Insights into ESG Implementation and Readiness in the Malaysian Manufacturing Sector

Nurazua binti Mohd Yusop[1*], Nor Aidatul Shafiefa binti Abu Seman[2]

Faculty of Industrial & Manufacturing Technology & Engineering, Universiti Teknikal Malaysia Melaka, 76100, Durian Tunggal, Melaka

[*]Corresponding Author

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ABSTRACT

This study examines the use of Environmental, Social, and Governance (ESG) principles in Malaysia's manufacturing industry, given the absence of defined ESG frameworks and reporting processes. This research aims to assess awareness of ESG factors, implementation strategies, and organisational readiness, with a focus on small and medium-sized enterprises (SMEs). This assessment integrates qualitative methods with quantitative data from questionnaires completed by 75 employees across several industries. The results demonstrate a moderate yet fluctuating degree of awareness regarding ESG issues. Multinational corporations and government-affiliated entities possess superior knowledge and commitment, whereas SMEs face considerable obstacles in terms of capabilities, information, and financial resources. Nonetheless, some organisations have implemented environmental initiatives, social policies, and governance frameworks; however, these efforts are often undertaken without explicit ESG alignment or structured training programs. The study underscores the importance of specialised frameworks, such as Malaysia's National Industry ESG Framework 1.0. It offers context-specific empirical insights into the incorporation of ESG factors within an emerging market. It establishes critical benchmarks for prevailing ESG practices in Malaysia's manufacturing sector, pinpoints substantial capacity gaps, particularly among SMEs constrained by limited capabilities, information access, and financial resources, and delivers actionable recommendations for policymakers and industry stakeholders to bolster organisational readiness. Empirical evidence from 75 surveyed employees reveals moderate and inconsistent ESG awareness, with MNCs and government-linked firms leading while SMEs lag; thus, the study advocates cohesive, sector-specific interventions, including adoption of Malaysia's National Industry ESG Framework 1.0, to standardise reporting, amplify SME participation, and align sustainability with national and global climate imperatives.

Keywords: Environmental, Social, and Governance (ESG), Malaysia Manufacturing Industry, National Industry ESG Framework

INTRODUCTION

This study examines the critical realm of sustainability in the Malaysian manufacturing industry by investigating the implementation of Environmental, Social, and Governance (ESG) principles. The absence of standardized ESG frameworks and reporting standards means that most companies in Malaysia exhibit varying levels of readiness for ESG enhancements [1]. This lack of transparency makes it difficult for investors and policymakers to evaluate the impact of ESG factors on financial performance and market value, leading them to rely on broad industry results that may not accurately reflect the specific challenges and opportunities in the Malaysian context [2]. This is especially pertinent given the Asian automotive industry's significant role as a global production hub, where sustainability has become a strategic imperative driven by regulatory demands, public expectations, and the urgent need to address climate change and resource scarcity [3]. In particular, the 2022 Malaysian Business Sustainability Pulse Report provides context for Malaysia. Initiated by the United Nations Global Compact Network Malaysia and Brunei, in collaboration with Bursa Malaysia and partners, the assessment assessed companies' readiness for the sustainability transition and synthesized insights into corporate sustainability orientations. As shown in Figure 1, the majority of respondents are either contemplating or have begun disclosing ESG indicators, reflecting the disproportionate levels of readiness among domestic companies.

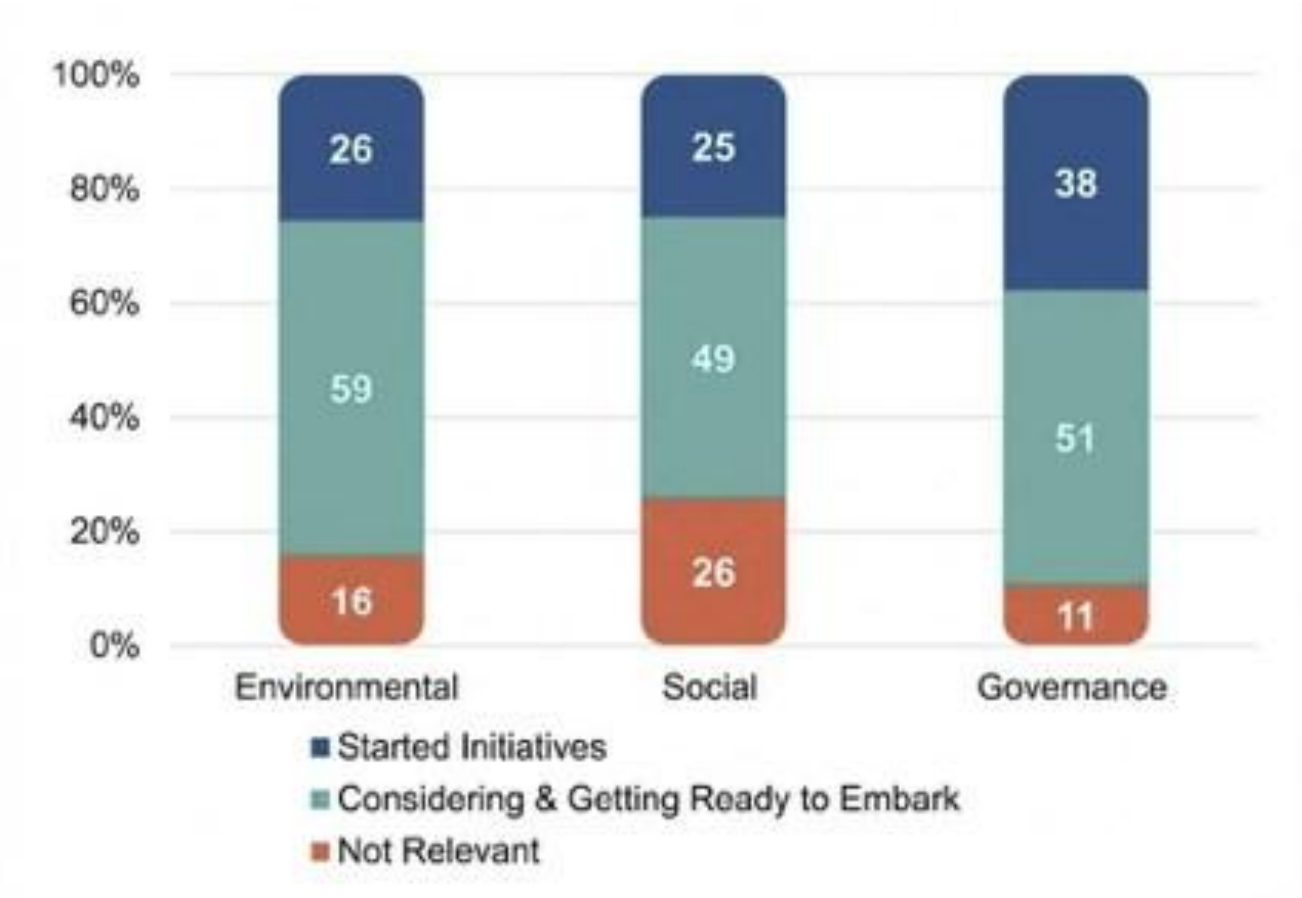

Figure 1. ESG initiatives in Malaysian companies. (Source: The Malaysian Sustainability Pulse Report, 2022)

This evolving landscape necessitates a deep dive into the unique challenges and opportunities of integrating ESG principles into the Malaysian automotive sector [3]. Therefore, to address the critical knowledge gap resulting from the absence of fully standardized ESG frameworks and comprehensive reporting guidelines specific to the Malaysian automotive industry, which hinder the accurate evaluation of ESG's financial impact and lead to reliance on broad industry data, this research aims to provide much-needed localized insights. Specifically, it seeks to assess the influence of ESG factors on enterprise value in the Malaysian sector and identify which ESG metrics most significantly affect the financial performance of automotive companies. This direct focus is crucial for overcoming the persistent challenges Malaysian manufacturing companies face in effectively integrating and assessing ESG metrics into their strategic planning and value assessment, thereby offering targeted guidance amid increasing regulatory, investor, and public pressures.

This study defines ESG readiness as a multidimensional organisational competency that includes awareness, governance structures, policies, and resource commitments that enable the integration of ESG considerations into strategic and operational decision-making. In accordance with institutional theory, ESG readiness is influenced by enforceable demands from regulators and global buyers, normative expectations from professional organisations and industry associations, and mimetic pressures resulting from comparisons with prominent multinational and government-affiliated corporations [4]. Simultaneously, stakeholder theory argues that enterprises augment their ESG preparedness to address the growing significance of essential stakeholder groups, such as investors, employees, communities, and supply-chain stakeholders, whose expectations are increasingly beyond just financial performance [5]. Ultimately, from a resource-based and dynamic capabilities viewpoint, ESG preparedness signifies the degree to which organisations can cultivate and deploy specific expertise, routines, and systems that convert external challenges into enduring competitive advantage and resilience [6][7]. This cohesive theoretical framework provides a robust foundation for the empirical analysis of ESG adoption trends in the Malaysian manufacturing industry.

Building on this foundation, the primary objective of this study is to systematically explore and document how ESG principles are implemented within Malaysia's manufacturing sector. Specifically, this research aims to identify sustainability initiatives adopted by leading domestic companies, analyse key enablers and barriers to ESG integration, compare ESG approaches across diverse organizational contexts, and provide targeted guidance to enhance ESG readiness among local SMEs. This research directly addresses Malaysia's lack of standardized ESG frameworks and reporting requirements. Given the absence of a prevailing ESG standard in Malaysia, corporate practices vary widely, leading to uneven ESG readiness and limited transparency across the industry. By filling this gap, the study will provide much-needed, localized empirical evidence on sustainability practices in an emerging market context. In turn, these findings will provide practical benchmarks for industry stakeholders (particularly SMEs). In particular, the results can highlight which ESG strategies are most effective and which capacity gaps require attention. Consequently, this will bolster national initiatives to enhance ESG performance across Malaysia's manufacturing industries.

LITERATURE REVIEW

Background of Sustainability in Malaysian Manufacturing

The 12th Malaysia Plan, which outlines Malaysia's ambition to achieve carbon neutrality by 2050, identifies advancing sustainability as a key element. This ambitious target necessitates a concerted effort across all industrial sectors, particularly manufacturing, to embed ESG considerations into core operational and strategic frameworks [8]. This national objective of achieving net-zero carbon emissions is further supported by initiatives such as the National Energy Transition Roadmap [9]. Additionally, Malaysia plans to reduce its economy-wide carbon intensity by 45% by 2030 compared to 2005 levels and to target 31% of renewable energy in its power generation mix by 2025 [10]. Despite these efforts, many Malaysian manufacturing companies still struggle to effectively integrate ESG metrics into their strategic planning and to assess their overall performance and value. This difficulty stems from the absence of standardized ESG frameworks and comprehensive reporting guidelines specific to the Malaysian automotive industry [1] [2], as well as challenges such as limited ESG information, knowledge gaps, weak integration with traditional accounting systems, and disparate levels of readiness among domestic companies [11]. Sustainability or ESG reporting is typically conducted using one or more frameworks. For example, The Global Reporting Initiative and the Sustainable Accounting Standards Board's standards are among the most widely used reporting frameworks [12]. While ESG reporting is traditionally accomplished through the publication of a sustainability report, an increasing number of companies are also disclosing their sustainability data through webpages that highlight their ESG performance [13].

To mitigate the difficulties posed by the lack of standardized ESG frameworks and reporting guidelines, and to provide a cohesive approach for companies to integrate ESG principles and report their performance effectively, Malaysia introduced the National Industry Environmental, Social and Governance Framework 1.0 (i-ESG Framework 1.0) [8]. This framework explicitly aims to equip the manufacturing sector, particularly micro, small, and medium-sized enterprises, with a structured approach to integrate ESG principles and to report performance effectively, thereby directly addressing the challenges posed by the absence of standardized frameworks and reporting standards [1]. This initiative also aligns significantly with the 12th Malaysia Plan's objective of achieving carbon neutrality by 2050 by embedding ESG considerations into core operational and strategic frameworks across industrial sectors, especially manufacturing. It serves as a key component of the New Industrial Master Plan 2030 [8]. This framework serves as a vital enabler for Malaysia's manufacturing industry to adapt and evolve to meet global ESG requirements, ensuring continued access to international supply chains and markets that are increasingly ESG-sensitive [8]. However, the practical implementation of these frameworks often encounters challenges, such as limited ESG information, knowledge gaps, and weak integration with traditional accounting systems, particularly among medium-sized enterprises [11]. The disparate levels of readiness among domestic companies also pose a challenge to harmonizing ESG reporting standards, even as regulators strive to adopt global frameworks while tailoring a unified national standard [1].

The Manufacturing Sector and ESG Challenges

The i-ESG framework aims to equip the manufacturing sector, particularly micro, small, and medium-sized enterprises (MSMEs), with a cohesive approach to integrating ESG principles and to reporting performance effectively, thereby addressing the challenges posed by the absence of standardized ESG frameworks and reporting standards. This i-ESG Framework 1.0 is structured into two distinct phases for its execution [8]. The initial phase, designated as Phase 1.0 'Just Transition' (2024-2026), focuses on foundational aspects such as awareness-raising, capacity building through training, and financial support, with a specific emphasis on aiding MSMEs in their ESG journey [8]. The subsequent phase, Phase 2.0 'Accelerate Transition', will build on these foundations by scaling up initiatives, fostering innovation, and integrating advanced ESG practices across the manufacturing ecosystem to ensure a robust, sustainable industrial future [13]. (Figure 2)

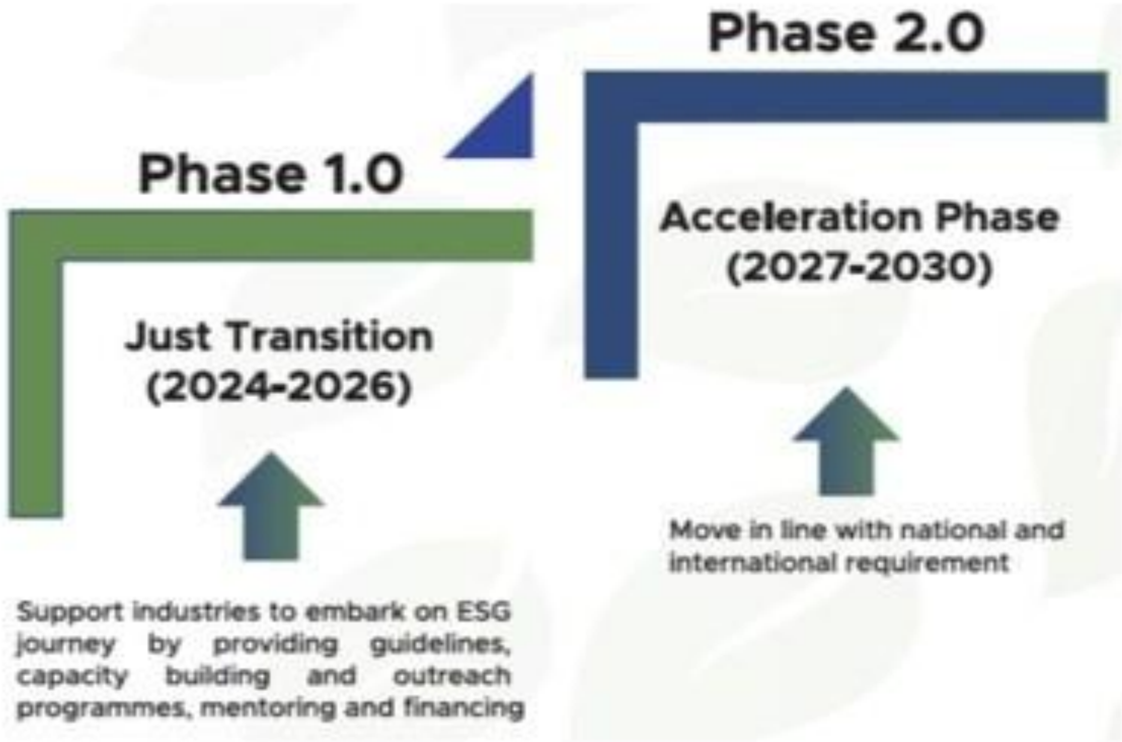

Figure 2. The phases of the i-ESG framework (MITI, 2023)

As shown in *Figure 2*, the first phase (2024-2026) lays the groundwork for a robust ecosystem to support businesses as they embark on their ESG journey. During this phase, the manufacturing sector, particularly MSMEs, receives comprehensive support to initiate their sustainability and ESG integration. This assistance is delivered through various mechanisms, including self-assessment tools, targeted outreach programs, capacitybuilding initiatives like training and mentorship, and accessible financing options. This will eventually ensure they are ready to meet the more stringent requirements of the second phase, which will start in 2027. However, this also indicates that the i-ESG framework is currently in a foundational, transitional phase, primarily offering initial support and capacity building for MSMEs through Phase 1.0 'Just Transition' rather than providing fully standardized, comprehensive ESG guidelines for their practices [8]. This absence of established, clear standards designed explicitly for MSMEs can complicate their full integration of ESG principles beyond preliminary steps, creating a gap intended to be addressed in the subsequent Phase 2.0 'Accelerate Transition' [13].

Analysis of ESG concerns in the automotive industry has gained traction, with numerous research businesses, academic institutions, consulting groups, and industry specialists publishing studies, reports, and academic papers examining the relationship between ESG principles and the automotive sector [2]. These studies cover a wide range of themes, including emissions reduction, sustainable manufacturing methods, labour rights, diversity and inclusion, supply chain management, ethical considerations in self-driving cars, and governance processes within automotive companies [12]. Consumer demand, coupled with increasing investor interest and stringent regulatory obligations, has placed significant pressure on automotive businesses to address and report on their ESG practices [3][14]. This pressure manifests in various forms, including the push for advances in sustainable vehicle manufacturing, pledges to minimize carbon emissions, improvements in labor practices, and enhanced transparency in governance systems [12]. Indeed, the automotive sector's environmental impact is particularly significant, with private vehicles accounting for over 25% of worldwide oil consumption and approximately 10% of global energy-related CO2 emissions in 2022. Furthermore, social and ethical concerns within the industry encompass critical issues such as labour abuses, ensuring supply chain transparency, and fostering diversity and inclusion. These aspects are increasingly under scrutiny due to rising consumer demand, investor interest, and stringent regulatory obligations, which exert significant pressure on automotive businesses to improve and report on their social practices and governance systems.

Key ESG Dimensions and Priorities

Based on a comprehensive literature review, the key ESG dimensions and their associated priorities relevant to the automotive manufacturing sector have been identified in Table 1 below;

Table 1: Key Elements in ESG Awareness

Key Focus	Priorities
Environmental	Energy consumption and efficiency
	Water consumption
	Waste management
	Materials used
	Products and services
Social	Workplace health and safety
	Training and education
	Diversity and equal opportunities
	Labour practices
	Affected communities and stakeholders
Governance	Board of directors
	Organization chart
	Risk management
	Stakeholder relations
	Anti-corruption

The defined priorities, established through an extensive literature analysis of ESG practices in the automotive sector, provided a basic framework for both the quantitative and qualitative data gathering stages to guide the formulation of questionnaire items to obtain comprehensive insights into prevailing practices and perceptions within the Malaysian automotive sector, where empirical evidence about ESG adoption has been scarce. These priorities subsequently informed the semi-structured interviews, facilitating a comprehensive examination of the 'how' and 'why' of their implementation, the problems they faced, and the successes they achieved. This methodical mixed-methods approach ensures a thorough examination of essential ESG elements while addressing significant research gaps in empirical data, implementation techniques, and context-specific directives for Malaysian MSMEs.

METHODOLOGY

This growing pressure necessitates a comprehensive methodological approach to analyze how ESG factors influence corporate value and operational strategies in the Malaysian industries.

Research Design

The study adopts a cross-sectional survey design to establish an empirical baseline for ESG implementation and readiness across diverse manufacturing firms in Malaysia, an area for which systematic data are limited. This cross-sectional design successfully sets and establishes an empirical baseline in data-scarce contexts such as Malaysian manufacturing, while efficiently capturing contemporaneous variations in ESG practices and perceptions across firms, instead of depending on resource-intensive longitudinal studies for causal inference. A purposive non-probability sampling approach was adopted, focusing on participants with firsthand expertise in sustainability, compliance, or operational practices and procedures within manufacturing enterprises. These respondents were identified and recruited through professional networks, industry associations, and direct organisational connections. This sampling strategy considers the sparse and varied distribution of ESG-specific positions inside organisations. It aligns with prior research on sustainability in emerging markets, which favours knowledgeable respondents over random sampling.

Data Collection

Preceded by a thorough literature review, data collection for this study was conducted by using a survey questionnaire. Initially, a comprehensive literature review matrix had been developed to identify key themes, variables, and potential areas of inquiry relevant to ESG practices in the automotive sector. This matrix served as a foundational tool for the subsequent development of a structured questionnaire.

Questionnaire Distribution

Following the development of the literature review matrix, a questionnaire was formulated and disseminated to a diverse cohort of respondents, comprising employed Malaysians across multiple industries. This phase aimed to gather quantitative data on existing ESG practices, perceptions of enablers and challenges, and general organizational approaches to sustainability, guided by the ESG priorities identified in the literature review matrix.

The questionnaire was designed to capture a wide breadth of information, providing a foundational understanding of the landscape of ESG adoption. The questionnaire for this project comprises targeted questions about public figures and employees across different sectors on ESG, relating to the key elements discussed in Table 1, and is administered via the Google Forms platform. The primary goal of this survey is to gather information on the characteristics of at least 55 respondents regarding their awareness of their company's sustainability and ESG initiatives. This survey aims to support the problem statement and the literature review of this project. The designed questionnaire was also reviewed and commented on by four lecturers experienced in research conduct to identify potential improvements and ensure its reliability before distribution to the public.

FINDINGS

This section presents the key findings from the distribution of the questionnaire, offering an overview of the current landscape of ESG awareness, practices, and challenges across various industries in Malaysia, particularly as perceived by the employed population.

Respondent Profile

The questionnaire yielded responses from 75 participants across diverse Malaysian industries, exceeding the target sample size of 55. It elicited cross-sectoral insights into ESG implementation, awareness, and practices among organizations in Malaysia, with a specific focus on the sectors highlighted in the National Industrial Master Plan (NIMP) 2030. This achieved sample of 75 respondents provides sufficient heterogeneity in firm size, ownership type, and subsector for significant comparative analysis, while acknowledging that the findings should be interpreted as indicative rather than statistically representative of the entire sector.

The respondent distribution showed a diverse cross-section of Malaysian industries (*Table 2*), with the Manufacturing-Related Services sector having the highest representation (18 respondents), followed by the Electrical & Electronics sector (11 respondents). Notably, a significant portion categorized their sector as 'Other', indicating that a considerable segment of the sample operates outside the primary focus of the NIMP 2030 framework.

Table 2: Survey respondents by industry sector

Sector	Number of Respondents
Automotive	1
Chemical	1
Digital & ICT	7
Electrical & Electronics	11
Food Processing	1
Halal Industry	2
Manufacturing-Related Services	18
Metal	1
Shipbuilding & Repair	1
Textile, Apparel & Footwear	2
Education	2
Other	28

ESG Awareness and Knowledge Levels

The survey reveals moderate but incomplete ESG awareness among Malaysian workers. While 60% of respondents had heard of ESG terminology, only 9% claimed to understand it well. Conversely, 31% were entirely unfamiliar with ESG concepts. (Figure 3). Cross-tabulation analysis reveals a notable disparity in organizational readiness: respondents affiliated with Multinational Corporations (MNCs) and Government-Linked Companies (GLCs) exhibit higher ESG awareness, while the cohort lacking knowledge comprises almost exclusively employees from local Small and Medium Enterprises SMEs. On the other hand, these findings indicate a markedly higher level of ESG awareness among Malaysian workers than the Alliance Bank Malaysia 2023 survey of businesses, which found that only 14% of businesses were familiar with ESG terminology, whereas 86% had not encountered it [15]. This sharp contrast of 60% having heard and understand basic knowledge of ESG versus just 14% familiarity in the prior survey highlights rapid progress likely driven by recent governmental initiatives like NIMP 2030. The improvement observed in the current study may be reflected by the impact of governmental educational initiatives promoting ESG awareness through NIMP 2030.

Nevertheless, 49% of respondents, predominantly SME workers, reported a lack of training or involvement in sustainability-related decision-making. However, the remaining 51%, largely from MNCs and GLCs, reported participation in ESG training and activities, which highlight scalable models from larger firms that SMEs can emulate. *(Figure 4)*. Nevertheless, many such SMEs may lack the financial resources required for such initiatives, as ESG implementation often entails substantial initial investments in training programs [16]. Consequently, numerous companies may offer only superficial endorsement of ESG principles to signal compliance, while the majority prove unable to translate these into substantive practices.

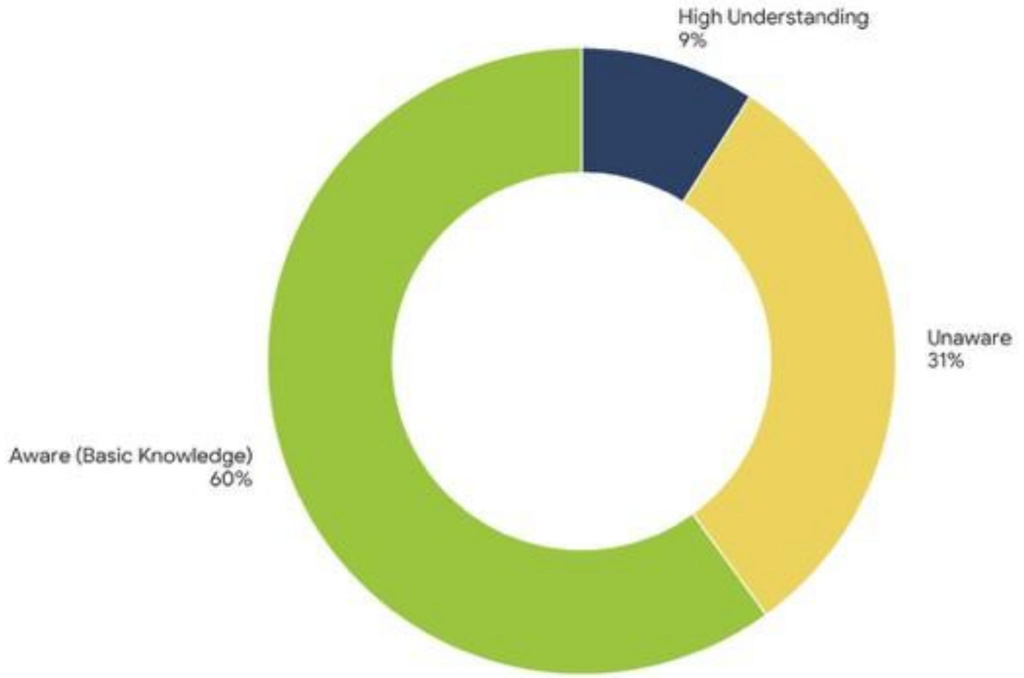

Figure 3. Respondent level of ESG Awareness

Figure 4. Employee Participation in ESG training and activities

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Many local SMEs may lack the financial means, as implementing ESG standards frequently requires initial investments in training. This may result in numerous companies offering only superficial endorsements of ESG principles to signal compliance, while the vast majority prove unable to translate these into substantive practices [17][18].

Environmental Pillar: Practices and Priorities

Despite respondents' limited formal knowledge of ESG, respondents indicated that their organizations had implicitly implemented environmental sustainability measures. The most prevalent environmental practices included energy-saving initiatives, waste-recycling programs, and environmental management systems. *(Figure 5).* These initiatives illustrate that organizations can pursue environmentally sustainable measures without explicitly conceptualizing them under the ESG framework.

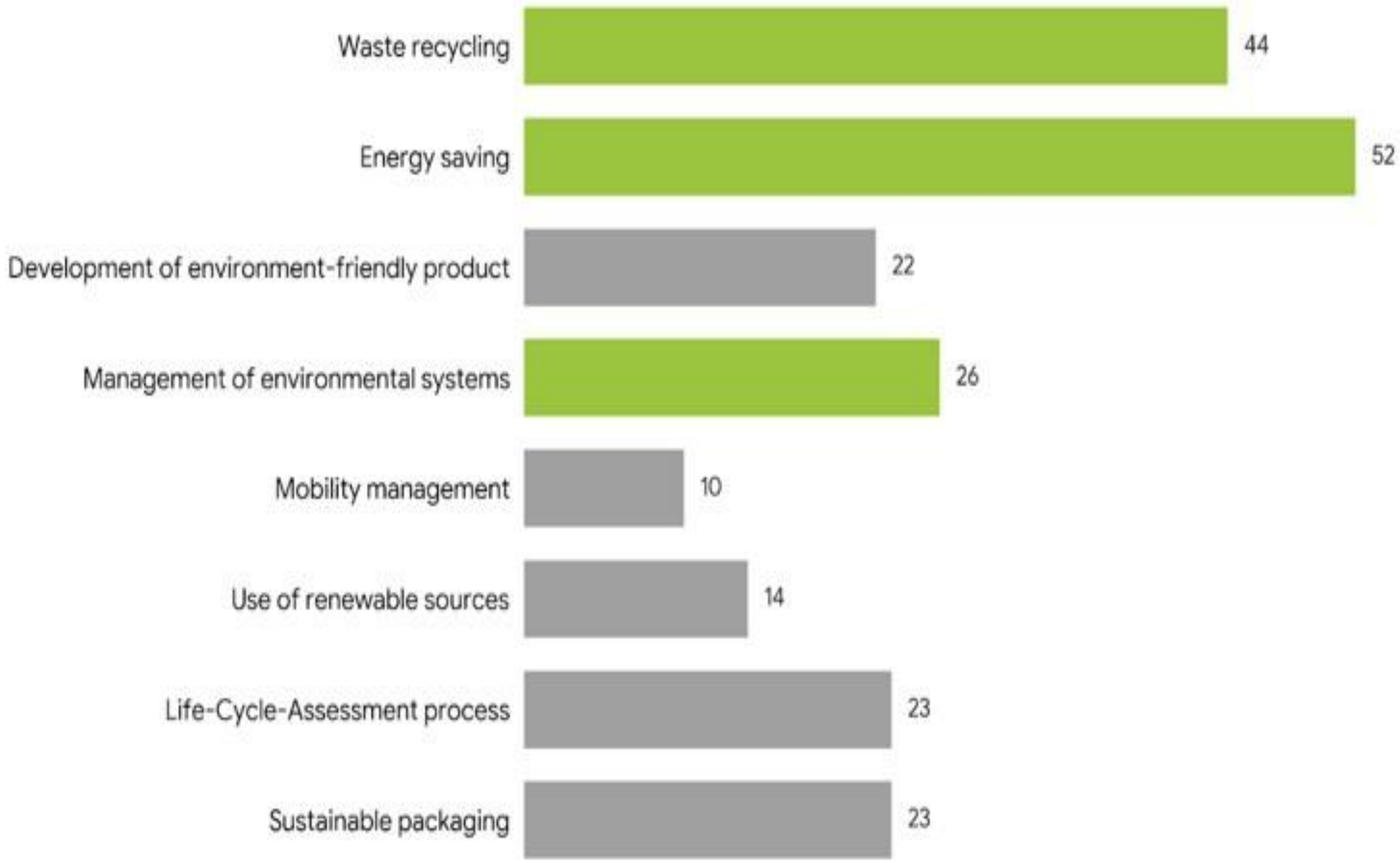

Figure 5. Adoption of Environmental Measures by Companies

Further analysis of organizational environmental policies revealed prioritization patterns aligned with key environmental concerns. Energy consumption and greenhouse gas (GHG) emissions were the primary policy focus, with 42% of respondents reporting organizational policies in this domain. Natural resources management and waste reduction ranked second at 23%, followed by responsible chemical management at 15%, air quality at 9%, and water quality and consumption at 7% *(Figure 6).* This prioritization pattern aligns with governmental policies that emphasize energy efficiency and renewable energy adoption to curb carbon emissions and achieve sustained cost reductions [19].

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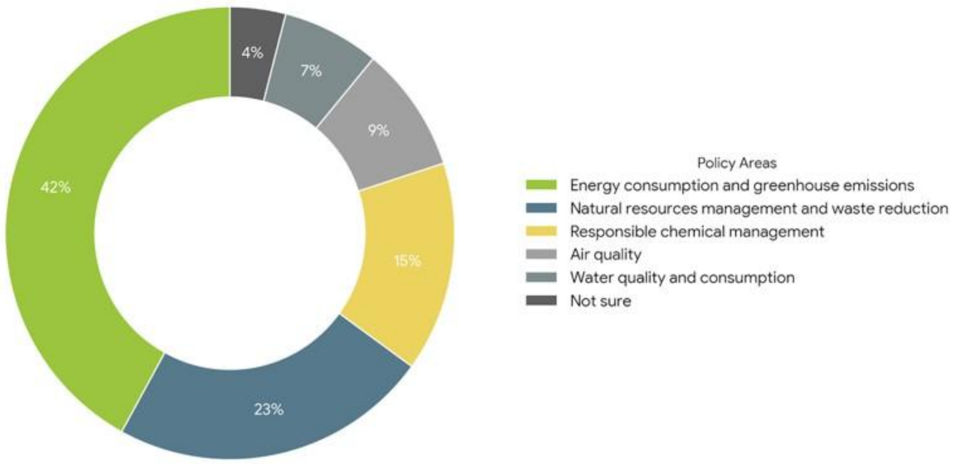

Figure 6. Areas Covered by the Company's Environmental Policy

Furthermore, the respondents offered varied viewpoints on strategies to mitigate Malaysia's mounting waste production. Specifically, 35% endorsed prioritizing community engagement in managing waste at its point of origin, compared with 34% who favored expanding waste-recycling infrastructure. Other recommendations encompassed levying fees on personal waste output, advancing waste minimization efforts, and cultivating cross-sectoral partnerships among enterprises *(Figure 7)*. This reflects growing awareness of Malaysia's escalating waste challenges and broad endorsement of sustainable practices alongside complementary legislative and infrastructural frameworks, aligning with implicit environmental priorities observed in organizational policies [20].

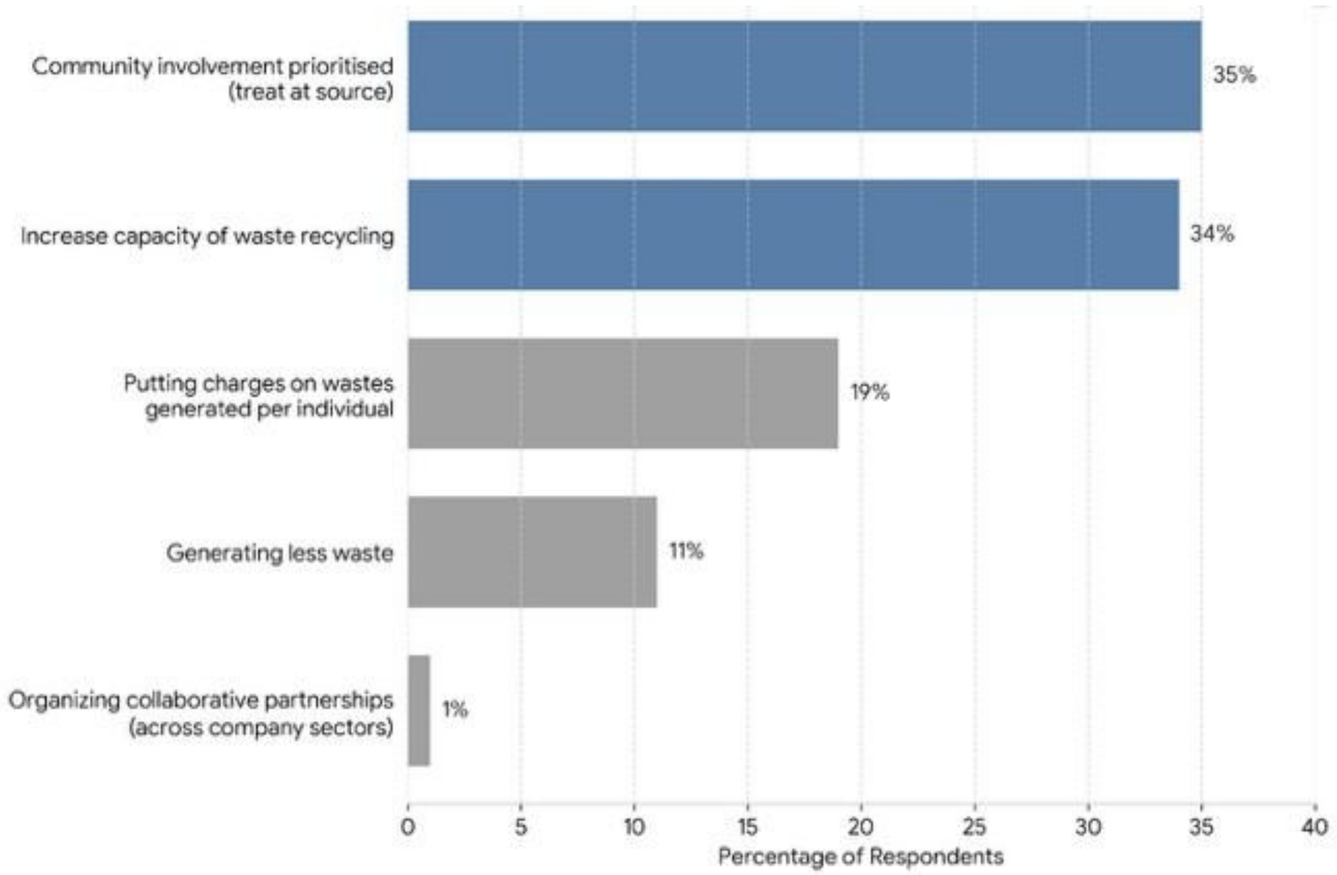

Figure 7. Suggestions on How to Tackle Waste Generation in Malaysia

Despite the critical need for sustainable waste management in Malaysia, the country currently has a suboptimal recycling rate, underscoring the urgent need to upgrade infrastructure to accommodate the escalating volume of solid waste. Regarding stakeholder accountability, public opinion strongly supports a collective approach. While

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a minority of respondents attribute responsibility solely to municipal bodies or individuals and households, 75% believe that effective waste management requires a collaborative effort involving all stakeholders, including government agencies, private entities, and the general public. *(Figure 8).* This holistic perspective aligns with assertions by the United Nations Development Programme (UNDP) Malaysia, which emphasize the criticality of community engagement in successful waste management, particularly through initiatives that involve communities in waste sorting and recycling at source [21].

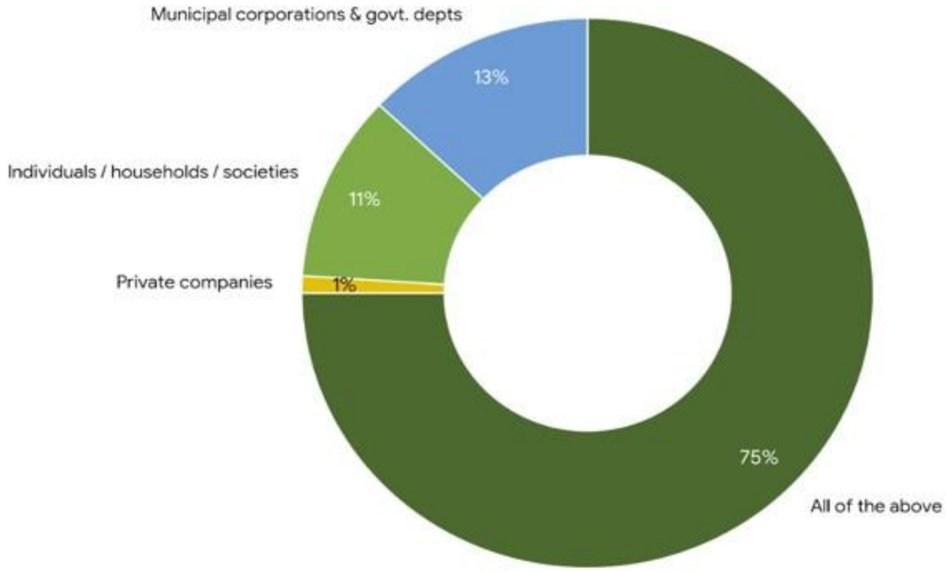

Figure 8. Respondent's View on Solid Waste Management Responsibility

Social Pillar: Policy Adoption and Workforce Concern

Social sustainability concerns focused on policy adoption and operational workforce challenges. The survey findings in Figure 9 revealed that an impressive 83% of respondents affirmed their organizations possess formal written documents on working polices and labor rights, ensuring compliance with Malaysian legislation, industry standards, and international benchmarks. In contrast, approximately 17% indicated the absence of such policies. This deficiency is frequently observed among resource-constrained SMEs, which often struggle with ESG implementation costs [16][17].

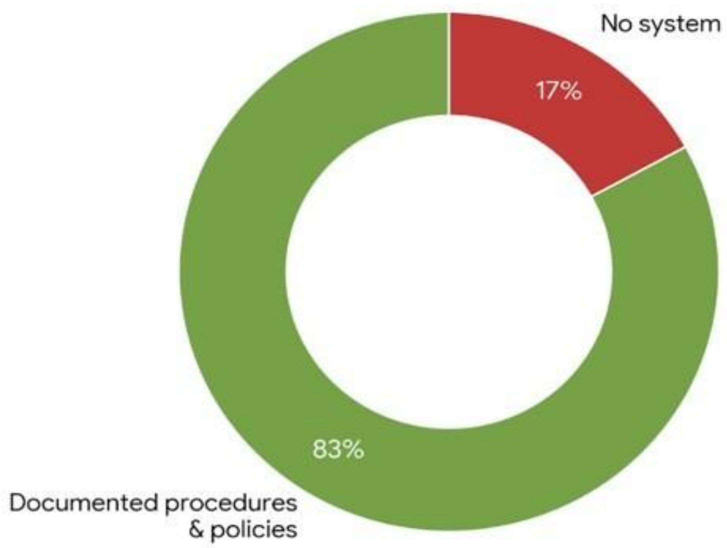

Figure 9. Documented Policies on Working Procedures and Labor Rights

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Among those organizations with an established social policy, health and safety elements are the most widely adopted with 46%, followed by wages and benefits (45%) and working hours-related issues (42%). Additionally, a substantial proportion of firms adopt harassment prevention and non-discrimination policies, their implementation remains less comprehensive. (Figure 10).

The prevalence of these specific policy areas reflects growing corporate recognition of the interconnectedness between labor standards and organizational sustainability. The emphasis on health and safety, wages and benefits, and working hours aligns directly with international labor standards and the social pillar of ESG frameworks [22]. However, the comparatively lower adoption of harassment prevention and nondiscrimination policies suggests potential gaps in protecting workers from less visible but equally important workplace vulnerabilities [23].

In particular, policies on forced or compulsory labor, child labor, and freedom of association demonstrate limited adoption rates. This trend suggests that the majority of surveyed organizations regard these risks as low-priority or extraneous to their core operations. Such a pattern could signify robust inherent compliance within Malaysia's regulated sectors or an undetected vulnerability in supply chain risk evaluations [24].

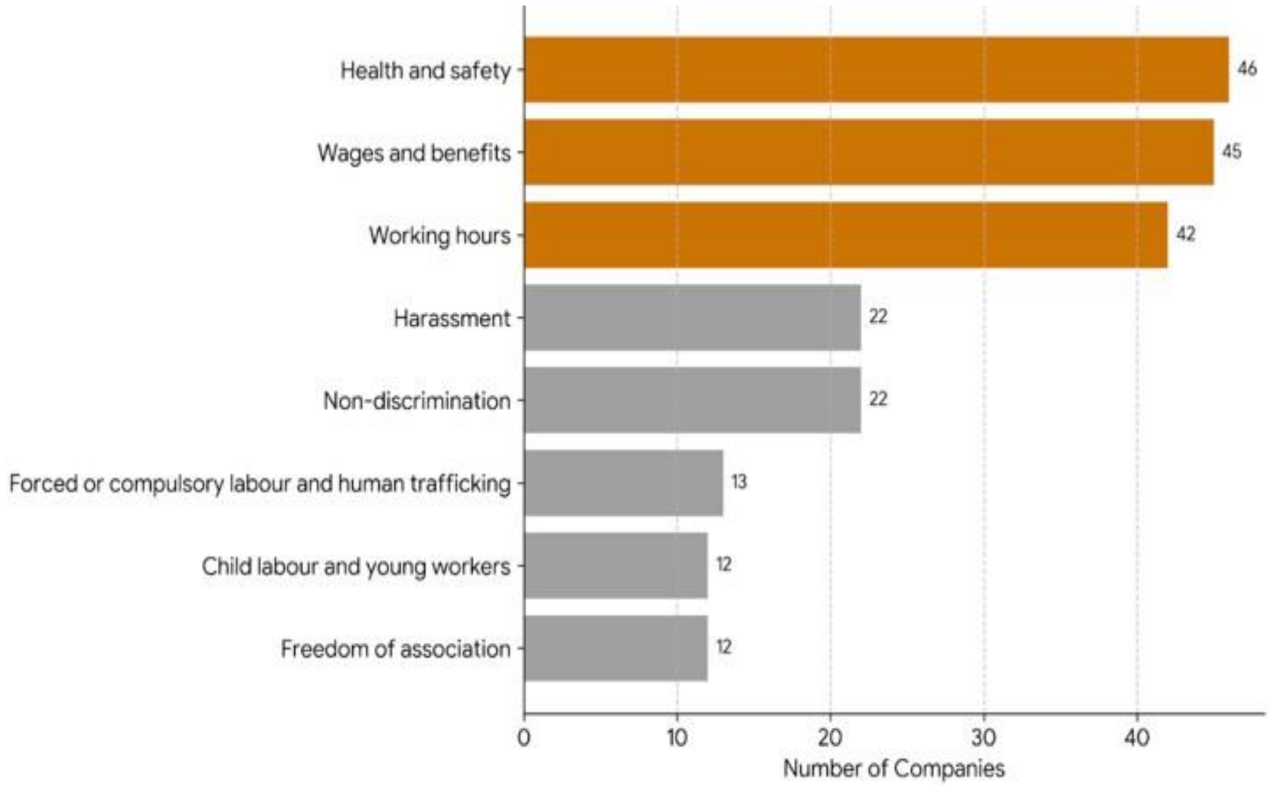

Figure 10. Specific Concerned Issues in Working Procedures and Labor Rights Policy

Consistent with the policy priorities highlighted above, further observation of social sustainability concerns often centers on workplace conditions, including employee safety and excessive overtime, each identified by 35 respondents. This data mirrors broader trends within the Malaysian manufacturing sector, where high accident rates have historically been linked to inadequate safety protocols and regulatory non-compliance [25]. Other notable concerns included fair remuneration, identified by 30 respondents and irregular working schedules, noted by 24 respondents. *Figure 11.* These findings are consistent with existing economic literature on Malaysia, which indicates that household income growth frequently lags behind inflation and rising urban living costs, thereby contributing to workforce dissatisfaction [26] [27] [28]. Furthermore, while minimum wage mandates aim to protect employees, they often impose significant financial constraints on SMEs [17]. The issue of unpaid or excessive overtime is also a known labor challenge in the region's manufacturing sector, with some companies potentially increasing staff utilization to maximize profits [29] [30]. Conversely, issues regarding child labor and women's rights were reported less frequently with 6 responses each, suggesting these are either less prevalent or less prioritized in current operational contexts compared to immediate health, safety, and wage concerns.

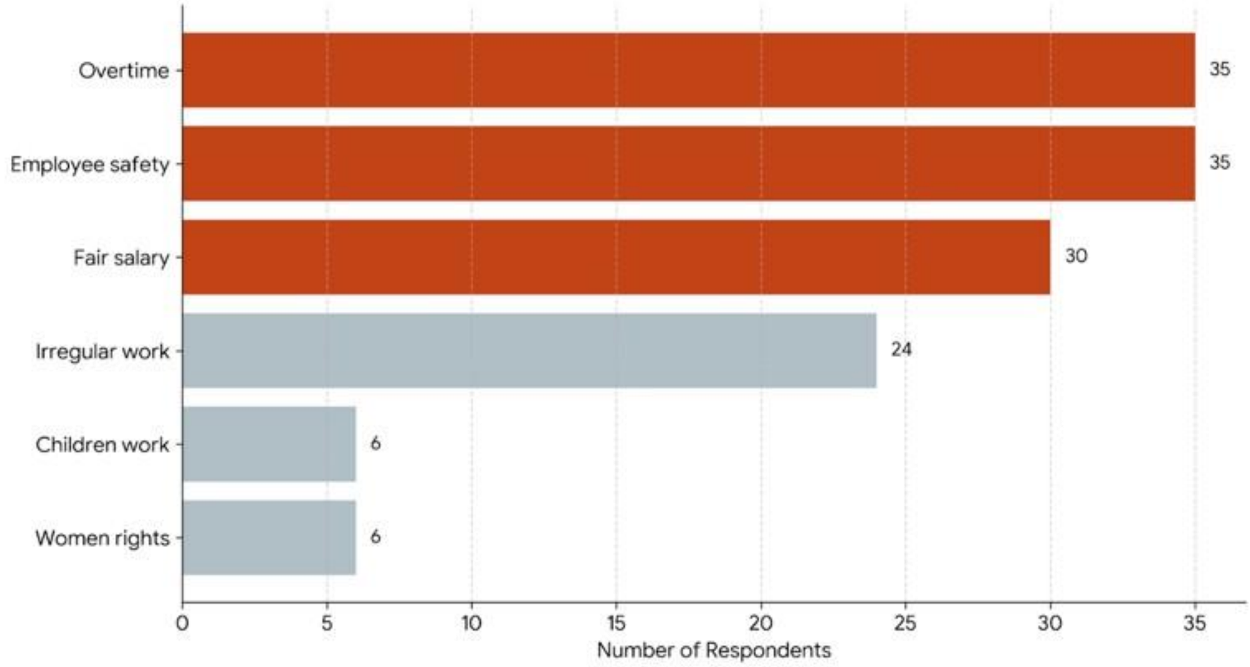

Figure 11. Social Sustainability Challenges

When analyzing the implications of overtime work, burnout emerged as the predominant concern, cited by 58 respondents. This was followed by apprehensions about adverse health consequences (34) and decreased productivity (30). In addition, 28 respondents also claimed reduced job satisfaction due to extended hours. The convergence of fatigue, lowered productivity, and diminished satisfaction heightens risks for personnel in safety-sensitive roles, as 14 respondents highlighted the potential for occupational injuries. These findings align with existing literature, which identifies maintaining worker safety during extended hours as a persistent challenge in Malaysia's manufacturing and services sectors. Interestingly, a minority group of 11 respondents viewed overtime as a financial necessity to supplement their monthly income, underscoring broader structural issues around wage adequacy and metropolitan living costs [30][31][32]. *Figure 12.*

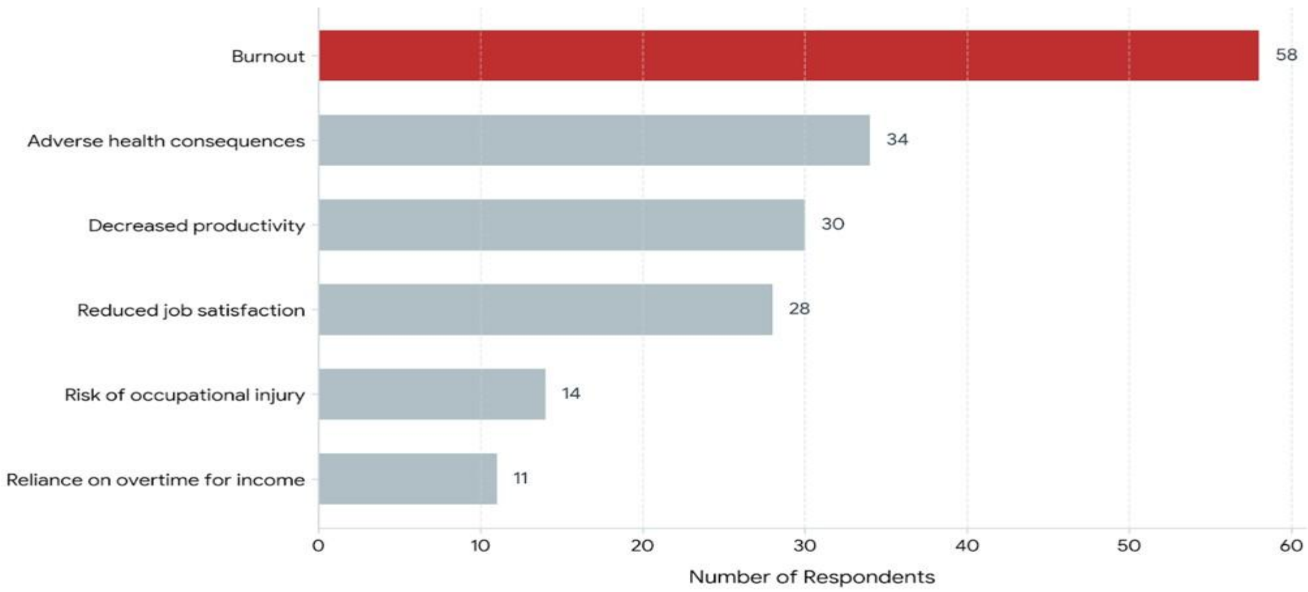

Figure 12. Primary Concerns about Overtime Work among Respondents

Furthermore, in the ESG framework, diversity and gender equality represent critical metrics of an organisation's dedication to the Social pillar. Specifically, these facets reveal the degree to which the company adheres to equitable labour standards, advances inclusive prospects, and cultivates a dignified workplace culture [22][23]. This is evident in the high level of engagement, with 86% of respondents having implemented gender equality initiatives or diversified social demographics. The remaining respondents worked for organizations that had not

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initiated diversity and equality practices, with half of this subset viewing gender equality as unnecessary for sustainability (Figure 13).

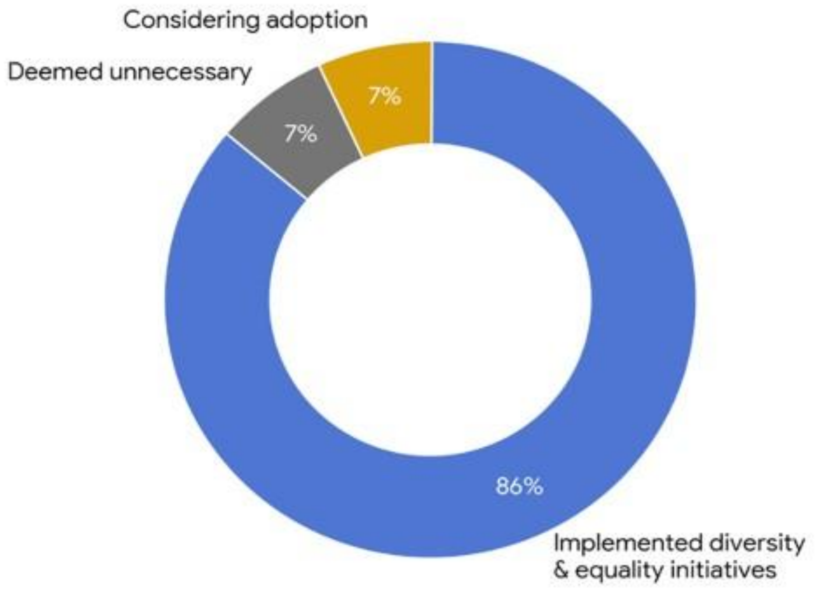

Figure 13. Implementation of Gender and Cultural Equality Initiatives

Complementing the emphasis on inclusivity, the organization's commitment to social sustainability also encompasses human capital development. Employee training initiatives play a pivotal role in cultivating professional competencies and facilitating personal growth among the workforce. Survey data reveal broad acknowledgment of this imperative with 84% of respondents affirming that their organizations maintain formalized training and development programs. By contrast, a mere 16% reported the absence of such efforts. *Figure 17*. This prevalent investment in workforce upskilling reflects strategic congruence with ESG principles, positioning human capital development as a foundational pillar of enduring organizational value rather than a peripheral operational function [33][34].

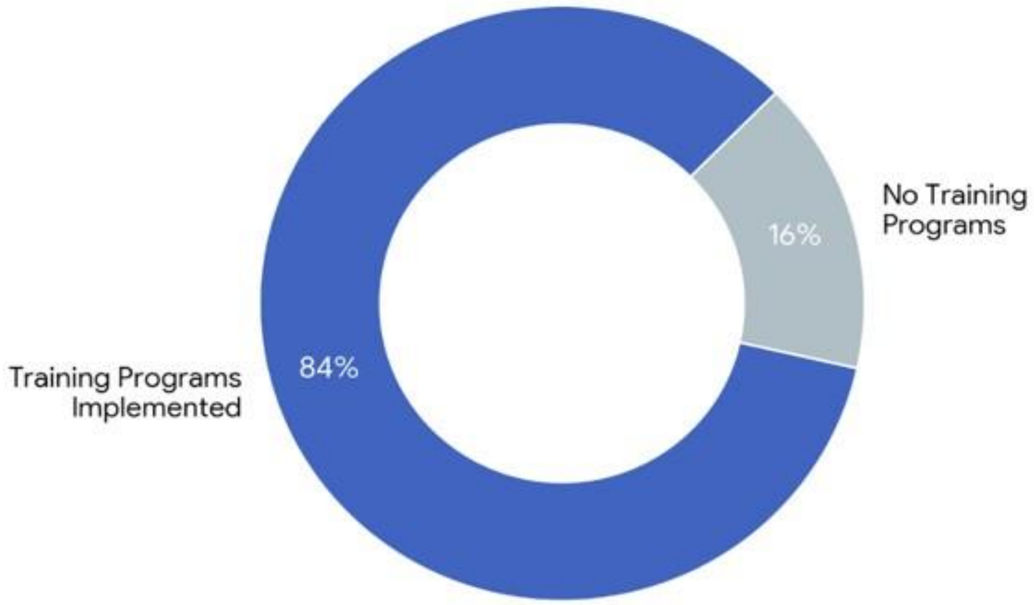

Figure 17. Implementation of Employee Training and Development Programs

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Governance Pillar: Ethics, Transparency, and Accountability

Transitioning to the Governance pillar, the following survey results demonstrate a robust foundational commitment to corporate integrity. Firstly, a substantial 92% of respondents affirmed that their organizations have established formal policies regarding business ethics, with only 8% lacking such frameworks. *Figure 18*. Survey participants expressed consensus that ethics and independence standards equivalent to those applied to financial information should extend to sustainability information. This perspective reflects increasing recognition of professional ethics as critical for advancing sustainability reporting through enhanced transparency, accountability, and stakeholder confidence [35][36].

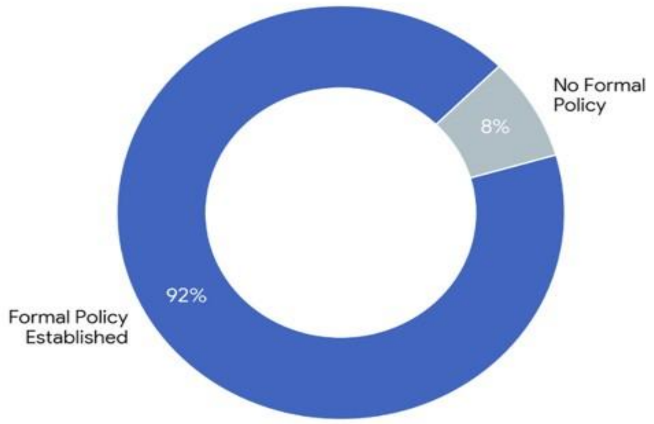

Figure 18. Existence of Formal Business Ethics Policies

Organisations grounded in ethical business practices also demonstrated a commitment to enhanced marketplace transparency through established methods. Survey results indicate that the predominant practice, reported by 55 respondents, is the delivery of clear, correct information about products and services. This is succeeded by active participation in customer satisfaction assessments, acknowledged by 49 respondents, and stringent supplier selection and evaluation procedures, recognised by 38 respondents. Other noteworthy governance practices include systems for registering customer complaints, supply chain monitoring mechanisms, and the enforcement of supplier codes of conduct. *Figure 19.* These findings corroborate current studies that highlight the importance of operational transparency for fostering stakeholder trust and sustaining consumer loyalty. The enforcement of supplier codes of conduct is crucial for ensuring ethical practices and compliance with standards across the supply chain [37][38][39].

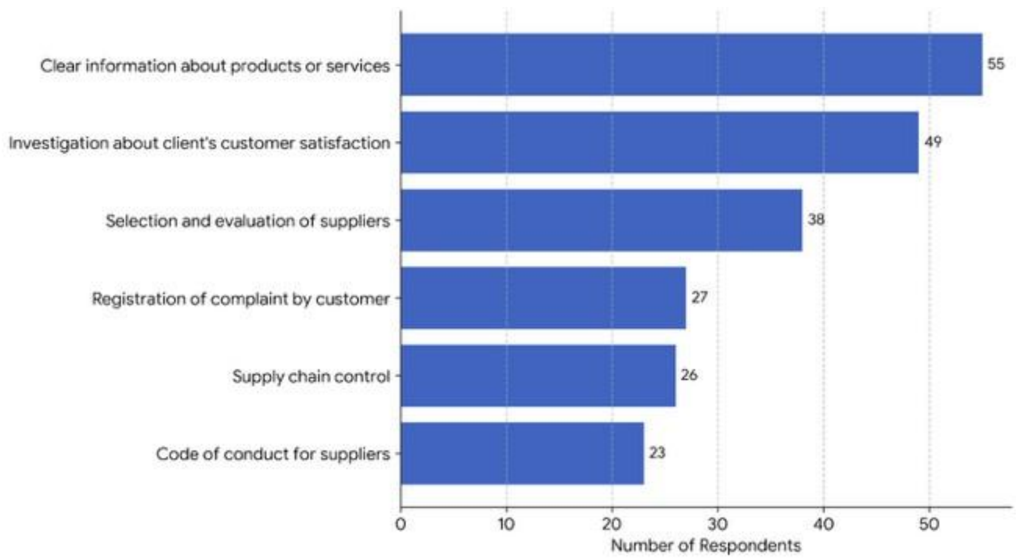

Figure 19. Implementation of Governance Practices for Market Transparancies

In addition to establishing external market transparency measures, it is essential for organisations to strengthen their operations through robust internal governance structures. *Figure 20* demonstrates that the survey results reveal a clear prioritisation of data security, with privacy protection identified as the primary policy area, as confirmed by 49 respondents who acknowledged its inclusion in their organisational protocols. This emphasis underscores the growing imperative for Malaysian businesses to implement robust systems to protect sensitive consumer and staff information, possibly in response to stringent government data protection mandates [40].

Alongside privacy, the governance framework is underpinned by policies concerning information disclosure and corruption prevention, as indicated by 39 and 38 respondents, respectively. Financial accountability and conflict of interest management emerge as prominent priorities, underscoring a commitment to fiscal integrity and ethical governance principles. Moreover, particular emphasis is placed on equitable competition (29 respondents) and the safeguarding of intellectual property (19 respondents). The infrequent reporting of policies on counterfeit prevention and export restrictions, though present in a minority of organizations, indicates a dedicated effort to uphold product integrity and comply with international regulatory standards amid trade tensions and the need for updated transparency rules [37][41].

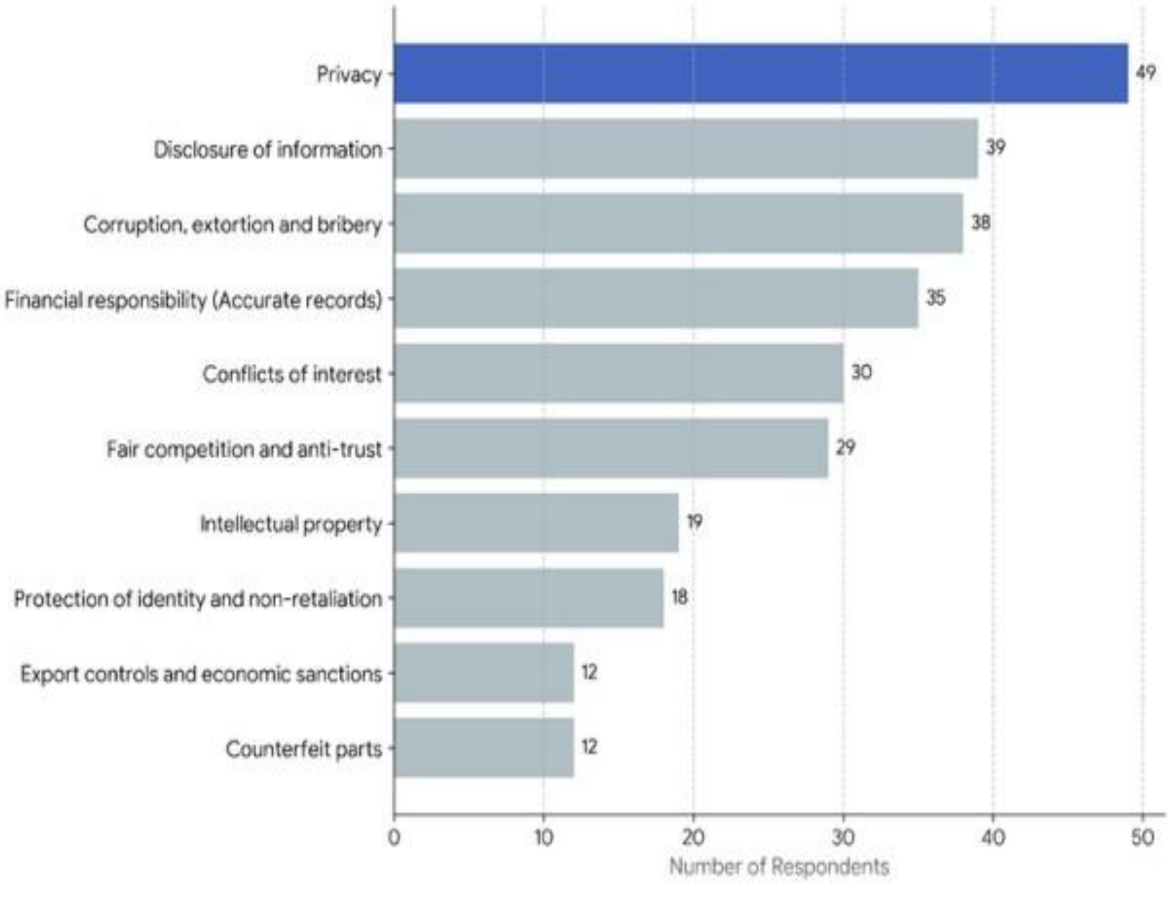

Figure 20. Scope of Internal Governance and Compliance Policies

In a nutshell, the questionnaire results paint a robust yet nuanced picture of ESG implementation across Malaysian businesses, evidenced by high adoption rates: 86% implementing gender equality or diversity initiatives, 84% maintaining formalized employee training programs, 92% establishing business ethics policies, and predominant marketplace transparency practices such as clear product information (55 respondents) alongside internal priorities like data privacy protection (49 respondents). Although ESG awareness has increased compared to earlier surveys, significant knowledge gaps persist, particularly among employees of small and medium-sized enterprises. Organisations exhibit practical engagement with environmental and social sustainability measures that are often adopted unintentionally and without explicit ESG framing. The continuing training gap (16% lacking programs), especially among SMEs, underscores the challenge of transforming awareness into comprehensive organisational competency, calling for focused interventions, enhanced SME-targeted training, and strategic resource allocation. This indicates a crucial need for a more regulated approach to reinforce current ESG practices, potentially through developing unified national standards tailored to Malaysia's specific needs, which would enhance the comparability and reliability of ESG information. Such an approach would also foster greater accountability and facilitate more informed decision-making by investors and stakeholders, addressing the current disparities in reporting observed within the Malaysian manufacturing sector. This becomes particularly relevant given that, despite an overall increase in ESG data disclosure across ASEAN-5 from 2016 to 2021, the median scoring for environmental and social components remains below 50, indicating substantial room for improvement in Malaysia's corporate ESG practices, especially concerning ecological impact and supply chain management.

The results offer varied implications for public policy in Malaysia. For early organisations in ESG adoption, especially resource-limited SMEs, specific financial incentives and technical support are crucial to reduce the obstacles to fundamental ESG practices and reporting. Instruments like subsidised training programs, streamlined reporting templates consistent with the i-ESG Framework 1.0, and tax incentives or subsidies for inaugural investments in energy efficiency and waste management could expedite initial adoption. In order to strengthen the integration of ESG into core management systems for organisations at an intermediate stage of adoption, policy interventions should promote digital reporting tools, sector-specific guidance that links ESG metrics to productivity outcomes and risk management, and standardised indicators. Prominent enterprises, such as publicly traded companies and major multinational corporations, can be motivated to serve as "anchor" institutions by disseminating ESG criteria throughout their supply chains and offering mentorship, collaborative training, and data-sharing platforms for smaller suppliers

The findings also indicate that managerial strategies should differ based on a firm's ESG maturity. Early-stage enterprises may prioritise formalising a select set of high-impact practices, including explicit occupational health and safety protocols, fundamental environmental housekeeping measures, and a documented code of ethics, while appointing an internal ESG coordinator to oversee incremental improvements. Organisations that already implement a range of ESG activities should evolve from ad hoc initiatives towards structured governance by establishing cross-functional ESG committees, integrating selected ESG indicators into performance appraisal and budgeting processes, and institutionalising regular employee training. For established organisations, the primary challenge is enhancing ESG integration by connecting sustainability objectives to innovation, supply chain collaboration, and strategic investment choices, thus shifting ESG readiness from a compliance-focused approach to a foundation for long-term competitiveness.

DISCUSSION

The data analysis integrated descriptive statistics with comparative methods to investigate variations in ESG awareness, practices, and preparedness among different organisational profiles. Descriptive indicators were used to assess the prevalence of specific environmental, social, and governance activities. In contrast, crosstabulations and mean comparisons were employed to examine patterns by business size, ownership structure, and subsector. Reliability diagnostics were performed on multi-item scales measuring ESG preparedness parameters to verify internal consistency. This analytical approach aligns with the study's exploratory objectives, which aim to clarify current practices and identify capability deficiencies to inform future, more model-driven research.

The findings are consistent with regional research on ESG adoption in emerging industrial economies and extend beyond the Malaysian context. Research on ASEAN manufacturing and automotive companies indicates that larger, internationally engaged firms exhibit greater ESG involvement. At the same time, small and medium-sized enterprises face ongoing limitations, particularly regarding financial resources, specialised knowledge, and reporting capabilities. This study reveals that, at the pillar level, the prevalence of fundamental environmental initiatives and formal social policies reflects regional trends, in which gradual improvements in energy efficiency, employee welfare, and diversity precede the implementation of more sophisticated climaterelated and supply-chain initiatives. Conversely, governance techniques including codes of ethics and transparency regulations seem to be more firmly entrenched in the Malaysian sample, indicating that formal governance structures have proliferated more swiftly than advanced environmental performance management. By situating the Malaysian manufacturing sector within these broader regional and international trajectories, the study demonstrates that local patterns of ESG readiness are shaped by global value-chain expectations while remaining contingent on national policy frameworks and institutional capacities.

CONCLUSION

The study set out to systematically examine how Environmental, Social, and Governance (ESG) principles are being implemented in the Malaysian manufacturing industry, responding to the lack of standardized ESG frameworks and reporting standards that have constrained transparent evaluation and strategic integration of sustainability initiatives in this context. The results depict a setting characterized by uneven levels of ESG readiness, with multinational corporations and government-linked companies displaying greater awareness and engagement, while small and medium enterprises (SMEs) frequently fall behind because of resource and knowledge limitations. While overall ESG awareness remains moderate, a substantial number of Malaysian manufacturing organizations have implemented key environmental practices such as energy efficiency measures, social initiatives including formalized labour policies and gender equality/diversity programs and governance frameworks like business ethics policies frequently without explicit ESG designation, comprehensive training programmes despite 84% formalization or full competency-building, particularly among small and medium-sized enterprises with limited resources. This research advances theory by providing empirically grounded evidence on ESG implementation dynamics in an emerging market, thereby addressing a significant gap in the literature on localized ESG adoption. It demonstrates the relevance of context-sensitive frameworks, exemplified by Malaysia's National Industry ESG Framework 1.0, which offer structured guidance for firms at different stages of ESG maturity and highlight the critical role of targeted support for SMEs during their transition. From a practical standpoint, the study delivers concrete reference points for industry actors, policymakers, and SMEs by pinpointing both effective ESG practices and persistent capability shortfalls. The findings show that, despite measurable improvements in ESG awareness and basic adoption, substantial obstacles endure, including financial pressures, insufficient specialized training, and the absence of fully unified national standards needed to improve the consistency and credibility of ESG reporting.

Taken together, the research shows that ESG integration in Malaysia's manufacturing sector is progressing but remains heterogeneous and highly shaped by organizational context. The patterns of readiness, practical challenges, and emerging good practices outlined in this study provide a platform for subsequent scholarly inquiry and policy innovation, particularly regarding the development of sector-specific ESG standards and focused capacity-building programmes. Looking ahead, more coordinated initiatives are required to standardize ESG reporting, deepen SME participation, and more tightly align corporate sustainability agendas with both national development priorities and global climate commitments.

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