Green Growth Policy in Korea: A case study

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Abstract

The concept of Green Growth has been recently advocated in different international venues such as OECD, UNEP, World Bank, IEA, and at the G8 and G20 meetings. Within this framework, South Korea is the first country in the World to make Green Growth Strategy a national one. This article aims to outline the key milestones of this strategy, covering its major achievements, which were made within the first four years of policy implementation. The article highlights how the case of South Korea can provide a reference for other countries, which are planning to apply a Green Growth model for their domestic energy and economic policies.

Introduction

Green Growth is the means by which the current economy can make the transition to a *sustainable economy*. It involves promoting growth and development while reducing pollution and greenhouse gas (GHG) emissions, minimising waste and inefficient use of natural resources, maintaining biodiversity, and strengthening energy security.[1]

Although Green Growth is still a concept in the making, it could be seen as a component of Sustainable Development since it focuses on two of its three pillars: economy and environment.[2]

The concept officially emerged in June 2009, when all 30 country-members (plus Chile, Estonia, Israel and Slovenia) of the Organisation of Economic Cooperation and Development (OECD) signed a Green Growth declaration. The declaration states that the countries will "strengthen their efforts to pursue Green Growth Strategies as part of their responses to the financial crisis, acknowledging that green and growth can go hand-in-hand"[3]. The signed countries approved a mandate for OECD to develop a Green Growth Strategy, to include economic, environmental, technological, and development aspects within comprehensive policy measures.

The concept has been widely advocated in various international venues such as UNEP, World Bank, IEA as well as at the G8 and G20 meetings. However, in spite of the agreed framework, many countries have not yet started applying the Green Growth Strategy in their national policies. The first country that has prominently pursued Green Growth into its national strategy is the Republic of Korea (South Korea).

This article aims to cover the key milestones of the South Korean Green Growth Strategy and how it was developed in the first four years of its implementation. The South Korea can provide an example for those countries, which plan to use the Green Growth model for their domestic energy and economic policies.

Green Growth Strategy in Korea: New Miracle on the Han River?

In August 2008, on South Korea's 60th anniversary, its president declared "Low Carbon Green Growth" as a new vision to lead the country's development over the next 60 years.[4]

The economic and social progress in South Korea is truly admirable. During the last sixty years, South Korea was able to transform itself from one of the poorest agrarian countries in the world to one of the most industrialised. This phenomenon is known as the Miracle on the Han River and refers to South Korea's highly accelerated export-fuelled economic growth, including rapid industrialisation, technological achievement, and exponential rise in living standards.[5] South Korea's GDP is currently ranked 15th in the World[6]. It also has a very high Human Development Index (HDI) of 0.897, which is used as the common measure of the Quality of life in the World.[7] As a consequence of its accelerated economic growth, however, South Korea's emissions almost doubled between 1990 and 2005.[8]

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[1] OECD and Green Growth. p.1. Retrieved from: www.oecd.org/dataoecd/42/28/44273385.pdf on May 8, 2012.
[2] Sustainable development implies a development that meets the needs of the present without compromising the ability of future generations to meet their own with reconciliation of environmental, social equity and economic demands. United Nations General Assembly (2005). 2005 World Summit Outcome, Resolution A/60/1, adopted by the General Assembly on 15 September 2005
[3] OECD and Green Growth. p.1. Retrieved from: www.oecd.org/dataoecd/42/28/44273385.pdf on May 8th, 2012.
[4] Green Growth Korea: Retrieved from: www.greengrowth.go.kr/?page_id=42478 on March 27, 2012
[5] C.H. Park (2009). Admired for Making Something Out of Nothing. The Korea Times, 2009-10-25. Retrieved from: http://koreatimes.co.kr/www/news/nation/2009/10/116_54174.html on March 27, 2012.
[6] In 2011. International Monetary Fund.. Retrieved on March 27, 2012.
[7] "Human Development Report". United Nations. 2011. Retrieved March 27, 2012
[8] OECD (2010), "Korea's green growth strategy: mitigating climate change and developing new growth engines" Economics Department Working Papers no 798. Retrieved from www.oecd.org/officialdocuments/displaydocumentpdf/?cote=ECO/WKP%282010%2954&doclanguage=en

Its current decision to start the Green Growth policy can be seen as an instrumental approach to drive economic growth including the newly emerged *sustainability* paradigm.

Through the Green Growth policy, South Korea aims to become a global leader among low-carbon societies. It also aims to become the 7th Green World Power in 2020, and the 5th by 2050. To achieve these ambitious goals, the government issued a Framework Act on Low Carbon Green Growth in 2009. The legal document defines the milestones of the National Green Growth Strategy, which mainly includes three objectives and ten policy directions.

Since South Korea imports approximately 96% of its primary energy sources,[9] their first objective is to improve energy independence and climate change mitigation. Their second objective is to create new drivers for economic growth such as the development of green technologies and the promotion of the industry's green structure. Their last objective intends to introduce a green lifestyle, and green transport infrastructure, as well as sustainable land and water use.

Milestones of Korean Green Growth Strategy

In 2008 South Korea was the 10th largest energy consumer in the world, consuming approximately 227 million ton of oil equivalent (Mtoe) of primary energy annually[10]. It was also the 10th largest emitter of CO2 (528.1 Mtoe).[11]

To improve its energy independence, the first goal of the National Strategy for Green Growth aims at developing an extensive *application of alternative energy technologies.* This could also help to achieve its national goal of reducing GHGs to 244 million tons in 2020 (a 30% decrease compared to a business as usual projection). The South Korean government, thus, prioritised the following ten strategic-energy technologies in order to support and invest in their Research and Development (R&D). These technologies are: high-efficiency photovoltaic (PV) cells, fuel cells, advanced nuclear power, green cars, smart grid, advanced carbon capture and storage (CCS), water treatment, rechargeable batteries, Light Emitting Diodes (LED), Green IT.

Consequently, Korea plans to become a world leader in the emerging "green" global market for goods and services.

To facilitate the development of technologies and the fulfilment of the Green Growth Strategy, the South Korean government first introduced a Five-Year Action Plan (from 2010 to 2015). In addition to the variety of green development measures included within the plan, South Korea is annually investing approximately 2% of its GDP (around 23 billion USD)[12] in Green Growth actions, which is double the amount recommended by the UN.[13] It also plans to attract private businesses to invest in the new and renewable energy (NRE) field.

Private investments are vitally important for the economics of any country and considered as one of the most important factors determining successful growth in the post crisis world.[14] Moreover, private investments in green businesses have a positive impact on reducing GHG emissions. The Environmental Impact Assessment (EIA) on GHGs, launched in South Korea in 2010, states that from 2010 to 2011, approximately 11.47 million tons of GHGs have been reduced due to the development of 53 new businesses in the Green technology field.[15]

[9] Y. J. Lee Plenary Session. International Symposium of Global COE "Energy Science in the Age of Global Warming". Ajou University, South Korea, 18-19.8.2011
[10] U.S. Energy Information Administration (2012), South Korea Country Analysis Brief. Available at www.eia.gov/countries/cab.cfm?fips=KS. Retrieved from on May 8, 2012
[11] Climate Analysis Indicators Tool (CAIT) version 9.0. (Washington, DC: World Resources Institute, 2012). Available at http://cait.wri.org. Retrieved on May 14 2012.
[12] From the total GDP in 2011 of 1163 billion USD.
[13] National Green Growth Strategy and Five-Year Plan Milestones. http://www.greengrowth.go.kr/?page_id=42450
[14] Spencer M., Leipziger D., Globalization and growth implications for a post-crisis world. The International Bank for Reconstruction and Development. 2010
[15] Green growth Korea. Available at: http://www.greengrowth.go.kr/?p=48341

The first Five-Year Action Plan of the Green Growth strategy includes a four-step strategy, which could help to attract private businesses to the green economy activity. The strategy includes the following steps:

i. *promote strategic R&D and commercialisation of NRE* technologies.
ii. *create new market* to stimulate industrialisation of NRE field.
iii. *facilitate export industrialisation*.
iv. *strengthen growth potential* by providing infrastructure building for private sectors working in NRE technologies fields.

In the first step, the government planned to make considerable investments in the strategic R&D and commercialisation of key-energy technologies to lay the foundation for sustainable growth.

Investment in R&D and commercialisation is thought to trigger the investment of private businesses and therefore facilitate the creation of *markets and faster industrialisation* of NRE technologies. During the implementation of this strategy, around 30 South Korean business groups had already invested more than 15.1 trillion won (around $ 13,6 billion)[16] in the green sector, starting with 2.4 trillion ($ 2.2 billion) in 2008, 5.4 trillion ($ 4.9 billion) in 2009 and 7.3 trillion ($ 6.6 billion) in 2010. These figures represent an increased annual investment of 74.5% between 2008 and 2010. These companies are projected to invest another 22.4 trillion won ($ 20.1 billion) between 2011 and 2013, which is an increase of 48.2% compared to the previous three years.[17]

The third step of the Five-year plan is to develop *an export–oriented NRE economy or mass NRE technologies industrialisation.* In the face of globalisation, the development of the export –oriented economy is considered to be a very important step in the economic growth of any country.[18] In line with this, Korea aims to become a leading exporter of NRE technologies such as: solar cells (PV), bio-energy, light water reactors, fuel cells, coal gasification, smart grids etc. South Korea's goal is to occupy 15 % of the world's PV production and wind energy equipment in 2015.

Finally, to *strengthen growth potential* and to promote a wide participation of private businesses in the Green Growth strategy financial support, tax incentives will be provided. In addition, the industrial regulations for the "green" companies will be simplified.

Conclusion

Since South Korean Green Growth's announcement in 2008, considerable progress has been made. For instance, Korean companies with technologies in the NRE sector have grown 2.2 times in terms of their total number, 3.6 times in the size of employment, 6.5 times in sales, 5.9 times in exports, and 5 times in terms of private-sector investment. It is expected that the expansion of NRE business will create about 27,000 additional jobs in 2012, and 110,000 jobs in 2015. NRE's export income is expected to reach 36 $ billion in 2015 (compared to only 2,6 in 2009).[19]

South Korean public and private sectors are making considerable investments in greening economic growth through the development and commercialisation of NRE technologies. The amount of investments in Green Growth in the year 2011 is calculated to be 3% of Korean GDP or approximately 33 $ billion, which is three times higher than the amount recommended by the UN. However, if this amount of investment is compared with the expected amount of the NRE export income, which in 2012 is expected to be approximately 10.7 $ billion, it seems that Green Growth is not very effective. It is evident that, with the exception of the direct economic effect, other environmental and social benefits are also expected, such as reducing GHG emissions and

[16] 1 US $=1113 Won (in 2012)
[17] http://www.greengrowth.go.kr/?page_id=42474
[18] M. Spence. The future of Economic Growth in the Multispeed World. Lecture. Ca'Foscary University, Venice, Italy. 20.02.2012.
[19] Y. J. Lee Plenary Session. International Symposium of Global COE "Energy Science in the Age of Global Warming". Ajou University, South Korea, 18-19.8.2011

increasing the rate of employment. It is also declared that between 2010 and 2011 approximately 11.47 million tons of GHGs were reduced, which are 4.7% of 2020's goal for national GHG reduction.[20] If the same annual rate of GHG reduction persists until the end of the period (2020), the overall reduction goal will not be reached, since the total reduction amount would only be approximately 42% of the planning. However, the national Emission Trading Scheme (ETS) approved at the beginning of May 2012, could help South Korea to boost emission reduction.

From this perspective, the initial results of the South Korean Green growth policy remain to be seen in the light of future developments. The only hope is that the South Korean green strategy will gain its scale within the next several years and will start to produce comparable results in economic and environmental dimensions.

However, this short overview outlines some important suggestions, which could be useful for other countries in their attempts to promote a green path of their national economies:

1. ***Choose a set of green technologies and products*** for the development and production, according to a country's needs for its globalised market of goods and services. Focusing on certain technologies and their earlier massive development could ensure the country's competitive advantage in the context of global trading.
2. ***Make a plan for Green economic development*** with a specific time frame (5, 10, 20 years) and certain economic indicators to achieve.
3. In the early stages of strategy, it is important ***to make considerable public investments in R&D*** to support the key-technologies as well as further commercialisation.
4. ***Develop an export-oriented industry for NRE technologies*** and attract private businesses by providing a variety of economic preferences, such as tax reduction as well as simplifying bureaucratic procedures.

All these measures could help to reduce GHG emissions as well as ensure the countries' economic growth in an increasingly globalised context, also considering the newly emerged global sustainability paradigm. In addition, the upcoming UN Rio+20 conference in June, which will focus, among other issues, on the green economy in the context of sustainable development and poverty eradication, suggests that the Green Growth strategy is one of the newly emerging models for national development. South Korea's basic structure for the strategy could be very useful for other emerging nations, which plan to rebuild their economies in a more sustainable way.

[20] National Green Growth Strategy and Five-Year Plan Milestones. http://www.greengrowth.go.kr/?page_id=42450