**Library Progress International** *Print version ISSN 0970 1052*
*Vol.44 No.2,July-December 2024: P.121-131* *Online version ISSN 2320 317X*

*Original Article* *Available online at www.bpasjournals.com*

# Plan to Build a Korean-Style Small and Medium-Sized Enterprise Integrated Management System that Includes ESG Management

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**How to cite this article**: Ik-Gu Park, Soo-Yong Park and Dong-Hyung Lee (2024). Plan to Build a Korean-Style Small and Medium-Sized Enterprise Integrated Management System that Includes ESG Management. *Library Progress International,* 44(2), 121-131.

**ABSTRACT**

In the face of the recently worsening climate change crisis, the importance of non-financial values such as ESG is emerging. Under this trend, demands for ESG management from various stakeholders are continuously spreading throughout the industry. There is a need to introduce corporate ESG management, due to strengthening regulations by governments in each country and demands for ESG practice from institutional investors and customers. However, small and medium-sized enterprises still lack awareness of ESG management, and even if they are aware of it, it is very difficult to introduce ESG management in poor environments such as finances, human resources, and technology.

Accordingly, this study developed an ESG integrated management system to help small and medium-sized enterprises adopt ESG management. First, we analyzed the requirements structure and content of domestic and foreign standards (ISO 14001, ISO 50001, KS I 7001, ISO 26000, ISO 45001, ISO 27001, ISO 37001, ISO 37301, K-ESG Guidelines), and integrated the requirements in accordance with the HLS (High Level Structure) of ISO/IEC Annex SL. As a result, one type of ESG integrated manual and 12 types of work procedures for each field were developed, and a gap analysis of the developed ESG integrated manual was performed to verify that there were no omissions in the requirements of the applied standards. This integrated management system is expected to be very useful in introducing and operating ESG management along with existing management systems in small and medium-sized businesses. The developed ESG integrated management system is currently being applied and operated by K-Company. In the future, continued researches to verify the effectiveness of the ESG-integrated management system are needed.

**KEYWORDS**

Small and medium-sized enterprise, ESG management, ESG management system, K-ESG guideline, Integrated management system.

## 1. INTRODUCTION

ESG stands for Environment, Society, and Governance, and refers to the three core elements of corporate management to achieve sustainability by focusing corporate management activities on environmental management, social responsibility, and sound and transparent governance (Ministry of Trade, Industry and Energy, 2021). Therefore, ESG management means pursuing sustainable corporate development through eco-friendly and socially responsible management and transparent management from a mid- to long-term perspective of corporate value management of non-financial elements of the environment, society, and governance structure. In a report by the Korea Chamber of Commerce and Industry and KPMG Samjong (2021), four reasons for the introduction of ESG management were shown: increased investor demand, increased ESG demand from customers, reflection of ESG in corporate evaluations, and strengthening of

government ESG regulations. The core of ESG evaluation is to assess how exposed the company is to risk and opportunity factors and to what extent they are managing the key issues for each industry to which weights are applied. In other words, the key is to manage these major issues within the industry to which the company belongs (Lee & Choi, 2021; AlZubi, 2023; Bong-Hyun, Alamri, & AlQahtani, 2024).

In order to understand ESG management, it is necessary to first look at the meaning of sustainability. Sustainable development first appeared as an agenda in 1987 in a report called Our Common Future jointly adopted by the United Nations Environment Program (UNEP) and the World Commission on Environment and Development (WCED). In the so-called Brundtland report, sustainable development was defined as "development that can maintain the resources and potential needed for future generations." Subsequently, the 'Rio Declaration' was adopted at the Rio Conference in Brazil in 1992, followed by the Climate Change Convention, the Convention on Biological Diversity, and the Convention to Combat Desertification. In 1997, the Global Reporting Initiative (GRI), a non-profit organization, was established and presented guidelines for sustainability management reports (Lee & Choi, 2021; Jin, 2023; Wihardjo et al., 2024).

In Korea, at the request of investment institutions (investors), large companies listed on the Korea Exchange with assets exceeding KRW 2 trillion are required to disclose corporate sustainability reports. It is recommended that voluntary disclosure be made by the end of 2024, and mandatory disclosure will be made sequentially from 2025. The ESG term began to be widely used in 2006, when the UN announced PRI (Principles for Responsible Investment) and recommended responsible investment principles that take ESG factors into account (UN PRI, 2006). Meanwhile, in February 2022, the EU Parliament announced the 'EU Corporate Sustainability Due Diligence Directive,' which calls for the enactment and revision of laws related to the supply chain of member countries. Currently, as the demand for supply chain due diligence is gradually expanding, led by the EU, insufficient ESG management can be a risk for domestic manufacturers linked to the supply chain (Ministry of Trade, Industry and Energy, 2022). Therefore, manufacturing small and medium-sized enterprises must prepare to respond to supply chain due diligence and prepare for ESG-related risks. The EU's ESG policy will be a prerequisite for selecting EU exports and supply chains, and as a result, related companies need to prepare a rapid response. If the supply chain due diligence system is implemented, not only companies entering the EU market but also their partners must comply with regulations related to climate change, labor, and human rights protection in line with EU standards. In addition, guidelines that meet EU standards are needed, and the ripple effect of supply chain due diligence on the overall industry is expected to be very large (Kang & Lee, 2022; Porwal et al., 2024; Napierała, 2012; Jamnik et al., 2024; Sachdeva et al., 2024; George & Chandrashekara, 2022). The results of the SME ESG survey by the Korea Small and Medium Venture Business Corporation in July 2021 showed 'prepared or preparing' (25.7%), 'no preparation plan' (34.6%), and 'planning to prepare' (39.7%) (Korea SMEs and Startups Agency, 2021). In this way, the adoption of ESG management by small and medium-sized enterprises can be seen as still insufficient. In response, the Ministry of Trade, Industry and Energy (2022) analyzed about 600 ESG evaluation indicators around the world and announced the 'K-ESG Guidelines' to help domestic small and medium-sized enterprises adopt ESG management and respond to supply chain due diligence.

Existing ESG-related research content that is relevant to this study is as follows. Yang (2022) analyzed domestic ESG management trends and related trends and policy implications using a database of 81,701 news articles collected under the keywords "ESG" and "ESG management" from 2020 to 2022 and announced as follows. First, ESG-related research is actively being conducted in academia, and discussions on introducing ESG management are occurring throughout the industry. Second, as a result of analyzing the relationship between 'ESG' and 'ESG management', discussions on introducing ESG management, establishing related organizations, and establishing K-ESG evaluation standards are spreading. Third, there is discussion about the difficulties of introducing ESG management in small and medium-sized enterprises. Park, Han, and Lee (2022) performed a keyword network analysis targeting ESG news articles related to small and medium-sized enterprises, small and medium-sized enterprise ESG support policies, and ESG papers published in KCI. As a result, it was said that small and medium-sized businesses need policy support to revitalize ESG management across ESG areas in the future. Cho and Lee (2023) performed a survey on the evaluation criteria of the 'K-ESG Guidelines' for companies with ESG ratings from domestic and foreign rating agencies and derived the following results. First, the 'K-ESG Guidelines' provide detailed and clear standards for individual companies to set their own ESG practice directions and ESG goals. Second, it has 61 diagnostic items and 12 additional diagnostic items that cover indicators from domestic KCGS and global ESG evaluation agencies, making it suitable for domestic and international ESG evaluation standards. Third, the rating of the 'K-ESG Guidelines' was lower or similar to that of KCGS, a domestic rating agency, and among global rating agencies, the rating was higher than MSCI and lower than Refinitiv. Fourth,

the ease of application of the 'K-ESG Guidelines' in ESG evaluation is judged to be high. Fifth, as an improvement to the 'K-ESG Guidelines,' the government needs to use industry average statistics for diagnostic items in the K-ESG environment (E) area and announce them on an ESG-specific website. Oh (2023) said that as the average temperature of the Earth rises by 1.5℃over the next 20 years, there is a need to manage the environmental impact throughout the entire product life cycle as part of achieving 'carbon neutrality.'

Existing research on management systems can be reviewed as follows. Nam (2004) stated that in order for a company to effectively establish and implement an environmental management system, it must create an environmentally friendly corporate culture, raise awareness for continuous development, participate in establishing and improving the environmental management system across the company, manage environmental goals of environmental impact factors, and it was said that improvement through self-evaluation was necessary. Heo (2022) said that "operation management through a systematic document management system" and "management's interest and support of resources" are necessary as effective operation plans for the safety and health management system. Park (2008) integrated PSMS, QMS, and EMS and developed and applied key performance indicators (KPIs) to verify effectiveness. Kim (2017) said that in a situation where management system standards are continuously being expanded and established, the need for standards integration also increases. He also said that an integrated management system has a positive impact on business efficiency, risk performance, and financial performance. Go (2010) argued through hypothesis testing that companies that carry out continuous management activities under an integrated management system can maximize management performance. Choi (2013) built an integrated ISO 9001, ISO 14001, ISO 50001, and OHSAS 18001 management system based on the domestic construction market. He said that by establishing an integrated management system, time and cost savings, increased efficiency, synergy effects, and improved global market competitiveness can be achieved. Seo (2012) conducted research on the integration method of ISO 9001, ISO 14001, OHSAS 18001, and ISO 50001 management systems. He said that maintaining different or overlapping systems in the same company wastes resources and reduces the operating effectiveness of the system. Kim (2010) presented the effectiveness and methodology of the integrated management system of ISO 9001, ISO 14001, and OHSAS 18001.

To summarize the previous studies reviewed so far, the contents included the impact of ESG management on corporate performance, the necessity of ESG management, the direction of support for the introduction of ESG in small and medium-sized enterprises, and research on management system integration measures. In particular, it was confirmed that research on establishing an integrated management system was conducted from the perspective of simply integrating the organization's management system, such as ISO 9001, ISO 14001, and ISO 45001. Many of these ISO integrated management system studies were conducted before the HLS of Annex SL was implemented, and considering that most ISO requirements have been recently revised, their usability is significantly reduced. This study is believed to be valuable in that it has established a Korean-style ESG integrated management system by integrating multiple ESG-related management systems and applying the K-ESG guidelines and KS I 7001 and KS I 7002 to the process.

## 2. MATERIALS AND METHODS

In this study, a survey was conducted to determine the awareness and adoption status of ESG among domestic manufacturing small and medium-sized enterprises. SPSS program was used to analyze the statistical characteristics of the survey response data, and the analysis results were shown in Figure 1. In response to awareness of ESG, 65%, as 'aware of it,' and in response to the status of ESG adoption, 77% were surveyed as 'not prepared.' These results show a situation where it is still difficult for small and medium-sized enterprises in poor environments to introduce ESG management while ESG-related regulations and policies are being strengthened.

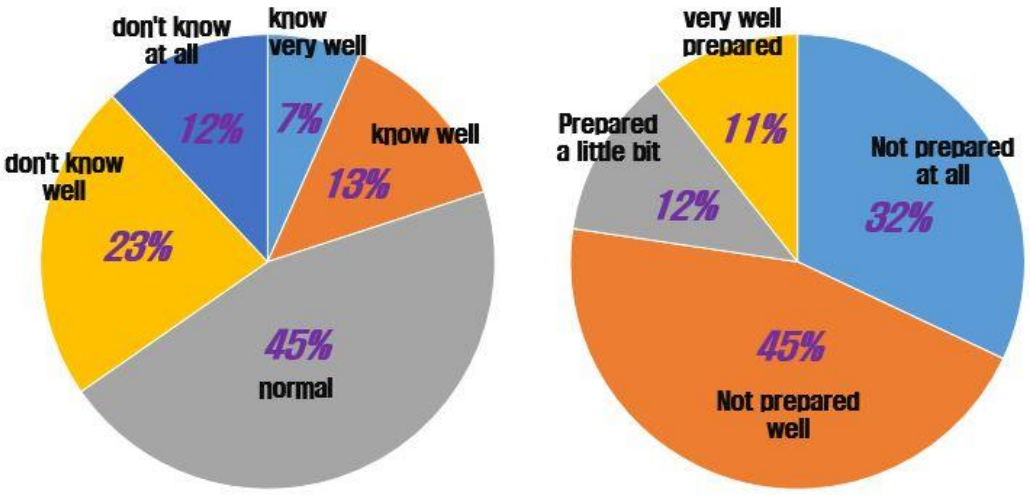


*Figure 1. Status of ESG management awareness and adoption in small and medium-sized enterprises*

Accordingly, this study aims to develop an ESG integrated management system to help small and medium-sized enterprises adopt ESG management. The research methods and procedures are as follows. First, domestic and international standards related to ESG were selected. Second, the requirements for each derived standard were analyzed. Third, among related standards, the requirements of the ISO management system were integrated into high level structure. Fourth, an ESG integrated management system was established by applying ISO 26000, KS I 7001, and K-ESG guidelines. Lastly, we developed a manual and work procedures that reflect the current situation of small and medium-sized businesses.

### 2.1. Selection of domestic and international standards related to ESG

In order to build an ESG integrated management system, domestic and international standards related to ESG had to be selected. First, the relevant standards were matched for each in-depth diagnosis item based on the K-ESG guidelines and standards related to ESG were selected based on these matching results.

#### 2.1.1. Standard matching for each K-ESG diagnostic item

The contents of the supply chain response K-ESG guidelines are as follows. First, the basic diagnostic item definition consists of 25 diagnostic items in 12 categories that companies must manage for minimum response in supply chain ESG diagnosis/due diligence. Second, the in-depth diagnostic item definition consists of 60 diagnostic items in 18 categories to respond to supply chain ESG diagnosis/due diligence in earnest, and includes 25 basic diagnostic items. Third, the additional diagnostic item definition consists of six additional diagnostic items that companies can use in consideration of company size and management style, in addition to the basic/advanced diagnostic item definition. Fourth, the ESG Business Standard Manual consists of a manual that small and medium-sized companies can refer to in practice to promote ESG management[22].

Here, related standards were matched for each of the 60 in-depth diagnosis items of the K-ESG guidelines for supply chain response, and the results are shown in Table 1.

*Table 1: Matching domestic and international standards for each K-ESG diagnosis item*

| Areas | Categories | Diagnostic Items | Standards |
|---|---|---|---|
| **Information disclosure(P) (4 items)** | **Information disclosure format** | **ESG Information disclosure format**<br>**ESG Information disclosure cycle**<br>**ESG Information disclosure scope**<br>**ESG Information disclosure verification** | **-** |
| **Environment(E) (18 items)** | Environmental management system | Environmental Management Promotion System<br>Environmental management system certification cost<br>Establishment of environmental policy<br>Obtaining environmental permits | ISO 14001<br>ISO 50001 |

| | | | |
|---|---|---|---|
| | Resource | Waste product collection and recycling<br>Raw material usage | KS I 7001 |
| | Energy and greenhouse gases | Energy savings and greenhouse gas reduction<br>Energy usage<br>Greenhouse gas emissions(Scope1&2)<br>Verification of greenhouse gas emissions | ISO 5001<br>KS I 7001 |
| | Hazardous Substances | Management of hazardous substances in products<br>Chemical management in the workplace<br>Waste emissions | ISO 14001<br>KS I 7001 |
| | Air pollution | Air and noise management<br>Air pollutant emissions | ISO 14001<br>KS I 7001 |
| | Water pollution | Water and wastewater management<br>Water usage<br>Water pollutant emissions | ISO 14001<br>KS I 7001 |
| **Social(*S*)<br>(32 items)** | Labor | Percentage of full-time employees<br>Guarantee of freedom of association<br>Collective bargaining and assembly participation | ISO 26000 |
| | Human rights | Establishment of human rights policy<br>Prohibition of forced labor<br>No child labor<br>Compliance with working hours<br>Wage calculation and payment<br>Grievance settlement procedure | ISO 26000 |
| | Diversity and gender equality | Ratio of female members<br>Women's salary ratio<br>Employment ratio for disabled. | ISO 26000 |
| | Safety and health system | Safety and health promotion system<br>Safety and health management system certification ratio<br>Obtaining safety and health license | ISO 45001 |
| | Improvement of work environment | Work environment measurement<br>Safe use of equipment<br>Risk assessment<br>Industrial accident ratio | ISO 45001 |
| | Industrial accident prevention | Emergency response system<br>Fire safety management<br>Emergency exit facility management<br>Environmental and food hygiene management<br>Safety and health communication | ISO 45001 |
| | Shared growth | Responsible sourcing policy<br>Inspection of raw material production site risks | ISO 26000 |
| | Community | Strategic Social Contribution<br>Community service of members | ISO 26000 |
| | Information Protection | Construction of Information protection system<br>Infringement and remedies of personal information | ISO 27001 |
| | Customer relationship | Customer Satisfaction Response System<br>Advertising and promotional ethics | ISO 26000 |

| | | | |
|---|---|---|---|
| **Governance(G) (6 items)** | Ethical management | Ethics Charter and Practice Code<br>Prevention of unethical behavior<br>Anti -competition prevention measures<br>Protection of public interest reporters<br>Information disclosure transparency<br>Ethical rules violation disclosure | ISO 37001<br>ISO 37301 |

### 2.1.2. Deriving ESG-related standards

As a result of matching domestic and foreign standards for each detailed diagnosis item of the K-ESG guideline, the Environmental (E) related standards are ISO 14001, ISO 50001, and KS I 7001, and the Social (S) related standards are ISO 26000, ISO 45001, and ISO 27001, Governance (G) related standards were derived as ISO 37001 and ISO 37301. As a result, domestic and international standards to be applied to the ESG integrated management system were determined as shown in Table 2.

*Table 2: Derivation of ESG-related domestic and international application standards*

| ESG element | Standards at home and abroad |
|---|---|
| **Environment** | ISO 14001 Environmental management system |
| | ISO 50001 Energy management system |
| | KS I 7001 Green management system |
| **Social** | ISO 26000 Guidance on social responsibility |
| | ISO 45001 Occupational health and safety management system |
| | ISO 27001 Information security, cybersecurity and privacy protection - Information security management systems |
| **Governance** | ISO 37001 Anti-bribery management system |
| | ISO 37301 Compliance Management System |
| **General Requirement** | Supply chain response K-ESG guidelines |

## 2.2. ESG Integrated management system design

We analyzed the structure and content of each standard decided to apply to the ESG integrated management system, and most of the standards were in the high-level structure (HLS) of Annex SL. First, the requirements of the standards in the high-level structure (HLS) were integrated, and then the contents of ISO 2600, KS I 7001, and K-ESG guidelines were additionally adjusted to fit the structure.

### 2.2.1. Annex SL HLS

Annex SL is an annex to the ISO/IEC Directives (Part 1) and is a standard for 'management system creators'. This is being used as a good tool to efficiently manage the crowded ISO management system. For organizations that operate more than one management system, it is useful for integration between management systems, and provides value to the organization and customers by using a common standard language. The core of Annex SL can be summarized as HLS (higher level structure), the same core text, and common terms and definitions[23]. Kim[17] said that the International Organization for Standardization (ISO) also legislated Annex SL to enable users to integrate and operate management systems, and management system integration should be actively promoted as international standards for management systems are increased continuously. The structure of Annex SL (See Table 3) consists of 1. Scope, 2. Normative references, 3. Terms and definitions.

*Table 3: Annex SL HLS*

| | |
|---|---|
| **4. Context of the organization**<br>4.1 Understanding the organization and its context<br>4.2 Understanding the needs and expectations of interested parties<br>4.3 Determining the scope of the XXX management system<br>4.4 XXX management system<br>**5. Leadership**<br>5.1 Leadership and commitment<br>5.2 XXX Policy<br>5.3 Organizational roles, responsibilities and Authorities<br>**6. Planning**<br>6.1 Actions to address risks and opportunities<br>6.2 XXX objectives and planning to achieve them<br>**7. Support**<br>7.1 Resources | 7.2 Competence<br>7.3 Awareness<br>7.4 Communication<br>7.5 Documented information<br>**8. Operation**<br>8.1 Operational planning and control<br>**9. Performance evaluation**<br>9.1 Monitoring, measurement, analysis and evaluation<br>9.2 Internal audit<br>9.3 Management review<br>**10. Improvement**<br>10.1 Nonconformity and corrective action<br>10.2 Continual improvement |

### 2.2.2. Mapping ESG integrated management system to HLS

To build an ESG integrated management system, the requirements of ISO 14001, ISO 50001, ISO 45001, ISO 27001, ISO 37001, and ISO 37301 were mapped to HLS (high level structure). Afterwards, the contents of ISO 26000, KS I 7001, and K-ESG guidelines were applied to HLS. The results of this mapping are shown in Table 4.

*Table 4: ESG integrated management system HLS mapping*

| 4. Context of the organization | 5. Leadership | 6. Planning | 7. Support | 8. Operation | 9. Performance evaluation | 10. Improvement |
|---|---|---|---|---|---|---|
| 4.1 Understanding the organization and its context | 5.1 Leadership and commitment | 6.1 Actions to address risks and opportunities | 7.1 Resources | 8.1 Operational planning and control | 9.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS | 10.1 Incident, Nonconformity and corrective action |
| 4.2 Understanding the needs and expectations of workers and interested parties | 5.2 XXX Policy | 6.2 XXX objectives and planning to achieve them | 7.2 Competence | 8.2 Emergency preparedness and response Information security risk assessment and risk treatment | 9.2 Internal audit | 10.2 Continual improvement |
| 4.3 Determining the scope of the XXX management system | 5.3 Organizational roles, responsibilities and Authorities | 6.3 Energy review | 7.3 Awareness | 8.3 Design / Procurement | 9.3 Management review | |
| 4.4 XXX management system | 5.4 Consultation and participation of workers | 6.4 Energy performance indicators | 7.4 Communication | 8.4 Establishing controls and procedures | 9.4 Review by anti-bribery compliance function | |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |
| 4.5 Compliance obligations | | | | | 6.5 Energy baseline | | | 7.5 Documented information | | | | 8.5 Due diligence | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 4.6 Risk assessment of Bribery and Compliance | | | | | 6.6 Planning for collection of energy data | | | | | | | 8.6 Financial/Non-financial controls | | | | | | | |
| | | | | | | | | | | | | ⋮ | | | | | | | |
| **•General Requirement: ISO 26000<br>•Environment(E): ISO 14001, ISO 50001<br>•Social(S): ISO 45001, ISO 27001<br>•Governance(G): ISO 37001, ISO 37301** | | | | | 6.7 Planning of changes | | | | | | | 8.12 Investigation processes, Investigating and dealing with bribery | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

## 3. RESULTS AND DISCUSSION

To build an ESG integrated management system, we mapped the requirements of the applied standards and developed an ESG management manual based on this. The developed manual reflected the minimum work procedures in consideration of the characteristics of small and medium-sized businesses and simplified the number of derived work procedures. To check whether the contents of the ESG management manual reflected the requirements of each standard without omission, a gap analysis was performed as shown in Table 5, and it was confirmed that there were no problems.

*Table 5: Gap analysis results of ESG management manual and standards*

| **ESG Manual** | **ISO 14001** | **ISO 50001** | **ISO 45001** | **ISO 27001** | **ISO 37001** | **ISO 37301** | **ISO 26000** | **KSI 7001** |
|---|---|---|---|---|---|---|---|---|
| **4. Context of the organization** | | | | | | | | |
| 4.1 Understanding the organization and its context | √ | √ | √ | √ | √ | √ | √ | √ |
| 4.2 Understanding the needs and expectations of workers and interested parties | √ | √ | √ | √ | √ | √ | √ | √ |
| 4.3 Determining the scope of the ESG management system | √ | √ | √ | √ | √ | √ | √ | √ |
| 4.4 ESG management system | √ | √ | √ | √ | √ | √ | √ | √ |
| 4.5 Compliance obligations | N/A | N/A | N/A | N/A | N/A | √ | N/A | N/A |
| 4.6 Risk assessment of Bribery and Compliance | N/A | N/A | N/A | N/A | √ | √ | N/A | N/A |
| **5. Leadership** | | | | | | | | |
| 5.1 Leadership and commitment | √ | √ | √ | √ | √ | √ | √ | √ |
| 5.2 ESG Policy | √ | √ | √ | √ | √ | √ | √ | √ |
| 5.3 Organizational roles, responsibilities and Authorities | √ | √ | √ | √ | √ | √ | √ | √ |
| 5.4 Consultation and participation of workers | N/A | N/A | √ | N/A | N/A | N/A | N/A | N/A |
| **6. Planning** | | | | | | | | |
| 6.1 Actions to address risks and opportunities | √ | √ | √ | √ | √ | √ | √ | √ |
| 6.2 ESG objectives and planning to achieve them | √ | √ | √ | √ | √ | √ | √ | √ |
| 6.3 Energy review | N/A | √ | N/A | N/A | N/A | N/A | N/A | N/A |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6.4 Energy performance indicators | N/A | √ | N/A | N/A | N/A | N/A | N/A | N/A |
| 6.5 Energy baseline | N/A | √ | N/A | N/A | N/A | N/A | N/A | N/A |
| 6.6 Planning for collection of energy data | N/A | √ | N/A | N/A | N/A | N/A | N/A | N/A |
| 6.7 Planning of changes | N/A | N/A | N/A | N/A | N/A | √ | N/A | N/A |
| **7. Support** | | | | | | | | |
| 7.1 Resources | √ | √ | √ | √ | √ | √ | √ | √ |
| 7.2 Competence | √ | √ | √ | √ | √ | √ | √ | √ |
| 7.3 Awareness | √ | √ | √ | √ | √ | √ | √ | √ |
| 7.4 Communication | √ | √ | √ | √ | √ | √ | √ | √ |
| 7.5 Documented information | √ | √ | √ | √ | √ | √ | √ | √ |
| **8. Operation** | | | | | | | | |
| 8.1 Operational planning and control | √ | √ | √ | √ | √ | √ | √ | √ |
| 8.2a Emergency preparedness and response | √ | N/A | √ | N/A | N/A | N/A | N/A | √ |
| 8.2b Information security risk assessment and risk treatment | N/A | N/A | N/A | √ | N/A | N/A | N/A | N/A |
| 8.3 Design, Procurement | N/A | √ | N/A | N/A | N/A | N/A | N/A | N/A |
| 8.4 Establishing controls and procedures | N/A | N/A | N/A | N/A | N/A | √ | N/A | N/A |
| 8.5 Due diligence | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.6 Financial/Non-financial controls | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.7 Implementation of anti-bribery controls by controlled organizations and by business associates | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.8 Anti-bribery commitments | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.9 Gifts, hospitality, donations and similar benefits | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.10 Managing inadequacy of anti-bribery controls | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| 8.11 Raising concerns | N/A | N/A | N/A | N/A | √ | √ | N/A | N/A |
| 8.12 Investigation processes, Investigating and dealing with bribery | N/A | N/A | N/A | N/A | √ | √ | N/A | N/A |
| **9. Performance evaluation** | | | | | | | | |
| 9.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS | √ | √ | √ | √ | √ | √ | √ | √ |
| 9.2 Internal audit | √ | √ | √ | √ | √ | √ | √ | √ |
| 9.3 Management review | √ | √ | √ | √ | √ | √ | √ | √ |
| 9.4 Review by anti-bribery compliance function | N/A | N/A | N/A | N/A | √ | N/A | N/A | N/A |
| **10. Improvement** | | | | | | | | |
| 10.1 Incident, Nonconformity and corrective action | √ | √ | √ | √ | √ | √ | √ | √ |
| 10.2 Continual improvement | √ | √ | √ | √ | √ | √ | √ | √ |

Next, we developed work procedures for each major process according to the operation of the ESG integrated management system. These procedures supplement the manual and present detailed work procedures for each process. The developed procedures focused on practicality and simplification so that small and medium-sized businesses can directly use them in their work. In relation to ISO 14001, environmental aspects and environmental impact assessment procedures were established focusing on the contents of 6.1, and environmental operation management procedures were established focusing on the contents of 8. Regarding ISO 50001, energy management procedures were established focusing on the

contents of 6 and 8. Regarding KS I 7001, a performance indicator management procedure was established by applying 8.1 and KS I 7002 requirements. In relation to ISO 45001, a risk assessment procedure was established focusing on the contents of 6.1 and the Occupational Safety and Health Act, and a safety and health operation management procedure was established focusing on the contents of 8. Regarding ISO 27001, an information security operation management procedure was established focusing on the contents of paragraphs 6 and 8. Regarding ISO 37001 and ISO 37301, a corruption risk assessment procedure was established focusing on the contents of 6.1, and a compliance operation management procedure was established focusing on the contents of 8. In common, a management responsibility procedure was established focusing on the contents of 5 and 9.3, and a document management procedure was established focusing on the contents of each 7.5. Additionally, legal management and compliance evaluation procedures were established. The requirements of ISO 26000 and the evaluation indicators of the K-ESG guidelines were reflected in the manual and each operation management procedure.

## 4. CONCLUSION

It is very difficult for small and medium-sized businesses to introduce and operate ESG management due to resource and manpower constraints. Nevertheless, small and medium-sized businesses must accept ESG management as a necessity for survival, not as an option. In this paper, we developed an ESG integrated management system to help small and medium-sized enterprises adopt ESG management. Domestic and international standards related to environment (E), society (S), and governance (G) were derived, the structure and requirements of each standard were analyzed, and integrated into one system. Based on this, we developed an ESG manual and 12 types of work procedures that reflect the actual circumstances of small and medium-sized businesses. This integrated management system is expected to be very useful in introducing and operating ESG management along with existing management systems in small and medium-sized businesses. The developed ESG integrated management system is currently being introduced and operated at K-Company. In the future, continue researches to verify the effectiveness of the ESG integrated management system are needed.

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