

From Green Growth to Carbon Neutrality: Learning from the Experience of the Republic of Korea

UNDP Seoul Policy Centre
July 2023



Disclaimer: The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including the United Nations Development Programme (UNDP), or United Nations Member States.

The UNDP Seoul Policy Centre is part of UNDP's Global Policy Network. The Centre is central to supporting effective development cooperation, South-South and Triangular Cooperation, and high-quality programming and action through cutting-edge development research, policy dialogue and knowledge sharing on key development issues.

UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in 170 countries, we help nations to build integrated, lasting solutions for people and planet.

Learn more at undp.org or follow at @UNDP.

Copyright ©UNDP 2023. All rights reserved.
Manufactured in the Republic of Korea

Acknowledgements

Author

- Dr. Junghwan Kim, Consultant, UNDP Seoul Policy Centre (USPC)
- Mr. Minhyuk Hong, Policy Analyst on Green Development, USPC
- Ms. Julie Adiwal, SDGs and Resilience Consultant, USPC

Editing Team

- Dr. Anne Juepner, Director, USPC
- Mr. Chris Ziegler, Programme Analyst, USPC
- Ms. Hye-Jin Park, Communication and Partnerships Specialist, USPC
- Ms. Sujin Kim, Communications Consultant, USPC
- Ms. So Hee Kim, SDG Outreach & Private Sector Engagement Intern, USPC
- Ms. Yiji Kim, Resilience Intern, USPC
- Mr. Richmond Kwadwo Fosu, Resilience Intern, USPC

In addition to the colleagues listed above, the authors of this paper express their upmost gratitude towards Dr. Sarwat Chowdhury for her constructive peer review, as well as all interviewees for their unique insights.

Acronyms and Abbreviations

DAC	Development Assistance Committee
ESG	Environmental, Social and Governance
EU	European Union
K-eco	Korea Environment Corporation
K-ETS	Korean Emissions Trading System
MOE	Ministry of Environment
MOEF	Ministry of Economy and Finance
MOTIE	Ministry of Trade, Industry, and Energy
NDCs	Nationally Determined Contributions
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
ROK	Republic of Korea
SMEs	Small and medium-sized enterprises
TMS	Tele-Metering System
UNFCCC	United Nations Framework Convention on Climate Change
USPC	UNDP Seoul Policy Centre

Executive Summary

Climate finance, particularly green official development assistance (ODA), is becoming increasingly important due to its crucial role in supporting the green transition needed for the Global South to mitigate the potential extent of the rapidly accelerating climate crisis and adapt to its inevitable consequences. For this reason, this paper identifies potential opportunities for new and additional resource mobilization, especially through multilateral cooperation. To this end, this paper provides an overview of actions related to the new UNDP Strategic Plan, particularly examining climate-related issues. The paper also outlines the strategic approach of the Republic of Korea (ROK) to climate-related issues, finding that its domestic efforts have significantly influenced its international priorities.

Due to the significant overlap between strategic priorities between UNDP and the ROK, the paper affirms that the intent to cooperate further on green ODA issues has already been institutionalized. Accordingly, the paper conducts an analysis of the potential policy solutions that could be used as a basis to leverage such cooperation in the future. To this end, the paper seeks to identify representative policies for each of the three types of environmental policy instruments.

Accordingly, the paper elaborates on the emissions trading scheme of the ROK and hydrogen strategy as examples of market-based policies. As an illustration of command-and-control instruments, the paper elucidates on the approach of the ROK to managing air pollution and achieving a circular economy. Finally, the paper analyses the approach of the ROK to promoting energy citizenship and engagement as an example of voluntary and informational tools.

Table of Contents

1. Introduction.....	7
2. UNDP and Green Transition.....	10
3. The Republic of Korea’s Green Transition.....	12
4. Selected Green Policy Solutions.....	14
(a) Market-Based Policy Solutions	14
(b) Command and Control Policy Solutions.....	18
(c) Informational and Voluntary Policy Solutions	24
5. Conclusion and The Way Forward	27
References.....	29
Appendix 1: Interview Guide.....	33
Appendix 2: List of Interviewees (Affiliations) and other sources	34

1. Introduction

According to the United Nations Framework Convention on Climate Change (UNFCCC), the international community is expected to experience an intolerable temperature rise of 2.5 degrees by the end of this century (2022). This is concerning as climate change is no longer a stand-alone environmental issue. It is increasingly affecting all four pillars of sustainable development through means such as hindering economic growth, instigating pandemics and food insecurity, exacerbating the biodiversity loss and pollution aspects of the Triple Planetary Crisis while contributing to extreme weather events, and worsening security issues. These associated development challenges are especially severe in countries in the Global South, which despite being the least responsible for historical emissions, are particularly vulnerable to the multi-dimensional repercussions of climate change due to their intensive exposure, high sensitivity and low adaptive capacity to the issue (IPCC, 2007). For similar reasons, the most vulnerable individuals living within such countries face the brunt of climate-related repercussions.

To address these challenges, the Paris Agreement spearheaded a paradigm shift from the Kyoto Protocol's top-down form of climate governance founded on legally binding targets and timeframes, to a bottom-up approach promoting voluntary commitments through 'soft reciprocity'. Empowered by the finalization of the Paris 'rulebook' through the Glasgow Climate Pact, this agreement rendered the successful implementation of the legal objective of limiting temperature rise by 2.0 degrees Celsius and the stretch goal of 1.5 degrees Celsius contingent on the leadership efforts of individual countries. This is because such initiatives raise the abatement expectations for other comparable states. Such increases in climate ambition are needed not only in the Global North, which despite only comprising 10 percent of the global population, is historically responsible for 50 percent of greenhouse gas emissions, but also in the Global South, which is now responsible for 95 percent of the new emissions from the past decade (Popovitch and Plumer, 2020).

However, despite having the political will to undergo a green transition, many countries in the Global South often need more financial and technical capacity to facilitate this ambitious process. As such, the absence of relevant efforts may instigate avoidable carbon lock-in, making the achievement of the necessary global abatement targets

even more challenging. Moreover, the inability to undergo this transition results in these countries, and the most vulnerable individuals residing within them, being left unprotected from the detrimental impacts of climate change.

Despite having committed to annually providing over US \$100 billion in climate finance by 2020, the international community has only raised \$83.3 billion (OECD, 2021). Much of these limitations can be attributed to the lack of bilateral and multilateral climate-related development finance or 'green ODA', which accounts for approximately 82 percent of all climate finance. Indeed, green ODA is particularly important because it can support the needs of relatively neglected partner countries, particularly those unable to independently mobilize private finance, such as Least Developed Countries and Small Island Development States. Moreover, it can act as a catalyst for mobilizing additional forms of finance by acting as an instrument of diversifying risks. Thus, when considering that IPCC reports that up to \$3.8 trillion is necessary per year to avoid global warming exceeding 1.5 degrees Celsius (Timperley, 2022), it is evident that the mobilization of new and additional green ODA is more critical than ever.

Against this backdrop, it is worth noting that, using the unprecedented opportunity to 'Build Back Better' presented by the Covid-19 Pandemic, many countries in the Global North made efforts to promote national initiatives to facilitate a green structural transformation. According to Hong (2022), such domestic improvements to the sustainability of a country's economy have historically led to increased contributions to climate-related development finance due to increased political will. In particular, this holds true for multilateral green ODA, which increases in both total value and percentage as a share of total ODA within countries with a higher Planetary pressures-adjusted Human Development Index (PHDI) score. This is because such partnership mobilities enabled such countries to benefit from the well-established networks, processes and expertise of international organizations.

In this regard, Hong (2022) reports that such trends were especially prevalent in the ROK. This is noteworthy, as such increases occurred during a period of 'thinning multilateralism' during which even the most ambitious of bilateral donors decreased their ODA commitments. Accordingly, during the pandemic, UNDP Seoul Policy Centre (USPC) organized three international policy webinars on various aspects of Green New

Deal strategies in partnership with the Ministry of Foreign Affairs, Ministry of Environment (MOE), WHO, the European Union (EU) and various developing countries (USPC webinars a,b&c 2020), while liaising with MOE to share relevant lessons learned through the UN Partnership for Action on Green Economy (UN PAGE) Initiative (UN PAGE 2022). Following this tradition and building on its mandate to share the development experience of the ROK, USPC commissioned this research paper to identify corporate (i.e. UNDP) and business-unit level (i.e. USPC) opportunities to formulate green ODA projects based on the green policy solutions in which the ROK possesses a comparative advantage and may be of interest to countries in the Global South.

To this end, this paper provides a brief overview of the approach taken by UNDP to support climate-related issues. Subsequently, this study elaborates on the approach taken by the ROK to promote a green transition at the domestic and, more importantly, international levels to identify the potential for possible collaboration between the ROK and UNDP. Following this, the report elaborates on six green policy solutions that align well with the programmatic vision of UNDP. Finally, based on the research findings, this paper will conclude by providing recommendations on how USPC could inform its programmatic approach to collaborating with the ROK when contributing to the service offer of UNDP on environment.

2. UNDP and Green Transition

Through its Strategic Plan 2022-2025, UNDP provided clarity on how it seeks to support countries in the Global South to overcome multi-dimensional poverty and inequality. This was done by elaborating on the three directions of change that it hoped to facilitate in partner countries, and the six signature solutions through which it hoped to achieve such objectives. Moreover, it presented guidance on the three enablers that would allow UNDP to enhance its developmental impact.

As one of its three directions of change, UNDP seeks to promote the green and digital structural transformation of partner countries. To this end, with particular emphasis on the green component, UNDP primarily employs three signature solutions. For example, UNDP works with countries and communities to build resilience to diverse shocks and crises while supporting governments to protect, manage and value their natural assets. Moreover, UNDP is undergoing efforts to increase energy access for those left furthest behind and to accelerate the transition to renewable energy.

These efforts are achieved through the well-positioned institutional ‘infrastructure’ of UNDP. This is founded by a network of 170 Country Offices that implement projects on the ground in cooperation with their local partner organizations. Moreover, it is supported by a Global Policy Network that provides technical support with identifying, planning, implementing, monitoring and evaluating such development interventions.

In this context, it is worth noting that the dedication of UNDP to this issue has enabled it to establish the largest climate portfolio in the United Nations system. Being supported by the cross-cutting portfolios of other Global Policy Network teams and benefiting from inter-organizational collaboration with such teams, these efforts are led by the Nature, Climate and Energy (NCE) team. With a portfolio that supports 86 million people in 137 countries through 802 projects, it does so by working across the three nexus areas of zero waste, urban, as well as agriculture, food, and water through the 16 services offers that provide support towards the following issues:

1. Climate Promise
2. Carbon Markets
3. Circular and Green Economy

4. Climate and Forests
5. Climate Change Adaptation
6. Combating Desertification and Enhancing Resilient Ecosystems
7. Ecosystems and Biodiversity
8. Food and Agricultural Commodity Systems
9. Ocean Governance
10. Plastics
11. Small Island Developing Islands
12. Local Action
13. Sustainable Cooling
14. Water Governance
15. Zero Waste
16. Digital Planet

With that said, it is worth noting that development finance is one of the three enablers of UNDP. Referring to strengthening existing partnerships and forging new ones to mobilize the necessary resources at scale, this emphasizes the need to identify potential partners and the means through which cooperation can be achieved. Accordingly, the following section elaborates on the approach of the ROK to promoting a green transition at the domestic and, more importantly, international levels to identify the potential for collaboration between UNDP and the ROK.

3. The Republic of Korea's Green Transition

Being the only country in the world to have transformed itself from an aid recipient into the Organisation for Economic Co-operation and Development (OECD)'s Development Assistance Committee (DAC) donor, the ROK achieved unprecedented economic growth within a single generation in the 20th century. As such prowess was achieved at the expense of some environmental detriment, the ROK initiated early-mover efforts to undergo the transition into a green economy. This can be affirmed as the ROK became the first OECD country to have produced a national green growth strategy in 2008.

In this context, the ROK reignited its climate leadership ambitions by announcing its 'Carbon Neutrality Act' in 2020. This served as the basis of the country's Long-Term Low Emissions Development Strategy to attain a net-zero economy by 2050. Building on this, the ROK enhanced the ambition of its Nationally Determined Contributions (NDCs) from reducing 24.4 percent of its 2017 peak year emission levels to 40 percent by 2030. To achieve these ambitious goals, the ROK released two iterations of the 'Korean New Deal' in 2020 and 2021, which included a Green New Deal as one of its primary components. Through these initiatives, the ROK initiated targeted projects with an environmental focus and integrated ones incorporating a digital focus to accelerate a green transition at the domestic level. Building on these efforts, the ROK released its 'Carbon Neutrality and Green Growth Implementation Plan in 2022', outlining the new administration's strategic approach to achieving the 2030 and 2050 goals.

Building on the efforts made during the 'Green Growth' era of ROK to leverage its domestic experiences at the international level (Hong & Izmestiev, 2020), the lessons learned through its recent green transition experience, and the need to achieve 12.9 percent of its NDC through the cooperative mechanisms stipulated in Article 6 of the Paris Agreement, the ROK committed to enhancing its support towards the green transition of developing partner countries. To this end, in addition to being mentioned as one of its main priority cooperation areas in the 'Third Strategic Plan for International Development Cooperation' and the 'New Administration's International Development Cooperation Implementation Plan,' the ROK released its 'Green New Deal ODA Implementation Plan'. By doing so, it pledged to increase its climate-related

development finance commitments from its 2019 baseline of 19.6 percent of total ODA finance to above the OECD-DAC average of 28.1 percent by 2025. Signifying an increase of approximately 50 percent, this affirms the significant potential for enhanced partnership in this area. Indeed, this is particularly true if the ROK commits further to pursue a leading role in green ODA by not only meeting the OECD-DAC average but exceeding it to meet the average of other leading OECD-DAC donors (Rijsberman, 2021).

In this context, it is worth noting the development cooperation ecosystem of the ROK is unique in that there are 46 implementing agencies, many of which host subsidiary organizations that specialize in specific technical areas of cooperation. For example, within the MOE, Korea Environment Corporation (K-eco), Korea Environmental Industry and Technology Institute (KEITI), and K-Water have been designated as the three primary international cooperation agencies. However, other agencies working on environmental issues are also mandated to work on ODA-related issues. As many of these agencies do not have the necessary systems to design and implement development projects effectively, they would significantly benefit from further collaboration with an agency with such systems in place.

These developments in the strategic approach to development cooperation of the ROK and the characteristics of its development cooperation ecosystem, are relevant to UNDP because its Strategic Plan 2022-2025 outlines the need to promote the green and digital transformation of partner countries as one of its three primary drivers of change. Accordingly, during the second Regular Session of the 2021 Executive Board, the ROK affirmed its intent to work closely with UNDP, which is one of the five priority partner organizations of the ROK, on this issue. This statement reflects the strategic guidance institutionalized through numerous policy documents, such as the ones mentioned hitherto and the Multilateral Cooperation Strategy developed by the ROK, which explicitly designates UNDP as a potential implementing agency to cooperate with on environmental issues. Accordingly, the following section will identify six policy solutions that can serve as a basis to mobilize new and additional green ODA-funded projects.

4. Selected Green Policy Solutions

Six green policy solutions from Korea's ongoing green transition experience were selected for greater examination in this report. The solutions were selected based on expert interviews, demand among developing countries, and alignment with the strategic offers of UNDP. Upon selecting these six policies, this paper conducted a qualitative research methodology based on literature reviews and deep-dive expert interviews. The interviews were designed using a two-step process based on non-probability sampling. First, a list of relevant organizations was created. Second, potential interview targets for each agency were designated based on convenience and snowball sampling methods. Thus, through such research methodologies, this paper sought to identify the context, characteristics, opportunities, challenges, impact and potential for international cooperation on green policy solutions from the ROK.

These six green policy solutions are classified into one of the three categories: market based, command and control, or voluntary and informational instruments. Market-based (or economic) instruments use the primary signal in a market economy – the price – to set the desired level of environmental performance. This instrument results in internalizing the hidden cost of production and consumption, thus incentivizing the adoption of clean technologies. Command and control policy instruments are a form of direct regulation through government intervention, which becomes the basis of an environmental policy framework. Finally, voluntary and informational instruments are focused on learning effects and the stimulation of sustainable product and business development. Therefore, they can promote certain behaviours in specific target groups. In this regard, certain policies may display characteristics of multiple policy categories.

(a) Market-Based Policy Solutions

i) Emission Trading System

Specified as the primary means of achieving the greenhouse gas reduction targets stipulated in its NDCs, the Korean Emissions Trading System (K-ETS) is governed and regulated by the MOE and operated by the K-eco. Currently, K-ETS is being operated with 685 companies, which account for about 73.5 percent of Korea's total emissions,

and it has a comprehensive operation, including the six major greenhouse gases and indirect emissions (KCCI, 2021, MOE, 2020).

Before the introduction of K-ETS, greenhouse gas reduction was enforced through the Target Management System, a form of direct regulation still in place for small and medium-sized enterprises (SMEs) that are not included in the emissions trading system. An initial policy design stage for K-ETS was jointly conducted by MOE and the Ministry of Trade, Industry, and Energy (MOTIE) to build on this instrument by benchmarking the EU-ETS. The discussions were also informed by research from national research institutions such as the Korea Energy Economics Institute. After being launched, new operating standards in the form of strategic documents such as "basic plans" and "allocation plans" for every five-year planning period have been released. As a result, the emission allocation method was advanced to achieve the enhanced reduction target over the planning period with the ratio of paid allocation increasing.

This mechanism has three main advantages. First, K-ETS aims to induce change in behaviour by providing incentives in the form of a market mechanism that can achieve reduction targets at less cost than direct investment for companies that lack reduction capacity. Second, introducing K-ETS gave a clear market signal to reduce emissions by regulating the total amount of greenhouse gas. Third, it provides opportunities to secure continuous investment capacity through the sales revenue of greenhouse gas emissions permits. In fact, K-eco uses the income secured through the paid allocation of emission rights as a financial source to directly support the reduction of greenhouse gases for SMEs that lack greenhouse gas reduction capabilities by subsidizing the cost of replacement or installation of reduction facilities.

However, there are still some limitations. Particularly, there is significant unmet demand for emission permits from large corporations, causing difficulties in market operation due to an imbalance in supply and demand. Thus, due to the rigidity of the current market system, electricity rates need to adequately reflect carbon prices. This distorts the resource allocation and consumption decisions of involved companies (IBK, 2021).

Accordingly, going forward, it is necessary to continuously develop the system in three ways. First, potential next steps include expanding the coverage scope of the K-ETS to

other sectors, such as transportation and infrastructure, and enhancing the predictability of future planning periods. Second, institutional coherence with other mechanisms in the carbon market, such as linkages with the Carbon Border Adjustment Mechanism (CBAM), EU-ETS, voluntary carbon markets (consumers) and carbon taxes, should also be reviewed, along with identifying mechanisms that allow for flexibility (SU, 2022). Third, it will be essential to consider the potential to link this system to the Paris Agreement's international cooperation mechanisms, particularly those related to Article 6.2 (GIR, 2022).

For this reason, when sharing this system with other countries through international cooperation, it is possible to share Korea's carbon market operation capability through four methods:

1. UNDP can promote linkages between consumers in developing country and Korean suppliers for overseas reduction projects.
2. UNDP can nurture Measurement, Reporting, and Verification personnel.
3. UNDP can support the energy diagnosis of potential projects.
4. UNDP can also support the evaluation of relevant projects. Nonetheless, given the technical complexity of the mechanism, it is important to carefully check the institutional capacity of developing countries before initiating any potential partnerships.

ii) Korea's Hydrogen Strategy

Affirmed as an essential solution through which to achieve the 2030 NDC and 2050 Carbon Neutral Strategy, hydrogen is currently a top-level policy priority in Korea that has been comprehensively detailed through the 2019 hydrogen economy revitalization roadmap, the second hydrogen economy roadmap and implementation plan in 2021, and the enactment of the hydrogen law. The Hydrogen Economy Committee of the Prime Minister's Office coordinates cross-ministerial policy to implement Korea's Hydrogen Strategy. Moreover, MOTIE is the main anchor through its Bureau of Hydrogen Economy Policy, jointly working with the MOE, the Ministry of Science and ICT and the Ministry of Land, Infrastructure, and Transport (MOTIE, 2019).

Based on a benchmark of Japan's hydrogen master plan, European certification systems, and production and supply chain policies (Hydrogen Council, 2021), the ROK selected the usage of hydrogen in part to build on its comparative advantage of having relevant industries. For example, business opportunities exist in hydrogen power generation through partnerships with the energy, refining and shipbuilding industries. Thus, the Hydrogen Convergence Alliance (H2Korea), a public-private cooperation platform, was formed to support collaboration between the public and private sectors on every aspect of hydrogen production and distribution. Building on such collaboration, the hydrogen strategy of the ROK features a combination of regulations and incentives. This includes the implementation of regulations such as the mandatory use of power generation companies and incentives such as subsidies for hydrogen vehicles and support for building hydrogen charging stations.

Through this strategy, the ROK is able to acquire the following benefits. First, given that Korea imports most of its energy, the strategy provides much-needed new energy sources, especially one with various advantages as an energy carrier, including the ability to deliver and store a tremendous amount of energy. In particular, it is expected to support long-distance transportation by developing hydrogen trains, trucks, ships and cars that can be an alternative to electric vehicles (KEEI, 2020).

However, there are limitations. First, it is necessary to ensure that there are reliable global supply chains for importing critical components used in fuel cells and that core parts can eventually be produced domestically. Second, despite the comprehensive policy design of Korea's hydrogen policy, it is not possible to judge the effectiveness of the current implementation as it is in its infancy. However, it will be possible to verify the effectiveness of the hydrogen economy through flagship projects such as renewable energy curtailment solutions on Jeju Island.

As much as hydrogen will contribute to Korea's energy security, there is also great potential for cooperation in developing and supplying green hydrogen to developing countries. In terms of international collaboration, Korea's policies can be referred to for energy supply chain redesign and energy system planning in developing countries, given Korea's experience establishing advanced hydrogen economy strategies. Moreover, creating a comprehensive business model that includes technology

development for energy supply chain cooperation with developing countries will be important.

(b) Command and Control Policy Solutions

i) Greenhouse Gas Reduction Awareness Budget System and Climate Change Impact Assessment

Greenhouse Gas Reduction Awareness Budget System

Reflected in the National Finance Act of the Ministry of Economy and Finance, which was enacted through the Framework Act on Carbon Neutrality and Green Growth, the Greenhouse Gas Reduction Awareness Budget System is managed by the Ministry of Economy and Finance which oversees the Greenhouse Gas Reduction Awareness Budget System. Moreover, through K-eco, the MOE supports each ministry's budgeting process, while providing education and consulting to ensure climate-responsive budgeting practices. Finally, national and local governments are mandated to analyse the impact of budgets on climate change as prescribed by the Basic Act on Carbon Neutrality and Green Growth. They are also mandated to implement a greenhouse gas reduction awareness budget system in their financial management. The scope of this newly established budget system is as follows (MOE, 2022):

- Analysing the effects of budgets and funds on climate change;
- Preparing operating guidelines, including criteria for selecting target projects and methods for preparing budgets and settlement statements to recognize greenhouse gas reductions;
- Reviewing the budget and settlement of accounts for greenhouse gas reduction.
- Reviewing fund management plans and fund settlement statements for recognition of greenhouse gas reduction; and
- Enhancing the publicity of the budget system for greenhouse gas reduction and educational programmes on budget techniques provided by K-eco.

Before being enforced nationwide, a pilot programme for the climate budget system, which was developed based on a benchmark of EU countries and international organizations, was implemented at the local government level by the Seoul Metropolitan Government beginning in 2022 and the Gyeonggi Provincial Government

starting in 2020 (KEI, 2022). In 2023, the first year of implementation, fiscal plans will be established for carbon reduction projects. During the following fiscal years, the scope of the programme will be expanded to include national carbon neutrality projects.

The Greenhouse Gas Reduction Awareness Budget System is comprehensive for the following reasons. First, it factors in qualitative measures rather than just quantitative ones. This enables it to reduce the overhead burden in system operation, as quantification is limited through the internationally recognized emission factors. Accordingly, projects that are difficult to quantify are recognized qualitatively. Second, if an institutional system is established for the climate-responsive budgeting of national fiscal projects, it is expected that private companies will also include climate-responsive budget strategies in connection with K-Taxonomy, which refers to a set of principles and standards on what types of economic activities are considered green activities (Shin, 2022).

Going forward, Korea has the potential to support developing countries in formulating climate-responsive budgeting plans and strategies in cooperation with international organizations by using digital budget and accounting systems. For example, one possible tool is dBrain+, an integrated financial information system that performs the entire financial process online. However, as the solution has only been in effect since 2022, a detailed analysis of future impacts is needed.

Climate Change Impact Assessment

The MOE oversees the Climate Change Impact Assessment, which evaluates the impact of relevant policies and projects on climate change. This solution needs to be performed for policy and development planning for energy and water resource development, road construction and waste disposal (MOE, 2022). The following aspects need to be assessed for these types of policy planning. First, the current status of climate change-related laws, systems and major policies. Second, consistency with international agreements on climate change and the national vision. Third, the effects on climate change and greenhouse gas reduction measures. Fourth, the impacts of climate change and measures to adapt.

The Climate Change Impact Assessment also requires planning for energy development issues, the establishment of industrial zones or industrial complexes, urban development, port construction, using rivers, road construction, and waste disposal facilities. The following aspects need to be assessed for these types of development planning. First, the current status of climate change-related laws, systems, and major policies. Second, the consistency with related plans, such as carbon-neutral city/province and city/district plans. Third, greenhouse gas emissions and reduction measures are expected by the implementation of the development project. Fourth, the evaluation of the impact and risk of development projects on climate change. Fifth, emission sources and absorption sources of greenhouse gas. Sixth, the climate adaptation plan and follow-up management plan of the development project.

Moreover, the new Climate Change Impact Assessment now legally requires the assessment of greenhouse gas effects based on the existing third National Climate Change Adaptation Measures (2021-2025). This strategy disaggregates the 84 climate risks identified by the ROK into six categories: water management, ecosystems, land/coast, agriculture/fisheries, health, and industry/energy (KEI, 2022). In this regard, it is currently being used to conduct impact assessment through pilot projects based on the strategic environmental assessment, which is applied to higher-level government plans, and the environmental impact assessment, which is applied to individual development projects. Since the existing environmental impact assessment system has already been applied to numerous projects led by the private sector, the burden on private companies for the new Climate Change Impact Assessment is not expected to be significant, reducing the challenge of adapting a new system.

ii) Air Pollution Control

The MOE is the main anchor for cross-ministerial policy coordination to control air pollution in Korea with the support of the National Fine Dust Information Center of the MOE, which focuses on analysing, gathering and managing data on the causes and sources of particulate pollution, emissions from different sources and the impact of the government's anti-fine dust policies. The Special Policy Deliberation Committee on Fine Dust of the Prime Minister's Office allows for discussion and coordination on major policies related to fine dust. In addition, the National Institute of Environmental

Research focuses on environmental standards setup, testing and measurement research. In contrast, K-eco measures network operations, business site management and technology transfer.

Korea's air-quality related measures include enacting and implementing a package of different policies. For example, the Framework Act on Environmental Policy established environmental standards around fine particles (PM_{2.5}) in 2011 and was applied in 2015. The Special Act on Fine Dust Reduction Management passed in 2018 established a special committee composed of ministers and civilian experts under the Prime Minister's office to develop relevant policies and laid the groundwork for emergency reduction measures at the municipal level. This committee passed the country's most ambitious commitment to improve long-term air quality in 2019, the Comprehensive Management Plan on Fine Dust for 2020-2024. The plan aims to cut the concentration of particulate matter by 35 percent of the national average in 2016 by focusing on five priority areas: multisectoral emissions reduction, health, international cooperation on transboundary air pollution, strengthening the scientific base for policymaking, and public communications and participation (MOE, 2019). Korea developed a seasonal fine dust management system to complement the Comprehensive Plan and passed industry-relevant legislation such as the Special Act on Air Quality Improvement in Port Areas (Yoon, 2020).

In addition to the regional cooperation taking place in Northeast Asia, which features policy cooperation, information sharing and forecasting systems (NCCE, 2020), Korea's recent fine dust domestic countermeasures are comprehensive. First, they focus on finding the cause, investigating public perceptions, providing information and engaging the public. Second, they facilitate regulatory aspects such as fuel regulation, emission levy, total volume management, conversion of old diesel vehicles, early scrapping and eco-friendly vehicles. Third, they include incentives such as engine replacement for construction equipment, subsidy payments for eco-friendly household boilers, and support for installing reduction facilities in small and medium-sized businesses. Fourth, in terms of industry measurement, using Korea's innovative IT communication technology, including real-time remote meter reading in 30-minute increments, is used to encourage voluntary environmental management by private companies and share real-time information with local governments. In particular, K-eco's Tele-Metering

System (TMS) manages 80 percent of domestic industry emissions through remote management of industry chimneys. It examines 800 sites and measures concentration, amount and seven types of pollutants, including nitrogen oxides (NO_x) and sulfur oxides (SO_x). These policies have significantly improved overall air quality in Korea, especially by reducing industrial air pollution. Nonetheless, public awareness of these improvements has been limited.

However, there is more work to be done:

1. With private companies, balancing regulations and incentives and strengthening the private sector's capabilities is essential. In the private sector context, it is also critical to secure consistent and reliable real-time data to ensure fact-based policy formulation.
2. Setting realistic and appropriate fine dust reduction targets through citizen cooperation is necessary.
3. More steps can be taken to strengthen fine dust countermeasures, such as the abolition of thermal power plants, the extension of the seasonal management systems, summer morning countermeasures, the expansion of TMS target companies and pollutants to be measured, and the application of new technologies.

As a potential area for international cooperation, it is realistic to share Korea's initial response methods with developing countries. To this end, it is possible to support the establishment of goals and comprehensive plans tailored to the circumstances of developing countries through an analysis of economic and industrial profiles and future development plans. In addition, it will be possible to provide education and consulting by operating personnel on the integrated operation technology of Korea's fine dust measurement and monitoring system.

iii) Circular Economy

The MOE oversees the resource circulation policy and entrusts this work to K-eco. In Korea, 87 percent of industrial waste is managed by MOE and K-eco, and 13 percent of household waste is handled by waste operators based on local government ordinances (Jang, 2022). Their efforts are guided by the Framework Act on Resource Circulation,

which has been in force since 2018 and is the most significant law on waste management. USPC has previously collaborated with MOE on mainstreaming this Framework. The Centre also represented UNDP at the World Circular Economy Forum (WCEF) 2018 in Japan and facilitated the ROK presentation of this Framework. Specifically, Mr. Lee Young-kee, Director General of the Environmental Resources Research Department at the National Institute of Environmental Research of the ROK, made this presentation at a UNDP co-organized plenary (WCEF 2018 Summary Report).

The provisions of this Resource Circulation Framework can be divided into three categories: establishing a basis for resource circulation, promoting resource circulation, and supporting recycling industries. The Framework aims to transform the current economic structure based on mass production into a much more sustainable and efficient resource-circulating one by encouraging innovative ideas and technologies for reusing and recycling waste (KEI, 2016). Korea actively promoted “3R” (Reduce, Reuse, and Recycle). The 3R approach includes several successful policies and practices such as the Volume-Based Waste Fee (VBWF) system, Extended Producer Responsibility (EPR) and Allbaro (e-manifest system) (UNDP 2017b), Resource Circulation Performance Management System, Circulation Resource Recognition System, Waste Disposal Fees, Workplace Waste Reduction System, Waste Levy Charge Management System, and Resource Circulation Information System. The system has proven to be effective as, according to OECD data in 2015, the recycling rate of the ROK is 59%, making it the second highest among OECD countries.

Building on this framework act, circular economy was included as one of the ten major tasks of Korea’s Carbon Neutral Strategy in December 2020 (Chowdhury, 2021). In July 2021, it was selected as one of the flagship projects of the Korean Green New Deal, and the K-Circular Economy Implementation Plan was established in December 2021. Through such initiatives, the ROK sought to go beyond waste management by aiming to oversee the entire life cycle of resources. This is because the circular economy policy sought to create a virtuous cycle of resources that addresses each step of the value chain.

To promote such efforts, the K-Circular Economy Policy Forum (9 divisions, 41 public and private institutions) was organized under the leadership of MOTIE and MOE as the

main bottom-up pillar to promote public-private cooperation. In addition, this forum sought to promote the establishment of a resource recycling cluster in connection with industry Environmental, Social and Governance (ESG) activities, standardization work by the Korean Agency for Technology and Standards, the establishment of a statistical system, participation of SMEs and local governments (Jihye Cho et al., 2021).

A mixture of regulations and incentives characterize Korea's circular economy policy. Regulations include setting quantitative targets for waste reduction, mandatory recycling targets for packaging materials, and a landfill ban on food waste. Moreover, new incentive elements include circular economy design and green finance support, the establishment of Scope 3 and K-Taxonomy, a tax credit for process improvement, The Emission Trade Scheme (ETS) linkage, and external reduction offset and front-to-back linkage.

There are numerous benefits to the circular economy plan. For example, to achieve economies of scale, large corporations need to establish a system for win-win cooperation with the recycling industry as part of ESG management. This will effectively improve business competitiveness, help achieve the national carbon neutrality goal and ESG of private companies, and also expand the government's green public procurement plan.

In terms of improvements, a long-term circular economy roadmap should be established and implemented. Moreover, monitoring indicators should be developed. This may include the creation of national resource circulation indicators on issues such as waste and recycling.

(c) Informational and Voluntary Policy Solutions

Overall, Korea is an energy-intensive country, the ninth in oil consumption and eleventh in energy consumption per capita (UNDP 2017c). However, the ROK is not blessed with natural resources such as oil and gas, and most of the energy needed for its economic development has been imported from overseas. As the economy developed, energy consumption significantly increased, and the country pursued energy efficiency measures to reduce the economic burden of energy imports. At the initial stage of

setting up energy efficiency programmes, Korea received assistance from international agencies such as the UNDP. From 1982 to 1986, the Korean government received the third cycle of UNDP aid, among which \$570,482 was allocated to energy conservation. Energy conservation projects invited overseas energy efficiency experts to facilitate the training of Korean officials overseas. This UNDP assistance enhanced energy efficiency in Korea by assisting the Korean government in implementing transport energy management and introducing a District Heating system in Korea (UNDP 2017 c).

Focusing on Seoul, the Seoul Metropolitan Government has implemented various policies and programmes to reduce energy use. Separate from the central government's policy, the city has a legal system based on its own five ordinances and implements its energy strategy through administrative organizations, namely, the Citizens' Committee and the Executive Committee. In other words, 'governance' with citizen participation and 'public-private cooperation' are the fundamental principles of this strategy. In addition, Seoul is cooperating with foreign cities through participation in international cooperation platforms such as the C40 Cities Climate Leadership Group and ICLEI – Local Governments for Sustainability.

In terms of energy policies, first, the city implemented the One Less Nuclear Power Plant Project in April 2012 to increase energy self-sufficiency through energy conservation, support for renewable energy production, and building energy efficiency with citizen participation. Through the One Less Nuclear Power Plant Phase 1 and 2 plan, Seoul reduced energy usage by 5.74 million TOE, the same amount of electricity generated by 2.87 nuclear power plants in one year in September 2019.

Second, the city promoted Seoul's Energy Citizen Cooperation Programme based on the One Less Nuclear Power Plant Comprehensive Plan that started in 2012. The Energy Citizen Cooperation Programme enhances citizens' participation and realizes 'energy decentralization' through collaboration between the central government and other local governments, along with the promotion of citizen participation projects, such as eco-mileage, the energy self-reliant village programme, and cooperative support. These projects are characterized by citizen proposal contests, NGO collaboration, Living Lab operations (on-site application of corporate R&D), partnership with Seoul

Energy Corporation, and securing continuity of projects through transfer to district offices.

Third, to reduce greenhouse gas emissions, the city of Seoul began strengthening the public-private partnership system and promoting a total of 155 projects in 8 areas. In 2019, Seoul's greenhouse gas emissions were approximately 47.45 million tonnes. They are estimated to have decreased by 2 million tonnes from 49.45 million tonnes in 2005. The Seoul Metropolitan Government continues to take significant steps to achieve the 2050 carbon-neutrality goal. For example, after consultations, they submitted the '2050 Seoul Long-term Greenhouse Gas Reduction Implementation Plan' to C40 at the end of 2020. In June 2020, through the Green New Deal policy, Seoul announced that it would transform into a 'Net Zero (carbon-neutral) city' (Chung, 2020).

There still is scope for further improvements despite the expanded platform for citizen participation leading to energy becoming a priority for the entire city due to capacity development through citizen participation. These include securing business continuity through citizen participation and competition, creating expanded business opportunities, and obtaining energy planners and welfare professionals.

In terms of national and international cooperation, given Seoul's highly influential position in Korea, Seoul's Energy Citizen Cooperation Programme has positively affected the central government, other local governments and overseas sister cities. Collaboration is possible with other cities through the international city cooperation platform in which Seoul is participating along with international organizations in Seoul.

5. Conclusion and The Way Forward

This paper has argued that climate finance, particularly green ODA, is becoming more critical than ever. This is especially true when considering the considerable support that the Global South needs to undergo a green transition. In addition to being responsible for the majority of the increase in greenhouse gas emissions during the past decade, this is because southern countries and the most vulnerable individuals within them are the most vulnerable to the impacts of climate change. In this regard, this paper, building on past analysis, has sought to identify potential opportunities for resource mobilization, especially through multilateral cooperation.

As such, this paper has provided an overview of UNDP's new Strategic Plan and the manner through which it is achieved, particularly focusing on climate-related issues. Following this analysis, this report outlined the strategic approach of the ROK to climate-related issues, finding that its domestic efforts have significantly influenced its international priorities. This analysis concluded that, due to the significant overlap between UNDP and strategic priorities of the ROK, the intent to cooperate further on such issues has already been institutionalized through the political processes of both UNDP and the ROK.

Accordingly, this paper analysed the potential policy solutions that could be used as a basis to leverage such cooperation. To this end, this paper sought to identify representative policies for each of the three types of environmental policy instruments. This paper elaborated on the emissions trading scheme and hydrogen strategy of the ROK as examples of market-based approaches. In contrast, as an illustration of command-and-control instruments, this paper elucidated on the approach of ROK to managing air pollution and achieving a circular economy. Finally, the paper analysed the approach of the ROK to promoting energy citizenship and engagement for voluntary and informational tools.

Taking this into consideration, it is worth noting that the policy aspect explained throughout this paper is just one of the four components comprising the 'Green Diamond'. Other components that serve as a basis for the green transition in the ROK include, finance, technology and green talent development. In this regard, one re-

occurring recommendation provided throughout the numerous interviews was the need to incorporate these other aspects into any potential collaboration modalities between the ROK and UNDP.

However, as this would increase the scale of joint projects, it is clear that further partnership mobilization will be necessary. This is especially true considering that many of the technical ODA agencies in the ROK do not possess a large ODA budget. As such, UNDP may benefit from involving major ODA actors, such as the Korea International Cooperation Agency, in such partnerships.

To this end, this paper argues that connecting such efforts with Article 6 of the Paris Agreement could play an essential role in facilitating such collaborative relationships. This is because this sub-clause allows countries to use green ODA to leverage the market and non-market international cooperation mechanisms, enabling them to fulfil their own NDC commitments while supporting the green transition effort of partner countries. As the overseas emissions component of the ROK comprises approximately 20 percent of its carbon abatement targets by 2030, the ROK would inherently benefit from such forms of collaboration. Such effective partnerships, which leverage technical experience of the UNDP as a collaborating partner and integrate the ROK's specialized expertise in the environment, can help accelerate the green structural transformation of partner countries in the Global South.

References

- Chowdhury, S. (2021). *South Korea's Green New Deal in the Year of Transition*, 8 Feb. UNDP Blog. <https://www.undp.org/content/undp/en/home/blog/2021/south-korea-s-green-new-deal-in-the-year-of-transition.html>
- Chung, H. (2020). Energy Policy of Seoul - Focusing on the achievements of one less nuclear power plant energy citizens' cooperation.
- Climate Watch. (2022). Net-Zero Tracker. Retrieved from <https://www.climatewatchdata.org/net-zero-tracker>
- Greenhouse Gas Inventory & Research Center (GIR). (2022). 2020 Korean Emissions Trading System Report.
- Hong, M. (2022). Green Growth as a Determinant of Green ODA: Findings from the Republic of Korea. *UNDP Seoul Policy Centre*.
- Hong, M., & Izmetiev, A. (2020). (rep.). *The transformation of the Republic of Korea's development cooperation*. UNDP. Retrieved from https://www1.undp.org/content/seoul_policy_center/en/home/library/thetransformation-of-the-republic-of-korea-s-development-cooper.html
- Hydrogen Council. (2021). Hydrogen Insights - A perspective on hydrogen investment, market development and cost competitiveness.
- Industrial Bank of Korea (IBK). (2021). Status and Issues of Carbon Market in Korea.
- Intergovernmental Panel on Climate Change (IPCC). (2007). IPCC Fourth Assessment Report: Climate Change 2007. Retrieved from https://archive.ipcc.ch/publications_and_data/ar4/wg2/en/ch2s2-2-4.html
- International Energy Agency. (2021). COP26 climate pledges. Retrieved from <https://www.iea.org/commentaries/cop26-climate-pledges-could-help-limit-global-warming-to-1-8-c-but-implementing-them-will-be-the-key>
- Jang, Y. (2022). Note on K-ECO's Resource Circulation Business
- Jo, J., Lee, C., Shin, D., Ko, I., & Kim, S. (2021). *Study on the Circular Economy Policy Roadmap for the Implementation of Carbon Neutrality*. Korea Environment Institute. Retrieved from https://nkis.re.kr/subject_view1.do?otpld=OTP_0000000000007640&otpSeq=0&eoSeq=0
- Korea Chamber of Commerce and Industry (KCCI). (2021). Status of K-ETS and its comparison to EU-ETS.
- Korea Energy Economics Institute (KEEI). (2020). Landscape and Perspective of Hydrogen Economy.

- Korea Environment Institute (KEI). (2022). Research on the Implementation for Carbon Neutrality Legislation.
- Korea Environment Institute (KEI). (2016). Introduction of the Framework Act on Resource Circulation toward Establishing a Resource-Circulating Society in Korea.
- Ministry of Environment (MOE). (2019). Press Release on Prime Minister Lee Nak-yeon presided over the 3rd Special Measure Committee on Fine Dust.
- Ministry of Environment (MOE), (2020). Preparation of national emission allowance allocation plan for the 3rd planning period (2021-2025).
- Ministry of Environment (MOE). (2021). Framework Act on Carbon Neutrality and Green Growth.
- Ministry of Environment (MOE). (2022). Enforcement Decree of the Framework Act on Carbon Neutrality and Green Growth.
- Ministry of Trade, Industry and Energy (MOTIE). (2019). Press Release on Hydrogen Economy Revitalization Roadmap
- National Committee on Climate and Environment (NCCE). (2020). Analysis of the state of fine dust and improvement report.
- Oh, H. (2021). Green Transition in South Korea. *World Bank Group/Korea Green Growth Trust Fund*.
- Organisation for Economic Co-operation and Development (OECD). (2021). *Climate Finance and the USD 100 Billion Goal*. Retrieved from <https://www.oecd.org/climate-change/finance-usd-100-billion-goal/>
- Popovich, N., & Plumer, B. (2021, November 12). *Who has the most historical responsibility for climate change?* The New York Times. Retrieved April 4, 2023, from <https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html?login=email&auth=login-email>
- Presidential Office of Korea (POK). (2018). Fine dust countermeasures and policy direction in Korea.
- Rijsberman, F. (2021, February 25). *Korea's Green Share*. Retrieved from <https://koreajoongangdaily.joins.com/2021/02/25/opinion/columns/Korea-GreenShare/20210225090200427.html>.
- Sejong University (SU). (2022). Korean ETS and Pricing Analysis.
- Shin & Kim. (2022). The Korean Green Taxonomy (K-Taxonomy) Guideline and Its Implications. <https://www.shinkim.com/eng/media/newsletter/1690?page=0&code=&keyword=>

Timperley, J. (2021, October 21). *The broken \$100-billion promise of climate finance — and how to fix it*. Nature News. Retrieved from <https://www.nature.com/articles/d41586-021-02846-3>

UNDP Seoul Policy Centre (2020 a) Webinar on *Green New Deal in Various Countries with speakers covering the EU, Rwanda, Korea (former UN Secretary General and others among speakers)*, 10 Dec (119 participants from 54 countries) https://www.youtube.com/watch?reload=9&v=xtbE9P_i7wM&feature=youtu.be&ab_channel=UNDPUSPC

UNDP Seoul Policy Centre (2020 b) Webinar on *Sharing Korea and WHO healthcare waste management practices of Korea*, 5 June <https://youtu.be/xfJHczt-b0k> (100 + participants representing 26 countries; coverage from 38 Korean media outlets)

UNDP Seoul Policy Centre (2020 c) *Sharing Green New Deal & Green Recovery strategies*, 28 May https://youtu.be/uT_1Zmz5mNM (121 participants from 42 countries)

UNDP (2019 a). *Food Waste Management in Korea: Focusing on Seoul* in collaboration with Seoul Institute SDG Policy Brief 6. https://www1.undp.org/content/seoul_policy_center/en/home/library/sdg-policy-brief-6--food-waste-management-in-korea.html

UNDP (2019 b). *E-waste Management in Korea: Focusing on Seoul's Case* in collaboration with Seoul Institute, 2019. SDG Policy Brief 7. <https://www1.undp.org/content/dam/uspc/docs/USPC%20SDG%20Policy%20Brief%207%20E-waste.pdf>

UNDP (2017 a). *Examples of Korea's Successful Policies in Waste Management & Lessons Learned that Could Apply in Other Countries* in collaboration with IRC, Korea, 2017. SDG Policy Brief 4. https://www1.undp.org/content/seoul_policy_center/en/home/research-and-publications/PolicyBrief11.html

UNDP (2017 b). *Comprehensive Study of Waste Management Policies & Practices in Korea and Recommendations for LDCs and MICs* in collaboration with Korea Environment Corporation. SDG Policy Brief 3 https://www1.undp.org/content/seoul_policy_center/en/home/research-and-publications/PolicyBrief3.html

UNDP (2017 c). *History of Trust Building: Korea's Experience in Implementing Energy Efficiency* in collaboration with Korea Energy Agency. Sept. SDG Policy Brief 5. https://www.undp.org/sites/g/files/zskgke326/files/migration/seoul_policy_center/USPC-Policy-Brief-No.5-FINAL.pdf

UN PAGE (2022). UN PAGE website. <https://www.un-page.org/>

United Nations Environment Management Group (UNEMG). (2021). *Inclusive Green Recovery*.

United Nations Framework Convention on Climate Change (UNFCCC). (2022, October 26). *Climate Plans Remain Insufficient: More Ambitious Action Needed Now*. Retrieved from <https://unfccc.int/news/climate-plans-remain-insufficient-more-ambitious-action-needed-now>

WCEF (2018). World Circular Economy Forum 2018 Summary Report. Yokohoma, Japan. Report retrieved from <https://enb.iisd.org/events/world-circular-economy-forum-2018-wcef2018/summary-report-22-24-october-2018>

Yoon, Y. (2020). Characteristics of PM-2.5 Episode Patterns in Seoul Metropolitan Area.

Appendix 1: Interview Guide

Research Description:

The Korean New Deal Strategy of the Republic of Korea (ROK) includes a Green New Deal as one of its primary components. Through this initiative, the ROK has affirmed its commitment to promote the green transition of infrastructure, low carbon and decentralized energy, and innovation in the green industry. In addition, through its 'Green New Deal ODA' programme, the ROK committed to enhancing its support towards the green transition of partner countries.

Thus, being mandated to share the ROK's development experience, UNDP Seoul Policy Centre (USPC) is working on a research project to achieve UNDP's strategic objective of promoting a green transformation by identifying green policy solutions in which the ROK possesses a comparative advantage and that may be of interest to countries in the Global South. In this context, the purpose of this interview is to identify how relevant stakeholders and policy experts evaluate the context, characteristics, opportunities, challenges, impact, issues, and potential for international cooperation of various green policy solution of the ROK.

Interview Questions:

1. (Context & Stakeholders) What national development challenge(s) did this policy solution seek to solve? What domestic and international contextual issues were relevant in the formulation and implementation of this green policy solution? What other stakeholders were involved in this process? What did the collaboration framework look like?
2. (Characteristics) How did this policy seek to address these challenges? In what aspects does this policy resemble and differ from similar policies in other countries?
3. (Opportunities and Challenges) What opportunities and challenges were experienced during the design and implementation of this process? How were they leveraged and overcome, respectively?
4. (Impact) How did this policy solution impact the green transition of the ROK?
5. (Issues) What would be the next steps for this policy solution (i.e., Any need for modifications and upgrade?)
6. (Potential for International Cooperation) What opportunities and challenges exist in supporting southern countries to formulate a contextualized version of this policy, particularly through UNDP? If the potential for such cooperation exists, what could be done by UNDP to better incentivize the participation of relevant agencies?

Appendix 2: List of Interviewees (Affiliations) and other sources

The author and USPC would like to thank the following Korean institutions for their valuable input in this research work.

- The 2050 Carbon Neutrality and Green Growth Commission
- Ministry of Economy and Finance
- Ministry of Environment
- Ministry of Trade, Industry, and Energy
- Korea Environment Institute
- Korea Energy Agency (we collaborated with this agency before (see SDG Policy Brief 5) so suggest adding them not as interviewee but as an existing resource).
- Korea Energy Economics Institute
- Korea Institute for Industrial Economics and Trade
- Korea Legislation Research Institute
- Green Technology Center-Korea
- Korea Environment Corporation
- Greenhouse Gas Inventory and Research Center
- Gyeonggi Provincial Government
- National Institute of Environmental Research
- Seoul Metropolitan Government



United Nations Development Programme

Seoul Policy Centre

Korea University 4F, International Studies Hall

145, Anam-Ro, Seongbuk-Gu,

Seoul, Republic of Korea

www.undp.org/policy-centre/seoul