



KOREAN FIRMS' SUSTAINABILITY PRACTICES AND THEIR ROLE IN THE GREEN ECONOMY

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Abstract

Companies in industrialized nations have embraced environmental protection and sustainability as part of their international competitive strategies. The trend toward proactive environmental management has also grown in Korean firms, as consumers, investors, local policy networks, and the Lee Myung-bak administration's green growth policy initiatives have provided an impetus for the greening of South Korean firms. However, despite heightened firm interest in environmental responsibility, there is little understanding of which types of sustainable activities Korean firms have implemented. Analyzing sustainability reports from 30 large Korean firms, this study finds that Korean firms are more likely to employ lower-order sustainability practices that can help prevent pollution and modify existing processes and products to reduce environmental impact. However, their focus on innovating clean technologies seems to be limited. To transition to a low-carbon, green economy, the Korean government should consider green growth policies that foster firms' investments in higher-order sustainability strategies and scale up corporate sustainability more broadly in the Korean business community.

Key Words: *Korean firms, corporate sustainability, green growth, lower-order sustainability activities, higher-order sustainability activities*

Introduction

The ultimate purpose of a business is to create wealth and to maximize shareholder returns.¹ Governments then set an adequate regulatory framework to ensure profit-maximizing firms' behaviors are aligned with overarching societal goals.² However, unlike traditional profit-driven firms, some firms have begun to embrace a wider responsibility for social and environmental issues, voluntarily addressing sustainability challenges. For instance, with respect to a firm's operation-based environmental impact, some firms adopt environmental management systems (EMS) that come at a cost in order to lower their environmental impacts.³ Other firms focusing on managing carbon emissions undertake a carbon audit, set internal climate change targets, enhance energy efficiency, or purchase carbon offsets. The number of firms taking such a proactive approach to address environmental and climate challenges has increased in industrialized nations over the past two decades.

Korean firms are also increasingly managing social and environmental issues.⁴ Prior to 1990, Korean firms did not consider environmental protection, objecting to strict regulations to control industrial pollution. In the 1990s, due to environmental disasters such as phenol from an electronics company leaking into a river, public concern over environmental threats intensified. Environmental issues soared to prominence on the political agenda. Expanded from the former Environmental Protection Agency founded in 1980, the Ministry of the Environment was created in 1990 and established many incentive-based, flexible policies including EMS. However, few Korean firms committed themselves to pollution prevention and sustainability. Since the mid-2000s, some large companies have seriously considered

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social and environmental matters by adopting sustainability policies. Over the past decade, sustainable management has spread quickly throughout the business community. This green wave can be attributed to different motives, including the 2008 national green growth initiative which rendered Korea the first country to incorporate green growth in its national development strategy.

With Korean firms increasingly interested in environmental and sustainability management, one may question their actual role in protecting the environment and contributing to green growth. This study examines which sustainability practices have been adopted by Korean firms and to what extent they are sustainable. Understanding Korean firms' sustainability management practices can also help gauge the effectiveness of the government's emphasis on green growth sustainability. This has implications beyond Korea as Korean firms' voluntary sustainability practices serve as an exemplar to policymakers and business managers in developing nations.⁵ This study utilizes the Hart and Milstein sustainability assessment framework, which divides sustainability practices into four categories: pollution prevention, product stewardship, clean technology, and sustainable vision.⁶ In exploring large Korean firms' activities within this framework, this study documents Korean firms' major sustainability practices and their positive role in advancing the green economy.

Corporate Sustainability Strategy and Practices

In recent years, sustainability has become an "emerging megatrend" in the business community. It reflects the growing awareness of resource scarcity and social concerns, both of which can alter the nature of the competitive environment.⁷ There are increasingly more firms planning, adopting goals, implementing initiatives, and transforming processes that can promote sustainability.

Sustainable development has been defined in many ways, but the most frequently quoted definition is from Our Common Future⁸, also known as the Brundtland Report. The report defines sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Although this brief definition does not explicitly mention the environment, the use of this definition has led many to see sustainable development as having a major focus on limitations, imposed by the present state of technology and social organization on the utilization of

environmental resources, and by the ability of the ecosphere to absorb negative impacts of human activities. The concept of sustainable development also implies essential human needs are basic and thus economic growth and equity to share resources with the poor are required to sustain them.

Following the Brundtland concept of sustainable development, sustainability contains three principles: environmental integrity, economic prosperity, and social equity.⁹ Related to the firm, corporate sustainability is a business' capacity to lower or to remove its impact on the natural environment¹⁰, while satisfying the needs of its diverse stakeholders such as shareholders, employees, community groups, or environmental nonprofit organizations, etc.¹¹ A company's sustainability needs to be understood within a broad context of an economy's sustainability, because corporate sustainability is influenced by institutional boundaries and it can play a critical role in a society moving towards a green economy.¹²

Assessing a company's sustainability is a daunting task. As sustainability claims and actions have grown, many sustainability assessment frameworks and indexes have sprung up to evaluate a company's sustainability performance. A good sustainability measurement tool needs to examine three core elements: economics, and environmental and social impacts. The Hart and Milstein framework examines these core elements, investigating the strategic approaches firms take for their competitive advantage and developing four categories of a firm's sustainability practices: pollution prevention, product stewardship, clean technology, and sustainability vision. For the four typologies, they differentiated a firm's orientation to investments in *existing* versus *new* market economy and choices for engaging with *internal* versus *external* stakeholders (Table 1).

Pollution prevention is the reduction of waste and emissions from current operations, as less waste would mean the better utilization of resources and result in lower costs for raw materials and waste disposal. In pursuit of pollution prevention, firms focus on their internal operations. *Product stewardship* aims to modify existing products or services to incorporate environmental considerations. It extends beyond organizational boundaries to include the product life cycle, from raw material access through production processes, to product use and disposal of spent products.¹³ *Clean technology* refers to innovations that leapfrog standard routines and knowledge to develop break-through technologies reducing environmental impacts. Today's firms

strive to reposition their internal competencies for sustainable, disruptive technologies such as genomics and biomimicry. *Sustainable vision* underpins a firm's focus on benefitting communities, to include creating a roadmap for addressing a growing population, poverty, and inequity associated with globalization.

In using each of the four quadrants, firms can determine if and how they should embed sustainability into their business strategy. They can also use the framework to identify whether there is an imbalance in their portfolio of activities and develop a set of activities designed to enhance sustainability in a more complete and holistic way. Doing so would allow firms to frame sustainability as a multidimensional business opportunity, rather than a one-dimensional nuisance, and invest their resources to create shareholder value while responding to environmental and sustainability challenges.

In consideration of a firm's day-to-day management decisions, Kurapatskie and Darnall reorganize the Hart and Milstein's four strategies and suggest lower-order versus higher-order sustainability practices. Lower-order sustainability activities focus on improving the sustainability of companies' existing products and processes, which includes pollution prevention and product stewardship. Pollution prevention involves the reduction or elimination of pollution at the source instead of controlling pollution at the end of the pipe or stack. Pollution prevention occurs when firms take an initial step to consider and undertake sustainability activities. Firms favor some simple housekeeping measures such as resource and energy efficiency improvement projects that can enhance environmentally friendly corporate image, while creating cost savings faster than other types of sustainability activity.¹⁴

Whereas pollution prevention focuses on internal operations, product stewardship involves integrating the voice of the stakeholder into business processes through extensive interaction with external parties such as suppliers, customers, regulators, communities, non-governmental organizations, and the media to improve environmental performance through existing innovations. By constructively engaging with stakeholders, firms can catalyze a change in sustainable practices within the business system at large. However, product stewardship is still centered on improving existing products and services that are lower-order sustainability activities. Product greening is immediate, and firms can realize the value quickly in the form of improved brand reputation and community relations.

Higher-order sustainability activities are significantly different from lower-order sustainability activities. Fundamental shifts of business models or corporate vision should be in place within firms that strive to undertake higher-order sustainability practices. Firms would require valuable, rare, imperfectly imitable, and non-substitutable resources such as competitive imagination to undertake higher-order actions. Firms also need high-upfront capital and the returns from which will be reaped over the long term. Through unique resources, substantial investments, and the realignment of technical competencies, firms can develop new processes, products, and technologies that address sustainability challenges. Yet, studies show not many firms can invest in innovative clean technologies to upend industrial routines and knowledge.¹⁵

Higher-order sustainability activities are also seen in firms embracing a broader sustainable vision. This is evidenced by a desire to satisfy the unmet needs of those at the bottom of the economy pyramid (e.g., shantytown dwellers, the rural poor in developing countries), considering business opportunities, and solving for social and environmental problems.¹⁶ In partnering with local stakeholders, firms can develop environmental goods and services such as sanitary products, clean water infrastructure, sewage treatment systems, and innovations that can grow crops on abandoned land and expand renewable-based energy production. In doing so, firms create a pathway for future growth in previously unserved markets that are commonly overlooked or ignored by firms. To tap into such markets, firms need to radically change organizational priorities, technology development, resource allocation, and business model design, all of which hinder firms from undertaking higher-order sustainability activities.

For these reasons, more firms may favor the implementation of lower-order sustainability activities, yet companies that develop higher-order sustainability activities reap greater financial benefits and improve the natural environment to a greater degree.¹⁷ Table 1 incorporates the Hart and Milstein sustainability assessment framework as well as Kurapatskie and Darnall's reclassification of sustainability strategies.



Table 1. Categorization of Corporate Sustainability Strategy ¹⁸

Extent of Sustainability	Sustainability Strategy	Focus on Market Economy	Orientation of Stakeholder Engagement	Goal	Related Notions
Lower-order Sustainability	Pollution Prevention	Existing	Internal	Minimize waste and emissions from operations	<ul style="list-style-type: none"> • Greening Environmental Management • ISO 14001 • Resource Productivity • Eco-efficiency • Risk Management
	Product Stewardship	Existing	External	Integrate stakeholder views into business processes	<ul style="list-style-type: none"> • Life-Cycle Management • Design for Environment (DfE) • Green Design • Full Cost Accounting • Take-Back
Higher-order Sustainability	Clean Technology	New	Internal	Develop the sustainable competencies of the future	<ul style="list-style-type: none"> • Eco-effectiveness • Biomimicry • Leapfrog Technology • Sustainable Technology • Systems Thinking
	Sustainable Vision (with a Community Focus)	New	External	Create a shared roadmap for meeting unmet needs	<ul style="list-style-type: none"> • Base of the Pyramid • Inclusive Capitalism

Corporate Sustainability and Green Growth Policy in Korea

The economic progress of South Korea is quite noteworthy. During the last sixty years, South Korea has successfully transformed itself from one of the poorest countries in the world (with only \$62 per capita income in 1960s) to one of the most industrialized. Driven by highly accelerated export-fueled economic growth, South Korea’s GDP is currently ranked eleventh in the world.¹⁹ However, rapid industrialization, urbanization, and the exponential rise in living standards underlying this dramatic economic growth have severely degraded the environment. This led to the Ministry of the Environment promulgating several environmental laws in the 1990s that raised environmental standards to address industrial pollution.²⁰ As a result, overall environmental quality has improved. However, there is still room for improvement, particularly in local air quality and habitat conservation, which seem to be contributing to the country’s relatively low overall environmental quality ranking in the Environmental Performance Index. This index ranks countries’ performance on high-priority environmental issues in the protection of both human health and ecosystems.²¹

Corporate Social Responsibility (CSR) and corporate sustainability have become popular within the past ten years. Since 2002, large Korean companies such as Samsung Electronics, LG Chemical,

and Hyundai Motor Company have adopted EMS under government initiatives for cleaner production and eco-friendly manufacturing.²² Since 2006, the number of Korean firms publishing CSR reports has rapidly increased.²³ In a recent survey of the Korean Business Institute of Sustainable Development (BISD), around 99% of large companies that published CSR reports stated they used Global Reporting Initiative (GRI) guidelines, one of the global standardized sustainability reporting frameworks. Korean firms have also been more responsive to shareholders’ demands for information disclosure. As an example, CDP²⁴ annually requests disclosure of carbon management information from the largest corporations in the world to help them ensure an effective carbon emission reductions strategy is integral to their business. Out of the 200 largest Korean firms, 78 responded to the CDP in 2016. In 2008, only 16 firms responded to CDP’s request for carbon management information disclosure.²⁵

The growing interest and commitment to corporate sustainability among Korean firms may be in large part due to a national policy initiative to promote green growth, acknowledging that green and growth can go hand-in-hand.²⁶ In 2008, President Lee Myung-bak announced a “Low Carbon Green Growth” strategy as a vision to lead the country’s development over the next 60 years. This made Korea the first country to adopt green growth as a national developmental policy framework. As the tenth

largest energy consumer in the world, Korea's energy intensity in 2008 was a quarter above the OECD average and the nation's greenhouse gas (GHG) emissions almost doubled between 1990 and 2005.²⁷ Under the national green growth initiative, the Korean government planned to become a leader in the emerging global market for clean energy technologies and environmentally friendly products and services.²⁸

To facilitate the fulfillment of the green growth strategy, the Korean government introduced a Five-Year Action Plan from 2009 to 2013 and the second five-year plan from 2014 to 2018. The goal was to be the seventh leading "green power country" as of 2020, and to be fifth by 2050, based on the following three strategies:

- Strategy 1: climate change mitigation and energy independence, including effective reduction of GHG emissions;
- Strategy 2: creation of "new green power" through green technology development and promotion of green industries; and
- Strategy 3: quality-of-life improvement and upgrading national status through construction of "green territory."²⁹

To facilitate its realization, a Presidential Commission on Green Growth was established in 2009 and a Framework Act on Low Carbon Green Growth was enacted in 2010. The first Five-Year Plan provides a blueprint for government actions for implementation of the strategies identified, containing specific budget earmarks and detailed tasks for ministries and local governing entities. These strategies are intended to mobilize substantial investments from the private and public sectors for renewable energy and other clean technologies, while prompting businesses to consider lowering their environmental impacts, adopting GHG reduction measures, implementing climate mitigation projects, and undertaking a wide array of different sustainability activities. Under the plan, the government particularly planned to spend about 2 percent of annual GDP on green growth programs and projects (around 23 billion USD).

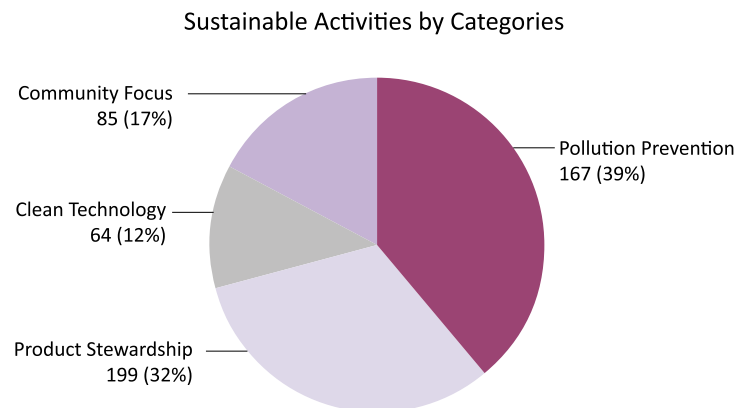
Sustainability Activities Assessment

To analyze the status of sustainability among large Korean firms, this study relies on CSR reports published in 2015 and 2016 that document their sustainability activities. Thirty large companies³⁰ were randomly chosen from Korean firms with the largest market capitalization. Their industrial sectors cover utilities, industrial

materials, chemicals, heavy machinery, construction, and consumer products. In addition to their sustainability reports, the sample firms' responses to CDP and web-based information were also referenced to gauge their overall commitments towards sustainability. Firms that report a relatively small number of sustainability activities tended not to respond to the CDP or had limited internet-based sustainability information.

The total number of sustainability activities among the sample firms was 515. All firms reported pollution prevention practices and around 39 percent of all activities were classified as pollution prevention, accounting for the biggest share of sustainability activities. Product stewardship was also widely adopted by sample firms, comprising 32 percent of activities. Only around 17 percent of all activities were related to sustainability vision, with community focus and clean technology being the least adopted, 12 percent of all activities (Figure 1).

Figure 1. Korean Firms' Sustainable Activities³²



With respect to lower-order and higher-order sustainability activities, around 71 percent of all sustainability activities in the sample are lower-order activities that prevent pollution or modify existing processes and products. By contrast, 29 percent of activities reported relate to higher-order activities that develop new products and technologies or that satisfy the unmet needs of the underprivileged in developing nations.³¹

There are three features of these Korean firms' lower-order sustainability activities. First, most firms with manufacturing facilities have invested in regularly monitoring equipment and devices that can help firms prepare for the accidental leakage of pollutants. In reliance on EMS, some firms have also



implemented facility checks and improvements that can be linked to the optimization of facilities. While generic EMS does not impose certification costs and has proven to be effective, large Korean firms preferred certified EMS. For instance, Hyundai Mobis obtained ISO 14001 certificates for all their facilities. Using this certified EMS, the company reduced its generation of VOCs (Volatile Organic Compounds) that cause ozone depletion and global warming by increasing the use of water-based paints in the painting process. As another example, POSCO E&C acquired ISO 140001 certification and facilitated information sharing and communication between the head office and project sites to meet international environmental management system standards.³³

Second, most firms reported active involvement with external stakeholders to improve their existing manufacturing, operating processes, and products to reduce environmental impact. For example, LG Hausys hosted phase-specific market quality meetings throughout the entire product cycle and collected specific suggestions on market quality from the field.³⁴ However, some lower-order sustainability practices may not require constructive stakeholder engagement, as some firms identified sustainability enhancement projects through internal auditing, training for facility managers and employees, or information sharing between business managers and field managers.

Third, carbon reduction relying on energy efficiency enhancement projects appeared to be the focus of carbon management. Through these projects, firms satisfy regulatory requirements for carbon reduction while reaping direct benefits via energy cost savings. As an example, Asiana Airlines was designated as an Emissions Trading System-administrated company by the Korean government in 2015.³⁵ Given this legal mandate, the company has since enacted various fuel reduction activities to reduce GHG emissions with a focus on improving fuel efficiency and thus lowering fuel costs.³⁶

The higher-order sustainability activities of these firms are more heterogeneous. Some firms provide support to the underprivileged in developing countries by establishing water infrastructure projects, while others use the United Nations Sustainable Development Goals (SDGs) for their own CSR goals and targets. The SDGs, created in September 2016, are comprised of 17 goals and 168 targets that cover a broad range of economic, social, and environmental issues. This development framework is to serve as a roadmap to global

sustainable development by 2030.³⁷ Recognizing the pivotal role of the private sector in achieving these ambitious goals, LG Electronics created the “Sustainable Economic Development of Communities” and “Expanding Social Contribution Programs.” The company also invested a total of 40.1 billion KRW (around 35 million USD) for social investment initiatives and programs at its facilities across 48 countries.³⁸ However, most other firms tend to focus on event-based donation programs benefitting the socio-economically disadvantaged of the local provinces in South Korea. This may be part of public relations activities or marginalized social contributions, rather than a strategic leap into a sustainable vision with a community focus, which is the highest sustainability strategy by Hart and Milstein.

Developing clean technology was the least reported sustainability activity. Some firms report their activities in research and development projects for carbon-reducing and sustainable materials technologies; however, initiatives in clean technology still need to grow among large businesses. Some firms such as Hyundai Mobis also promoted industry-academia collaboration in a hope to develop breakthrough technologies in green buildings, transportation, and materials.

Policy Implications

The general lack of investment in clean technologies and engagement with fringe stakeholders by Korean firms, despite some outliers, is far from a long-term vision for sustainable community development. Despite progress with lower-order activities, the overall underdevelopment of higher-order activities may be counter to what was envisioned by the government’s green growth initiative. When the green growth policy was first promoted in 2009, it contained three core areas of industrial transformation needed for a transition to a green economy: development of renewable energy technologies to replace fossil fuels, reduction of resource intensity, and creation of green projects through eco-finance for new green export-oriented industries. Although the business community has generally supported the green growth strategy³⁹, limited attention to higher-order sustainability strategies may be due to firms’ interpretation of the green growth strategy as a ‘political’ agenda rather than a national long-term policy agenda. Accordingly, sustainability projects that allow firms to benefit from reputation building and cost savings are favored by Korean firms, as compared to projects tied to long-term market prospects and growth opportunities. As such, it is critical for the Korean



government to send a strong policy signal about its prolonged commitment towards green growth to the business community.

Unfortunately, President Lee Myung-bak's national green growth strategy has seemingly been disregarded by subsequent administrations. While the green growth initiative has led Korea to be at the forefront of reducing global dependence on fossil fuels and has contributed to the greening of other economies, the initiative's goals were largely neglected under President Park Geun-hye, who appeared to deliberately shun the policies of her predecessor and political rival. After her inauguration in 2013, President Park promoted the "creative economy," eliciting creative innovations from start-ups to support Korea's future growth.⁴⁰ Since the policy agenda recognizes the importance of innovation, government investment in clean technologies and an ensuing focus on green growth should have been highly relevant to realizing the goals of the creative economy agenda. However, no tangible links between the two political agendas were made during the Park administration.

This may also explain why Korean firms' dedication to sustainability management has recently wavered. According to a recent study conducted by Inno Global Institute, only 58 firms among the 100 largest Korean firms published sustainability reports in 2016. Some firms even attempted to reduce information disclosure due to high costs and lack of top-level managerial support for sustainability reports and publications.⁴¹ This implies that many Korean firms lack understanding of sustainability as a vision and fail to develop business models that strategically adopt sustainability. Many multinational firms that showed global sustainability leadership, however, have set sustainability as the company's long-term vision and have persistently undertaken initiatives that can lead to game-changing innovations such as GE's Ecoimagination, adopted in 2006 despite environmental sustainability being a low priority for the Bush administration.

During the 2017 presidential campaign, current South Korean president Moon Jae-in pledged to reduce the use of coal and nuclear power by replacing them with natural gas and renewables such as solar and wind power.⁴² His aim was to raise the proportion of electricity generated from renewable energy from 1.1 percent to 20 percent by 2030—nearly double the target of 11.7 percent proposed by the previous government. He also promised the complete phase-out of diesel cars and traditional gasoline-fueled vehicles in favor of electric vehicles by 2030—the current market share of electric vehicles is 0.2 percent. His

commitment to renewable energies and climate technologies primarily targeted two prominent environmental concerns in Korea, deteriorating air quality and the safety of nuclear power in the wake of several scandals over the last several years.⁴³

As president, Moon's fulfillment of his campaign agenda on renewable energy expansion has the potential to lead to an economic system that fosters clean technology innovation and dedication to global sustainability leadership, particularly in carbon reduction. For instance, a government push for electric vehicles, including adding charging stations around the country, will promote the rapid development of the Korean electric vehicle industry, incentivizing companies like LG to produce electric car batteries and become global leaders. However, the Moon administration's renewable energy promotion policies may face problems down the road, as evidenced by a recent citizen panel's recommendation for reversing the governmental decision to stall the country's nuclear power program.⁴⁴ To better achieve his goals, there are two specific policy prescriptions that Moon should strongly consider to promote sustainable, green growth.

First, a broader sustainability framework in line with Korea's national green growth strategy should be more explicitly embraced by President Moon and national policymakers. Although the Moon administration emphasizes sustainability toward climate resilience and energy security, the lack of detailed implementation plans for lofty policy goals such as 20 percent renewable energy-based electricity production by 2030⁴⁵ raises concerns over policy feasibility. In this regard, the administration should look to the three strategies of the original national green growth initiative: 1) climate mitigation and energy independence, 2) creation of "new growth engines" through green technology development, and 3) improvement of quality of life and strengthening the status of the country. While Korea should now avoid mis-conceptualized, large engineering project-dominant green growth strategies initially proposed under the green growth initiative, it is critical for the administration to compatibly espouse a policy agenda to boost green industries and living conditions in tandem with climate mitigation and energy independence. As the second five-year plan for national green growth initiative will come to an end in 2018, the third five-year plan could include more modest, realistic policy targets and means that can recapitulate the nation's earlier commitment to green, inclusive growth.



Secondly, the South Korean government should devise policy instruments that can encourage large firms to be more devoted to higher-order sustainability strategies. The original green growth plan included public R&D increases in energy and low-carbon technologies that could draw matching private investment. In particular, the government identified 27 core green technologies, ranging from energy-efficient technologies such as high-efficiency light-emitting diodes to innovative technologies in energy storage, smart grid systems, advanced water management, and green buildings. The government also promised investment in green technology R&D to reach 25 percent of all R&D by 2020.⁴⁶ In 2015, R&D investment to core green technologies was 2.4 trillion KRW, a 1.4 trillion KRW increase from 2009. However, total expenditures for core technologies is currently about 12.6 percent of the total R&D investment, half of the 2020 target.⁴⁷ Furthermore, large companies' green R&D investments from 2012 to 2015 have plummeted from 0.5 trillion KRW to 0.32 trillion KRW. These facets may explain why industrial growth based on key green technologies has not yet been realized in South Korea. As such, expanding public R&D expenditures on green technologies, particularly for commercialization and industrialization of technologies, should be pursued. By increasing public expenditures on green technologies across all stages of innovative technology development, the government can better incentivize large companies to commit themselves to higher-order sustainability practices that can contribute to the country's leading role in global green growth.

Korea transitioned from an impoverished, war-torn country to one of the world's largest economies in less than 50 years, serving as a model for economic development. The country's aggressive export policy has been a main contributing factor of its dominance in automobile manufacturing, ship-building, and electronics industries, and many developing nations look to emulate Korea's success. Likewise, Korea's green growth strategy that underpins the divestiture of fossil-fuel based energy infrastructure and the creation of a circular economy with green consumption and lifestyle can also be a model for sustainable development. Korean firms' more aggressive investments in

green technologies and renewable energies as well as inclusive economic activities for the underprivileged would be critical in making them global sustainability leaders. In this way, policy makers in less-developed nations would believe that there are practices that would allow them to develop in a way that is not environmentally destructive and improves resiliency in communities that need green growth the most.

Conclusion

There is widespread consensus that sustainable development can be achieved by private and public partnerships, and the role of corporate sustainability has received far more attention from various stakeholders. Taking more responsibility for social and environmental issues beyond legal mandates, many companies have voluntarily started practices to protect the environment and improve social inequity, filling gaps in governance or regulatory vacuums in areas where regulations have not been in place or fully developed. The CSR movement and green wave of corporate sustainability have been well established in industrialized nations since the mid-1980s, and a growing number of Korean firms—mostly large publicly traded companies—have embraced sustainability as one of their organizational missions over the past decade.

However, the sustainability activities of Korean firms are mainly focused on lower-order activities, preventing pollution and improving environmental performance of existing processes and products. The expansion of pollution prevention and product stewardship activities is promising, indicating enhanced awareness of contingent-based costs stemming from environmental risks and accidents. Although pollution prevention and product stewardship activities are considered as lower-order activities, they should be continually fostered and scaled up among large South Korean firms as they can be emulated by medium- and small-sized Korean firms considering adopting sustainability practices. In sum, Korea's continued commitment to green growth and Korean firms' reaction to a policy focusing on higher-order sustainability practices is more promising for the achievement of global sustainability.

Endnotes

- ¹ M. C. Jensen and W. H. Meckling, "Theory of the firm: Managerial Behavior, Agency Costs and ownership structure," *Journal of Financial Economics*, Vol. 3, No. 4 (1976), 305-360.
- ² Milton Friedman, "The social responsibility of business is to increase profits" *The New York Times Magazine*, September 13, 1970, 32-33, 122-126.
- ³ Nicole Darnall and Daniel Edwards Jr., "Predicting the Cost of Environment Management Systems Adoption: The Role of Capabilities, Resources and Ownership Structure," *Strategic Management Journal*, Vol. 27, Issue 4 (2006), 301-320.
- ⁴ For Korean green growth policy, see Randall Jones and Byungseo Yoo, "Korea's Green Growth Strategy: Mitigating Climate Change and Developing New Growth Engines," *OECD Economics Department Working Papers*, No. 798 (OECD Publishing, 2010 Paris.)
- ⁵ Ibid.
- ⁶ Stuart L. Hart and Mark B. Milstein, "Creating sustainable value," *Academy Management Executive*, Vol. 17, Issue 2 (2003), 56-69.
- ⁷ David A. Lubin and Daniel C. Esty, "The Sustainability Imperative," *Harvard Business Review*, Vol. 88, Issue 5 (2010), 42-73.
- ⁸ *Our Common Future*, World Commission on Environment and Development (WCED), United Nations Environmental Programme, (Oxford, UK: Oxford University Press, 1987.)
- ⁹ Matthew P.H. Taylor, Darrell Brown, David E. Ervin, Jim Thayer, and Brett Cassidy, "A Genuine Metric for Assessing Business Sustainability," *Building a Green Economy: Perspectives from Ecological Economics*, Robert B. Richardson (Ed), (East Lansing, MI: Michigan State University Press, 2013.)
- ¹⁰ Stuart L. Hart, "A Natural-Resource-Based Views of the Firm," *Academy of Management Review*, Vol. 20, No. 4 (1995), 986-1014.
- ¹¹ Magali Delmas and Michael Toffel, "Stakeholders and environmental management practices: An institutional Framework," *Business Strategy and the Environment*, Vol. 13 (2004), 209-222.
- ¹² Pratima Bansal, "The corporate challenges of sustainable development," *Academy of Management Executive*, Vol. 16, No. 2 (2002), 122-131.
- ¹³ See, for example, Ulrich Steger, "Managerial Issues in Closing the Loop," *Business Strategy and the Environment*, Vol. 5, No. 4 (1996), 252-268.
- ¹⁴ Jean Kabongo and Olivier Boiral, "Creating value with wastes: a model and typology of sustainability within firms," *Business Strategy and the Environment*, Vol. 20, No. 7 (2011), 441-455.
- ¹⁵ Stuart L. Hart, "Innovation, Creative Destruction and Sustainability," *Research-Technology Management*, Vol. 48, No. 5 (2005), 21-27.
- ¹⁶ Stuart L. Hart and Sanjay Sharma, "Engaging Fringe Stakeholders for Competitive Imagination," *The Academy of Management Executive*, Vol. 18 (2004), 7-18.
- ¹⁷ Brent Kurapatskie and Nicole Darnall, "Which corporate sustainability activities are associated with greater financial payoffs?" *Business Strategy and the Environment*, Vol. 22 (2013), 49-61.
- ¹⁸ The table has been adapted from Hart and Milstein's sustainable value framework. For information, please refer to Stuart and Milstein, 2003.
- ¹⁹ "South Korea ranks 11th worldwide in GDP," *World Bank Data*, Yonhap News, August 16, 2016, <http://english.yonhapnews.co.kr/business/2016/08/16/21/0503000000AEN20160816001700320F.html>.
- ²⁰ To address industrial pollution, the Environmental Conservation Law was adopted in 1977 and an environmental department (the Korean Environmental Protection Agency, former Ministry of Environment) was founded in 1980s. For more see www.me.go.kr.
- ²¹ South Korea was ranked 80th in overall environmental performance, according to the 2016 Environmental Performance Index issued by the Yale Center for Environmental Law and Policy, Yale Data-Driven Environmental Solutions Group, and the Center for International Earth Science Information Network at Columbia University. The report is available at <http://epi.yale.edu/>.
- ²² Ki-Hoon Lee, "Motivations, Barriers, and Incentives for Adopting Environmental Management (Cost) Accounting and Related Guidelines: A Study of the Republic of Korea," *Corporate Social Responsibility and Environmental Management*, Vol. 18, No. 1 (2010), 39-49.
- ²³ "Unlocking Investment Potential: ESG Disclosure in Korean Companies." *Emerging Market Disclosure Project*, (April, 2010), <http://www.eiris.org/files/research%20publications/emdpkoreanreportapril2010.pdf>.
- ²⁴ CDP (formerly the "Carbon Disclosure Project") is an organization based in the United Kingdom which works with a group of investors to encourage companies to disclose greenhouse gas (GHG) emissions and their carbon management practices. For more see: cdp.net.
- ²⁵ CDP Korea Climate Change Report 2016, https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/001/350/original/CDP_2016_Korea_Climate_Change_Report.pdf?1480328290
- ²⁶ For more information on green growth, refer to the OECD website, <http://www.oecd.org/greengrowth/>.
- ²⁷ Jones and Yoo, 2011.
- ²⁸ Ekaterina Zalenovskaya, "Green Growth Policy in Korea: A case study," *International Center for Climate Governance*, (2012), http://www.iccgov.org/wpcontent/uploads/2015/05/08_reflection_june_2012.pdf
- ²⁹ John Alwyn Matthews, "Green Growth Strategies: Korean Initiatives," *Futures*, Vol. 44, No. 8 (October 2012), 761-769.
- ³⁰ The companies analyzed include Amore Pacific, Asian Airlines, Daewoo E&C, Doosan Group, Hankook Tire, Hansol Textile, Hanhwa Chemical, Hyundai Construction, Hyundai E&C, Hyundai Motor Company, Korean Air, KCC, Hyundai Heavy Industry, Hyundai Mobis, Hyundai Steel, Korea District Heating Corporation, KT Corporation, LG Electronics, LG Care, LG Chemistry, LG Display, LG Innotek, LG Hausys, Lotte Chemical, LS industrial, Orion, POSCO E&C, Samsung Electronics, Samsung C&T, Samsung Engineering, and S-Oil.
- ³¹ Sustainability reports of the sample firms include their sustainability activities in the entirety of their operations and the data was used to discern higher-order sustainability activities for underserved markets in emerging economies.



- ³² The table has been adapted from Hart and Milstein's sustainable value framework. For more information, please refer to Hart and Milstein, 2003.
- ³³ See pages 50-51 in POSTCO E&C Sustainability Report (2016), http://www.poscoenc.com/eng/sustainability/sustainability_report.asp.
- ³⁴ See page 32 of the LG Hausys Sustainability Report (2016), <http://www.lghausys.com/company/sustainability.jsp?gubun=4>.
- ³⁵ Presently 525 Korean companies participate in the Korean Emissions Trading System. The government assigns the legal limit on GHG emissions to companies and allows them to trade surpluses or shortages.
- ³⁶ See pages 61-62 of the Asiana Airlines Sustainability Report 2015, https://us.flyasiana.com/C/pdf/Sustainability_2015_eng.pdf.
- ³⁷ UN General Assembly, 2015. Transforming our world: The 2030 Agenda for Sustainable Development, http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
- ³⁸ See LG Electronics Sustainability Report (2016), <http://www.lg.com/global/sustainability/communications/sustainability-reports>.
- ³⁹ Matthews, 2012.
- ⁴⁰ See OECD (2015), Korea Policy Priorities for a Dynamic, Inclusive, and Creative Economy, <https://www.oecd.org/korea/korea-policy-priorities-for-a-dynamic-inclusive-and-creative-economy-EN.pdf>.
- ⁴¹ Jung Yu-jin, "Companies Unwilling to Reveal CSR Information in Sustainability Reports," Chosun Daily News, February 28, 2017, http://news.chosun.com/site/data/html_dir/2017/02/27/2017022701654.html.
- ⁴² Tim Buckley, "IEEFA Asia: Moon Jae-In's Ascension in Seoul is Another Blow to Asia's Coal Industry," Institute for Energy Economics and Financial Analysis, May 10, 2017, <http://ieefa.org/ieefa-asia-moon-jae-ins-ascension-seoul-another-blow-asias-coal-industry/>.
- ⁴³ Shim Woo-hyun, "Moon Jae-in to Push for Renewable Energy Policies," The Korea Herald, May 10, 2017, <http://www.koreaherald.com/view.php?ud=20170510000794>.
- ⁴⁴ Rod Adams, "South Korean Citizen Panel Supports Nuclear Plant Construction," Forbes, October 20, 2017, <https://www.forbes.com/sites/rodadams/2017/10/20/south-korean-citizen-panel-supports-nuclear-plant-construction-rejects-moon-jae-ins-plan-to-stop/#4f3b300a4d23>.
- ⁴⁵ Shim, 2017.
- ⁴⁶ For data, refer to Green Platform of Green Technology Center, <http://www.greenplatform.re.kr/frt/greensys/status/investment.do>
- ⁴⁷ Green Platform of Green Technology Center, for more see: <http://www.gtck.re.kr/frt/en/main.do>.

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