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GREEN INVESTMENT BARRIERS FOR GREEN GROWTH IN VIETNAM

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Abstract

Aim/Purpose – *Green constraints become urgent action for Vietnam, affecting sustainable development and human health and living environments. There are numerous lessons learned for Vietnam from reduction of the impact of environmental pollution and climate change on living conditions and the economy from various organizations worldwide. One of the most effective measures for sustainable development is green investment. Green investment can generate a lot of environmental and human benefits but still faces a difficulty and constraints. This article focuses to analyze the barriers to green investment as well as thereby finding solutions for these barriers.*

Design/methodology/approach – *This study employs a comprehensive analysis of various barriers to green investment, including policy and regulatory, financial, technological, market, and institutional obstacles. The research sample focuses on organizations and entities involved in green investment in Vietnam.*

Findings – *This study identifies key barriers to green investment in Vietnam, including policy, financial, technological, market, and institutional obstacles. Policy barriers stem from unstable and unclear regulations, while financial barriers involve high costs and limited credit support. Market barriers are linked to low consumer awareness and unfair competition, technological barriers arise from high development costs and infrastructure gaps, and institutional barriers are due to bureaucratic hurdles. The study suggests solutions to address these barriers to facilitate green investment.*

Research implications/limitations – *This research highlights key obstacles to sustainable development efforts in Vietnam but may be limited by the scope of data available within the country and by unstable and unclear policy.*

Originality/value/contribution: *This paper contributes to the understanding of green investment challenges in Vietnam and offers practical recommendations to enhance sustainable development efforts by addressing specific barriers.*

Keywords: *Barriers, green investment, sustainable development, solutions.*

JEL Classification: F64, G18, O13.

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1. Introduction

To sustain life on Earth, a healthy environment is essential. However, increasing environmental pollution and climate change have become significant concerns recently (Ukaogo et al., 2020; Singh, 2015). Additionally, environmental pollution substantially impacts human health. Nearly 99% of the global population is exposed to air pollution levels that increase the risk of diseases such as heart disease, stroke, and chronic lung disease (WHO, 2021). Climate change is also a fundamental threat to human health, affecting the physical environment and every aspect of both natural and human systems.

To address climate change and its negative impacts, world leaders achieved breakthroughs at the Paris United Nations Climate Change Conference (COP21). During the conference, countries discussed, negotiated, and set long-term goals to guide all nations in significantly reducing global greenhouse gas emissions and keeping the global temperature increase below 2°C above pre-industrial levels. This agreement marks the beginning of a shift towards a net-zero emissions world (WHO, 2023).

Vietnam is significantly affected by environmental pollution and climate change (Monroe, 2017). Recognizing the detrimental impacts of these issues on the economy, health, and human living environments, the Vietnamese government has acknowledged these harms. Consequently, in 1993, the National Assembly of Vietnam enacted the Environmental Protection Law for the first time. After many years of implementing the 1993 Environmental Protection Law, the National Assembly passed the new Environmental Protection Law in 2020. In addition to enacting the Environmental Protection Law, the government has issued legal documents, guiding circulars, decrees, and policies related to environmental protection and sustainable development. In 2022, the government issued Circular 02/2022/TT-BTNMT to guide the Environmental Protection Law and Circular 17/2022/TT-BTNMT, which sets technical regulations on measuring, reporting, appraising greenhouse gas emission reductions, and inventorying greenhouse gasses in the waste management sector. In 2023, the government issued Circular 06/2023/TT-BTNMT to guide the integration of climate change response into strategies and plans.

Despite the government's numerous measures to mitigate the impacts of environmental pollution and adapt to climate change, these impacts persist. Various solutions, including green investment, have been proposed to reduce environmental pollution and adapt to global climate change. Green investment helps mitigate climate change, reduce flooding, and manage water resources while enhancing health, property values, housing quality, labor productivity, and tourism (Natural Economy Northwest, 2009). By focusing on green investment, investors can reduce the use of harmful energy sources such as fossil fuels and coal (Ngo Thai Hung, 2023). Green investment restricts loans to enterprises with high pollution levels and energy consumption. It accelerates the upgrading and transforming of industrial structures, promotes the reorganization and merger of polluting enterprises, and facilitates the dual development of technology and industries (Zahan and Chuanmin, 2021). Furthermore, green investment can help ensure a country's energy security by reducing dependence on fossil fuels. It can also become a new source of economic growth by developing green industries, creating jobs, promoting green technologies, and introducing new products and services. Green investment can also help solve social problems, such as poverty and unemployment by creating new jobs and promoting economic growth (Jialong, 2023). Therefore, green investment offers numerous environmental and human benefits, though it still faces some barriers. A study is needed to analyze the barriers to green investment, thereby finding solutions to remove these barriers.

2. Literature review and theoretical framework

Green investment and related conceptual framework

Green investment is defined as an investment required to produce and consume non-energy goods, to reduce greenhouse gasses and air pollutant emissions, and to be a public investment (Eyraud et al., 2011). The concept of green investment is relatively broad. It is closely related to other investment terms such as Socially Responsible Investing (SRI), Environmental, Social, and Governance (ESG) investing, sustainable investing, and long-term investing (OECD, 2012). Additionally, green investment involves activities focused on business operations or projects aimed at conserving natural resources, producing and enhancing alternative energy, protecting air and water quality, and other environmentally friendly activities. It can also be considered a socially conscious investment as it prioritizes environmental regulations, social obligations, and sustainable development benefits (Musah et al., 2022). From the above concepts, it has been shown that there are many different views on green investment. In general, green investment is making investment decisions based on environmental protection criteria with the aim of a positive impact on the environment, generating a specific financial return on the investments made.

Innovation and diffusion theory explains how technological innovations and new ideas are accepted and spread within a community or organization. It can provide insight into green investment barriers by analyzing green technology adoption factors (Rogers, 1962). It has shown that factors that influence the diffusion of innovation include compatibility with current needs, ease of use, feasibility, and apparent benefits of innovation (Rogers, 1962). Green technologies often need help to diffuse because they may not be fully compatible with existing systems and infrastructures. This theory has been expanded by analyzing organizational and environmental factors that influence the adoption of new technologies, including green technology (Tornatzky and Klein, 1982). They emphasized that support from management and alignment with the organization's strategic goals are crucial factors in overcoming barriers and promoting the adoption of green technology. The adoption and diffusion of green technologies refer to the process by which green technologies are accepted and spread within communities and markets. This process helps better understand the barriers and opportunities in implementing green solutions. Innovation and diffusion theory suggests that the acceptance of green technology depends on factors such as the feasibility of the technology, clear economic benefits, and the ability to integrate with existing systems (Rogers, 2003). However, green investment projects often involve technology that faces challenges in diffusion because these factors may not be fully met. (Hekkert et al., 2007) explored the factors influencing the diffusion of green technology in the energy sector and pointed out that factors such as supportive policies, the development level of infrastructure, and market readiness play essential roles in promoting or hindering green technology adoption. (Kemp and Pearson, 2007) analyzed policies supporting the innovation and diffusion of green technology, indicating that

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implementing policies such as subsidies, taxes, and environmental regulations can help reduce barriers and promote the acceptance of green technology. They emphasized the importance of coordinating policies and strategies to ensure effective diffusion.

Green investment barriers

Policy making

Policy barriers relate to inconsistencies and the need for more stability in policies supporting green investment. Policy and regulatory uncertainty, including fluctuations in support for renewable energy or shifts in environmental regulations, can elevate investor risks. Changing policy can affect the expected returns of green projects and reduce their attractiveness (Polzin, 2017). Studies have highlighted the need for clear and stable policies to promote investment in green technology. Schmidt et al., in 2013, examined the mechanisms to promote rural electrification in Indonesia, highlighting that inconsistencies in subsidies and support policies have led to higher investment risks and reduced incentives to invest in renewable energy projects. (Jaffe et al., 2005) discussed the two main market failures: technology and environmental policy. They pointed out that the lack of economic policies such as carbon taxes causes negative external costs not to be reflected in market prices, thereby reducing incentives to invest in green technologies. Polzin et al., in 2015, analyzed the role of government and policy organizations in promoting investment in renewable energy technology. They emphasized that consistent policy and government support are decisive factors in attracting investment.

Financial constraints

Financial barriers limit capital access and mobilization for green projects, including high capital costs and a need for suitable financial instruments. The high risk associated with green technology projects, especially new technologies, leads investors to demand higher returns, which increases the cost of capital (Brealey et al., 2011). Green projects, particularly those involving new and untested technologies, often carry a higher level of risk. To compensate for these risks, investors and financial institutions typically require higher returns, raising the capital cost for green projects (Gaddy et al., 2017). Additionally, the lack of financial instruments such as green bonds and green investment funds makes it more challenging to invest in clean technology (Gaddy et al., 2017). The absence of these instruments increases the risk for investors and reduces the incentive to invest.

Innovation and technological barriers

Innovation and technological barriers refer to the market's lack of advancement and readiness for green technologies. (Nelson and Winter, 1982) describe "technological lock-in" and how existing technologies hinder the development of new technologies, including green technologies. Existing systems and infrastructure often constrain innovation in green technology. The European emissions trading system and the lack of market mechanisms reduce the incentive to invest in green technologies (Ellerman et al., 2007). Additionally, the lack of technical knowledge and technological risks are significant barriers to green investment (Gatzert, 2016). (Cumming et al., 2016) analyzed the factors limiting venture capital investment in global green technology. They found that the need for more understanding and experience in green industries is a factor that reduces investment. (Jaffe et al., 2005) discussed the main market failure: the need for more investment in research and development in green technology.

Market barriers

Market barriers include a lack of infrastructure, insufficient consumer awareness and demand, unfair competition, and mispricing. (Unruh, 2000) introduced the concept of "carbon lock-in," describing how current technology systems and infrastructure hinder the development and adoption of green technologies. Dependence on these systems creates challenges for transitioning to green solutions. Ajzen (1991) discussed awareness and consumer behavior, noting that a lack of awareness about the benefits of green products and traditional consumption habits are significant barriers. They emphasize that educational and marketing measures can help improve awareness and change consumer behavior. In 1996, Bohi and Toman pointed out that traditional industries often receive direct or indirect subsidies, creating an unfair advantage for non-green products. This reduces the competitiveness of green products and services.

3. Practical discussions about green investment in Vietnam

Regulatory policy instrument

Acting as a policy instrument, regulations significantly promote green investment but can also become barriers if not appropriately designed. From an institutional theory perspective, policy and regulatory factors are among the most critical barriers to green investment. These barriers include a need for more supportive policies and regulatory uncertainty.

Firstly, specific regulations are needed to promote green investment, as it creates an uncertain environment for investors. In many cases, unclear or non-existent regulations can expose investors to high legal risks and uncertainty about returns.

Secondly, unstable long-term policies hinder green investment is a problem in Vietnam. Uncertainty, instability in policy, and a complex policy landscape are barriers to green investment (Gatzert, 2016). Investors often need to find a way to avoid high risks because the policies supporting renewable energy or other green projects frequently change. The lack of long-term policy stability extends the payback period for investments in renewable infrastructure, which becomes a barrier to green investment (Li 2009, Linnerud & Holen, 2015; Linnerud & Simonsen, 2015). Additionally, subsidy changes, taxes, or regulations can lead to instability and uncertainty regarding the expected returns of green projects (As see Schmidt et al., 2012). An example of policy uncertainty is the government's feed-in tariff (FIT) price management. In 2011, the government set the FIT price at 7.8 US cents/kWh for 20 years (Government of Vietnam, 2011; Ministry of Industry and Trade, 2012). In 2018, the government issued a revised FIT2 price for offshore wind projects (9.8 US cents/kWh) and onshore (8.5 US cents/kWh) (Government of Vietnam, 2018; MOIT, 2019). In 2023, MOIT announced the FIT price for offshore wind projects at 7.8 US cents/kWh and onshore wind projects at 6.8 US cents/kWh (MOIT, 2023). As a result, FIT prices often fluctuate and are uncertain, making investors very hesitant to invest in wind power, and this uncertainty is seen as a barrier to investment. Therefore, changes in public policy and legal regulations can significantly impact the profitability of green projects (Jaffe et al., 2005). When a green investment project faces policy uncertainty, it will not attract investors.

Lastly, policy and regulatory barriers include unclear regulations and policies on environmental requirements, such as emission

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permits, which can increase compliance costs and legal risks for green investment businesses (Jaffe et al., 2005). This makes businesses reluctant to invest in this field. Policy and regulatory barriers are also reflected in some countries' weak management and non-transparent regulations (Falcone & Sica, 2018). When any policy is implemented, the lack of proper management and accountability related to its execution is often seen as a barrier to green investment (Holburn, 2010; Boute, 2012).

Financial restrictions

Firstly, these barriers are often related to enormous capital costs in Vietnam. Green investment is a type of investment that requires high initial capital, as businesses must use significant resources to invest in renewable energy infrastructure; however, the returns are often too low (Martin & Rice, 2012; Wells et al., 2013; Granoff et al., 2016; Salm & Wüstenhagen, 2018; Zhong & Bazilian, 2018). Many green projects, such as renewable energy, require substantial upfront investments in infrastructure and technology. Although operational costs may be lower in the long term, the need for large initial capital can be a significant barrier for investors (Rothenberg & Zyglidopoulos, 2007). The high upfront costs of green investment projects are due to the higher expected returns investors seek during the investment period to compensate for the additional risks associated with this initial investment (Martinot, 1998; Espinoza et al., 2015). Financial barriers are also related to pricing and valuation risks. Green investment projects, especially those involving new technologies, are often difficult to value due to a lack of historical data and uncertainty about environmental and social benefits. Green investment projects, particularly those involving new technologies, are challenging to value due to limited historical data and uncertainties surrounding environmental and social benefits. As a result, these projects pose higher risks for investors, who may consequently seek higher returns (Busch et al., 2016).

Secondly, the risk of inaccurate pricing creates barriers to green investment. Due to a lack of transparency and incomplete information, investors may underestimate or overestimate the risks of green investment, which can lead to inaccurate valuations and reduce the competitiveness of green projects compared to traditional projects (Clapp et al., 2010).

Thirdly, financial barriers involve limited access to financing. Financial support from banks is necessary for the investor to invest in a green project. Most investors need help to secure bank funding to initiate green investment projects. Limited access to capital for green investment projects is a significant barrier to green investment. Green investment projects often need more support from commercial banks and investors. Many banks and investors still need to become familiar with or unwilling to invest in green projects due to their risky nature and lack of information about expected returns. This issue mainly affects small businesses and startups, which have limited collateral or credit history (Cumming et al., 2016). The difficulties in accessing bank loans for green investment projects stem from several causes: poor policy mechanisms, the lack of interest from many banks in green investment projects, and limited funds for lending to green investment projects. The first reason is due to poor policy mechanisms. The government and the State Bank have established regulations related to granting credit for green investment activities. However, these regulations could be more precise, and the definitions do not specifically outline the categories of green investment projects eligible for loans.

Fourthly, the regulations must be more consistent across sectors or fields eligible for green loans, making it challenging to apply them nationwide. As a result, commercial banks need help selecting, appraising, evaluating, and monitoring when granting credit for green investment projects. Moreover, the lack of a legal framework, evaluation criteria, and measurement tools for the environmental impact of green investment projects makes it difficult for banks to assess green projects before deciding to lend.

As a result, it is challenging for green project investors to meet the necessary conditions to access funding from commercial banks. For green investment projects to obtain loans, the investor must have business plans that meet strict environmental protection conditions. Moreover, limited access to funding is due to banks not being particularly interested in green investment projects. Green projects often require significant investments, have relatively long payback periods, and carry significant risks. Therefore, banks must thoroughly evaluate and assess green projects before lending. However, commercial bank staff often need more expertise and capability to appraise green investment projects. Currently, bank employees in Vietnam need to be more well-trained or specialized in the appraisal, risk assessment, and management of investment projects. Many banks still need dedicated units or departments responsible for project appraisal, environmental and social risk assessment, and monitoring and evaluating the performance of green investment projects.

On the other hand, the limited availability of credit for green investment projects is also due to the restricted funds available for lending to such projects. Many banks have limited capital, meaning the amount of funding they can provide for green investment projects is constrained by fiscal policies set by the Central Bank (Wang et al., 2020). To invest in green sectors, investors need to secure medium- to long-term loans, with long payback periods, while the majority of funds mobilized by commercial banks are short-term. Therefore, project investors need to have a certain credit rating to qualify for bank loans (Jones, 2015; Gatzert and Kosub, 2017; Geddes et al., 2018). Projects with risky profit profiles or low liquidity in the market may be restricted from accessing bank loans (Mielke, 2019).

Additionally, banks are uncomfortable working in green finance because bank staff struggle to evaluate green project applications due to the lack of transparency in project standard procedures, technical aspects, and effectiveness in achieving environmental sustainability. Staff also lack the skills and knowledge to classify and understand these projects (Falcone and Sica, 2018; Lee, 2020; Zhixia et al., 2018). Furthermore, there is a shortage of appropriate financial instruments or tools in the market for green investment (Gatzert and Kosub, 2017). (Helena et al., 2022) also highlights financial barriers to green investment. Due to limited access to capital from commercial banks, the majority of loans for green investment projects in Vietnam are primarily dependent on projects or programs funded by international organizations such as the Swiss Government's Green Credit Trust Fund, the International Finance Corporation, and the Asian Development Bank (ADB). From 2017 to 2021, the credit growth rate for green investment projects was 25% per year, higher than the average credit growth rate of the overall economy. However, the proportion of credit for green investments remains limited, with green investment project loans accounting for only 4.32% of the total outstanding loans in the entire economy. Loans for green investment activities are mainly concentrated in sectors such as green agriculture,

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accounting for about 46%, and sustainable water management, about 13%. In recent years, credit for green investment projects has been shifting to other sectors such as renewable energy and clean energy (Anh, 2022). However, other important areas in environmental protection and climate change mitigation, such as waste management, remain limited. By the end of 2022, the total outstanding loans for green projects (12 green projects as defined by the State Bank of Vietnam since 2015) reached nearly 500 trillion VND, accounting for about 4.2% of the total outstanding loans of the economy, primarily in sectors like renewable energy and clean energy, which hold the highest proportion at 47%, followed by green agriculture at over 30%.

The inability to access credit is due to the lack of financial support mechanisms. Financial theory indicates that the lack of financial support and tax incentives can be a significant barrier to green investment. The shortage of financial support mechanisms from the government, such as subsidies or tax incentives, reduces the availability of capital for green projects. Ineffective or inconsistent policies can increase financial risks and reduce the attractiveness of these investments (Böhringer and Jochem, 2007). Many green projects require substantial investment and may not be attractive to investors without financial support mechanisms like subsidies, interest rate support, or government-funded green investment funds (Gaddy et al., 2017). Some existing tax systems may not provide enough incentives or may even hinder investment in green projects. For example, the lack of tax incentives for clean technologies or high taxes on green products and services can reduce the appeal of these investments (Böhringer and Jochem, 2007).

Financial barriers are also manifested through the lack of appropriate financial instruments. The capital market lacks financial tools such as green bonds, green investment funds, or risk insurance, which can increase the cost of capital. The absence of these instruments limits investors' ability to manage risks and reduce capital costs (Gaddy et al., 2017). The shortage of suitable financial mechanisms, such as green bonds or green investment funds, can limit the ability to finance green projects. Investors often face difficulties in finding financial products that align with their needs and objectives (Flammer, 2021).

Last but not least, the financial barriers involve risk perception and investment behavior. Green projects often face higher risks compared to traditional projects, such as technology risks, market risks, and policy risks. As a result, investors demand higher returns to compensate for these risks, leading to increased capital costs. This is especially true for new and unproven technologies, such as renewable energy (Brealey, et al., 2011). Moreover, higher initial costs are closely related to the need for policy stability throughout the investment period (Leete et al., 2013). Compared to traditional energy investments, green investments typically require higher capital investments, making high upfront capital a specific barrier to renewable energy infrastructure (Fung, 2013; Arnold, 2015). Therefore, high initial costs and low returns are significant barriers to green investment.

Technological advancement

For green investment projects, technology is considered a very important part. However, technology is also a barrier in many investmental schemes in Vietnam. Technological problem include factors such as lack of advanced technology, high technology development costs, and ineffective investment in R&D activities.

Firstly, the lack of advanced technology and modern technology. Secondly, the cost of developing advanced technology is one of the biggest barriers. To implement green investment, it is necessary to invest a huge amount of capital in new and advanced technologies. However, not all investors have enough resources to invest in high technology. At the same time, when investing in technology, investors see to face risks related to technological uncertainty (Masini and Menichetti, 2012; Byrnes et al., 2013; Bucher et al., 2016; Gatzert and Kosub, 2016; González and LacalArántegui, 2016; Geddes et al., 2018; Richards et al., 2012; Wells et al., 2013). In addition, new technologies, green technologies are often unproven in terms of performance and feasibility, which increases financial risks for investors and reduces the incentive to invest in new technologies (Nelson and Winter, 1982). When investors are hesitant to invest in new technology, they will not be able to invest in a green investment project, and this is considered a barrier to green investment.

In addition to investing in new and advanced technologies, green investment projects are heavily dependent on existing infrastructure and technologies, known as “carbon lock-in,” which also contributes to higher investment costs in this sector, and leads to delays in adopting new technologies (Unruh, 2000). Difficulty in integrating green technology into existing systems is also an important barrier. Kemp and Pearson (2007) point out that green technology often faces challenges in compatibility with existing systems, making adoption more difficult and expensive. For green investment projects related to renewable energy, there is also the problem of electricity transmission (Holburn et al., 2010; Linnerud and Holden, 2015). This shows that the cost of integrating existing technologies into green investment projects is also high, making investors reluctant to invest in green. Thirdly, ineffective investment in R&D activities. To develop a new technology, enterprises must devote capital and human resources to R&D activities. However, many enterprises make ineffective R&D investments. Finally, green investment projects require investors to have professional knowledge or technical advice, but investors often lack technology knowledge or do not receive technical advice (Sovacool, 2009; Martin and Rice, 2012;; Byrnes et al., 2013). Therefore, investors need to spend a lot of money to hire investment and technology consultants. This causes difficulties for project investors and makes investors reluctant to invest in green investment projects.

Market barriers

Market barriers related to market failures include limited market demand, lack of consumer awareness, and ineffective market subsidies. Firstly, the market demand for green products is limited. A lack of market demand is one of the biggest barriers to green investment. Low demand for green products and services makes it difficult for investors to recoup their capital and achieve expected profits, leading to hesitation in investing in green projects. Therefore, investors may be reluctant to invest in a green project due to the large capital required, high risks, and insufficient market demand.

Secondly, there is a lack of consumer awareness. Externality theory and public choice theory help explain that the lack of awareness and demand from consumers is a major market barrier to green investment. Consumers often lack awareness of the benefits of green products. Many consumers do not clearly understand the environmental and social benefits of green products or have misconceptions about their costs and performance. This leads to a lack of interest or unwillingness to pay a higher price for

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green products and services (Schwartz and Howard, 1984). As a result, manufacturers may produce green products that do not get consumed, which discourages many investors from investing in green products. Many consumers have a preference for traditional products and are often reluctant to try new products. This can reduce market acceptance of green products, especially when consumers are concerned about differences in utility or performance compared to traditional products (Ajzen, 1991).

Finance theory and externality theory emphasize that unfair competition and mispricing are significant barriers to green investment. Firstly, government subsidies for certain traditional industries create unfair advantages for traditional products, making it difficult for green products to compete on price (Bohi and Toman, 1996). Traditional industries often receive direct or indirect subsidies, such as fossil fuel subsidies, which create an uneven playing field. Additionally, the pricing of traditional products often does not account for external costs. Traditional products frequently do not reflect the full negative externalities, such as environmental pollution and climate change, in their prices (Pearce, 1991). In contrast, green products, which are less harmful to the environment, often face higher costs, leading to higher prices compared to traditional products. When two products have the same level of utility, consumers will typically choose the less expensive option. Therefore, higher-priced green products are less likely to be chosen by consumers.

Apparently, the green product market lacks supportive market policies. The absence of policies that encourage investment in green technologies, such as subsidies, tax incentives, or carbon market mechanisms, reduces the potential for the development and expansion of the green market (Jaffe et al., 2005). This highlights how a lack of policy support and ineffective regulations can limit the growth of the green product market. Additionally, market volatility in energy and resources, as well as changing consumer perceptions and preferences regarding green products, can pose market risks for green investment projects.

4. Conclusion and Policy Implications

Evidence-based policy making and institutional capacity development

Firstly, policies need to be consistent from central to local levels. When the government issues policies related to green investment, it needs to be unified to avoid differences between policies and implementation in different localities. Secondly, policies need to be stable in the long term. For each policy issued, it is necessary to carefully study the long-term feasibility, avoiding issuing new ones and then canceling them and issuing new ones. This makes policies unstable and investors will feel hesitant to invest in green projects. Thirdly, policies related to green investment need to be clear and transparent. Clear and transparent policies will make it easier for investors to grasp information and implement policies well. At the same time, the clarity and transparency of policies also help investors save costs related to administrative procedures and time. Fourth, it is necessary to improve the management capacity of state agencies in implementing policies on green investment.

The government needs to build and improve executive policy capacity toward better policy quality to enhance a green culture of sustainable development. When executive policy quality is improved, investors can be supported and encouraged for their investment. At the same time, this will also create favorable conditions for FDI investors.

Reform of financial instrument

Firstly, the government can use support tools or implement tax subsidies to minimize the financial risks of green investment projects. With the characteristics of high capital costs and many financial risks, investors often feel hesitant to invest, so the government needs to introduce policies such as tax exemptions and subsidies for these projects to help investors reduce risks. Secondly, the government should encourage commercial banks to finance credit for green investment projects. To encourage banks to provide credit for green investment projects, the government can reduce income tax on loan interest from banks, introduce insurance tools for green investment loans, and require banks to set aside separate funds for green investment projects. This will help green investors easily access credit from banking institutions. Thirdly, offering a variety of suitable financial instruments on the market such as green bonds, green funds, etc. Diversifying these instruments will make it easier for investors to mobilize capital for their green investment projects.

Technical development and innovation

Firstly, the government promotes R&D activities and encourages businesses to conduct R&D to find new and modern technologies. Encouraging R&D activities for businesses through direct funding or tax subsidies for R&D investments. Investing in R&D to find advanced and modern technologies will help to disperse technology, making it easier for more businesses to access new technologies. Secondly, supporting businesses to transfer modern technology. The government will act as a bridge between domestic and foreign businesses to promote technology transfer activities. When technology is transferred, it will help businesses access more new technologies, and businesses can make green investments. Thirdly, the government needs to have policies to encourage and support businesses in innovation activities. When businesses receive support from the government, they will be motivated to prioritize investment in innovation and find new technologies, thereby helping to reduce the cost for businesses to invest in green.

Market behaviors

Firstly, there is a need to raise consumer awareness and change their behaviors. To be able to consume green products, consumers must accept and use them. However, many consumers today still do not understand green products and often do not use them. Therefore, it is necessary to raise consumer awareness through propaganda measures and increase information about green products. Secondly, the government needs to have subsidies for the green product market. In the market, green products often have difficulty competing on price with traditional products, so the government needs to have subsidy policies for the green product market to promote competition between these products and traditional products. Thirdly, set standards for green products. This will help consumers have a basis to choose and use green products, and consumers can be sure of the quality of the green products they choose.

5. Declaration of competing interest

There are no financial and personal relationships with other people or organizations that could inappropriately influence (bias) our work.

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