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Research Article

GREEN ECONOMY IN GERMANY AND THE IMPLICATION FOR VIETNAM

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ABSTRACT

Article History: Received 10th June, 2017 Received in revised form 8th July, 2017 Accepted 08th August, 2017 Published online 28th September, 2017 Green economy has become one of the trends of global development. Germany is known as the pioneer in applying the green energy economy policy of the world. The paper overviews the literature reviews of green economy, especially to distinguish green economy, green growth and the low – carbon economy. The author focuses on analyzing the reason for green economy in Germany. Furthermore, the paper also shows the policies and achievements that Germany achieved on three main areas: Clean energy industrial Investment for expanding job opportunities; Green tax and International technology cooperation for climate change mitigation. Finally, the author summarizes green growth policy in Vietnam and the implication from Germany case.

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INTRODUCTION

Inclusive green growth is the pathway to sustainable development. Over the past 20 years economic growth, a variety of market, policy, and institutional failures mean that the earth's natural capital tends to be used in ways that are economically inefficient and wasteful. These failures threaten the long-term sustainability of growth and progress made on social welfare.

Germany is a pioneer in green growth policies. The country was one of the first to cut greenhouse gas emissions and has by far the largest solar energy capacity in the world. Vietnam, after three decades of rapid growing is now facing several development issues such as low economic growth quality, weak competitiveness, low efficiency, social inequality, natural resource depletion, environmental pollution and climate change. Applying the Germany achievements in renewable energy, green transportation, environment tax reform, green infrastructure and other aspects, the research expresses the rationale, opportunities and challenges and the main strategies of Vietnam Government to promote the Green growth.

This paper aims to research about the Green growth in Germany and the lessons for Vietnam. Germany and Vietnam has many cooperated project to increase the Vietnamese access to the green growth as a potential solution to these problems and helps Vietnam going towards sustainable development.

Theoretical Basic of Green Growth

The definition of green growth

OECD's definition "Green growth is about fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies" (2011, 9) emphasizes the strong version of sustainability, and it does not mention the social pillar of sustainable development. Like the OECD's definition (2012, 30), that of the World Bank does not include the social pillar either. UNEP uses the term "green economy" instead of green growth, and its definition is much wider than those of OECD and World Bank.

Although the OECD, UNEP, the World Bank, and other international organizations define green growth differently, they all appear to view green growth as a vital strategy to achieve sustainable development. Green growth not only is a normative ideal but also carries with it the claim that environmental protection is, at a minimum, compatible with economic growth.

The factors to promote the green growth

Firstly, under *the global crisis*, Governments are looking to green growth as a strategy to help emerge from the global financial crisis and deliver both economic and environmental gains. The environmentally-focused economic strategies

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included in several national stimulus and recovery packages vary widely

Secondly, *Global environmental and climate threats influencing the push for green growth.* The threat of climate change, environmental degradation, or unsustainable resource consumption is a core driver behind the recent interest in green growth, can also have rebound effects in the job market and reduce tax revenue and impose additional costs. Despite the fact that these threats are global in nature, they will ultimately manifest themselves as place-based phenomena, requiring very localized solutions deriving from actions taken by governmental entities

Finally, *The search for a new development model* is the opportunity has opened to reconsider sources of long term, sustainable growth. According to Rifkin (2011), we are experiencing a new economic paradigm, with a systematic change in the way we organise economic life, moving beyond carbon and nuclear energy. This new system would bring a shift to system based on renewable energies in the firm who would function in networks more like eco-systems than markets.

The expression of Green Growth

It is difficult to adequately set out the expression of a green growth because in each country, this model has many conditions and different policies. However, there are four outstanding elements that constitute a green growth:

Firstly, **Renewable energy development** replaced basic traditional energy sources: oil, natural gas and coal by energies from the additional resources are continuous and not be exhausted, such as solar, hydro, wind, geothermal, ocean and bio. There are a source of clean energy and do not pollute the air, and do not contribute to the warming of the global climate Secondly, *The environmental tax reform* based on well-designed fiscal policies - the most natural instruments for incorporating environmental damages into the price of products and non-market activities. Having long been a significant source of government revenue; environmental tax revenues (primarily taxes on motor fuels and vehicles) constitute approximately 3–10 percent of total tax revenues.

Thirdly, *Reducing greenhouse gas emissions and climate change* by using the Clean Development Mechanism which is formed on the basis of the agreement of the countries participating in the Kyoto Protocol signed in 1997, and other initiatives.

Finally, *Green Infrastructure* is based around three key principles:

- Green infrastructure involves natural and managed green areas in both urban and rural settings
- Green infrastructure is about the strategic connection of green areas
- Green infrastructure should provide multiple benefits where possible

The role of Green Growth

Firstly, as for *Green growth towards sustainable development*. Activities in the green growth creates the benefit, which seeks to expand the life of human societies (especially cultural factors) and are friendly operations to the environment (most important elements). Three factors reach equilibrium will satisfy sustainability of development.

Secondly, *Green growth contributes to reduce poverty* and improve the overall quality of life. A green growth strengthens economic growth for the poor through the protection of natural and capital accumulation.

Thirdly, *Green growth to climate change mitigation*. It takes a small percentage of GDP investment to improve efficient global energy in the industry and the development of renewable energy, reduce the amount of CO2 emission.

Finally, *Green growth to maintain and enhance the natural capital.* Green investments in the areas of forestry and agriculture will help reverse the trend of decline in the current forest land. It also increases the supply of water, expand access, improve management and supply maintaining groundwater resources and surface water.

The measurement framework of Green Growth

The conceptual framework for measuring green growth developed by the OECD is therefore based on the setup of the production sphere of a macroeconomic model, whereby inputs are transformed into outputs (OECD, 2011b). According to the OECD measurement framework for green growth, the indicators are broken down into four themes (OECD, 2011b):

First theme is *Environmental and resource productivity of the economy*. Environmental efficiency can be monitored by the environmental or resource intensity which is defined as the pressure caused by an economic activity (for example CO2 emissions) divided by the economic value added of that activity (for example GDP) or the environmental and resource productivity (which is the reciprocal of environmental / resource intensity).

Secondly, *The natural asset base* is monitored by assessing the stocks. It is in the interest of an economy's long-term stability to ensure it retains a healthy balance with its natural resource base.

Thirdly, *The environmental quality of life* provides ecosystem services such as recreation leading to a healthier population. There is therefore a direct link between the environment and quality of life, which is captured in the third set of indicators.

Finally, *Policy responses and economic opportunities.* These measures will also create new opportunities for economic activities that may generate new jobs and stimulate economic growth.

The Green Growth Policy in Germany

Since the 1990s, Germany has shown to be unable to benefit from favourable conditions in the global economy. Certainly the unification in 1990 and its repercussions have contributed to Germany's poor performance. In contrast to other Central and Eastern European transition countries having competitive wages 4 levels to create sustainable growth, the East German economy experienced rising unemployment and continuing dependence on federal subsidies and transfer payments from West to East. It is necessary to have the policy to reform the country and achieve the sustainable growth in Germany economy.

The Germany renewable policies

First policy is *Enormous governmental subsidies for renewables.* It is estimated that Germany will pay \$31.1 billion in subsidies in 2014 alone. Given the long planning and construction periods of traditional power plants, this rapid deployment of renewables can only be described as a macroeconomic shock. For an industry that has long-term technical and investment lifetimes, this created system disruptions that led to value destruction.

Secondly, *Ever increasing power prices to residential customers.* Retail electricity prices have increased in Germany due in part to the generous subsidies for renewable energy. Including the considerable growth of taxes and charges, electricity price increases went mostly uncontested in Germany because of two main factors. First, electricity expenses are only a small part, about 2.5 percent, of the overall expenditures of a regular German household. Second, there was initial strong support for the Energiewende and the readiness to bear additional costs.

Thirdly, *Expansion and additional investment in the power grid* was originally designed for centralized, thermal baseload power production. It is the task of distribution system operators to work on regional and local bases and to serve private households with electricity. As a result of these additional investments in grid expansion and improvement, grid usage fees (fees that recover costs associated with transmission and distribution) increased in 2011, 72 and are expected to continue to increase in the future as a result of Germany's plan to further expand the grid to accommodate increasingly large amounts of renewable resources.

Finally, *Redesigning unsustainable programs.* Germany's experience with renewables has often been portrayed as a success story. It undoubtedly met one of the objectives set by the EEG: the promotion of renewable generation. It remains unclear, however, how successful Germany has been in meeting the other stated goals of its renewable energy policy: mainly climate change mitigation, energy independence, reduction of fuel costs, conservation of fossil fuels, local economic development, and expansion of the domestic manufacturing base.

The environmental tax reforms (ETRs) in Germany

From 1990-1999, the German Green Party had been pushing the government to adopt ETR. The German ETR, which is slightly revenue-negative, is to unfold in at least five stages, the first of which went into effect in April 1999. The German ETR entails several safeguards for energy-intensive industries: manufacturing, forestry, and agricultural firms, co-generation plants. It is worth noting that energy-intensive industries are not fully exempted, contrary to the original plan. Finally, the European Commission accepted the decision to extend a discount to the manufacturing industry and agriculture on the grounds that EU member states are allowed to grant state aid for environmental protection, a category of state aid that does not violate the European treaties.

From 1999-2003, With the revenue raising side of the ETR, the main policies have been an increase in existing energy taxes and the introduction of an electricity tax. The recycling mechanism of the German ETR was planned to be revenue

neutral. Initially manufacturing industry, as well as agriculture, fishery and forestry sector was granted a tax relief of 80 percent for energy products other than transport fuels (heating fuels, natural gas and electricity).Furthermore, manufacturing sector was eligible for an additional tax option – companies could apply for a tax cap ('Spitzenausgleich').The tax relief for the manufacturing sector, agriculture, fishery and forestry was reduced at the beginning of 2003.

The sustainable transport policies in Germany

Firstly, *Pricing and restrictions on car use*. The overall cost of owning and operating a similar car is about 50% higher in Germany than in the USA (AAA, 2007, ADAC, 2007). Most of that difference is due to much higher taxes and fees on car ownership and use in Germany. German cities place far more restrictions on car use through limited road supply, lower speeds, and less parking.

Secondly, Thanks to continuous Public transport improvements, public transport use has continued to grow in spite of rapid growth in per-capita income and car ownership. Public transport use has continued to grow in spite of rapid growth in per-capita income and car ownership due to higher passenger fare revenues in Germany as well as lower costs. Another reason for the success of German public transport is the multimodal coordination of public transport services, fares, and schedules within metropolitan areas. Additionally, German systems offer deep discounts on weekly, monthly, annual, and semester tickets that make it economical and convenient to use public transport on a daily basis and competitive with cars for the commute to work.

Thirdly, *Walking and cycling in Germany*, Especially, since the 1970s, virtually all German cities have greatly improved transport infrastructure used by walkers and bicyclists (BMVBS, 2002, 2008). The result of such a wide range of facilities is a complete, integrated system of bicycling and walking routes that permit cyclists and walkers to cover almost any trip either on completely separate paths and lanes or on lightly travelled, traffic-calmed residential. On the other hand, these explicitly pro-walk and pro-bike policies generally slow down car use and often shift roadway space from cars to nonmotorized users (BMVBS, 2006).

Fourthly, *Urban development and land use policies.* The greater mix of land uses and higher population densities in Germany lead to short average trip distances thus increasing the possibilities for walking and cycling. The specificity of land use plans increases from top to bottom.

Finally, *Transport policy reforms* as well as land use, urban development have not always been as sustainable as they are currently. On the contrary, government policies in the 1950s and 1960s generally aimed to adapt cities to the car, vastly expanding roadway supply and parking facilities while permitting car-dependent retail and residential developments on the urban fringe. Besides, most cities reduced car parking and increased its price, especially in the central city. Therefore, the German federal government provided the overall framework for sustainable transport policies by raising petrol taxes, decreasing spending on roads, and increasing investment in public transport that promotes the quality of life while protecting the environment and saving energy.

The Green infrastructure in Germany

Germany participates in the course of the GREEN SURGE project. GREEN SURGE is an acronym for "Green Infrastructure and Urban Biodiversity for Sustainable Urban Development and the Green Economy".

Firstly, *Integrated planning* can bring different sectors together, in order to come up with "win -win" or "small loss, big gain" combinations. These can deliver multiple benefits not just to those using the land (farmers, foresters, tourism providers, etc.), but also to society at large through the provision of valuable ecosystem services such as water purification or soil improvement and the creation of attractive "breathing spaces" for people to enjoy. Natural ecosystems are able to support many environmental services at high levels, except for food production in most cases.

Secondly, *Mitigation measures*. The transport sector has a significant impact on biodiversity and landscape ecology within the EU. Roads and railways lead to fragmentation and permanent habitat losses, alter habitat conditions (e.g. hydrological regimes), disrupt patterns of wildlife movement and can be major causes of disturbance and wildlife mortality. For many species, and particularly invertebrates, roads and railways are barriers to movement. Thus, the transport sector has a major role to play in avoiding further fragmentation of landscapes. To some extent, fragmentation of landscapes due to transport infrastructure can be mitigated by implementing specific measures that reduce barrier effects.

The Green Growth Achievements In Germany

Emission reductions

By using the renewable policies, especially in enormous governmental subsidies for renewables, in 2009. Renewables have helped achieve the CO2 goals, thereby taking some of the burden from other emission sources and keeping the CO2 certificate prices lower than they would have otherwise been.

Energy independence

By using the renewable policies, especially in *Expansion and additional investment in the power grid*, Germany is independent in energy. Fifty-five percent of the Germany's total energy supply comes from imports. Competitiveness and energy independence are intimately related. Renewables help reduce the dependency on imported fossil fuels, thereby reducing the risk of possible price shocks.

Job creation and expansion of Germany's manufacturing industry

The rapid growth of renewable energy created new jobs in the industry resulting from many policies especially *the environment tax reforms policies*. In 2012, the German renewables industry employed 378,000 people, which accounted for four times the amount of jobs in 2000. The development of renewable energy in Germany and other countries fostered growth in the German manufacturing industry. The growth of renewable energy throughout the world has allowed Germany to expand its wind and solar manufacturing base. However, other countries have also expanded their capabilities, thereby hurting German domestic

manufacturers, which have tended to be more costly than their foreign counterparts.

The appearance of Green infrastructure construction in Germany

Applying the Green Infrastructure in Germany policy, during the last decade, Berlin has successfully protected and transformed vacant lands such as railway areas or airports into public parks, with the former Tempelhofer Feld airport (300 ha) as the most prominent example. Though not as strictly binding in urban areas as for the countryside, this instrument ensures that loss of open space through development is partly compensated and allows the city administration to engage developers to raise funds to improve the habitat and recreation network.

The appearance of international technology cooperation for climate change project

As the result of the sustainable transport policies in Germany, Germany and China initiated and signed a bilateral agreement on science and technology (S&T) in 1978. The central objectives of this partnership were to intensify cooperation in standardisation and to strengthen collaboration between research centres, companies and local governments.

It is a very complex technological output, and while China has been able to upscale its production capacity, its quality of production and innovative capabilities is inadequate.

In conclusion, according to OECD Measurement framework for green growth, Germany achievements is suitable for developing Green growth. In general, all the result after applying the Green growth policies are strengthened in all aspects: environmental and resource productivity of the economy, the natural asset base, the environmental quality of life and the policy responses and economic opportunities. In *natural asset base*, it not yet expressed the way to protect the biology the burden does not exceed nature's carrying capacity, so as to prevent irreversible quality losses of natural assets. In *Policy responses and economic opportunities*, it not yet express the way to improve the welfare, the age and the satisfaction of the residents.

The Context of Green Growth In Vietnam And Lesson From Germany

The objectives of Green Growth in Vietnam

Reduce the intensity of greenhouse gas emissions and promote the use of clean and renewable energy according to the following essential targets

Greening production: Implementation of a "clean industrialization" strategy is conducted via reviewing and adjusting existing sectoral master plans to ensure economic - 3 - and efficient use of natural resources; encouraging the development of green industry and green agriculture based on environmentally friendly structures, technologies and equipment; enhancing investment in natural capital; proactive prevention and treatment of pollution.

Greening lifestyle and promoting sustainable consumption: The rich and beautiful traditional lifestyle is combined with civilized and modern means to create comfortable, high quality and traditionally rooted living standards for people and society

of a modern Viet Nam. Implementing rapid and sustainable urbanization while maintaining the living in harmony with nature in rural areas and establishing sustainable consumption behaviours within the context of global integration.

The opportunities and challenges for Green Growth in Vietnam

The opportunities

Firstly, in the past 10 years, the legal system and policies for environmental protection and sustainable development are more and more increasingly completed creating legal foundation for implementing green economy.

Secondly, financial resources and spending for environmental protection and green growth are also improved significantly in recent years. In recent years, businesses operating in the environmental services sector are also growing rapidly due to increasing social demand for environmental protection.

Thirdly, the strong economic integration over the past decade gives Vietnam an opportunity to transfer environmentallyfriend technology platform towards green growth. For recent years, FDI has contributed importantly to promote innovation and technology transfer in general and environmental technology in particular in Vietnam.

Finally, with favorable natural conditions, Vietnam has great potential to develop renewable energy. Last but not least, the strong trend of shifting to green economy at international level creates opportunities for Vietnam to learn experience and participate in the process of green growth implementation.

The challenges

Firstly, Vietnam's economic growth was mainly based on quantitative rather than qualitative development, featuring high fuel and energy consumption in making products, thereby hurting the environment. Eco-friendly industries are largely underdeveloped. As Vietnam economy is accelerating, it is difficult to cut down fuel consumption and using alternative and more luxuries fuels

Secondly, financial resource is one of the fundamental barriers to green growth in Vietnam. Therefore, the Government should have clear policies to support business making investment in clean technology, especially tax policy, funding incentive or interest rate support.

Finally, it is lack of the economic sector support to deal with the consequences on the environment, which is friendly to international environment such as environmental protection services; recycling industry; energy production from waste, clean energy; eco-friendly products bare; organic agriculture.

The implicated lesson for Vietnam

Firtsly, *The lessons to promote the renewable energy*. Funding issues with *enormous funds for renewables* are over the framework of mobilizing financial resources from international cooperation agencies. It is necessary to provide public funding sources and allow banks to provide project owners with financial mechanisms to encourage investment decisions allowed. In Germany, adding renewables to electric systems usually requires a substantial extension of the transmission system and *expand the renewable energy grid to the rural area.*

The increase in consumption in rural areas must be coupled with an increase in energy efficiency by the infrastructure energy supply is still only in small and medium economic reasons. Career scale and thus cost reasons, this requires optimal use of energy.

Secondly, *The lessons to Sustainable Transportation*. German *public transport* has not only the higher passenger fare revenues but also the lower costs. German public transport vehicles are generally quite new, thus increasingly reliability and avoiding the high maintenance costs for old vehicles. Despite these important investment projects for the construction of the subway in Hanoi and Ho Chi Minh, until now the bus remain the only public transport. The objective of public transport is: Simplify network - (reduces operating costs), improved speed of business - (help reduce operating costs, increase the quality of service), increase sales and improve quality serving.

Finally, the lessons to build Green infrastructure. In Vietnam, we could apply some policies as Reform housing development for low-income people and resettlement. According to increase of population of Hanoi and Ho Chi Minh City, housing became a major topic of concern of the people, investors and governments. Many urban areas have developed new model high-rise condominium next to the type townhouses and villas. Secondly, Solutions to coordinate transport and urban planning in Hanoi helps to facilitate urban development around public transport stations. Urban planning will be integrated into regional planning and development of public transport networks and promote the values of open spaces. Last but not least, Developing green town in Vietnam especially with Urban Solutions reasonable density in urban land use will improve efficiency and save construction land. On the other hand, solutions organized green spaces, urban open space is designed for the purpose of reducing energy costs, improve microclimate.

CONCLUSION

A growing number of countries and sub-national governments around the world are demonstrating the value of green growth in achieving economic, environmental and social development and are designing and implementing appropriate green growth policies and strategies. Over the last 40 years, all levels of Government in Germany have retooled policies to promote growth that is more environmentally sustainable. Germany's experiences can provide useful lessons for the Vietnam (and other nations) as policy makers consider options for "green" economic transformation. The research demonstrates the ideas about the green growth policy in Germany with achievements to set the objectives of the green growth policy in Vietnam as well as the opportunities and challenges. From Germany, it is experience for Vietnam in promoting the renewable energy, constructing the sustainable transportation and building Green infrastructure

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