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The International Climate Change Regime and Evolution of South Korea's Climate Change Policy*

국제기후변화레짐과 한국 기후변화정책의 진화

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Abstract : This study documents the evolution of climate change policy in South Korea, especially as it relates to the international climate change regime. The study uncovered four major findings. Firstly, the climate change policy of South Korea has evolved through three phases. Secondly, each of these phases is related to key milestones in the evolution of the international climate change regime. The first phase (1992-1997) was initiated when the UNFCCC was adopted in 1992 and the second phase (1998-2007) started immediately after the Kyoto Protocol was adopted in 1997. The third phase (2008-present) commenced after the Bali Road Map in 2007, which charted the way towards negotiation of commitments after 2012. Thirdly, phase three is distinguishable from its predecessors in that far more aggressive policy measures, such as the National Target, the Framework Act on Green Growth, the Presidential Committee on Green Growth (PCGG), and the Emissions Trading Scheme (ETS), were adopted. It is clear that the forthcoming Post-Kyoto system, in which South Korea should have binding responsibility for GHG emission reductions, influenced this policy change. Finally, domestic factors such as trends in GHG emissions, energy security, and public awareness have moderated the influence of the international regime, especially when it came to the transition to the third policy phase.
Key Words : International Climate Change Regime, Climate Change Policy, South Korea

요약 : 본 연구에서는 한국 기후변화정책의 진화를 국제기후변화레짐과 연계하여 논의하였다. 주된 결론은 네 가지이다. 첫째, 한국 기후변화정책은, 제도 및 정책수단 변동이라는 관점을 바탕으로 구분할 때, 3단계를 거쳐 진화했다. 둘째, 각 단계들은 국제기후변화레짐의 변화를 이끈 주요 사건들과 연관되어 있다. 제1기(1992-1997)는 UNFCCC가 채택된 1992년에 시작되었고, 제2기(1998-2007)는 교토의정서가 채택된 1997년 직후에 시작되었으며, 제3기(2008-현재)는 포스트-교토 협상의 청사진을 제시한 2007년 발리로드맵의 채택 직후에 시작되었다. 셋째, 제3기는 국가감축목표, 녹색성장기본법, 녹색성장위원

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회, 온실가스거래제 등 한층 강력한 기후변화정책들이 채택된 시기라는 점에서 그 이전 시기들과 차별화될 수 있다. 한국도 온실가스 감축의무를 질 것으로 예상되는 포스트-교토 체제의 도래가 이러한 정책변동을 이끈 것으로 해석할 수 있다. 넷째, 국제기후변화레짐이 한국의 기후변화정책 진화에 미친 영향은 온실가스배출추이, 에너지안보, 그리고 대중인식 등과 같은 국내 요인들에 의해 매개되었으며, 이러한 매개효과는 특히 제3기로의 전환과정에서 두드러졌다고 볼 수 있다.
핵심주제어 : 국제기후변화레짐, 기후변화정책, 한국

Ⅰ. Introduction

There is consensus internationally that climate change caused by anthropogenic global warming is real and continues to be one of the most important issues confronting humankind. In its fifth report published in 2014, the Intergovernmental Panel on Climate Change (IPCC) concluded that there were obvious human influences on the climate system; recent anthropogenic emissions of greenhouse gases were the highest recorded in history, and recent changes in climate have had widespread impacts on human and natural systems(IPCC, 2014, p.2). Cook et al.(2013), in their analysis of 11,944 abstracts of peer- reviewed scientific literature published from 1991 to 2011 on the topics of global warming or climate change, found that 97.1% of authors endorsed the agreed position that humans are causing global warming. There also appears to be a consensus that temperatures should not be allowed to increase by more than 2°C this century to avoid catastrophic climate change and that both developed and developing countries should contribute to this goal with common but differentiated responsibilities.

The international climate change regime, set up to facilitate the global commitment to address the issue of climate change, began to develop in the late 1980s. Though slow and problematic(Rydge and Bassi, 2015), the regime has undergone a remarkable evolution(Bodansky and Rajamani, 2013). And recent decades have also seen the emergence

of national- level climate change policies in most, if not all, countries, including developed and developing, poor and rich. However, there is a wide spectrum of features in climate change policies adopted by individual countries reflecting their socio-economic situations. Governments are sensitive to dealing with these policies because they extend to all activities that burn fossil fuels and therefore reach the heart of each country's economy(Danish, 2007, p.10).

South Korea is in a unique position in that it was classified as a non-Annex I party of the Kyoto Protocol, despite its membership of the Organization for Economic Co-operation and Development(OECD) since 1996 and its growing contribution to global greenhouse gas (GHG) emissions(Yun et al, 2014, p.284). In 2012, South Korea was ranked as the world's eighth largest GHG emitter after China, the USA, India, Russia, Japan, Germany, and Canada. Total CO_2 emissions increased by 133% from 1992 to 2012, which is one of the fastest rates of increase worldwide(GIR, 2014, p.31). In drawing attention to South Korea's rather large GHG and economic indicators, the international community has demanded that South Korea adopt significant measures to mitigate GHG emissions(Lim, 2010, p.25). South Korea has responded to the international regime since 1992, and in 2009 set a target to reduce greenhouse gases by 30% relative to the 'business as usual (BAU)' level by 2020, the then highest target advised by the IPCC for non-Annex I countries.

This study explores the evolution of climate change policy in South Korea, especially in relation to the international climate change regime. In the following sections, the different phases of South Korea's climate change policy are discussed in the context of institutions and policy instruments. Each phase is matched with major milestones in the evolution of the international climate change regime to determine the influence of the regime on South Korean climate change policies. Finally, the domestic factors that have moderated the influence of the

international climate change regime on South Korea's climate change policies are discussed.

II. Evolution of Climate Change Policy in South Korea

1. Changes in the Institutions of Climate Change Policy

Institutions shape and constrain the policy process in various ways (Somanathan et al., 2014, pp.1149-1150). First, institutions understood as formal rules and informal norms set the incentive structure for economic decision making. Second, institutions shape the political context for decision making, empowering some interests and reducing the influence of others. Third, institutions can also shape patterns of thinking and understanding of policy choices through both normative and cognitive effects. These effects can influence the dominant policy paradigms. South Korea's climate change policy has been shaped and constrained by various institutions.

The first governmental organization in South Korea to address the issue of climate change was the Ministerial Conference on the Global Environment(MCGE), which was established under the Prime Minister, by Ordinance of Prime Minister 261, in July 1992. The stated mission of the MCGE was to discuss and coordinate the following: measures for responding to global environmental issues such as international environmental agreements, the Rio Declaration, and Agenda 21; cooperation with the UN, international organizations and other countries on global environmental issues; and public relations regarding global environmental issues(Ordinance of Prime Minister 298, Article 2). The MCGE comprised 17 ministers, including the Prime Minister as the Chairman and the Minister of the Economic Planning Board(EPB) as the Vice-Chairman. The MCGE did not have subcommittees; instead,

it had a Working-Level Conference(MCGE-WLC) chaired by the Vice Minister of the EPB. It also had a task force that was chaired by a deputy minister of the EPB and was divided into three teams: negotiation, industry, and environment. It is noteworthy that the MCGE was dominated by the EPB, which had been leading the rapid economic development of South Korea. The MCGE was abolished in June 1996 after poor performance that amounted to 2 MCGE meetings, 5 MCGE-WLC meetings, and 23 task force meetings.

It became clear that the absence of an institutional arrangement prevented the government from pursuing climate change policy in a sustainable manner. Following the adoption of the Kyoto Protocol in 1997, developing countries(including South Korea) were subjected to increasing pressure by the international community to voluntarily reduce their GHG emissions. Once again, there was a clear need to set up a governmental organization to tackle the issue of climate change (MOE, 2002). The new government inaugurated in February 1998 included 'active responses to the UNFCCC and promotion of energy saving policy' in its 100 top priority policies (Na, 1998, p.74). Accordingly, the Ministerial Conference on the Convention on Climate Change (MCCCC) was established by an ordinance of the Prime Minister in July 1998.

The stated mission of the MCCCC was to ensure that climate change policy was comprehensive and consistent, and that it would minimize the impacts of climate change policy on the domestic economy, establish and promote various negotiation strategies for responding to the changes in external and internal situations, strengthen existing measures such as energy savings to prevent global warming, and develop and promote concrete measures to reduce GHG emissions (MOE, 2013, p.19). The MCCCC was similar to the MCGE in many ways. It was established under the Prime Minister by an ordinance of the Prime Minister, and comprised nine ministers including the Prime

Minister as the Chairman. There were no subcommittees, only a Working-Level Conference(MCCCC-WLC) and a task force. And it lasted for only 3 years until its abolition in 2001. However, this period saw the hosting of the Vice-Ministerial Level Conference(MCCCC-VMLC), which was chaired by the Minister of the Office for Government Policy Coordination(OPC) in the Prime Minister's Office. The MCCCC-WLC and the task force were also chaired by OPC officials, namely the Vice-Minister for Economic Policy Coordination of the OPC and the Senior Coordinator for the Industry of the OPC, respectively. The task force was divided into five teams: negotiation, energy and industry, environment, agriculture, and research and development. An expert pool, composed of researchers from related national institutes, was also established to support the task force. One of the most important achievements of the MCCCC was the development of the first Comprehensive Action Plan for the UNFCCC(CAP-UNFCCC) for 1999-2001 in December 1998.

In July 2001 the MCCCC was transformed into the Committee for Responding to the Convention on Climate Change(CRCCC). The CRCCC was established under the Prime Minister by an ordinance of Prime Minister 422, and continued until its integration with the Presidential Committee on Green Growth(PCGG) in 2009. The stated mission of the CRCCC was to facilitate discussion and coordination of the following: the direction and strategic planning of responses to the UNFCCC; to establish, execute, monitor, and evaluate the CAP-UNFCCC; to cooperate internationally and agree on GHG emissions and technology development; to establish basic infrastructure including a GHG inventory and research and development; and to provide education and public relations support on the measures for responding to the UNFCCC(Ordinance of Prime Minister 422, Article 3). The CRCCC comprised 20 members, including 12 minsters, with the Prime Minister as the Chairman. The structure of the CRCCC was similar to that of

the MCCCC, and it also included a Vice-Ministerial Level Committee (CRCCC-VMLCOM) comprised of Vice-Ministers, and was chaired by the Minister of the OPC. It had a Working-Level Conference(CRCCC-WLC) chaired by the Vice-Minister for Economic Policy Coordination of the OPC. The CRCCC-WLC had a task force that was supported by an expert pool and divided into six departments: comprehensive affairs, negotiation, energy and industry, environment, agriculture, and research and development. The CRCCC developed the second CAP-UNFCCC(2002-2004) in June 2002, the third CAP-UNFCCC (2005-2007) in February 2005, and the fourth CAP for Climate Change (CAP-CC) (2008-2012) in December 2007.

One of the most significant changes in climate change policy in South Korea occurred in 2008. In August 2008 the Korean government presented its Green Growth Vision(Low Carbon, Green Growth) as an innovative development approach that involved a fundamental shift in the country's growth paradigm, from quantitative growth to qualitative growth. The new vision was based on a long-term strategy of green growth for the period up to 2050, which was to be implemented through a series of Five-Year Plans for Green Growth(FYPGG)(UNEP, 2010, p.14). The objectives of the vision are to promote new eco-friendly growth engines for the national economy, to enhance the quality of life for members of society, and to contribute to international efforts to fight climate change challenges of today(GGGI, 2010, p.3). The Green Growth vision considers economic growth and quality of life as well as climate change.

The Presidential Committee on Green Growth(PCGG) was established in February 2009 as the control tower for implementing the vision. The PCGG has its legal foundation in the Framework Act on Low Carbon, Green Growth that was enacted in January 2010. For convenience, the explanation below was taken from the law before it was revised in July 2013, although things have changed since the law was revised.

The stated mission of the PCGG is to deliberate on various matters concerning the following: basic direction for policies on low carbon, green growth; the establishment, revision, and enforcement of the national strategy for green growth; the basic plan for coping with climate change, the basic plan for energy, and the basic plan for sustainable development; the management of targets for promoting low carbon, green growth, and reviews, surveys on the actual state, and evaluation thereof; the adjustment of, and support for, policies of appropriate central administrative agencies and local government with respect to low carbon, green growth; the legal system related to low carbon, green growth; the direction of distribution of resources for low carbon, green growth and the efficient use of such resources; international negotiations and cooperation, education and public relations activities, training of human resources, and the establishment of the foundation for low carbon, green growth; the survey on, and the resolution of, problems that enterprises and other sectors have in relation to low carbon, green growth, and recommendations of corrective measures for, or expression of opinions on, such problems; and matters that any other Act requires to be brought before the Committee for deliberation(Framework Act on Low Carbon, Green Growth, Article 15).

The PCGG was composed of 50 members who were public officials designated by law and experts nominated by the president. It was co-chaired by the Prime Minister and an expert member. The PCGG had subcommittees and a task force. Three subcommittees were established by Presidential Decree 23755, namely the subcommittee for green growth and industry, the subcommittee for climate change and energy, and the subcommittee for green life and sustainable development. Each of these subcommittees comprised not more than 15 commissioned members. The Green Growth Task Force was divided into six teams, including policy planning and coordination,

energy policy, climate change policy, green technology and industry, green life and sustainable development, and international cooperation. The PCGG prepared the National Strategy for Low Carbon, Green Growth in July 2009, which is applicable for the period up to 2050. It also developed the first FYPGG(2009-2013) and the second FYPGG (2014-2018). Although the PCGG has been located under the Prime Minister since the law was revised in July 2013, it is still responsible for green growth strategy. Changes in the institutional arrangements of climate change policy in South Korea since 1992 are summarized in Table 1.

〈Table 1〉 Changes in institutional arrangements for climate change policy in South Korea

Control Tower Organization	MCGE	MCCCC	CRCCC	PCGG
Establishment	Established in 1992 under the Prime Minister	Established in 1998 under the Prime Minister	Established in 2001 under the Prime Minister	Established in 2009 under the President
Legal Foundation	Ordinance of the Prime Minister	Ordinance of the Prime Minister	Ordinance of the Prime Minister	Framework Act on Low Carbon, Green Growth
Composition	17 ministers including the Prime Minister as Chairman	9 ministers including the Prime Minister as Chairman	20 members including 12 ministers and the Prime Minister as Chairman	50 members including ministers and experts, co-chaired by the Prime Minister and an expert
Basic Goal	Respond to global environmental measures; e.g., Rio Declaration and Agenda 21	Respond to the UNFCCC	Respond to the UNFCCC	Develop the national economy by using green technologies and industries as new engines
Sub-committee	None	None	None	Three sub-committees

Assistant Organization	- MCGE-WLC - Task Force	- MCCCC-VMLC - MCCCC-WLC - Task Force	- CRCCC-VMLCOM - CRCCC-WLC - Task Force	- Task Force
Major Performance Milestones	Infrequent meetings of the MCGE, WLC, and Task Force	- The 1st CAP-UNFCCC	- The 2nd CAP-UNFCCC - The 3rd CAP-UNFCCC - The 4th CAP-CC	- National Strategy for Green Growth - The 1st FYPGG - The 2nd FYPGG
Major actor	EPB	Prime Minister	Prime Minister	President

2. Changes in Policy Instruments for Climate Change

Since the MCGE was established in 1992, policy measures for responding to climate change have been pursued at the central government level in South Korea. It was decided at the first MCGE meeting to pursue a total of 44 sub-projects selected from the industrial, environmental, and global negotiation sectors(MOE, 2002, pp.73-74). Unfortunately, it is difficult to find any evidence of the success of these policy measures. Furthermore, the policy measures promoted by the MCGE were about global environmental issues, and did not focus on climate change issues. Neither a strategy nor a comprehensive plan to address climate change issues appeared until 1998 when the first CAP-UNFCCC was proposed by the MCCCC.

The first CAP-UNFCCC(1999-2001), which was a three-year plan, contained four policy directions: developing measures to reduce GHG; developing measures to use flexible mechanisms; developing measures to reduce perfluorocarbons(PFC), hydrofluorocarbons(HFC), and sulfur hexafluoride(SF6); and establishing foundations for reductions in GHG emissions(MOE, 2002. pp.78-79). Of the 36 sub-projects promoted by the first CAP-UNFCCC, 26 were concerned with GHG reduction

measures in sectors such as industry, transportation, and fuels. Others were mainly regarding institutional measures such as enactment or inventory building(MOE, 2002, pp.78-79). The first CAP-UNFCCC is significant in that it was the first comprehensive plan that addressed climate change issues in South Korea. The second CAP-UNFCCC (2002-2004) included much more projects than did the first CAP-UNFCCC. It contained the following five policy directions: strengthening capacity for UNFCCC negotiation, developing technologies for GHG reduction and eco-friendly energy, developing GHG reduction measures, establishing a foundation for the Kyoto mechanisms and a GHG inventory, and encouraging citizen participation and cooperation in responding to the UNFCCC. A total of 84 sub-projects were promoted (CRCCC, 2002, pp.35-37). While the first CAP-UNFCCC focused almost entirely on reduction measures, the second CAP-UNFCCC broadened its scope to include UNFCCC negotiation and citizen participation.

The third CAP-UNFCCC(2005-2007) further broadened its scope by promoting (for the first time in South Korea) measures for adaptation, and had the following three policy directions: establishing the foundation for carrying out the UNFCCC, promoting GHG reduction projects in each sector, and establishing a foundation for adaptation to climate change. The third CAP-UNFCCC appeared to provide South Korea with a well-shaped climate change plan that included typical climate topics, such as negotiation, mitigation, and adaptation (CRCCC, 2006). It also specified the amount of money available for investment(16.6 trillion KRW during the planned period), which was not specified in the preceding policies; this is important in that the third CAP-UNFCCC had a concrete foundation from which to implement the 90 suggested sub-projects.

While the earlier plans ran for a period of three years, the fourth CAP-CC(2008-2012) was a five-year plan. The name of the plan also changed to the Comprehensive Action Plan for Climate Change(not for

the UNFCCC). It specified three policy directions: establishing GHG reduction targets(short-term sectoral targets and mid-or long-term national targets), minimizing the impact of climate change by establishing and implementing the climate change adaptation plan, and securing advanced technologies to reduce GHG (CRCCC, 2007). Nineteen projects were promoted though sub-projects and the amount of investment were not specified. The fourth CAP-CC did not run for its planned period because it was incorporated into the first FYPGG in 2009. In addition, the CRCCC (which was responsible for the CAP) was incorporated into the PCGG in 2009.

The strategies outlined in the first FYPGG were mitigation of climate change and improvement of energy independence, creation of new growth engines, and improvement in the quality of life and enhancement of international standing. The following 10 policy directions were specified: mitigation of greenhouse gas emissions, reduction in the use of fossil fuels and increased energy independence, improvement of the capability to adapt to climate change, development of green technologies and creation of new growth engines, greening of existing industries and nurturing of emerging green industries, advancement of the industrial infrastructure, laying the industrial foundation for a green economy, creation of a green homeland and green transportation system, bringing the green revolution into daily life, and becoming a role model for the international community as a green growth leader. A total of 387 sub-projects were promoted over the 5-year period, supported by an investment of 107.4 trillion KRW, which amounted to 2% of the South Korean GDP.

The Green Growth Strategy was a new economic vision in South Korea. It may be recognized as an official and governmental effort towards ecological modernization in South Korea (Yun, 2012). Of course not all the policy measures included in the first FYPGG were limited to climate change. A variety of policy measures were included

in the plan, such as the four-river restoration projects, facilitating cutting-edge technologies (information technology, biotechnology, nanotechnology, robotics, etc.), and facilitating high value-added service industries (U-healthcare, software, etc.). Although it is difficult to identify how many of the 387 sub-projects concerned climate change, 54.1 trillion KRW out of a total of 107.4 trillion KRW was earmarked for investment in climate change policy measures (Huh, 2012).

〈Table 2〉 Policy measures of each National Plan

1st CAP-UNFCCC 1999-2001	Policy Direction	4 policy directions mainly focused on GHG reduction
	Projects	14 projects
	Sub-Projects	36 sub-projects
	Investment	Not specified
2nd CAP-UNFCCC 2002-2004	Policy Direction	5 policy directions including GHG reduction, UNFCCC negotiation, and citizen participation
	Projects	22 projects
	Sub-Projects	84 sub-projects
	Investment	Not specified
3rd CAP-UNFCCC 2005-2007	Policy Direction	3 policy directions including UNFCCC negotiation, mitigation, and adaptation
	Projects	14 projects
	Sub-Projects	90 sub-projects
	Investment	16.6 trillion (KRW)
4th CAP-CC 2008-2012	Policy Direction	3 policy directions including mitigation, adaptation, and climate technology
	Projects	19 projects
	Sub-Projects	Not specified
	Investment	Not specified
1st FYPGG 2009-2013	Policy Direction	10 policy directions including climate change, economic growth, and quality of life
	Projects	50 projects
	Sub-Projects	387 sub-projects
	Investment	107.4 trillion (KRW)

3. Phases of Climate Change Policy in South Korea

From the above explanation of institutions and policy changes, three phases of climate change policy in South Korea are identified.

Phase I covers the period from 1992-1997 during which central government officially responded to address climate change issues for the first time. The MCGE was established under the Prime Minister and at least nine sub-projects that addressed climate change were promoted by the MCGE. However, the issue of climate change was not recognized as a separate important issue in Phase I. The mission of the MCGE was to respond to global environmental issues, including environmental agreements in various sectors, the Rio Declaration, and Agenda 21. After a lackluster performance, the MCGE was abolished in 1996. No strategies or comprehensive plans to address climate change appeared until 1998. This phase may be described as a period of climate change policy in name only.

Phase Ⅱ, which covers the period from 1998-2007, saw a more comprehensive approach in terms of responding to climate change. The MCCCC, renamed as the CRCCC in 2001, was established in 1998 with the mission of addressing climate change issues and global climate negotiations. Comprehensive plans related to climate change in South Korea were made for the first time during this period. Each of these plans included specific policy directions and many projects and sub- projects covering various sectors. However, the legal foundation of the governance and comprehensive plan were still weak during this period. The MCCCC and CRCCC were established and operated not by law, but by ordinance of the Prime Minister. In addition, the financial support needed to carry out the projects outlined in each comprehensive plan was not specified except for the third CAP-UNFCCC. This phase could be termed as a period of climate change policy for responding to the UNFCCC because(as the names imply) the main role of the MCCCC, CRCCC, and CAP-UNFCCCs was to respond to the UNFCCC, rather than dealing with climate change itself.

Phase Ⅲ commenced in 2008 with the presentation of the Green

Growth Strategy as a national vision. The term Green Growth, which was first mentioned by the Economist in 2000, began to be seriously discussed in the fifth Ministerial Conference on Environment and Development in Asia and the Pacific, 2005, sponsored by UNESCAP (Statistics Korea, 2012, p.4). The Green Growth Strategy was concerned with economic growth and quality of life as well as climate change. The governance and comprehensive plan for climate change policy had a strong legal foundation through the enactment of the Framework Act on Green Growth and the PCGG, which was established with more authority under the President. To realize the strategy, the first FYPGG was established with 387 sub-projects and an investment plan of a total of 107.4 trillion (KRW), which accounted for 2% of the GDP, over a planned period of five years. This stage could be described as a period of climate change policy for economic growth, because, as outlined in the Framework Law(Framework Act on Low Carbon, Green Growth, Article 2), economic growth was to be achieved by low carbon technologies such as energy savings, energy efficiency, and new job opportunities in these sectors.

The phases can also be distinguished in terms of the major policy measures adopted. The IPCC, in its fourth report, identified policy instruments such as regulations and standards, taxes and charges, tradable permits, voluntary agreements, subsidies and other incentives, research and development, and information policies (Gupta, 2007). In its fifth report, the IPCC suggested categorization of policy instruments similar to that of the fourth report, namely economic instruments, regulatory approaches, information policies, government provision of public goods and services and procurement, and voluntary actions (Somanathan et al., 2014). Compston and Bailey (2014) assumed that the policy instrument list by the IPCC was the most authoritative list available, and selected six key instruments, as shown in Table 3, that were individually potent and, when combined, representative of

climate policy as a whole from the list. One may therefore use this selected list to evaluate the strength of the climate change policy of a given country. However, this selected list is generally concerned with mitigation. Adaptation should be considered the other pillar of climate change policy, even though it has received much less attention than mitigation until recently, even in developed countries (OECD, 2006).

Table 3 lists the years in which the major climate change policy measures were adopted in South Korea. Arguably, policy Phase Ⅲ can be clearly distinguished from its predecessors, in that major policy instruments to address climate change, including ETS, RPS, vehicle emissions standards, and national adaptation plan, were adopted in this phase. Note also that in 2009, South Korea pledged to reduce GHG emissions by 30% relative to the country's projected level by 2020.

〈Table 3〉 Year of adoption of major climate change policy measures in South Korea

Major Policy Measures	Year of Adoption in South Korea
Carbon taxes	Not adopted
Emission trading scheme (ETS)	Decision to adopt made in 2010
	Enacted in 2012/Adopted on January 2015
Feed-in-tariffs (FIT)	Adopted in 2002/Expired in 2011 (replaced by RPS)
Quotas (RPS)	Adopted in 2012
Fossil fuel power plant bans	Not adopted
Vehicle emissions standards	Decision to adopt made in 2010
	Adopted in 2012
Adaptation policy (national plan)	Established in 2010

Ⅲ. The International Regime and Its Influence on Climate Change Policy in South Korea

1. Evolution of the International Climate Change Regime

An international regime rarely emerges in a single step, but evolves over time. Bodansky and Diringer (2010, pp.3-4) explained why

international regimes develop in an evolutionary manner. First, it often takes considerable time to gain political consensus about whether a problem exists. Second, an evolutionary process allows for trial and error. Third, in environmental regimes, there is a particular need for flexibility and evolution, because our understanding of problems is likely to change as science and technology develops. Finally, in order to make binding international commitments, states need to have confidence and trust in a regime. A regime can evolve along dimensions including deepening, broadening, and integrating (Bodansky and Diringer, 2010, pp.5-11). A regime can become deeper by (1) developing new institutions with greater authority, (2) evolving from a non-legal to a legal form, (3) establishing more stringent and precise obligations, and (4) developing stronger compliance review systems. A regime can also broaden its membership or substantive scope, starting with a comparatively small number of like-minded states and then adding new members and new subject areas. A regime can also become more integrated through either consolidation or linkages between a number of different institutions, or procedures that have initially worked in a fragmented way. The international climate change regime also evolved along one or more of these dimensions.

How did the international climate change regime evolve? Mejía (2010, p.9) distinguished three stages of climate negotiation. The first stage covered the period from the scientific debates of the late 1970s until the UNFCCC entered into force in 1994. The second stage covered the period of the Kyoto negotiation that began with the Berlin Mandate in 1995 (COP 1) and ended when the provisions of the Marrakesh Accords were approved in Montreal in 2005 (COP 11). The final stage covers the period of Post-Kyoto negotiation that began with COP 11 in Montreal and has not ended yet. Bodansky and Rajamani (2013, pp.3-15) divided the development of the climate

change regime into six periods. They are the foundational period (the emergence of scientific concern from the 1960s until the mid-1980s); the agenda-setting phase (transformation of climate change from a scientific concept into a policy issue, 1985-1988), the pre-negotiation phase (early international response, 1988-1990), the constitutional period (negotiation and entry into force of the FCCC, 1991-1994), the regulatory phase(negotiation and elaboration of the Kyoto Protocol, 1995-2005), and the second constitutional phase (negotiating the future climate change).

According to Ridge and Bassi (2015), the key milestones in the climate change regime are the establishment of the IPCC in 1988, the establishment of the UNFCCC in 1992, adoption of the Kyoto Protocol in 1997, the entering into force of the Kyoto Protocol in 2005, the Bali Road Map in 2007, the Copenhagen Accord in 2009, the Cancun Agreement in 2010, the Durban Platform in 2011, the Doha Climate Gateway in 2012, and the Warsaw Outcomes in 2013. The UNFCCC, in its website, displays the FCCC, the Kyoto Protocol, the Bali Road Map, the Cancun Agreement, the Durban Outcome, the Doha Climate Gateway, and the Warsaw Outcome as key steps in climate change negotiations. As with most other studies, this study assumes that the climate change regime evolved along three phases, that is, the UNFCCC, the Kyoto Protocol, and Post-Kyoto Protocol negotiations.

When did the international climate change negotiation start? Ramakrishna (2000, p.49) indicated that, while the science and politics of climate change are more than 100 years old, the best place to begin to document the history is the Toronto Conference on 'The Changing Atmosphere: Implications for Global Security', held in June 1988. As the first international conference dedicated to climate change, the Conference explored several issues that characterized the climate change debate over the following years (Fonseca, 2014, p.218). It was suggested at this Conference that an international convention

on climate change should be adopted by 1992. This convention (the UNFCCC) was signed at the Rio Summit in June 1992 and entered into force in 1994. As the first milestone in the history of climate diplomacy (Bulkeley and Newell, 2015, p.29), the UNFCCC provided a framework for global action on the issue.

There has been a deepening of cooperation and a firming up of obligations to act in the climate change regime. This process is common to many international negotiations on the environment, where a general agreement identifies the need for action and a subsequent protocol contains concrete legally binding emission reduction commitments (Bulkeley and Newell, 2015, p.27). In 1995, the first COP approved a plan called the Berlin Mandate to set up a two-year negotiating process that aimed to set specific targets for reducing GHG in the 21st century. As a result of this process, the Kyoto Protocol was adopted in 1997 at COP 3 and finally entered into force in 2005. The Kyoto Protocol constitutes a historical milestone in global climate change policies, in that major emitting regions committed themselves to legally binding quantified limits on GHG emissions and reduction objectives for the firsttime (Böhringer, 1999). Signed by more than 150 countries, the Kyoto Protocol binds 38 industrialized countries to reduce GHG emissions by anaverage of 5.2% below 1990 levels during the period from 2008-2012 (Bulkeley and Newell, 2015, p.30). Recognizing that developed countries are principally responsible for the current high levels of GHG emissions, the Kyoto Protocol placed a heavier burden on developed countries under the principle of 'common but differentiated responsibilities.'

The Post-Kyoto Protocol discussion broadened the climate change regime. With its limited targets, timeframe, and participation, the Kyoto Protocol was never seen as a final solution to the climate problem. It was a first step in the preparation for the broader engagement that will be necessary for the future regime (El-Ashry,

2009, p.134). Expanded participation, extended time periods to achieve targets, and market-based policy instruments seemed to be essential pillars of the Post-Kyoto Protocol (Olmstead and Stavins, 2009). Article 3.9 of the Kyoto Protocol stipulated that negotiation for Annex I Party commitments beyond 2012 should commence at least seven years in advance, that is, by the end of 2005(Torney, 2015, p.60). In 2005 the parties to the UNFCCC agreed to engage in talks aimed at producing a new set of binding limits on GHG emissions that would take effect from 2012. At COP 13 in 2007, parties agreed on the Bali Road Map, which charted the pathway towards negotiations for country commitments after 2012, and focused on reaching an agreed outcome by 2009. The Bali Road Map was an important milestone for the post-2012 climate regime and was significant in that it set a deadline for concluding the negotiation in Copenhagen two years later (Park, 2011). In Bali, all industrialized and industrializing countries agreed to combat climate change cooperatively and more intensively than in the past. It was the first time that industrializing countries declared their willingness to adopt reportable measures and verifiable mitigation actions.

Following the schedule adopted in Bali, the negotiations on the post-2012 climate regime were to be concluded in Copenhagen (COP 15) in 2009. But the COP 15 only achieved a political agreement, the Copenhagen Accord, which lists some key elements of future climate policy. A new comprehensive and legally binding post-2012 climate agreement was not achieved. Instead, in Durban(COP 17) in 2011, the international community agreed that all countries would be obliged to reduce GHG emissions in the future, under either a protocol, legal instrument, or legally agreed enforceable outcome under the Convention that would be applicable to all parties (Morgan et al., 2014). Parties agreed to negotiate post-2012 agreements that will be adopted by 2015 and will enter into force by 2020.

2. Did the International Regime Influence Climate Change Policy in South Korea?

As shown in Table 4, there seems to be a close relationship between the timing of the major events in South Korea's climate policy changes and those of the evolution of the international climate regime. The MCGE was established in July 1992, which was a month after the UNFCCC had been adopted in June 1992 in Rio. The major mission of the MCGE was to discuss and coordinate measures for responding to global environmental issues such as international environmental agreements, the Rio Declaration, and Agenda 21. The MCCCC, which initiated Phase II in South Korea, was established in July 1998, seven months after the adoption of the Kyoto Protocol in December 1997. The first CAP-UNFCCC was proposed in 1999 by the MCCCC mainly in recognition of the fact that the Kyoto Protocol had been adopted in 1997 and that there would be increasing and stronger pressure on major developing countries, especially OECD members like South Korea and Mexico, from global society (Na, 1998, pp.76-77, 111; MOE, 2002, p.72).

The Green Growth Vision, which initiated Phase III in South Korea, was announced in August 2008, eight months after the Bali Road Map. There were at least three challenges that pushed South Korea to adopt the Green Growth Strategy (Mazzetti 2012, p.63; NRCS, 2011, pp.35-36). First, there was a growing movement in the international community to protect the environment by cleaner and safer production. Second, the global movement to reduce GHG emissions was exerting strong pressure on South Korea. Finally, there was an urgent need for South Korea to reduce its reliance on imported energy resources. Green Growth was regarded as a strategy to overcome all of these external challenges simultaneously.

〈Table 4〉 Evolution of international climate regime and climate change policy in South Korea

	Year	Climate Change Policy Changes in South Korea	
		Major Initiatives	Policy Phases
Toronto Conference	1988		
IPCC establishment			
	1989		
	1990		
	1991		
UNFCCC adopted	1992	MCGE established (Prime Minister)	
	1993		
UNFCCC comes into force	1994		
Berlin Mandate	1995		Phase Ⅰ
	1996		
Kyoto Protocol adopted	1997		
	1998	MCCCC established (Prime Minister)	
	1999	1st CAP-UNFCCC (1999-2001)	
	2000		
	2001	CRCCC established	
	2002	2nd CAP-UNFCCC (2002-2004)	
	2003		Phase Ⅱ
	2004		
Kyoto Protocol comes into force	2005	3rd CAP-UNFCCC (2005-2007)	
	2006		
Bali Road Map	2007		
	2008	4thCAP-CC (2008-2012)	
		Green Growth Vision announced	
Copenhagen Accord	2009	National Strategy for Green Growth	
		1stFYPGG (2009-2013)	
		2020 National Target pledged	
		PCGG established (President)	
Cancun Agreement	2010	Framework Act on Low Carbon, Green Growth enacted	Phase Ⅲ
Durban Outcome	2011		
Doha Climate Gateway	2012		
Warsaw Outcome	2013		
	2014	2ndFYPGG (2014-2018)	
COP21 (Paris)	2015	Emission Trading Scheme adopted	

Bernstein and Cashore(2012) developed a framework that distinguished four pathways through which the international regime could influence domestic policy processes: international rules, international norms

and discourse, creation of or interventions in markets, and direct access. According to the perspective pathway of international rules, we may conclude that international agreements influence domestic policy to the extent that they place obligations on states through international law. This framework provides a good explanation for South Korea's policy phases. The global obligation and compliance system had not appeared in Phase I. The MCGE was established but climate change was not recognized as a separate important issue in government. The following statement by Sun-Young Hong, the then Vice-Minister of the Department of Foreign Affairs, demonstrates the passive and half-hearted approach of the government of South Korea:

> "With the ratification of the UNFCCC, South Korea will be entitled to attain necessary technology transfer from public or private sectors of developed countries because we are classified as a developing country. Also, we will obtain the legal right to require necessary fiscal assistance from developed countries because we are designated as an energy over-consuming country." (26 November 1993. Foreign Affairs and Unification Committee, National Assembly)

Phase Ⅱ started with the recognition of the Kyoto Protocol. Three CAP-UNFCCCs were developed by the MCCCC and the CRCCC. The legal foundation of governance and comprehensive plans were however still weak during this phase because South Korea maintained the position of a Non-Annex I country with no reduction obligation. South Korea was not the only country that maintained a passive position after the adoption of the Kyoto Protocol. According to an analysis of climate legislation in countries since 1990(Fankhauser et al, 2015), legislative activity has been significantly higher in Annex I countries than in non-Annex I countries in the years following Kyoto.

Phase Ⅲ provided a concrete foundation for its institutions with the inception of the Green Growth Vision. The following excerpt from a speech given by Ki-Jun Yoo, who then chaired the Legislation Assessment Sub-Committee of the Special Committee on Climate Change in the National Assembly, implies that international pressure was so real that South Korea hurried to make more concrete and comprehensive climate change policies than before.

> "In Copenhagen it will not be easy for Korea to maintain the non-binding position as a Non-Annex I country, as Korea is now the 10th largest emitter having the 15th largest economy in the world. This is why we have to enact this Framework Act on Low Carbon Green Growth as soon as possible. (29 September 2009) …… There will be a UNFCCC COP in 7th December 2009 in Copenhagen. We have to pass this bill not later than early December not to lose the opportunity to highlight our effort to participate in global climate change issue." (3 November 2009)

Ⅳ. Domestic Situations Moderating the Influence of the International Regime

From the discussions above, we may assume that climate change policy in South Korea has been influenced by the international climate regime. As the international regime became deeper and broader, climate policy in South Korea became more comprehensive and concrete with stronger institutional foundations and policy measures. But the international regime was not the only factor which has influenced the evolution of South Korea's climate policy. It is reasonable to suggest that various domestic situations have moderated this process.

There are many studies that discuss the factors that influence the climate policy of a state. According to Fankhauser et al.(2015), the pertinent literature identifies a broad set of driving forces, which include international factors, domestic drivers, and the characteristics of the policy at hand. Bjørkum(2005) identified three factors influencing Chinese climate change policy: national interest in terms of costs and benefits, domestic political bargaining, and learning through diffusion of knowledge and norms. Williams(2014) analyzed climate change policy in China and identified energy demand and security, environmental degradation, economic restructuring, international image, and climate change vulnerability as drivers of climate change policy. Steves and Teytelboym(2013, pp.16-18) described the following six factors identified in the political economy literature as the likely major drivers of climate change mitigation policy: public knowledge of the threat represented by climate change, the level of democracy, the strength of the carbon-intensive industry lobby, the state administrative capacity, per capita and total CO_2 emissions, and international commitments. Considering the factors indicated in the literature, three factors were identified in the current study, although these may not be the only factors to have influenced climate change policy in South Korea.

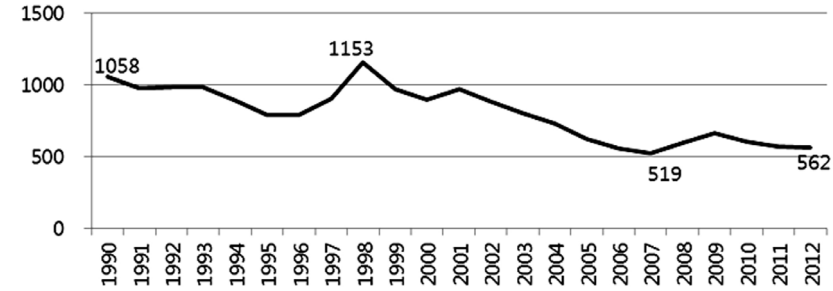
1. GHG Emission Trends

The trend in domestic GHG emissions place immediate pressures on a country to adopt climate change measures, especially with regard to mitigation. A country with a trend toward increasing GHG emissions might not promote strong emission reduction measures if these would slow economic growth, and carbon-intensive industry within the economy could also hinder the adoption of these measures(Steves and Teytelboym, 2013). There appears to be a close relationship between GHG emissions and the evolution of climate change policy in South

Korea. The energy sector is responsible for 87.2% of all GHG emissions in South Korea (GIR, 2014, p.40). The industrial sector, which is responsible for 64.1% of total energy use, is the largest energy consumer followed by the transportation (21.2%), and household and commerce (12.9%) sectors (www.kesis.net). Considering that the industrial sector is responsible for only 25.6% of the final energy use of the EU28 in 2012 (EEA, 2015), it is not difficult to imagine that policy measures to reduce GHG emissions will incur great opposition and reluctance from those engaged in that sector in South Korea.

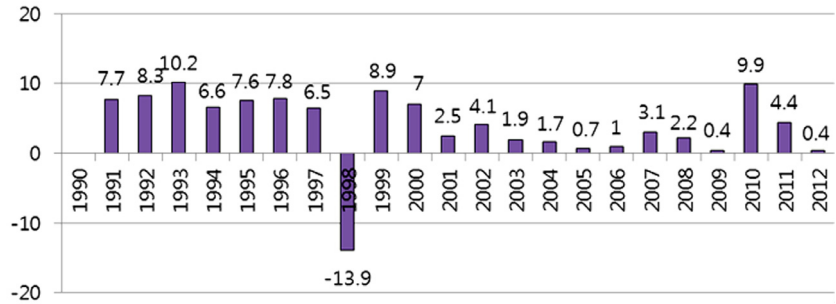
As shown in Figure 1, GHG emissions per GDP have been decreasing in South Korea since 1998. South Korea emitted the equivalent of 1,153 Kt CO_2 to earn one billion USD in 1998. The emissions gradually decreased such that in 2008, it was possible to earn one billion USD while emitting the equivalent of 519 Kt CO_2. Roughly speaking, South Korea was able to accomplish the same economic growth in 2008 with GHG emissions that were less than half of the emissions in 1998. Also, as shown in Figure 2, there was a downward trend in the yearly increase in total GHG emissions, although the total amount of emissions was still growing, except in 1998 when South Korea and other Asian countries suffered financial crises. The average rate of increase from 2001-2008 was only 2.2% while the average rate of increase from 1991-2000 was 5.7%. In 2008, policymakers who were under pressure from the international community to reduce GHG were convinced that they could sustain economic growth with stronger reduction measures, assuming that the trends in GHG emissions were to be continued.

〈Figure 1〉 GHG emissions in South Korea per GDP (Kt CO_2 eq/billion KWR)



Sources: GIR(2014), IMF(2015)

〈Figure 2〉 Annual increases in the rate of total GHG emissions (%)



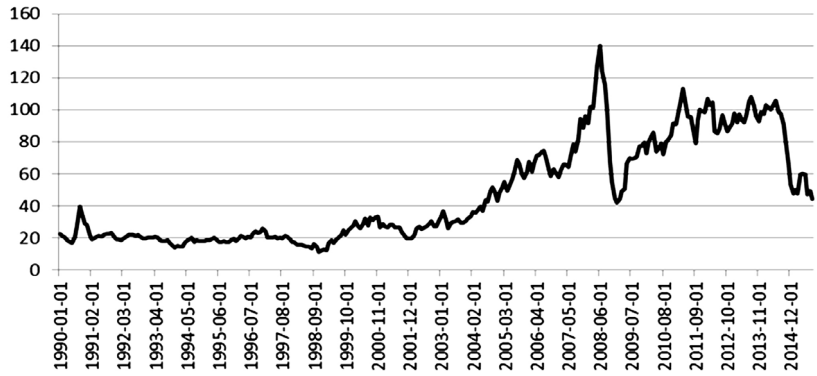
Source: GIR(2014)

2. Energy Security

Oil prices have influenced the search for alternatives to oil and policies that support those alternatives. Expensive oil makes substitutes more appealing, while cheap oil makes the economic case for alternatives more difficult (Greenberg, 2015). The influence of oil prices is particularly strong in South Korea, which was the world's fifth largest importer of petroleum in 2013. South Korea's government suggested an 'energy crisis by imbalance of global demand and supply' as one of the rationales for promoting the Green Growth Strategy in 2008 (PCGG, 2009a). The trend in oil prices shown in Figure 3 seemed to

forecast a looming energy crisis for the South Korean policymakers in 2008. The oil price, which was around 25 USD per barrel in 2000, increased to about 140 USD in June 2008, just one month before the Green Growth Strategy was announced by the President. Also, not a few experts forecast that the high oil price would be maintained in the short or long term. For example, in May 2008, analysts from Goldman Sachs reported that it was increasingly likely that the oil price might increase to between 150-200 USD per barrel over the following 6-24 month period (Subrahmaniyan, 2008). Watching the oil prices skyrocketing, policymakers then had to worry about impending energy insecurity and had no option other than to adopt the Green Growth Strategy that aimed to sustain economic growth through technologies related to energy savings, energy efficiency, and alternative fuels.

〈Figure 3〉 Monthly price of WTI crude oil 1990-2015 (USD/barrel)



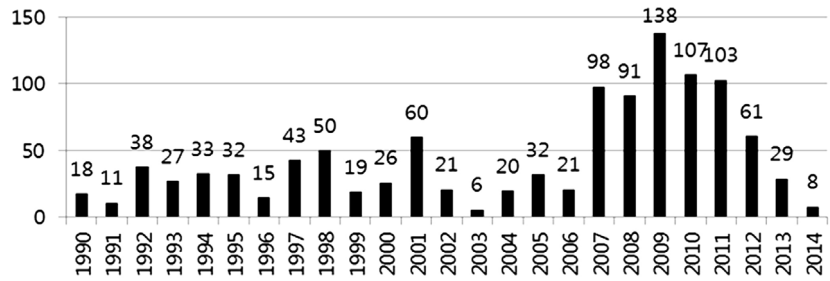
Source: https://www.quandl.com/collections/markets/crude-oil

3. Public awareness of Climate Change

Given the extent to which the government responds to public pressure, one would expect that public knowledge of climate change would lead to stronger policies (Steves and Teytelboym, 2013). To

evaluate public awareness of climate change in South Korea through each policy phase, various data sources were considered. We can infer the degree of public awareness through different phases by analyzing materials printed by the media, because the media plays a particularly important role in shaping public perceptions of environmental issues (Carlarne, 2010, p.330). Figure 4 shows data extracted from the Korean Integrated Newspaper Database System (KINDS) regarding the annual number of editorials printed in daily newspapers that have the keywords 'climate change' or 'global warming' in the title. There is little difference in the frequency of use of these keywords between the years of policy phases I and Ⅱ: approximately 33 and 35 editorials mentioned the keywords during each year of Phase Ⅰ (1992-1997) and Phase Ⅱ (1998-2007), respectively. The number of editorials mentioning the keywords increased greatly during policy Phase Ⅲ(2008-present) after the Green Growth Strategy was adopted. About 100 editorials, excluding the keyword 'green growth', were printed each year during the first 5 years of Phase Ⅲ.

〈Figure 4〉 Number of editorials in major daily newspapers that mention 'climate change' or 'global warming' in the title (per year)



Sources: www.kinds.or.kr

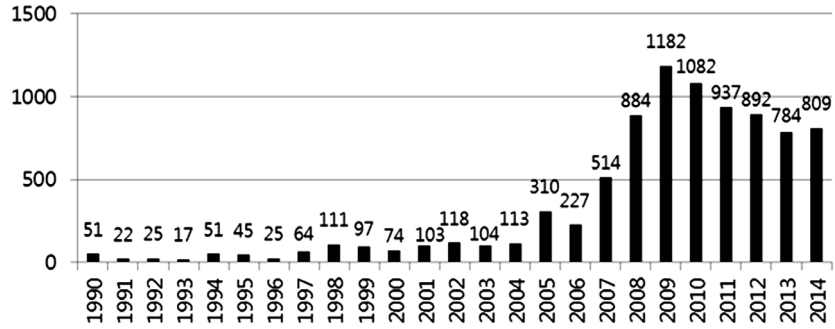
We can also infer public awareness of climate change from materials other than newspaper editorials. Figure 5 presents data extracted from the archives of the Korean National Assembly Library, and shows the

annual number of all registered materials, including academic research, dissertations, and national assembly minutes, that contain the keywords 'climate change' or 'global warming' in the title. Approximately 177 of these materials were published during each year of Phase Ⅱ, either on-line or off-line, which was about four times more than those during Phase I. The number of materials increased dramatically to ~995 during the first 5 years of Phase Ⅲ.

Steves and Teytelboym (2013) indicated that countries with higher public awareness have more effective climate policies and that public understanding of climate change will itself be influenced by national climate policies. Did public awareness lead the policy change, or did the policy change raise public awareness in Korea? It is noteworthy that the indicators of public awareness (number of newspaper editorials and other materials registered in National Assembly Library), as shown in Figures 4 and 5, greatly increased in 2007 before the transition to Phase Ⅲ.

Limited survey results demonstrate that citizen's perceptions on climate have also been changed. According to Cho(2001), who surveyed 500 citizens from Seoul in 2001, 86% of respondents were aware of climate change and 15% of respondents were aware of the UNFCCC.

〈Figure 5〉 Number of materials registered in the National Assembly Library Archive that mention 'climate change' or 'global warming' in the title (per year)



Sources: www.nanet.go.kr

But, according to MOE(2008), who surveyed 1,040 people, 90.5% of respondents regarded climate change as a serious problem and 60.9% of respondents were aware of the UNFCCC.

Ⅴ. Concluding Remarks

With the evolution of the international climate change regime, recent decades have also seen the emergence of climate change policies in most countries. Variations among the unique domestic situations facing each country have resulted in a wide spectrum of features in the climate change policies that are pursued. This study explored the evolution of climate change policy in South Korea, especially in relation to the international climate regime, and arrived at the following four major conclusions.

First, in terms of changes in institutions and policy instruments, South Korea's climate change policy has evolved through three phases. Phase I covers the period 1992-1997, during which central government officially responded to address the climate change issue for the first time. This phase may be described as a period of climate change policy in name only, because the climate change issue was not recognized as a separate important issue and this phase ended after poor performance without making a plausible action plan. Phase Ⅱ, which covered the period from 1998-2007, witnessed a more comprehensive and active response to the climate change issue. The first, second, third, and fourth CAP were issued by the MCCCC and the CRCCC during this stage. This phase may be described as a period of climate change policy for responding to the UNFCCC, because, as inferred from the names, the CAP-UNFCCCs focused on responding to the UNFCCC, and not on the climate change issue itself. Furthermore, the legal foundation for the institutions and policy instruments was

still weak during this phase. Phase Ⅲ covers the period from 2008 until the present. The Green Growth Strategy was presented as a national vision and climate change policy came to have a stronger legal foundation than before. This stage may be described as a period of climate change policy for economic growth, because low carbon technologies were considered to lead economic growth.

Second, the international regime seems to have influenced the evolution of climate change policy in South Korea, in that there is a close relationship in the timing between major events in South Korea's climate policies and those of the international regime. Phase I commenced with the adoption of the UNFCCC in 1992 and Phase Ⅱ commenced immediately after the adoption of the Kyoto Protocol in 1997. Phase Ⅲ started immediately after the Bali Road Map in 2007.

Third, Phase Ⅲ of South Korea's climate change policy is distinguishable from its predecessors by the adoption of aggressive policy measures such as the National Target, Framework Act on Green Growth, PCGG, and ETS. It seems clear that the coming Post-Kyoto system, in which South Korea should have binding responsibility for GHG emission reductions, effected the transition to Phase Ⅲ.

Last, climate change policy in Korea has been influenced by the international climate change regime, but also has been moderated by domestic situations such as trends in GHG emissions, energy security, and public awareness. These factors have moderated the influence of the international regime, especially on the transition to Phase Ⅲ. It therefore remains to be seen whether changes in these situations trigger a transition to another policy phase in South Korea in the future.

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윤경준: 연세대학교에서 행정학 박사학위를 취득하고 현재 한성대학교 행정학과 교수로 재직 중이다. 주된 관심분야는 환경, 에너지, 기후변화정책 등이며, 주요 논문으로는 "A critical review of the premises underlying Korea's nuclear energy policy (2015)," " '저탄소 녹색성장정책' 다시 보기: 비판적 평가 및 전망(2012)," "기후변화정책 조정체계의 대안 모색: 정책조정체계의 국가 간 비교를 중심으로(2010, 공저)" 등이 있다(yoon@hansung.ac.kr).

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