

A Beautiful China Initiative Towards the Harmony between Humanity and the Nature

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HIGHLIGHTS

- The Beautiful China Initiative (BCI) provides Chinese wisdom for the sustainable development and welfare of all humanity.
- The progress of the BCI is summarized.
- Challenges and opportunities faced in implementing the BCI are analyzed.
- Policy suggestions for comprehensively advancing the BCI are proposed.

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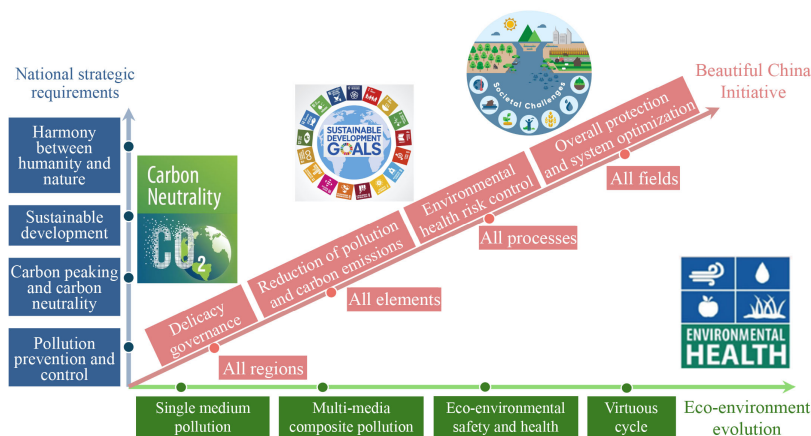
Beautiful China Initiative

Ecological civilization

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Policy suggestion

GRAPHIC ABSTRACT



ABSTRACT

The Beautiful China Initiative (BCI) is a vivid embodiment of the harmonious coexistence between humans and nature during modernization. Implementing the BCI is an effective method for achieving the goals of building a beautiful China, while offering a “Chinese solution” to global sustainable development. This article summarizes the progress and main experiences of the BCI, as well as analyzing the primary challenges facing its future development. Finally, five policy recommendations are proposed, which emphasize the importance of top-level design, coordinated planning, and a robust support system in the implementation of the BCI.

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1 Beautiful China Initiative: Achievements in an Ecological Civilization

Since the 1980s, the world has faced severe challenges due to tightening resource constraints, serious

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environmental pollution, and ecosystem degradation. How to achieve sustainable economic and social development for humanity has become a global concern (Pezzey, 1992; Dincer, 2000), as countries worldwide have been striving to balance economic growth with environmental protection (Huang et al., 2022; Liang et al., 2022). In 1987, the World Commission on Environment and Development (Brundtland, 1987) introduced the concept of sustainable development in their report, Our Common Future. The 1992, Earth Summit—guided by

the principle of sustainable development—adopted significant documents such as the Agenda 21 and the Rio Declaration, which officially proposed a sustainable development strategy. To promote sustainable development, China introduced the concept of an “ecological civilization” in 2007 as a strategic development framework. Using this framework, China has effectively addressed the imbalances and complexities in resources, environment, and social development, while providing a useful exploration and development prospect for other regions worldwide (UNEP, 2016; Hansen et al., 2018).

To address the challenges facing ecological civilizations in the new era—including climate change, ecological crises, new pollutants, and environmental health issues—China first proposed the Beautiful China Initiative (BCI) in 2013 and designated it as the mid-to-long-term direction and manifestation of achievements in building an ecological civilization, as well as incorporating it as a national development goal. In 2017, the 19th National Congress of the Communist Party of China (CPC) adopted “adhering to the harmonious coexistence of humans and nature” as one of the basic strategies for national development, which placed the building of a beautiful China at the core of the construction of an ecological civilization. In 2022, the 20th National Congress of the CPC proposed to achieve Chinese-style modernization and made strategic deployments for building a beautiful China in which humans and nature harmoniously coexist. Overall, the BCI is also in line with the fundamental goals of the construction of an ecological civilization and is an effective approach to achieving the UN sustainable development goals by 2030 (Ge et al., 2020). The BCI represents the transmission and development of the simple view of nature from traditional Chinese culture, as well as Marxist ideas on the relationship between humans and nature, and Xi Jinping Thoughts on Ecological Civilization. The BCI encompasses the attributes both of external beauty and internal grace in the composite system of the environment, society, and economy, while focusing on green development toward a beautiful ecological environment with the ultimate aim of achieving harmonious coexistence between humans and nature (Wan et al., 2021; Qiao, 2022). When implementing the BCI, it is thus necessary not only to demand a nationwide, systematic strategy that harmonizes economic and social advancement with environmental and ecological protection, but also to manifest the unique charm and diversity inherent in each region. More importantly, this endeavor must align with the requirements of different stages of Chinese-style socialist modernization to build a beautiful China marked by azure skies, verdant landscapes, and pristine waters. Important not just for China, the BCI can provide wisdom for other countries transitioning from an industrial to an ecological civilization (An, 2021), thereby underscoring its significant global implications.

2 Beautiful China Initiative: We Are Acting

Over the past decade, China has experienced historic, transformative, and comprehensive changes in its construction of an ecological civilization, while making significant strides in the BCI (Xie et al., 2021), thus leading, to some extent, the global green trend in sustainable development.

The BCI has significantly advanced China’s achievements in constructing an ecological civilization. Nationwide, regional models for the BCI have been established, each with its own distinct mode of implementation (Wan et al., 2022). In 2022, the annual average concentration of fine particulate matter (PM_{2.5}) decreased from 53 µg/m³ in 2013 to 29 µg/m³, representing a 57% reduction in average concentration in key cities and a 93% decrease in heavily polluted days. China has become the country with the fastest improvement in air quality globally. Progress has also been made in addressing climate change, including the establishment of a “1 + N” policy system for peak carbon and carbon neutrality. By 2022, China’s carbon emission intensity has been reduced by over 51% compared to 2005, and the share of clean energy consumption has increased to 25.9% from 14.5% in 2012, while supporting an average annual economic growth of 6.2% with an annual 3% increase in energy consumption (Deng et al., 2022). China’s hydropower, wind power, and photovoltaic power generation installations all rank first in the world (Jing et al., 2024). China’s industrialization progress has created a green miracle (Wang, 2021b; Wu, 2021). The national forest coverage rate has increased from about 8% in the year of China was founded to 24.02%, while also achieving a dual reduction in desertification and sandy land, as well as a dual decline in the area and intensity of soil erosion. Approximately one-quarter of the global increase in green areas from 2000 to 2017 occurred in China, which makes the country a major force in global greening (Chen et al., 2019).

The BCI is leading the green trend in global sustainable development. The BCI has propelled the accelerated implementation of the Paris Agreement. China’s declaration of its peak carbon and carbon neutrality goals, guided by its concepts and practices, has advanced global climate governance process (Wang et al., 2021). The PM_{2.5} concentration in Beijing has decreased from 89.5 to 30 µg/m³, a transformation which has been hailed as the “Beijing Miracle” by the United Nations Environment Programme (UNEP, 2019). The COP15 conference passed the historic Kunming-Montreal Global Biodiversity Framework (Hughes and Grumbine, 2023), and China has advocated for the establishment of the Belt and Road Initiative Green Development International Alliance and has completely halted the construction of new coal-fired power projects overseas (Cheng and Ge, 2020). Achievements such as the construction of the Saihanba Forest Farm in Hebei, Zhejiang’s Thousand Villages

Demonstration, the Ten Thousand Villages Renovation project, and the Ant Forest initiative have been awarded the United Nations Earth Guardian Award for their exemplary role in the implementation of the BCI (UNEP, 2019).

3 Beautiful China Initiative: Despite Challenges, We Are Full of Confidence

Despite significant achievements in the BCI, there are still four key challenges to address. First, there is a considerable gap between current environmental quality and the BCI's goals. Urban air quality is still predominantly influenced by meteorological factors, and the concentration of PM_{2.5} is far from meeting health protection standards and international advanced levels at approximately 5.8 times the WHO guideline values. Second, there are pronounced contradictions in green and low-carbon development. No fundamental changes have occurred to the industrial structure dominated by heavy chemical industries, the coal-dominated energy mix, and the road freight-centered transportation structure. In 2022, China's economy accounted for 18% of the world's total, but its crude steel, cement production, and coal consumption accounted for 53.9%, 51.3%, and 54.2% of the world's total, respectively. The proportion of fossil energy consumption far exceeds that of the United States and Europe (Höhne et al., 2020). There are also multiple challenges inherent in achieving peak carbon and carbon neutrality, including the high dependency of industrial structures on fossil energy, the rigid growth of energy consumption due to economic upscaling, and the ambitious goal of transitioning from carbon peak to carbon neutrality within just 30 years (Wei et al., 2021; Lu et al., 2023). Third, the tasks of ecological protection and restoration are long-term and arduous. Over 55% of China's territory is moderately or severely ecologically fragile, and areas affected by desertification and soil erosion still account for 27% and 29% of the country's land area, respectively. The significant impacts of climate change and human activities on biodiversity loss remain persistent (Lu et al., 2020). Issues such as an inadequate supply of high-quality ecological products and inconsistencies in the accounting system for ecosystem services also remain (Jiang et al., 2021). Fourth, the layout, structure, and quality of environmental safety and health are not yet adequate to meet development needs that prioritize people's wellbeing in ecological and environmental terms. Greater attention is needed to ensure the safety of drinking water (Wu, 2020), soil risk (Hu et al., 2020), and health risks caused by air pollution (Zhou et al., 2019), as well as the risks created by extreme climate events (Eckstein et al., 2021).

China has the several strategic opportunities for realizing the goal of building a beautiful China by 2035.

First, the building of a beautiful China contributes to enhancing China's international green competitiveness. The BCI and dual carbon goals represent a broad and profound systemic transformation of the country's economic and social system (Lu et al., 2023), which will foster comprehensive, in-depth reforms in its energy mix, industrial patterns, social concepts, and employment philosophies to create greener industries (Gallagher et al., 2019). Moreover, carbon neutrality is gradually becoming a new growth point for economic development and have significantly effectively boosted the China's international green competitiveness (Duan et al., 2021). In 2023, the ratio of fossil fuel investment to clean energy investment was 1:1.7, compared to a ratio of only 1:1 five years previously (IEA, 2023). Second, ensuring environmental health for the population provides a deeper governance direction for the building of a beautiful China. The international consensus that everyone deserves a clean, healthy, and sustainable environment has led China to prioritize public health in its strategic development. It has therefore proposed the integration of health into all policies and jointly promoted the goals of a Healthy China and Beautiful China. Third, scientific and technological innovation provides a powerful development impetus for building a beautiful China. As global climate issues and transboundary pollution increasingly capture the world's attention, they are catalyzing the development of diverse and innovative solutions. These solutions include multifaceted and multi-regional technologies for ecological and environmental pollution control, a spectrum of carbon management technologies ranging from low- to zero-carbon—and even negative-carbon—approaches, green technologies encompassing entire life cycles, and sophisticated technologies for intelligent, multi-factor environmental regulation. All these advances collectively bolster BCI implementation. Finally, the building of a beautiful China offers a Chinese solution for other countries' sustainable development. China's innovative practices in constructing an ecological civilization can provide replicable sustainable development models for many developing countries at similar stages of development, such as promoting green total factor productivity in countries along the Belt and Road (Chen et al., 2020b).

4 Beautiful China Initiative: Blueprint, Roadmap, and Actions

To advance the implementation of the BCI comprehensively and establish a solid ecological foundation for the great rejuvenation of the Chinese nation, it is imperative to prioritize the construction of an ecological civilization within the overall national agenda, focus on the blueprint goals of the BCI, and strengthen ecological and environmental protection in a holistic manner across all domains, factors, regions, and dimensions.

4.1 Designing a full-cycle blueprint for the BCI

The BCI is a systemic project in the new era of socialism and, as such, needs to target strategic goals and strengthen its top-level design (Xie, 2020). More importantly, milestone goals for the BCI should be set from an overall perspective that considers the strategic nodes of medium- to long-term development. Internationally, initiatives like the European Green Deal and Singapore's Green Plan 2030 primarily center on implementing the United Nations 2030 Agenda for Sustainable Development and specify strategic goals and tasks in areas like ecological environment and climate change response through legislation, drafts, and plans. In China, research has mainly focused on setting stage-specific goals and constructing indicator systems for the BCI, with particular attention to building a framework and roadmap comprising the four dimensions of regions, factors, domains, and timelines (Wan et al., 2021). Scholars have also proposed a BCI indicator system in six domains—clean air, clean water bodies, safe soil, healthy ecosystems, tidy human settlements, and climate change response—with suggested target values for 2035 (Wang et al., 2022). Overall, the objectives of the BCI should be based on the continual improvement of ecological environmental quality, which in turn relies on reducing resource and energy consumption. This reduction is fundamentally dependent on the transformation of development models to green and low-carbon approaches (Wu et al., 2015). Based on this analysis, key environmental factors are expected to reach significant turning points in their development trajectory by 2027, 2030, 2035, and 2050, which will bring far-reaching impacts on the rational setting of target values for BCI indicators and profoundly affect the green

development model, the improvement of ecological environmental quality, ecosystems, ecological safety, and the ecological environment governance system. This requires focusing on the medium- to long-term development trends of Chinese-style modernization and synchronizing the project with changes in development drivers such as industrialization and urbanization, as well as aligning with China's strategic planning to enhance the strategic roadmap and top-level design for the BCI (Table 1).

4.2 Creating a green impetus for the BCI across all domains

Green and low-carbon transformation is a widespread and profound socio-economic transition toward building a modernized powerhouse (Chen and Chen, 2022). Structural issues are key to navigating the path to Chinese-style modernization (Hu et al., 2023). Entering the 21st century, green recovery across all domains has become a global trend. Energy mix transformation and carbon-efficient economic development are crucial for enhancing national competitiveness (He, 2016). Currently, the construction of China's ecological civilization faces two strategic tasks: to fundamentally improve the ecological environment and to achieve peak carbon and carbon neutrality. This would achieve coordinated pollution and carbon emission reduction, which together form a key pathway for comprehensive green transformation in the new stage of China's socio-economic development. Moving forward, the BCI should leverage the intertwined nature of environmental pollutants and carbon emissions and ensure consistency and collaborative reinforcement across five pivotal areas—goals, regions, measures,

Table 1 Strategic roadmap for building a Beautiful China Initiative

Field	2027	2030	2035	Middle of the 21 st century
Economic and social development	Steadily achieving high-income status	Overall national strength continues to grow	Achieving modernization	Great modern socialist country
Ecological civilization construction	Achieving new progress	Achieving new improvements	Comprehensive establishment of ecological civilization system	Overall improvement of ecological civilization
Green development	Significant achievements in green transformation of production and lifestyle	General formation of green production and lifestyle	Widely formation of green production and lifestyle	Comprehensively formation of green production and lifestyle
Energy resource structure	Coal use remains stable; oil and gas use increases	Coal use reduces; oil use remains stable; gas use increases	Coal and oil use reduces; gas use remains stable	Coal, oil, and gas use reduces
Responding to climate change	Carbon emission intensity continues to decline	Carbon emissions peak before 2030	Carbon emissions have stabilized and declined after peaking	Steady progress towards carbon neutrality vision
Eco-environmental protection	Continuous improvement	Comprehensive improvement	Fundamental improvement	Tranquility, harmony, and beauty
Ecological security	Effective protection of ecological security	Continuous improvement of ecological security	National ecological security becomes more stable	Comprehensive protection of ecological security
Modernization of system and capacity for governance	Establish and improve a modern environmental governance system	Continuous improvement	Basic implementation	Comprehensive implementation
Beautiful China construction goals	Making significant progress	Achieving remarkable results	Basic implementation	Completely established

policies, and targets—to develop the fourth sector of ecological products and promote a green, low-carbon transformation across various domains, including energy (Wang et al., 2023), industry, transportation, urban and rural construction, and agriculture (Xie et al., 2023), ultimately achieving multifaceted success in terms of environmental, climate, and economic benefits (Qian et al., 2021) (Fig. 1).

4.3 Holistic promotion of environmental quality in the BCI

Continuously improving environmental quality is not only the primary task of the BCI but is also an essential requirement to meet people’s new expectations for a better life. It is also, more importantly, a powerful means to drive high-quality development. Over the past 70 years, China has shifted from a single-focus perspective to prioritizing the construction of an ecological civilization; this has led to the gradually formation of a Beautiful China blueprint centered on environmental protection (Wang, 2021a). China has implemented action plans to control air, water, and soil pollution, as well as landmark campaigns such as the battle for blue skies. The reduction of PM_{2.5} from 2013 to 2017, as well as ongoing efforts to strengthen the control of emissions will bring about significant improvements in air quality and related health benefits (Zhang et al., 2019; Cheng et al., 2021), which are crucial to ensure public environmental health. It also necessitates attention to governance costs and funding gaps (Liu et al., 2021). In recent years, coordinated control across multiple vectors such as air (Liu et al., 2021), water (Chen et al., 2023), and soil (Bhattacharyya et al., 2022), as well as spatial dimensions (Yu et al., 2022), has received widespread attention. A sustained and in-depth commitment is still needed to prevent and control air, water, and soil pollution. Enhancing the diversity, stability, and sustainability of ecosystems is also necessary, as this will be beneficial in

building a beautiful China with blue skies, green lands, and clear waters (Fig. 2).

4.4 Promoting the implementation of the BCI across all geographical areas.

There are significant differences in the ecological environment, societal conditions, and socio-economic development across China, which has resulted in strong spatial disparities in the implementation of the BCI (Qin et al., 2023). Implementation of the BCI has been stronger and more successful in the eastern regions than in the western regions (Wan et al., 2022). Implementing the BCI in a region and category-specific manner is therefore likely to be an effective method for building a beautiful China. It remains necessary to establish a practical planning system for the BCI at the national, regional, provincial, and municipal levels. This system should have two key characteristics. First, it should be led by strategic planning and consider the spatial characteristics and requirements of different areas (Chen et al., 2020a), supported by plans specific to each region, domain, and factor. Second, it should fully consider the varying needs

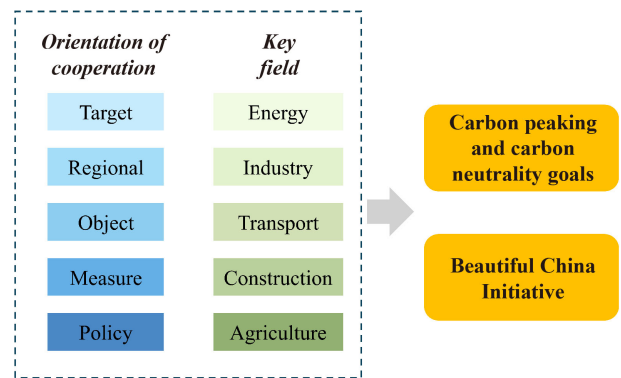


Fig. 1 Strategic roadmap for building a Beautiful China Initiative.

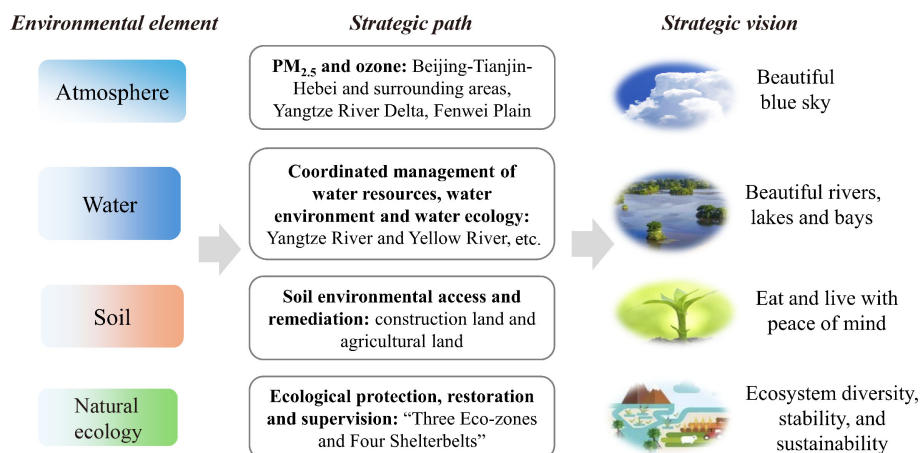


Fig. 2 The strategic path and goal guidance of ecological environment quality improvement.

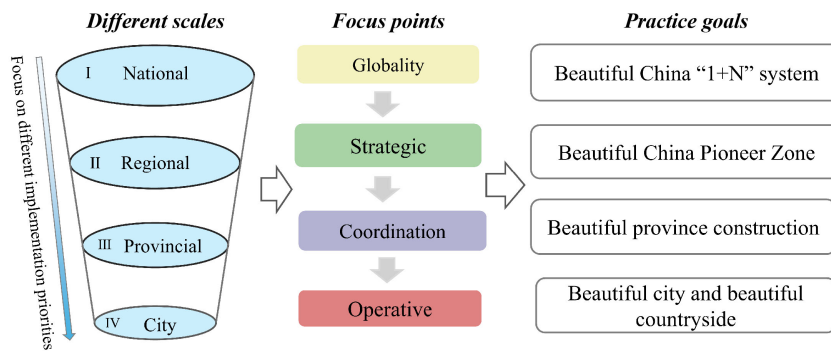


Fig. 3 The implementation priorities and goals of different regions in the construction of Beautiful China.

and disparities of the eastern, central, and western regions for BCI implementation. At the national level, the focus should be on overall strategy, particularly on planning the “1 + N” implementation system. The regional level should emphasize strategic development and focus on creating pioneering zones for the BCI in China’s major regional strategies. At the provincial level, the emphasis should be on coordination to foster the building of beautiful provinces. Municipal planning should focus on implementation and driving the development of beautiful cities, districts, counties, and towns, thereby painting a diverse and beautiful picture of China (Fig. 3).

4.5 Establishing a support system for the BCI in a comprehensive manner

To ensure that pollution control measures deeply advance BCI implementation, efforts are being made to promote a shift from a focus on end-of-pipe treatment to greater emphasis on source control. That is, there has been a shift in focus from pollution prevention to greater emphasis on comprehensive ecosystem management, and from individual environmental elements to a greater emphasis on synergistic pollution and carbon emission reduction (Wan, 2023). Future research is needed to develop gap-filling policies, regulatory systems, and monitoring, evaluation, and assessment frameworks, as well as to conduct tracking assessments for BCI implementation (Fang et al., 2020). Efforts should focus on perfecting market mechanisms; developing a comprehensive fiscal, financial, investment, and pricing policy system supporting green development (Dong et al., 2023); and enriching management systems and implementation mechanisms. It is also necessary to deepen inter-departmental policy coordination mechanisms and to improve data systems. Undertaking major research projects in scientific and technological innovation for the BCI, as well as implementing significant BCI projects are critical steps to modernize China’s ecological and environmental governance capabilities, while ensuring a comprehensive safeguard for the building of a beautiful China (Fig. 4).

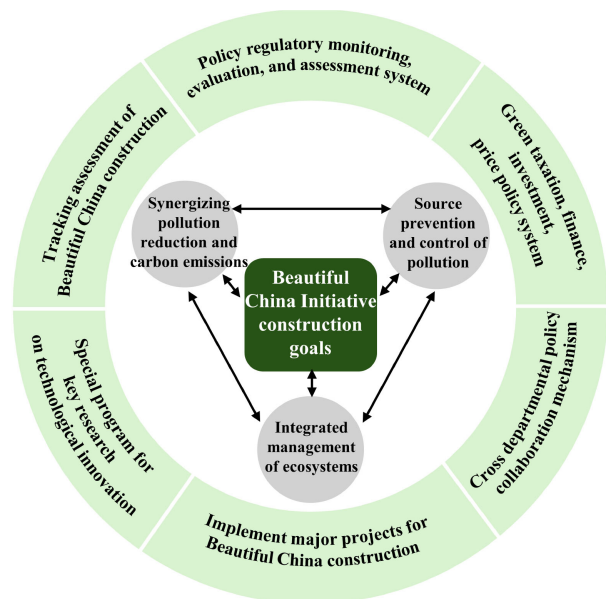


Fig. 4 Schematic diagram of the guarantee system for the construction of Beautiful China Initiative.

Conflict of Interests The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Authors Biography



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