

GREEN TRANSITION: FROM AWARENESS TO PRACTICAL SOLUTIONS

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Received: 27/11/2025; Reviewed: 7/12/2025; Revised: 20/12/2025; Accepted: 26/12/2025

DOI: <https://doi.org/10.58902/nckhpt.e-v1i1.326>

Abstract: *The green transition is increasingly becoming an inevitable development trend for many countries in their pursuit of sustainable economic, social, and environmental goals. This article focuses on clarifying the theoretical foundations of the green transition by systematizing concepts and definitions proposed by international organizations and scholars, while also analyzing its relationship with related notions such as green growth, the green economy, and sustainable development. On this basis, the article elucidates the characteristics and core components of the green transition at the national level. Beyond the dimension of awareness, the article provides an overview of international commitments and actions toward green transition through major global conferences and agreements. In the case of Vietnam, the green transition has been approached in alignment with global trends, although it still faces numerous limitations and challenges due to a relatively low starting point and constrained development conditions. Drawing on practical analysis, the article identifies key issues and proposes eight comprehensive, interdisciplinary, and cross-sectoral groups of solutions to promote Vietnam's green transition in the coming period.*

Keywords: *Green transition; Green growth; From awareness to practical solutions.*

1. Introduction

In the context of the global acceleration toward sustainable development, the green transition has become an irreversible trend and an urgent imperative. In the face of the increasingly severe impacts of environmental degradation, resource depletion, and climate change on human survival and development, the shift toward a green economic model is no longer merely a strategic option but an objective necessity.

For Vietnam, the process of green transition carries profound theoretical and practical significance. From a theoretical perspective, it contributes to clarifying and further developing the dialectical relationship between economic growth, social progress, and environmental protection along the path of socialist-oriented development. From a practical standpoint, the green transition lays the foundation for building an efficient, inclusive, and highly adaptive economy capable of responding to global challenges, while also enabling Vietnam to integrate into contemporary global development trends and avoid the risk of long-term lagging behind.

2. Research overview

2.1. Theoretical issues addressed by international organizations

The concept of the green transition is inherited from and developed on the basis of the idea of sustainable development that emerged globally in the 1980s, with a central focus on the harmonious integration of three pillars: economic growth, social equity, and environmental protection. A series of major international events and forums such as the Brundtland Report (1987), the Earth Summit in Rio de Janeiro (1992), and the World Summit on Sustainable Development in Johannesburg (2002) helped forge a global consensus on sustainable development, laying the groundwork for the formulation of the 17 Sustainable Development Goals (SDGs).

Within this process, many international organizations have further specified and deepened the substance of the green transition. In 2011, the United Nations Environment Programme (UNEP) published the seminal report *Towards a Green Economy: Pathways to Sustainable Development and Poverty*

Eradication, which established an approach to shifting the economy from a “brown” model dependent on fossil fuels toward a “green” model based on efficient resource use and reduced emissions (UNEP, 2011). In the same year, the Organisation for Economic Co-operation and Development (OECD) introduced the *Green Growth* strategy, emphasizing the need to restructure economic systems and institutions to ensure that natural assets continue to provide essential resources and environmental services for long-term development (OECD, 2011). By 2019, the green transition had become a focal point of global policy through the European Green Deal, identified by the European Commission as the most comprehensive and ambitious policy framework to date, translating the concept of green transition into concrete legal objectives and development strategies (European Commission, 2019).

2.2. Theoretical issues in academic research

In academic scholarship, the green transition has been approached from multiple theoretical perspectives. Frank Geels, through the theory of socio-technical transitions particularly the Multi-Level Perspective (MLP) argues that the green transition is not merely a change in isolated technologies but a comprehensive restructuring of social systems, encompassing technology, institutions, behaviors, and social norms (Frank Geels, 2005).

Mariana Mazzucato, in *The Value of Everything* and her work on the “Entrepreneurial State,” emphasizes the leading role of the state in the green transition. According to her, the green transition is a process in which the state defines clear missions and directions for the economy, proactively creating demand and markets for technologies that do not yet exist or are not yet competitive, such as green hydrogen or large-scale renewable energy systems (Mariana Mazzucato, 2013; 2018).

From an energy perspective, Vaclav Smil, in *Energy Transitions: History, Requirements, Prospects* (2010), defines energy transition as “a change in the composition and structure of primary energy supply; a gradual shift from a particular mode of energy provision to a new state of the energy system” (Vaclav Smil, 2010).

This approach indicates that the green transition, in essence, is a long-term, cumulative process that is strongly dependent on economic, social, and technological contexts.

In the Vietnamese context, thinking on sustainable development and the green transition is also grounded in the theoretical foundations of socialism. In *Some Theoretical and Practical Issues on Socialism and the Path toward Socialism in Vietnam*, Nguyen Phu Trong emphasizes that economic development must be closely linked with social progress and equity, harmonious development with nature, the assurance of a healthy living environment for present and future generations, and the construction of a political system that genuinely serves the interests of the people (Nguyen Phu Trong, 2022). This viewpoint provides an important theoretical basis for approaching the green transition not merely as an economic–environmental strategy, but as a humane and sustainable development orientation under Vietnam’s current conditions.

3. Research object and research methods

3.1. Research object:

This article focuses on the process of green transition from awareness to action at both the global level and, more specifically, in Vietnam. Due to space limitations, the study does not aim to cover all aspects of the green transition, but rather to clarify several core theoretical issues and examine how countries participate in international organizations and implement commitments related to the green transition. The central focus of the article is an analysis of changes in Vietnam’s awareness of the green transition, as reflected in Party Congress documents, key Party resolutions, and the system of policies, strategies, and action plans issued by the Government across different stages of development.

3.2. Research methods:

The article employs methods of collecting, synthesizing, and systematizing domestic and international academic studies related to the green transition in order to build a solid theoretical foundation. On this basis, analytical and comparative methods are applied to clarify the relationship between awareness and action in

Vietnam's implementation of the green transition across different periods, through an examination of Party guiding documents and specific governmental decisions and plans. The study primarily adopts qualitative research methods, allowing for a systematic synthesis of theoretical perspectives and the identification of practical difficulties and challenges in implementing the green transition in Vietnam. The integration of these methods enables the article to provide a comprehensive, evidence-based interpretation of Vietnam's green transition process, while also establishing a scientific foundation for proposing orientations and solutions in subsequent sections.

4. Research results

4.1. Theoretical issues related to green transition

4.1.1. Concepts of green transition

* *Concepts of green transition proposed by selected scholars*

The concept of *green transition* is not the outcome of a single research project nor the creation of an individual scholar. Rather, it is an academic and policy-oriented term that has evolved from environmental movements and strategic reports issued by major international organizations over recent decades. In academic discourse, the concept of green transition is closely associated with studies on *systems transition* and *ecological economics*.

(1) Frank Geels (University of Manchester), within the framework of the *Socio-Technical Systems Transition Theory*, most notably the *Multi-Level Perspective (MLP)*, argues that green transition is not merely a technological shift but a comprehensive restructuring of the entire social system (Frank Geels, 2005).

His definition of green transition is intrinsically linked to *systemic innovation*. Instead of viewing green transition as the replacement of individual components (such as substituting incandescent bulbs with LED lighting), this theoretical approach conceptualizes it as a transformation of the entire system architecture. It entails simultaneous shifts in:

Technology: the emergence of new innovations (e.g., electric vehicles, renewable energy technologies);

Policy: regulatory frameworks, carbon

taxation, and emission standards;

Culture and cognition: changes in consumption patterns and perceptions of prosperity;

Infrastructure: smart power grids, charging stations, and urban planning systems (Frank Geels, 2005).

Frank Geels explains that green transition occurs through interactions across three analytical levels:

- *Niches*: protected spaces in which early-stage “green” technologies are nurtured (e.g., early electric vehicle startups). These environments serve as experimental settings, relatively insulated from market pressures.

- *Socio-technical regimes*: the dominant existing systems (e.g., internal combustion engine vehicles, coal-fired power plants), which exhibit strong inertia due to capital intensity, infrastructural lock-in, and vested interests.

- *Landscape (macro-context)*: external pressures beyond direct control, such as climate change, geopolitical conflicts, or global social movements.

From Geels' perspective, green transition is therefore not a “product” but a long-term *journey of systemic transformation* (Frank Geels, 2005).

(2) Mariana Mazzucato, in *The Value of Everything* and her broader research on the *Entrepreneurial State*, emphasizes the central role of government in leading the green transition by strategically directing public investment toward clean technologies, rather than leaving such transformations solely to market forces.

She defines green transition as a process in which the state sets a clear strategic direction for the economy, actively creating demand for technologies that do not yet exist or are not yet competitive (such as green hydrogen or large-scale renewable energy systems) (Mariana Mazzucato, 2013; 2018). Key characteristics of this approach include:

- *Directional orientation*: green transition is not undifferentiated growth, but purpose-driven growth;

- *Cross-sectoral coordination*: it is not confined to environmental ministries alone. Achieving greening requires the participation of all sectors—from transportation and construction

materials to food systems. Each sector must pursue specific “missions” that collectively contribute to the overarching goal of net-zero emissions.

In *The Value of Everything*, Mazzucato further argues that green transition entails a fundamental rethinking of value creation. Under current economic accounting practices, many environmentally destructive activities are still counted as contributions to GDP, thereby generating what she terms “false value” (Mariana Mazzucato, 2013; 2018).

(3) Vaclav Smil, in his influential work *Energy Transitions: History, Requirements, Prospects* (2010), offers a highly pragmatic perspective on the concept of green transition. Smil asserts that energy transition constitutes the core of green transition. He defines energy transition as “a change in the composition (structure) of primary energy supply; a gradual shift from a particular energy supply pattern to a new state of the energy system” (Vaclav Smil, 2010).

In the contemporary context, green transition thus represents the transformation from a fossil-fuel-based system (coal, oil, and natural gas) to an energy system founded on renewable and non-carbon energy sources.

** The concept of green transition adopted by the authors*

Green transition is defined as the process of shifting economic, social, and consumption models from reliance on finite resources particularly fossil fuels toward sustainable, low-emission, and environmentally friendly models.

Green transition refers to a country’s economic and social development pathway characterized by low to very low greenhouse gas emissions, grounded in green development standards. It encompasses the efficient and prudent use of natural resources, the application of clean and renewable energy, and the operation of production and business activities in ways that are environmentally sound and protective of human health, while simultaneously preventing the degradation of biodiversity.

Green transition is not limited to the development and application of environmentally oriented technologies; rather, it also involves the

transformation of production and business processes toward a green economy, circular economy, digital economy, digital society, and digital citizenship. The ultimate objective of green transition is sustainable development, built upon three fundamental pillars: a green economy, a green society, and a green environment.

** Distinctions among concepts related to green transition*

Green economy: the target or end-state of an economic system that operates in harmony with environmental sustainability.

Green growth: the approach or pathway through which economic growth is achieved without causing environmental degradation.

Green transition: the comprehensive transformation process itself, encompassing shifts in mindset, technology, institutional arrangements, and social behavior.

Sustainable development: development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This represents the overarching and integrative approach guiding contemporary green transition efforts.

Circular economy: in contrast to the linear model of “extract–produce–dispose,” the circular economy focuses on extending material lifecycles through reuse, repair, and recycling in order to minimize waste. This constitutes an alternative and complementary pathway for enterprises, localities, and nations in implementing green transition.

4.1.2. Key characteristics and core components of green transition

** Core characteristics of green transition*

There is broad consensus among international organizations and scholars that green transition exhibits three distinctive characteristics:

Multidisciplinary nature: no single discipline, sector, or actor can independently accomplish green transition. It requires close collaboration among scientists, policymakers, businesses, and consumers.

Non-linear process: green transition does not unfold along a linear trajectory; instead, it involves periods of acceleration, conflict, experimentation, and continuous restructuring.

Tension between the new and the old: green

transition inevitably encounters resistance from established socio-technical regimes, as substantial investments have already been made in conventional technologies and industries.

** Core components of green transition*
- Energy transition

Energy transition constitutes the central pillar of green transition. It emphasizes the shift from dependence on fossil fuels (such as coal and oil) toward clean and renewable energy sources.

Energy sources: priority is given to wind power, solar power, hydropower, and hydrogen energy.

Energy efficiency: the application of advanced technologies to reduce energy consumption while maintaining or enhancing productivity.

- Circular economy

Rather than adhering to the traditional linear economic model of “extract–produce–dispose,” green transition promotes circular economic practices.

Reuse and recycling: waste generated by one sector becomes input material for another.

Sustainable design: products are designed to have longer lifespans and to be easily repaired or refurbished.

- Technological innovation and digitalization

Green transition is closely intertwined with

digital transformation, as technology enables enterprises, organizations, and nations to optimize resource use.

Low-emission technologies: such as carbon capture and storage technologies.

Smart agriculture: the use of sensors and artificial intelligence to reduce water use and fertilizer inputs while increasing efficiency.

- Transformation of mindsets and consumption patterns

This dimension relates to changes in awareness and behavior among both businesses and consumers.

Green consumption: prioritizing products with eco-labels, low carbon footprints, or cruelty-free production processes.

Social responsibility: enterprises are expected to integrate environmental, social, and governance (ESG) standards into their core business strategies.

- Inclusiveness and equity

Green transition seeks to ensure that no one is left behind. As “brown” industries (such as coal mining) are downsized or phased out, governments and enterprises must implement supportive policies to facilitate workforce reskilling and occupational transitions for affected workers.

Table 1. Comparison between the traditional economic model and the green transition model

Criteria	Traditional economic model	Green transition model
Energy	Fossil fuels (high emissions)	Renewable energy (low or zero emissions)
Resources	Maximum extraction and consumption	Optimization and circular use
Primary objective	Short-term profit	Long-term sustainable development
Technology orientation	Focus on productivity efficiency alone	Focus on efficiency and environmental performance

Source: Compiled by the authors.

4.2. Awareness and actions of countries and Viet Nam regarding green transition

4.2.1. Awareness and actions of countries regarding green transition

Sustainable development and green transition have long been among the foremost concerns of most countries worldwide and have become a global trend.

Since the 1970s and 1980s, rapid economic growth in many countries has led to severe

environmental degradation. In response, the United Nations convened the International Conference on the Human Environment in Stockholm (Sweden), which assessed the escalating deterioration of the Earth’s living environment and called upon humanity to save the planet and ensure human survival.

In 1983, the United Nations established the World Commission on Environment and Development (WCED). In 1987, the Commission

released the report *Our Common Future*, which articulated the United Nations' perspective on sustainable development the conceptual foundation of the green transition. Sustainable development was defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In other words, it seeks to ensure that today's progress does not undermine tomorrow's prospects.

By the 1990s, the rapid expansion of corporations and national economies not only caused significant damage to the natural environment but also widened the gap between rich and poor, resulting in greater social inequality. At the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro (Brazil) in 1992, Agenda 21 was adopted. This document further refined and expanded the concept of sustainable development, emphasizing three core pillars: ensuring sustainable economic growth; safeguarding environmental sustainability through pollution prevention; and promoting social progress and equity for humanity in the pursuit of human development goals.

At the World Summit on Sustainable Development (WSSD) in 2002 in Johannesburg (South Africa), the global community once again reaffirmed that sustainable development represents the appropriate pathway for all nations. The United Nations defined sustainable development as ensuring stable economic growth in close conjunction with the promotion of social progress and equity, the rational and efficient exploitation and use of resources, and the enhancement of the quality of the human living environment.

4.2.2. *Viet Nam's awareness and actions regarding green transition*

** The awareness and actions of the communist party and the government of Viet Nam regarding green transition*

In Vietnam, since the Sixth National Congress of the Communist Party, when the national economy was still facing substantial difficulties, the Party introduced a reform-oriented development pathway that incorporated a new perspective on development toward

sustainability. This approach emphasized that “the viewpoints of the Party and the State on the unity between economic and social policies must be fully implemented in practice, overcoming the tendency to underestimate social policies,” while simultaneously stressing the need to protect the living environment. At the Seventh National Congress, for the first time, the Party explicitly affirmed the principle of closely, harmoniously, and rationally integrating economic development with social development. This marked a significant advancement in the Party's thinking on sustainable development in Vietnam, aligning with prevailing global perspectives.

By the Eighth National Congress, the concept of *sustainable development* was officially adopted and defined as development that ensures a close, harmonious, and rational integration of economic growth, social progress and equity, environmental protection, and sustained advancement in culture, education, science, and technology, alongside the strengthening of national defense and security. Subsequent Party Congresses have continued to emphasize and further clarify the objectives and content of sustainable development.

Sustainable economic development harmonized with cultural advancement, and closely linked to social progress and equity, has become a defining hallmark of the socialist-oriented market economy. The *Platform for National Construction in the Period of Transition to Socialism* (supplemented and developed in 2011) clearly states: “To build an advanced Vietnamese culture imbued with national identity; to promote comprehensive development, unity in diversity, and the profound internalization of humanistic, democratic, and progressive values; to ensure that culture is deeply embedded in all aspects of social life, becoming a solid spiritual foundation and a crucial endogenous driving force for development.”

The *Socio-Economic Development Strategy 2011–2020* articulated five overarching viewpoints on rapid and sustainable development, with the foremost principle affirming that “rapid development must go hand in hand with sustainable development;

sustainable development is a consistent requirement throughout the Strategy.” Similarly, the *Socio-Economic Development Strategy 2021–2030* established five core development orientations.

Across these strategies, whether explicitly or implicitly, a consistent objective is evident: economic development must be harmonized with cultural development, closely linked to social progress and equity, and aligned with sustainable environmental protection. The first development viewpoint in the *Socio-Economic Development Strategy 2021–2030*, as reaffirmed by the Thirteenth National Party Congress, clearly states that “rapid and sustainable development must be based primarily on science and technology, innovation, and digital transformation.”

The thorough understanding and effective implementation of the viewpoints articulated in the documents of the Thirteenth Party Congress particularly the principle of “closely and harmoniously integrating economic, cultural, and social development with the strengthening of national defense and security, and environmental protection” carry profound significance in the current context. This constitutes a fundamental standpoint of the Party, reflecting a deep understanding of the principled and dialectical relationship between the two strategic tasks of national construction and national defense. In practice, the close and harmonious integration of economic, cultural, and social development with national defense and security in strategic regions has continued to yield tangible results. It has become a prerequisite for mobilizing and integrating all resources, potential, and comparative advantages to foster rapid and sustainable development across regions, localities, and the nation as a whole.

Accordingly, green transition in Viet Nam has been conceptualized on the foundation of sustainable development consistent with the shared understanding of international organizations and countries worldwide and has been further refined over time. At present, there is broad consensus that green transition must encompass three fundamental pillars: sustainable economic development, sustainable social development, and sustainable environmental

protection.

The Party’s perspective on green transition has been further institutionalized through Resolution No. 24-NQ/TW (dated 3 June 2013) on proactive responses to climate change, strengthened resource management, and environmental protection. These guiding viewpoints have provided the basis for the Government to promulgate the *National Green Growth Strategy* for the period 2011–2020 (Decision No. 1393/QĐ-TTg) and for the period 2021–2030, with a vision to 2050 (Decision No. 1658/QĐ-TTg).

In practice, Viet Nam joined the global sustainable development movement approximately 15–20 years later than many other countries. On 12 June 1991, pursuant to Decision No. 187-QĐ/CP, the Government promulgated the *National Plan for Environment and Sustainable Development 1991–2000*, the country’s first national strategy on sustainable development formulated in alignment with United Nations perspectives. Subsequently, Politburo Directive No. 36-CT/TW dated 25 June 1998 on strengthening environmental protection during the period of industrialization and modernization emphasized a fundamental principle: “Environmental protection must be closely linked with and serve as an essential foundation for ensuring the sustainable development of the country.”

On 17 August 2004, the Prime Minister issued Decision No. 153/2004/QĐ-TTg approving the *Strategic Orientation for Sustainable Development in Viet Nam (Vietnam Agenda 21)*, which aimed to promote sustainable national development through a close, rational, and harmonious integration of economic development, social development, and environmental protection.

On 12 April 2012, the Prime Minister promulgated Decision No. 432/2012/QĐ-TTg approving the *Viet Nam Sustainable Development Strategy for the period 2011–2020*. This was followed on 10 May 2017 by Decision No. 622/QĐ-TTg, which approved the *National Action Plan for the Implementation of the 2030 Agenda for Sustainable Development*. The Action Plan divided implementation tasks into two

phases (2017–2020 and 2021–2030), covering 17 global Sustainable Development Goals and 115 specific national targets.

Most recently, on 14 July 2023, the Prime Minister issued Decision No. 841/QĐ-TTg on the roadmap for implementing Viet Nam's sustainable development goals through 2030, as stipulated in Decision No. 622/QĐ-TTg dated 10 May 2017. The overarching objective of this roadmap is to achieve sustainable and efficient green growth in tandem with social progress and equity, the protection of natural resources and the environment, political and social stability, and the safeguarding of national independence, sovereignty, unity, and territorial integrity.

The specific objectives include:

- Ensuring macroeconomic stability, particularly maintaining major economic balances, and safeguarding food and financial security;
- Transforming the growth model toward a balance between extensive and intensive development, thereby achieving green growth;
- Building a democratic, disciplined, consensual, equitable, and civilized society; fostering an advanced culture imbued with national identity while selectively absorbing global cultural values; strengthening prosperous, progressive, and happy families; and promoting comprehensive human development in terms of intellectual capacity, ethics, physical health, spirituality, and creativity;
- Minimizing the negative environmental impacts of economic activities, and ensuring rational exploitation and efficient use of natural resources, especially non-renewable resources;
- Preventing, controlling, and effectively remedying environmental pollution and degradation;
- Reducing damage caused by natural disasters and proactively adapting to climate change, particularly sea-level rise.

At the 26th Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2021, the Prime Minister of Viet Nam made strong commitments to strive toward achieving net-zero greenhouse gas emissions by 2050.

To operationalize these ambitious goals, the

Government's *National Green Growth Strategy for the period 2021–2030, with a vision to 2050*, has articulated specific orientations focused on promoting the greening of production, consumption, and lifestyles. Key priorities include:

- Improving energy efficiency and performance, and reducing energy consumption in production, transportation, trade, and industry;
- Promoting efficient exploitation and increasing the share of renewable and new energy sources in national energy production and consumption;
- Encouraging the development of modern, low-emission industries;
- Gradually restricting highly polluting and waste-intensive industries while facilitating the growth of new green industries and the circular economy;
- Developing sustainable infrastructure in transportation, energy, and water management to ensure water security, enhance disaster prevention and climate resilience, and support long-term economic development.
- Implementing measures to raise public awareness and promote lifestyle changes toward a green economy, such as developing new rural areas based on environmentally friendly lifestyles that are harmonious with nature while ensuring improved living standards.
- Protecting and enhancing green, clean, and civilized landscapes and living environments.
- Encouraging green and sustainable consumption through energy labeling, eco-labeling, and green labeling programs, while expanding green public procurement practices.

** Challenges and Constraints in Viet Nam's Green Transition*

Compared with countries that have pioneered the global green transition, Viet Nam remains in a transitional phase in terms of awareness, institutional frameworks, and practical implementation. As a latecomer, Viet Nam has the advantage of drawing lessons from the experiences and best practices of countries that have advanced further along the green transition pathway. Nevertheless, despite green transition being a prevailing global development trend, Viet Nam faces numerous difficulties in translating

this orientation into practice.

As a country newly embarking on the transition toward a green economy, Viet Nam must continue to strengthen research efforts and more widely disseminate knowledge among policymakers, enterprises, and citizens. Given the novelty of this development trajectory, many enterprises remain uncertain about both the opportunities and the challenges involved. Consequently, the effectiveness of green transition will be enhanced only when enterprises achieve a shared understanding and broad consensus, thereby enabling more favorable outcomes.

Green transition and the green economy are closely associated with renewable energy, low-carbon development, green growth, ecosystem restoration investment, and the integration of livelihoods with environmental rehabilitation. This poses a significant challenge for Viet Nam, as most existing production technologies remain outdated, energy-intensive, and inefficient. Without access to advanced technologies from more developed economies, Viet Nam may encounter substantial barriers in the transfer and adoption of technologies suitable for a green economy.

Mobilizing financial resources constitutes another major challenge in achieving green economy objectives. As a developing country, Viet Nam's national capital accumulation remains relatively limited, constraining implementation capacity. Moreover, because green transition in Viet Nam is still relatively new and not yet clearly defined, attracting investment for the development of new green economic models continues to be difficult.

Furthermore, green transition efforts in Viet Nam remain fragmented and insufficiently coordinated due to the absence of clear and coherent development strategies and planning frameworks, as previously discussed. Although Viet Nam has committed to pursuing a green economy characterized by lower energy consumption and reduced environmental damage from production activities, the combination of these challenges continues to impede overall progress.

In summary, while green transition represents

a global trend and a viable pathway toward sustainable development, for developing countries such as Viet Nam it constitutes not only a significant opportunity but also a set of substantial and multifaceted challenges.

5. Discussion

** Issues of awareness and action in green transition*

The formulation of strategies and roadmaps for green transition is essential, as Viet Nam currently lacks a unified planning system and adequate coordination across levels of governance and sectors.

Awareness of green transition among enterprises, citizens, and a segment of public officials remains limited, thereby reducing implementation effectiveness and hindering the formation of broad social consensus.

Viet Nam continues to rely heavily on a growth model based on the exploitation of natural resources and low-cost labor. Consequently, there is an urgent need to reform the socialist-oriented market economy in close alignment with the green economy, digital economy, and circular economy.

The structure of industrial, agricultural, and service sectors remains insufficiently sustainable, characterized by low productivity and limited value added. These sectors therefore require reorientation toward modernization, low-emission development, and environmental friendliness.

Increasing risks arising from climate change, environmental degradation, and natural disasters directly threaten livelihoods and socio-economic development. This situation renders the integration of environmental protection, resilient infrastructure, and social welfare with green transition objectives increasingly urgent.

** Specific Solutions for Green Transition*

First, to develop strategies, plans, targets, and roadmaps for sustainable development and green transition.

Integrate sustainable development and green transition objectives into annual socio-economic development plans, as well as into national, ministerial, sectoral, and local development strategies and policies.

Fully mainstream Viet Nam's sustainable

development and green transition goals into the *Socio-Economic Development Strategy 2021–2030*, the *Socio-Economic Development Plan 2026–2030*, and national, sectoral, and regional master plans for the period 2021–2030, with a vision to 2045.

Formulate and promulgate indicators and roadmaps for the implementation of sustainable development and green transition goals through 2030, with a vision to 2045.

Establish and issue a comprehensive database system on targets and statistical indicators for sustainable development and green transition, together with mechanisms for data collection and monitoring to assess Viet Nam's progress.

Conduct research and design innovative tools for data collection and dissemination.

Ensure the effective operation of the database system on sustainable development and green transition goals; publicly disclose implementation results to share with stakeholders for effective policy formulation.

Strengthen the capacity of statistical personnel to ensure accurate monitoring, evaluation, and reporting of sustainable development and green transition objectives.

Monitor, evaluate, and report on sustainable development and green transition targets.

Second, to enhance awareness and promote collective action across society in pursuit of sustainable development and green transition goals in Viet Nam.

Mobilize the participation of the entire political system, including ministries, sectors, local authorities, state agencies, the business community, social organizations, local communities, and development partners in implementing sustainable development and green transition objectives.

Strengthen the role of the National Assembly, the Viet Nam Fatherland Front, and its member organizations in supervision and the provision of social feedback throughout the implementation process.

Enhance leadership and coordination across levels and sectors, ensuring cooperation among lead and coordinating agencies, socio-political organizations, professional associations, the business community, non-governmental

organizations, as well as between central and local governments. This will help ensure the integration and harmonization of sustainable development and green transition objectives.

Strengthen and mobilize resources particularly financial resources from both domestic and international sources to implement the National Action Plan:

- Increase public financial resources by improving the efficiency of the tax system and tax policies; promoting financial savings; and reforming public financial management toward greater transparency and accountability.

- Mobilize social resources to achieve sustainable development and green transition goals.

In formulating annual socio-economic development plans at all levels and across all sectors, in addition to state budget allocations, greater attention should be paid to mobilizing other social resources particularly from enterprises and the private sector to contribute to these objectives.

Formulate and promulgate specific mechanisms and policies to mobilize financial resources, especially from the private sector, for the implementation of sustainable development and green transition goals.

Intensify efforts to prevent and combat corruption, waste, and misconduct; strengthen discipline and accountability; and promote openness and transparency in the use of state budget funds and the allocation of resources.

Third, to further improve the socialist-oriented market economy institutions in close alignment with the green economy, circular economy, and digital economy; to renew the growth model and restructure the economy; to ensure macroeconomic stability; and to mobilize and use resources effectively for sustainable development and green transition.

Viet Nam is promoting the harmonization and enhancement of institutional quality for an internationally integrated, modern market economy that incorporates green, circular, and digital economic principles. This constitutes a critical foundation for accelerating economic restructuring, transforming the growth model, and maintaining macroeconomic stability.

The growth model should be transformed from predominantly extensive development toward intensive development, with an emphasis on quality, efficiency, sustainability, and green transition.

Economic restructuring should focus on adjusting production and service structures in accordance with regional comparative advantages; promoting enterprise restructuring and market strategy adjustments; rapidly increasing domestic content, value added, and competitiveness of products, enterprises, and the economy as a whole; and fostering the development of the knowledge economy, digital economy, green economy, and circular economy.

The growth model should be renewed by prioritizing intensive development closely linked to economic restructuring. This entails transforming the economy from one that primarily imitates and applies existing technologies into an innovation-driven economy that develops new, advanced, and modern technologies including digital technologies and *made-by-Viet Nam* technologies—in order to enhance productivity, quality, efficiency, and competitiveness.

Fourth, to vigorously develop industry and construction toward modernization, enhanced quality, and improved competitiveness, with a focus on high-technology industries, industries based on new, advanced, and modern technologies, and digital technologies.

Close linkages must be ensured between industrial development planning and overall industrial development strategies to establish integrated production networks and industrial value chains. Priority should be given to deep industrial development, maximizing the achievements of the Fourth Industrial Revolution to attain sustainable development and green transition. Strategic and foundational industries with competitive advantages should be prioritized for specialization. Information technology and electronics industries should serve as the primary pathway; processing and manufacturing industries as the core; smart manufacturing industries as breakthroughs; and green industries as top priorities.

Restructure industrial production by sector

and region to enhance value creation, increasing scientific and technological content and the share of domestic value added in products.

Selectively develop processing, manufacturing, high-technology, energy, mining, metallurgy, chemicals, and defense industries.

Prioritize competitive products capable of participating in global production networks and value chains, particularly in high-technology, manufacturing, ICT, and pharmaceutical sectors; and promote the development of supporting industries.

Emphasize industries serving agriculture and rural development, clean energy, renewable energy, and new materials, while applying energy- and resource-efficient technologies.

Gradually develop biotechnology and environmental industries, while continuing to develop labor-intensive industries where appropriate.

Maximize the efficiency of industrial parks and clusters, and promote cluster- and group-based industrial development to create large-scale, efficient industrial complexes. Complete the construction of high-tech zones and establish several research, technical innovation, and *made-by-Viet Nam* technology development centers. Ensure rational industrial spatial distribution nationwide to achieve balanced and efficient regional development.

Develop the construction sector to a level comparable with that of the region. Rapidly adopt and master modern technologies, enhance the capacity of the construction and installation industries to meet domestic demand and compete internationally, and vigorously develop the building materials industry particularly high-quality materials applying new and green technologies.

Fifth, to comprehensively develop agriculture toward modernization, efficiency, and sustainability, with particular emphasis on high-tech agriculture and green agriculture.

Develop production and business models appropriate to specific crops and livestock types. Encourage land consolidation and the development of farms and agricultural enterprises at scales and under conditions suited to each region. Promote close and harmonious linkages

among producers, processors, and consumers; integrate scientific and technological applications with production organization; and align agricultural development with new rural development programs.

Accelerate the application of advanced and modern scientific and technological achievements in production, processing, and preservation. Priority should be given to biotechnology to develop high-yield, high-quality, and efficient crop and livestock varieties, as well as improved production processes, thereby rapidly increasing value added per unit of cultivated land. Provide strong support for the development of high-tech agricultural zones and green agriculture.

Promote sustainable forestry development. Formulate and implement appropriate planning and policies for the development of production forests, protection forests, and special-use forests, with improved quality. The State should invest in and implement integrated policies for the management and development of protection and special-use forests, while ensuring stable livelihoods for individuals and households contracted to manage and protect forests. Encourage organizations and individuals from all economic sectors to invest in production forest plantations; link raw material forest development with processing industries from the planning and project design stages; and reinvest forest revenues to restore and enrich forest resources. Ensure the sustainable and efficient exploitation of fisheries resources; and develop offshore fishing in conjunction with national defense, security, and marine environmental protection.

Develop aquaculture in accordance with planning frameworks, focusing on key, high-value products. Build synchronized infrastructure for aquaculture zones; vigorously apply scientific and technological advances to production and processing; improve productivity, quality, competitiveness, and compliance with food safety and hygiene standards; and strive to bring Viet Nam's fisheries sector to an advanced level within the region.

Sixth, to vigorously develop the service sector, particularly services with high value added, strong growth potential, and

competitiveness, while rapidly expanding service industries based on new, advanced, and digital technologies.

Focus on developing service sectors with comparative advantages and high knowledge and technology intensity, including green tourism, tourism services, maritime services, aviation, telecommunications, information technology, healthcare, and e-commerce.

Proactively participate in global distribution networks; rapidly develop distribution systems for competitive products in both domestic and international markets; and build strong Vietnamese product brands.

Modernize and expand high value-added services such as finance, banking, insurance, securities, logistics, and other business support services.

Strongly develop services in science and technology, education and training, culture, information, sports, employment services, and social welfare.

Seventh, to rapidly develop socio-economic infrastructure, particularly modern transportation infrastructure, information technology infrastructure, and digital infrastructure.

Prioritize the review and completion of infrastructure development planning nationwide and across regions especially in transportation, hydropower, and irrigation ensuring efficient resource use and achieving economic, social, and environmental effectiveness.

Diversify investment modalities and encourage and facilitate the participation of all economic sectors, including foreign investors, in infrastructure development.

Develop an integrated irrigation system and gradually modernize it, with a focus on constructing and reinforcing sea dikes, river dikes, pumping stations, and flood drainage and salinity control works. Build disaster prevention facilities and storm shelters for fishing vessels to minimize losses for local communities. Rapidly and sustainably develop power generation sources, complete and modernize the power grid in parallel with the application of energy-saving technologies, and ensure a sufficient and reliable electricity supply to meet development needs.

Modernize the information and

communications sector, as well as information technology and digital infrastructure, and develop large-scale data infrastructures.

Eighth, to protect and improve environmental quality, and to proactively and effectively adapt to climate change and prevent and mitigate natural disasters.

Enhance awareness of environmental protection and integrate environmental protection tasks and objectives into socio-economic development processes.

Reform mechanisms for natural resource management and environmental protection; mainstream environmental protection into sectoral, regional, and project-level development strategies, plans, and programs.

All new investment projects must meet environmental requirements. Strictly implement roadmaps for addressing environmentally polluting facilities. Address environmental degradation, protect ecosystems, restore ecological balance, and improve overall environmental quality.

Limit and progressively eliminate the export of raw natural resources. Prioritize the development of a green and environmentally friendly economy. Promote sustainable production and consumption; gradually expand

clean energy, cleaner production, and cleaner consumption practices.

Strengthen the socialization of environmental protection activities, and develop environmental services and waste treatment industries.

6. Conclusion

Green transition represents an inevitable development trend globally and in Viet Nam. It aims to build an environmentally friendly economy by reducing emissions, increasing the use of renewable energy, and establishing balanced ecosystems. This article has examined the fundamental theoretical foundations, policy framework, and implementation roadmap for Viet Nam's green transition within the context of deepening international integration.

The study seeks to clarify the consistent standpoint of the Communist Party and the Government in harmonizing economic, social, and environmental objectives, while analyzing the principal challenges in translating these objectives into practice. The ultimate goal of the research is to contribute to the ongoing scholarly and policy debate on integrating green transition and digital transformation as two strategic pillars for Viet Nam's sustainable development in the era of national "aspiration and advancement."

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CHUYỂN ĐỔI XANH: TỪ NHẬN THỨC ĐẾN GIẢI PHÁP THỰC HIỆN

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Ngày nhận bài: 27/11/2025; Ngày phản biện: 7/12/2025; Ngày tác giả sửa: 20/12/2025;

Ngày duyệt đăng: 26/12/2025

DOI: <https://doi.org/10.58902/nckhpt.e-v1i1.326>

Tóm tắt: Chuyển đổi xanh đang trở thành xu hướng phát triển tất yếu của nhiều quốc gia nhằm hiện thực hóa các mục tiêu phát triển bền vững về kinh tế, xã hội và môi trường. Bài viết tập trung làm rõ cơ sở lý luận về chuyển đổi xanh thông qua việc hệ thống hóa các quan niệm, định nghĩa của các tổ chức quốc tế và các nhà khoa học, đồng thời phân tích mối liên hệ giữa chuyển đổi xanh với các khái niệm liên quan như tăng trưởng xanh, kinh tế xanh và phát triển bền vững. Trên cơ sở đó, bài viết làm rõ đặc điểm và nội dung của chuyển đổi xanh ở cấp độ quốc gia. Bên cạnh khía cạnh nhận thức, bài viết khái quát các cam kết và hành động chuyển đổi xanh của cộng đồng quốc tế thông qua các hội nghị và thỏa thuận toàn cầu. Đối với Việt Nam, quá trình chuyển đổi xanh được tiếp cận phù hợp với xu thế chung của thế giới, mặc dù còn gặp nhiều hạn chế và thách thức do xuất phát điểm thấp và điều kiện phát triển còn khó khăn. Trên cơ sở phân tích thực tiễn, bài viết chỉ ra những vấn đề đặt ra và đề xuất tám nhóm giải pháp tổng thể, mang tính liên ngành và liên lĩnh vực, nhằm thúc đẩy quá trình chuyển đổi xanh ở Việt Nam trong thời gian tới.

Từ khóa: Chuyển đổi xanh; Tăng trưởng xanh; Từ nhận thức đến giải pháp thực hiện.