

EXPLORATION AND EXPERIENCE IN GREEN DEVELOPMENT

Liu Xueyao

Belarusian State University, 31 Karl Marx str., 220030, Minsk, Belarus

tel: +375445693850; *e-mail: 18215686524@163.com

<https://doi.org/10.5281/zenodo.11031123>

Abstract. *By summarizing the experiences of the United States, Germany, Japan, and other countries in green development, it can be seen that authorities tend to promote green development based on the green policy system, green development of science and technology, green development of industry, and green development of economic growth pattern.*

Key words: *green development, policy formulation, market regulation, economic growth pattern, industrial transformation.*

ИССЛЕДОВАНИЕ И ОПЫТ ЗЕЛЕНОГО РАЗВИТИЯ

Аннотация. *Обобщая опыт США, Германии, Японии и других стран в области зеленого развития, можно увидеть, что власти склонны продвигать зеленое развитие на основе системы зеленой политики, зеленого развития науки и технологий, зеленого развития промышленности и зеленого развития модели экономического роста.*

Ключевые слова: *Зеленое развитие, разработка политики, рыночное регулирование, модель экономического роста, промышленная трансформация.*

YASHIL RIVOJLANISH BO'YICHA TADQIQOTLAR VA TAJRIBA

Annotatsiya. *Amerika Qo'shma Shtatlari, Germaniya, Yaponiya va boshqa mamlakatlarning yashil rivojlanish bo'yicha tajribasini sarhisob qilish orqali shuni ko'rish mumkinki, hokimiyat yashil siyosat tizimiga asoslangan yashil rivojlanishni, fan va texnologiyaning yashil rivojlanishini, sanoatning yashil rivojlanishini, va iqtisodiy o'sish naqshining yashil rivojlanishi.*

Kalit so'zlar: *yashil rivojlanish, siyosatni shakllantirish, bozorni tartibga solish, iqtisodiy o'sish modeli, sanoat transformatsiyasi.*

Environmental issues are common issues that countries around the world generally face in the process of economic development. Industrialization in some countries started very early. They have realized the importance of environment and ecology earlier and have more experience in green development. These experiences can provide new ideas for green development for other countries and regions.

In the United States, the green development is mainly promoted by two means, the formulation of relevant policies and regulations and the operation of the market. In 1969, the United States enacted the National Environmental Policy Act, highlighting the Government's responsibility and obligation to regulate the environment. And on the basis of the Clean Air Act enacted in 1970, the United States gradually established an emissions trading mechanism focused on offset, bubble, banking, and netting. In addition, in 1980, the United States enacted the Comprehensive Environmental Response Compensation and Liability Act, which formally defined the responsibilities and obligations of environmental pollution treatment in law and

determined the calculation of related costs. And it stipulates that financial institutions should consider the risk of environmental damage from enterprises when they review and approve loans. This is a financial measure to restrain the pollution behavior of enterprises and urge them to protect the environment. And through the green tax system, the United States government encourages industries, enterprises and individuals to adopt clean energy other than coal, crude oil and other sources of energy with high pollution and high energy consumption. In addition, the United States regulated the consumption behavior of microeconomic subjects through the introduction of relevant laws. For example, the Resources Conservation and Recovery Act clearly stipulates the environmental responsibility to consumers. Such regulations could effectively influence consumers' purchasing choices. Consumers will voluntarily abandon products with high energy consumption and pollution. Moreover, the United States government increased its investment in science, technology and innovation in order to promote green development through scientific and technological innovation.

In Germany, the major means to promote the green development are the establishment of institutional system, the development and application of green technologies, and economic incentives. With regard to the establishment of institutional systems, Germany introduced the Environmental Planning Programme in 1971 and revised the German Basic Law the following year, which stipulates the authority and responsibility of the government in environmental regulation and emphasizes the important role of the government in environmental governance. Moreover, waste disposal has always been a major concern of the German government. There are many laws on waste disposal in Germany, among which the Waste Disposal Act enacted in 1972 plays an important role, and it was amended to the Waste Avoidance and Disposal Act in 1986, and then to the Closed Circulation of Substances and Waste Management Act in the 90's. Since then, the German government formulated a series of laws and regulations related to pollution control, such as the Atmospheric Emission Control Act, the Combustion Pollution Control Act, etc. In the pursuit of green development, the German government attaches great importance to scientific and technological innovation. In 2007, on the basis of the High Technology Strategy, the German Federal Ministry of Education and Research presented the High Technology Strategy for Climate Protection. Since then, in order to fully support the development of high-tech industries, the German government has issued the Germany High-Tech Strategy 2020, the New High-Tech Strategy: Innovating for Germany and the High-Tech Strategy 2025.

Similar to the United States and Germany, Japan promotes green development through the formulation of national macro-strategies, the enactment of laws and regulations, and the adjustment of industrial structure, etc. Firstly, the Japanese government established administrative organisations for green development and formulated basic laws and regulations for environmental protection, for example the Basic Law for the Environment and the Environmental Basic Plan. Secondly, the Japanese government incorporated green development into its national macro-development strategic planning. In the 1990s, the Japanese government introduced a series of strategic plans for the development of circular economy and society, such as the Circular Economy Blueprint. In 2007, Japan adopted the National Environmental Strategy for the 21st Century, which sets out the development goals of establishing a low-carbon society and a beautiful homeland in harmony with environmental protection in the medium and long term. In 2012, a green development strategy was proposed at the National Strategy Conference of Japan. Thirdly, Japan promoted green development through the transformation of industries, mainly including the

development of new industries and the renovation of traditional ones. Japan proposed a green development path involving the development of the tourist economy and enacted the Tourist Nation Promotion Basic Law in 2007. Under the guidance of this green development strategy, the industrial structure of Japan was adjusted.

In addition to the countries mentioned above that have already made progress in green development, many other countries and regions have adopted methods and instruments based on local characteristics and have achieved significant results in their exploration of green development. These successful experiences provide inspiration for the green development. In summarising the methods employed by countries and regions to promote green development, there are many commonalities can be found. In general, countries promote green development mainly through the institutional system and scientific and technological development. As far as the institutional system is concerned, the policy instruments applied by countries to promote green development can be classified into three categories: direct planning, creating markets, and utilising markets. Direct planning primarily is the direct restriction of pollution generation and discharge by the government through the enactment of laws and regulations. Along with strict supervision and enforcement, this method can rapidly control pollution behaviour. In addition, from the market aspect, some countries create specific trading markets for the resource industries and industries responsible for pollution, so as to allocate the responsibility for pollution and the property rights of resources and to stimulate the environmental consciousness of the parties involved. Additionally, a large number of countries and regions have used markets to promote green development, and such instruments include environmental taxes, royalties, resource pricing, dedicated funds, bonds, deposit refunds, dedicated subsidies, green credits, and green procurement. Table 1 summarises general policy instruments for green development and cases from various countries and regions.

Table 1. – The policy instruments and cases for green development

Category	Instrument	Case
Direct Planning	law and regulation	Combustion pollution control act - Germany
	standard	Eco-friendly environmental standards - UK
	prohibition	Restriction of hazardous substances directive - EU
	licence	Hazardous waste management licence - Japan
	limit	Pollutant discharge limits - EU
Creating Markets	property right	Forest certification systems - Mexico
	partition	Public area management projects - South Africa
	quota trade	Acid rain programmes - USA
	voluntary agreement	Clean production agreements - Chile
Utilizing Markets	environmental taxes	Taxes on water pollution - Netherlands
	royalty	Sewage charges - Germany
	resource pricing	Differential electricity tariffs - Mexico
	dedicated funds	National clean investment fund - USA
	bond	Green bonds - Canada
	deposit refund	Deposit refund on PET bottles - Taiwan, China
	dedicated subsidies	Green industry act - France
	green credits	Sustainable finance strategy - Germany
green procurement	Green purchasing programmes for government - USA	

Differences in natural conditions and in division of labor among regions of a country, however, lead to some differences in green development potential and green development paths by region. The regional transformation from traditional to green economic development can, in general, be viewed as a green transformation of economic growth patterns and of industry. In terms of practical experience of individual regions, such a transformation is typically achieved by strengthening regional greening strengths, eliminating regional greening weaknesses and promoting cooperation between ecology and industry, industry and industry, public and government and among regions. The directions towards regional green development in various countries are shown in Table 2.

Table 2. – Green development directions based on regional characteristics

Enhancing Strength	Environmental strength	Protection and construction of natural and ecological areas such as forests and river valleys - Erlangen, Germany
	Industrial strength	Development of culture and education, technology research and development and consultation services based on local famous universities - Berkeley, USA
Eliminating Weakness	Environmental weakness	Refinement of the urban transport system with a priority for pedestrians and public transport - Adelaide, Australia
	Industrial weakness	Increased residential construction in and around the city centre to promote business and trade - Berkeley, USA
Cooperation	Cooperation between environment and industry	Green Roofs - Malmo, Sweden
	Cooperation between industry and industry	An ecological industrial park that realizes that waste generated by one industry serves as raw material for other industries - Kitakyushu, Japan
	Cooperation between regions	Networks for by-product exchange across regions - Brownsville, USA; Matamoros, Mexico
	Cooperation between government and public	Preparation of green development plans based on public opinion - Erlangen, Germany

The history and commonalities of green development practices in various countries provide inspiration for green development. Although the actual situation and realistic dilemmas faced by each country and each region are different, the general ideas for exploring green development are similar. Firstly, it can be seen from the history of green development in various countries that all countries attach great importance to the development of green institutional system. Through the construction of the system, the subjects of production and life can consciously fulfil their obligations for environmental protection or bear the responsibility for environmental damage, avoiding the tragedy of the commons. In addition, the economic incentives realized through the institutional system could create motivation among subjects of production and life to protect the

environment and to explore a green production and life style. Secondly, the green development cannot ignore the crucial role of technological innovation. Green technology innovation is an important path to promote economic development and ecological protection. In the context of green development, it is easier for industrial enterprises with green technology to dominate the market. Moreover, with the constant promotion and application of green technology and green standards, the demand for green products in the market is on the rise. The green technological innovation will gradually become the main direction in the strategic management of enterprises to expand the supply of green products and services. It is clear that, with the development of green institutional systems and green technological innovations, both industries and economic growth patterns will have the opportunity to make a green transformation, which will bring green development to a new era.

Conclusion. By summarising the experiences in green development, authorities tend to promote green development from the green policy system, green development of industry, green development of economic growth pattern, and green development of science and technology. For green policy system, the policy instruments adopted by various countries can be divided into three aspects, direct planning, creating markets and utilizing markets. For green development of industry and green development of economic growth pattern, authorities of various countries tend to focus their efforts on enhancing strength, eliminating weakness and cooperation. For green development of science and technology, its role lies mainly in equipping the green development of industry and the green development of economic growth pattern. Summarising the experiences of green development in various countries facilitates the exploration of green development paths and makes the theoretically designed green development paths more practical and applicable.

References

1. Chen, Y. Inspiration for our country from American environmental economic policy / Y. Chen, N. Lan // *Journal of China university of geosciences*. – 2010. – Vol. 10, № 02. – P. 38-42.
2. Zhu, Y. Recent environmental policymaking trend in USA and the reference to China / Y. Zhu // *Environmental protection science*. – 2013. – Vol. 39, № 05. – P. 46-50.
3. Wu, W. The sustainable development model of Germany / W. Wu, J. L. Shi // *Deutschlan studien*. – 2017. – Vol. 32, № 1. – P. 4-24.
4. Tils, R. The German sustainable development strategy: facing policy, management and political strategy assessments / R. Tils // *European environment*. – 2017. – Vol. 17, № 3. – P. 164-176.
5. Liu, S. F. Study on the environmental policies of Japan / S. F. Liu // *Economic vision*. – 2017. – № 1. – P. 17-24.
6. Kishimoto, C. The development of Kitakyushu city's environment policy: from anti-pollution to the creation of eco-capital / C. Kishimoto, X. Peng // *Modern economic science*. – 2010. – № 32. – P. 89-97.