SYNERGY BETWEEN THE EU AND KOREA IN NAVIGATING THE ENVIRONMENTAL STEWARDSHIP

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Abstract

This report examines the EU's global role in environmental stewardship, driven by its regulatory influence in corporate transparency. Korea, as a key strategic partner to the EU, is analyzed for its synergy with the EU in building green economies. The report focuses on the synergy between the EU and Korea in building green economies and analyzes the Green Deals of both the EU and Korea, the FTA, and their Green partnership. By utilizing quantitative and qualitative analyses of agreements and policies, the report identifies challenges and opportunities, offering future recommendations.

On the one hand, the EU's Sustainable Financial Disclosure Regulation and the Corporate Sustainability Reporting Directive are analyzed as models for accelerating Korea's divestment in foreign coal powered projects. On the other hand, this paper explores Korea's leading role in hydrogen technology as a benchmark model for EU's green Research and Innovation .

In conclusion, the report underscores the symbiotic EU-Korea relationship in a global environmental stewardship, fostering mutual learning, collaboration, and innovation for a sustainable global economy. This report serves as a foundation for future research in these critical areas of global environmental dynamics.

Key words: Green economy, EU-Korea Green Partnership, Corporate environmental accountability, research and innovation, hydrogen economy

JEL classification: F64: Environment; O38: Government Policy and Regulation; F18, Q56: Trade and the environment; O0: Economic Development, Technological Change, and Growth;

Introduction

This research report explores the EU's role in the evolving global economy through its environmental stewardship. The EU's regulatory influence is a contributing factor to its leading position. The report analyzes the synergy between the EU and the Republic of Korea (or 'Korea', 'ROK') in navigating the green economy, evolving from the EU's search for third-country partners.

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The methodology includes quantitative and qualitative analyses on policies and agreements. Challenges and opportunities were identified with future outlooks and recommendations.

The report underscores the regulatory influence wielded by the EU, emphasizing its global impact on sustainability particularly through the European Green Deal, and its contributions to global trade relations and its synergy with the Korean Deal most recently via the EU-Korea Green partnership[2]. The report concludes that driven by its regulatory leadership in environmental sustainability, the EU plays a pivotal role in the ever-evolving global economy. This report serves as a foundation for future research in these critical areas of global economic dynamics.

EU Navigating the nexus of environmental stewardship and innovation in global markets: regulatory influence in sustainable development.

The EU, a global pioneer and diplomat in green policy

The EU stands as a beacon of environmental leadership, exemplified by its ambitious standards and comprehensive legislations rooted in unwavering commitment to sustainability. As a global green leader, its pioneering approach inspires other nations. This paper delves into the EU's impactful environmental policies, emphasizing their influence on global sustainability efforts. The EU's environmental policy history spans decades, with a strong commitment to sustainability. Starting in the 1970s with air and water quality directives, it gained momentum through the 1986 Single European Act, integrating environmental protection into the single market. Subsequent milestones, including the 1992 Maastricht Treaty and the 2005 launch of the EU Emissions Trading System and Thematic Strategy on Sustainable Natural Resources, strengthened the EU's progressive stance. The EU's global climate leadership role was evident in its pivotal involvement in the 2015 Paris Agreement[3], the Kyoto Protocol[4], and Montreal Protocol[5], inspiring other nations to adopt ambitious goals. The EU, alongside the U.S. National Environmental Policy (1969) and the UN Environment Programme

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[2] European Commission (2023) "European Green Deal: EU and Republic of Korea launch Green Partnership to deepen cooperation on climate action, clean energy and environmentalprotection."

[3] The EU advocated the 1.5°C limit, collaborated with vulnerable nations (Small Island States, Least Developed Countries), and funded adaptation and mitigation.

[4] In 1995, the EU proposed a 15% cut in developed countries' emissions by 2010, shaping Kyoto Protocol targets. This resulted in a 5.2% reduction below 1990 levels for developed nations between 2008 and 2012. The EU emphasized "common but differentiated responsibilities," categorizing countries into "Annex I" (developed) with binding goals and "non-Annex I" (developing) with voluntary actions.

[5] The EU backed ozone-depleting chemical phase-out and pledged regional adoption of protocol provisions.

(1972), leads in environmental policy, inspiring global sustainability efforts. The EU is perceived as an environmental pioneer in environmental standards and legislation characterized by their ambition, comprehensiveness, and commitment to sustainability.

The EU has set some of the world's most ambitious climate targets by aiming to achieve carbon neutrality by 2050, with an interim goal of cutting greenhouse gas emissions by a minimum of 55% by 2030 compared to 1990 levels, as well as create a circular economy. These targets surpass those of many other regions and are part of the European Green Deal unveiled in 2019 which is a comprehensive environmental legislation including, inter alia, the EU Taxonomy Regulation, the Sustainable Finance Disclosure Regulation (or 'SFDR'), the Corporate Sustainability Reporting Directive (or 'CSRD') fostering sustainable financial and economic activities. In addition, the EU invests significantly in R&D for renewable energy technologies. Programs like Horizon 2020 fund R&D projects focused on improving the efficiency and cost-effectiveness of renewables.

As a climate diplomat, the EU actively searches for international collaborators and has launched green partnerships, some of which are the EU-Pacific Green Partnership, the EU-U.S. Dialogue on Climate change (closer to a cooperation rather than a formal partnership), and the recently launched EU-Korea Green Partnership[6]. The latter will be further explored in this report.

Korea, a key environmental partner to the EU

The Republic of Korea ('the ROK' or 'Korea') and the EU are significant strategic partners, sharing common values, interests, and objectives. Korea stands out as the sole Asian nation to have successfully signed and implemented all three essential agreements encompassing political, economic, and security cooperation with the EU. The global green presence of Korea has expanded with its exemplary green growth policy framework[7] and implementation of the Korean Green New Deal, the Korean Taxonomy (both inspired by the EU equivalents), and the world's first Hydrogen law. Korea's emission trading system is the world's largest ETS second to the EU's, covering around two-thirds of national greenhouse gas emissions[8], a world-class position in climate change mitigation technology, and a strong system compensating environmental harm to health and property.

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[6] EU-ROK Green Partnership launched in May 2023.

[7] Korea's 2008 green growth policy addresses energy dependence and climate vulnerability with three goals and ten agendas, detailed in the National Strategy for Green Growth (2009-50). The 2010 Framework Act on Low Carbon, Green Growth (LCGG Act), and a Five-year Plan for Green Growth (2009-13) govern its execution.

[8] OECD (2017), OECD Environmental Performance Reviews: Korea 2017, OECD Environmental Performance Reviews, OECD Publishing, Paris.

On the international stage, Korea has actively promoted green growth. In 2009, it chaired the OECD Ministerial Council Meeting and initiated the OECD Declaration on Green Growth. In 2010, Korea hosted the headquarters of the Green Climate Fund [9]which is the world's largest climate fund with USD 12.8 billion and total assets of USD 48.3 billion, established under the UNFCCC. The Global Green Growth Institute[10], initially a local think tank, was founded in 2010 in Korea and became an international organization in 2012. President Lee Myung Bak advocated for climate action principles like Nationally Appropriate Mitigation Actions (NAMA) and a NAMA Registry, both adopted globally. In 2014, Korea hosted the 12th conference of the parties to the Convention on Biological Diversity.

Including the EU-Korea FTA[11], both parties signed three trade-related agreements, i.e. the Agreement on Cooperation and Mutual Administrative Assistance in Customs Matters (1997) which facilitated competition policy sharing and the Framework Agreement on Trade and Cooperation (enacted in 2001), enhanced cooperation in transport, energy, science and technology, industry, environment, and culture. Later on, in 2006, the EU designated Korea as its first priority partner for enhanced security cooperation in the Global Europe Strategy.

In 2007, negotiations began for the EU-Korea FTA, which was fully enforced in 2015, becoming one of the EU's most extensive FTAs and a milestone in EU-Asian relations. This agreement eliminated import tariffs on most goods, marked a pioneering EU-Asian partnership, and introduced the innovative 'Trade and Sustainable Development' (or 'T&SD) chapter, aligning trade with environmental and labor protections. The T&SD chapter's main goal is to boost the regulatory framework by enforcing labor and environmental standards to support trade and investment. This innovative approach[12] has influenced subsequent EU FTAs and signifies a shift in how the EU addresses these issues in trade agreements. It's considered a model for future FTAs and has shaped similar chapters in agreements with other nations[13].

During the 10th EU-Korea Summit, held in Seoul in May 2023, inter alia, two new partnerships were announced and enhanced the bilateral Framework Agreement, i.e. the EU-Korea Green Partnership and EU-Korea Digital Partnership[14], the first focused on strengthening collaborative efforts to address challenges associated with the green transition, while the latter was signed

[9] GCF, under the UNFCCC, is based in Songdo and serves as a financial mechanism aiding developing nations in climate change adaptation and mitigation.

[10] GGGI, based in Seoul, is an intergovernmental organization advocating for environmentally sustainable economic growth.

[11] EU–Korea FTA [2011] OJ L168/1

[12] Harrison, James (Ed.) (2013), "The European Union and South Korea, The Legal Framework for Strengthening Trade, Economic and Political Relations, page 124.

[13] FTA with Colombia, Peru, as well as with Malaysia and Singapore.

[14] General Secretariat of the Council (2023), "EU-Republic of Korea Summit (Seoul, 22 May 2023) - Joint Statement."

as a means of achieving the goals set out in the Green Partnership and thus recognizing the importance of digital solutions in addressing climate change. Green Partnerships are a comprehensive form of bilateral engagement as part of the external dimension of the European Green Deal and are signed with key EU partners, the first one formed with Morocco in October 2022. Additionally, the Green partnership will encompass various domains such as sustainable finance, research, innovation, food systems, and supply chain resilience, along with the social aspects of the green transition. Both parties have also agreed to promote climate action on the international stage, particularly through their roles as significant contributors to climate finance and facilitators of just transitions in other countries. This is analyzed in Chapter 2 of this report. Negotiations on Korea's association to Horizon Europe[15] were launched during the summit which would support the implementation of EU-Korea Green and Digital Partnerships. The Korean Green New Deal was announced in 2020 with a budget of approx. USD 144 billion for the period of 2020-2025[16] in response to economic changes, especially post-COVID-19. It encompasses three initiatives, the Digital New Deal, the Green New Deal and the Stronger Safety Net by investing in a data-centric economy, attaining net-zero emissions, enhancing social safety in response to economic changes, respectively. The Korean Green New Deal has a budget of 73.4 trillion won (approx. USD 52B), equal to 1.1% of annual GDP, in a time frame of 2020-2025 (equal to 1.1% of annual GDP).

For the first time since its inception, Horizon Europe offered association to an EU strategic partner irrespective of its geographic proximity. Korea is not only recognized as a key strategic partner to the EU, but also as a priority partner in science, innovation and technology and via Korea's association to Horizon Europe[17] Korean R&I entities are granted equal participation in collaborative calls addressing global challenges alongside EU Member States, mandate to coordinate actions, observer roles in Program Committees, and access to funding. This association would strengthen collaboration in R&I on solutions to global challenges notably the climate crisis, notably several key areas, including climate change mitigation, environmental cooperation, clean energy transition, and green transition support for other nations.

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[15] Horizon Europe, with a €95.5 billion budget, is the EU's primary R&I funding program. It addresses climate change, advances UN SDGs, and enhances EU competitiveness and growth. The program fosters collaboration, amplifies research and innovation impact in line with EU policies, and supports knowledge and technology dissemination.

[16] Ministry of Economy and Finance, Republic of Korea (2020), "National Strategy for a Great Transformation, Korean New Deal, Green Climate Policy Division."

[17] European Commission (2023), "Horizon Europe: The EU and the Republic of Korea launch formal negotiations on association to the programme".

EU-Korea synergy: leveraging expertise to tackle respective environmental challenges

EU's corporate environmental transparency, a model for Korea's reorientation of capital flows towards sustainable investments.

Korea achieved a significant reduction in its global CO2 emissions ranking, moving from the 2nd position in 2008 to 10th place by 2022[18]. Despite this, during this period the country's energy mix continued to rely on carbon-based sources, accounting for 34.6%. Between 2000-2013, Korea's greenhouse gas emissions increased by 39%, leading to persistent air pollution driven by energy-intensive industries, extensive road networks, and cross-border pollution from China and Mongolia. Rapid industrial growth, including electronics, automotive, shipbuilding, and steel production, low electricity costs and heavy reliance on fossil fuels, contribute to its carbon intensity.

Despite Korea's position as a top innovative economy, its international engagement and domestic policy efforts in climate issues, one of the main challenges of the country still is divestment from carbon projects and transitioning into renewable energy. This can be attributed to Korea's focus on sustainability from a social perspective - the green policy focuses on promoting green innovation and job creation, with no specific initiatives related to corporate transparency in ESG. Korea is the top 10 largest issuer of green bonds[19] in accordance with the Climate Bonds Taxonomy, however they constitute only 20% of Korea's sustainable debt market and are mostly domestic climate finance. Notably, over 60% of South Korea's labeled bond market comprises social bonds, a significant deviation from the dominance of green bonds seen in other APAC and global markets. Backed by government policies, Korea has emerged as the largest social bond market in the APAC region, with a domestic issuance volume of USD 19 billion in the first five months of 2023. In contrast, Japan, the second-largest market, issued USD 5.6 billion in social bonds by May 2023.

Korea's divestment from foreign coal power projects is ongoing but can be accelerated through requiring corporate transparency from large companies, SMEs and issuing companies. Historically, Korea was the third-largest investor in foreign coal power projects up to 2018, following China and Japan, with significant public financing for overseas coal power projects, with investment by the three countries totaling USD 53 million during 2013-2018, accounting for 88% of global overseas coal financing among G20 countries[20]. From 2019 onwards,

[18] Earth System Science Data (2022), "Global Carbon Budget 2022."

[19] Korea issued green bonds worth USD 7.63 billions for the financial year 2022, according to the Climate Bonds Initiative 2023.

[20] Statista Research Department (2023), "Foreign coal power project financing 2010-2021 by source country."

Korean public finance agencies have committed to divesting from coal projects and shift investments towards sustainable energy, as part of the Korean Green New Deal[21]. In addition, the country pledged a total of USD 600 million[22] to the Green Climate Fund between 2013 and 2023.

Albeit diminishing investments in unsustainable projects, divesting from foreign coal projects remains a challenge due to substantial prior investments in overseas coal ventures made prior to the Green New Deal's inception. In addition, weak government enforcement of corporate environmental accountability can be attributed to this challenge.

The distinct origins and priorities underscore the nuanced approaches Korea and the EU take to environmental and economic challenges. On the one hand, corporate transparency in ESG was not a priority in Korea's Green New Deal, which was implemented as a response to the economic fallout from COVID-19, emphasizing job creation through eco-friendly infrastructure, renewable energy expansion, and green industry development[23]. On the other hand, the European Green Deal focuses on climate action to achieve "carbon neutrality by 2050" by reshaping the European economy, reducing emissions, promoting renewables, sustainable transportation, agriculture, and biodiversity. Notably, green finance is essential for private capital mobilization and is crucial for harnessing private capital for sustainable projects, amplifying their impact. The EU's climate framework is a pioneer especially in corporate accountability through establishing standards and fostering transparency in sustainable finance through regulatory frameworks, notably the Sustainable Finance Disclosure Regulation (SFDR).

Despite disparities in the inception and focal points of their green policies, the EU and Korea can learn from each other's strengths and address their respective weaknesses by leveraging each other's expertise. In this context, the European Green Deal can serve as a valuable model to Korea for redirecting financial investments toward sustainability through bolstering corporate transparency in sustainable finance. The EU Action Plan on Financing Sustainable Growth includes groundbreaking regulations such the SFDR, EU Climate Transition Benchmarks Regulation, Green Taxonomy, CSRD, the CSDDD[24], and regulation of ESG rating agencies.

In particular, the SFDR and the CSRD offer valuable guidance for Korea in its path to carbon divestment by attracting sustainable and responsible investors who prioritize green-based projects. The SFDR tackles greenwashing by enhancing transparency in the financial sector and regulation requires financial market

[21] National Strategy for a Great Transformation, Korean New Deal, Ministry of Economy and Finance, Green Climate Policy Division, Republic of Korea, 2020.

[22] Green Climate Fund. (2023, September 3). Republic of Korea Commits Significant Increase in Support to GCF. Retrieved from https://shorturl.at/fEVZ4

[23] Korean Institute for International Economic Policy (2020), "The Policy Implications of the European Green Deal on South Korea's Green New Deal."

[24] Corporate Sustainability Due Diligence Directive is to be implemented in 2024.

participants and financial advisors to disclose integration methods of ESG factors into their investment decision-making process. SFDR impacts a wide range of financial stakeholders, emphasizing sustainability risks and impacts. It aims to provide clarity to investors about the sustainability of their investments and the impact of their financial decisions on the environment and society. This can help diversify the investor base and reduce reliance on funding from carbon-intensive projects.

In addition, CSRD requires large and listed companies to disclose reports on their social and environmental risks, along with the companies environmental impact. CSRD's emphasis on transparency, standardized reporting, and investor confidence serves to create a more informed, accountable, and sustainable business environment. These benefits extend to companies, investors, consumers, and regulators, and contribute to a more responsible and resilient global economy. This is especially relevant to Korea with one of the largest populations of retail investors in the world[25]. By adopting principles and reporting requirements similar to the EU's, Korea can ensure that investments are made transparent, allowing investors to make informed decisions based on environmental factors.

Korea's Pioneering Role in the Hydrogen Economy: Implications for the EU's Green Economy Research and Innovation Efforts

The Korean New Deal comprises three initiatives, with the Green New Deal and Digital New Deal synergizing due to their intertwined research and innovation (R&I) and green economic aspects. The merging of digital and green policies aims to stimulate economic growth while tackling environmental issues. This report examines Korea's approach to combining digital and green initiatives, offering insights for the EU to leverage its R&I capabilities in green projects, with a focus on benchmarking Korea's hydrogen economy.

Korea's expertise in R&I can provide valuable recommendations[26] to the EU, e.g. shifting from government-led to private sector-driven R&D as the economy grows, fostering collaboration among academia, government, and local private sectors, extending partnerships with advanced economies, ensuring the market relevance of technological advancements, and promoting global expansion while nurturing private sector autonomy and creativity. For instance, the Green Innovation Hubs in Korea are integrated into Korea's overall strategy for green growth and innovation. They receive funding from various sources, including government budgets, research grants, and public-private partnerships. Concurrently, the European Green Deal prioritizes R&I through policies and initiatives such as Horizon Europe and the Clean Hydrogen Alliance emphasizing R&I for clean hydrogen as an energy

[25] Korea Economic Daily. (2022).S.Korea's retail investors put record amount in overseas stocks. Retrieved from https://shorturl.at/jNTV9

[26] Seminar at UNIDO led by Professor Heui Jae Pahk, President of the Office of Strategic R&D Planning in South Korea's Ministry of Trade, Industry and Energy.

source. These initiatives showcase the EU's search for international partnership in R&I.

Korea's hydrogen leadership provides valuable insights for the EU's green economy R&I efforts, especially regarding decentralized R&D, hydrogen clusters, and hydrogen-related legislation. Korea's decentralized R&I model involves specialized public research institutions focusing on various aspects of hydrogen technology, like production, storage, and fuel cells. Also, decentralization encourages collaboration among research institutions, academia, and industry players. Researchers can share insights, pool resources, and work together on interdisciplinary projects. By distributing research efforts, Korea can tackle multiple aspects of hydrogen technology simultaneously, accelerating progress. This approach is particularly effective in a rapidly evolving field like green technology. The EU can consider adopting a similar decentralized model for its green technology R&I efforts. This would involve establishing specialized research centers or institutes dedicated to different facets of the green economy, from renewable energy sources to sustainable agriculture practices.

In 2019, Korea unveiled a roadmap for a hydrogen-based economy with the objective of powering 10% of the country with hydrogen by 2030. In 2021, Korea ratified the world's first Hydrogen Economy Promotion and Hydrogen Safety Management Law (or 'Hydrogen Law') that supports hydrogen-focused companies through R&D subsidies, loans, and tax exemptions. Korea prioritizes hydrogen cars over electric vehicles (EVs) as the next growth engine, aiming to create a hydrogen economy generating €24 billion and 420,000 jobs by 2040[27]. Following the above roadmap and Hydrogen Law, there has been a significant increase in hydrogen cars, infrastructure expansion, and fostering hydrogen-powered buses, taxis, trucks, ships, and machinery. Korea seeks to boost fuel cell capacity for power generation and homes. To support this, a Hydrogen Economy Promotion Council is established, alongside a Hydrogen Industry Cluster and three hydrogen pilot cities (Ulsan, Ansan, Wanju) to test hydrogen applications in various sectors from 2022[28]. Currently, Korea pursues international collaboration, particularly with a focus on exporting hydrogen technologies to the European market.

In parallel, the EU acknowledges the pivotal role of hydrogen in realizing its climate-neutral objectives[29]. Despite being a significant contributor to greenhouse gas emissions and heavily dependent on energy imports, such as oil and gas, the EU is resolute in its pursuit of overhauling its energy landscape. In 2020, it unveiled a hydrogen strategy, emphasizing green hydrogen from renewable sources as the sustainable path to climate neutrality. Currently, hydrogen accounts for just 2%

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[27] Ministry of Trade, Industry and Energy, Republic of Korea (2019), "Leaping forward to become a world-class hydrogen economy leader, Seongsu Park."

[28] Korea JoongAng Daily. (2021, June 16). [Road to 2050] Wind, water, sun and hydrogen, Korea goes all in on renewables]. Retrieved from https://shorturl.at/qwOQ3

[29] European Parliament (2023), "'Renewable hydrogen: what are the benefits for the EU?'.»

of the EU's energy mix, primarily sourced from fossil fuels. However, it holds potential, up to 20%, to decarbonize transport and industry. This renewable hydrogen economy could significantly reduce global warming. To drive this transition, the EU Parliament advocates for incentives, infrastructure expansion, and phasing out fossil-based hydrogen, emphasizing the importance of a clean hydrogen market and certification for hydrogen imports.

The EU can draw inspiration from Korea's hydrogen strategy through legislation, incentives, and demonstrations to promote private sector investment in sustainable hydrogen technology. This approach, including hydrogen clusters and pilot projects in various sectors, will enhance the EU's position in sustainable technology and practices.

Conclusion

In summary, this report explored the nexus between the EU's corporate sustainability reporting and Korea's R&I expertise as they jointly play a crucial role in global environmental stewardship. The European Green Deal, and its corporate transparency regulations, was a central theme, highlighting its significant impact on global sustainability efforts and its strategic partnership with Korea. Additionally, the report emphasized Korea's role as a vital green partner to the EU with vast abilities in the climate change mitigation technology, notably in the hydrogen technology. A key milestone in their collaboration such as the EU-Korea Green Partnership was highlighted. The report also underlined the potential for knowledge sharing between the EU and Korea in the field of R&I in the Horizon Europe framework, particularly in the context of Korea's leadership in the hydrogen economy. In the face of global environmental challenges, this report lays the groundwork for future research and collaboration between the EU and Korea as they jointly pursue sustainability and environmental stewardship.

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