

Environment, Social, and Governance (ESG) Mapping of Islamic Entrepreneur Boarding School (IEBS) Global Cahaya Nubuwwah Insani (GCNI) Foundation

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Abstract This community engagement program (PkM) systematically mapped and strengthened the Environmental, Social, and Governance (ESG) readiness of the Islamic Entrepreneur Boarding School (IEBS) at the Global Cahaya Nubuwwah Insani (GCNI) Foundation, Purwakarta. The program integrated pre- and post-intervention ESG literacy assessment, institutional ESG scoring, participatory sustainability mapping, and maturity classification to produce a structured diagnostic framework tailored to pesantren-based micro, small, and medium-sized enterprises (MSMEs). A total of 40 participants completed baseline and post-intervention questionnaires, indicating a statistically significant improvement in ESG literacy (mean difference = 1.625; $t = 13.275$), which was categorized as a high-impact outcome. Institutional ESG assessment using 40 indicators across Environmental, Social, and Governance dimensions yielded an overall ESG Index of 61.67%, placing the institution in the Developing (Programmatic) stage. The Social dimension demonstrated strong institutional embedding, whereas Environmental practices were operational but only partially measured, and Governance systems required further formalization. A dual-scoring mechanism that combined self-assessment with external validation enhanced reliability and reduced evaluation bias. The findings indicate that IEBS GCNI is transitioning from value-driven sustainability to more structured ESG governance. This study contributes a replicable ESG mapping framework that bridges green economy regulation with Islamic entrepreneur boarding school governance and supports sustainable MSME ecosystem development.

1. INTRODUCTION

Indonesia's green economy transition increasingly positions micro, small, and medium-sized enterprises (MSMEs) as strategic drivers of sustainable and low-carbon development. The White Paper on Empowering Green MSMEs highlights their role in advancing access to green finance, technological upgrading, and improved environmental standards (Maswan et al., 2025). However,

it remains a policy blueprint rather than a binding regulation (Firdaus et al., 2022). Sustainable finance reforms, including POJK No. 51/POJK.03/2017, strengthen governance within the financial sector, yet their effects on MSMEs are indirect and mediated through banking mechanisms. Firdaus et al. (2022), in its Green MSME Business Model study, similarly encourages sustainability

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integration but does not provide an operational ESG framework for community-based enterprises. Consequently, ESG disclosure for MSMEs remains voluntary, creating a structural gap between national sustainability policy and institutional implementation. This fragmentation is particularly critical for Islamic Entrepreneur Boarding Schools (IEBS), which combine education, entrepreneurship, and community empowerment but operate without a formalized ESG governance framework.

The Global Cahaya Nubuwwah Insani (GCNI) Foundation functions as an Islamic Entrepreneur Boarding School that integrates religious education with entrepreneurial development. Pursuant to Law No. 18 of 2019 on *Pesantren*, such institutions are legally permitted to conduct community empowerment and business activities. In parallel, the General Guidelines for Governance of Non-Profit Organizations (KNKG, 2022) outline a formal governance structure comprising the Board of Trustees, Supervisory Board, and Executive Board, and emphasize principles of transparency, accountability, ethical leadership, and sustainability under an “Apply or Explain” approach.

While these regulatory and governance frameworks provide strong legal legitimacy for institutional entrepreneurship, they do not explicitly embed Environmental, Social, and Governance (ESG) principles or establish structured sustainability measurement mechanisms for pesantren-based MSMEs. Consequently, IEBS GCNI operates within a formally recognized governance system that lacks defined ESG integration. This structural gap underscores the urgency of developing a comprehensive ESG mapping framework to align faith-based entrepreneurial activities with Indonesia’s broader sustainability and green economy agenda.

Empirical studies confirm the growing role of pesantren in entrepreneurship and environmental initiatives, while also revealing systemic gaps. Integrated Green Farming models enhance santri competencies and energy efficiency (Fitri et al., 2023). Green entrepreneurship strengthens educational financing resilience, whereas strategic planning improves institutional sustainability (Irfan et al., 2024). Environmental curriculum innovations (Hakim et al., 2019) and participatory eco-awareness programs (Herdiansyah et al., 2016) highlight the importance of ecological education. Entrepreneurship empowerment strategies (Nai’mah et al., 2020) and life-skill integration (Purwanto et al., 2025) demonstrate effective economic capacity building. However, these initiatives remain programmatic and fragmented. None integrates Environmental, Social, and Governance dimensions into a measurable ESG index or an institutional maturity model.

Leadership-centered studies further reinforce this pattern. Prophetic and kyai-centered leadership shapes institutional direction (Hafidhoh et al., 2025), while spiritual and Islamic value-based entrepreneurship strengthens moral orientation (Kasor et al., 2017; Sulistyawati et al., 2025; Juliani., 2025). Adaptive management

supports responsiveness to environmental and social issues (Khasanah et al., 2023). Environmental theology and eco-pesantren initiatives align Islamic values with conservation (Mangunjaya & McKay, 2012); Anabarja & Mubah, (2021), and curriculum-based sustainability evaluation enriches institutional learning (Rohman & Khotimah., 2024). Yet governance remains personality-driven rather than system-based, with limited evidence of formal ESG committees, sustainability roadmaps, or integrated risk governance mechanisms.

Similarly, caring economics critiques profit-oriented entrepreneurship (Efiyanti et al., 2024), social entrepreneurship management enhances economic independence (Hasan, & Yurista, 2025), digitization improves transparency (Fauzi et al., 2025), and financial accountability reforms strengthen stewardship (Zahirah & Suhaedi., 2025). Nonetheless, ESG governance integration, structured measurement tools, and sustainability dashboards remain largely absent. Collectively, the literature reveals a consistent empirical gap: pesantren entrepreneurship demonstrates strong ethical foundations and adaptive capacity but lacks a structured ESG diagnostic and institutional performance measurement framework (Nai’mah et al., 2020).

Against this backdrop, this community engagement program (PkM) systematically mapped and strengthened the Environmental, Social, and Governance (ESG) readiness of the Islamic Entrepreneur Boarding School (IEBS) at the Global Cahaya Nubuwwah Insani (GCNI) Foundation, Purwakarta. Four institutional challenges guided the intervention. First, ESG principles had not been systematically embedded across leadership structures, governance mechanisms, strategic planning, and operational systems. Second, the institution’s ESG maturity level had not been formally assessed due to the absence of structured measurement instruments. Third, sustainability initiatives lacked integrated monitoring mechanisms and ESG dashboards. Fourth, no bridging framework connected national green economy regulations with pesantren-based MSME governance practices.

The urgency of this community engagement initiative lies in positioning IEBS GCNI within Indonesia’s evolving green economy ecosystem. As sustainable finance, carbon mechanisms, and supply chain screening intensify, pesantren-based enterprises must strengthen institutional readiness to remain competitive and credible. Without structured ESG integration, IEBS GCNI risks exclusion from emerging green finance networks. Conversely, systematic ESG mapping enhances governance transparency, institutional legitimacy, and stakeholder trust while aligning with the General Guidelines for Governance of Non-Profit Organizations (KNKG., 2022).

Accordingly, this community engagement program pursued three objectives. First, to conduct a comprehensive institutional ESG assessment through participatory sustainability mapping using interviews and focus group discussions. Second, to identify leadership, governance, strategy, and system-level gaps affecting ESG integration.

Third, to formulate a structured sustainability action plan to enhance institutional readiness for the green economy transition. Through the development of an ESG index and maturity categorization, the program generated measurable evidence of institutional sustainability status.

By integrating Environmental, Social, and Governance dimensions into a structured diagnostic framework, this initiative advances a practical ESG mapping model tailored to Islamic Entrepreneur Boarding Schools. Unlike prior studies that address green production, curriculum reform, spiritual entrepreneurship, or financial accountability in isolation, this program offers a comprehensive, measurable, and governance-oriented approach. IEBS GCNI therefore serves as a bridging model between green economy regulation and pesantren-based MSME governance, addressing both empirical research gaps and regulatory implementation challenges in Indonesia's sustainability transition.

2. METHOD

This community engagement program was designed as a structured ESG mapping and institutional strengthening initiative at the Islamic Entrepreneur Boarding School (IEBS) at the Global Cahaya Nubuwah Insani (GCNI) Foundation, Purwakarta. The methodological framework integrated participatory sustainability mapping, governance diagnostics, green value chain analysis, and sustainability action planning. The design responded directly to the fragmented regulatory environment governing green MSMEs in Indonesia, including the Green MSME Roadmap (Bappenas et al., 2025), sustainable finance regulations (POJK 51/2017; UU P2SK 2023), SDGs implementation (Perpres 59/2017), the carbon economy transition (Perpres 98/2021), and pesantren institutional legitimacy under UU No. 18/2019 and PUG-ONI (2022).

The approach also built on empirical findings on green pesantren practices and institutional entrepreneurship (Fitri et al., 2023; Irfan et al., 2024; Herdiansyah et al., 2016; Anabarja & Mubah., 2021). The program adopted a participatory and diagnostic approach to ensure that ESG assessment functioned not only as an evaluation tool but also as a mechanism for institutional learning and structured improvement planning (Nai'mah et al., 2020).

2.1 Design of activities

The program consisted of six integrated components.

a. Training on ESG and Green MSMEs

A structured workshop introduced Environmental, Social, and Governance (ESG) principles, the green economy transition agenda, sustainable MSME practices, and foundation governance standards. The training contextualized ESG within Islamic entrepreneurship values and pesantren governance structures. Participants were introduced to sustainability reporting gaps, voluntary ESG disclosure for MSMEs, and regulatory expectations that may shape future access to financing.

b. Semi-structured interviews

Semi-structured interviews were conducted with institutional leaders, foundation board members, and business unit managers. The interviews explored leadership orientation, governance structure, documentation practices, environmental awareness, financial oversight mechanisms, and strategic planning for sustainability.

c. Social and environmental mapping (Focus Group Discussion, FGD)

Participatory focus group discussions (FGDs) involved teachers, santri, and business managers to map environmental risks, social impacts, stakeholder relationships, and institutional sustainability challenges. This stage followed participatory governance principles described by Herdiansyah et al. (2016) and enabled collective reflection on sustainability readiness.

d. Green value chain analysis

Business units were analyzed across input, process, and output stages to identify resource efficiency, waste management practices, renewable energy use, and community value creation. This stage connected green production practices with institutional entrepreneurship resilience (Fitri et al., 2023).

e. Institutional governance assessment

A structured ESG Practice Assessment Tool was applied using a dual approach that combined self-assessment by institutional representatives with external validation by the university team.

f. Sustainability action planning

Based on the ESG mapping results, a sustainability action plan was co-developed to strengthen governance integration and institutional readiness for the green economy transition.

2.2 Participants

The program involved 40 participants representing foundation leadership, school management, teachers, *santri* involved in entrepreneurship units, and business managers that shown on Figure 1. This composition ensured representation across the institution's governance, educational, and operational levels.



Figure 1 . Participant of ESG mapping

2.3 Instruments

The program employed a comprehensive set of instruments, including structured questionnaires, training modules, educational posters, an ESG assessment tool, an ESG practice evaluation instrument, and formal ESG mapping documentation.

The pre-implementation questionnaire was designed to measure participants' baseline ESG literacy, understanding of green MSME principles, awareness of sustainability governance, and knowledge of environmental practices. It consisted of 25 items distributed across five dimensions: ESG Literacy, Leadership and Governance, Management Systems and standard operating procedures (SOPs), Green MSME Practices, and Implementation Commitment (five items per dimension).

The post-implementation questionnaire also comprised 25 items and focused on impact evaluation across five parallel dimensions: Knowledge Improvement (Sulistiyawati et al., 2025), Leadership and Governance Change (Hafidhoh et al., 2025), Systems and SOP Development (Hasan, & Yurista., 2025), Green MSME Practice Development (Firdaus et al., 2022), and Program Evaluation (five items per dimension), enabling consistent pre- and post-intervention comparison.

All items were assessed using a 4-point Likert scale (0 to 3), where 0 indicated no knowledge or absence of practice, 1 indicated very limited knowledge or practice, 2 indicated partial implementation, and 3 indicated well-implemented and systematic practice. The 4-point scale eliminated neutral-response bias and strengthened institutional capacity measurement. The full instrument is provided in Appendix A.

The program utilized a structured training module on ESG and Green MSMEs (Firdaus et al., 2022; Maswan et al., 2025) that provided comprehensive material on ESG principles, relevant regulatory frameworks, governance standards, green production practices, and sustainability transition strategies. In addition, a Green MSME educational poster was developed as a visual learning tool to summarize core ESG concepts and illustrate green value chain practices tailored to pesantren-based enterprises.

The ESG Practice Assessment Tool comprised three dimensions with a total of 40 criteria: Environmental (15 items), Social (11 items), and Governance (14 items). Each criterion was evaluated using a standardized 0 to 3 scale, where 0 indicated no implementation, 1 reflected informal or ad hoc practice, 2 denoted formal and documented implementation, and 3 signified formal implementation supported by measurement and periodic evaluation. The instrument assessed environmental policy (Herdiansyah et al., 2016), waste management (Anabarja & Mubah., 2021), renewable energy use (Mangunjaya & McKay., 2012), curriculum integration (Sulistiyawati et al., 2025), stakeholder engagement (Purwanto et al., 2025), governance documentation (Fauzi et al., 2025), financial reporting systems (Zahirah & Suhaedi., 2025),

SOP implementation, ESG integration in decision-making, and sustainability planning (Rohman & Khotimah., 2024). The complete list of indicators, scoring criteria, and the reconciliation and index calculation framework are presented in Appendix B.

All assessment results were consolidated in the ESG Mapping Documentation, which includes FGD records, interview summaries, governance mapping outputs, ESG index calculations, and maturity classification.

2.4 Phases of community service implementation

The implementation phase of the community engagement program is presented in Figure 2. Data were collected through a comprehensive and integrated approach that incorporated structured pre- and post-intervention questionnaires, semi-structured interviews, participatory focus group discussions (FGDs), direct observation of business units, document review, and ESG score reconciliation. To enhance assessment rigor, a dual-scoring approach was employed that combined internal self-assessment with external validation. This approach improved consistency, strengthened credibility, and minimized potential bias in evaluating institutional ESG performance.

2.5 Method of analysis

The analysis was conducted in two complementary stages: quantitative and qualitative. In the quantitative stage, a paired pre- and post-intervention t-test was applied to assess statistically measurable changes in participants' ESG literacy and sustainability awareness following program implementation. ESG index computation was then carried out, with scores aggregated by dimension, namely Environmental, Social, and Governance, to obtain a structured performance profile. These aggregated scores were subsequently used to classify the institution's ESG maturity level.

In the qualitative stage, data from interviews and FGDs were analyzed through thematic coding to identify dominant themes, recurring concerns, and governance-related issues. The findings were further processed using participatory sustainability gap mapping to determine priority areas for improvement. The integrated insights were then synthesized into an institutional governance reflection framework to inform future sustainability strategy and action planning. The ESG Index was calculated as follows.

$$\text{ESG Index} = \frac{\text{Total Score Obtained}}{\text{Maximum Possible Score}} \times 100$$

Where, the maximum possible score = 40 indicators \times 3 (maximum score per item). The index is categorized as Table 1.

Table 1 . Categorized ESG index (%)

ESG Index (%)	Interpretation
0–39%	Low sustainability readiness
40–69%	Moderate sustainability readiness
70–100%	High sustainability readiness

Maturity categories were classified into Initial,

Developing, Moderate, and Advanced stages. This integrated methodology ensured that ESG mapping at IEBS GCNI moved beyond isolated green initiatives and supported structured governance integration aligned with

regulatory sustainability transitions. The detailed ESG assessment components and scoring criteria are fully presented in Appendix A and Appendix B to ensure transparency and replicability.

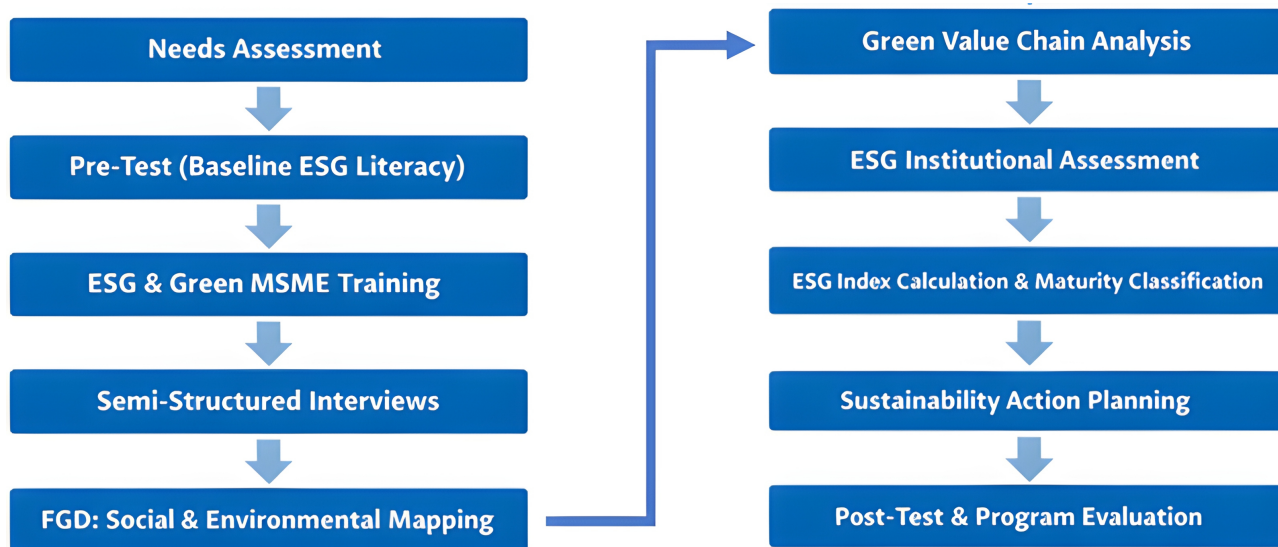


Figure 2 . Phases of community engagement program

3. RESULT AND DISCUSSION

3.1 Baseline and post-implementation impact analysis

Table 2 presents the statistical summary of the pre- and post-implementation questionnaire results. The pre-test mean score of 43.50 indicates the initial level of ESG literacy and sustainability awareness before the intervention. Following program implementation, the post-test mean increased to 45.13, reflecting a mean improvement of 1.625 points. Although numerically modest, this increase represents consistent score gains across respondents, as indicated by the relatively low standard deviation of the difference (0.774). It can also be noticed that there is opportunity to study about optimal approach in delivering or increasing awareness (Juliani., 2025).

Table 2 . Pre-post summary statistics

Metric	PRE	POST	Difference
Mean	43.50	45.13	1.625
Std Dev	-	-	0.774
Paired t-statistic		13.275	
p-value (two-tail)		< 0.001	
Improvement category		High	

Inferential analysis using a paired-sample t-test was performed to determine whether the observed mean difference was statistically significant. The calculated t-value of 13.275 indicates a highly significant difference between pre- and post-test scores. With a two-tailed p-value below 0.001, the null hypothesis of no difference was rejected. This result confirms that the intervention produced a statistically significant improvement in ESG-related knowledge and institutional awareness among participants

(Sulistiyawati et al., 2025).

The magnitude and consistency of improvement are further supported by the distribution of individual score changes. Of the 40 respondents, most exhibited positive score differences ranging from +1 to +3 points, with no meaningful negative shifts observed. This pattern indicates a broadly shared learning effect rather than improvement concentrated among a small number of individuals. Based on the predefined improvement categorization embedded within the analytical framework, the observed mean difference (1.625) fell within the High Improvement category. This classification reflects not only statistical significance but also meaningful institutional learning progression related to ESG literacy, governance awareness, systems readiness, and green MSME orientation (Khasanah et al., 2023).

3.2 ESG institutional assessment and index calculation

Beyond measuring individual learning gains, the program also conducted a structured institutional ESG assessment to evaluate the sustainability performance of the Islamic Entrepreneur Boarding School (IEBS) at the GCNI Foundation. The assessment instrument consisted of 40 indicators distributed across three dimensions: Environmental (14 items), Social (12 items), and Governance (14 items). Each indicator was evaluated using a standardized 4-point Likert scale (0 to 3), allowing a maximum possible score of 120.

To enhance reliability and reduce subjectivity bias, a dual-scoring mechanism was applied. Institutional representatives conducted a self-assessment, which was subsequently validated through external evaluation based on interviews, FGDs, direct observation, and

document review. The final agreed score was derived through reconciliation between the internal and external assessments.

3.2.1 Overall ESG score and index calculation

Table 3 below presents the final ESF assessment results. The overall ESG Index was calculated using the following formula.

Table 3 . ESG dimension scores and index calculation

Dimension	Final Score	Maximum Score	Percentage
Environmental	26	42	61.90%
Social	32	36	88.89%
Governance	16	42	38.10%
Total ESG Score	74	120	61.67%

$$\begin{aligned} \text{ESG Index} &= \frac{\text{Total Score}}{\text{Maximum Score}} \times 100 \\ &= \frac{74}{120} \times 100 \\ &= 61.67\% \end{aligned}$$

Based on the predefined maturity classification framework, an index score of 61.67% placed the institution in the Developing Stage (Programmatic) category. This stage indicates that ESG practices were partially implemented and formally recognized in several areas, but were not yet fully integrated into a systematic, measurable, and strategic governance framework. Leadership is one of critical factors in supporting the implementation enhancement (Hafidhoh et al., 2025).

3.2.2 Dimension-level analysis

The Environmental dimension score of 26 out of 42 (ENV = 61.90%) suggests moderate implementation of environmental practices. Several initiatives, such as energy monitoring, waste separation, and green production awareness, were initiated. However, formal documentation of environmental policies, renewable energy integration, and structured environmental risk mitigation remained limited.

The Social dimension achieved the highest performance, scoring 32 out of 36 (SOC = 88.89%). This finding reflects strong institutional commitment to entrepreneurship training, community engagement, ethical business practices, and social inclusion (Hasan, & Yurista., 2025). The high score indicates that the pesantren's social capital and community-oriented values were well embedded in operational practices.

The Governance dimension recorded the lowest score, 16 out of 42 (GOV = 38.10%), indicating substantial structural gaps. While organizational roles and some financial documentation were in place, several critical governance elements, such as sustainability reporting, structured risk management, performance indicators, and formal ESG integration into strategic planning, remained underdeveloped.

3.2.3 Self-assessment vs external validation

As provided in Table 4, the self-assessment total score was 87, whereas the external validation score was 74, resulting in a difference of 13 points. This gap suggests a tendency toward overestimation in internal perceptions compared with externally verified practices.

Table 4 . Self vs external ESG scoring

Assessment Type	Total Score
Self-assessment	67
External validation	74
Difference	13

The reconciliation process ensured that final scores reflected evidence-based evaluation rather than perception-based reporting. This approach strengthened institutional credibility and enhanced the robustness of the ESG index calculation (Khasanah et al., 2023).

3.2.4 ESG maturity positioning

Based on cumulative scoring and dimension distribution, IEBS GCNI was positioned in the Developing (Programmatic) stage, which was characterized by the following features; (a) partial formalization of ESG practices; (b) strong social foundation; (c) emerging environmental management; (d) structural governance gaps.

The quantitative assessment demonstrates that, while ESG awareness and social integration were relatively strong, governance systems and environmental formalization required systematic strengthening to support progress to a more advanced sustainability maturity stage.

3.3 Environmental, social, and governance dimension discussion

The institutional ESG assessment revealed differentiated performance across the Environmental, Social, and Governance dimensions. Although the overall ESG Index indicates a Developing (Programmatic) stage, dimension-level analysis provides a more nuanced understanding of institutional strengths and structural gaps. This section discusses each dimension in greater depth by integrating quantitative findings with institutional observations.

3.3.1 Environmental dimension: Emerging formalization with operational gaps

The Environmental dimension achieved a score of 26 out of 42 (61.90%), indicating moderate implementation of environmental practices. Several environmental initiatives were already present within IEBS GCNI, including waste separation practices, energy monitoring, green production awareness, and partial environmental integration into educational activities. These findings demonstrate that environmental consciousness was present; however, it was primarily operational and lacked systematic integration into governance.

Energy-saving practices, such as monitoring electricity use and implementing efficiency measures, were introduced. Waste management initiatives were partially operational,

including waste segregation and efforts to reduce production waste within business units (Khasanah et al., 2023). In addition, environmentally responsible packaging and consideration of environmental impacts in business planning were emerging practices.

However, the assessment identified structural weaknesses in policy documentation and environmental risk management. The institution did not yet have a comprehensive written environmental policy integrated into strategic governance. Renewable energy adoption remained limited and was not institutionalized. Environmental impact measurement was conducted informally rather than through standardized monitoring indicators. These gaps suggest that environmental practices remained programmatic rather than system-driven. The Environmental dimension therefore reflects an institution in transition: operational practices were visible, but institutional formalization through policy, measurement systems, and strategic integration required strengthening to progress to a Managed or Advanced ESG maturity stage (Herdiansyah et al., 2016).

3.3.2 Social dimension: Strong institutional capital and community orientation

The Social dimension recorded the highest performance, scoring 32 out of 36 (88.89%). This result indicates a well-established social foundation within IEBS GCNI. Entrepreneurship training for students (santri) was conducted regularly, and sustainability values were embedded in educational programming. Skills development programs operated consistently, contributing to student empowerment and community capacity building (Hakim et al., 2019).

Collaboration with local MSMEs and engagement with surrounding communities were active and structured. Business activities contributed directly to local welfare, and stakeholder engagement mechanisms were evident. Social responsibility initiatives were implemented through entrepreneurship development, local supplier support, and practices that promoted economic inclusion.

Ethical and Islamic values formed a central pillar of business practices (Kasor et al., 2017). Principles of fair treatment, equal opportunity, and community-oriented entrepreneurship were clearly reflected in institutional culture. Women's participation and local supplier integration were also supported, indicating commitment to economic inclusivity.

The high Social score reflects the pesantren's strong social capital and moral foundation. Unlike the Environmental and Governance dimensions, social responsibility appeared to be deeply embedded in institutional culture rather than dependent on formal policy structures. This pattern suggests that IEBS GCNI's sustainability strength lay primarily in its social mission and community-based entrepreneurship model.

3.3.3 Governance dimension: Structural weaknesses in formal systems

The Governance dimension recorded the lowest score, 16 out of 42 (38.10%), indicating substantial structural

gaps. While some governance elements were present, such as documented organizational roles and financial record-keeping practices, many critical governance mechanisms remained underdeveloped.

Standard operating procedures (SOPs) were partially documented but were not consistently integrated with sustainability considerations. Financial records were maintained; however, sustainability-related disclosures were not reported systematically. Risk management practices were limited and not yet formalized within governance structures. Performance indicators linked to ESG objectives were not clearly defined or monitored.

Transparency mechanisms required strengthening. Although internal supervision existed, annual financial reporting and sustainability disclosure practices were not yet aligned with structured accountability frameworks (Zahirah & Suhaedi., 2025). Conflict-of-interest policies and donor transparency mechanisms were present but were not comprehensively institutionalized.

Integration into strategic planning remained an area for improvement. While operational planning existed, ESG had not been fully embedded in long-term strategic roadmaps. A formal sustainability action plan was emerging but required further refinement to ensure measurable performance targets and monitoring systems.

The Governance dimension therefore represented the primary leverage point for institutional improvement. Strengthening governance systems through documentation, measurement, reporting, and risk management integration would significantly enhance the institution's overall ESG maturity level.

3.3.4 Cross-dimensional observations

A comparative analysis across dimensions revealed three clear patterns. First, social practices were culturally embedded and institutionally strong. Second, environmental practices were operational but not yet systematized. Third, governance mechanisms represented the weakest structural component.

This imbalance explains why the overall ESG Index remained in the Developing stage despite strong social performance. ESG maturity depends not only on values and activities but also on formal governance integration, measurement systems, and accountability mechanisms. The dimension-level results suggest that IEBS GCNI's sustainability pathway should prioritize governance strengthening and environmental formalization, while maintaining its strong social capital foundation. Progression in institutional maturity will depend on integrating ESG into strategic planning, performance monitoring, and transparent reporting systems (Nai'mah et al., 2020).

3.4 Qualitative findings from interviews and participatory sustainability mapping

This section synthesizes qualitative insights derived from semi-structured interviews, participatory focus group discussions (FGDs), direct observation of business units, document review, and ESG score reconciliation. The

qualitative findings complement the quantitative ESG index and dimension scores by providing contextual understanding of institutional strengths, implementation patterns, and governance gaps. The ESG assessment, which was conducted through structured dialogue and participatory validation, already incorporated interview and FGD outcomes through the reconciled scoring framework. Accordingly, this section interprets the institutional dynamics underlying the Environmental (26), Social (32), and Governance (16) dimension scores, as well as the overall ESG Index of 61.67% in the Developing Stage (Programmatic).

3.4.1 Environmental dimension: Emerging practices with partial systematization

The Environmental score of 26 out of 42 (approximately 61.9%) indicates that IEBS GCNI moved beyond symbolic environmental awareness and toward partial formalization of environmental practices. Interview responses confirmed that environmental values were integrated into entrepreneurship education, which was consistent with FGD reflections indicating that environmental responsibility was understood as part of Islamic stewardship under the khalifah concept. Waste separation practices and energy efficiency measures, such as the use of LED lighting, were implemented; however, documentation and monitoring mechanisms remained inconsistent.

FGD participants acknowledged that, although waste segregation was in place, it was not yet supported by measurable environmental indicators. Renewable energy use was identified as a long-term aspiration rather than an operationalized system. Environmental monitoring of energy, water, and production waste was described as initiated but not recorded systematically. This pattern explains why several indicators received scores of 2, indicating partial implementation, rather than 3, indicating full implementation supported by measurement.

Participatory sustainability mapping identified three environmental gaps, namely the lack of formal documentation of an environmental policy, the absence of structured environmental performance metrics, and the limited integration of environmental risk assessment into business planning. Overall, the qualitative findings confirm that environmental practices were operational but were not yet performance-driven or supported by systematic data.

3.4.2 Social dimension: Strong institutional capital and community integration

The Social dimension achieved the highest score, at 32 out of 36 (approximately 88.9%), reflecting robust social capital and strong alignment with pesantren values. Interview data consistently emphasized that entrepreneurship training for santri was routine and embedded in institutional culture. Focus group discussions highlighted the role of business units in supporting community welfare and fostering collaboration with local MSMEs.

Participants reported that entrepreneurship training was integrated with religious education, business units actively

involved surrounding communities, social responsibility initiatives were implemented on an ongoing basis, and women's participation and equal opportunity principles were supported. Unlike the Environmental and Governance dimensions, many Social indicators received a score of 3, indicating systematic implementation supported by periodic evaluation. Informants described scholarship programs, stakeholder collaboration, and community empowerment activities as integral to the pesantren's identity rather than as practices driven by external compliance requirements.

The participatory mapping exercise confirmed that social value creation extended beyond a profit-oriented approach. However, although social programs were well institutionalized, formal tools for measuring social impact remained limited. Overall, the qualitative evidence indicates strong normative commitment alongside limited quantitative impact reporting.

3.4.3 Governance dimension: Structural foundation with performance gaps

The Governance score of 16 out of 42 (approximately 38.1%) was the lowest among the three dimensions. Interviews indicated that governance structures were in place, as organizational roles were defined and leadership commitment to sustainability was expressed in institutional narratives. However, institutional systems remained only partially formalized.

Interviews and FGDs indicated that SOPs were documented but not updated consistently, and financial reporting practices existed but were not standardized into annual sustainability disclosures. Risk management was described as informal, and a sustainability roadmap was acknowledged conceptually but lacked formal documentation. ESG integration into strategic planning was emerging but had not yet been institutionalized.

Two governance indicators received a score of 0, namely sustainability-related disclosure and systematic transaction documentation in some business units. Participants acknowledged that, although financial records were maintained, they were not structured to support ESG reporting requirements.

Participatory sustainability mapping identified four governance gaps, including the absence of an ESG-specific policy framework, limited sustainability performance indicators, weak integration between strategy and ESG measurement, and the lack of a structured sustainability reporting mechanism. Overall, governance represented the primary institutional development priority.

3.4.4 ESG maturity position and institutional reflection

The results of the ESG practice maturity assessment is presented in Figure 3. The overall ESG Index of 61.67% (74 out of 120) categorized IEBS GCNI in the Developing Stage (Programmatic level). Qualitative reflections confirm that the institution was transitioning from value-based commitment to more structured governance. The Social dimension was value-driven and culturally embedded, Environmental practices were operational but lacked

performance measurement, and Governance systems were structurally present but not yet ESG-integrated.

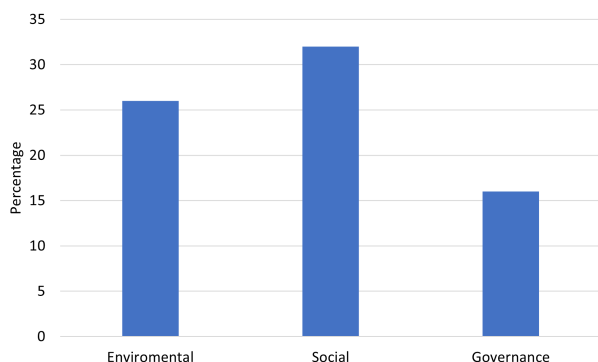


Figure 3 . ESG performance assessment score of IEBS-GCNI

Furthermore, Figure 4 provides a visual representation of the ESG practice maturity level at IEBS-GCNI. The comparison between the self-assessment score (total = 87) and the external validation score (total = 74) reveals the presence of institutional optimism bias. The 13-point discrepancy highlights the importance of applying a dual-scoring approach to strengthen the objectivity of the assessment. Interview findings indicate that participants initially perceived existing practices as sufficiently implemented. However, the external validation process clarified the difference between informal practices and formally documented systems supported by measurable indicators. Importantly, the reconciliation process also served as a governance learning mechanism, helping the institution recognize operational gaps and improving organizational awareness regarding areas that require further institutional strengthening.

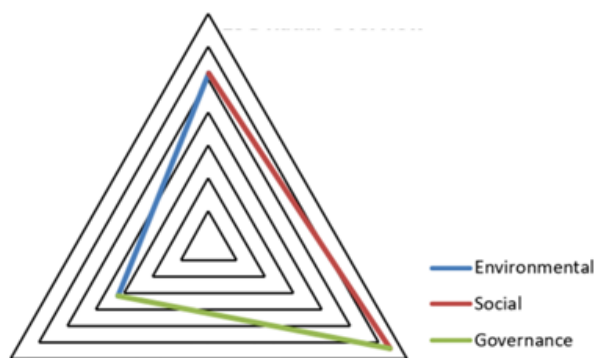


Figure 4 . Visualization of ESG practice in IEBS-GCNI

3.4.5 Participatory sustainability gap mapping outcomes

The FGD-based sustainability mapping produced three priority action clusters:

Cluster 1 – Environmental system strengthening

- Develop written environmental policy.
- Establish energy and waste monitoring logs.
- Integrate environmental indicators into business evaluation.

Cluster 2 – Governance formalization

- Develop ESG governance framework.
- Formalize sustainability roadmap (1–3 years).
- Define measurable ESG KPIs.

Cluster 3 – Sustainability reporting preparation

- Align financial records with ESG indicators.
- Prepare simplified ESG dashboard.
- Develop annual sustainability summary report.

These priorities directly informed the Sustainability Action Planning stage.

Integrated dashboard interpretation The quantitative dashboard visually demonstrates the following.

- Strong Social capital.
- Moderate Environmental readiness.
- Weak Governance system integration.
- Overall ESG readiness above midpoint but below advanced maturity.

Qualitative evidence explains why the radar profile is asymmetrical: institutional culture is socially strong, but formal governance systems lag behind value-based practices.

subsection 3.4 confirms that ESG assessment scores were not merely numerical outputs but reflected institutional dynamics. Interviews and participatory mapping revealed that IEBS GCNI possessed strong normative capital and entrepreneurial orientation; however, ESG institutionalization required governance strengthening and systematic measurement mechanisms.

The qualitative findings validate the quantitative classification of IEBS GCNI as Developing (Programmatic), and they provide actionable institutional direction for sustainability transition toward a structured ESG governance model.

3.5 Integrated discussion: Linking quantitative and qualitative findings

This section integrates the statistical impact results with institutional ESG assessment findings to provide a coherent interpretation of sustainability readiness at IEBS GCNI.

3.5.1 Learning impact and institutional readiness

The quantitative analysis showed a statistically significant improvement in ESG literacy following the intervention (mean difference = 1.625; t = 13.275), which was categorized as High Improvement. This finding confirms that the PkM program strengthened participants' understanding of ESG principles, green MSME practices, and sustainability governance.

Qualitative interviews and FGDs supported this result. Participants demonstrated clearer differentiation between informal practices and documented governance systems, and they recognized the need for measurable indicators and structured reporting. The shift from value-based claims,

such as “we already practice sustainability,” to system-based reflection, such as “we need documentation and monitoring,” indicates cognitive and institutional alignment. In this way, increased ESG literacy translated into greater governance awareness.

3.5.2 ESG index and dimensional asymmetry

The ESG institutional score reached 61.67%, placing IEBS–GCNI in the Developing (Programmatic) Stage. However, dimension-level analysis reveals imbalance as shown on Table 5.

Table 5. Dimension-level analysis reveals imbalance

Dimension	Score	%	Interpretation
Environmental	26/42	61.9%	Operational but partially measured
Social	32/36	88.9%	Strong institutional capital
Governance	16/42	38.1%	Structural and documentation gap

The Social dimension was the strongest due to embedded Islamic values, entrepreneurship training, and community engagement. These elements were culturally institutionalized rather than driven by compliance requirements.

The Environmental dimension reflected operational awareness, including waste separation and energy efficiency, but lacked systematic monitoring and documentation of environmental risks.

The Governance dimension remained the weakest. Although leadership commitment was evident, documentation, performance indicators, and sustainability roadmaps were limited. Governance practices were largely personality-driven rather than system-driven.

3.5.3 Self vs external assessment: Governance awareness effect

The reconciliation process reduced the total score from 87 (self-assessment) to 74 (externally validated), revealing optimism bias in initial scoring. Participants initially equated the existence of a practice with full implementation, whereas higher scores required documented systems supported by periodic evaluation.

This discrepancy became a learning mechanism. The dual-scoring approach enhanced objectivity, clarified maturity standards, and triggered institutional reflection on gaps in reporting, monitoring, and formal governance structures.

3.5.4 Integrated interpretation

The combined findings indicate that IEBS GCNI was transitioning from normative sustainability, characterized by value-driven practices, to structured ESG governance, characterized by measured and documented systems. Social capital and leadership vision provided a strong foundation; however, governance formalization and performance measurement remained priority areas. Three strategic implications emerged. First, governance formalization through the development of a documented ESG policy,

key performance indicators (KPIs), and a sustainability roadmap. Second, environmental measurement through transition from operational practice to performance tracking. Third, reporting readiness through preparation for structured ESG disclosure aligned with the green economy transition.

3.5.5 Contribution

This study contributes a structured ESG diagnostic model for Islamic entrepreneur boarding schools by integrating pre- and post-intervention literacy measurement, ESG index development and maturity classification, participatory sustainability mapping, and a dual-score reconciliation mechanism. The integration of quantitative and qualitative evidence strengthened the validity of the institutional assessment and positioned IEBS GCNI as a bridging model between Islamic entrepreneurship and structured ESG governance. IEBS GCNI was not at an initial awareness stage; it was at the threshold of institutional ESG consolidation.

4. CONCLUSION AND STRATEGIC IMPLICATION

4.1 Conclusion

This community engagement program (PkM) systematically mapped and assessed the Environmental, Social, and Governance (ESG) readiness of the IEBS GCNI Foundation, Purwakarta. By integrating pre- and post-intervention ESG literacy measurement, institutional ESG scoring, and participatory sustainability mapping, the program produced a structured and evidence-based diagnosis of sustainability governance within a pesantren-based MSME ecosystem.

Quantitative findings confirmed a statistically significant improvement in ESG literacy and sustainability awareness (mean difference = 1.625; $t = 13.275$), indicating a strong cognitive impact from the training and mentoring intervention. At the institutional level, the ESG Index reached 61.67%, placing IEBS GCNI in the Developing (Programmatic) stage. Dimension-based analysis revealed a differentiated maturity structure: the Social dimension was highly embedded (32 out of 36), the Environmental dimension was operational but partially measured (26 out of 42), and the Governance dimension was structurally present but insufficiently formalized (16 out of 42).

The discrepancy between self-assessment (87) and externally validated scoring (74) underscores the importance of governance calibration. Dual-score reconciliation strengthened evaluation objectivity and identified areas requiring documentation, systematization, and performance measurement. Overall, IEBS GCNI demonstrated strong ethical and social foundations, emerging environmental operational capacity, and developing governance formalization. The institution was transitioning from value-based sustainability to structured ESG governance.

4.2 Strategic implication

The primary institutional priority lay in strengthening the Governance dimension. Formal articulation of ESG policy, measurable key performance indicators (KPIs), structured financial transparency, and a 1 to 3-year sustainability roadmap were essential for advancing institutional maturity. Governance consolidation would also strengthen access to green financing, corporate social responsibility (CSR) partnerships, and sustainable supply chain opportunities. Environmental practices, such as waste management, energy efficiency, and resource monitoring, were present but required systematic documentation and impact measurement. A shift from implementation to measurable performance would enhance institutional credibility and sustainability readiness.

The ESG mapping framework developed through this PkM provides a replicable diagnostic model for Islamic entrepreneur boarding schools. By combining literacy assessment, institutional scoring, participatory mapping, and maturity classification, the framework bridged regulatory sustainability expectations with pesantren-based MSME governance practices.

4.3 Final reflection

IEBS GCNI possessed strong social capital and an Islamic ethical orientation. Its next strategic advancement depended on governance formalization and measurable sustainability integration. This program demonstrates that pesantren-based MSME ecosystems can evolve into accountable, sustainability-oriented institutions aligned with Indonesia's green economy transition.

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CONFLICT OF INTERESTS

The authors declare that they have no conflicts of interest related to the implementation of this community service activity.

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