



# Analysis on the Relationships among Policies Associated with the Basic Act on Low-Carbon Green Growth and the Green New Deal Policy in the Republic of Korea

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## ABSTRACT

Since green growth was first introduced, it has been regarded as a paradigm for achieving economic growth and environmental conservation at the same time. In relation to this paradigm, the Korean government recently announced a “Korean Green New Deal,” which seeks to overcome the economic crisis through an eco-friendly approach to coping with climate change while pursuing sustainable development. National strategies and policies related to green growth, climate change, and sustainable development were announced in Korea before the “Korea Green New Deal,” but the inter-relationships among these existing policies remain unclear. Therefore, this study aims to analyze interconnections among strategies and policies and identify the implications of these inter-relationships. The results show that most national plans have a close relationship with the highest-level strategy, although missing links exist among certain policies. These missing links are to be closely analyzed while related national plans are revised to ensure that national policies and plans have consistency with the overall national strategy.

**Key words:** *Green Growth, Climate Change, National Strategy, Green New Deal, Low Carbon Society*

## 1. Introduction

The basic concept of Green Growth was first introduced and discussed by the World Commission on Environment and Development (WCED) at its report, “Our Common Future” (WCED, 1987), based on the concept to specify Sustainable Development. Since then, the United Nations Economic and Social Commissions for Asia and the Pacific (UN ESCAP) specified the concept at their report, “Map to Green Growth for Asia and the Pacific” (UN ESCAP, 2005). Green Growth is recognized and globally accepted as a paradigm to pursue economic growth along with environmental conservation. Meanwhile, Sustainable

Development pursues harmonization of three perspectives such as, (1) continuous economic growth, (2) stable and equally integrated society, and (3) environmental conservation. With Sustainable Development, Green Growth is regarded to be a method to realize it. In other words, Green Growth is to specify how to harmonize the three pillars of Sustainable Development. There have been some debates of Green Growth that it cannot satisfy the social perspective of Sustainable Development, which it does not consider ‘social equity’ in its concept (Korea Legislation Research Institute, 2014).

In 2008, the Korean president announced the national policy direction of Low Carbon, Green Growth at the celebration ceremony of the Liberation Day. Based on this

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announcement, the Presidential Committee of Green Growth suggested three basic components to pursue Green Growth: (1) establish a virtuous cycle between environment and economy, (2) promote green evolution of lifestyle to improve the quality of life, and (3) enhance the national prestige to meet the global expectation of Korea. In accordance with the national policy direction, the “Framework Act on Low Carbon, Green Growth” was enacted at 2010 and the existing Acts such as the “Framework Act on Energy” and “Framework Act on Sustainable Development” were renewed to “Energy Act” and “Sustainable Development Act” for consistency with Green Growth. Depending on the change of legislation, related policies and strategies are formulated periodically such as, “National strategy for Green Growth”, “Five-year Plan for Green Growth”, “Basic Plan for Response to Climate Change”, “Basic Plan for Energy”, “Adapting measures to cope with national climate change”, and “Master Plan for Sustainable Development.” Recently, the current President Moon has announced another master plan, the Korean Green New Deal, to achieve low carbon and eco-friendly development (Great transition to Korea, 2020).

The term ‘New Deal’ is not a new approach and has been used since 1930s in the United States by President Roosevelt to overcome the Great Depression. New Deal is an approach that the federal government strongly interferes the market to revitalize the economy. As a result, Roosevelt was elected as President in 1932. The New Deal policy was raised when there was a need of paradigm shift to overcome the national economic and social crisis. At present, this New Deal is re-examined as a strategical measure to change the national paradigm to overcome the global economic crisis and also the environmental crisis including Climate Change. Western countries including the European Union (EU) and the United States (US) also considers this “Green New Deal”

or “Green Deal” as a breakthrough of the current economic and environmental crisis.

While the previous New Deal has focused on overcoming the economic crisis, the Great Depression, this term has also been used in the environment field when a rapid paradigm shift is required. In the US, former President Obama’s administration had led to increase the number of facilities for renewable energy up to 4 times and results to reduce carbon dioxide emission approximately 10%. Responding to this movement, the US Green New Deal was first introduced and co-signed by more than a hundred US Federal legislators and have submitted the resolution of “Recognizing the duty of the Federal Government to create a Green New Deal” at February 2019 (Galvin and Healy, 2020; 116th Congress (2019-2020)). Same for Europe, the “European Green Deal” was approved by the European Commission on December 2019 to resolve the energy problems along with Climate Change and further discussion are actively in progress (European Commission, 2020).

In Korea, President Moon has recently announced a “Korean New Deal” that includes “Digital New Deal” and “Green New Deal.” The Korean Green New Deal is a response to the inside-out needs of low carbon and an environmentally friendly economy. In the master plan for the Korean New Deal, Green New Deal aims to improve peoples’ quality of life and enhance the chance of creating jobs and energy industries simultaneously through increase of global investment. In detail, this policy direction aims to accelerate transition of the economy to a more eco-friendly and low carbon economy. The Korean Green New Deal focuses on three items: (1) green transition of infrastructure related to urban, space and lifestyle, (2) dissemination of low carbon decentralized energy, and (3) establishment of an innovative ecosystem for green industries (Great transition to Korea, 2020).

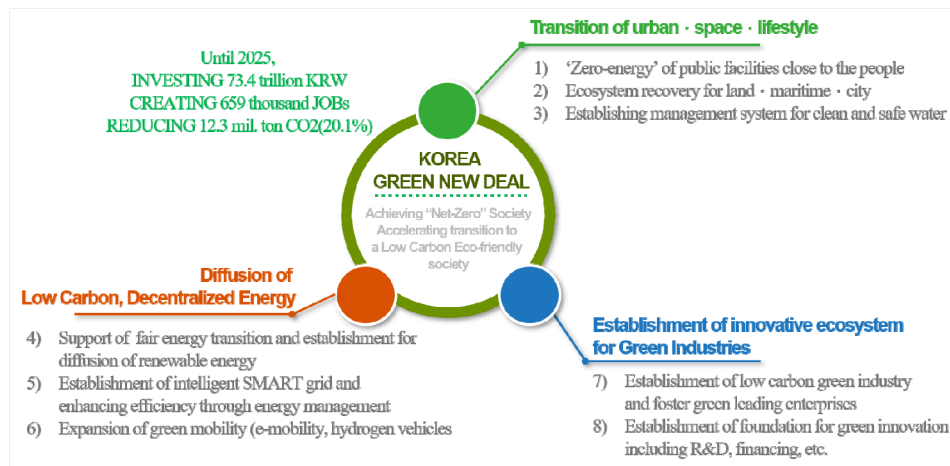


Fig. 1. Concept of Korea Green New Deal, source: Korea Policy Briefing website

As mentioned, the Korean Green New Deal is regarded as a national policy direction to pursue: (1) overcoming the economic crisis through 'New Deal', (2) accelerate transition to a low carbon society to response to Climate Change, and (3) improve the quality of life for the people through innovation. However, mutual consistency between the newly suggested policy direction, the Green New Deal, and existing policies or relevant policy directions is always a concern in the perspective of efficiency and effectiveness. Lack of consistency or interconnection among policies or policy directions causes ineffectiveness/inefficiency in policy implementation and result as overlapping use of the national budget. Thus, an in-depth analysis of the related policy directions and policies in consideration of connection or consistency is necessary to efficiently achieve the expected results. Korea also has existing legislations, policy directions, strategies, and policies related to Green Growth and Climate Change. Therefore, the newly suggested national policy direction, the Korean Green New Deal, is also required to be checked its mutual consistency between existing policies to recognized its inter-relationship.

## 2. Research Purpose and Scope

### 2.1 Research Purpose

This study aims to identify the inter-relationship among policies and national strategies related to Green Growth and Climate Change, including the newly announced Korean Green New Deal through analysis of its interconnections and suggested possible improvements to achieve efficiency and effectiveness in implementation.

### 2.2 Research Scope

The "Framework Act on Low Carbon, Green Growth" was enacted in 2011 as a top-level law related to Climate Change, Energy, and Sustainability. The national strategies based on this Act are such as, "National Strategy for Green Growth", "Five-year Plan for Green Growth", "Basic Plan for Response to Climate Change", "Basic Plan for Energy", "Basic Roadmap to Achieve National Greenhouse Gas Reduction Goals in 2030", and "Master Plan for Sustainable Development." The following table shows comparison of the national strategies and it is recognized that each strategy has different ministries to be assigned for management and supervision.

Table 1. National Strategies based on the Framework Act on Low Carbon, Green Growth

	National Strategy	Planning period	Formulation cycle	Basis clause	Related Ministry	Focusing area
1	National Strategy for Green Growth	Mid- and Long-term	-	Article 9	Office of Government Policy Coordination and 8 others	Integrated
2	Five-year National Strategic Plan for Green Growth	5 yrs.	5 yrs.	Enforcement Decree Article 4	Office of Government Policy Coordination and 8 others	Integrated
3	Basic Plan for Coping with Climate Change	20 yrs.	5 yrs.	Article 40	Office of Government Policy Coordination and 10 others	Climate Change
4	Basic Plan for Energy	20 yrs.	5 yrs.	Article 41	Ministry of Trade, Industry and Energy	Energy
5	Measures for Adaptation to Cope with National Climate Change	5 yrs.	5 yrs.	Article 48	Ministry of Environment and 20 others	Adaptation
6	Basic Plan for Sustainable Development	20 yrs.	5 yrs.	Article 50	Ministry of Environment and 19 others	Sustainability

According to Article 9 of the Act, the government should formulate and implement a national strategy for Green Growth including goals, strategies, and major promoting projects to achieve national Green Growth. In detail, the national strategy should include such subjects as follows: (1) related to realize the green economy system, (2) related to green technologies and industry, (3) related to coping to Climate Change, Energy, and Sustainable Development, (4) related to green lifestyle, green space, and low carbon transportation system, (5) related to international cooperation and negotiation of Low Carbon, Green Growth, and Climate Change, (6) related to financing, (7) related to tax, finance, and capacity building of human resources, (8) related to education and advertisement, and (9) related to others that are considered necessary for Low Carbon, Green Growth.

In accordance, the “National Strategy for Green Growth” sets a long-term vision to achieve Low Carbon, Green Growth in Korea. It specifies the vision by 3 major promoting strategies, 10 policy directions, and 50 action plans to accomplish the vision. In addition, a “5-year Plan for Green Growth” is formulated to execute the national strategy within an efficient and systematic perspective and thus formulates detail 5-year plans for each policy

direction set in the national strategy. The 5-year plan is composed of lower-level plans which have an organic relationship with the higher-level plan. Formulated plans are as follows: (1) “Basic Plan for Coping with Climate Change,” (2) “Basic Plan for Energy,” (3) “Basic Plan for Sustainable Development,” and (4) “Adapting Measures to Cope with National Climate Change.”

The “Basic Plan for Coping with Climate Change” is legally based on Article 40 of the “Framework Act on Low Carbon, Green Growth” and is a highest-level plan that provide the philosophy and vision of responding to Climate Change. This plan provides detailed implementation strategies related to Climate Change response in the national strategy level and provides guidelines to formulate lower-level strategies or related plans. The planning period is set to 20 years in which it is renewed every 5 years in consideration of relationship with other strategies and plans. The first plan was formulated in 2017 though it was early renewed in 2020 to embrace the mitigation goals and means of implementation of the results of the “Basic Roadmap to Achieve National Greenhouse Gas Reduction Goals in 2030” which was formulated in July 2018.

The “Basic Plan for Energy” is legally based on Article

the Basic Act on Low-Carbon Green Growth and the Green New Deal Policy in the Republic of Korea

41 of the “Framework Act on Low Carbon, Green Growth” (hereinafter referred to as the Low Carbon Green Growth Act) and it is the highest-level plan in the energy field which provides the vision and policy direction of related policies. The formulating period is set to be 20 years, and the plan itself is renewed every 5 years. The first plan was formulated in 2008 and the third basic plan has been formulated in 2019.

The “Adapting measures to Cope with National Climate Change” is legally based on Article 48 of the Low Carbon Green Growth Act and is the highest-level plan for Climate Change adaptation to prevent damage caused by Climate Change through proactive management. Therefore, when the adaptation plan is formulated, the central and local government formulates detail implementation plans. This plan also has a formulating period and renewal period as 5 years and the second plan were established in 2016.

The “Master Plan for Sustainable Development” is based on Article 50 of the Low Carbon Green Growth Act which focuses on executing international agreements related to Sustainable Development and accelerate national Sustainable Development. In here, Sustainable Development represents economic growth, integration and stabilization of the society, and environmental conservation within harmony based on the concept of Sustainability. The planning period is 20 years and every 5 years it is renewed. The third Sustainable Development plan was formulated in 2016.

### 3. Analytical Framework

To identify the inter-relationship between national Green Growth policies, (1) the Korean Green New Deal is matched with the lower-level policies which are associated to the action plans of the 10 policy directions provided by the “National Strategy for Green Growth.” Second, (2) the missing policy blind spots are identified and as a result the policy implications are suggested to promote Korean Green New Deal and plans related to Green Growth more effectively. The vision and its framework of the “Nation Strategy for Green Growth” is

shown in the Figure below, which has 4 to 8 action plans for each 10 policy directions.

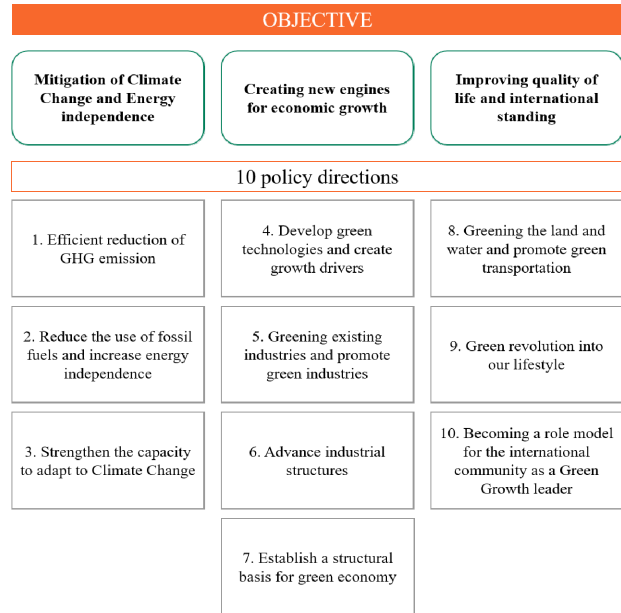


Fig. 2. 10 policy directions of the National Strategy for Green Growth

(Source: National Strategy for Green Growth, 2009)

The first policy direction is “Efficient Greenhouse Gas Reduction”. The Paris Agreement was adopted in 2015 by the worldwide collaborative effort to reduce Greenhouse Gas (GHG) emissions, and the Agreement will start to be effective in 2021. Every participating party has submitted a Nationally Determined Contribution (NDC) to identify and agree its contribution to cope with Climate Change and their accomplishments will be checked every 5 years. As same to other countries, Korea also has promised the international community to contribute to GHG emission reduction by reducing GHG emission up to 37% of business as usual (BAU) by 2030. Therefore, the GHG emission reduction goal is set as the first policy direction and such action plans are established based on following direction: (1) carbon information disclosure, (2) establishment of national GHG emission reduction goal and reduction strategy by sector, (3) expansion of carbon absorption by forestry, and (4) South-North cooperation

for a 'Green Korean Peninsula.'

The second policy direction is to "Reduce the use of fossil fuels and increase energy independence". As of 2019, the portion of energy production is, nuclear power 25.9%, coal 40.4%, gas 25.6%, renewable energy 6.5%, petroleum 0.6%, and pumped water storage 0.6%. This indicates that approximately 66.6% of the energy consumption in Korea depends on foreign energy sources. Even though nuclear power does not emit GHG, the by-products and radio-active waste from nuclear power plants make a debate on continuous use of nuclear power. In this regard, the promoting action plans for this policy direction are such as, (1) establishing a society of high-efficiency and low-consumption of energy, (2) expansion of clean energy, (3) capacity enlargement of nuclear power generation, and (4) capacity building for overseas energy resources.

The third policy direction is "Strengthening the capacity to adapt to Climate Change." Not only mitigation but also adaptation to Climate Change effects is the urgent problem we face, solutions to cope with unexpected climate events are required. Therefore, this policy direction provides strategies covering society-wide sectors such as food, health, and disaster management where such climate events would cause severe problems. In detail, such action plans are included in this policy direction: (1) prediction of Climate Change and establishment of early warning systems, (2) national management of Climate Change response, (3) establishment of national food security system, (4) enhancement of water resource management, (5) use and management of climate-friendly maritime areas, (6) enhancement of disaster management to cope with Climate Change, and (7) sustainable forestry management.

The fourth policy direction is "Developing green technologies and create growth drivers." Regarding the climate crisis as a chance for growth and promoting Green Growth as a new engine for economic growth, development and support for green technologies is essential. To reduce the technology gap in renewable energy with developed countries and promote investment from private sectors, the Comprehensive Measures for

Research and Development of Green Technology has identified 27 intensive fostering technologies (GGGI, 2015) and the current policy direction includes 6 action plans to promote those technologies: (1) Strategic expansion of development of green technologies, (2) establishment of green technology R&D system for efficient promotion, (3) accelerating technology transfer and commercialization of green technologies, (4) establishing infrastructure for green technologies and industries, (5) enhancing international cooperation for green technology R&D, and (6) promoting new growth engines in the field of green technology and related industries.

The fifth policy direction is "Greening existing industries and promoting green industries." The industrial structure of Korea requires high energy consumption and thus greening the industries is essential to promote Green Growth. Moreover, due to the enhancement of regulations of GHG emission and environmental conservation, the industrial sector is required to inherently change to a 'green industry' to adapt to the global change and to preoccupy the global green market and take the lead of it. The current policy direction includes related action plans such as, (1) establishment of a resource circulating economy and industry, (2) green transition and expansion of innovation within the industry sector, (3) promotion of green small- and medium- size enterprises (SMEs), and (4) promotion of a knowledge-driven green cluster.

The sixth policy direction is "Advancing industrial structures." As mentioned previously, the industrial sector requires transition to reduce GHG emission and achieve a low carbon industry. To do so, convergence technologies and industries, and economic service is in progress. Thus, this policy direction includes action plans related to industrialization of advanced technology convergence and promotion of industries for high value-added services.

The seventh policy direction is "Establishment of a structural basis for a green economy." To pursue Green Growth which is a convergence between the economy and environment, economic strategies to foster and support green industries such as finance, institutions, regulations, taxation, and human resource development is required.

This policy direction includes 9 action plans as follow: (1) policy financing for green technology and industry, (2) establishment of green financial infrastructure, (3) development of the carbon market, (4) operation of eco-friendly taxes, (5) tax support for green products and industries, (6) regulation and innovative attraction for low carbon society, (7) energy welfare, (8) promotion of green job creation, and (9) expansion of capacity building for Green Growth.

The eighth policy directions is “Greening the land and water and promote green transportation.” The amount of GHG emission responsible for the building and transportation sector in 2017 is approximately 22.1% for the building sector, 17.7% for the transportation sector and in total 40% (2nd Basic Plan for Response to Climate Change, 2019). In this sector, building and transportation, improvement of social awareness of Green Growth and expansion of related infrastructure is necessary. Therefore, the detail action plans to reduce GHG emission are set up as, (1) renovation in the structure of urban space to establish a foundation for low carbon Green Growth, (2) expansion of space for the natural ecosystem, (3) expansion of green buildings, (4) establishment of green transportation system, and (5) acceleration of bicycle use.

The ninth policy direction is “Greening revolution into peoples’ lifestyle.” This policy direction aims to change the way of thinking into a more eco-friendly way and practice a ‘green lifestyle’ to reduce GHG emission. To do so, policies need to establish a foundation to foster ‘green citizens’ through green education and expand the practicing of green lifestyle through promoting participation of people and enterprises to green campaigns. Moreover, action plans such as accelerating green consumption, establishing green villages and green campaigns, and promoting green tourism are included in this policy direction.

The last policy direction is “Becoming a role model for the international community as a Green Growth leader.” To take the lead of Green Growth within the international community through becoming a role model of Green Growth, such action plans as (1) cooperating and contributing to global Green Growth, and (2) host

international events related to Green Growth are included. Moreover, (3) supporting developing countries for Climate Change response, (4) establishing hubs for green policies and technologies are regarded to contribute as a good practice of Green Growth.

Through comparison and matching of these 10 policy directions and related action plans, the inter-relationship among related policies and national plans can be analyzed whether or not do they have full interconnection among each other. Moreover, if there are any blind spots, this study aims to identify them. Through this analysis, this study aims to suggest how to enhance the policy to be more effective and efficient.

## 4. Result

This study has analyzed the “National Strategy for Green Growth” comparing with other national plans related to Climate Change based on its 10 policy directions and sub-action plans. Each policy direction is discussed to identify its relationship with others as follow.

### 4.1 Efficient Reduction of GHG Emission

The “2nd Basic Plan for Coping with Climate Change” is identified to have most relationship with this policy direction. This plan includes implementation measures to achieve the goals of GHG reduction through (1) establishment of an evaluation framework for quick and transparent inspection of multi-ministerial performance and (2) National Greenhouse Gas and Sectoral Greenhouse Gas reduction plan. The goals of GHG reduction are set up by the “Basic Roadmap to Achieve National Greenhouse Gas Reduction Goals in 2030”, which includes the national GHG reduction goal and sectoral quota for transition, industry, and building sectors.

The “3rd Basic Plan for Energy” includes increase of use of renewable energy and other clean energy sources to achieve sustainable energy-mix in accordance to contribute to the “Basic Roadmap to Achieve National Greenhouse Gas Reduction Goals in 2030.”

The “2nd Measures for Adaptation to Cope with

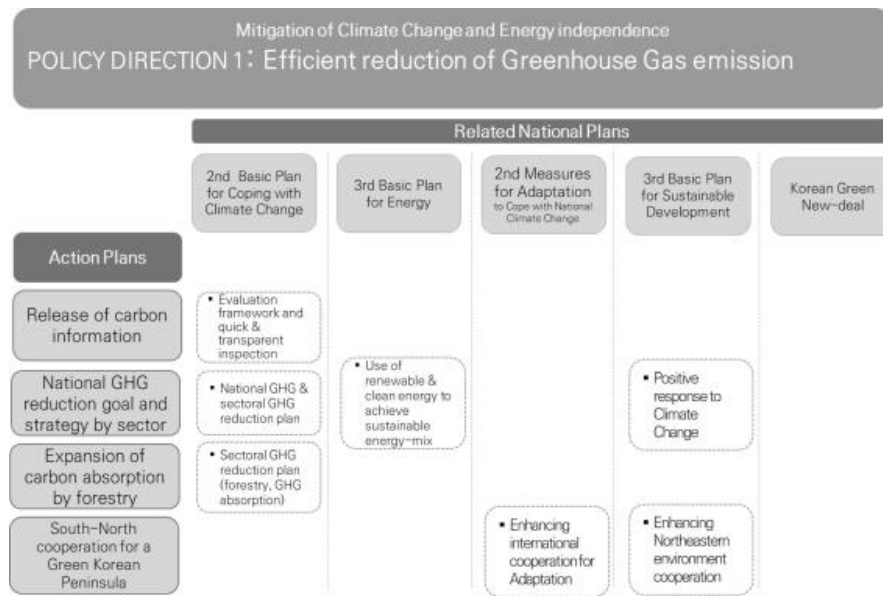


Fig. 3. Relationship between policy direction 1 and other national plans related to Climate Change

National Climate Change” includes (1) establishment of an information system of Korea Peninsula’s climate status through collection and acquisition of North Korea’s climate data and (2) monitoring change and restoration of forestry in North Korea. These sub-plans are regarded to have relationship to the action plan as “South-North cooperation for a Green Korean Peninsula.”

The “3rd Basic Plan for Sustainable Development” aims to achieve the NDC based on the Paris Agreement through enhancing GHG reduction and establish environmental infrastructure such as establishing the “DMZ Peach and Nature Park” through North and South Korea cooperation. These sub-plans have high relationship with the first policy direction of the National Strategy for Green Growth.

#### 4.2 Reduce the Use of Fossil Fuels and Increase Energy Independence

The action plan of the second policy direction, “Establishment of a society of high-efficiency and low-consumption of energy,” has high relationship with the sub-plan of the “3rd Basic Plan for Energy,” innovating the energy consumption structure. The

industrial sector aims to improve efficiency of energy consumption through disseminating high-efficient instruments, expanding Factory Energy Management Systems (FEMS), and establishing smart energy industrial complexes. In the building sector, the existing buildings are evaluated in terms of energy efficiency and the deteriorated ones are supported for green remodeling. For the newly-built buildings, the “Standard of design for energy conservation of buildings” is to be tightened to achieve zero-energy by 2030. The transportation sector aims to improve efficiency of energy consumption through improving fuel efficiency of vehicles, promoting eco-friendly vehicles, and innovating the transportation system. In addition, the Korean Green New-deal has announced to distribute Advanced Metering Infrastructure (AMI) to 5 million households to establish a smart electricity grid to control electricity needs and reduce consumption.

For “expansion of clean energy,” the action plan is related to all national plans except the “2nd Measures for Adaptation to Cope with National Climate Change” and this action plan is the most actively promoted one compared to others. Almost all of the national strategies



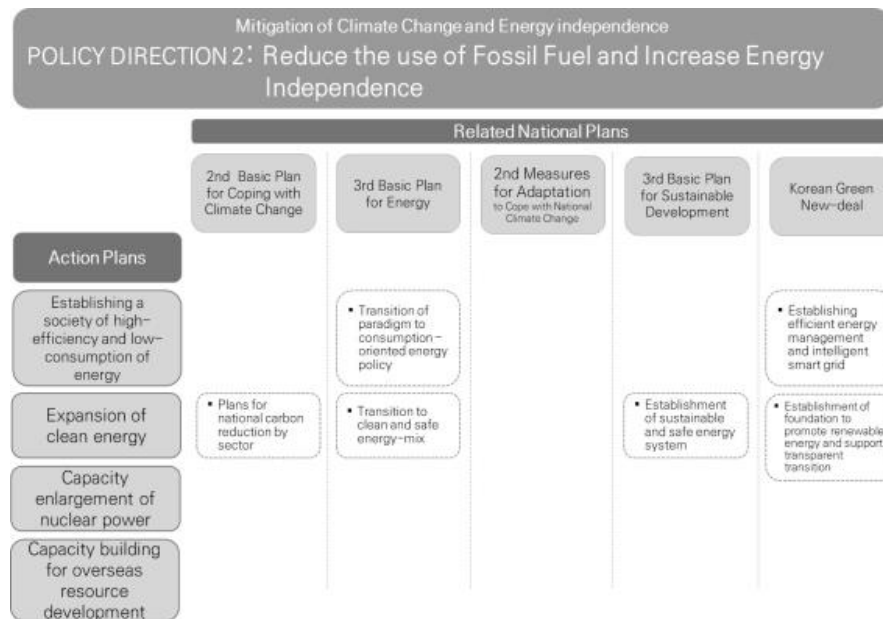


Fig. 4. Relationship between policy direction 2 and other national plans related to Climate Change

include reducing coal-fired electrical power generation and increasing the portion of renewable energy to contribute to disseminating clean power generation. The Korean Green New-deal includes “Green Energy” as one of its 10 major objectives and to specify this the Green New-deal aims to expand projects of R&D, demonstration, and disseminate related facilities to foster the industrial ecosystem of renewable energy such as solar and wind power generation. For this, the Korean Green New Deal invests approximately 11.3 trillion Korean Won until 2025 and aims to create 38 thousand jobs through it.

The action plans such as, “capacity enlargement of nuclear power” and “capacity building for overseas resource development” represent to secure stability and acceptability of nuclear power plants through, (1) expanding facilities of nuclear power plants and (2) establish infrastructure and system for pursuing promising overseas resource development. However, these action plans are based on the philosophy of the previous government and the current government objects this trend

and questions the stability of nuclear power which results actions to reduce the generation by nuclear power plants. Likewise, the investment for overseas resource development also has been reduced in this government.

#### 4.3 Strengthen the Capacity to Adapt to Climate Change

The third policy direction has relationship with all other subject national plans except the “3rd Basic Plan for Energy.” The sub-action plan, “Prediction of Climate Change and establishment of early warning system” is directly related to “Advancing Climate Change monitoring and prediction, and Adaptation evaluation”, which is included in the “2nd Basic Plan for Coping with Climate Change.” Moreover, the “2nd Measures for Adaptation to cope with national Climate Change” also includes “establishment of a multi-dimension framework for monitoring, surveillance, and prediction of multi-sector changes and advanced responding framework for abnormal weather events” that is regarded to have close relationship.

#### 4.4 Develop Green Technologies and Create

#### Growth Drivers

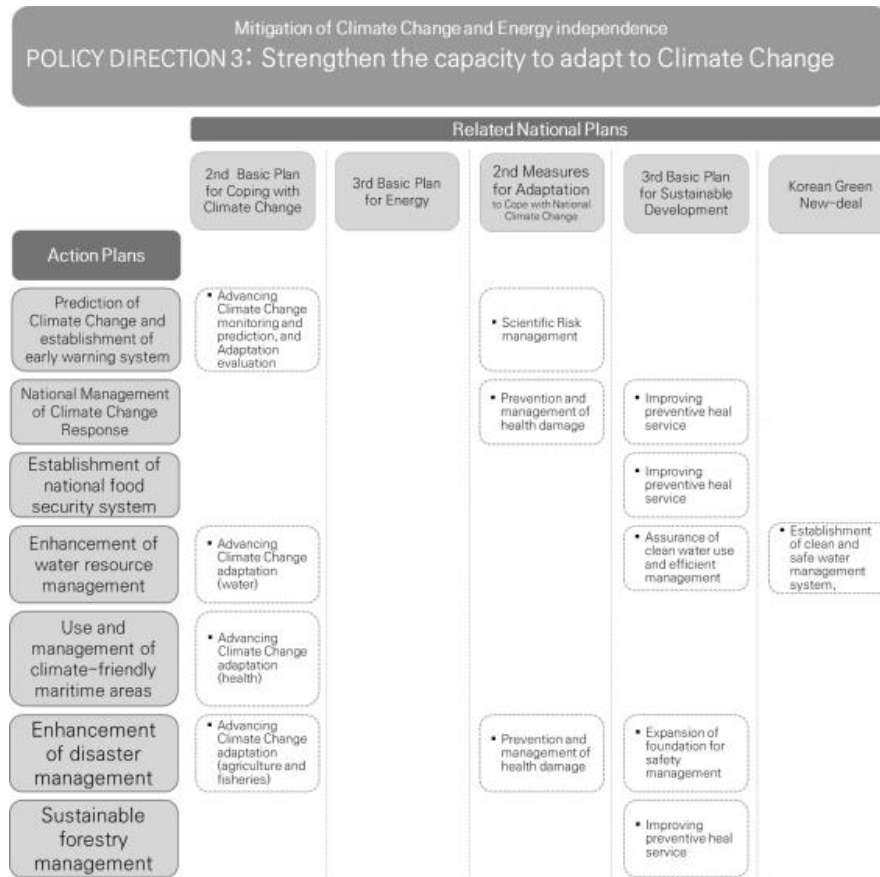


Fig. 5. Relationship between policy direction 3 and other national plans related to Climate Change

“Strategic expansion of development for green technologies” composes increasing the governmental R&D investment for green technologies, and establishing a development strategy based on steps of R&D. Corresponding to this, the “2nd Basic Plan for Coping with Climate Change” promotes development focusing on 10 core technologies and the “2nd Measures for Adaptation” includes R&D of technologies in sectors such as food, water, and agriculture. The Korean Green New-deal includes, (1) demonstration and commercialization large-scale CCUS (Carbon Capturing, Use and Storage) until 2023 for GHG reduction and (2) supports R&D for useful material development such as utilizing carbon

dioxide to chemical fuel until 2024.

“Accelerating technology transfer and commercialization of green technologies” object to enhance the foundation to commercialize results of green technology development funded by the government and promote projects to accelerate commercialization. This is related with the “2nd Basic Plan for Coping with Climate Change”, which supports global cooperation for domestic enterprises to enter the global market. To establish a foundation for climate technology R&D, the same national plan promotes such policies simultaneously: (1) continuous support to source technology R&D, (2) enhancing collaboration

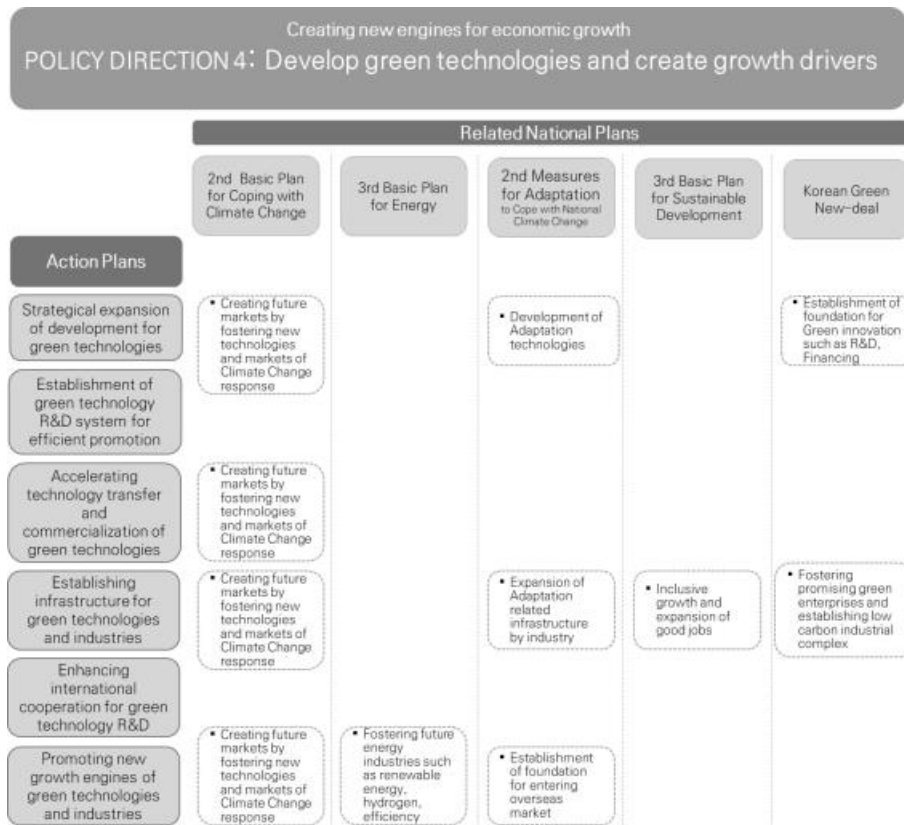


Fig. 6. Relationship between policy direction 4 and other national plans related to Climate Change

among ministries, (3) diversify support for domestic climate technologies to enter the global market, and (4) improve regulations for early commercialization of next-generation technologies. These policies are related to “Establishment of infrastructure for green technologies and industries” of policy direction 4. Similarly, the “2nd Measures for Adaptation” strategy includes expansion of adaptation related infrastructure by industry, and the Korean Green New-deal aims to invest approximately 3.6 trillion Korean Won within 5 years to establish a low carbon green industry complex and foster promising green enterprises and result to create 47 thousand jobs. Related to the last of policy direction 4, “promoting new growth engines of green technologies and industries”, the “2nd Basic Plan for Coping with Climate Change” strategy includes new industries such as energy-prosumer, low

carbon power generation, electric vehicle, and eco-friendly processing. Likewise, the “3rd Basic Plan for Energy” includes fostering the hydrogen industry as a new engine for growth to enhance global competitiveness in the energy industry and in parallel foster industries related to enhance efficiency through collaboration with ICT.

#### 4.5 Greening Existing Industries and Promote Green Industries

Policy direction 5 aims to simultaneously (1) establish a management framework for resource input to waste treatment and recycling and (2) mobilize a resource circulation industry through establishing a market-driven foundation for resource circulation. This policy direction has many relationships with the “Settlement of eco-friendly resource circulation economy” included in

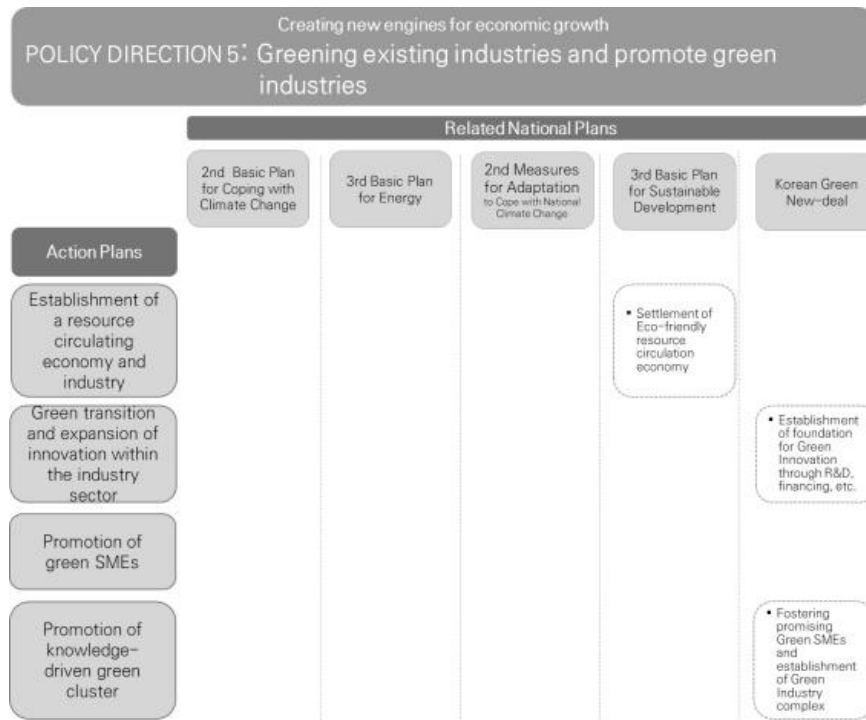


Fig. 7. Relationship between policy direction 5 and other national plans related to Climate Change

the “3rd Basic Plan for Sustainable Development.” The action plan, “Green transition and expansion of innovation within the industry sector”, includes contents such as green innovation of key industries, green transition of industries within the life-cycle and overseas expansion of green industries and increase of export. This is highly related to promoting resource circulation economy through the policy of “Establishment of foundation for Green Innovation through R&D, financing, etc.” which is included in the Korean Green New-deal. “Promotion of knowledge-driven green cluster” consists of establishing the Korean Green Star Cluster and green industrial complex, which are related to the policy of the Korean Green New-deal: “Fostering promising green SMEs and establishment of Green Industry Complex.”

#### 4.6 Advance Industrial Structures

Policy Direction 6, “Advance Industrial Structures” consists of action plans related to higher value-added

businesses such as (1) fostering convergence of cutting-edge technologies including bio, medical and robotics technologies, (2) global healthcare business and (3) global education services. However, the results show that they have no relationship with other national strategies.

#### 4.7 Establishing a Structural Basis for the Green Economy

“Establishing a structural basis for the green economy” includes plans such as (1) establishing infrastructure to utilize policy finance for green technologies and related industries, (2) fostering carbon markets such as Emissions Trading and others, (3) operating eco-friendly tax support system to prevent weakening of industrial competitiveness of domestic enterprises and (4) cultivating experts and job creation of those highly related to green technologies and industries. National strategies that have high relationship with this policy direction are: “2nd Basic Plan for Coping

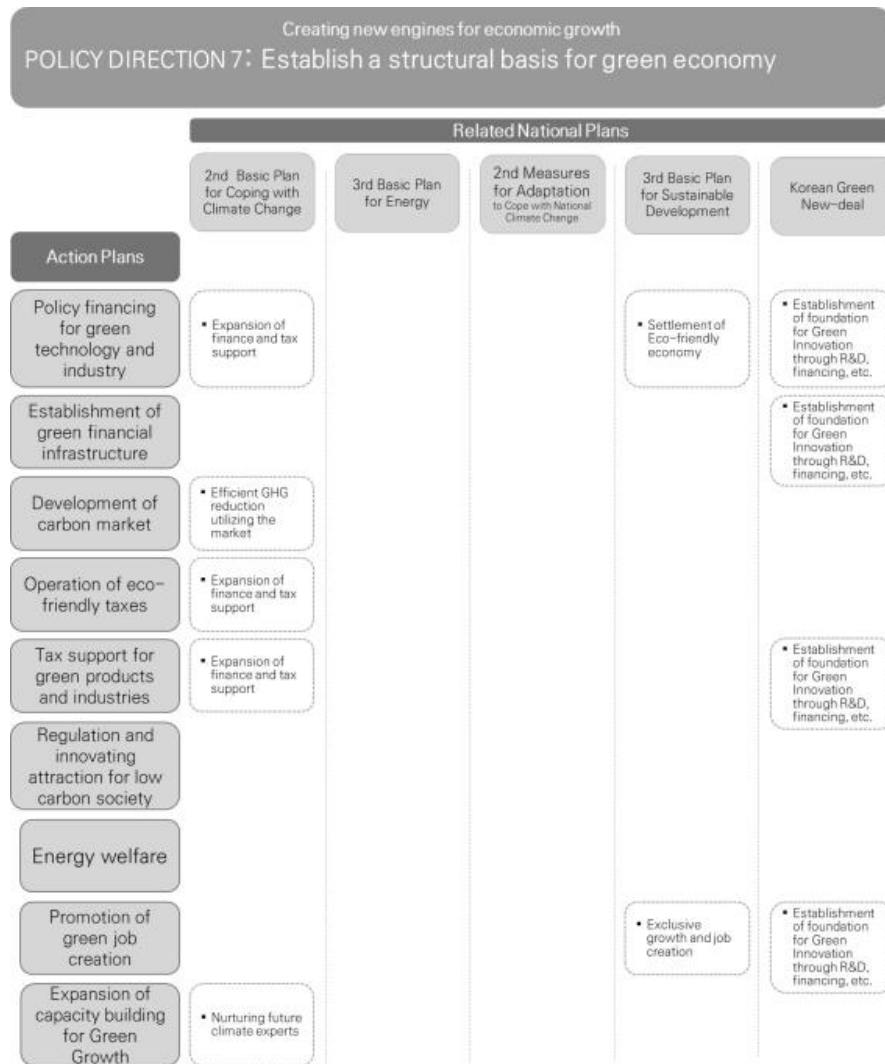


Fig. 8. Relationship between policy direction 7 and other national plans related to Climate Change

with Climate Change”, “3rd Basic Plan for Sustainable Development”, and “Korean Green New-deal” (Fig. 7).

#### 4.8 Greening the Land and Water and Promoting Green Transportation

The policy direction related to green land and transportation has shown relationship with all national strategies. Especially, green buildings and green transportation are regarded as one of the sectors that need to reduce GHG emissions the most and thereby are considered important. The green building sector has a

goal to reduce GHG emissions approximately 32.7% by 2030 and has policies related to (1) promoting improvement of energy efficiency of existing buildings through renovation and (2) reinforcing regulations for applying renewable energy or high-efficient energy apparatus for newly-built buildings. The Korean Green New-deal aims to have public buildings lead the effort to improve energy efficiency in the building sector with the financial support of approximately 5.4 trillion Korean Won by 2025.

For green transportation, the policy direction includes action plans such as increasing the penetration of electric

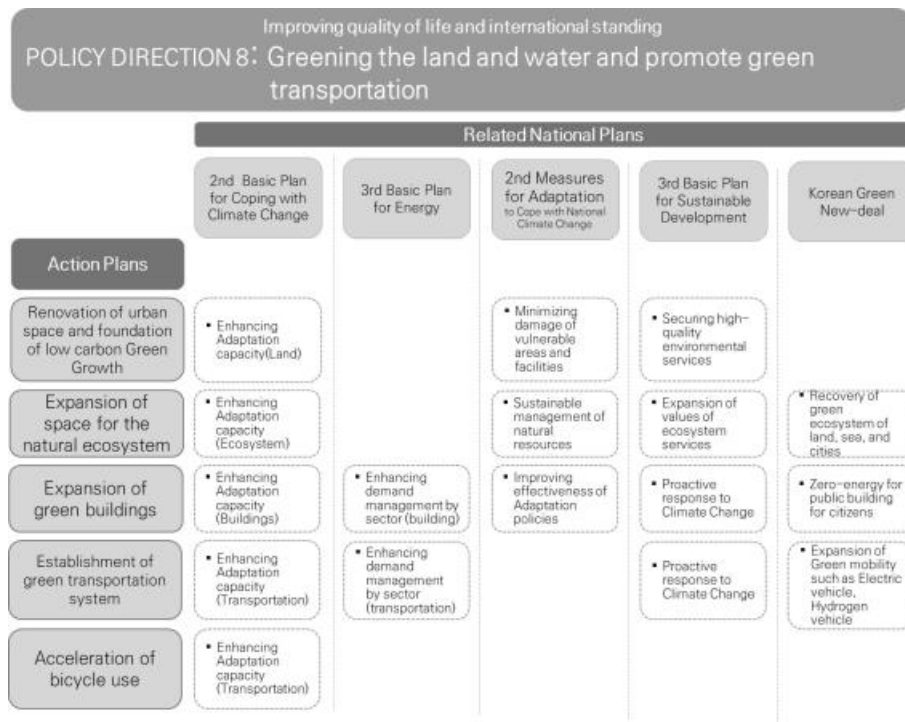


Fig. 9. Relationship between policy direction 8 and other national plans related to Climate Change

and hydrogen vehicles and reinforcing the GHG emissions regulations. The Korean Green New-deal invests 20.3 trillion Korean Won to increase the penetration of electric and hydrogen vehicles and to accelerate the replacement of aged-diesel vehicles and ships by 2025. Through this investment, the Korean Green New-deal expects to create 141 thousand jobs.

#### 4.9 Green Revolution into Our Lifestyle

This policy direction includes action plans such as, (1) green capacity-building for citizens through green education, (2) promoting green consumption, (3) promoting green village with related campaigns, and (4) vitalizing eco-tourism. Most of these action plans are related with the “2nd Basic Plan for Coping with Climate Change” such as, “Increasing awareness of Climate Change among the people”, “Expansion of low-carbon lifestyle.” The “2nd Measures for Adaptation” has detailed policies to raise people’s awareness of Adaptation

through education and advertisement to promote Adaptation activities.

#### 4.10 Becoming a Role Model For the International Community as a Green Growth Leader

In the last policy directions, the aim of becoming a role model for Green Growth consists of action plans such as actively participating for Climate Change negotiations and supporting Green Growth in developing countries. These action plans have relationship with policies such as increasing and enhancing international cooperation for Climate Change of the “2nd Basic Plan for Coping with Climate Change” and enhancement of international cooperation for Adaptation of the “2nd Measures for Adaptation.” Moreover, the action plan, “A country as a role model for Green Growth”, is related (1) establishing a hub for green infrastructure, policies and technologies and (2) fostering and establishing international agencies

the Basic Act on Low-Carbon Green Growth and the Green New Deal Policy in the Republic of Korea

for Green Growth. This action plan has relationship with “Establishment of infrastructure related to Climate Change

such as regulation, organization and governance” included in the “2nd Basic Plan for Coping with Climate Change.”

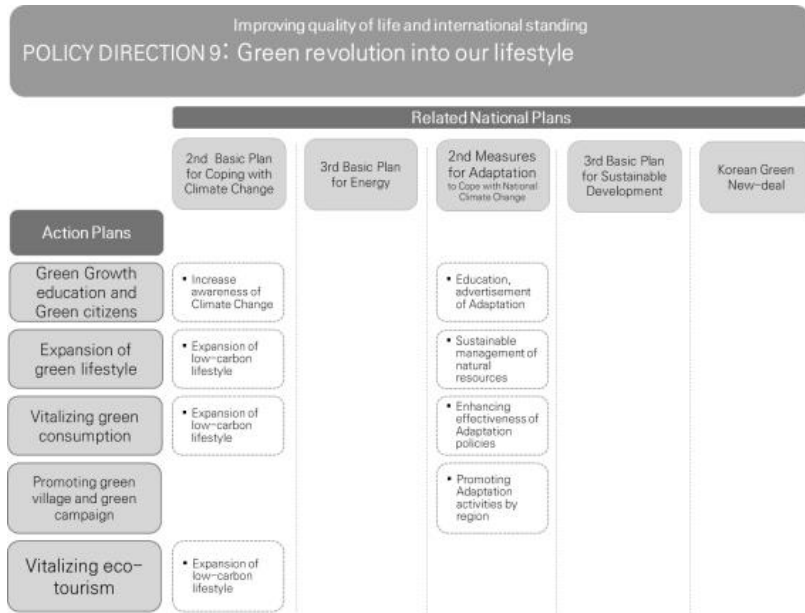


Fig. 10. Relationship between policy direction 9 and other national plans related to Climate Change

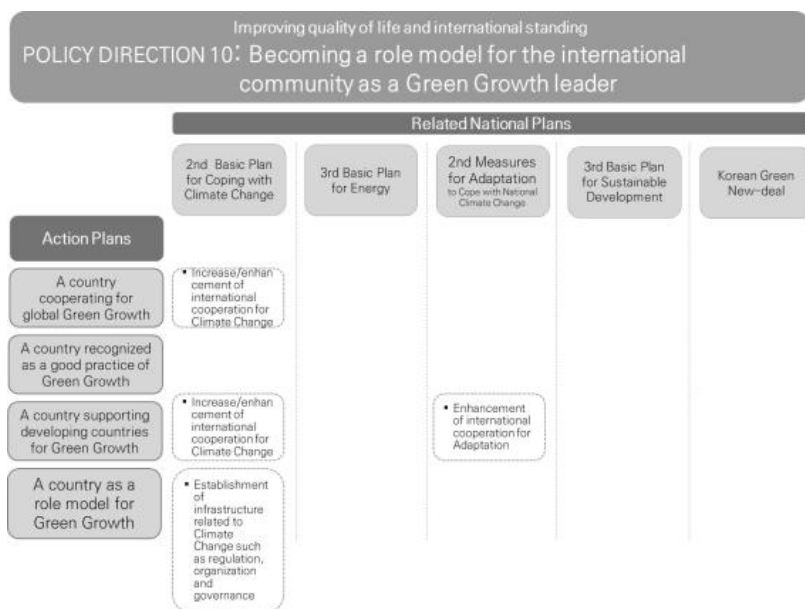


Fig. 11. Relationship between policy direction 10 and other national plans related to Climate Change

## 5. Discussion

The results of relationship between the National Strategy for Low Carbon, Green Growth and other related national plans are shown in Table 3. It is obvious to see that national plans have strong relationship with the policies directions whose objectives are in line with the national plans. For example, (1) the “Basic plan for Coping with Climate Change” has strong connection with the policy direction 1: “Efficient reduction of GHG emissions”, (2) “Basic Plan for Energy“ has strong connection with the policy direction 2: “Reduce the use of fossil fuel and increase energy independence”, and (3) “Measures for Adaptation to Cope with National Climate Change“ has connection with the policy direction 3: “Strengthening the capacity to adapt to Climate Change”.

Moreover, based on the analysis of relationships shown in the Table, the national plans have a broad coverage of the policy directions. One remarkable point is that the “2nd Basic Plan for Coping with Climate Change” has a close relationship with almost all policy directions, except for those related to fostering technologies and industries. The second highest related national plan is the “Basic Plan for Sustainable Development”, which lacks connection with policy direction 6, 9, and 10. The coverage of national plans reflect that the policy directions are well specified through the national plans and strategies.

On the contrary, the “Basic Plan for Energy” lacks inclusiveness, as it only has close connection with the policy directions related to the energy sector. It is understandable due to the purpose and use of the energy plan, though considering the effectiveness and importance of energy, the energy plan is recommended to have more inclusive relationship with policy directions, such as including green industries of the energy sector, advancing industrial structures or promoting green lifestyle to reduce energy consumption.

On the contrary, all national plans do not have relationship with advancing industrial structures for each sector (policy

direction 6). This is a critical point because while the National Strategy emphasizes a need to develop and innovate the industrial sector, none of the related national plans have detailed implementation plans. This should be revised and amended to make sure they have close relationship with each other with a consistent objective.

Other policy directions such as “5. Greening existing industries and promoting new green industries” and “7. Establishing a structural basis for the green economy” are required to be reinforced in each national plans. Considering the technology side, in particular, green technologies are to be supported and developed, and they may affect various areas such as establishing a foundation for green industries; greening land and space; green transportation; and becoming a role model and accelerating international cooperation as a Green Growth leader.

At last but not least, policy directions such as policy direction 8, 9, and 10 should be considered and have relationship with all national plans as considering their characteristics such as overall infrastructure including land and space, greening the lifestyle, and improving the national position in the international community as a Green Growth leader. These characteristics are regarded to have overall relationship regardless of sector and subject, and therefore these policy directions should have more close relationship with all national plans analyzed in this study.

Another point to discuss is that these policies orient to the former government’s public direction. Action plans of policy directions such as “expansion of nuclear power”, “enhancement of overseas resource development”, “fostering convergence of cutting-edge industries as a growth driver”, and “fostering high-value service industry” lack interconnection with current national plans. These action plans were promoted and supported by the former government, though currently all related activities have been halted. Considering that coping with Climate Change and pursuing Green Growth and Sustainable Development require a long-term perspective, long-term consistency is required, ideally beyond the change of government, for policy directions, lower-level policies and action plans.



Table 2. Overall relationship among 10 policy directions of the National Strategy and other policies related to Green Growth

National Strategy for Low Carbon, Green Growth (2009 ~ 2050)		National plans related to Climate Change				
		2nd Basic Plan for Coping with Climate Change (2020~2040)	3rd Basic Plan for Energy (2019~2040)	2nd measures for Adaptation to Cope with National Climate Change (2016~2020)	3rd Basic Plan for Sustainable Development (2016~2035)	Korean Green New Deal (2020~2030)
3 Strategies	10 Policy Directions					
Mitigation of Climate Change and Energy Independence	Efficient reduction of GHG emissions	◎	○	○	○	-
	2. Reducing fossil fuel use and increasing energy independence	○	◎	-	○	○
	3. Strengthening the capacity to adapt to Climate Change	○	-	◎	◎	○
Creating New Engines for Economic Growth	4. Developing green technologies and creating growth drivers	◎	○	○	○	◎
	5. Greening existing industries and promoting new green industries	-	-	-	○	○
	6. Advancing industrial structures	-	-	-	-	-
	7. Establishing a structural basis for the green economy	○	-	-	○	○
Improving Quality of Life and International Standing	8. Greening the land and water and promoting green transportation	◎	○	○	◎	○
	9. Green revolution in our lifestyle	◎	-	◎	-	-
	10. Becoming a role model for the international community as a Green Growth leader	◎	-	○	-	-

◎ Strong Relationship, ○ Partial Relationship, - No Relationship

## 6. Conclusion

This study has identified the inter-relationships between the National Strategy for Low Carbon, Green Growth and related national plans such as (1) “Basic Plan for Coping with Climate Change”, (2) “Basic Plan for Energy”, (3) Measures for Adaptation to Cope with National Climate Change“, (4) ”Basic Plan for Sustainable Development“ and (5) the ”Korean Green New Deal“. Through analysis of National Strategy and related national plans, this study has identified the gaps between the highest-level strategy and lower-level national plans. Results show that the

national plans all have relationship with the highest-level strategy, though blind spots and improvable areas exist. For example, (1) the Energy Plan has a narrow focus on policy directions which should be expanded considering the importance of energy, (2) policy direction related to advancing the industries and industrial structure lacks relationship with national plans, and (3) policy directions related to improving the Quality of Life and leading Green Growth within the international community is insufficiently reflected. These gaps are regarded to be improved to achieve efficiency and effectiveness of Low Carbon, Green Growth in policy level.

It is worth mentioning that this study is an overall review of policies, thus in-depth analysis is required to overcome the gaps and achieve efficiency and effectiveness. For example, in-depth analysis focusing on the Energy Plan to make the plan more inclusive can be done. On the other hand, further studies related to the inter-relationships between policies is also required. For example, (1) analysis of inter-relationship among national plans themselves is required to ensure a more organic policy structure of Low Carbon, Green Growth and (2) comparison of more lower-level plans is necessary to develop practical policy recommendations.

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