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THỰC TRẠNG PHÁT TRIỂN KINH TẾ XANH Ở HÀN QUỐC VÀ BÀI HỌC KINH NGHIỆM CHO VIỆT NAM

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Tóm tắt

Trong bối cảnh phát triển bền vững trở thành ưu tiên toàn cầu, tăng trưởng xanh và tăng trưởng xanh bao trùm (Inclusive Green Growth) nổi lên như định hướng quan trọng cho chiến lược chuyển đổi kinh tế. Mục đích của nghiên cứu này nhằm phân tích hiện trạng phát triển nền kinh tế xanh của Hàn Quốc, một trong những quốc gia tiên phong tại châu Á trong triển khai chiến lược tăng trưởng xanh. Qua đó, nghiên cứu tiến hành đánh giá mức độ bao trùm trong quá trình chuyển đổi, từ khung pháp lý, động lực kinh tế đến các hạn chế liên quan đến phúc lợi xã hội, sự tham gia của cộng đồng và tính bất bình đẳng. Trên cơ sở đó, nghiên cứu đối chiếu với bối cảnh Việt Nam, nơi đang từng bước thực hiện chiến lược tăng trưởng xanh giai đoạn 2021-2030 nhưng còn đối mặt với nhiều thách thức về năng lực, công nghệ, nguồn lực và tính công bằng xã hội. Kết quả nghiên cứu chỉ ra những điểm tương đồng, khác biệt giữa hai nước và từ đó đề xuất các định hướng nhằm hỗ trợ Việt Nam thực hiện quá trình chuyển đổi xanh theo hướng hiệu quả, bền vững và bao trùm hơn trong giai đoạn tiếp theo.

Từ khoá: Kinh tế xanh, Tăng trưởng xanh, Tăng trưởng xanh bao trùm, Hàn Quốc, Việt Nam.

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The Current State of Green Economic Development in Korea and Recommendations for Vietnam

Abstract

In the contemporary era, it is obvious that sustainable development has become a global priority; green growth and inclusive green growth are seen as critical strategies for economic transition. Therefore, this study is conducted to analyze the green economy development in South Korea, one of the pioneering Asian countries in implementing green growth initiatives. Accordingly, the level of inclusiveness in Korea's transition process is evaluated through its legal framework, economic drivers, and limitations related to social welfare, community participation, and inequality. Based on this analysis, the research compares Korea's experience with the current situation in Vietnam, where the green growth strategy is being gradually implemented but still faces considerable challenges in terms of capacity, technology, resources, and social equity. The findings identify similarities and differences between the two countries and propose general directions to support Vietnam in pursuing a greener, more sustainable, and more inclusive transition in the coming period.

Keywords: Green Economy, Green Growth, Inclusive Green Growth, Korea, Vietnam

1. Introduction

In the contemporary global context, as sustainable development has become a top urgency, the concepts of green economy and green growth have emerged as central frameworks in international agendas. While the Green Economy was first conceptualized in Barbier (2013) "Blueprint for a green economy" as a new approach to linking economic prosperity with ecological sustainability, green growth is considered a strategy to achieve a green economy through the greening of traditional production and consumption systems. Thus, green growth is the means, while the green economy is the goal, both aiming at sustainable development (Newton & Cantarello, 2014). Additionally, recent theoretical evolution has expanded these concepts to Inclusive Green Growth (IGG). This trend emphasizes that green development must be intrinsically associated with social equity, human rights, poverty alleviation, and equal access to opportunities (World Bank, 2012).

In particular, Korea is one of the pioneer countries in Asia that launched its green growth strategy in 2008, the so-called Korean Green Growth Initiative (KGGI), with heavy investment in renewable energy, low-carbon technologies, and green industries. While the country has achieved notable advancements in innovation and technology, the inclusive social outcomes - such as welfare programs, poverty rate, and inequality, have not advanced in tandem with technological outcomes (Bell, 2016). Consequently, Korea presents a critical case study: a model of success in economic drivers but one that reveals significant gaps in social inclusiveness. Analyzing Korea's transition through the framework of IGG suggests deeper insights into its strengths and limitations.

For Vietnam, although the imperative for sustainable economic development has been prioritized (Duong, 2023), it faces obstacles due to limited resources and regional disparities. In light of Korea's similar emphasis on reducing greenhouse gases (GHG) emission and promoting low-carbon economy (Vietnam Government News, 2021; Hoang et al., 2023; Presidential Committee on Green Growth, 2023), Vietnam could design its suitable green economy strategy for the domestic condition.

Based on the above realities, the research team conducts the study “The Current State of Green Economic Development in Korea and Recommendations for Vietnam”, with the aim of analyzing Korea's IGG performance and proposing policy implications for Vietnam's IGG and green economy.

To achieve this objective, the study addresses the following research questions:

Q1: What is the current state of IGG strategies in Korea?

Q2: What is the current state of IGG strategies in Vietnam?

Q3: What lessons can Vietnam learn from Korea's experiences in developing a green economy, and what solutions can be proposed?

2. Literature Review

2.1. Green Economy

The concept of sustainable development was first adopted in the United Nation (UN) conference in Rio de Janeiro back in 1992. The Brundtland report in 1987 defined that sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (UN. Secretary-General & World Commission on Environment and Development, 1987). The term green economy was first introduced in 1989 by a team of British environmental economists as a response to the Brundtland report (Barbier, 2013; Keeble, 1988). The green economy was chosen as one of the two main themes of the UN Conference on Sustainable Development, called Rio+20 in June 2012 (Barbier, 2012).

Although there is no single internationally-accepted definition of the green economy, major international organizations and governments generally agree on its characteristics (Ryszawska, 2015; United Nations Environment Programme, 2011). Ecological economists characterize a green economy as needing to be “renewable, equitable, and profitable” (Richardson, 2013). This shift requires departing from the “business as usual” paradigm toward one that incorporates regulatory measures and strong financial incentives for innovation and investments in areas like green technologies (Ryszawska, 2015). Objectives of a green economy include “sustaining economic, environmental, and social well-being, reducing GHG

emissions, minimizing biodiversity loss, increasing social equity, and promoting a fairer distribution of wealth” (Richardson, 2013). Notably, the UNEP’s approach allows for shrinkages and reductions (selective de-growth) where necessary, which recognizes the economic status of developing and less developed countries (Park, 2013). Sectors contributing to this vision include “green energy, green transportation, and green design and construction” (Richardson, 2013).

Newton & Cantarello (2014) stated that the green economy is increasingly seen as a practical solution to current world-wide problems surrounding global economic and environment while advancing sustainable development. This perspective is highly supported by other academic reviews that frame the green economy as a field to be invested in, which targets renewable energy, green technologies, biodiversity protection and green infrastructure to promote and achieve sustainable development (Georgeson et al., 2017; Loiseau et al., 2016). Empirical studies further highlight that green innovation and renewable energy policies correlate with improved sustainability indicators, bolstering the potential of green-economy approaches (Lu et al., 2025; Luo et al., 2025).

2.2. Inclusive Green Growth

Although the Green Economy concept successfully links economic growth with environmental protection, it has been criticized for overlooking social equity. (United Nations Environment Programme, 2011) warned that without careful management, the transition to a green economy could worsen existing inequalities regarding costs and benefits. Consequently, the focus has shifted from a purely 'green' approach to 'Inclusive Green Growth.' This evolution recognizes that true environmental sustainability is impossible without simultaneously addressing social gaps, making inclusiveness a mandatory component of development.

IGG has risen as a new critical framework for harmonizing the three competing development pillars, including: “economic prosperity, environmental preservation, and social inclusion” according to Organization for Economic Co-operation and Development (Organisation for Economic Co-operation and Development, 2011). According to Luukkanen et al. (2019), green growth has eventually become the new strategy in economic development since the financial crisis happened (Luukkanen et al., 2019). Nevertheless, the approach to green growth of developed and developing countries is quite different. While sustainable green growth is focused on in developed countries, the case of developing countries is somewhat different as they have to address problems related to poverty and inequality (Luukkanen et al., 2019; Sun et al., 2020).

From a theoretical standpoint, a central foundation of IGG lies in how it corrects market failures associated with environmental externalities. Stiglitz (2015) emphasized that traditional growth models underestimate or ignore the social costs of carbon emissions, leading to inefficient and inequitable resource allocation. Similarly, Hallegatte et al. (2012) argued that

IGG provides an institutional framework for internalizing negative externalities through carbon pricing, pollution taxes, regulatory standards, and green incentives. From this perspective, IGG is not only about promoting environmentally friendly growth but also about restructuring markets to reflect true societal costs and distribute burdens more fairly.

Beyond central governance, IGG also depends on local and community-level governance arrangements. Ostrom (2010) showed that polycentric governance, where decision-making is distributed across local governments, communities, and stakeholders, often produces more effective and adaptive environmental solutions than centralized systems. This is particularly relevant in areas such as local renewable energy, community-based climate adaptation, and natural resource management. Incorporating community-level perspectives therefore strengthens the inclusiveness and practicality of IGG.

Albagoury (2016) argued that the ultimate goal of IGG is to ensure well-being in both the present and future. According to Bouma & Berkhout (2015), the inherent trade-offs between achieving ecological sustainability, promoting social equity and maintaining economic growth should not be neglected. From these two perspectives, it can be said that IGG is a strategic approach to preserve the well-being of the current and future generations, however, following this approach requires acknowledging and managing the difficult balance between social fairness, economic progress and environmental sustainability. IGG does not focus solely on a single development dimension, but it demands integrated strategies that harmonize these priorities.

Many empirical studies measured IGG quantitatively utilizing different methods such as entropy-weight methods, factor analysis, or network analysis. Xu et al. (2025) constructed an IGG Performance Index applied for 271 Chinese cities and reveal significant spatial disparities and regional evolution over a period of time. Similarly, Zhou (2022) developed a multidimensional index to measure economic growth, equal access to opportunity, green production and consumption, and environmental protection. Liu et al. (2021) adopted a different perspective when applying entropy weighting to assess regional inequality in IGG. Furthermore, one of the most notable frameworks remains the IGG Index developed by the Asian Development Bank (2018), which provides an easy-to-use benchmark for policy makers and stakeholders to measure the quality and inclusiveness of green development.

The “inclusive” dimension is critical given rising inequality and the unequal distribution of environmental burdens (Raworth, 2012; Ross, 2019). Scholars warn that Green Growth without equity considerations may reinforce existing disparities or contribute to ecological overshoot (Hickel & Kallis, 2020; Victor, 2008). Debates continue regarding the relationship between Green Growth, IGG, and sustainable development. The Organisation for Economic Co-operation and Development (2011) conceptualized Green Growth as a measurable subset of sustainable development, while critical scholarship argues that efficiency-based strategies may be insufficient in the face of climate constraints (Hickel & Kallis, 2020). As a result, IGG

has become closely linked to the Sustainable Development Goals and efforts to redesign national statistical systems to track distributional outcomes (United Nations Development Programme, 2018).

At the same time, scholars emphasize the political-economy limits of the IGG. Hickel (2020) contended that structural inequalities in global production and resource consumption may undermine efforts toward green and inclusive development, particularly when high-income countries outsource environmental burdens to developing nations. Newell (2021) noted that entrenched interests, especially from fossil-fuel industries, can hinder policy reforms and distort green transition outcomes. These limitations highlight that IGG must be understood within broader geopolitical and economic power structures rather than as a purely technocratic agenda. Early experiences from Korea, a leading adopter of Green Growth, show that rapid implementation initially underemphasized social equity (Gunderson & Yun, 2017).

To operate these concepts, key policy tools identified in the literature include carbon pricing, environmental taxation, public investment in green Research and Development (R&D), green finance instruments, and international technology partnerships (Aldy & Stavins, 2011; Organisation for Economic Co-operation and Development, 2011; Stern, 2006; World Bank, 2012).

3. Research Methodology

This study employs a qualitative research design, focusing on Korea as a representative of green economy development within the dimension of inclusive green growth. The case study approach is appropriate as it allows assessment of the current situation, trends, models, and policies, as well as strategies for green economy development in Korea.

The research is guided by descriptive comparative research analysis and relies primarily on secondary data sources. Data sources include official government definitions, reports from ADB, OECD, UNEP, UNDP, IEA, World Bank, as well as peer-reviewed academic articles and reports.

By comparing South Korea's green economy development practices with those of Vietnam - a country pursuing a green economy model - the research team aims to provide a thorough and insightful evaluation of green economy development, thereby deriving valuable lessons and contributing to proposing suitable solutions to promote the transition to a green economy model and in Vietnam.

4. Result

4.1. Korea's current state of Inclusiveness in Green Economy transformation

Korea's transition towards a green economy presents a rapid, state-led transition that has achieved significant industrial milestones while coping with complex challenges in social inclusiveness. As a developed nation with a robust industrial foundation, Korea has positioned Green Growth as a national strategy to simultaneously drive economic expansion and environmental sustainability. However, the extent to which this growth has been inclusive, equally benefiting the whole society, remains scrutinized. This section therefore examines the current state of Korea's green transformation, analyzes its legal framework, economic drivers and emerging gaps in social equity throughout its implementation.

4.1.1. Korea's Legal Framework and National Strategy for Inclusive Green Growth

Korea has long been a global leader in the field of Green Growth (J.-H. Lee & Woo, 2020). Since the vision "Low Carbon, Green Growth" was carried out by President Lee Myung-Bak in 2008, Korea has constructed a comprehensive legal framework and national strategies to guide the country's sustainable economic development for the next 60-year period (Global Green Growth Institute, 2016).

The inclusive development concept has been integrated deeply inside the National Strategy and its guiding principles. It is emphasized that all members of the society should be benefited while incorporating green growth, stating that targeted support programs, skills development initiatives, and social safety nets should be carried out to protect vulnerable groups and sectors through economic transformation (Korea Ministry of Environment, 2021).

In September 2021, through the enactment of the Carbon Neutral Green Growth Framework Act, a comprehensive legal framework for IGG of Korea was formally established. Additionally, this law superseded the earlier Framework Act on Low Carbon Green Growth which was carried out back in 2010. This materializes the Korea Government's commitments to achieve carbon neutrality by 2050, reduce GHG emissions by 40% by 2030, and align with the UN Climate Change commitments (Korea Ministry of Environment, 2021; Presidential Committee on Green Growth, 2023). The proposed strategy aims to achieve sustainable economic growth, environmental protection, and advancement toward carbon neutrality while ensuring social equity through integrating economic innovation with low-carbon transition.

Korea's Legal Framework and National Strategy for IGG illustrate a comprehensive commitment to achieve balanced economic competitiveness, environmental sustainability, and social inclusivity. These specific targets altogether provide a clear pathway for the economic transition; however, it still requires many efforts to overcome significant changes in technology transfer, financing mechanisms, and industry adaptation (Global Green Growth Institute, 2016; OECD, 2018; Presidential Committee on Green Growth, 2023).

4.1.2. Economic Engines: The Development of Green Industries

Korea's economic transition began with the KGGI, launched in 2008 under President Lee Myung-bak as a paradigm shift to overcome the global financial crisis. KGGI was fundamentally an industrial strategy designed to create "new growth engines" by investing 2% of the annual GDP into green sectors, such as renewable energy and energy efficiency markets, proving that environmental protection could drive economic development (Randall & Byungseo, 2011; United Nations Environment Programme, 2011).

Building upon KGGI, the Moon Jae-in administration launched the Green New Deal (GND) in 2020 as a core pillar of the post-COVID-19 recovery strategy. While KGGI focused on hardware infrastructure, the GND aims to accelerate the transition by integrating "Digitalization" with "Decarbonization." The government committed 73.4 trillion KRW (approximately 61 billion USD) by 2025 to focus on three key areas: green transition of urban infrastructures, low carbon decentralized energy, and innovation in the green industry, creating approximately 659,000 jobs and actively supporting green Small and Medium Enterprises (SMEs) to enter the global supply chain (Government of the Republic of Korea, 2020).

A consistent economic success spanning both the KGGI and GND eras is Korea's cultivation of global competitiveness in green mobility. Under the "Hydrogen Economy Roadmap" (2019), Korea has positioned itself as the world's leading producer of hydrogen fuel cell vehicles, viewing hydrogen not just as an energy source but as a new export commodity (International Energy Agency, 2021). The cumulative effect of continuous R&D support since the KGGI era has allowed Korean conglomerates (Chaebols) like Hyundai, LG Energy Solution, and Samsung SDI to capture a dominant share of the global electric vehicle battery market outside of China. Korean battery manufacturers held a 48.6% market share in the global market excluding China in 2023 (SNE Research, 2024). This market dominance serves as empirical evidence of the effectiveness of the government's sustained industrial support, known as the 'K-Battery Development Strategy' (Ministry of Trade, Industry, and Energy, 2021).

To ensure the economic sustainability of these initiatives, Korea implemented the Korea Emissions Trading Scheme (K-ETS) in 2015. As the first nationwide mandatory cap-and-trade system in East Asia, K-ETS covers roughly "79% of national GHG emissions in 2022" (International Carbon Action Partnership, 2024). By putting a price on carbon, the K-ETS has shifted the economic behavior of major industrial players, incentivizing them to invest in cleaner technologies.

According to Y. Lee (2024), in 2024, the Korean government decided to allocate an amount of 420 trillion Won (\$313 billion) derived from the state budget into the green financing. This plan is expected to finance projects that contribute to the goal of mitigating greenhouse gas emissions by merely 40% from 2018 levels by 2030, potentially cutting about 86 million tons of emissions, and will put an emphasis on low-carbon facilities, renewable energy and green technologies (Y. Lee, 2024). Furthermore, regarding the nuclear energy sector, Korea has officially begun construction on two new nuclear reactors (Shin Hanul units 3 & 4). These

new APR1400 units are expected to finish by 2032 and 2033, highlighting the renewed commitment of Korea to revitalize the domestic nuclear power energy as a low-carbon power source (World Nuclear News, 2024).

Korea's green technology sector has solidified its role as a key export engine. The market size for green technology and sustainability reached approximately \$435 million USD in 2024 and is projected to grow at a compound annual growth rate (CAGR) of 15.18% through 2033 (IMARC Group, 2024). In the renewable energy sector, despite policy shifts favoring nuclear power, Korea installed 2.5 Gigawatt of new solar capacity in 2024, bringing total cumulative capacity to over 29.5 Gigawatt (PV Magazine, 2025). Furthermore, export finance data from 2020-2024 reveals a strategic pivot: while fossil fuel funding remains high, clean energy financing is rapidly increasing, with battery manufacturing accounting for nearly 12% of total energy-related public export finance. This shift is projected to create over 110,000 new jobs in the clean energy value chain by 2035 under Net-Zero scenarios (SFOC, 2025).

4.1.3. Drawbacks of Korean Green Growth

Despite notable achievements, South Korea's green transition remains incomplete, largely due to the structural limitations of its developmental environmentalism approach (S.-Y. Kim & Thurbon, 2015).

Firstly, the limitations of Korean Green Growth lie in its failure to encourage citizen involvement and dependence on a top-down approach. Neither KGGI nor GND was implemented with public awareness and community engagement (J.-H. Lee & Woo, 2020). Kamal-Chaoui et al. (2011) further noted that local governments complied with the central government to execute green growth programs with strong financial aid from the national governments. This is because tailoring green initiatives to urban conditions is a time-consuming process, and public knowledge remains limited. This consequently leads to compliance with central government guidelines and imitation cases of other cities (H. H. Kim & Kim, 2009). Moreover, Fraser et al. (2006) claimed that a bottom-up approach involving community engagement is often perceived as time and resource intensive. Therefore, passive compliance creates few incentives and leads to inefficient outcomes.

Secondly, Korean green growth policies neglect social outcomes and inclusiveness. Little effort has been made to improve social welfare, such as pension, unemployment, food and farming, and energy equality (Bell, 2016; Kwon, 2014; J.-H. Lee & Woo, 2020; Yun & Park, 2016). Correspondingly, the creation of green jobs is negligible, though being the main outcome of Green Growth (Ha & Byrne, 2019). These shortcomings lead many critics to argue that the two mentioned green growth programs accelerated the country's speedy industrial transformation.

Thirdly, technology-driven beliefs in the Korean government reinforced business-friendly approaches and resulted in funding misallocations. This resulted in unequal investments, with

heavy financial support for technological and energy R&D within enterprises, while that renewable energy was largely overlooked. Moreover, prioritizing economic benefits over environmental changes in response to climate change also demonstrated Korea's policies to provide incentives that motivate enterprises to develop electric and hydrogen energy cars (Georgeson et al., 2017; Kim B., 2020; J.-H. Lee & Woo, 2020). This imbalance consequently creates constraints for the expansion and implementation of renewable energy systems.

Finally, the execution of green growth initiatives in Korea was ineffective due to policy inconsistencies and definitional ambiguities. Firstly, Yoon & Sim (2015) highlighted that political and administrative reluctance, together with inconsistent financial support, have contributed to the most hindrance to developing green programs. Secondly, ambiguous energy classifications further create constraints on green economy transformation. Korea's classification of "new and renewable energy", in which new energy included hydrogen, fuel cell, and residual oil gasification converting from fossil fuels (Korea Legislation Research Institute, 2004), led to the suggestion made by academic critics that new energies should be viewed as renewable energies. This confusion led to the overstatement of energy production rate higher than the actual outcomes (In-dong & Jeong, 2012). Finally, due to a swift shift on policy tools promoting renewable electricity generation, namely from Feed-in tariffs to renewable portfolio standards, Korea experiences a failure in policy implementation. Although FIT was considered a more effective policy, to promote renewable energy in Korea (Yoon & Sim, 2015), it was replaced by RPS, due to large financial burdens. However, RPS itself received improper fiscal support from the government and delivered limited impact. Consequently, neither FIT nor RPS contributed to the long-term goals of the Korean green economic transition.

In summary, South Korea's experience reveals several limitations related to its top-down approach, the imbalance of "growth first, equity later," the ambiguous classification of "new energy," and insufficient fiscal commitment in green energy policy. Specifically, for Vietnam, the latter two lessons are particularly significant. First, the ambiguous classification of "new energy," which inflated renewable energy statistics and generated misleading policy signals, highlights the risks of building policy on an unclear classification system. Second, the successive decline of both FIT and RPS due to insufficient fiscal commitment demonstrates that green energy instruments, however well-designed in theory, will fail without a stable and dedicated financing mechanism. These two structural weaknesses are directly relevant to Vietnam's current policy design and are therefore addressed in the recommendations.

4.2. Vietnam's current state of Inclusiveness in Green Economy transformation

Currently, Vietnam is undergoing a critical transformation from a traditional linear economy to an IGG model. During this phase, there have been some achievements so far such as a legislative foundation and rapid sectoral expansion. However, this major shift still faces many substantive challenges that must be addressed. To provide a comprehensive assessment

of Vietnam's current green development landscape, this following section will discuss 3 key points: the institutionalization of national strategies, the appearance of new green economic engines and some existing difficulties related to social inclusiveness and equity.

4.2.1. Vietnam's Legal Framework and National Strategy for Inclusive Green Growth

On October 1st, 2021, Vietnam's comprehensive legal framework for IGG was established through Prime Minister Decision No. 1658/QĐ-TTg which approved the National Green Growth Strategy for the 10-year period from 2021 to 2030, vision to 2050. The strategy is to promote economic structure linking with innovation in the growth model to achieve economic growth, sustainable development toward a green economy, and carbon neutrality. (Vietnam Government News, 2021; Thu Hang, 2025).

In the National Strategy for the period from 2021-2030, Vietnam Government has integrated the social concepts. In the guiding principles section, "people-centered" development is stated: "Green growth places the people at the center and helps reduce human vulnerability to climate change; encourages each person to maintain a lifestyle that is responsible to the community and to society, provides guidance to the future generations with regards to the green living culture while also establishing a civilized and modern society that is in harmony with nature and the environment.". Additionally, the word "inclusive" appears multiple times in the strategy, particularly in the first guiding principle, where it is described as a core principle (Vietnam Government News, 2021)

However, success depends on the ability to overcome challenges on capacity, finance, and social awareness. Active participation of the entire political system is essential to translate strategies into reality. Integration of knowledge, advanced technology and innovation, combined with education and raising awareness about green growth, will be the key for Vietnam to become a leading nation in sustainable development in Southeast Asia and globally (Vietnam Government News, 2021)

4.2.2. Economic Engines: The Development of Green Industries

One of the most crucial driving forces enhancing the green growth in Vietnam in recent years has been the rapid expansion of green economic sectors, bearing a resemblance to the development model "growth engines" successfully implemented in Korea. First, the renewable energy sector has experienced significant breakthroughs in solar and wind power, with many large-scale projects approved and implemented, attracting both domestic and international investment capital, especially from the private sector (Ha, 2025). Additionally, in 2025, nearly 40% of Vietnam's territory is considered suitable for wind power development (Vietnam Economic News, 2025).

According to Anh Tuyet (2024), billions of U.S dollars have poured into Vietnam regarding growth-green sectors such as renewable energy, waste treatment and green

technology manufacturing. One of the most striking examples recently is LEGO's \$1 billion factory in Binh Duong (VSIP 3), which is committed to running entirely with clean energy (Ba Son, 2025). All of the factory's facilities will be operated using rooftop solar panels which meet Leadership in Energy and Environmental Design Gold standards and contribute to carbon neutrality (LEGO Group, 2025; Phuong, 2025). This proves how Foreign Direct Investment (FDI) can serve as a green growth engine which helps Vietnam to transfer from traditional manufacturing to sustainable industrial production.

Furthermore, there has been huge development in the green agriculture sector. According to Trinh (2023), some technical solutions have been widely applied in rice farming, which then lead to benefits in practice such as Integrated Pest Management (IPM), “3 Reductions 3 Increases”, “1 Must 5 Reductions” and intermittent irrigation technique. These have improved product quality, productivity and reduced greenhouse emissions. In addition, the area used for organic cultivation has increased significantly from about 77,000 hectares in 2016 to approximately 240,000 hectares in 2022 and to merely 495,000 hectares by the end of 2023 (Nguyen & Pham, 2022; The Central Committee's Policy and Strategy Committee, 2024). Noticeably, organic agriculture is being implemented across nearly all provinces and cities nationwide and this trend is spreading vigorously (Nguyen & Pham, 2022).

4.2.3. Social Inclusion: Challenges and Limitations

Although Vietnam has identified green growth as a key orientation for the period 2021-2030, social factors, especially inclusiveness, have not been adequately integrated during implementation. Many studies and evaluation reports show that the green transformation in Vietnam still remains significant gaps, especially when compared to countries with more advanced green economy frameworks such as Korea.

a. Green Jobs

According to International Labor Organization (ILO) standards, green jobs increasingly require high technical qualifications, new technological skills, and specialized knowledge in renewable energy, environmental standards, environmental, social and governance, or the circular economy. However, Vietnam's current labor structure does not yet meet these requirements.

As a matter of fact, the proportion of workers with certified training remains low (around 23%), while unskilled and informal workers still make up most of the labor force (Hoa, 2020). Furthermore, Vietnam currently lacks an official legal definition of green jobs together with a unified set of criteria for classification, statistics, and assessment. The existing document is mainly based on estimates from international organizations such as the ILO or the World Bank (Hoi, 2025). Also, although the demand for green labor is increasing rapidly (the World Bank forecasts it could reach 41% of total employment soon), the supply of high-quality labor is not

keeping up. As a result, this creates a significant green skills gap, becoming a major barrier to the green transition process (Sputnik Viet Nam, 2025).

All things considered, the gap in skills, awareness, and data is hindering workers' equitable access to opportunities in the green economy for Vietnamese workers.

b. Participation of Small and Medium Enterprises

Clearly, it is seen that SMEs often lack capital and have limited access to green financing to invest in clean technology, upgrade management systems, or implement emission-reduction processes despite accounting for 98% of all businesses in Vietnam (Hai Phong Union of Science and Technology Associations, 2023). This also hinders SMEs from meeting the requirements of the international market, particularly in the textile, footwear, and agricultural sectors (Hai Phong Union of Science and Technology Associations, 2023; Hanoi Times, 2020). Simultaneously, limitations in knowledge and awareness lead many SMEs to view green transformation as a “luxury” or an ethical choice rather than a core driver of economic value. Consequently, this leads to delayed action and reduced ability to engage in the green supply chains of large corporations (Khanh, 2023).

Overall, constraints in capacity, resources, and awareness among SMEs create a significant gap in inclusiveness within Vietnam's green transition ecosystem.

c. Inequality in Access to Benefits (Access & Affordability)

Apart from workers and firms, population groups also face disparities in their ability to access green benefits. According to “The 2024 Green Consumption Survey”, it reveals that high prices of green products are the most significant barrier to this kind of disparity, with 78% of respondents indicating that the costs exceed their payment capacity (Vien, 2024).

Moreover, regional disparities also place a strong influence on their ability to be exposed to green benefits (Ministry of Agriculture and Environment, 2023). The survey also points out that while rural residents, especially in the northern mountainous regions, the Central Highlands, and the Mekong Delta, have limited access both in terms of information availability and physical distribution networks, green consumption patterns are mainly concentrated in big cities like Ha Noi and Ho Chi Minh City with proportion of 12-18% (Son, 2024). Therefore, we can conclude that inadequate infrastructure, low incomes, and insufficient environmental awareness result in significantly lower participation in green consumption among these communities.

5. Vietnam - Korea Comparisons and Recommendations for Vietnam

5.1. Vietnam – Korea comparisons

Table 1 analyses the green growth trajectories of Korea and Vietnam to provide a basis for policy recommendations. While both countries share a state-led development model, their approaches show different structural characteristics. The comparison focuses on three key dimensions: the legal framework, the nature of economic engines, and the social inclusion gaps.

Table 1: Comparative analysis of green growth implementation in Korea and Vietnam (*Source: Authors' own work.*)

Dimension	Korea	Vietnam	Differences
1. Legal Framework	"Growth-first" & Top-down: The strategy is anchored by strong, legally binding acts. It prioritizes industrial competitiveness and technological leadership, often treating environmental policy as an industrial strategy.	"People-centered": The strategy explicitly integrates "inclusiveness" and "social equity" as core principles. However, it operates primarily through policy decisions rather than binding laws.	Philosophy vs. Enforcement: Korea has a stronger enforcement mechanism but a "techno-centric" philosophy. Vietnam has a more "inclusive" philosophy on paper but lacks the binding legal strength and resources to fully operationalize it.
2. Economic Engines	Endogenous & Technology-driven: Growth is driven by domestic conglomerates (<i>Chaebols</i>) mastering core technologies (Hydrogen, Batteries). Korea exports green technology to the world, creating high-value industrial ecosystems.	Exogenous & Investment-dependent: Growth relies heavily on FDI and technology transfer. Vietnam capitalizes on natural resources (solar/wind potential) rather than owning core technologies.	Ownership & Autonomy: Korea's green economy is self-sustaining and innovation-based. Vietnam's model is currently dependent on external capital, posing a risk of becoming a "green assembly hub" without mastering the technology.

3. Drawbacks (Social Inclusion gaps)	The Trickle-down failure: Inclusiveness issues stem from the concentration of benefits in large firms. Green jobs are high-tech but limited in number, and social welfare programs have not kept pace with industrial speed. Public participation is marginalized by top-down directives.	The Structural exclusion risk: Inclusiveness issues arise from structural deficits: a severe skills mismatch and the marginalization of SMEs. A stark "access gap" exists, where green products are unaffordable for 78% of the population, creating an urban-rural divide.	Nature of exclusion: In Korea, exclusion is a byproduct of elite-focused industrial policy → Inequality of wealth. In Vietnam, exclusion is a barrier to entry due to lack of capacity and affordability → Inequality of opportunity.
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5.2. Recommendations for Vietnam

First, the government must construct a comprehensive legal framework for IGG that is fundamentally "people-centered" to avoid the "growth-first, equity-later" trap. Rather than relying solely on top-down directives and techno-centric investments, the policy architecture must ensure social equity by establishing a transparent National Green Taxonomy that is accessible and applicable to all economic actors, including SMEs. Crucially, this framework must institutionalize the mechanism of a "Just Transition," explicitly shifting the investment focus from physical infrastructure to human capital through robust vocational training and social safety nets for vulnerable workers, thereby realizing the vision where no one is left behind.

Secondly, the government should consider implementing policies that support small and medium-sized enterprises (SMEs) in surmounting the challenges that might occur during the green transition process. It is obvious that SMEs lack the capital required for investing in green technology and green emission reduction processes; thus, the government should consider developing green financial instruments such as green loans and green bonds or green investment funds for SMEs. The green financial instruments will enable SMEs to access green funds at relatively low interest rates and invest in energy-saving technologies and green production processes. Moreover, the government should consider increasing the capacity-building programs for SMEs to have adequate knowledge and awareness about the green transition process. This can be done through training and consulting services that allow SMEs to have adequate knowledge about environmental standards around the world.

Third, Korea's experience with a top-down approach-resulting in passive compliance and neglected public welfare provides important lessons for Vietnam. Therefore, to guarantee the effectiveness and equity of green economic transformation, Vietnam should prioritize community engagement and inclusive governance. Vietnam's policy should redirect efforts away from the government-led approach by formalizing "people-centered" development, aiming to embed principles into mechanisms, thereby ensuring active participation of local governments and the community rather than passive compliance. Moreover, Vietnam should also improve public awareness by offering comprehensive and long-term campaigns. This can mitigate limited public knowledge and foster a sustainable lifestyle. In addition, the government needs to issue more policies to narrow the gap in access to green benefits among population groups. These policies can include tax reduction for green products, especially for low-income households, the group that is facing the biggest cost barriers. In addition, the government should invest in support services for rural and mountainous areas to expand access to information and distribution networks for green products. Instead, it is necessary to coordinate with the private sector to mobilize resources, promote businesses to bring green products to more areas, thereby reducing inequality in access to green benefits.

Fourth, drawing on Korea's lesson that renewable energy instruments, however well-designed, will fail without stable and long-term fiscal commitment, as evidenced by the sequential collapse of both FIT and RPS, Vietnam should establish a dedicated budget allocation for renewable energy support to ensure fiscal sustainability. In this case, the participation of both public and private sectors in developing renewable energy, including solar power, wind power, and particularly nuclear energy, represents an appropriate solution. Specifically, it should design flexible public-private-partnership (PPP) frameworks with tax incentives, preferential loans, and risk guarantees for rooftop solar projects and wind farms, while leveraging 40% of territory suitable for green energy developments. Moreover, the government should invest more R&D to guarantee the safety of nuclear energy, and the development of nuclear power plants, thus ensuring environmentally friendly projects and green jobs. This approach both reduces dependence on fossil fuels and stimulates the creation of high-quality green jobs, and ensures equitable distribution of benefits. These measures aim to minimize gaps in labour speciality, reinforce inclusive green growth, and help in achieving carbon neutrality by 2050 in alignment with the National Green Growth Strategy.

6. Conclusion

IGG has become the predominant trend of green growth within the global scale. Korea is one of the pioneering countries pursuing this green growth strategy, with notable achievements in green mobility and large investments in green sectors. Nonetheless, its experience still reveals limitations in inclusiveness, due to a top-down approach, technology-driven bias, and policy failures. These strengths and drawbacks propose practical recommendations for Vietnam's pursuit of green economic transformation, particularly the need for an inclusive and comprehensive society approach. This eventually aims to effectively implement green

economic transformation. For Vietnam, as a rapidly developing country which strives for a green economy, sustainable development, and deepened international integration, this creates both opportunities and challenges. Vietnam should adopt flexible mechanisms, supported by favorable conditions and internal strengths, to meet the objectives of IGG. Doing so will further reinforce the country's competitiveness and sustainable development.

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