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POLICY INSIGHTS

Measures to utilize international reduction performance for achieving the Republic of Korea's 2030 NDC

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Climate Crisis, the Overseas Reduction Projects, Paris Agreement, A Cooperative Approach, NDC, Carbon Neutrality

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Abstract
The Republic of Korea (ROK) submitted 37 percent of its 2030 emissions forecast as a reduction target in June 2015. Accordingly, ROK changed its existing goal based on highly variable and uncertain emission forecasts (BAU) according to changes in economic growth to an absolute amount method that is highly reliable in the international community, and confirmed a 24.4 percent reduction in 2017 to 2030 NDC in Dec. 2020. However, in the case of ROK, unlike the will to reduce greenhouse gases, it is not easy to achieve the reduction target due to the limitations of the current energy source and economic structure, and a cooperative approach under Article 6.2 of the Paris Agreement must be considered. Therefore, it shall require institutional grounds and the means of securing financial resources for implementing and activating overseas reduction projects to efficiently achieve national GHG emissions reduction targets established in the "GHG reduction hub in ROK". Thus, the international carbon market shall be listed to be revitalized in the future, considering diverse efforts to accomplish ROK's global objectives and goals for tackling the climate crisis and the declaration on 2050 carbon neutrality.

Introduction

On December 12, 2015, the Paris Agreement was adopted at the 21st Conference of the Parties to the UNFCCC (COP 21) to overcome the limitations of the Kyoto Protocol and to build a new international foundation to fight climate change. The landmark impact of the Paris Agreement was that, for the first time, the international community agreed on a global climate target. The established goal is to limit the increase to below 2C above preindustrial levels in the global average temperature and to pursue limiting the temperature increase to 1.5C above preindustrial levels.

Unlike the top-down approach of the Kyoto Protocol, the Paris Agreement is implemented by individual countries voluntarily determining their own greenhouse gas reduction targets, that is, their "National Determined Contributions (NDCs)". The NDCs are submitted to the UNFCCC at regular intervals.[1]

Reflecting the bottom-up approach of the Paris Agreement, the principle of "common but differentiated responsibilities" was established to better acknowledge the different reduction possibilities of developed and developing countries. Developing countries are encouraged to reduce greenhouse gas emissions across its economy. By contrast, developed countries committed to reduce the volume

1. The Ministry of Environment, the provisional handles of the New Climate System for Paris Agreements, the office of the district environment of the Ministry of Environment, after the Agreement with the Exchanges to the New Climate System.

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of greenhouse gas emissions throughout its economy and to assume additional obligations, including providing financial resources and transferring technologies to developing countries. The Paris Agreement also enables developing countries to be reclassified as developed countries in accordance with the changes in their economic conditions.[2]

To enhance the effectiveness of the Paris Agreement for reaching its climate targets, every five years the parties to the Agreement shall collectively take stock of progress at a global level in their general meeting. During this global assessment countries examine whether the NDCs submitted are adequate for meeting the Paris Agreement targets and identify where more needs to be done.

In 2016, the Government of the Republic of Korea (ROK) established the target for greenhouse gas emission reductions based on business-as-usual projections in its Intended Nationally Determined Contribution (INDC). The country's unconditional contributions were an 8 percent reduction by 2030, and its GHG reductions, conditional upon support, would be an additional 32.25 percent by 2030.[3]

On July 24, 2018, ROK's climate targets were subsequently changed to 37 percent below 2030 BAU levels. This target consists of two sub targets: an initial domestic reduction target of 30 percent that was later reduced to 25.7 percent and an 11.3 percent reduction target to be achieved overseas. Changing the targets was facilitated by the Low Carbon and Green Growth Framework Act's design, forming the legal basis for implementing the reduction roadmap, as it did not contain exact reduction numbers or ratios. The NDC of ROK overseas reduction target, which was subsequently reduced from 11.3 percent to 4.5 percent, is to be realized by purchasing emission permits from and cooperating with foreign countries.[4]

To achieve ROK's NDC target, the market mechanisms of Article 6 of the Paris Agreement will be considered for purchasing overseas emission permits or enabling cooperative access.[5]

The reduction projects for securing overseas allotments require considerable time before the necessary infrastructure is adapted and the reductions are actually realized. Adequate legal preparation, implementation, and operations are deemed critical for implementing the overseas reduction projects. Financial resources must be secured and the overseas reduction projects must be implemented and managed by experts to safeguard the additional greenhouse gas reductions to address the climate crisis and support ROK's 2050 carbon neutrality target.

This paper investigates and reviews how to activate the overseas reduction project as for one of the implementation measures to achieve ROK's 2030 NDC goals under the Paris Agreement. Major countries such as Norway, Switzerland, and Japan have already established policies or legal grounds for its implementation and are operating measures to secure overseas reduction by securing funds for its implementation. Compared to these countries, the paper also examines the analysis and future tasks for ROK's response to the climate crisis and ways to achieve the national reduction goal for carbon neutrality.

II. International Discussions on climate-crisis response and Paris Agreement Art. 6

1. The background and recent discussions to respond to the Climate-crisis

In 1992, the United Nations Framework Convention on Climate Change (UNCCC) was concluded with near universal membership. The UNFCCC seeks

2. Ibid.

3. *Submission by the State of Korea, Integrated* Self-Densely Deposited Contribution, equivalent at: http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Republic%20of%20Korea/1/INDC%20 Suboperation%20by%20,20Republic%20of%20>Korea%20on%20Rule%2030.ND.

4. "Amendment proposal for greenhouse gas emission reduction and emission permits for 2018 and 2018 emission permits" The press release on the Ministry of Environment

5. The road map has obtained a reduction of 4.5 percent (38 million 300 thousand tons) from the estimated value, obtained by adding overseas reduction and forest absorption first contained herein. as prescribed It shall be deemed that the ratio of overseas reduction shall vary depending on the recognition of forest sinks in the future international climate change negotiations. If 22 million tons presented at an offset reduction through a forest sink in the previous month are deemed to be 22 million tons, the amount of overseas reduction that shall be reduced by other means than others through bilateral cooperation, etc. with the developing countries shall be limited to 1.9 percent (16 million 200 tons) of the estimated value. (http://www.hani.co.kr/arti/society/environment/854600.html#csidx7031843b65af97eacc5e29763542a3d) Articles related to the Korean Renewspaper on July 24, 2018.

to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent catastrophic human impacts on the climate system. The benefits of the climate system today and for future generations should be safeguarded on the basis of equity and according to the common but differentiated responsibilities and respective capabilities of the convention's signatories.[6]

Each of the parties to the agreement shall submit to the United Nations a national report that includes statistics on greenhouse gas emissions, etc. Signatories shall also formulate policies for reducing greenhouse gas emissions and technical and economic support for developing countries as well as create an overview of their greenhouse gas emissions and absorptions.

When the UNFCCC concluded, it was specified that it shall assume the responsibility to reduce greenhouse gas emissions by classifying members as Annex I, Annex II, and Non-Annex I countries, with common and differentiated principles of responsibility for greenhouse gas reduction. Annex I countries (Organization for Economic Cooperation and Development, OECD) countries in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States have the obligation to reduce greenhouse gas emissions while taking into account the historical responsibility for global warming and using emissions in the 1990s as a base year.

Annex II countries (OECD members of Annex I, but not the EIT Parties) shall provide financial resources enabling developing countries to reduce emissions and to adapt to climate change. They should also take all practical steps to promote the development and transfer of environmentally friendly technologies to EIT Parties and developing countries.[7]

The UNFCCC was incorporated into a memorandum of understanding for the principles of economic power after the conclusion of the UNFCCC on Annex I, II, and the non-Annex I (developing countries). The foundation was adopted at the COP in 1997, and the detailed regulations governing Kyoto Protocol mechanisms were specified at the Marrakesh Agreement in 2001; they took effect in February 2005.

The Kyoto Protocol covers six greenhouse gases (carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and the so-called F-gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride (SF6)). It also specifies the countries that have assumed greenhouse gas reduction targets and how much they have committed to reduce emissions. The Kyoto compliance period was from 2008 to 2012.

The average GHG emission reduction committed to by signatory countries with a reduction obligation under the Kyoto Protocol averaged 5.2 percent below 1990 levels. The Kyoto Protocol introduced three flexibility mechanisms designed to enable countries to attain the environmental reduction targets at lower costs. These are emissions trading and two project-based flexibility mechanisms, the development mechanism and the joint implementation.

In a second commitment period (2013–2020) of the Kyoto Protocol, nitrogen trifluoride was added to the list of greenhouse gases and the overall emission reduction target was extended.

Several years later, on December 12, 2015, The Paris Agreement was adopted by the COP 21. It created a new bottom-up international legal structure for fighting climate change.

Under the Paris Agreement, signatory countries agreed to keep global temperature increases well below 2C above preindustrial levels and to strive to restrict temperature increases even further to 1.5C. Each country submits its NDC, which

6. UNFCCC Article 3.

7. Park Jae-young, Research on the optimal measures for the reduction of sulphur oxides (SOx) emissions from Korean transportation enterprises, including a master's degree thesis of Central University, and pages 6 – 7; and https://unfccc.int/parties-observers.

8. The Ministry of Environment, the provisional handles of the New Climate System for Paris Agreements, the office of the district environment of the Ministry of Environment, after the Agreement with the Exchanges to the New Climate System.

lists its reduction targets and reports upon the progress it has made toward reaching its goals.[8]

The Paris Agreement shall reduce the absolute quantity of greenhouse gas emissions throughout the economy. Also, developing countries are encouraged to reduce greenhouse gas emissions and advanced countries have additional obligations, including to provide financial resources and transfer technologies to developing countries. At regular intervals, global stock takings are organized to verify the future direction of additional climate change improvements and to formulate new climate goals according to the Principles of Common but Differentiated Responsibilities.

9. Ministry of Environment in ROK, "View the Paris Agreement together", 2022, at 31.

2. The cooperative approach under Paris agreement Article 6. and the achievement of each country's reduction target.

In accordance with the Paris Agreement, individual countries shall determine and implement targets for the reduction of greenhouse gases based on their respective conditions and the NDC reduction targets they have submitted.

Article 6 of the agreement largely consists of a market-based approach (Article 6.2 and Article 6.4) that implies greenhouse gas reduction performance transactions between countries and a non-market approach (Article 6.8) that cooperates between countries but does not involve transfer of reduction performance. The market-based approach is again divided into a "cooperative approach (Article 6.2)" that guarantees the autonomy of participating countries and "Article 6.4 Mechanism (Article 6.4))", a centralized reduction mechanism managed by the Conference of Parties to the Paris Agreement, similar to the existing Clean Development System (CDM15)[9]. In particular, Article 6.2 of the Agreement named the reduction performance traded between countries for the purpose of implementing and achieving NDC as "internationally transferred mitigation output (ITMO)". Unlike Article 6.4 mechanisms, which are centrally supervised, the cooperative approach (Article 6.2) can issue and trade ITMO through various cooperation. It will also be possible to link markets between countries operating the emission trading market, from bilateral cooperation projects in which one country directly invests in other countries and receives reduction results.

Division	Main Content
6.2. (Cooperative approach method)	• Outcomes of earlier reduction (ITMO) that can be transferred through consultation between countries can be confirmed, and they can be transferred to any reduction • effect of the countries acquired. • Implementation of Cooperation Adjustment Programs by International Consultation. * ROK establishes a joint committee based on the bilateral agreement, and the joint committee shall consider measures for approving a methodology project and for transferring recognition of ICMO issuance succession.
6.4 (Mechanism)	• The supervisory organization designated by the General Meeting of the Parties to the Paris Agreement (CMA) shall approve the guidelines and issue licenses for reductions. * Where the Financial Services Commission transfers records of reduction under Article 6.4 to the Republic of Korea, acquisition of records of reduction; Conducting prior coordination of national deductions by business operators.

Table 1: Main Content of Article 6 of the Paris Agreement

After six years of negotiations, COP 26 succeeded in adopting the work program of the three sub-systems of Article 6 (2), the rules, methods and procedures of the mechanism of Article 6.4, and the non-market approach of Article 6.8,

including many negotiating issues such as the scope of ITMO so on. Particularly noteworthy is that Article 6 of the Agreement emphasizes the principle that the use of the market-based approach should contribute to the long-term goals of the Agreement, the NDC of the Participating Parties, and the long-term low-carbon development strategy of the Participating Parties. Guidelines on Cooperative Approaches in Article 6.2 of the Agreement have developed various devices, such as ensuring the diversity and autonomy of cooperative activities between countries described above, while preventing double use of ITMO traded for environmental soundness. In particular, it was agreed to strengthen reporting items related to a series of activities, such as the issuance, transaction, and use of ITMO, and to conduct a review of technical experts on reports submitted by each country.[10]

The cooperative approach (Article 6.2) should be one of the implements to achieve the GHG reduction target of each country, which has performed a pilot study pursuant to the guidelines of it including ROK. Every country has searched for ways to achieve its reduction target, and is bound to face limitations in the current technical situation. So, it is actually examining various schemes for formulating an institutional environmental system to implement the projects requiring reduction consistent with the implementation rules under Article 6.2 of the Paris Agreement. However, the projects for overseas reduction outcomes applying for the cooperative approach method require a considerable amount of time until they are confirmed between the partnering countries and then by UNFCCC, and finally before the infrastructure to operate the projects and to adjust the MRV system for the correspondence adjustment is being established etc.

Considering the case of major countries to be discussed below, the countries have formulated the systems to implement projects that can substantially reduce emissions to achieve the reduction goals in each country.

III. Major countries' implementation for the cooperative approach method under Paris Agreement Article 6.2

1. Norway: Carbon Credit Agreement Program

ROK plans to use the Emissions Trading Scheme of the European Union and purchase emission permits abroad to achieve reduction targets in 20 years, and to purchase 60 million tons for the 20-year period. To secure financial resources, the competent authority has examined the Government's budget[11] for purchasing CDM projects or other new projects which have become vulnerable due to a decline in the price of emission permits and profitability.

The procedure is set forth by the Nordic Environmental Financial Corporation (NEFCO)[12], which is a direct purchase or international financial institution by the Ministry of Labor, and shall be concluded after searching for and assessing projects. In addition, relevant businesses will be selected for which emission permits can be issued (at least 100,000 tons) until June 2016 and reducing N_2O in the manufacturing process of Aide-producing products is subject to improving the environmental soundness and excluding coal-generating electricity from CCS.

In 2019, a contract for purchasing 47 million tons at the level of 2–4/ton was completed. In the first public announcement, the successful bid was promoted through NorCap,[13] which completed the contract with 10 business units (about 26 million tons) (13–15 years). The implementation of the second public notice was for CDM, which is scheduled to be implemented in the least developed coun-

10. Ibid at 33.

11. Formulating a budget of 2.7 billion won (KRW 37.6 billion) for the purchase of CER (based on 16 years).

12. For the purposes of securing the Boron commits Facility, the "October 13 year" is established

13. NOFCO Carbon Fund for private-public cooperative organizations in North Korea.

tries,and for the conclusion of a four business (about three million tons) contract with the NEFCO Carbon Fund (NEFCOCC) (about 17).

14. Change in the existing program name (Switching CDM & JI airport) for responding to the Paris Agreement.

15. Multi-resolved CDM and JI structures: APCF, Ci-Dev, CPF, FCF, PAF, PCF, TCF, TGF, and UCF (at least 10).

2. Sweden: International Climate Change Mitigation Program[14]

In 2020, Sweden established a program with the goal of contributing to international climate cooperation, improving low carbon emissions, and finding cost-effective reduction methods to achieve its goal of reducing emissions in 20 years. The Sweden Energy Agency conducts pilot projects to formulate plans for cooperative access under Article 6 of the Paris Agreement. It will issue green bonds with emission permits secured by the business to invest in the Mini-Grid for Nigeria Renewable Energy and will be repaid during the implementation period of the NDC (2025 and 2030).

To implement such programs, Sweden promoted projects valued at of 28 billion won for the Government (based on cumulative standards) related to candidates for the diversity of areas, research institutes of vacant countries, research states of the LDC, and the SIDS states (SIDS projects). The regional priority is the Southern African and South Asian regions. In particular, it is focused on finding high-quality reduction projects for the overseas reduction outcomes than the amount of reduction since it was expected to achieve the reduction goal without the CDM of the Kyoto Protocol.

Furthermore, the acquisition of 36 million tons of emission permits (based on a "2018-year contract") will be achieved by investing in 170 projects through participation in the CDM Project (89) or JI Project (2) and the Multi Carbon Fund (20)[15] with each country through bilateral contracts. The scale of emission permits issued shall be 23 million tons, and an estimated 8,000 won/tonnage shall be estimated from the average reduction. This is one of the largest purchases of global CDM emission permits. Regarding the status of implementation, the Government publicly announced CfP during the period from December 2019 to February 2020, to preserve the record of international cooperation under Article 6 of the Paris Agreement, and shall select 1 to 5 projects. The purchase of the reduced portion shall be deferred.

3. Switzerland: ITMO Purchase Program (KliK FONDATION)

The government of the Republic of Korea announced its intention of reducing emissions of "90" by 50 percent over 30 years, including the international emission trading scheme in the NDC. Over the next 50 years, the government shall announce the accomplishment of achieving a carbon-neutral position.

The Klik Foundation supports the effective purchase of emission permits (offsets) by enterprises under the CO_2 Act in charge of the Swiss Petroleum Association. The Foundation has been responsible for the purchase of emission permits in those years that it is necessary to achieve the objectives of the Agreement between the Government of China and the Paris agreement. In 2016, in the Paris Agreement, the Swiss government concluded a partnership to purchase an ITMO to achieve its NDC.

The Ministry of Environment, Transport and Energy announced a plan to purchase an ITMO of 54 million tons from 2021 to 2030. The implementation of programs has been carried out through purchases by the Government of China after evaluating the ITMO projects proposed by the developing country governments. Klik's partner institution (Management Agreement) has submitted the

Government's letter of intent and the request note from the government of the developing country shall be determined through a prior evaluation. The Government shall enter into a loan agreement for the business between the Government and the mitigation outcome purchase agreement. This is underway.

The Swiss government completed a second Call for Proposal (CfP) in January of 2020 and received requests from 25 of the 92 registered partners after closing the second call for credit, comprising Africa (11), Asia (6), the Caribbean (2), North America (2), South America (4), SIDS within the fields of cookware (7), energy efficiency (5), new and renewable energy power generation (4), e-modality (3), LFG to engineering (1), recycling (1), methane avoidance and gas capture (1).

Furthermore, with the results of the projects promoted by five countries, the Swiss government decided to provide eight initiatives in total by 2021, in addition to the projects of three countries (i.e., Senegal, Ghana, and Peru) in which the implementation of ITMO investment and relocation is finalized in the first CfP.[16]

16. Klik Annual Report 2019, https://www.jahresbericht.klik.ch/resources/AR19-E-Klik_Foundation_200610.pdf.

4. Japan: Joint Credit Mechanism (JCM)

In the case of Japan, the implementation of a "JCM," a method of overseas reduction projects, through a country-specific MOU (17 countries), has been under way since 2014. By the provision of delegating matters of the Joint Committee, the Japanese government may acknowledge the outcome of the JCM project in that it has no legal binding power.

Division		Main Content
General	Bilateral Cooperation Statement	• Comprehensive regulations on matters of bilateral cooperation in low carbon and development partnerships • Establishment of a joint committee for the operation of the JCM
	Language collection	• Definitions of terms, such as target greenhouse gases, applicable standards, standard emission quantities, and BANU
	Implementation Rule	• Regulations on the purpose, scope, issuance, distribution, etc. of JCM outcomes • Regulations of Joint Committees, Business Participation, etc.
	Register of JCM Common Area	Issuance, transfer, acquisition, and other acquisitions of the JCM project when it issues reductions Regulations on Revocation, Reporting, etc.
Joint Committee	Joint Committee Procedures	Objectives, scope, composition of members, requirements for qualification, meeting schedule, decisions, roles of the secretariat, etc.
Project Cycle	Business plans and monitoring reports Guidelines for Preparing	Objectives, general guidelines, business plans, monitoring form, and preparation guidelines
	Guidelines for suggesting methodology	Explanations of major concepts (basic emission quantity), application standards, business-related explanation of all procedures, etc.
	JCM business procedure	Act on approval, registration of business, issuance of reduction, and explanation of the relevant overall procedures
3rd-Party Entity	Institution Designation Guidelines	Procedures for Designation, Suspension, and Cancellation of Third-Party Institutions
	Feasibility assessment and guidelines for authorization	Standards for Feasibility Assessment and Verification

Table 2: systems for norms of Japanese Joint Credit Mechanism (JCM)

IV. The reduction target of GHG emission and the implementation under Paris Agreement in ROK

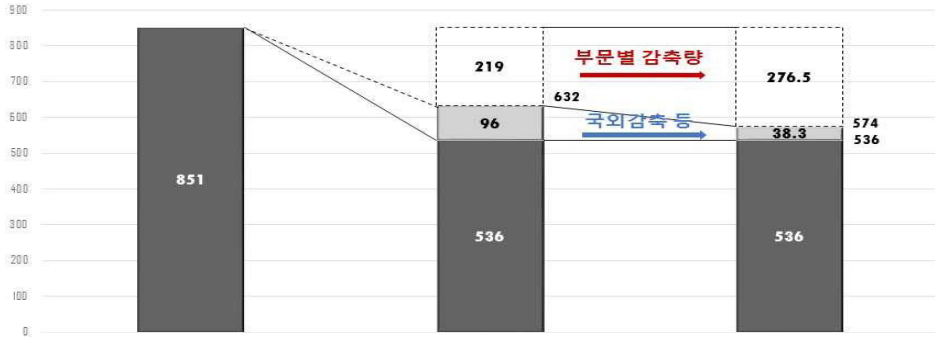
1. The response to Climate-crisis and GHG reduction targets of GHGs in the ROK

Under the motto of green growth in 2009, ROK has made various efforts through various policies to respond to climate change and the enactment of the Framework Act on Low-Carbon Green Growth. Based on this, the emission trading system has been introduced and operated since 2015 as one of the implementation methods for greenhouse gas reduction, and a greenhouse gas reduction roadmap has been established to seek specific implementation measures and implement methods for greenhouse gas reduction. Since then, in 2020, it has been actively responding by cooperating with international trends to respond to the climate crisis, presenting a vision for carbon neutrality, and newly enacting the existing Framework Act on Low-Carbon Green Growth as the Framework Act on Carbon-Neutral Green Growth.

Specifically, "the Revised Roadmap to Achieve the National GHG Reduction Target for 2030" was also finalized on July 24, 2018, reflecting ROK's goals, including better management of fine dust and energy conversion and the improvement in the capacity to achieve the greenhouse gas reduction target of 37 percent below BAU levels by 2030 (cutting carbon emissions to 536 million tons). This target corresponds to what ROK has promised to the international community.[17]

According to the revised roadmap, domestic reduction rate targets were increased from 25.7 percent to 32.5 percent. An additional 4.5 percent reduction vis-à-vis the BAU level (38.3 million tons of emissions) are planned to be achieved through forest carbon sinks and overseas reductions. [18]

<Example 1> Changes in the national reduction targets according to the amendment of the domestic gas reduction code map of the Republic of Korea



(Source) "2030 Amending map for greenhouse gas emission reduction. 2018 to 2020 Emissions Allocation Plans" Materials for news reports (by Jul. 24, 2018), Jun. 12)[19]

Then, on October 22, 2019, the government established the "2nd Basic Plan for Climate Change Response" early to strengthen the overall response system to

17. https://www.me.go.kr/eng/web/board/read.do;jsessionid=BlOueqm0aMLCWLb1389fgnSQ.mehome1?pagerOffset=60&maxPageItems=10&maxIndexPages=10&searchKey=&searchValue=&menuId=461&orgCd=&boardId=903080&boardMasterId=522&boardCategoryId=&decorator=&firstItemIndex=

18. https://www.me.go.kr/eng/web/board/read.do;jsessionid=BlOueqm0aMLCWLb1389fgnSQ.mehome1?pagerOffset=60&maxPageItems=10&maxIndexPages=10&searchKey=&searchValue=&menuId=461&orgCd=&boardId=903080&boardMasterId=522&boardCategoryId=&decorator=&firstItemIndex=

19. https://www.korea.kr/special/policyCurationView.do?newsId=148867400 /

https://www.me.go.kr/home/web/board/read.do?menuId=286&boardMasterId=1&boardCategoryId=39&boardId=886420

climate change following the launch of the new climate system and establish an implementation inspection system of the "2030 National Greenhouse Gas Reduction Roadmap."[20] Countries around the world submitted their national greenhouse gas reduction targets to the United Nations before the adoption of the Paris Agreement in December 2015, and agreed to renew them by 2020 ahead of the full implementation of the Paris Agreement in 2021.

ROK submitted 37 percent of its 2030 emissions forecast as a reduction target in June 2015.[21] Accordingly, ROK changed its existing goal based on highly variable and uncertain emission forecasts (BAU) according to changes in economic growth to an absolute amount method that is highly reliable in the international community, and confirmed a 24.4 percent reduction in 2017 to 2030 NDC in Dec. 2020. Considering the vision of a "long-term low-carbon power generation strategy (LEDS)" aimed at "2050 carbon neutrality," it stated that it plans to actively consider raising the 2030 reduction target before 2025.[22]

At a climate summit held by the United States on April 22, 2021, ex- president Moon Jae-in announced that "ROK will further raise its 2030 national greenhouse gas reduction target and submit it to the United Nations within this year."[23]

On October 18, 2021, the 2050 Carbon Neutral Committee deliberated and voted on the "2050 Carbon Neutral Scenario" and the "2030 National Greenhouse Gas Reduction Goals Raising Plan" through the second plenary session. The National Greenhouse Gas Reduction Goal (NDC) was "40 percent reduction in total greenhouse gas emissions in 2018", which was significantly raised from the previous reduction target of 26.3 percent reduction in greenhouse gas emissions in 2018.[24]

Since the establishment of the 2030 NDC for the first time in June 2015, partial revisions have been made, such as adjusting the domestic and international reduction ratio and changing the target setting method, so the reduction compared to expected emissions in 2030 was adjusted to the reduction compared to emissions in 2017. However, this is the first time that the target has been raised.[25]

As a follow-up to the 2050 Declaration of Carbon Neutrality, the reduction goal was set in consideration of the legislative purpose of the Framework Act on Carbon Neutral Green Growth, international trends, and domestic conditions. According to Art. 8, Paragraph 1 of the Act, greenhouse gas emissions in 2030 will be reduced by more than 35 percent compared to 2018.

2. Measures to achieve the reduction targets of GHG emissions in ROK with the cooperative approach under the Paris Agreement Article 6

ROK could consider a measure of implementing the overseas reduction target through the overseas reduction project, which of course is required to conduct the new and changed analysis under the Paris Agreement compared to the previous projects such as JI & CDM under the Kyoto Protocol. Therefore, it is time for ROK, like the countries mentioned above, to establish a detailed implementation strategy in order to secure the overseas reduction credits under the cooperative approach of the market mechanism under Article 6.2 of the Paris Agreement. To facilitate the reduction of GHG emissions in ROK, it is necessary to prepare measures to mitigate overseas GHG emissions and to improve systems to determine the roles and functions of each relevant institution.

It is also necessary to review the government's direct investments, evaluate the international trade of national products, and prepare statutory provisions governing the trading of current state commodities under the existing system for the functions and duties of the General Committee of Overseas Reduction

20. www.me.go.kr/home/web/board/read.do?menuId=286&boardMasterId=1&boardCategoryId=39&boardId=1066880

21. https://www.korea.kr/news/pressReleaseView.do?newsId=156430251

22. https://www.korea.kr/news/pressReleaseView.do?newsId=156426980

23. https://www.korea.kr/news/policyNewsView.do?newsId=148886603

24. https://www.korea.kr/news/policyNewsView.do?newsId=148894458

25. https://www.korea.kr/news/policyNewsView.do?newsId=148895033

26. The UNFCCC supervisory body shall allocate equity shares (6.4 er) to each participating institution and enterprise, according to the shares approved in the DNA of developing countries.

Projects and the Joint Committee for Adopted Cooperation.

In the case of the ROK, it shall require institutional grounds and the means of securing financial resources for implementing and activating overseas reduction projects to efficiently achieve national GHG emissions reduction targets established in the "GHG reduction hub in the ROK" such as Klik Foundation of Switzerland. The overseas investment-related business of the ROK, which is operated mainly in the minerals and electricity sectors, has utilized methods of direct investment by public institutions and the government. However, this is because private companies' participation is essential to secure overseas reduction projects, and there is inevitably a limit to the implementation of the government-led top-down method. Since this cooperative approach of Article 6.2 of the Paris Agreement involves a combination of diplomatic, political, and economic issues, conditions and requirements for its implementation must be in place in advance.

To consider the results of the CDM project, the projects intended to reduce GHG emissions in a developing country and the management technologies are a promising field. The new field of renewable energy development technology may be the core sector with reduction technologies. Regarding the future implementation of projects to reduce greenhouse gas emissions abroad, it is important to secure competitiveness in the technical sector, such as the reduction in fossil fuel development and the expansion of new and renewable energy power generation, wind power generation, solar power generation, and biomass development, for the conversion to low carbon.

Other important projects and technologies for fuel conversion and energy efficiency improvement shall also be reviewed for the important components of overseas reduction projects. In particular, considering that Cookstove is a business that contributes to greenhouse gas reduction and is promoted by the methodology set by the UN, even if the amount of greenhouse gas reduction is small compared to investment costs, it requires the continuous review as for the methods to reduce the greenhouse gases.

To secure overseas reduction performance, the Government and nongovernmental organizations may examine investment methods, such as leading transactions, for purchasing or securing the actual performance of overseas reductions. In particular, The ROK may take into consideration methods for determining and operating a project and the allotment of reduced portions by concluding a treaty between the two countries, such as the MOA, the bilateral cooperative method referred to in the JCM of Japan. Furthermore, the legal preparation of a system on and detailed guidelines for the establishment and operation of a register for the issuance, transfer, and transaction of the results of overseas reduction shall be encouraged.

The considerations to implement a project shall be as follows:

- Feasibility of achieving objectives for overseas reduction (time for securing performance of overseas reduction and time for achievement of objectives).
- Economic feasibility of the project (investment cost to secure reducing quantity, unit price, reducing amount, etc.).
- Level of the proportion of stocks reduced due to mutually adjusted adjustment.

To systematically implement overseas reduction projects in the ROK, it is important to obtain items for analysis of the project after examining the following

matters:

- Expected unit price, period for the withdrawal of the reduced portion, characteristics of the project (whether the benefits are realized), required budget (proposal), local conditions, etc.
- In cases of a direct investment project, consultation on the conclusion of the investment agreement, specifying the business, and dividing the government-led project and the private project areas.

Specially, to conduct the following items as a feasibility study, it is as follows;

1. The position of business participants, the implementation system, the national environment (outline of the national environment, including the size and number of people, and economic trends), the current status of similar business markets in the field, and business trends;
2. Requirements for acquisition of the portions reduced (estimated unit price, recovery period, potential reduction rate, geographical accessibility, etc.);
3. Project site, management council, current status of project approval, matters relating to the environment, etc.;
4. Total project cost and cost analysis (investment structure, cash flow, tax, depreciation, internal rate of return, etc.).

Furthermore, for the selection of developing countries, the NDC analysis and the verification of the MOU for countries concluding environmental cooperation agreements shall be conducted, giving preference to the analysis of the matters to be reduced in the developing countries. Also, in cases of the same and existing businesses, it is necessary to prepare a plan to enhance economic effects through efficient greenhouse gas reductions in the target country and through market and technology exchanges with the target country by examining priorities and the feasibility of similar businesses.

In implementing a project leading to trading under Article 6.2 of the Paris Agreement, the agreement with the executing country is necessary to enter into an agreement between the two countries. In such cases, the government may secure GHG reductions through a plan to purchase amounts of GHG reductions from contractual parties during a particular period of time through agreements with the contracting states. Agreement between the two countries shall establish standards for determining the management of the affairs of the joint committee, the secretariat, standards for the systems for calculating and verifying greenhouse gas reductions, such as MRV, and electronic registers that can be used for issuing and transferring related performance.

In cases of implementing trade pursuant to Article 6.4, the Government may consider purchasing carbon-reduced portions from the Government at the price contracted for a certain period. In such cases, major details of a limited contract for a project, the conditions of which will be met by the project approved by the supervisory agency designated by the UNFCCC in terms of the business field, the amount of reduction to be delivered, the price of the reduced share of transactions, the possibility of realizing the project (experience in relation to financing), technology innovation, etc. A review shall first be conducted. Following the agency's verification of monitoring of the commencement of the new business and the implementation of monitoring of greenhouse gas emission reduction, it shall be required to make a system, including procedures and systems, for applying the reduction results to the UNFCCC after the agency's verification.[26] In particular, establishing a system suitable for the performance of overseas reductions under Article 6.4 of the Paris Agreement is required, if

the performance is issued by the supervisory organization of the UNFCCC after verification by a verifying institution, by issuing, transferring, and trading through registration procedures without undergoing domestic verification procedures.

Other than Article 6.4 of the Paris Agreement, the utilization of information specified in Article 6.2 is expected to increase as well, and competition on the results of overseas reduction by each country may also be hurt by such activation. Under the current conditions, it would be important to establish implementation measures to strengthen cooperation with priority partner countries to invigorate overseas reduction projects, which are among the diverse implementation measures for achieving greenhouse gas emission reduction targets by ROK. The ROK government seeks to realize the goal of reducing GHG in the future and has an important role in promoting the economy through the exchange of technology with developing countries.

Conclusion

Most cases of overseas investment projects have entailed direct investment by the Government or public-private partnership projects, the types of and schemes for the overseas reduction projects in ROK have been examined. Furthermore, with the aim of reducing GHG emissions, the projects involved in securing the overseas GHG emission reductions are integrated among countries in accordance with the transfer mechanism under Article 6 of the Paris Agreement. Such cases require attaining GHG emission reduction target in ROK through the commencement and stable progress of the relevant overseas reduction projects. Additionally, there are cases where it is necessary to prepare an institutional basis to use a flexible to transfer overseas GHG reductions in accordance with Article 6 of the Paris Agreement.

Where any change occurs in the relevant hub, such as the national targets for GHG reduction, the detailed measures, such as matters concerning the overseas reduction projects and the actual performance thereof, shall change. The international carbon market shall be listed to be revitalized in the future, considering diverse efforts to accomplish ROK's global objectives and goals for tackling the climate crisis and the declaration on 2050 carbon neutrality. Taking into account that only reductions in GHG in the country is limited in the case of carbon neutrality and the amount of GHG also falls within the significant amount of the cost, the utilization of the performance through the overseas reduction project may be deemed to be higher.

The response to the climate crisis is not just the efforts and responsibilities of just some countries, but the responsibilities that must be made for the survival of all mankind and the sustainable future generation. In particular, the use of overseas reduction credits is essential to achieve the goal of reduction of GHG for ROK's NDC and carbon neutrality. Accordingly, there should be a multilateral review to find more strategically beneficial measures for both countries to come up with reasonable reduction implementation measures, and it will be the sustainable development with inter-generation and intra-generation.

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