

Analysis of the Achievements and Challenges of China's Environmental Development

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Abstract: China's green development has made great historical achievements in the recent decade. The strategic position of green development has achieved a historic leap forward, the quality and stability of the ecosystem have been greatly improved, the trend of decoupling economic development and carbon emissions has been shown, and the green development system has been basically formed. However, China's green development also faces multiple contradictions and challenges. The challenges of energy transformation and energy security, green transformation and upgrading of industrial structure and technological constraints, unbalanced and insufficient green development between regions, mismatch between green consciousness and green actions, and incomplete green institutional systems. The paper, through a method of literature review, explores the exact achievements and challenges in China and it finds that the impact of the achievements and challenges of green economy development on China and how to deal with the achievements and contradictions of green economy development by discussing the countermeasures and suggestions of high-quality economic development. The significance of studying this topic is to make more people have a deep understanding of the degree of green economic development in China and the role of reference for other countries.

Keywords: environment, green development, ecosystem.

1. Introduction

Since the reform and opening-up, China has seen impressive economic growth, accompanied by increasing environmental pressures. The 20th CPC National Congress report highlighted that the primary task ahead for the CPC is to unify and guide the people of all ethnic groups in building a fully modernized socialist nation, striving to achieve the second centenary goal, and advancing the great rejuvenation of the Chinese nation through a uniquely Chinese path to modernization [1].

According to the white paper "China's Green Development in the New Era", China has made great historical achievements in green development in the decade of the new era, the strategic position of green development has achieved a historic leap, environmental quality has been continuously improved, the quality and stability of the ecosystem has been greatly improved, economic development and carbon emissions have been decoupled, and the green development system has basically taken shape. The new scholars Han Jing and LAN Qing talked about the need to promote green development on the new journey to coordinate energy transformation and energy security, promote industrial green transformation and upgrading, strengthen the main position of enterprise

scientific and technological innovation, promote green development according to local conditions, and better play a joint force for the government and effective market.

The paper through a method of literature review to explore the exact achievements and challenges in China. In-depth study of this field, systematic review and summary of China's historical achievements in green development in the new era, and profound understanding and grasp of the contradictions and challenges faced by green development on the new journey will further stimulate the great power of building a Chinese-style modernization of harmonious coexistence between man and nature. Also, some suggestions for reference in this field are also provided.

2. China's environmental economic development achievements

Since the reform and opening-up, China has achieved significant progress in both environmental protection and economic development. Since 1978, the economy has grown at a remarkable rate, with GDP rising from 367.9 billion yuan to 82.71 trillion yuan by 2017. The country's share of the global economy has expanded from 1.8% to 16%, establishing it as the world's second-largest economy. Per capita GDP has seen substantial growth, lifting a large population out of poverty. Key advancements have also been made in environmental protection and infrastructure development, notably in energy, transportation, and communications.

China has gradually shifted from a coarse-scale growth model to a sustainable development. It has achieved results in reducing carbon emissions. For example, nearly 4.1 billion tons of carbon dioxide emissions have been reduced in the past decade. The environmental protection policy and the institutional system are constantly developing, such as the establishment of nature reserves, the promulgation of the Environmental Protection Law, etc. The number of nature reserves has increased, the forest coverage rate has been improved, and the water and soil conservation work has achieved results. The protection of wetlands has made historic achievements. The management of desertification and desertification has achieved remarkable results.

Significant efforts have been made in the prevention and control of major pollutants, leading to a marked reduction in total emissions. For instance, during the 13th Five-Year Plan, emissions of chemical oxygen demand, ammonia nitrogen, sulfur dioxide, and nitrogen oxide saw substantial declines. Hazardous waste management has improved, achieving the goal of zero solid waste imports, while the development of waste-free cities has steadily progressed.

China has also been active in global environmental governance, supporting the Paris Agreement's implementation and setting ambitious carbon peak and carbon neutrality targets to aid global sustainable development.

In terms of environmental quality, the percentage of days with excellent air quality in cities at and above the prefecture level has increased, and surface water quality has improved, with 87.9% of monitored sections rated as excellent. Ecological protection efforts have raised forest coverage, with protected areas for natural reserves and land ecology steadily expanding. As China progresses toward green transformation, energy consumption and carbon emission intensities have decreased, while the share of clean energy in the consumption mix has risen. China's leader has emphasized the value of a landscape with "lush green mountains and clear waters," equating it to the worth of "mountains of gold and silver" to underscore the importance of environmental preservation alongside economic growth [2].

While China has made substantial progress in environmental protection and economic development, it continues to face challenges and contradictions in balancing these goals.

3. The main contradictions and obstacles

Resource and environmental constraints are intensifying. As the economy rapidly expands, issues related to resource depletion and environmental pollution are becoming more pressing. Balancing ecological preservation with economic growth is essential. Industrial restructuring is under way as China transitions from a labor-intensive and resource-heavy economy to one focused on technology and services, requiring significant advances in technology and workforce training.

Regional disparities in development persist, with the eastern coastal regions being more advanced, while central and western areas lag behind. Narrowing this gap will require targeted regional development strategies.

Innovation capacity still needs improvement. Although China has achieved progress in science and technology, its overall capacity for innovation, particularly in critical core technologies, remains behind that of developed countries.

Energy restructuring is crucial. Coal dominates China's energy consumption, and it is essential to gradually increase the share of clean energy to reduce pollution and optimize the energy mix.

Changes in the global trade environment present challenges. The rise of trade protectionism worldwide has impacted China's export-oriented growth model. Expanding domestic demand and fostering international cooperation, including through the Belt and Road Initiative, are vital strategies.

An aging population presents further challenges, impacting the labor market, social security system, and economic growth.

Achieving carbon peaking and carbon neutrality goals is a significant undertaking. China's commitment to reaching peak carbon emissions by 2030 and achieving carbon neutrality by 2060 imposes ambitious requirements for restructuring energy, industry, and lifestyles.

To address these challenges, the Chinese government is implementing a range of policies, including promoting economic restructuring, strengthening environmental legislation, advancing regional development, and boosting investment in science and technology. These efforts aim to support high-quality economic growth and continuous improvements in environmental sustainability.

4. Discussion

In pursuing sustainable environmental and economic development, China can adopt the following strategies and recommendations:

Refine land and spatial development patterns with a focus on ecological protection and green development. By upholding ecological priorities, China can optimize layouts for production, living, and nature while strictly maintaining the ecological red line. Throughout history, ecological health has been aligned with the rise of civilizations, while ecological degradation has often signaled their decline [3].

Support green and low-carbon upgrades in traditional industries by advancing energy-saving and low-carbon technologies. This includes promoting technology renewal, optimizing production scale and location, and limiting projects with high energy demands and emissions. Expanding green and low-carbon sectors, fostering strategic emerging industries, establishing a green manufacturing framework, encouraging cultural industries, and supporting new industries and business models are essential steps.

Furthering the green and low-carbon energy transition involves maximizing clean and efficient fossil fuel use while expanding non-fossil energy sources and building a modernized power system to increase non-fossil energy consumption.

Encourage the green transformation of transportation by optimizing its structure, investing in sustainable infrastructure, advancing low-carbon transit, and enhancing energy efficiency and environmental standards.

Promote sustainable urban and rural development by integrating green planning and construction, supporting low-carbon building practices, and advancing green agricultural practices. Resource conservation and efficiency will also play a key role in rural development.

Develop the circular economy by advocating resource-recycling production models, fostering growth in the remanufacturing sector, and improving both resource utilization and waste recycling rates.

Enhance policies supporting green transformation, such as reforms in electricity and water pricing, improving residential water pricing systems, and updating waste management fees to encourage conservation and emission reductions. Strengthen market-driven mechanisms by establishing a resource and environmental factor allocation system, refining trading systems, building the national carbon emissions trading market, and promoting green energy certificate trading. Develop a comprehensive green development standard, including frameworks for carbon peak and neutrality goals, modernizing energy-saving standards, and enhancing low-carbon standards in renewable energy and industry.

Protecting the ecological environment safeguards productivity, while actively improving it can further boost productivity [4]. Strengthening innovation in science and technology for ecological progress is vital. Increased investment in green technologies and environmental protection equipment, along with the establishment of green technology banks, supports this effort. The green economy is central to sustainable development in modern China [5]. Promoting green consumption and raising societal awareness will help unlock its potential and fulfill public aspirations for a better life. Green development brings transformative shifts in production, lifestyles, attitudes, and values [6], addressing the overemphasis on capital-intensive technologies linked to past catch-up strategies and GDP-centric assessments [7].

Effectively utilizing carbon markets and green finance policies will clarify market signals, directing resources towards low-carbon development and inspiring innovation and sustainable practices across sectors [8]. Enhancing international cooperation on ecological issues is essential, including multilateral research on climate change and regional pollution control, and advancing the green Belt and Road Initiative. China's commitment to global climate governance requires active participation in frameworks like the UNFCCC, improving national contributions, and reinforcing climate cooperation worldwide.

By implementing these strategies, China can pursue high-quality economic growth while safeguarding the ecological environment. Green development represents a contemporary growth model that places environmental protection at its core, essential for fostering sustainable progress [9]. However, China's green economic development framework is still evolving, necessitating further efforts to strengthen, advance, and broaden its green transformation initiatives and institutional innovations. This commitment will enable China to make a significant impact on global sustainable development [10].

5. Conclusion

In conclusion, this paper focuses on the achievements and challenges of China's environmental economic development. At the same time, some suggestions are put forward to develop green economy according to the actual situation. These suggestions and the summary of the challenges and achievements of China's green economy development may be helpful to China's further development of green economy and have a certain reference for foreign countries to develop green economy. The times are still changing, and China should strengthen environmental economic development to achieve more achievements and overcome more difficulties and challenges, so that people can live a happier life. In the development of global economy, China's green economy plays a very important

role. Although China has good development opportunities under the background of globalization, it is also full of severe challenges.

The purpose of such research is to make China's green economy more vigorous, and to give other countries a reference. This study is not comprehensive. And this paper didn't do some field research on green economic development to support this article with more data. Moreover, there is no specific time period and national conditions at different times to analyze and investigate the development of China's green economy and pay attention to and compare the process and way of green economy development abroad and at home. It is still necessary to investigate various turning points in the development of environmental economy in China and abroad, and to focus on this aspect in the future. It is hoped that in the future, more and more people will pay attention to and conduct in-depth research in this field, realizing that the development of green economy is indispensable to human beings, and looking forward to continuous improvement and innovation.

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