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**BUILDING THE FUTURE WE WANT**

Rajendra K. Pachauri, Anne Paugam, Teresa Ribera, Laurence Tubiana (Editors)

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Spurred on by the strong momentum created by a presidential initiative, an ambitious plan of green growth has been underway in South Korea since 2008. The Green Growth Strategy aimed to shift the development paradigm from fossil fuel dependent growth to a more environmentally-friendly one, utilizing low-carbon and renewable energy resources. South Korea tried to reach its energy security by increasing the supply of low-carbon energy resources, including nuclear energy, and boosting the green energy industry. While emphasizing the synergy between low-carbon measures and economic competitiveness, green growth strategies also triggered a strong industrial boost in the renewable energy sector, which showed a particular focus on the ‘growth’ side in addition to the ‘protection’ side of sustainable development.

However, South Korea’s Green Growth Strategy is also facing a number of challenges. The ‘top-down’ strategies of green growth have had to be readjusted according to changing administrations and policy priorities. Furthermore, moving from the policy vision to actual policy implementation also brought challenges, both to the government and to the related industries. Nuclear energy, one of the key pillars of South Korea’s low-carbon measures, began to be discussed more cautiously under a new socio-political atmosphere in the Post-Fukushima era.

This chapter surveys the evolution of South Korea’s green growth policies since 2008 and discusses the challenges and tasks of its implementation. This study also explores the recently announced ‘Second Five-Year Plan for Green Growth (2014-2018)’ and concludes with perspectives for a more coherent implementation of the Green Growth Strategy in South Korea.


South Korea’s Green Growth Strategy has multiple policy objectives to address the issues of climate change, energy-import dependency, fossil fuel depletion and global economic slowdown. It was also designed as a development paradigm to create a new engine for economic growth beyond the ICT industry through green technology and renewable energy. The transition to a low-carbon economy implies a transformation of key economic sectors, the deployment of new technologies, as well as many lifestyle changes throughout society (Lee, 2013b). In compliance with the new paradigm of green growth, the government also announced the ‘Green New Deal’, an economic stimulus package to cope with the global financial crisis by making use of green technology and investing in environmental industries (Lee, 2013a).1

Driven by a strong political initiative, South Korea’s Green Growth Strategy made noticeable progress in building up its legal base and institutional structure. The Framework Act on Low Carbon Green Growth provided an overarching legal base, while more professional government agencies such as the Presidential Committee on Green Growth (PCGG) enabled more systematic green-growth policymaking. Regarding the energy mix, the first National Basic Energy

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Plan (NBEP, 2008) set a renewable energy target of 11% of the primary energy supply in 2030, a sharp increase from the previous target of 2.14% in 2006 (Lee and Yu, 2012; Lee, 2013b). In the second NBEP (2013), this 11% target for renewable energy remained unchanged in the new plan for 2035 (MOTIE, 2014).

As a key instrument for renewable energy development, the government introduced the Renewable Portfolio Standard (RPS) in 2012, replacing the existing feed-in-tariff system. The RPS target would be increased from 2% in 2012 up to 10% by 2020. It was expected to provide a stable framework for domestic market expansion together with a number of green growth policies such as the Emissions Trading System (ETS), Green Home Project, etc.

The nation’s well-developed industrial infrastructure was regarded as an advantage that could nurture green energy industries. South Korea’s leading heavy industry companies entered the wind power business, while major electronic companies announced their participation in the photovoltaic (PV) cell industry. Furthermore, South Korea’s advanced IT and electronic technology capabilities were able to galvanize the projects in the smart-grid field. In addition, the government’s R&D investment plan was expected to play an important role in filling a technological gap between South Korea and the world’s leading green energy countries (Lee and Yu, 2012).3

As part of its national contribution to combat climate change ahead of the Copenhagen COP in 2009, the South Korean government confirmed a commitment to low-carbon green growth by announcing a midterm target of a 30% GHG reduction by 2020 (according to the business as usual (BAU) scenario). In addition, national GHG reduction targets were established for specific sectors, including transportation (26.7%), buildings (26.9%) and the power generation sectors (34.3%) – again compared to 2020 BAU levels – while the industry sector as a whole was given an 18.2% reduction obligation (Lee and Yu, 2012).

Since the introduction of green growth, there has been a notable development in solar PV and wind energy in South Korea. However, the contribution of wind and solar energy is currently not significant, accounting for 2.2% (wind), 2.7% (solar PV) and 0.3% (solar thermal) of the total new and renewable energy supply (KEMCO, 2014).

The challenges to the Green Growth Strategy in an uncertain environment

The Green Growth Strategy has largely evolved as a new vision and a policy paradigm. As a strong top-down initiative, the idea of green growth has rapidly established itself as a ‘sacrosanct’ political doctrine, serving as a representative symbol of the Lee Myung Bak administration. Low-carbon schemes and the promotion of clean and renewable energy are now widely accepted as best practice in government, business and civil society. Furthermore, a generous budget allocation has broadened the platform of R&D and policy discussion. The Green Growth Strategy has also resulted in the establishment of the Global Green Growth Institute (GGGI) and the Green Technology Center (GTC), while South Korea has also hosted the Green Climate Fund (GCF) – all of which are regarded as major institutional achievements at the global level.

However, South Korea’s Green Growth Strategy has also faced growing challenges, especially in the aftermath of the end of the Lee Myung Bak administration. These challenges lie in the management of the transition from a fossil fuel-based energy structure to a greener one, which often bear a huge economic and social cost. A series of external variables, such as the global economic downturn and an overall recession in global renewable energy industries, has also affected the progress of green growth in South Korea.

Much of the criticism has centred on the overblown expectations of the outcomes. For example, the Four River Revitalization Project, to which the largest share of the Green New Deal budget has been allocated,4 has often

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2. The South Korean RPS mandates power generators operating at over 500 MW to produce a certain amount of their electricity from new and renewable sources.

3. Key energy technologies of green growth include: new and renewable energy (PV, wind, fuel cell, IGCC, biofuel); energy efficiency/carbon reducing technologies (clean fuels, energy storage, efficient lighting, green cars, energy efficient buildings, heat pumps); and electricity/nuclear (nuclear, smart grid, clean thermal power) (Lee and Yu, 1012).

4. Under the Green New Deal, the Four Major River Revitalization project comprises 28.9% of the total budget.
### South Korea’s Green Growth Strategy

#### Key Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2007</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Renewable Energy</td>
<td>2.24%*</td>
<td>&gt;11%*</td>
</tr>
<tr>
<td>Solar Power (global market share)</td>
<td>0.3%</td>
<td>5%</td>
</tr>
<tr>
<td>Green Car Related Jobs (thousand workers)</td>
<td>260</td>
<td>300</td>
</tr>
<tr>
<td>Green Homes (households)</td>
<td>14,500</td>
<td>&gt;100,000</td>
</tr>
<tr>
<td>Share of LED</td>
<td>&lt;1%</td>
<td>30%*</td>
</tr>
<tr>
<td>Share of Nuclear Energy (in terms of electricity capacity)</td>
<td>26%</td>
<td>41%*</td>
</tr>
<tr>
<td>Fuel Economy for Vehicles (&lt;1,600cc)</td>
<td>12.4 km/l</td>
<td>14.55 km/l</td>
</tr>
<tr>
<td>Co-generation Facilities</td>
<td>47</td>
<td>78</td>
</tr>
<tr>
<td>Energy Efficiency Certifications for Buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hybrid Vehicles</td>
<td>1,386</td>
<td>30,000</td>
</tr>
<tr>
<td>Waste Regeneration (%)</td>
<td>1.8%</td>
<td>31%</td>
</tr>
<tr>
<td>Expansion of Carbon Sinks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Participation on Climate Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse Gas Emissions (ton CO₂)</td>
<td>591.1</td>
<td>-30% by 2020 (BAU)</td>
</tr>
<tr>
<td>Climate Change Plans by Local Government (%)</td>
<td>&lt;10%</td>
<td>100%</td>
</tr>
<tr>
<td>Share of ODA on Green Growth</td>
<td>11%</td>
<td>18%</td>
</tr>
</tbody>
</table>

been criticized for its adverse effects on the environment. In addition, nuclear energy was included in the Green Growth Strategy as one of the most important low-carbon measures, but the government’s commitment to nuclear expansion is now facing increasing challenges on safety grounds in the wake of the Fukushima nuclear accident. From an industrial viewpoint, the structure of South Korea’s economy remains unfavourable to low-carbon growth given that the country’s main industrial sectors are energy intensive and export-oriented. On top of this, there are concerns about the effectiveness of the ETS and on the shale gas boom in North America which is forcing renewable energy sectors to compete with the growing use of natural gas. It seems that the ride along the greener path may not be as easy and smooth as we might have hoped.

### Reshaping the framework of the green path

The Park Geun Hye administration has reaffirmed on several occasions its continued support for the green growth paradigm in South Korea. The government adopted the Second Five Year Plan for Green Growth (2014–18) in July 2014, announcing three policy objectives: 1) establishing a low-carbon economy and social structure; 2) realizing a creative economy through the convergence of green technology and ICT; and 3) constructing living conditions that are clean and resilient to climate change. The key contents of the Second Five Year Plan are summarized in Figure 3. Furthermore, it is intended that the ETS will be introduced in January 2015.

However, the perceived priority of green growth policies seems to have decreased and the government appears to have cooled down on the ambitions of the previous

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**FIGURE 2 Ongoing energy diversification**

The Green Growth Strategy has enabled a significant development of renewable energy in South Korea, but without totally changing the country’s energy landscape.
administration. The government agency in charge of
green growth has been transferred from the Presidential
Committee on Green Growth (PeGG) to the Prime Minis-
ter’s Office; while, among some policy actors, the nuance
of green growth has shifted implicitly from being regarded
as a ‘sacrosanct doctrine’ to that of a ‘political taboo’. The
politically overstated nature of the green growth framework
has led to negative repercussions, with the consequence
that the remobilization of political, industrial and social
stakeholders has, for the time being at least, become
another priority for the continued implementation of the
Green Growth Strategy.

The uncertainties regarding global climate change
negotiations present an additional external challenge.
South Korea has taken a proactive stance in the discus-
sions on the post-Kyoto Protocol mechanism. In her
address at the UN Climate Change Summit in September
2014, President Park announced South Korea’s contri-
butution of $100 million to the GCF and underlined the
country’s active role in global cooperation to tackle climate
change. However, the specific scope and terms of South
Korea’s participation in the post-2020 climate change
regime have not yet been fixed and the country’s position
will be significantly affected by the stances of other major
industrial countries.

South Korea’s Green Growth Strategy is still undergoing
a process of consolidation and at this stage it is too prema-
ture to make judgments on whether it has been an overall
success or failure. In terms of a paradigm shift, the idea
of green growth has certainly built a solid platform as a
new growth model in South Korean society. Faced with a
dual challenge of a high dependence on imported fossil
fuel and increasing GHG emissions, the Green Growth
Strategy remains a valid policy framework. The successful

FIGURE 3 Green growth: the second five-year plan

<table>
<thead>
<tr>
<th>Policy Direction</th>
<th>Key Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective greenhouse gas (GHG) reduction</td>
<td>Achieving the GHG reduction goal (30 percent reduction by 2020 relative to the BAU) by implementing the National GHG Reduction Roadmap</td>
</tr>
<tr>
<td>Building a sustainable energy system</td>
<td>Constructing GHG-reduction infrastructure to implement and establish an efficient emissions trading system</td>
</tr>
<tr>
<td>Building the ecosystem of green creative industries</td>
<td>Devising a long-term national GHG reduction goal after 2020</td>
</tr>
<tr>
<td>Realizing a sustainable green society</td>
<td>Ensuring carbon sinks in domestic forests and the ocean</td>
</tr>
<tr>
<td>Strengthening global green cooperation</td>
<td>Developing and commercializing green technologies to cope with climate change</td>
</tr>
<tr>
<td></td>
<td>Promoting green creative industries by encouraging new start-ups and markets based on green technology</td>
</tr>
<tr>
<td></td>
<td>Establishing an economic structure of resource recycling by creating green energy villages</td>
</tr>
<tr>
<td></td>
<td>Strengthening adaptation capabilities by constructing climate-resilient industrial systems</td>
</tr>
<tr>
<td></td>
<td>Expanding environmentally friendly living conditions by encouraging green consumption and low-carbon practices</td>
</tr>
<tr>
<td></td>
<td>Creating green country space by an environment-friendly land-management system</td>
</tr>
<tr>
<td></td>
<td>Ensuring cooperative green governance of different social groups</td>
</tr>
<tr>
<td></td>
<td>Devising an effective scheme for the post-2020 climate change regime</td>
</tr>
<tr>
<td></td>
<td>Strengthening regional and global cooperation on green growth</td>
</tr>
<tr>
<td></td>
<td>Increasing cooperation with developing countries through Green ODA</td>
</tr>
<tr>
<td></td>
<td>Supporting the successful establishment of GCF and expanding cooperation among GCF, OTC and GGGI</td>
</tr>
</tbody>
</table>

Source: Commission on Green Growth (2014).
pursuit of the Strategy will depend on reconfirming the social consensus and political momentum to implement the action plans raised in the Second Five Year Plan. The politically overblown expectations of previous years are being scaled down as South Korea’s Green Growth Strategy currently faces a moment of truth, undergoing a reshaping in terms of its contents and scope so that it can become a more durable long-term national agenda.

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