2020

ESG Disclosure Guidance

KRX KOREA EXCHANGE

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1. Purpose

As investors increasingly recognize the importance of incorporating Environmental, Social, and Governance (collectively "ESG") policies into the companies' business strategies for long-term value creation, demand for disclosure of non-financial information including ESG is rising across the globe, and Responsible Investment that reflects ESG in investment decisions is also on the rise. Accordingly, how companies manager ESG-related risks and opportunities is becoming critical to asset managers and asset owners in their assessment of company value and investment decisions. For efficient allocation of capital in the capital market, provision of sufficient information is essential, and lack of information makes it difficult to assess asset values properly, which will ultimately result in inefficient allocation of capital.

However, only a few companies voluntarily disclose ESG information in Korea, and many do not recognize its necessity. Currently there are some local regulations on ESG disclosure and there are various ways of doing it. Greenhouse gas emissions and energy consumption are to be included in business reports, and companies are voluntarily disclosing EGS information by releasing sustainable business reports, sustainability reports and integrated reports. In addition, companies with total assets of KRW 2 trillion or more are required to submit corporate governance report that should include whether they are complying with the core principles of corporate governance and if not, what reasons they have for non-compliance.

This document is intended to raise the awareness of KOSPI issuers and investors of sustainable business, promote the culture of sustainable investment by encouraging more active ESG disclosure, and provide basic principles on ESG disclosure to companies who voluntarily disclose ESG information through sustainable business reports, sustainability reports and integrated reports. This is not applicable to companies with assets of KRW 2 trillion or more, however, as separate guidelines exist for such companies who should submit corporate governance report in accordance with the relevant disclosure rules. The way companies disclose ESG information varies depending on the industry they belong to or the business they run, and there is no principle that can universally apply to all companies. Therefore, companies can refer to this guidance for establishing their own ESG reporting framework, but they need to consider the uniqueness of the industry they belong to or the business they engage in.

2. Definition of ESG

2.1 Definition of ESG

While ESG can be defined in various ways, it is generally understood to embrace environment, social and governance factors that can affect companies' ability to execute business strategies and improve corporate value. Sometimes it is interchangeably used with "sustainability", which can have various meanings, but according to Sustainable Development Act, the term is defined as "finding balance in meeting the needs of the current generation without wasting economic/social/environmental resources that our future generations would need". In this guidance, the term "ESG" is used because it is most commonly used.

ESG factors | examples |

Environmental	Social	Governance
· Climate change · Resource depletion · Water usage · Air pollution · Deforestation	· Human rights · Modern slavery · Child labor · Working conditions · Employee relations	· Corruption and bribery · Executive compensation · Board structure and diversity · Donations and political lobbying · Tax strategy

(Source: UN Principles for Responsible Investment)

ESG information is often referred to as non-financial information, and how companies manage ESG factors can affect companies' financial outcome. ESG can have financial impact on the following areas.

Financial impact of ESG factors

(Source: Sustainable Stock Exchange Initiative)

To take an example, the risks companies are facing due to resource depletion and/or climate change are getting bigger and bigger. This leads us to conclude that how well companies manage such risks can have enormous impact on their profitability and long-term survival.

2.2 Necessity of ESG disclosure

2.2.1 Rising concerns over climate risks

One of the biggest risks companies are facing these days comes from climate change. According to the IPCC (Intergovernmental Panel on Climate Change), the main cause of climate change is greenhouse gas emissions[1)], and 78% of the increase in greenhouse gas emissions from 1970 to 2010 can be accounted for by CO2 emissions from fossil fuel consumption and industrial plants.

As concerns over climate risks grow, global leaders came to sign the UNFCCC (UN Framework Convention on Climate Change) at the UN Conference on Environment & Development held in 1992. The UNFCCC aims to keep the concentration of greenhouse gases in the atmosphere at a level that does not threaten the climate system. This was further developed by the 1997 Kyoto Protocol, which set out emissions targets for advanced countries, and then evolved into the Paris Agreement on climate change in 2015, which required all countries to reduce greenhouse emissions. The Paris Agreement sets out the goal of keeping the average temperature rise within 2℃ above pre-industrial levels and going further to limit it down to 1.5℃. Going along the same line, Korea set a target of 37% reduction against BAU (business as usual)[2)] by 2030, and recently announced a project called Green New Deal to turn its economy into one that is clean and less reliant on carbon.

Turning into a low-carbon economy requires significant changes across the economy and industries, and thus investors and companies should think about what strategies will work best in the long run and how to best allocate capital. While climate change brings risks to companies, it can also create new opportunities for them. As investors and lenders consider which company is exposed to climate risks and which company is managing them well in their investment decisions, demand for climate information is on the rise. This is because lack of such information could lead to a disregard for climate risks, which should ultimately result in ill-informed decisions.

Recognizing the importance of financial stability to shift into a low-carbon economy, the FSB (Financial Stability Board) established, at the request of the G20, the TCFD (Task Force on Climate-related Financial Disclosure) and released recommendations for the disclosure of information needed for investors, lenders and insurers to adequately assess climate risks.

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1) Greenhouse gases refers to gases such as CO2, CH4, N2O, HFCs, PFCs, SF6.
2) Estimated emissions if no action to reduce is taken

Examples of Climate-Related Risks and Potential Financial Impacts

Type	Climate-Related Risks	Potential Financial Impact
Transition Risks	**Policy and Legal**	
	· Increased pricing of GHG emissions · Enhanced emissions-reporting obligations · Mandates on and regulation of existing products and services · Exposure to litigation	· Increased operating costs (e.g., higher compliance costs, increased insurance premiums) · Write-offs, asset impairment, and early retirement of existing assets due to policy change · Increased costs and/or reduced demand for products and services resulting from fines and judgments
	Technology	
	· Substitution of existing products and services with lower emissions options · Unsuccessful investment in new technologies · Costs to transition to lower emissions technology	· Write-offs and early retirement of existing assets · Reduced demand for products and services · Research and development (R&D) expenditures in new and alternative technologies · Capital investments in technology development · Costs to adopt/deploy new practices and processes
	Market	
	· Changing customer behavior · Uncertainty in market signals · Increased cost of raw materials	· Reduced demand for goods and services due to shift in consumer preferences · Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment) · Abrupt and unexpected shifts in energy costs · Change in revenue mix and sources, resulting in decreased revenues · RE-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations)
	Reputation	
	· Shifts in consumer preferences · Stigmatization of sector · Increased stakeholder concern or negative feedback	· Reduced revenue from decreased demand for goods/services · Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions) · Reduced revenue from negative impacts on workforce management and planning (e.g., employee attraction and retention) · Reduction in capital availability
Physical Risks	**Acute** · Increased severity of extreme weather events such as cyclones and floods	· Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions) · Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism) · Write-offs and early retirement of existing assets (e.g., damage to property and assets in "high-risk" locations) · Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants) · Increased capital costs (e.g., damage to facilities) · Reduced revenue from lower sales/output · Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations
	Chronic · Changes in precipitation patterns and extreme variability in weather patterns · Rising mean temperatures · Rising sea levels	

(Source: Task Force on Climate-Related Financial Disclosure)

2.2.2 Growth of Responsible Investment

Recently, institutional investors such as pension funds and asset managers have begun to shift their focus from the financial performance of the companies they invest in to non-financial aspects as a way to manage potential investment risks. This is a form of responsible investment, which originated from ethical investment that is predicated on religious faith and therefore shies away from investing in businesses such as alcohol and gambling, and since then the scope has expanded to include social, environmental, and human rights issues. Taking ESG factors into consideration is becoming a critical part of the investment-decision process of institutional investors, and how companies deal with ESG issues and how they are connected with business strategies are being taken seriously for investment decisions.

In April, 2006, the UN Environment Program/Finance Initiative and UN Global Compact, along with institutional investors around the globe, announced the UN Principles for Responsible Investment, which sets out the importance of considering the financial aspects as well as non-financial aspects (including ESG factors) of the investee companies when pension funds contemplate investing. Signatories to the Principles have grown about 28% over the recent 1 year to reach 3,000 as of Mar, 2020, and their total AUM is estimated at USD 89 trillion.

Growth in PRI signatories by region (as of Mar, '20)

North America	Latin America	Europe	Africa	Middle East	Oceania	Asia	Total
747	105	1,657	88	14	197	230	3,038

(Source: UN Principles for Responsible Investment)

UN Principles for Responsible Investment

1. We will incorporate ESG issues into investment analysis and decision-making processes.
2. We will be active owners and incorporate ESG issues into our ownership policies and practices.
3. We will seek appropriate disclosure on ESG issues by the entities in which we invest.
4. We will promote acceptance and implementation of the Principles within investment industry.
5. We will work together to enhance our effectiveness in implementing the Principles.
6. We will each report on our activities and progress towards implementing the Principles.

(Source: UN Principles for Responsible Investment)

Meanwhile, the Global Sustainable Investment Alliance estimated the sustainable investing assets at about USD 30.7 trillion (as of the end of 2018), growing about 34% from the end of 2016. There are 7 types of sustainable investing, divided by strategy.

Sustainable investing assets by region (unit: billion USD)

	Europe	US	Japan	Canada	Australia/ New Zealand	Total
2018	14,075	11,995	2,180	1,699	734	30,683

(Source: GSIA, 2018 Global Sustainable Investment Review)

7 types of sustainable investing, divided by strategy

Strategy	Details
Negative/exclusionary screening	The exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria.
Positive/best-in-class screening	Investment in sectors, companies or projects selected for positive ESG performance relative to industry peers.
Norms-based screening	Screening of investments against minimum standards of business practice based on international norms, such as those issued by the OECD, ILO, UN and UNICEF.
ESG integration	The systematic and explicit inclusion by investment managers of ESG factors into financial analysis.
Sustainability themed investing	Investment in themes or assets specifically related to sustainability (for example, clean energy, green technology or sustainable agriculture).
Impact/community investing	Targeted investments aimed at solving social or environmental problems, and including community investing, where capital is specifically directed to traditionally underserved individuals or communities, as well as financing that is provided to businesses with a clear social or environmental purpose.
Corporate engagement and shareholder action	The use of shareholder power to influence corporate behavior, including through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting guided by comprehensive ESG guidelines.

(출처 : GSIA, 2018 Global Sustainable Investment Review)

Korea also established its own Stewardship Code in Dec, 2016, and the number of signatories is growing every year. The code emphasizes the fiduciary duties of institutional investors (pension funds, insurers and asset managers), and it requires them to fulfill their social responsibilities in investment decisions and asset management. As of Mar-end, 2020, the number of signatories is 125, growing about 26% from Mar-end, 2018.

Korea Stewardship Code Signatories (as of Mar, '20)

Pension fund	Bank	Securities company	Insurance company	Asset manager	PEF	Others	Total
3	2	3	5	43	37	32	125

(Source: Korea Corporate Governance Service)

7 Principles of the Korea Stewardship Code

1. Institutional investors, as a steward of assets entrusted by their clients, beneficiaries, etc., to take care of and manage, should formulate and publicly disclose a clear policy to faithfully implement their responsibilities.
2. Institutional investors should formulate and publicly disclose an effective and clear policy as to how to resolve actual or potential problems arising from conflicts of interest in the course of their stewardship activities.
3. Institutional investors should regularly monitor investee companies in order to enhance investee companies' mid- to long-term value and thereby protect and raise their investment value.
4. While institutional investors should aim to form a consensus with investee companies, they should formulate internal guidelines on the timeline, procedures, and methods for stewardship activities, where necessary.
5. Institutional investors should formulate and publicly disclose a voting policy that includes guidelines, procedures, and detailed standards for exercising votes in a faithful manner, and publicly disclose voting records and the reasons for each vote so as to allow the verification of the appropriateness of their voting activities.
6. Institutional investors should regularly report their voting and stewardship activities to their clients or beneficiaries.
7. Institutional investors should have the capabilities and expertise required to implement stewardship responsibilities in an active and effective manner.

(Source: Stewardship Code)

The biggest 3 local pension funds (national/government employees/teachers pension) are also joining the efforts to promote responsible investment. The National Pensions Act allows for ESG factors to be considered for pension management, and the national pension fund has embedded the principles of responsible investment into its fund management guidelines. Accordingly, the national pension fund has selected 52 ESG assessment metrics, based on which, it evaluates about 800 investee companies twice a year. When evaluating asset managers for selection, it looks at whether they live up to the spirit of responsible investment, and it has also declared its intention to actively exercise its rights as a shareholder of the investee companies. As of the end of 2019, the national pension fund has KRW 32.2 trillion of assets under management (direct and entrusted fund management combined), a 3.7-fold growth since the end of 2017.

Responsible investment of National Pension Fund (unit: trillion KRW)

2015	2016	2017	2018	2019
6.9	6.4	6.9	26.74	32.17

(Source: National Pension Service)

ESG assessment metrics of National Pension Fund

	ESG issue	Definition	Assessment metrics
E	Climate change	Control of carbon emissions	GHG management system
			Carbon emissions
			Energy consumption
	Clean production	Control of environmentally hazardous substance	Clean production management system
			Use of water
			Use of chemicals
			Air pollutant emissions
			Waste discharge
	Eco-friendly products	Efforts to develop eco-friendly products	Activities to develop eco-friendly products
			Green patents
			Certification of eco-friendly products
			Product enhancements for greener environment
S	Human resources	Working conditions, human rights, and diversity	Pay
			Employee benefits
			Employment
			Organizational culture
			Years of service
			Human rights
			Labor practices
	Industrial safety	Workplace safety	Health and safety system
			External certification of healthy and safe business system
			Designation of workplace with numerous industrial accidents

ESG assessment metrics of National Pension Fund

	ESG issue	Definition	Assessment metrics
S	Suppliers	Fair and reasonable relationship with suppliers	Process to select suppliers
			Voluntary participation program for fair transaction
			Supplier assistance activities
			Violations of subcontracting law
	Product safety	Product safety management	Product safety system
			Certification of product safety management system
			Occurrence of accidents due to lack of product safety
	Fair competition	Efforts to promote fair competition and social development	Installation of internal transaction committee
			Acts that undermine fair competition
			Data protection system
			Donation
G	Shareholder rights	Efforts to protect and communicate with shareholders	Protection of management rights
			Procedures to collect shareholders' opinion
			Notice timing of annual general meeting
	Board composition and activities	Board independence and faithfulness	Separation of CEO and board chair
			Independence of board structure
			Proportion of independent directors in the board
			Board activities
			Installation and composition of compensation committee
			Appropriateness of director remuneration policies
	Audit	Auditor independence	Proportion of independent directors in the audit committee
			Proportion of long-term auditor or audit committee members
			Ratio of audit service costs to non-audit service costs
	Affiliated company risks	Exposure to insolvency of affiliated company	Ratio of contingent liabilities of affiliated company to net assets
			Portion of sales generated by affiliated company
			Portion of receipts generated by affiliated company
	Dividend	Efforts to give back to shareholders including dividend payout	Preparedness to pay out interim/quarterly dividend
			Total shareholder return
			Dividend paid out during the recent 3 years
			Absurdly low dividend

(Source: National Pension Service)

2.2.3 Regulations reinforcing globally

Recognizing the need for more robust market mechanisms in order to achieve national goals in terms of sustainable growth, more and more countries are moving beyond just encouraging companies to voluntarily engage in ESG activities to introducing government-level regulations to better manage ESG performance.

In 2013, 45 countries adopted over 180 sustainability disclosure regulations, and in 2019, 19 countries adopted stewardship code and took actions to impose stricter fiduciary responsibilities.

Particularly in 2014, the European Commission established the EU 2014/95 non-financial reporting directive, and made it mandatory for companies with more than 500 employees to disclose their approach to environmental, social, labor conditions, human rights, and anti-corruption issues, starting from 2018. About 6,000 locations in the EU are subject to the new directive. Information to be disclosed should include the company's approach to the aforementioned issues, their outcome, and the risks involved, as well as the due diligence process that the company has adopted for itself and its suppliers and contractors. The directive would affect Korean companies, too, as the scope encompasses companies who have local subsidiaries or plants in the EU. Furthermore, Korean companies who do business with EU companies could also be asked to provide ESG information.

In the meantime, stock exchanges around the world are moving to institutionalize disclosure of ESG information. As of 2019, 23 exchanges had made disclosure of ESG information part of their regulatory oversight, and 47 exchanges are providing guidance on ESG reporting.[3)]

Companies can proactively respond to such regulatory changes by understanding ESG factors and putting a proper reporting system in place.

3) SSE initiative, United Nations SSE initiative: 10 Years of Impact and Progress, 2019

2.3 Correlation between ESG performance and financial performance

Researches conducted so far at home and abroad show that there is a positive correlation between ESG performance and financial performance, and incorporating sustainability factors into company strategies enhances company performance in the long run. 88% of the researches done show sustainability has a positive correlation with operating profits, and 80% of such researches reveal that sustainability has a positive impact on price-earnings ratio. One research shows fulfilling the social and environmental responsibilities not just contributes to enhancing short-term financial performance, but it also affects the ability to respond to unexpected situations, and such companies were found to suffer less financial volatility, have higher revenue, and stand a better chance of long-term survival.[4] Another research shows companies with high ESG grades generally boast higher price-earnings ratio and better operating results than their peers with low ESG grades.[5]

These results imply that companies need to take a strategic approach to managing ESG factors, as companies with decent ESG grades generally tend to outperform financially. By integrating ESG factors into company strategies, companies can announce their stance on global issues such as climate change and working conditions, which would help putting the economy on a firmer footing.

Correlation between sustainability and financial performance

- 90% of the researches done show better sustainabilitys standards can lower capital costs.
- 88% of the researches done show implementing ESG strategies can enhance the operational performance of companies.
- 80% of the researches done show well-implemented sustainability strategies can have a positive impact on price-earnings ratio.

(Source: Clark, Feiner, and Viehs, 「From the Stockholder to the Stakeholder」, 2015)

4) Natalia Ortiz-de-Mandojana & Pratima Bansal, The Long-term Benefits of Organizational Resilience Through Sustainable Business Practices, Strategic Management 1Journal, Vol. 37, 2016

5) Jang Seung Uk and Kim Yong Hyun, “ESG and Financial Performance of Companies”, 「A Research on Financial Performance」, Book 30 - 1, Korean Finance Association, 2013

3. Responsibilities of the Board and Management

As the risks caused by ESG issues are becoming obvious and drawing attention from more and more investors, the responsibility of the board and management to understand how ESG issues affect the strategies and performance of their company and how to deal with them is getting more and more important.

Company directors need to understand that it is part of their fiduciary duties to manage ESG issues that are serious enough to have noticeable impact. To successfully fulfil such duties, they are required to properly identify and asses the risks caused by ESG issues.

The Board's role in ESG risk identification

ESG risk identification	· Consider how ESG risks could affect your company · Evaluate whether existing processes allow the discovery of ESG risks · Look to a range of sources in identifying ESG risks · Be aware of assumptions in the risk identification process · Integrate identified ESG risks into the Enterprise Risk Management process
ESG risk assessment	· Evaluate the information the board receives on prioritized risks · Use a materiality lens · Consider the board's skills to evaluate ESG risks · Ensure that prioritized ESG risks are surfaced appropriately in board discussions about corporate strategy
ESG risk-related decision-making	· Consider how prioritized ESG risks affect organizational strategy · Understand what strategies are available to mitigate or adapt to ESG risks · Hold executives accountable for addressing ESG risks
Oversight of ESG risks	· Formalize oversight of ESG risks at the board level · Ensure coordinated deliberations on ESG risks across committees
Disclosure of ESG risks	· Disclose the board's role in overseeing ESG risks · Disclose material ESG risks in financial filings

(Source: Ceres, 「Running the Risk」, 2019)

Stakeholders may want to see how ESG issues are managed at the board and management level. Therefore, it is necessary for the board and management to set the ESG targets, integrate ESG factors into company strategies, establish a governance that can address ESG factors and announce their will to manage them.

Company L – Response measures to climate change

Managing climate change risks

Company L categorized climate risks into 3 aspects, identified issues arising from each aspect and risks and opportunities for each issue, and set measures to respond to them.

Aspect	Issues	Risks	Opportunities
Regulatory	Disclosure of emissions / Emissions trading / Products that are more energy efficient	Increase in operational costs to respond to regulatory changes	New businesses such as eco-friendly products
Physical	Average temperature rise / Fluctuations in rainfall due to heavy rain/drought / Uncertainties in physical threats	Increasing portion of energy costs in operational costs / Disasters happening in places of business due to extreme weather / Output reduction	New business opportunities arising from water resource risks
Other	Enhancing brand image / Uncertainties in social factors / Uncertainties in market signals	Drop in market value / Decrease in product/service demand	Improving company image with proactive response measures

Making emissions trading portfolio more sophisticated

Company L introduced a system that analyzes monthly emissions compared to the emissions cap permitted and reflects expected expenses in advance, which helped minimize financial risks, and it established internal policies that require emissions impact to be reflected in the investment decisions on building/expanding facilities, and it also set up 'guidelines on responding to climate change-related regulations' and is checking/overseeing work processes and internal roles and responsibilities for better internal control.

Setting targets for emissions reduction

Company L set mid and long term targets for reducing greenhouse gas emissions and energy usage, and it is achieving the yearly targets by continuously working to improve.

Better energy management

Company L established EnMS (ISO 500001), in addition to improving work processes and equipment efficiency and adopting new technologies, to better manage energy usage at the places of business, through which it can track monthly energy usage. It is also sharing best practices of energy saving and widening the applicability of the technologies proven useful.

Building GEMS

Company L built GEMS (GHG and Energy Management System) and uses it to reflect expected monthly costs for purchasing emissions credit in the production costs, so that it can reduce the risks involved, and it provides regular training to improve the expertise of those responsible for the workplace, and it also issues newsletters to share key issues on energy and climate change at home and abroad with its employees.

Disclosure of information

Company L reports emissions, emissions trading, and energy usage through sustainability report, and it analyzes emissions throughout the entire production cycle at the request of its customers to issue LCA (Life Cycle Assessment) report, and it is also trying to produce more products with carbon footprint certification.

(Source: sustainability report of company L)

4. Disclosure Principles

ESG information should be concrete enough to convey its meaning and coherent enough to fulfill its intended purpose. Information gathered and included in the report should be accurate and the scope of reporting should be defined. In addition, processed information and raw information should be arranged in balance, and both positive and negative impacts should be described from a neutral perspective to prevent biased interpretation. For this, it is required to consider the following principles.

Accuracy

Information provided should be accurate so that the stakeholders can properly assess the company performance. Errors might occur during the course of information collection and analysis, and therefore those who write up the report should be alert to any misrepresentation or omission.

Clarity

Disclosures should be made to meet the purpose of providing information that the stakeholders demand and information should be provided in a way the stakeholders can understand with ease. Disclosures should be neither too granular nor too sketchy. A right mix of qualitative and quantitative information is recommended.

Comparability

Information provided should allow the stakeholders to evaluate the company performance against its targets as well as compare it with other companies. To this end, methodologies used for disclosure should be consistent, and in case of any material change in the way metrics are generated, previous information should be corrected and the changes made should be specified. To enhance comparability across different companies, it is desirable to use global standards and recommended metrics and methodologies for reporting.

Balance

Many companies tend to downplay negative issues that happened to them and overemphasize positive actions they took. This is, however, not good for the stakeholders to evaluate the company performance in a reasonable way and not good for ensuring the completeness of information, either. Both positive and negative information should be included in the report. For negative issues, it would be wise to show how actively the company has been acting to deal with them.

Verifiability

Information should be defined, collected and recorded in a way it can be verified, and any disclosure of information should be done following the internal controls similar to those used for financial reporting. To enhance the report quality, verification by a 3rd party is recommended, and the level, scope, and process of such verification need to be specified in the report.

Timeliness

Disclosure needs to be made on a regular basis in order for the stakeholders to efficiently use information. For timely disclosure, the timing of disclosing financial information and ESG information needs to be within a similar time period, and it is advised to disclose ESG information as soon as possible once the financial report is issued. If the ESG issue in question could affect the company's financial results materially, then it is recommended to disclose such information at a time considered most opportune.

ESG disclosure principles

TCFD Fundamental Principles for Effective Disclosures

Principle 1: Disclosures should represent relevant information.

The organization should provide information specific to the potential impact of climate-related risks and opportunities on its markets, businesses, corporate or investment strategy, financial statements, and future cash flows.

- Disclosures should be eliminated if they are immaterial or redundant to avoid obscuring relevant information. However, when a particular risk or issue attracts investor and market interest or attention, it may be helpful for the organization to include a statement that the risk or issue is not significant. This shows that the risk or issue has been considered and has not been overlooked.
- Disclosures should be presented in sufficient detail to enable users to asses the organization's exposure and approach to addressing climate-related issues, while understanding that the type of information, the way in which it is presented, and the accompanying notes will differ between organizations and will be subject to change over time.
- Climate-related impacts can occur over the short, medium, and long term. Organizations can experience chronic, gradual impacts (such as impacts due to shifting temperature patterns), as well as acute, abrupt disruptive impacts (such as impacts from flooding, drought, or sudden regulatory actions). An organization should provide information from the perspective of the potential impact of climate-related issues on value creation, taking into account and addressing the different time frames and types of impacts.
- Organizations should avoid generic or boilerplate disclosures that do not add value to users' understanding of issues. Furthermore, any proposed metrics should adequately describe or serve as a proxy for risk or performance and reflect how an organization manages the risk and opportunities.

Principle 2: Disclosures should be specific and complete.

- An organization's reporting should provide a thorough overview of its exposure to potential climate-related impacts; the potential nature and size of such impacts; the organization's governance, strategy, processes for managing climate-related risks, and performance with respect to managing climate-related risks and opportunities.
- To be sufficiently comprehensive, disclosures should contain historical and future-oriented information in order to allow users to evaluate their previous expectations relative to actual performance and assess possible future financial implications.
- For quantitative information, the disclosure should include an explanation of the definition and scope applied. For future-oriented data, this includes clarification of the key assumptions used. Forward-looking quantitative disclosures should align with data used by the organization for investment decision making and risk management.
- Any scenario analyses should be based on data or other information used by the organization for investment decision making and risk management. Where appropriate, the organization should also demonstrate the effect on selected risk metrics or exposures to changes in the key underlying methodologies and assumptions, both in qualitative and quantitative terms.

Principle 3: Disclosures should be clear, balanced, and understandable.

- Disclosures should be written with the objective of communicating financial information that serves the needs of a range of financial sector users (e.g., investors, lenders, insurers, and others). This requires reporting at a level beyond compliance with minimum requirements. The disclosures should be sufficiently granular to inform sophisticated users, but should also provide concise information for those who are less specialized. Clear communication will allow users to identify key information efficiently.

- Disclosures should show an appropriate balance between qualitative and quantitative information and use text, numbers, and graphical presentations as appropriate.
- Fair and balanced narrative explanations should provide insight into the meaning of quantitative disclosures, including the changes or developments they portray over time. Furthermore, balanced narrative explanations require that risks as well as opportunities be portrayed in a manner that is free from bias.
- Disclosures should provide straightforward explanations of issues. Terms used in the disclosures should be explained or defined for a proper understanding by the users.

Principle 4: Disclosures should be consistent over time.

- Disclosures should be consistent over time to enable users to understand the development and/or evolution of the impact of climate-related issues on the organization's business. Disclosures should be presented using consistent formats, language, and metrics from period to period to allow for inter-period comparisons. Presenting comparative information is preferred; however, in some situations it may be preferable to include a new disclosure even if comparative information cannot be prepared or restated.
- Changes in disclosures and related approaches or formats (e.g., due to shifting climate-related issues and evolution of risk practices, governance, measurement methodologies, or accounting practices) can be expected due to the relative immaturity of climate-related disclosures. Any such changes should be explained.

Principle 5: Disclosures should be comparable among companies within a sector, industry, or portfolio.

- Disclosures should allow for meaningful comparisons of strategy, business activities, risks, and performance across organizations and within sectors and jurisdictions.
- The level of detail provided in disclosures should enable comparison and benchmarking of risks across sectors and at the portfolio level, where appropriate.
- The placement of reporting would ideally be consistent across organizations – I.e., in financial filings – in order to facilitate easy access to the relevant information.

Principle 6: Disclosures should be reliable, verifiable, and objective.

- Disclosures should provide high-quality reliable information. They should be accurate and neutral – I.e., free from bias.
- Future-oriented disclosures will inherently involve the organization's judgment (which should be adequately explained). To the extent possible, disclosures should be based on objective data and use best-in-class measurement methodologies, which would include common industry practice as it evolves.
- Disclosures should be defined, collected, recorded, and analyzed in such a way that the information reported is verifiable to ensure it is high quality. For future-oriented information, this means assumptions used can be traced back to their sources. This does not imply a requirement for independent external assurance; however, disclosures should be subject to internal governance processes that are the same or substantially similar to those used for financial reporting.

Principle 7: Disclosures should be provided on a timely basis.

- Information should be delivered to users or updated in a timely manner using appropriate media on, at least, an annual basis within the mainstream financial report.
- Climate-related risks can result in disruptive events. In case of such events with a material financial impact, the organization should provide a timely update of climate-related disclosures as appropriate.

(Source: Recommendations of the Task Force on Climate-related Financial Disclosures)

5. Materiality Assessment

Topics in the sustainability report can be very diverse, and any topic that could affect the decisions of stakeholders or have environmental, social and economic impacts could be potentially included in the report. Each company needs to consider the materiality of potential ESG issues to determine the scope and contents of the information to be disclosed.

'Materiality Assessment' is used as a standard to determine whether a certain topic should be included in the report, and how to evaluate Materiality Assessment on what basis could vary depending on the purpose. When evaluating Materiality Assessment, companies may want to consider the following concepts of Materiality Assessment of various international organizations.

International Accounting Standards Board (IASB)

Information is material if omitting, misstating or obscuring it could reasonably be expected to influence the decisions of the primary users of financial statements, which provide financial information about a specific reporting entity.

IIRC, International Integrated Reporting Council (IIRC)

A matter is material if it could substantively affect the organization's ability to create value in the short, medium and long term.

Global Reporting Initiative (GRI)

A topic can be material if it reflects the significance of the organization's economic, environmental, and social impacts, or if it substantively influences the assessments and decisions of stakeholders.

Sustainability Accounting Standards Board (SASB)

Information is material if there is a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investors as having significantly altered the total mix of information made available.

While a topic in the financial report can be considered material if it affects the economic decisions of investors, Materiality Assessment in the context of sustainability report is not limited to the financial impact on the organization.

Furthermore, companies can give some of the topics more significance than the others, as each topic has different Materiality Assessment. To prioritize them, companies need to assess the risks and opportunities each topic presents, and the likelihood and severity of the economic, environmental, and social impact of each topic.

Company P – Materiality Assessment assessment process

Company P conducts internal/external analysis to identify and prioritize key sustainability issues, and it tries to involve as many stakeholders as possible in the process. It selects issues more likely to affect its growth and attract stakeholder interest, and disclose them in its sustainability report.

Materiality assessment flow

01 STEP Issue selection

· Select issues by considering sustainability trends, key items required by international guidelines, and the business environment surrounding the company, with the issues selected last year being the basis.

...... Select 20 issues

02 STEP Internal/ external analysis

· Conduct internal/external analysis to determine which issue is material.

External analysis

Global standards

Reflect what is required by global sustainability reporting standards such as GRI Standards and ISO 26000 as well as the sub-targets of UN SDGs.

News articles

Select and analyze 1,283 of the 55,274 news articles about the company in the context of sustainability.

Competitors

Analyze how sustainability issues are being addressed by competitors.

Survey

Conduct a survey to gain insight from the experts in the field of sustainability.

Internal analysis

Meeting agenda

Analyze the items that are reported to and discussed at the business strategy meetings and management meetings the CEO attends.

Awareness survey

Conduct a survey to see how the executives and employees perceive the impact of sustainability issues on the business.

03 STEP Material issue selection

· Make a materiality assesment matrix to select material issues in the order of stakeholder interest and business impact. Then select material issues to report first, based on the results generated by the matrix.

...... Select 7 material issues

04 STEP Review & Confirmation

· Material issues selected are escalated to the top management for review and confirmation.

(Source: sustainability report of company P)

Company S – Materiality Assessment assessment process

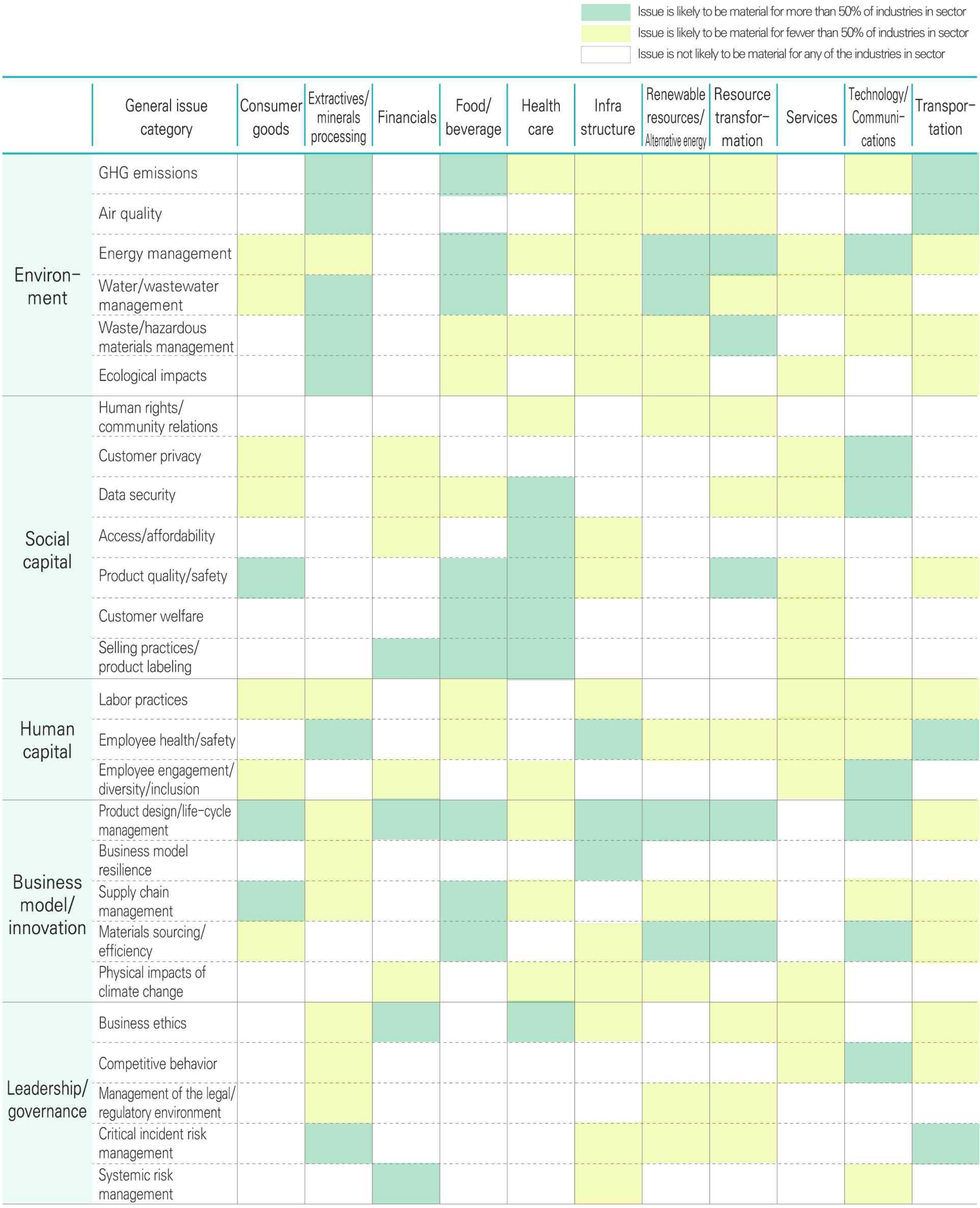
Company S identifies sustainability issues important to its business and stakeholders by assessing their Materiality Assessment. For assessment, it relies on the GRI Standards, which are international guidelines on sustainability reporting, to analyze factors that draw social attention and affect its business. Issues of priority identified by the materiality assessment are categorized into two (business side and stakeholder side), and the company's approach to each side is included in the report.

Materiality Assessment assessment flow

01 STEP Issue selection	· Explore sustainability topics and trends and the business environment surrounding the company to select 28 issues.
02 STEP Gauging social interest	**International guidelines on sustainability** Reflect the GRI Standards as well as other reporting requirements such as ISO 26000 and UN SDGs. **News articles** Look through the 10,017 news articles mentioning the company during the reporting period and classify them into positive and negative issues in their ESG impact to pick the most relevant issues. **Reporting by competitors** Analyze the sustainability issues reported by local/global peers. **Survey** Conduct a survey to take into account topics the experts in the field of sustainability are interested in.
03 STEP Business impact analysis	**Employee survey** Conduct a survey to see what the employees think of the impact of sustain-ability issues on the business. **Correlation with business strategy** Analyze the correlation between sustainability issues and the company-wide strategies/business segment strategies. **Message from top management** Analyze how sustainability issues are related to the key points mentioned in CEO letters and new year's addresses.
04 STEP Prioritization	· Prioritize the issues selected through Step 2/3, and define the reporting scope.
05 STEP Forming the report	· Specify the company's approach to the final 8 issues and what it has achieved, and report on each issue in terms of how it affects the business and stakeholders, respectively.

(Source: sustainability report of company S)

SASB Materiality Assessment Map



(Source: Sustainability Accounting Standards Board)

6. Report Preparation Process

Issue selection → Designing → Drawing up → Verification → Disclosure

6.1 Issue selection

The first step for ESG disclosure is selecting key issues to be included in the report. Not all ESG issues are required to be disclosed, and only key issues selected through a materiality assessment are disclosed. For this, companies may rely on global disclosure standards and consult key stakeholders to identify key issues relevant to the organization.

However, disclosure per se should not be the sole purpose. Companies need to focus on letting the stakeholders know of what impact ESG issues might have on their long-term value creation, especially the impact on their products, services, and supply chain.

Issues important enough to be reported are selected through a materiality assessment. As the 1st step of the assessment, companies collect data to make a list of potential ESG issues and look at how they are related to their business strategies and decision-making. For the 2nd step, they look into the external ESG environment, and for the 3rd step, they try to understand where the stakeholders' interest lies. Through these steps, they asses the materiality of each ESG issue and determine reporting priority.

Materiality assessment flow

Collecting and reviewing data → Analyzing local/ global ESG trends → Consulting stakeholders → Selecting key issues

6.1.1 Collecting and reviewing data

The right way of disclosing ESG information is to find and disclose issues that are relevant to the company strategies and could affect the company value. Business strategies, board meeting minutes, KPI of each department, and internal audit report are collected and reviewed to make a list of relevant ESG issues. During this process, whether the identified ESG issues are actually reflected in the business strategies and decisions and how they are related to each other are also checked.

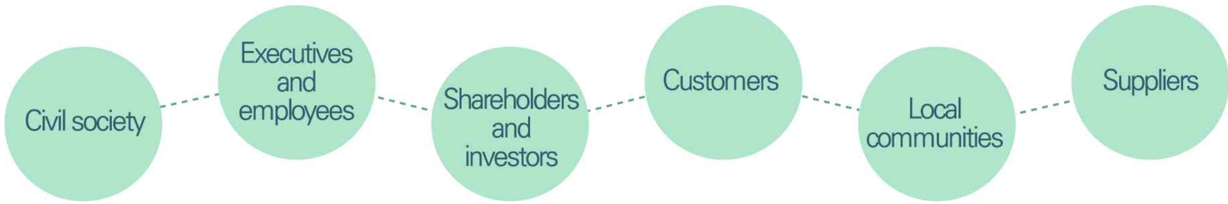
6.1.2 Analyzing local/global ESG trends

Companies may find what sustainability issues they would disclose and where the stakeholders' interest is by looking at media reports and local/global ESG trends. While media reports are particularly useful for finding out what negative issues there are about the company, top quality reports by competitors could give a hint on the level of reporting one should aspire to.

6.1.3 Consulting stakeholders

When determining the reporting scope, companies should consider what expectations the stakeholders have and where their interest lies. To do this, companies need to identify the relevant stakeholders. Stakeholders can be defined as those who are affected by the company's business, products or services, or those who can affect the company in its efforts to achieve its goals and execute its strategies. They include not just the shareholders and employees but also all the others who have interactions with the company in one way or another.

Stakeholders (example)



(Source: GRI Standards)

Surveys and hearings are useful means to get a deeper understanding of what the stakeholders expect and where their interest is. Getting them involved is a way of understanding them better, reinforcing the relationship with them and improving the credibility of the information provided to them.

Company H – Stakeholder communication channels

Stakeholder	Communication channel		Key issues of interest
Executives and employees	· Message board · Business briefing · Dialogue with management · In-house broadcasting · Satisfaction survey	· Labor-management committee · Employee portal · Job training · Workshop	· Fair compensation · Workplace safety · Mid/long term vision · Training · Communication between executives and employees · Welfare benefits · Labor-management relations
Subcontractors	· Discussion · Workshop for shared growth · Council for shared growth	· Survey · Shared growth day	· Shared growth · Business for mutual growth · Sustainable business
Shareholders · investors	· Shareholders' meeting · Sales brochure · Meeting with investors · Independent director recommendation by shareholders	· Disclosure, business results announcement · Business report · Sustainability report · Corporate governance report	· Transparent business · Transparent disclosure · Governance improvement · Business portfolio enhancement
Governments · local governments	· Ministry of Environment · FSC, ISO · Partnership program	· Ministry of Strategy and Finance · Participation in policy research	· Job creation · Tax obligations · Obeying the rules and contributing to the country · Compliance with regulations · Response to climate change · Response to public policies · Obeying workplace safety code
Customers	· Webpage · Facebook · Brochures · Satisfaction survey · Exhibitions	· Blog · YouTube · Promotional video · Customer events	· Quality and service enhancement · Communication with clients · Brand value
Local communities · NGOs	· Activities to contribute to the society · Sustainability report	· Communication activities in the neighborhood of the workplace	· Reducing waste water/waste · Toxic substance control · Job creation and retention · Contribution to the society · Growing local economy

(Source: sustainability report of company H)

6.1.4 Selecting key issues

The issues identified through the steps above are then subject to a materiality assessment to select issues of high priority for reporting. Companies may use diverse methods for this materiality assessment, and how the issues of high priority come to be selected should be included in the report.

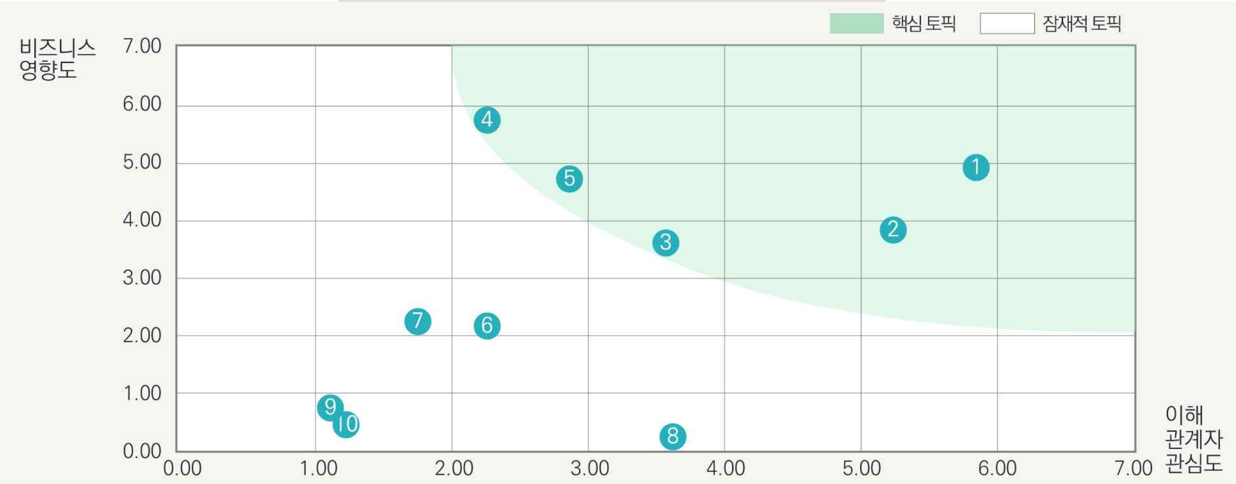
Materiality assessment items (internal)

- Core company values, policies, strategies, operation management system, targets and sub-targets
- Expectations and interests of stakeholders (e.g. employees, shareholders, investors)
- Key risks and opportunities

Materiality assessment items (external)

- Key ESG issues and metrics the stakeholders are interested in
- Key issues reported by competitors and future challenges
- Regulations, international treaties, and/or voluntary agreements important to the company and/or stakeholders

Company H – Key issue selection matrix



NO	Issues	Impact on stakeholders						Issue parameters		
		Customer	Executives/employees	Suppliers	Shareholders/investors	Local community	Government	Cost	Profit	Risk
1	New growth engine/business diversification	●	●		●				●	
2	Developing eco-friendly products/services	●			●	●				●
3	Participation in and contribution to the local community		●			●				●
4	Business ethics/fair trade		●	●	●	●	●	●		
5	Pursuing mutual growth with suppliers		●	●		●				●
6	Sound governance		●		●		●			●
7	Environmental business strategies and system	●			●	●		●		
8	Selecting and evaluating sustainable supply chain			●	●				●	
9	Green energy technology	●			●	●				●
10	Job creation and retention		●			●	●		●	

6.2 Designing

Before drawing up the report, the company should set the overall direction of the report and design the contents to be included in the report. The company could use the company strategies and issues of stakeholders' interest as the basis for writing up the report, and consider the company's business model and key reporting topics for setting the format.

Referring to global disclosure standards would be also helpful, as they provide a guidance on how ESG issues are classified and in what format they are reported.

6.3 Drawing up

It is advised to report ESG factors in terms of their connection with the company structure, strategies, operation system, activities and performance targets, rather than simply listing ESG activities. This would help the stakeholders have a better understanding of the company's business, as well as help the company report its management system more effectively.

When drawing up the report, one needs to consider the requirements suggested in the disclosure principles section, and after it is drawn up, the persons responsible for reporting and data collection should jointly review and correct it, if necessary.

6.4 Verification

Verification of the report should be done to ensure the quality requirements are met, which will help improve the credibility of the information provided. How to verify the report to what extent by whom should be first determined before initiating the verification. A 3rd party who has no stake in the company should be selected to ensure independence, and accredited verification standards should be relied on to ensure objectivity.

Key ESG information verification standards include AccountAbility's AA1000AS and International Auditing and Assurance Standards Board (IAASB)'s ISAE3000, and other accredited standards. After the verification is complete, the scope and methodologies used should be specified, and if any change is recommended, the report should be amended accordingly.

6.5 Disclosure

ESG information communication channels might vary depending on the company's communication strategy. Choosing the right channel is important for the stakeholders to obtain information in a timely manner. Companies may use various channels including webpage, and they should consider the accessibility of each channel to narrow down to the most appropriate channels.

The Korea Exchange (KRX) runs KIND as a source system of corporate disclosures, which investors can access to get various information about listed companies including financial statements. According to the disclosure rules set by the KRX, sustainability repot is a voluntary disclosure item, and the KRX recommends that companies use KIND as one of their communication channels for ESG disclosure.

Disclosures should be made at least once a year, in principle, and the reporting timing is recommended to be consistent over the years. In order to help investors understand ESG information in connection with financial information, it would be ideal to disclose ESG information around the same time business report is disclosed.

7. Disclosure Metrics

7.1 Key disclosure standards

ESG disclosure initiatives offer some standards and methods companies can voluntarily follow for effective ESG disclosure. Below are key initiatives and institutions.

Global Reporting Initiative (GRI)

It offers reporting standards commonly applicable to all organizations, and it also specifies ESG metrics.

- It has made reporting guidelines and metrics more sophisticated with GRI G1(2000), G2(2002), G3(2006), G3.1(2011), and G4(2013), and in 2016, it laid out GRI Standards, a set of interrelated, modular standards.
- GRI Standards consist of 6 economic topics (13 metrics), 8 environmental topics (30 metrics), and 19 social topics (34 metrics).

International Integrated Reporting Council (〈IR〉 Framework)

It requires organizations to disclose their ESG strategy, system, operation, and value creation activities, along with their market outlook in relation to ESG factors.

- It recommends that organizations disclose their use of, and effects on financial/manufactured/intellectual/human/social/natural capital in the form of narrative.
- It offers 7 Guiding Principles and 8 Content Elements for ESG disclosure.

Task Force on Climate-related Financial Disclosures (TCFD)

It offers disclosure items necessary for financial institutions to evaluate the climate-related risks and opportunities faced by the investee companies.

- It puts its focus on making financial institutions reflect climate-related information in their investment process to encourage the investee companies to more actively respond to climate change.
- Its disclosure guidelines require disclosure on governance (2 recommendations), strategy (3 recommendations), risk management (3 recommendations), and metrics and targets (3 recommendations) in relation to responding to climate change.

Sustainability Accounting Standards Board (SASB)

It offers ESG disclosure metrics that are financially important for each industry, and recommends US SEC 10-K and 20-F.

- It announced SASB Standards in 2018 to offer 77 ESG disclosure metrics for 11 industries including consumer goods, services, and financials. (5~8 metrics for each industry)

- ESG disclosure topics applicable to 77 sub-industries consist of 7 topics on governance, 4 on business model, 7 on environmental capital, 6 on social capital, and 6 on human capital.

7.2 Recommended metrics

Companies may use various metrics to disclose their ESG performance, and it is desirable to make use of the metrics offered by generally accepted disclosure standards/initiatives. Such standards/initiatives offer very diverse metrics, and some of them might be only applicable to certain companies or industries. Of these, the most commonly used key metrics are as follows. Companies may need to consider using these metrics when they disclose ESG information. They can use these metrics in accordance with the principle of 'respond or explain', and if they fail to respond to some of them, they can provide an explanation as to the reason in the comment section.

Stakeholders have high demand for quantitative data on ESG performance as they want to compare one company to others in the same industry. Companies can respond to this by providing year-on-year data and explaining why there are such data changes and how they are going to address them.

Companies are, in principle, supposed to disclose their ESG metrics on an yearly basis. If otherwise, they have to specify the reporting cycle of their choice.

	Item	Metrics	Comments
Organization	ESG response (1)	Management roles	Management roles in identifying/controlling ESG issues
	ESG assessment (1)	ESG risks & opportunities	Assessment of ESG-related risks and opportunities

	Item	Metrics	Comments
	Stakeholders (1)	Stakeholder participation	The way stakeholders are involved in the ESG process
Environment	GHG emissions (3)	Direct emissions (Scope 1)	GHG emissions from the factories or facilities owned/managed by the company
		Indirect emissions (Scope 2)	GHG emissions from electricity, heating, air conditioning, or steam purchased/obtained by the company for use
		Emissions intensity	GHG emissions per activity, production unit or other metric unit used by the organization
	Energy use (3)	Direct energy use	Energy use by those who are owned/managed by the organization
		Indirect energy use	Energy use outside of the organization such as disposal or use of products sold
		Energy intensity	Energy use per activity, production unit or other metric unit used by the organization
	Water use (1)	Total water usage	Total water usage by the organization
	Waste discharge (1)	Total amount of waste discharge	Waste amount by each disposal method such as burial and recycle
	Violation & accident (1)	Violation of environmental law & accidents	No. of violations of environmental law & accidents, and corrective actions taken
Society	Employment (4)	Equality and diversity	Employee status by gender and forms of employment, and the no. of discrimination-related sanctions and corrective actions taken
		New employee hires and employee turnover	Status of new employee hires and employee turnover
		Intern Hiring	Intern hiring status and Intern to full-time conversation rate
		Parental leave	Status of employees on parental leave
	Safety & health (3)	Industrial accident	No. of deaths/injuries/diseases, and corrective actions taken
		Product safety	No. of product recalls (disposal, withdrawal, etc.), and corrective actions taken
		Labeling & Advertising	No. of breaches of labeling & advertizing regulations, and corrective actions taken
	Customer privacy (1)	Personal data protection	No. of breaches of customer privacy, and corrective actions taken
	Fair competition (1)	Fair competition & Abuse of market position	No. of non-compliance with laws and regulations on insider trading, subcontracting, franchise business, and agency contract, and corrective actions taken

[Appendix] Disclosure Metrics of Key Disclosure Standards

World Federation of Exchanges (WFE) ESG Metrics

ID	Category	Metric	Calculation	Guidance
E1	E	GHG emissions	E1.1) Total amount, in CO2 equivalents, for Scope 1 (if applicable) E1.2) Total amount, in CO2 equivalents, for Scope 2 (if applicable) E1.3) Total amount, in CO2 equivalents, for Scope 3 (if applicable)	Please use the WRI/WBCSD GHG protocol. Please use the WRI/WBCSD GHG protocol. Please use the WRI/WBCSD GHG protocol.
E2	E	Emissions intensity	E2.1) Total GHG emissions per output scaling factor E2.2) Total non-GHG emissions per output scaling factor	Scaling factors set by reporting company. Examples include: revenues, sales, production units.
E3	E	Energy usage	E3.1) Total amount of energy directly consumed E3.2) Total amount of energy indirectly consumed	Reported in MWh or GJ. Reported in MWh or GJ.
E4	E	Energy intensity	Total direct energy usage per output scaling factor	Scaling factors set by reporting company. Examples include: physical space, FTEs, revenues.
E5	E	Energy mix	Percentage: energy usage by generation type	Examples include: renewables, hydro, coal, oil, natural gas.
E6	E	Water usage	E6.1) Total amount of water consumed E6.2) Total amount of water reclaimed	Reported in gallons or square meters (m3). Reported in gallons or square meters (m3).
E7	E	Environmental operations	E7.1) Does your company follow a formal environmental policy? Yes/No E7.2) Does your company follow specific waste, water, energy, and/or recycling policies? Yes/No E7.3) Does your company use a recognized energy management system? Yes/No	Cite public content, if available. Cite public content, if available. ISO50001, for example.
E8	E	Environmental oversight	Does your board/management team oversee and/or manage climate-related risks? Yes/No	Cite public content, if available.
E9	E	Environmental oversight	Does your board/management team oversee and/or manage other sustainability issues? Yes/No	Cite public content, if available.
E10	E	Climate risk mitigation	Total amount invested, annually, in climate-related infrastructure, resilience, and product development?	Reported in USD, if possible.

ID	Category	Metric	Calculation	Guidance
S1	S	CEO pay ratio	S1.1) Ratio: CEO total compensation to median FTE total compensation S1.2) Does your company report this metric in regulatory filings? Yes/No	Use total compensation, including all bonus and incentives. For example: Dodd-Frank Regulations (US)
S2	S	Gender pay ratio	Ratio: Median male compensation to median female compensation	Reported for FTEs only. Use total compensation, including all bonus and incentives.
S3	S	Employee turnover	S3.1) Percentage: year-over-year change for full-time employees S3.2) Percentage: year-over-year change for part-time employees S3.3) Percentage: year-over-year change for contractors and/or consultants	
S4	S	Gender diversity	S4.1) Percentage: total enterprise headcount held by men and women S4.2) Percentage: entry- and mid-level positions held by men and women S4.3) Percentage: senior- and executive-level positions held by men and women	
S5	S	Temporary worker ratio	S5.1) Percentage: total enterprise headcount held by part-time employees S5.2) Percentage: total enterprise headcount held by contractors and/or consultants	
S6	S	Non-discrimination	Does your company follow a sexual harassment and/or non-discrimination policy? Yes/No	Cite public content, if available.
S7	S	Injury rate	Percentage: frequency of injury events relative to total workforce time	Reference ILO & UNDHR standards, if possible.
S8	S	Global health & safety	Does your company follow an occupational health and/or global health & safety policy? Yes/No	Cite public content, if available.
S9	S	Child & forced labor	S9.1) Does your company follow a child and/or forced labor policy? Yes/No S9.2) If yes, does your child and/or forced labor policy also cover suppliers and vendors? Yes/No	Cite public content, if available. Reference ILO & UNDHR standards, if possible.
S10	S	Human rights	S10.1) Does your company follow a human rights policy? Yes/No S10.2) If yes, does your human rights policy also cover suppliers and vendors? Yes/No	Cite public content, if available. Reference ILO & UNDHR standards, if possible.

ID	Category	Metric	Calculation	Guidance
G1	G	Board diversity	G1.1) Percentage: total board seats occupied by men and women G1.2) Percentage: committee chairs occupied by mend and women	
G2	G	Board independence	G2.1) Does company prohibit CEO from serving as board chair? Yes/No G2.2) Percentage: total board seats occupied by independents	Cite public content, if available.
G3	G	Incentivized pay	Are executive formally incentivized to perform on sustainability? Yes/No	Cite public content, if available.
G4	G	Collective bargaining	Percentage: total enterprise headcount covered by collective bargaining agreement(s)	
G5	G	Supplier code of conduct	G5.1) Are your vendors or suppliers required to follow a code of conduct? Yes/No G5.2) If yes, what percentage of your suppliers have formally certified their compliance with the code?	Cite public content, if available. "Percentage" can be defined by number or expenditure.
G6	G	Ethics & anti-corruption	G6.1) Does your company follow an ethics and/or anti-corruption policy? Yes/No G6.2) If yes, what percentage of your workforce has formally certified its compliance with the policy?	Cite public content, if available. "Percentage" is defined by total FTE headcount.
G7	G	Data privacy	G7.1) Does your company follow a data privacy policy? Yes/No G7.2) Has your company taken steps to comply with GDPR rules? Yes/No	Cite public content, if available. General Data Protection Regulation (GDPR)
G8	G	Sustainability reporting	G8.1) Does your company publish a sustainability report? Yes/No G8.2) Is sustainability data included in your regulatory filings? Yes/No	Cite public content, if available. Cite public content, if available.
G9	G	Disclosure practice	G9.1) Does your company provide sustainability data to sustainability reporting frameworks? Yes/No G9.2) Does your company focus on specific UN Sustainable Development Goals (UN SDGs)? Yes/No G9.3) Does your company set targets and report progress on the UN SDGs? Yes/No	If yes, cite frameworks used. Cite public content, if available. Cite public content, if available.
G10	G	External assurance	Are your sustainability disclosures assured or validated by a third party? Yes/No	Cite third party assurance partner.

Recommendations and Supporting Recommended Disclosures

Governance

· Disclose the organization's governance around climate-related risks and opportunities.

Recommended Disclosures

- a. Describe the board's oversight of climate-related risks and opportunities.
- b. Describe management's role in assessing and managing climate-related risks and opportunities.

Strategy

· Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning where such information is material.

Recommended Disclosures

- a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.
- b. Describe the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.
- c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2℃ or lower scenario.

Risk Management

· Disclose how the organization identifies, assesses, and manages climate-related risks

Recommended Disclosures

- a. Describe the organization's processes for identifying and assessing climate-related risks.
- b. Describe the organization's processes for managing climate-related risks.
- c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.

Metrics and Targets

· Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

Recommended Disclosures

- a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
- b. Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
- C. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Global Reporting Initiative (GRI) Standard Index

Topic	No.	Title
GRI 102: General disclosure		
Organizational profile	102-1	Name of the organization
	102-2	Activities, brands, products, and services
	102-3	Location of headquarters
	102-4	Location of operations
	102-5	Ownership and legal form
	102-6	Markets served
	102-7	Scale of the organization
	102-8	Information on employees and other workers
	102-9	Supply chain
	102-10	Significant changes to the organization and its supply chain
	102-11	Precautionary principle of approach
	102-12	External initiatives
	102-13	Membership of associations
Strategy	102-14	Statement from senior decision-maker
	102-15	Key impacts, risks, and opportunities
Ethics and integrity	102-16	Values, principles, standards, and norms of behavior
	102-17	Mechanisms for advice and concerns about ethics
Governance	102-18	Governance structure
	102-19	Delegating authority
	102-20	Executive-level responsibility for economic, environmental, and social topics
	102-21	Consulting stakeholders on economic, environmental, and social topics
	102-22	Composition of the highest governance body and its committees
	102-23	Chair of the highest governance body
	102-24	Nominating and selecting the highest governance body
	102-25	Conflicts of interest
	102-26	Role of highest governance body in setting purpose, values, and strategy
	102-27	Collective knowledge of highest governance body
	102-28	Evaluating the highest governance body's performance
	102-29	Identifying and managing economic, environmental, and social impacts
	102-30	Effectiveness of risk management processes
	102-31	Review of economic, environmental, and social topics
	102-32	Highest governance body's role in sustainability reporting
	102-33	Communicating critical concerns
	102-34	Nature and total number of critical concerns
	102-35	Remuneration policies
	102-36	Process for determining remuneration

Topic	No.	Title
	102-37	Stakeholders' involvement in remuneration
	102-38	Annual total compensation ratio
	102-39	Percentage increase in annual total compensation ratio
Stakeholder engagement	102-40	List of stakeholder groups
	102-41	Collective bargaining agreements
	102-42	Identifying and selecting stakeholders
	102-43	Approach to stakeholder engagement
	102-44	Key topics and concerns raised
Reporting practice	102-45	Entities included in the consolidated financial statements
	102-46	Defining report content and topic boundaries
	102-47	List of material topics
	102-48	Restatements of information
	102-49	Changes in reporting
	102-50	Reporting period
	102-51	Date of most recent report
	102-52	Reporting cycle
	102-53	Contact point for questions regarding the report
	102-54	Claims of reporting in accordance with the GRI Standards (core options or comprehensive options)
	102-55	GRI content index
	102-56	External assurance
GRI 103: Management approach		
	103-1	Explanation of the material topic and its boundary
	103-2	The management approach and its components
	103-3	Evaluation of the management approach
GRI 201: Economic performance		
	201-1	Direct economic value generated and distributed
	201-2	Financial implications and other risks and opportunities due to climate change
	201-3	Defined benefit plan obligations and other retirement plans
	201-4	Financial assistance received from government
GRI 202: Market presence		
	202-1	Ratios of standard entry level wage by gender compared to local minimum wage
	202-2	Proportion of senior management hired from the local community
GRI 203: Indirect economic impacts		
	203-1	Infrastructure investments and services supported
	203-2	Significant indirect economic impacts
GRI 204: Procurement practices		
	204-1	Proportion of spending on local suppliers

Topic	No.	Title
GRI 205: Anti-corruption		
	205-1	Operations assessed for risks related to corruption
	205-2	Communication and training about anti-corruption policies and procedures
	205-3	Confirmed incidents of corruption and actions taken
GRI 206: Anti-competitive behavior		
	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices
GRI 207: Tax		
	207-1	Approach to tax
	207-2	Tax governance, control, and risk management
	207-3	Stakeholder engagement and management of concerns related to tax
	207-4	Country-by-country reporting
GRI 301: Materials		
	301-1	Materials used by weight or volume
	301-2	Recycled input materials used
	301-3	Reclaimed products and their packaging materials
GRI 302: Energy		
	302-1	Energy consumption within the organization
	302-2	Energy consumption outside of the organization
	302-3	Energy intensity
	302-4	Reduction of energy consumption
	302-5	Reduction in energy requirements of products and services
GRI 303: Water and effluents		
	303-1	Interactions with water as a shared resource
	303-2	Management of water discharge-related impacts
	303-3	Water withdrawal
	303-4	Water discharge
	303-5	Water consumption
GRI 304: Biodiversity		
	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
	304-2	Significant impacts of activities, products, and services on biodiversity
	304-3	Habitats protected or restored
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations
GRI 305: Emissions		
	305-1	Direct (Scope 1) GHG emissions
	305-2	Energy indirect (Scope 2) GHG emissions
	305-3	Other indirect (Scope 3) GHG emissions
	305-4	GHG emissions intensity
	305-5	Reduction of GHG emissions

Topic	No.	Title
	305-6	Emissions of ozone-depleting substances (ODS)
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions
GRI 306: Waste		
	306-1	Waste generation and significant waste-related impacts
	306-2	Management of significant waste-related impacts
	306-3	Waste generated
	306-4	Waste diverted from disposal
	306-5	Waste directed to disposal
GRI 307: Environmental compliance		
	307-1	Non-compliance with environmental laws and regulations
GRI 308: Supplier environmental assessment		
	308-1	New suppliers that were screened using environmental criteria
	308-2	Negative environmental impacts in the supply chain and actions taken
GRI 401: Employment		
	401-1	New employee hires and employee turnover
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees
	401-3	Parental leave
GRI 402: Labor/management relations		
	402-1	Minimum notice periods regarding operational changes
GRI 403: Occupational health and safety		
	403-1	Occupational health and safety management system
	403-2	Hazard identification, risk assessment, and incident investigation
	403-3	Occupational health services
	403-4	Worker participation, consultation, and communication on occupational health and safety
	403-5	Worker training on occupational health and safety
	403-6	Promotion of worker health
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships
	403-8	Workers covered by an occupational health and safety management system
	403-9	Work-related injuries
	403-10	Work-related ill health
GRI 404: Training and education		
	404-1	Average hours of training per year per employee
	404-2	Programs for upgrading employee skills and transition assistance program
	404-3	Percentage of employees receiving regular performance and career development reviews
GRI 405: Diversity and equal opportunity		
	405-1	Diversity of governance bodies and employees
	405-2	Ratio of basic salary and remuneration of women to men

Topic	No.	Title
GRI 406: Non-discrimination		
	406-1	Incidents of discrimination and corrective actions taken
GRI 407: Freedom of association and collective bargaining		
	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk
GRI 408: Child labor		
	408-1	Operations and suppliers at significant risk for incidents of child labor
GRI 409: Forced or compulsory labor		
	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor
GRI 410: Security practices		
	410-1	Security personnel trained in human rights policies or procedures
GRI 411: Rights of indigenous peoples		
	411-1	Incidents of violations involving rights of indigenous peoples
GRI 412: Human rights assessment		
	412-1	Operations that have been subject to human rights reviews or impact assessments
	412-2	Employee training on human rights policies or procedures
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
GRI 413: Local communities		
	413-1	Operations with local community engagement, impact assessments, and development programs
	413-2	Operations with significant actual and potential negative impacts on local communities
GRI 414: Supplier social assessment		
	414-1	New suppliers that were screened using social criteria
	414-2	Negative social impacts in the supply chain and actions taken
GRI 415: Public policy		
	415-1	Political contributions
GRI 416: Customer health and safety		
	416-1	Assessment of the health and safety impacts of product and service categories
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services
GRI 417: Marketing and labeling		
	417-1	Requirements for product and service information and labeling
	417-2	Incidents of non-compliance concerning product and service information and labeling
	417-3	Incidents of non-compliance concerning marketing communications
GRI 418: Customer privacy		
	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data
GRI 419: Socioeconomic compliance		
	419-1	Non-compliance with laws and regulations in the social and economic area