-efficient appliances, and proper insulation, MSMEs can significantly lower their energy costs over time. These measures not only enhance the sustainability of their operations but also contribute to overall cost savings (Green Finance and Investment, 2022). Furthermore, training programs focused on energy efficiency can equip business owners with the knowledge necessary to enhance sustainability and cost-effectiveness in their operations.

Additionally, the integration of energy storage systems, such as batteries, is crucial in managing their energy supply during power outages and reducing reliance on backup generators. By utilizing battery storage, MSMEs can capture excess energy generated from renewable sources, such as solar panels, for use during periods of low sunlight or during outages. This capability not only enhances energy reliability but also contributes to cost savings by minimizing the need for expensive backup power solutions (Tim Braunschweig-Speight et al., 2020). Access to training programs and workshops focused on energy efficiency can further empower MSME owners with the knowledge necessary to enhance sustainability and cost-effectiveness in their operations. Such educational initiatives can cover various topics, including energy audits, efficient energy use practices, and the implementation of energy-saving technologies (YATMINIWATI M et al., 2022). By equipping business owners with these skills, MSMEs can significantly reduce their energy consumption and operational costs over time.

Community-based energy solutions, such as local solar cooperatives or microgrids, represent another effective strategy for MSMEs to collectively manage energy resources. These initiatives enable businesses to share resources, achieve greater reliability, and lower individual energy costs through cooperative efforts. Establishing shared energy systems can facilitate economies of scale, making renewable energy solutions more affordable and accessible for small businesses (Viktor Kaplun, 2023) (Johann Leithon et al., 2020). Supporting initiatives to create local energy cooperatives or partnerships with renewable energy providers can further enhance the sustainability of electricity solutions for MSMEs. By pooling resources and expertise, these cooperatives can improve energy reliability and foster a more resilient energy future for MSMEs.

The adoption of solar energy, investment in backup power solutions, and promotion of energy efficiency are essential strategies for addressing the electricity challenges faced by MSMEs in Myanmar.

(3) Human Resource

In response to challenges such as limited staffing and the need to elevate employee performance, two recommended approaches to environmental sustainability are external support from key stakeholders and the strengthening of internal green HRM practices. From a top-down perspective, government involvement is essential. The government has significant

authority to stabilize and influence markets, particularly by supporting both current and emerging niche markets for sustainable MSMEs.

Collaboration between the government, NGOs, and international organizations is critical to addressing human resource challenges while promoting sustainable practices. These entities can provide training programs on eco-friendly initiatives like waste management, energy efficiency, and key assessments such as Environmental Impact Assessments (EIA), Social Impact Assessments (SIA), and Corporate Social Responsibility (CSR). These skill development programs not only improve the capacity of employees but also help MSMEs evaluate the environmental, social, and economic impacts of their operations. Cross-sector collaboration ensures that human resource issues are consistently addressed, supporting long-term MSME growth.

Internally, MSMEs should focus on green HRM to align with sustainability goals. A key step is incorporating environmental considerations into the hiring process by prioritizing candidates with a green-oriented mindset. Workers who are aware of environmental issues and committed to sustainable practices can help drive the development of green businesses. Another important internal approach is performance evaluation that ties employee assessments to environmental performance standards. When employees' success is measured based on how well they meet green criteria, they are more likely to adopt sustainable behaviors. For example, implementing a plastic-free workplace can promote eco-friendly habits while contributing to the company's overall sustainability efforts.

Green training and development are also essential for the long-term viability of enterprises. While first-generation MSME owners may be hesitant to adopt green practices due to a lack of experience, educating contemporary workers on both local and global environmental issues is vital. This education fosters awareness and is crucial for behavioral change in an increasingly globalized and competitive market. By investing in human capital with an emphasis on environmental sustainability, MSMEs in Myanmar can strengthen their internal operations and enhance their overall sustainability. Through external support and robust internal green HRM practices, MSMEs can advance their mission of contributing to a green economy.

(4) Social Welfare

MSMEs are the foundation of a country's economy, creating employment opportunities as well as improving socio-economic developments. However, the influence of MSME has more impact on local communities than economic contribution. In order to strive for more sustainable development, it is necessary to address social welfare issues such as worker welfare and community well-being while maximizing positive impacts and minimizing negative impacts of MSMEs. To enhance worker rights and safety within Myanmar's MSMEs, the enforcement of labour laws is a foundational step in ensuring fair wages, reasonable working hours, and safe working conditions. Strengthening regulations can protect workers from exploitation and mitigate risks associated with unsafe work environments, as highlighted by the critical importance of risk management in MSMEs (Setyawan A et al., 2017). Furthermore, the Theory of Fair Wage Setting emphasizes the need for a comprehensive wage determination method that aligns with the realities of the labor market, thereby ensuring that workers receive

adequate compensation for their efforts (Global Journal of Humanities and Social Sciences Research (GJHSSR), 2021)

In addition to legal frameworks, mandatory health and safety training for employees is crucial. Such training should encompass workplace safety standards, including the provision of protective equipment and regular safety audits. Research indicates that effective training programs significantly improve workplace safety and employee preparedness for potential hazards (Kabiru Ishola Genty, 2019). Moreover, environmental safeguards are particularly relevant in sectors like construction and manufacturing, where adherence to stringent environmental regulations can reduce health risks and contribute to a safer workplace (Peter D. Howe, 2011, #). Implementing proper ventilation, effective waste management, and the use of non-toxic materials are essential practices that MSME owners must adapt to ensure worker safety and well-being (Peter D. Howe, 2011). Investing in climate-resilient infrastructure is vital for protecting workers from extreme weather conditions. Designing workspaces that can withstand heavy rains and heatwaves not only ensures safety but also enhances worker comfort (Antonis Skouloudis et al., 2023). Emergency preparedness is another critical aspect; MSMEs should develop and regularly update emergency response plans that include clear evacuation procedures and designated safe areas. Conducting regular drills familiarizes workers with these procedures, thereby enhancing their readiness in crises (Peter D. Howe, 2011). On-site first aid facilities and partnerships with local healthcare providers can further bolster emergency preparedness, ensuring swift access to medical assistance when needed (Antonis Skouloudis et al., 2023).

To promote overall well-being, MSMEs should implement health and wellness initiatives that encompass regular health check-ups, mental health support, and stress management workshops. Access to healthcare services and health insurance coverage is essential for addressing both physical and mental health needs (Reddy, Y. L. N, 2023). Ensuring safe work hours and fair wages is also crucial; MSMEs should avoid imposing excessive working hours and ensure that wages are fair, with adequate rest periods and voluntary, fairly compensated overtime. This approach not only enhances worker satisfaction but also reduces burnout, fostering a healthier and more productive workforce (Paulo Cezar Vitori Junior & Moacir Kripka, 2020).

To promote inclusive employment practices and foster community engagement, MSMEs have a significant opportunity to drive social sustainability and economic development. One of the primary strategies for achieving this is through the adoption of inclusive hiring practices that provide equal opportunities regardless of gender, race, age or socio-economic background.

Research indicates that diversity in the workplace enhances innovation and creativity by bringing together varied perspectives and experiences (Muhammad Chaeroel Ansar et al., 2023). By implementing incentives for businesses that prioritize inclusive hiring, MSMEs can cultivate a more equitable work environment where talent is recognized and valued irrespective of personal characteristics. This commitment to diversity not only fosters workplace harmony but also aligns with Sustainable Development Goal 5, which aims to close the gender gap within the business sector (Moh. Hamzah Fansuri Moh. Hamzah Fansuri, 2023)

(5) Community Engagement

Community engagement is equally important for fostering sustainable development. MSMEs should actively participate in local development projects, such as sponsoring community events, providing training opportunities for local youth, and engaging in philanthropic activities. These efforts strengthen community ties and build a sense of shared responsibility, demonstrating that businesses are committed to the well-being of their surroundings (Nurina Saffanah & Rahayu Alkam, 2022). Engaging with local communities not only enhances the social fabric but also creates a supportive environment for MSMEs to thrive (Ivon Arisanti et al., 2023). Additionally, promoting fair trade practices is crucial for ensuring that MSME operations support the local economy without displacing communities or causing social unrest. Fair trade certification helps guarantee that business practices are ethically sound and contribute positively to both local and global economies (Putri Diary et al., 2023). By integrating inclusive and community-focused practices, MSMEs can enhance their social responsibility while creating a more resilient and supportive environment for both their employees and the communities they serve. The commitment to social sustainability through community engagement and inclusive employment practices not only benefits the businesses themselves but also contributes to the overall economic development of Myanmar (Muhammad Chaeroel Ansar et al., 2023) (Ivon Arisanti et al., 2023). Ultimately, the proactive involvement of MSMEs in these areas can lead to a more sustainable and equitable society, fostering long-term growth and stability.

(6) Financial Literacy

Financial literacy is also vital for building resilience. Providing financial literacy programs to MSME owners and workers helps them manage finances effectively and access various funding opportunities, including microfinance, venture capital, and crowdfunding. Research indicates that financial literacy is a crucial determinant of MSME success, as it enables owners to make informed decisions regarding investments and resource allocation (Alain Daou et al., 2019). By equipping MSMEs with the knowledge and tools to manage their financial resources, these businesses can better withstand economic fluctuations and invest in sustainable growth. This focus on ethical practices and financial literacy ensures that MSMEs can thrive in the long term while upholding social and ethical standards (Joeliaty Joeliaty, 2024).

(7) Collaboration & Support

The role of government and international support is paramount in the sustainable development of Myanmar's MSMEs. Advocating for stronger government policies that support MSME development is essential, including the provision of tax incentives, grants, and access to affordable credit. These measures can alleviate financial pressures on MSMEs, allowing them to invest in sustainable practices and long-term growth. Empirical studies have shown that government support, particularly in the form of financial assistance and tax incentives, significantly enhances the competitive advantage of MSMEs, enabling them to grow more rapidly and sustainably (Warsiyah et al., 2024) (Ramadhona D et al., 2023) (Monica Dwi Putri Sitompul et al., 2023). Furthermore, targeted government policies can create an enabling environment that fosters innovation and entrepreneurship among MSMEs, which is crucial for

their resilience and performance (Dahlan, et al., 2023) (Monica Dwi Putri Sitompul et al., 2023).

International collaboration is equally important, as partnerships with global organizations can provide technical assistance, training, and funding to MSMEs, particularly in rural and underdeveloped areas. These collaborations can help bridge the gap between local businesses and global markets, ensuring that Myanmar's MSMEs are not left behind in the global economy. Research indicates that international support can enhance the capacity of MSMEs to engage in global supply chains and access new markets, which is vital for their growth and sustainability (Muh Yahya et al., 2023) (M. Rita et al., 2021). By strengthening both government and international support, MSMEs can access the resources they need to grow sustainably and contribute positively to the nation's economic development (Hani Werdi Apriyanti & Erni Yuvitasari, 2021).

As MSMEs grow and expand, it is crucial to mitigate any negative social impacts that may arise. One such concern is the potential for gentrification in urban areas, which can displace local residents and disrupt community cohesion. Developing policies to manage the growth of MSMEs in these areas is essential, including zoning laws that balance business expansion with the needs of local communities. These measures can help preserve community ties while allowing MSMEs to thrive (Thomas Aquino Berno Doduk et al., 2024). Additionally, in conflict-affected areas, MSMEs must be particularly mindful of their social impact. Implementing monitoring mechanisms to ensure that businesses do not contribute to human rights violations is critical. Supporting ethical business models that promote peace and stability can help MSMEs operate responsibly in these challenging environments (Yuni Nustini et al., 2023).

In conclusion, the sustainable development of Myanmar's MSMEs requires a multifaceted approach. By adopting sustainable practices and leveraging digital tools, MSMEs can enhance their operational efficiency, market access, and resilience. Additionally, promoting ethical business practices and financial literacy will further strengthen their capacity to contribute positively to the economy and society. This comprehensive approach will not only support the sustainable development of MSMEs but also align with broader global goals for environmental protection and social responsibility. Besides, the approach which addresses government support, international collaboration, and social responsibility play a crucial role for MSMEs developments. By adopting these recommendations, Myanmar's MSMEs can enhance their contributions to the economy and society while minimizing negative impacts. These strategies will not only foster long-term growth and resilience within the MSME sector but also ensure that these businesses become pillars of sustainable development.

(8) Circular Economy

To promote a green value-added economy in Myanmar, it is recommended that MSMEs shift from a linear economy to a circular economy (CE) model. This transition encourages the adoption of sustainable business practices that benefit not only the economy but also society and the environment in the long term. Current evidence from Myanmar's MSMEs shows that while elements of CE are being integrated into operations, there are still significant barriers to fully embracing this sustainable shift.

Given Myanmar's resource scarcity and the weak enforcement of legal frameworks, businesses must make informed decisions about their raw materials. Prioritizing recyclable, biodegradable, and ethically sourced materials from workplaces that respect human rights can both ensure the sustainability of their operations and enhance the ethical integrity of their supply chains. By doing so, businesses contribute to the larger goal of responsible resource use. At the production stage, MSMEs must consider consumer attitudes toward sustainability. Myanmar consumers are increasingly mindful of not just prices but also the durability, recyclability, and overall sustainability of products. Therefore, these factors into production can create a competitive edge. However, it is essential to avoid greenwashing, where businesses may falsely present their products as environmentally friendly. Ensuring that labeling, packaging, and marketing are truly reflective of sustainable practices will maintain trust and transparency with consumers.

At the consumer stage, raising green awareness is key. Businesses should utilize visual or graphic design that clearly communicates the environmental benefits of their products to all demographics, including children and older adults. Providing incentives for returning end-of-life products is also an effective strategy to encourage consumers to contribute to reducing pollution and promoting recycling efforts. A successful transition to CE requires businesses to embrace innovation through digitalization. This includes adopting technologies that transform waste into valuable resources, addressing both environmental and economic concerns. For instance, digital platforms can help optimize resource use by facilitating the exchange of information between producers and consumers, thus minimizing waste by ensuring supply aligns more closely with demand. Additionally, integrating customer-centric decision-making into business strategies will ensure that products meet consumer preferences and foster customer satisfaction in the circular model.

The transition towards circularity hinges on practices like reduce, reuse, and recycle and requires a shared responsibility between producers and consumers. This shift from individual actions to collective responsibility is crucial for driving the circular economy forward, offering significant benefits to both nature and society. By focusing on collaborative efforts, MSMEs in Myanmar can contribute to creating a resilient and sustainable economy that meets both ecological and societal needs.

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APPENDIX

I. Activities Photos

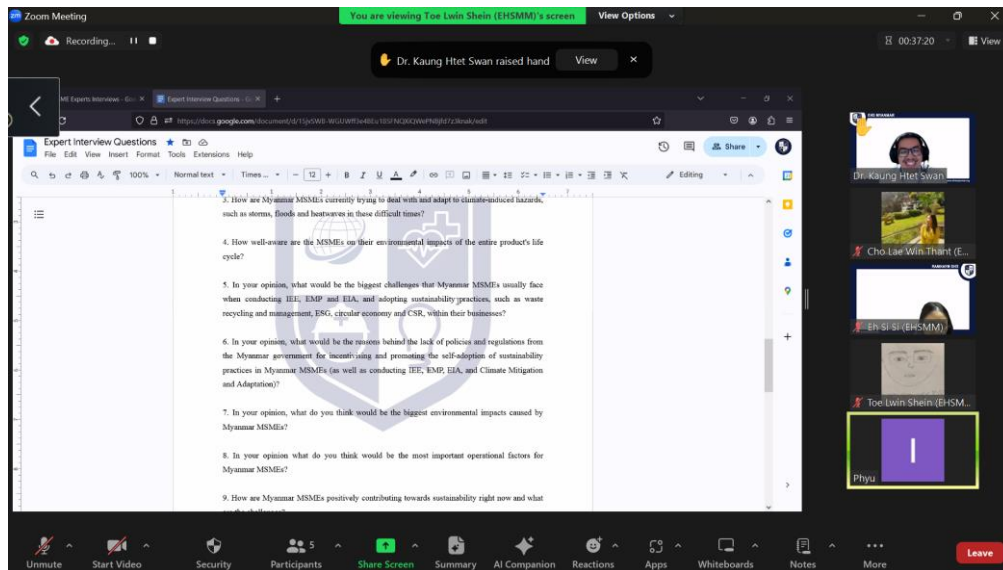
1. Interview with MSME Experts



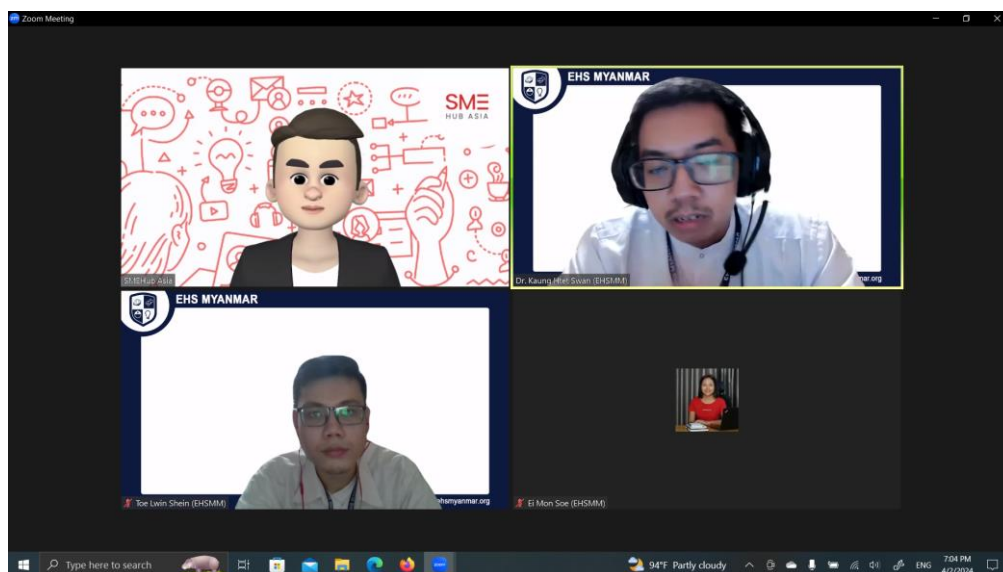
Interview with Daw Aye Chan Moe



Interview with MSME Association of Myanmar, Dr. Soe Hein and Daw Shwe Yi Win Myint

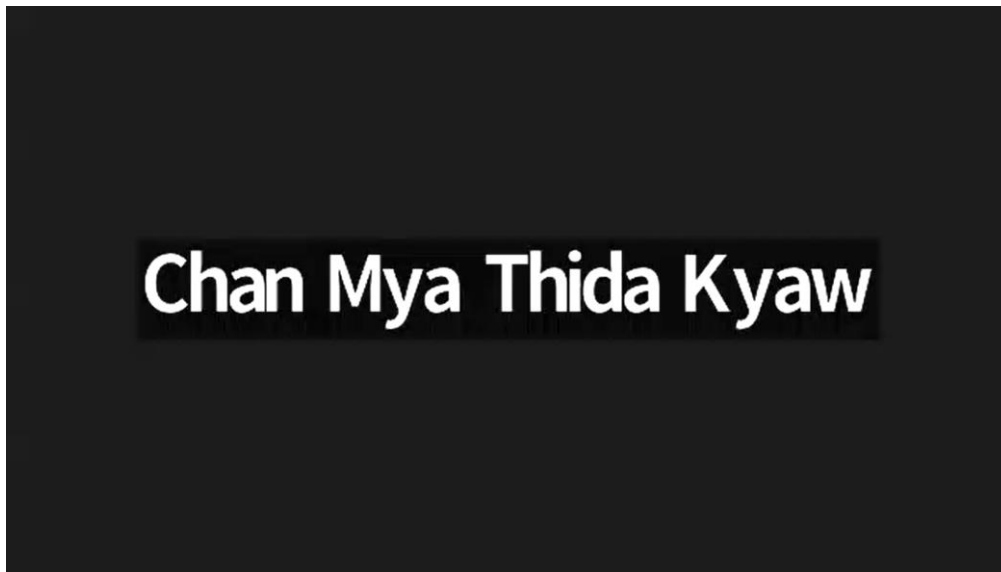


Interview with Sunflower Natural Dye Textiles and SheCreates Myanmar,
Daw Phyu Ei Thein



Interview with SME Hub Asia

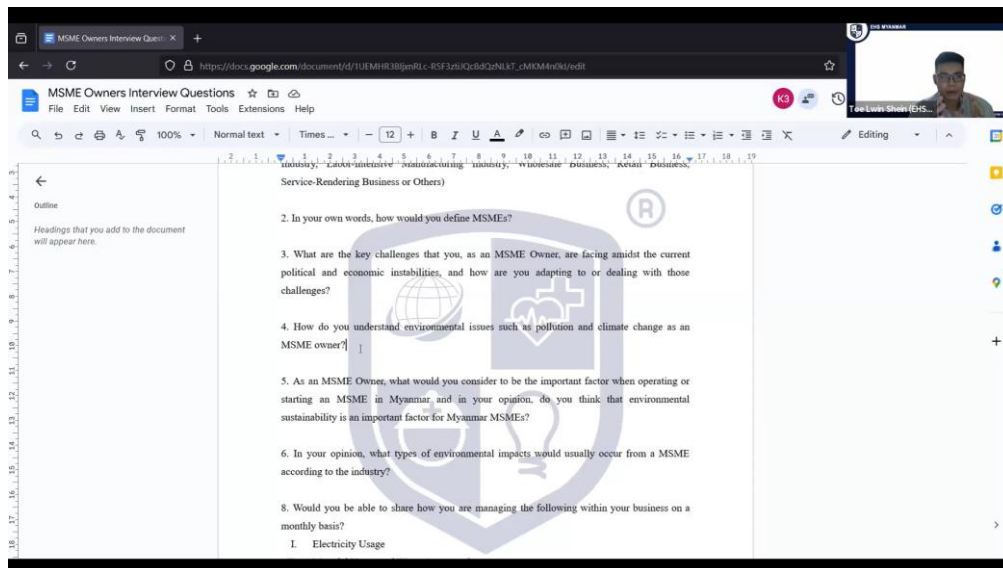
2. Interview with MSME Owners



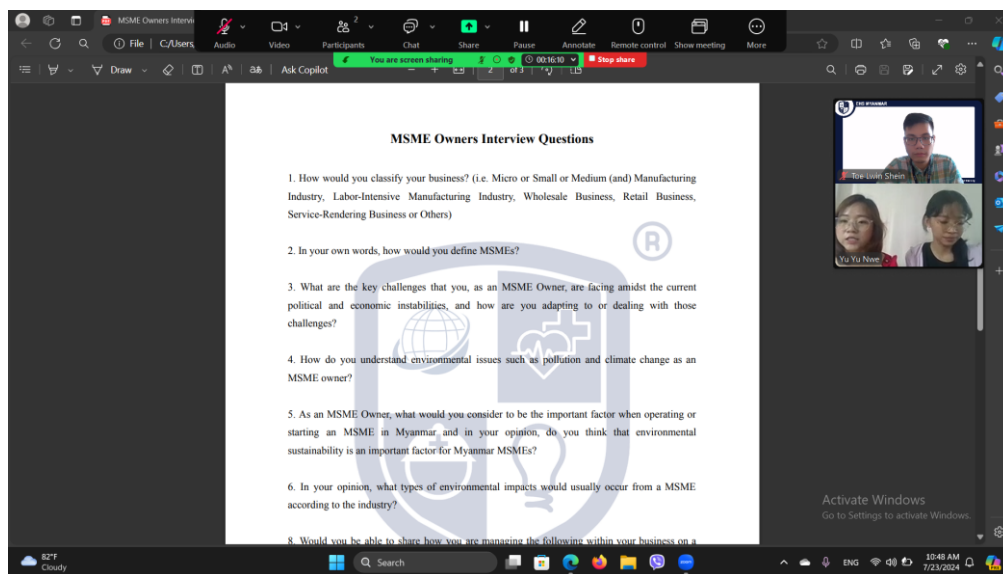
Interview with Awng Dang Awng, Daw Chan Mya Thida Kyaw



Interview with CreaNova, Daw Zu Zu Lwin Maung



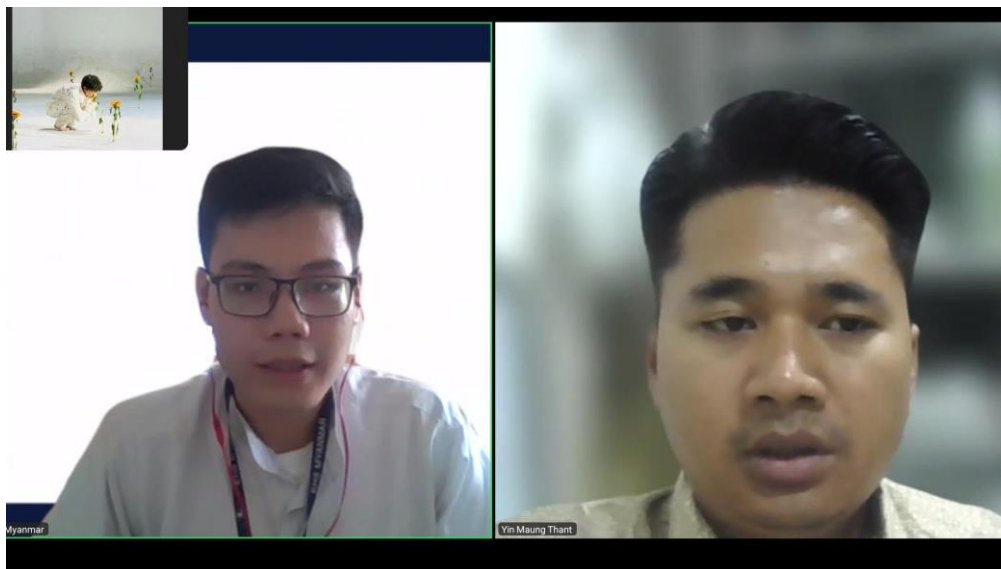
Interview with Handmade by Theint, Daw Theint Theint Myat



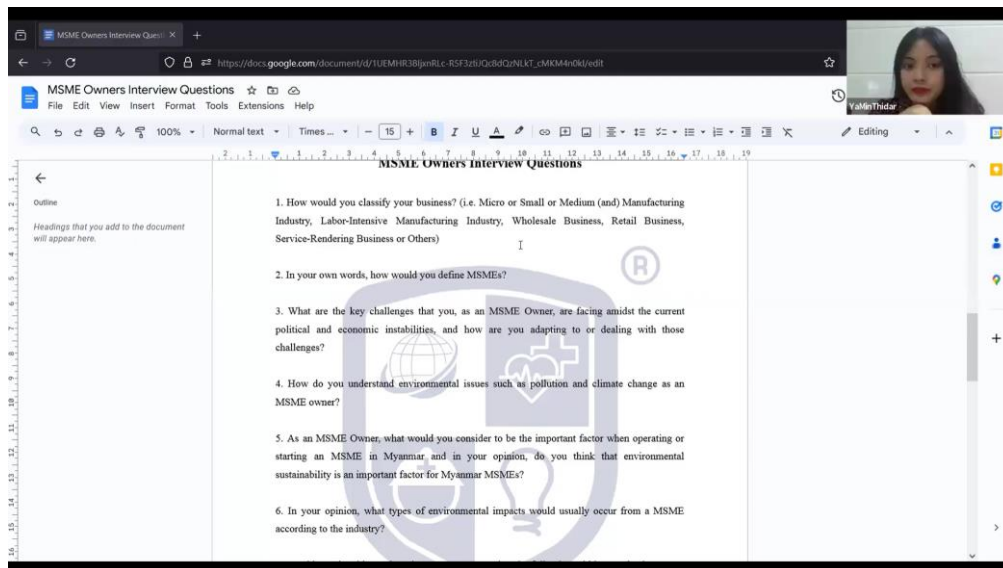
Interview with Hla Twar Mal Clothing



Interview with MAPLE-29, Daw Khon Ngon Chit



Interview with Mother Milk Production, U Yin Maung Thant



Interview with MyMart, Daw Ya Min Thidar



Interview with Sweetie Food Production, Dr. Tin Mar Lar Thein



Interview with Venus Skinlux, Daw Yee Yee Mon

II. Questionnaires for Experts

1. In your own words, how would you define MSMEs?
2. In your opinion, what are the biggest challenges that Myanmar MSMEs are facing right now amidst the current political and economic instabilities and how are they trying to deal with those challenges?
3. In your opinion, what do you think would be the most important factors to consider when operating (or) starting an MSME in Myanmar and does environmental sustainability play an important factor?
4. In your opinion, what do you think would be the biggest environmental impacts caused by Myanmar MSMEs?
5. How well-aware are the Myanmar MSME owners on the environmental impacts of their businesses?
6. What is the Myanmar MSME owners' perceptions on sustainability (i.e., do they think it is necessary or not)?
7. In your opinion, what would be the biggest challenges that Myanmar MSMEs usually face right now (or) did face in the past when adopting sustainability practices within their businesses?
8. What are the types of support that the government and NGOs are currently giving (or) did give to the Myanmar MSMEs when adopting sustainability practices?
9. In your opinion, what would be the reasons behind the lack of policies and regulations from the government for incentivizing and promoting the active self-adoption of sustainability practices in Myanmar MSMEs?
10. How are Myanmar MSMEs positively contributing towards sustainability right now?
11. In your opinion, what support will Myanmar MSMEs need when trying to implement sustainability practices in their businesses?
12. What is the current state of public demand for sustainability products and practices from Myanmar MSMEs?

III. Questionnaires for MSMEs Owners

1. How would you classify your business? (i.e., Micro or Small or Medium (and) Manufacturing Industry, Labor-Intensive Manufacturing Industry, Wholesale Business, Retail Business, Service-Rendering Business or Others)
2. In your own words, how would you define MSMEs?
3. What are the key challenges that you, as an MSME Owner, are facing amidst the current political and economic instabilities, and how are you adapting to or dealing with those challenges?
4. How do you understand environmental issues such as pollution and climate change as an MSME owner?
5. As an MSME Owner, what would you consider to be the important factor when operating or starting an MSME in Myanmar and in your opinion, do you think that environmental sustainability is an important factor for Myanmar MSMEs?
6. In your opinion, what types of environmental impacts would usually occur from a MSME according to the industry?
7. Would you be able to share how you are managing the following within your business on a monthly basis?
 - Electricity Usage
 - Material Usage and Water Consumption
 - Solid Waste and Wastewater Generated
 - Gas Emissions
 - Noise
 - Occupational Health and Safety
8. What support will you need if you were to implement (or) when you are trying to implement practices that manage and reduce the environmental impacts of your business operations?
9. How do current government policies and support programs influence your business approach to environmental sustainability and do you think that there are any policy changes or incentives that would encourage greater adoption of sustainable practices for MSMEs?
10. Would you be able to describe any experiences where your business operations were affected by climate-induced hazards like extreme heat, storms, floods, or droughts? How did these events impact your business operations such as your supply chain, the health of your employees, or your access to essential resources like raw materials, electricity, and water?

IV. Summary of the Interviews, Meetings and Discussions

Discussions with Sunflower Natural Dye Textiles and SheCreates Myanmar

During an interview with Daw Phyu Ei Thein, the President of SheCreates Myanmar, she highlighted the many challenges faced by Myanmar's MSMEs. These include shortages of raw materials, as well as political and economic instability. Because of these obstacles, MSMEs often struggle to focus on long-term climate risks or adopt sustainable practices, prioritizing short-term survival instead.

Daw Phyu Ei Thein also mentioned that inconsistent policy enforcement and the absence of a proper regulatory framework disrupt efforts to operate sustainably. Despite these challenges, she noted that some MSMEs are working towards sustainability by using locally sourced raw materials. This is partly driven by growing consumer interest in product life cycles, with more people choosing environmentally friendly products. As a result, MSMEs are becoming more transparent and highlighting their sustainable efforts in advertisements. To cope with political and economic instability, many MSMEs have adapted by shifting to online platforms and collaborating to share costs, such as rent and operations. However, Daw Phyu Ei Thein emphasized that inconsistent policies, weak regulations, and corruption still hinder their ability to operate sustainably. She pointed out that larger enterprises often cause more environmental harm, but the responsibility for sustainable practices tends to fall on MSMEs. In her view, systemic policy changes are needed, along with raising awareness of sustainability through education from an early age.

Discussions with SME Hub Asia

According to the Lead Program (SME Hub Asia), their initial efforts involved analyzing value chains. They identified four key challenges: political instability, trade routes, financial difficulties, and a saturated investment environment. Trade routes are often disrupted by conflicts, creating significant obstacles for MSMEs. In terms of finance, Myanmar's investment landscape is already weak, and the situation worsened after the military coup, with tighter investments and severe currency issues. Some SMEs grow temporarily but fail to sustain operations due to these challenges. Meanwhile, the government's SME agency is no longer functioning.

The founder of SME Hub Asia pointed out that MSMEs are trying various ways to adapt to the current crisis. However, it is currently impractical to provide guidance on environmental sustainability because survival is their primary concern. Many MSMEs operating in conflict areas also face bribery demands just to trade products. Additionally, micro-enterprises struggle with low demand for their goods. With around two million Myanmar citizens working abroad, businesses must also adapt to this migration. Finance is the single most important factor for running a business, and financial literacy is crucial for MSMEs. Unfortunately, most MSMEs operate without proper data, relying instead on guesswork. Infrastructure problems, like power shortages, also limit operations. Although some MSMEs use inverters, solar energy offers only long-term benefits, which makes it less practical for immediate needs.

Another major challenge is human resources. Businesses struggle to hire skilled workers because of financial constraints, and there is limited experience in adjusting to market

demands. However, the service industry in Myanmar stands out for its relatively good technology skills. Sustainable practices are not a priority for most MSMEs. There is a lack of awareness about environmental issues, and without government regulations or modern technology, tackling challenges like plastic waste is impossible. Myanmar's MSMEs are still in the early stages of adopting sustainability, and there are no grants or financial support aligned with the UN's SDGs. There are also no incentives to encourage sustainable practices.

Myanmar lacks climate insurance, and MSMEs remain vulnerable to floods and storms. Risk management is limited to branding efforts or shareholder interests, with no broader safety net in place. MSMEs also struggle with implementing environmental assessments (IEE, EMP, EIA) or sustainable practices, and only a few service-sector businesses have adopted them. Most enterprises believe it is unrealistic to pursue sustainability under the current circumstances. Training on sustainability is currently limited to NGOs, which can only set short-term goals and raise limited environmental awareness. According to SME Hub Asia, the government could help by mobilizing MSMEs to adopt sustainable practices, possibly with incentive programs like Denmark's Responsible Business Fund.

There are no regulations or standards to encourage MSMEs to take initiative on sustainability. Many MSMEs focus solely on their survival, with little concern for environmental goals. Consumer demand for sustainable products is still low, as most people prioritize affordability over sustainability. While some MSMEs aim to create sustainable products, their main focus is on offering unique selling points rather than maximizing profits. For now, the primary demand remains for reasonably priced, high-quality products.

2.9. Discussions with MSME Association of Myanmar

On the day of the interview, Dr. Soe Hein, an expert on Myanmar's MSMEs and a founding member of SMEBi University, explained the definitions of Micro, Small, and Medium Enterprises (MSMEs). According to him, micro enterprises include street food vendors and residents living hand-to-mouth. Small enterprises have between 1 to 10 employees, while medium enterprises employ between 10 and 50 workers. Dr. Soe Hein also highlighted the challenges faced by MSMEs, such as inflation and high taxes on imported goods, which force some small businesses to shut down. After the military coup, businesses faced even greater difficulties, but most MSMEs had no choice but to continue operating for survival. To cope with the crisis, business owners often move to safer areas without conflicts. In some cases, MSMEs also have to collaborate with the State Administration Council (SAC) to keep their businesses running.

A key adaptation strategy involves the use of social media for marketing—TikTok has become particularly popular because it is easier to attract consumer attention compared to other platforms like Facebook or Twitter. Dr. Soe Hein pointed out that MSMEs must follow market trends and only sell products that are already popular to avoid risks. She warned that ethical issues might arise from this approach, but the most important advice she gave is: "Don't try strange things unfamiliar to consumers." Staying updated on digital trends is critical for MSMEs' success. Access to finance is another major concern for MSMEs. When businesses cannot launch new products, they often invest in other assets such as U.S. dollars, gold, or real estate, especially since the value of the Myanmar kyat is unstable. Additionally, the loss of

skilled workers who leave the country for better opportunities abroad has further impacted MSMEs.

Dr. Soe Hein emphasized the need for waste management and carbon protection to ensure MSMEs operate sustainably. However, many businesses sell products without registering or rely on direct online sales, avoiding regulations. Larger companies exploit natural resources, such as cutting down trees, focusing only on profits without regard for the environment. While a few MSMEs collaborate with NGOs and receive international funding to promote sustainability, this depends heavily on grants and financial support. Without such funding, many MSMEs are unlikely to pursue sustainable practices. International funding is necessary to raise environmental awareness among MSMEs. However, Myanmar lacks the pressure or incentives to implement sustainability policies already written in policy books. According to him, consumers in Myanmar also prioritize affordability over sustainable development, focusing mainly on products that are cheap and of good quality. This consumer behavior further discourages businesses from adopting sustainable practices.

2.10. Discussions with MAPLE-29

Khon Ngon Chit, the owner of the MAPLE 29 brand, classifies her business as a micro-enterprise since it operates with only five employees. Her business focuses on manufacturing: they source raw cotton from Inle, design the products, handle branding, and then supply fashion store partners and wholesale customers. However, they do not sell directly to individuals. MSMEs, like hers, typically operate with fewer resources than large corporations, but they are vital to the economy by creating jobs and supporting economic growth. During the interview, Khon Ngon Chit explained that human resources are one of the most significant challenges. Despite high unemployment among young people, finding motivated workers is difficult. Inflation further complicates the situation, affecting both employers and employees. Customers are also facing financial difficulties, which reduces their purchasing power. To survive, the business has had to reduce profit margins, which results in either lower salaries or hiring less skilled workers.

As the owner, Khon Ngon Chit often steps into multiple roles, including marketing, to maintain operations. However, she acknowledges that this is not an ideal solution. Rising transportation costs have also affected their business, squeezing margins further. She noted that medium-sized businesses, with more established brands, attract customers more easily, adding competitive pressure on smaller enterprises. Khon Ngon Chit started her business out of a passion for design and a commitment to sustainable practices. The business focuses on producing durable, eco-friendly clothing, despite the higher costs involved. They also reduce waste by repurposing fabric scraps into hair ties, handkerchiefs, and purses. Additionally, the business supports vulnerable individuals, including single mothers and workers who cannot travel far, by offering part-time jobs. This effort contributes to both the circular economy and local community development.

While running a sustainable business is a priority, they still face challenges in minimizing environmental impacts. Below are the specific measures they've taken:

- Electricity Usage: No waste.
- Material Usage & Water Consumption: No waste.
- Solid Waste & Wastewater: Managed effectively.

- Gas Emissions: None.
- Noise Levels: Minimal.
- Occupational Health & Safety: Ensured for all employees.

Although they have not encountered extreme climate events like floods or droughts, their supply chain has been affected during the rainy season, with raw materials occasionally damaged, leading to customer complaints about product quality. Additionally, during the rainy season, customers rush to buy clothing, making it harder to balance supply and demand. To cope with economic challenges, the business focuses on reducing profit margins and multi-tasking to maintain stability. They also invest in the community by offering part-time jobs to vulnerable groups, contributing to the local economy and social responsibility.

Given the inflation and currency instability, some MSMEs also invest in alternative assets like foreign currency, gold, and real estate. However, they continue to face difficulties, particularly with the loss of skilled workers who leave Myanmar to seek better opportunities abroad. Khon Ngon Chit emphasized the need for government support and policies to encourage sustainable practices among MSMEs. Government incentives could encourage eco-friendly production and help businesses align with sustainability goals. While some MSMEs receive grants and international funding to pursue sustainability, these efforts are limited. Without external funding, many small businesses struggle to maintain sustainable practices.

She believes raising awareness about eco-friendly products among consumers is essential, as many still prioritize affordable and high-quality products over sustainability. Stronger government policies could create incentives for both businesses and consumers to prioritize sustainable development. Despite the numerous challenges, Khon Ngon Chit and other MSME owners remain committed to responsible growth. By adapting to economic pressures, prioritizing sustainability, and supporting their communities, they aim to survive and thrive. For a more sustainable and stable future, the government must step in with stronger policies and support programs. This collaborative effort between businesses, consumers, and the government is crucial to building a more sustainable economy in Myanmar.

2.11. Discussions with MyMart

During an interview, the proprietor of My Mart described the business as a medium-sized enterprise specializing in snacks, groceries, beauty items, bathroom accessories, and essential household products. She defined MSMEs as smaller businesses that play an important role in the economy, though they often face significant challenges—especially in Myanmar’s current political and economic climate.

Human Resource and Operational Challenges: My Mart, like many MSMEs, faces human resource shortages as many employees migrate abroad for better opportunities. Managing operations becomes difficult as consumer spending power remains limited due to inflation. To retain employees, My Mart has introduced accommodation plans and carefully manages rising operational costs caused by commodity price increases. However, salary negotiations and effective communication have become more complex in this environment.

Environmental Issues and Sustainability Measures: The proprietor highlighted pollution, flooding, and climate change as significant environmental concerns that affect

businesses like hers. For MSMEs, customer preferences, financial management, deposits, and strategic location are essential, but environmental sustainability is increasingly relevant.

Environmental Impacts of Business Operations: She emphasized that manufacturing activities can lead to more severe environmental issues, including wastewater production, chemical waste, excessive electricity consumption, and pollution. By contrast, service and trade industries have fewer negative environmental impacts. In her business, efficient energy management is a priority. My Mart utilizes solar power for cash registers, refrigerators, and lighting to reduce electricity consumption, particularly during summer when the demand for refrigeration spikes. They also ensure proper solid waste and wastewater management to maintain environmental conservation and occupational health and safety. Hot weather presents additional challenges, making these measures even more critical.

Need for Training and Clear Sustainability Guidelines: The proprietor stressed the importance of training to improve environmental awareness among her staff and ensure consistent sustainable practices. She noted that government support in the form of clear guidelines and policies is essential for MSMEs to implement effective environmental strategies. Currently, My Mart's sustainability efforts are not strongly influenced by government policies, partly due to a lack of awareness about relevant programs. However, the government has provided deposit-based financial support to My Mart, with a low-interest rate of just 1% annually. This support has eased financial concerns, enabling the business to operate without significant pressure from interest payments.

Impact of Climate and Supply Chain Disruptions: Although My Mart has not faced direct climate-induced hazards like extreme heat, floods, or droughts, supply chain disruptions due to import dependency are a recurring challenge. These disruptions complicate salary negotiations and further strain business operations as inflationary pressures from overseas trade drive up costs.

Changing Consumer Preferences and Market Insights: The proprietor observed that younger consumers are more inclined toward environmentally-friendly products, whereas older customers prioritize price and quality over environmental factors. One challenge My Mart encounters is the rapid inflation that causes price fluctuations. This makes it difficult to keep product labels updated, resulting in discrepancies between listed prices and actual costs, which affects price transparency. In addition, the proprietor noted a growing trend among educated consumers to avoid using plastic bags. However, some customers still prefer large plastic bags, even for small purchases, which presents an obstacle in promoting sustainable habits.

Growth Opportunities in Mandalay's MSME Sector: Despite these challenges, the proprietor expressed optimism about the growth of MSMEs in Mandalay. She attributed this progress to the rise of innovative ideas and increasing opportunities within the sector. Going forward, she hopes that with the right policies and awareness, businesses like hers can better align with sustainable practices while continuing to meet the needs of consumers.

2.13. Discussions with Awng Dang Awng Co. Ltd

During the interview with a representative from Awng Dang Awng Co. Ltd, she shared insights into how the company's operations have changed before and after the military coup. Initially, the company focused solely on construction, but after the coup, they faced significant

challenges that resulted in a downgrade. To adapt, they expanded their services to include training programs and activities related to environmental protection and climate change. However, the business is still considered micro-sized. She explained that MSMEs can range from home-based operations to small companies, licensed or unlicensed. Political instability brought challenges like financial difficulties, ethnic conflicts, transportation problems, fluctuating prices, and limited access to materials. For safety reasons, they had to shut down their main and sub-offices in Muse and Kutkai, Shan State, and relocate to Yangon. Despite these hardships, they managed to move forward by connecting with the local MSME network, the UN-NGO network, and other partners.

In terms of human resources, the company currently employs 10 board directors and a small number of employees, structuring their workforce based on each project's needs and profitability. They offer bonuses to their workers but often rely on third-party services for specific tasks, as recruiting permanent employees has been difficult. She highlighted their efforts to minimize the environmental impact of construction by addressing water, soil, and air pollution while balancing manpower and finances. The company focuses on sustainable practices by using alternative materials like energy-saving LED lights, conserving electricity and water, and turning off unused equipment. They also make use of second-hand materials and biodegradable products to reduce waste and lower costs, offering similar advice to clients. Additionally, they are involved in carbon credit projects and separate waste management for hazardous substances. Although eliminating gas emissions entirely isn't possible in construction, they use low-emission generators and air conditioners to minimize their impact.

To manage noise pollution in residential areas, they avoid using loud equipment after 8 p.m., even during overtime. For occupational health and safety, they provide first aid supplies, electrolytes, and adjust work schedules according to weather conditions, such as avoiding rooftop work or direct sunlight exposure during extreme heat. The representative emphasized that opportunities are crucial for the success of MSMEs, as access to growth opportunities helps businesses manage challenges like human resources and funding more effectively. With the right collaborations, companies can invest in sustainable practices that benefit both operations and the environment.

She also explained that the company needs both direct and indirect financial support to implement sustainable practices, especially for carbon credit projects, and is actively seeking investors and collaborations to help MSMEs grow. They have applied for grants to support their efforts, believing that with adequate financial backing and partnerships, they can achieve their sustainability goals and expand. In terms of government policies, she mentioned that they have never received support or training from government programs and prefer to refrain from the authorities during the current polycrisis. Instead, they prefer working with UN-NGOs and private sector partners, which they find more reliable and effective. Despite their limited interaction with the government, the company follows all necessary procedures and regulations to remain compliant and officially eligible.

Discussion with Mother Milk Production

In an interview with U Yin Maung Thant, one of the founders of Mother Milk Production, he described his business as a micro enterprise, although the government classifies it as a small business since it employs about 30 people. The business covers production,

retailing, wholesaling, and deliveries, ensuring customers receive healthy dairy products like milk, yogurt, and pudding. On average, the business manufactures 350 viss (around 572 kilograms or 1,260 pounds) of dairy products daily. Yin Maung Thant takes pride in maintaining high-quality standards along with proper packaging. He emphasized that micro, small, and medium enterprises (MSMEs) are essential to the country's economy, providing employment opportunities and contributing to economic growth and stability.

Operating in an unstable political and economic environment presents several challenges for Mother Milk Production. One of the biggest issues is the unreliable electricity supply, which risks spoiling dairy products if refrigeration is disrupted. To mitigate this, the company reduced the quantity of products delivered and now delivers more frequently. Solar panels were installed but can only last about four hours, so they are reserved for critical operations. Between 5 and 9 p.m., the business relies on a generator to maintain refrigeration. Human resource management is another challenge, particularly with some employees returning home due to conscription laws. Yin Maung Thant stressed the importance of staff training and internships to address these workforce challenges. He sees employees as valuable partners and has responded to rising commodity prices by providing lunch boxes for them.

Environmental concerns are also a priority for the business, although balancing sustainability with financial constraints is difficult. The firm currently uses wood for boiling, but reducing wood usage has been challenging due to a broken boiler and rising gas prices. The company aims to switch from plastic to glass packaging; however, the high cost of glass makes it difficult to implement, as the business cannot pass these costs on to customers. Yin Maung Thant highlighted the importance of building a strong market foundation, identifying target groups, and gathering relevant data when starting an MSME. He stressed that investment and human resource development are critical, with training being especially important for inexperienced staff. However, MSMEs often prioritize operations over employee development, which can impact quality. Maintaining consistent product quality is also difficult, as it depends on the quality of cow feed.

He acknowledged that the business generates environmental pollution, primarily through high electricity consumption for refrigeration to prevent spoilage. While unnecessary electricity usage is minimized, water consumption remains high due to the need for cleaning raw materials. The company makes efforts to reduce water waste and properly disposes of solid waste to prevent odors. Solar panels help reduce emissions by limiting generator usage, and noise pollution is kept minimal, as generators are turned off by 9 p.m. Occupational health and safety are prioritized, with illness reporting procedures in place and necessary medical support provided. Implementing environmentally sustainable practices requires additional support, especially for water management. The company needs better water flow and ditch infrastructure, as well as financial and technological assistance for water treatment solutions. Government policies and programs significantly influence the company's environmental approach. Yin Maung Thant mentioned that receiving a loan from the Mya Sein Yaung Project for cattle rearing highlighted the importance of experience and knowledge when starting new projects.

The business also faces climate-related challenges, such as extreme heat, storms, and floods. During hot summer months, employee fatigue becomes an issue, and milk tends to spoil faster, requiring early milking and immediate cooling. While the COVID-19 pandemic had

minimal impact on operations, the business prepares to temporarily pause activities during severe weather events, resuming shortly afterward. Despite these complex challenges, Mother Milk Production demonstrates resilience and adaptability. The business remains committed to maintaining product quality, supporting employees, and reducing environmental impacts as it navigates the difficulties posed by political instability, economic uncertainty, and climate change.

Discussion with Aye Chan Moe

For the past ten years, Daw Aye Chan Moe has consistently referred to herself as a “business owner,” though some argue that this term does not apply to individuals running small-scale businesses with few employees and limited reach. Aye Chan Moe believes the term is appropriate even for those starting new businesses. She discusses the challenges faced by Micro, Small, and Medium Enterprises (MSMEs), especially in waste management and recycling, areas in which she has experience. She highlights those challenges vary by business size. Small businesses often struggle with product shortages, electricity outages, and inflation, making it difficult to survive. When their products generate limited investment, they may face serious difficulties and sometimes be forced to close. While MSME owners struggle with economic instability, medium and large enterprises can adapt more easily. Medium businesses with investments of around 10 million kyats may use generators during power cuts, while large enterprises with investments nearing 100 million kyats may relocate to areas with stable electricity, like Nay Pyi Taw. Thus, financial resources and connections are essential for business survival, as strong networks can help sustain even low-income businesses.

A common issue across MSMEs involves product shortages, limited access to electricity, and market concentration in certain areas. In waste management and recycling centers, the lack of workers presents a significant challenge. For instance, recycling old Grand Royal bottles requires over a hundred workers to wash and prepare them for factory renewal. Aye Chan Moe emphasizes the importance of specialized knowledge in waste management and recycling. These businesses, she notes, do not require large investments or extensive labor; they can start with a small team by collecting and cleaning products from the streets. Specialized knowledge helps identify which products are suitable for recycling and determine profitable buying and selling prices. In 2018, China bought recycled products like water bottles from Myanmar, prompting many to collect bottles from the streets to sell. However, when China stopped purchasing, recycling businesses struggled. In Myanmar, municipal workers sort recyclables from garbage at waste sites, and some NGOs provide grants or technology, such as engines, to support these efforts. However, misuse of grants—like selling equipment while falsely reporting to organizations—has led some NGOs to withdraw their support.

Aye Chan Moe also reflects on the negative stigma around waste management. Many initially viewed her business as merely collecting trash, and only about 1% of her employees understand the broader impact of recycling. Public support for recycling workers is minimal, despite their contribution to environmental sustainability. She stresses the need for training and awareness to change workers' mindsets and foster appreciation for recycling efforts.

In Yangon, shops and restaurants generate large amounts of plastic and waste daily, and recycling centers play a crucial role in managing this. Aye Chan Moe shared a story where a

worker noted that some people believed their recycling center worsened the environment by producing water waste while washing bottles. However, the worker responded by asking who would manage the waste if they did not. The business strives to minimize water waste and demonstrate that its operations do not harm the environment. Aye Chan Moe emphasizes the importance of personal reflection, asking, “Can we avoid producing trash in our daily lives?” For businesses to grow, both employers and employees must understand the business's core functions. She also calls for eliminating academic discrimination, encouraging the participation of individuals with lower education levels in training programs and promoting their role in waste management. This inclusive approach would foster a better understanding and appreciation of the business's value to the country.

Infrastructure improvements and government support are crucial for ensuring the sustainability of these businesses. Stable electricity, enhanced waste collection systems, and financial incentives for recycling businesses would improve efficiency. Government policies should also focus on educating the public about the importance of waste management and recycling to increase community involvement. Collaborations with international organizations could introduce new technologies and best practices to help MSMEs innovate and improve their processes. Advanced recycling technologies, for example, could reduce manual labor and increase efficiency. Training programs and workshops led by experts would equip business owners and employees with the skills to adapt to new methods and technologies.

Aye Chan Moe emphasizes the importance of community engagement in promoting recycling and waste management. Organizing community clean-up events, educational campaigns in schools and neighborhoods, and incentivizing recycling efforts can foster a culture of environmental responsibility. Engaging local communities could also streamline the collection of recyclable materials, reducing the burden on recycling businesses.

The challenges faced by MSMEs in waste management and recycling are complex, requiring a holistic approach to overcome them. Financial resources, knowledge, infrastructure, government support, and community involvement are all critical components. By addressing these areas, MSMEs can not only overcome obstacles but also make significant contributions to environmental sustainability and economic growth.

Discussion with CreaNova

The interview with CreaNova offers valuable insights into the challenges and operational strategies of a medium-sized digital marketing, social media marketing, branding, and illustration firm based in Mandalay, Myanmar. Like many businesses in the region, CreaNova faces significant challenges due to the ongoing political and economic instability. Key operational concerns include unreliable electricity, dependence on solar power, inconsistent internet and VPN access, and fluctuating exchange rates. These factors directly affect their ability to operate efficiently, prompting the firm to adjust its target audience and social media strategies to maintain relevance. CreaNova places high importance on labor management, focusing on fair wages and providing skill development opportunities for employees. However, the firm notes that many MSMEs in Myanmar lack environmental awareness. They emphasize the need for increased education on pollution, climate change, and sustainable practices across the MSME sector.

In terms of their own operations, CreaNova adopts eco-friendly practices, such as using R32 refrigerant gas, which has a lower environmental impact. Despite this, they acknowledge that some MSMEs—particularly in sectors like traditional medicine—operate without proper licenses, creating potential consumer safety risks. CreaNova underlines the importance of initial investments, sustainable practices, and effective human resource management in establishing and maintaining an MSME in Myanmar's complex environment.

CreaNova integrates sustainability into its operations by regulating electricity usage with solar power and maintaining low noise levels, minimal gas emissions, and safe working conditions. Although their environmental impact is relatively low, the company actively seeks ways to reduce solid waste by reusing plastic bags and shifting from paper-based operations to digital platforms. They believe that promoting environmental awareness and sustainability through educational activities is essential to improve MSME practices in Myanmar. However, CreaNova operates largely independently of government support, noting that regulations and assistance programs have not influenced their environmental policies or business strategies. While they have not encountered significant disruptions from climate-related hazards, they face minor challenges with solar power during the rainy season, which affects energy reliability.

The interview highlights the importance of adaptability for MSMEs like CreaNova amid Myanmar's volatile political and economic landscape. The firm exemplifies resilience by adjusting its strategies in response to shifting market conditions and external disruptions, including the COVID-19 pandemic. They acknowledge that larger economic and political challenges have widespread environmental implications for MSMEs, which further complicate business operations. CreaNova advocates for greater community engagement and social media awareness to promote both sustainability and brand recognition. They call for support in fostering environmental consciousness within the MSME sector through targeted education and outreach efforts. By empowering small businesses with knowledge and resources, CreaNova believes the broader community can contribute to sustainable development and economic growth.

CreaNova's experience demonstrates the resilience and adaptability required for MSMEs to survive in Myanmar's complex environment. Their efforts to balance sustainability with business operations highlight the importance of innovation and education in overcoming challenges. The interview underscores that while government policies play a limited role in their approach, private initiatives and awareness campaigns are crucial to advancing sustainability and ensuring long-term business success.

Discussion with Venus Skinlux

The interview with Venus Skinlux provides insight into the challenges faced by a microbusiness in Myanmar that produces scrubs, shampoos, and soaps using natural ingredients. The company emphasizes eco-friendliness by using essential oils, herbal base oils, and other botanical items. Like many other micro, small, and medium-sized enterprises (MSMEs) in Myanmar, Venus Skinlux's identity is shaped by its small workforce and limited production. Political instability has caused serious logistical challenges, delaying the delivery of ingredients, which are mainly sourced from Thailand and China. To address this, the company stores ingredients in advance, but this increases storage costs. Electricity shortages, especially in the summer, further complicate operations, forcing them to rely on solar panels

and generators. While Venus Skinlux is committed to environmental awareness, the need to survive economic uncertainty limits the full adoption of sustainable practices. They recognize the importance of waste management, especially for plastic waste and product residues. Their small-scale, handmade production results in low machine usage and emissions. To manage operations, they combine household and business expenses for energy and water, ensuring low noise levels and following safety measures like using masks and gloves. Their focus on natural products appeals to environmentally conscious customers, reflecting their commitment to sustainability. However, the company feels that government support is insufficient, especially in providing environmental training or webinars. They see potential in government programs that promote MSMEs and women entrepreneurs, along with incentives like carbon credits and stricter environmental policies. Climate-related challenges, such as extreme heat, have also impacted their operations, causing power disruptions and heat-related health issues among staff, which reduced productivity. To address this, the company provided oral rehydration solutions (ORS) and fans to help employees cope with the heat. Despite the difficulties, Venus Skinlux demonstrates resilience and adaptability, emphasizing the need for improved logistics, sustainable practices, and stronger government support to create a better environment for MSMEs in Myanmar.

Discussion with Sweetie Food Production

The interview with Sweetie Food Production offers insights into the challenges and operations of a small-scale food business in Myanmar that produces drinks using natural ingredients. The owner humorously notes that her business, categorized as micro, might be more accurately described as "nano" due to its extremely small scale. Operating in the food production sector, the business also overlaps with the service industry by fulfilling customized orders. The owner prioritizes quality over quantity, avoiding wholesale distribution to maintain product integrity. She highlights concerns about quality control if sold through wholesalers, as they may mishandle the products. Strict protocols are in place to remove near-expiry products from shelves, safeguarding the brand's reputation and consumer health.

The owner describes MSMEs as small, handmade, or domestic businesses, emphasizing personalized craftsmanship and local production. However, the political and economic instability in Myanmar poses significant challenges, such as fluctuating raw material prices. For example, the price of sugar has risen dramatically from 2,500 Kyat to 4,900 Kyat per viss, making it difficult to manage costs. Raising product prices is not feasible, as it would limit their health drink to wealthier consumers. To cope, the business carefully manages its budget without compromising quality, as consistency in taste is critical to customer trust. Even slight changes in flavor due to temperature shifts can lead to customer dissatisfaction.

To reduce costs, the owner shifted from small orders to bulk purchasing for packaging materials. While aware of environmental concerns like pollution and climate change, the business must prioritize survival amid economic instability. However, the owner—who holds a PhD in an environmental field—implements eco-friendly practices where possible. These include switching from plastic to glass bottles and minimizing waste by repurposing production by-products. Lime residues are transformed into value-added products, and ginger and mint waste are used as bio-fertilizer. They also strive to reuse glass bottles and are exploring ways to send unusable ones to remanufacturing facilities.

Human resource management presents another challenge, with the business adapting by hiring part-time workers, mainly older members of the local community, for tasks such as bottle cleaning and fruit preparation. The owner emphasizes the importance of effective waste management, noting that certain organic waste, like fish by-products, cannot be disposed of in public bins due to environmental risks. This underscores the need for systematic waste treatment solutions tailored to MSMEs.

The business also tracks environmental impacts through collaboration with Thant Myanmar. Their carbon footprint from electricity use is 0.4 tons per month, and their total emissions, including gas usage, amount to 5.13 tons annually—considered moderate for their scale. The owner seeks practical solutions for recycling and reusing glass bottles and is eager for training on circular economy principles and waste management, particularly for handling odorous materials.

Climate change has also affected the business, particularly during the rainy season when heavy rainfall spoils raw materials like ginger during transport. Spoiled stock leads to financial losses, as the business must discard the damaged goods and purchase replacements, adding to operational challenges. Despite these obstacles, Sweetie Food Production continues to adapt, demonstrating resilience and a commitment to sustainable practices wherever feasible. The interview highlights the importance of improved logistics, targeted training, and stronger government support to help MSMEs like Sweetie Food Production thrive in Myanmar's challenging environment.

Handmade by Theint

In an interview with “Handmade by Theint”, a micro-business based in Yangon, the owner shared insights into the operations and challenges of managing a small-scale enterprise focused on sustainable production. The business is run by two primary creators with the help of three workers. Originally focused on making buttons from recycled coconut shells, the business later expanded to producing a variety of accessories to ensure long-term stability and profitability. The owner emphasized environmental sustainability, particularly through waste management, as an essential part of their mission.

The owner defines MSMEs as small, self-sustaining businesses, distinguishing between generational and self-started ventures. She highlighted capital as the most crucial factor for business success, alongside marketing, teamwork, continuous learning, and alignment with the business mission. Reflecting on her experience, she noted a surge in MSMEs following the COVID-19 pandemic, which has also led to increased consumer interest in locally made products. This shift towards domestic consumption signals a growing preference for Myanmar-made goods and greater support for small businesses. The interviewee stressed that as businesses grow, they must focus more on eco-sustainability to ensure long-term positive impacts.

The owner expressed concerns about overproduction and overconsumption, pointing out that businesses bear a greater responsibility for driving sustainable practices, rather than placing the burden on consumers. She also cited Coca-Cola's refillable packaging model as a practical example of sustainable initiatives that larger companies could adopt. In discussing the environmental impact of MSMEs, she highlighted challenges in food production and packaging, including the waste generated from single-use sample cups and the use of artificial

food coloring. She also noted that plastic packaging is increasingly favored over paper bags for convenience, despite environmental concerns.

Committed to minimizing waste, Handmade by Theint reuses materials whenever possible, such as crafting buttons from discarded coconut shells. The business incorporates several eco-friendly practices, including using low-wattage machines to reduce energy consumption, managing raw materials carefully to avoid over-purchasing, and recycling items like pine boards and dry branches. Solid waste management is another priority—coconut husks are processed to avoid being sent to landfills. The owner also ensures occupational safety by equipping workers with cotton gloves, double masks, face shields, and earplugs to protect against dust, noise, and environmental hazards.

The political and economic instability in Myanmar presents significant challenges to the business. Over the past three years, Handmade by Theint has experienced periods of growth but is currently facing stagnation due to labor shortages, limited capital for investment, and unreliable electricity, which affects operational capacity and hiring. Inflation has also made securing loans less attractive, further hindering expansion plans. Additionally, the decline in foreign tourism has affected the demand for handmade products, constraining the business's growth potential. The owner shared that, as a Muslim entrepreneur, she has not experienced significant discrimination in the MSME sector and noted positive developments in inclusivity, especially with the increasing involvement of younger individuals. Climate change has also impacted operations, causing delays due to extreme heat and power outages. Seasonal rains affect the appearance of coconut husks, diminishing their quality, while shortages of essential materials force the business to seek alternative suppliers.

Operating out of a small 8-foot-wide kitchen space, the business struggles to accommodate additional workers or materials. To address these limitations, the owner advocates for the creation of a networking platform to facilitate the redistribution of waste materials, allowing businesses to exchange and utilize resources more efficiently. While the owner is not fully aware of government policies related to environmental sustainability, she acknowledged the support provided by the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) and noted the growth of women-led MSMEs under the UMFCCI and the Rice Association of Myanmar. Despite its limited capacity, Handmade by Theint exemplifies a strong commitment to environmental sustainability, demonstrating how small businesses can contribute meaningfully to responsible practices. The insights from the interview highlight the need for improved networking, logistical support, and government initiatives to help MSMEs like Handmade by Theint navigate challenges and thrive in a complex economic and environmental landscape. A micro-business based in Yangon, named Handmade by Theint, is primarily regulated by two main creators and three workers. The main creation of the business is the mass-produce button, with the prioritization of environmental sustainability that visioning waste management at the MSME level. The business initially aimed at producing recycled buttons sourced from unused parts of coconut shells, however, the target is shifted to the production of a diverse range of accessories due to the notable difference in profit margin between buttons and other crafted accessories and the insurance of long-term stability of business in the market.

END OF THE PAPER