



NORMATIVE STRENGTH OF GREEN BELT AND ROAD INITIATIVE ENVIRONMENTAL STANDARDS BETWEEN VOLUNTARY AND BINDING

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Abstract: The Belt and Road Initiative (BRI) is one of the world's largest infrastructure development projects with a major influence on environmental management at the international level. China introduced the Green Belt and Road Initiative (Green BRI) as a step to encourage more environmentally friendly development and reduce the impact of climate change. However, debate continues regarding the effectiveness of the environmental standards used, particularly concerning whether these standards are voluntary or mandatory. This research aims to analyze the characteristics of environmental standards applied within the Green BRI and to evaluate the extent to which a soft-law-based governance model can help encourage adherence to the global sustainable development agenda. The method used is descriptive qualitative with a literature study approach, analyzing policy documents, academic articles, and institutional reports produced during the 2019 to 2025 period. The research shows that environmental standards within the Green BRI are still dominated by characteristics of flexible regulation, marked by a lack of clear legal obligations, ambiguity in implementation indicators, and the absence of strong enforcement and sanction mechanisms. The ability to implement these standards depends on the regulatory capacity of the recipient country, domestic economic interests, and the role of non-state actors. These findings indicate that legal instruments lacking binding force (soft law) are less able to create sustainable environmental compliance.

Keywords: Green Belt and Road Initiative, soft law, hard law, global environmental governance, orchestration governance.

Abstrak: *Belt and Road Initiative (BRI) adalah salah satu proyek pembangunan infrastruktur dunia terbesar yang memiliki pengaruh besar terhadap pengelolaan lingkungan di tingkat internasional. Tiongkok mengenalkan Green Belt and Road Initiative (Green BRI) sebagai langkah untuk mendorong pembangunan yang lebih ramah lingkungan dan mengurangi dampak perubahan iklim. Namun,*

masih terjadi perdebatan mengenai efektivitas standar lingkungan yang digunakan, khususnya terkait apakah standar tersebut bersifat sukarela atau wajib. Penelitian ini bertujuan untuk menganalisis karakteristik standar lingkungan yang berlaku dalam Green BRI serta mengevaluasi sejauh mana model tata kelola yang berlandaskan soft law bisa membantu mendorong pengikutan terhadap agenda pembangunan berkelanjutan secara global. Metode yang digunakan adalah kualitatif deskriptif dengan pendekatan studi pustaka, yaitu dengan menganalisis dokumen kebijakan, artikel akademik, dan laporan institusional yang dibuat selama periode 2019 hingga 2025. Penelitian menunjukkan bahwa standar lingkungan dalam Green BRI masih didominasi oleh ciri-ciri undang-undang yang bersifat fleksibel, yang ditandai dengan kurangnya kewajiban hukum yang jelas, ketidakjelasan dalam indikator penerapan, serta tidak adanya mekanisme pengawasan dan sanksi yang berlaku secara kuat. Kemampuan penerapan standar itu bergantung pada kemampuan pengaturan negara tujuan, kepentingan ekonomi dalam negeri, serta peran aktor yang bukan pemerintah. Temuan ini menunjukkan bahwa aturan perundang-undangan yang tidak memiliki kekuatan hukum (soft law) kurang mampu menciptakan kepatuhan lingkungan yang berkelanjutan.

Kata Kunci: *Green Belt and Road Initiative, soft law, hard law, tata kelola lingkungan global, orchestration governance.*

INTRODUCTION

Since it was first introduced by President Xi Jinping in 2013, the Belt and Road Initiative (BRI) has developed into one of the most ambitious global connectivity and infrastructure development projects in the modern world, involving more than 140 countries across Asia, Africa, Europe, and Latin America. The massive scale of this development means that the BRI is viewed not only as an instrument of China's economic and geopolitical strategy, but also as an important actor in shaping the direction of global environmental governance in the era of climate change. On one hand, BRI projects contribute to infrastructure development and economic growth in developing countries. On the other hand, development that focuses on the fossil energy sector, natural resource exploitation, and large-scale land transformation raises serious concerns regarding increased carbon emissions, environmental degradation, and threats to global sustainable development targets.

In response to this international criticism, the Chinese government introduced the concept of the “Green BRI” in 2019 as an effort to align the BRI with the Sustainable Development Goals (SDGs) and global climate commitments under the Paris Agreement. Therefore, it is important to examine whether the “green” narrative in the Green BRI is genuinely supported by effective environmental governance mechanisms or merely serves as an instrument of legitimacy and international diplomacy.

Since it was first introduced by President Xi Jinping in 2013, the Belt and Road Initiative (BRI) has developed into one of the most ambitious global connectivity and infrastructure development projects in the modern world, involving more than 140 countries across Asia, Africa, Europe, and Latin America. Based on World Bank estimates, the total value of BRI investment is estimated to exceed USD 1 trillion and covers around 65 percent of the world's population as well as more than 40 percent of global Gross Domestic Product. The massive scale of this development means that the BRI is viewed not only as an instrument of China's economic and geopolitical strategy, but also as an important actor in shaping the direction of global environmental governance in the era of climate change. On the other hand, an International Energy Agency report shows that around 60 percent of the BRI's early energy projects were still dominated by coal-fired power plants and fossil energy, which contributed significantly to the increase in global carbon emissions. This condition raises serious concerns regarding environmental degradation and threats to global sustainable development targets.

Various previous studies Show that the implementation of environmental standards within the Green BRI remains ambivalent. Fang et al. (2021) found that the ecological footprint of BRI member countries remains a major challenge for global sustainability despite increased commitment to green development. Meanwhile, Wu et al. (2021) showed that carbon emission intensity in the BRI region still requires far more aggressive policy intervention to achieve climate mitigation targets. Other research also highlights developments in the integration of green finance and Environmental, Social, and Governance (ESG) principles, yet the implementation of fossil energy projects continues in a number of strategic economic corridors. Zhang et al. (2023) even asserted that carbon emissions from

BRI infrastructure development activities remain a major obstacle to the global net-zero emission agenda. In addition, Tukur (2024) explained that the effectiveness of the Green BRI is heavily determined by how environmental standards are translated into the operational policies of companies and financing institutions. These findings indicate a gap between normative commitments at the global level and practical implementation at the project level.

In studies of global governance, debates over the effectiveness of international regimes are often understood through the dichotomy between soft law and hard law. Soft law refers to a set of norms, principles, or guidelines that lack binding legal force, but can still influence actor behavior through normative legitimacy, reputational pressure, and policy coordination. In contrast, hard law refers to formal rules with clear legal obligations, enforcement mechanisms, and sanctions that can be applied to violations. In the context of the Green Belt and Road Initiative, most environmental standards, such as the Green Investment Principles, are largely formulated as voluntary guidelines, placing them closer to the character of soft law. In addition, this research uses the perspective of orchestration governance to understand how China, as a central actor, seeks to coordinate recipient countries, financial institutions, and non-state actors through mechanisms of persuasion, incentives, and coordination without formal legal coercion. This approach is important for explaining the relationship between legitimacy, flexibility, and the effectiveness of environmental compliance in Green BRI projects.

In studies of global governance, the effectiveness of an international regime is often debated through the dichotomy of hard law and soft law. Various Green BRI instruments, such as the Green Investment Principles (GIP), are seen as a progressive step in transnational environmental governance, but continue to draw criticism due to the lack of sanction mechanisms and binding legal obligations. Coenen et al. (2021) and Sun & Yu (2022) show that environmental governance within the BRI relies more heavily on voluntary guidelines than formal legal instruments. Meanwhile, Geng & Lo (2022) view the Green BRI as a form of state-led transnational environmental governance that relies on coordination, normative persuasion, and flexibility of implementation in recipient countries. This condition

reveals a fragmentation of global environmental governance in BRI projects, particularly because the environmental standards applied do not yet have sufficient coercive power to ensure the compliance of all actors involved.

Although studies on the economic and environmental impacts of the BRI have developed quite extensively, a significant research gap remains regarding the normative character of the Green BRI from the perspective of International Relations theory. Most previous research has focused more on measuring empirical impacts, such as carbon emission levels, green investment, or energy efficiency, without explaining how and why these environmental standards succeed or fail in creating cross-country actor compliance. In addition, studies using the perspective of orchestration governance to analyze the Green BRI remain relatively limited. Yet this approach is important for understanding how China, as a central actor, seeks to coordinate recipient countries, financial institutions, and non-state actors through mechanisms of normative persuasion rather than formal legal coercion.

Although many studies have discussed the Green Belt and Road Initiative (Green BRI), most of these studies still measure impact empirically, such as carbon emissions, investment in green projects, and more efficient energy use. These studies generally discuss the Green BRI's impact on the environment, but few have examined how the environmental standards applied within the Green BRI affect the level of compliance among actors in various countries. In addition, previous research tends to position the Green BRI more as a tool for sustainable development, while analysis of whether these environmental standards reflect the character of soft law or hard law remains limited, particularly when viewed from the perspective of orchestration governance within the discipline of International Relations. Therefore, this research brings something new by combining perspectives on soft law and hard law with the orchestration governance approach to explain how China builds an environmental management system through mechanisms such as persuasion, coordination, and norm enforcement. In addition, this research also assesses the extent to which this approach is able to create environmental compliance within Green BRI projects.

Based on this background, this research aims to analyze the normative character of environmental standards within the Green BRI and to evaluate the

effectiveness of the voluntary (soft law) governance model in encouraging compliance with the global sustainable development agenda. This research also seeks to explain how the orchestration governance approach is used by China in building environmental legitimacy and coordination along the BRI route. Thus, this research is expected to make a theoretical contribution to the development of global governance and International Relations studies, particularly regarding the dynamics of soft law in transnational environmental regimes. In addition, this research also provides a practical contribution toward strengthening international environmental governance standards in future cross-country development projects.

METHODS

This research uses a descriptive qualitative approach with a literature study method. The qualitative method is used to understand and interpret social phenomena by analyzing data in the form of texts and the situations occurring within them (Creswell, 2014). According to Moleong (2017), qualitative research aims to comprehensively understand a phenomenon by collecting in-depth data and analyzing it interpretively. This method was chosen because it is necessary to explore in depth the relationship between a country's domestic policy and international environmental norms, particularly in discussions of the distinction between hard law and soft law instruments. Through this approach, the research attempts to examine how the Green Belt and Road Initiative (BRI) is being integrated into the Sustainable Development Goals (SDGs) as well as commitments to reduce the impact of global climate change, such as under the Paris Agreement.

The subject of this research is the environmental policy instruments issued by the Chinese government, such as the Green Investment Principles (GIP) and various commitments emphasizing transnational environmental management. This research focuses on the shift in investment trends from the fossil-fuel-based energy sector to clean energy, as well as the application of environmentally friendly infrastructure standards in BRI partner countries. The scope of this research spans from 2019 to 2025, since 2019 was a pivotal year in shaping the concept of the Green BRI, while 2025 represents the short-term target of various national climate commitments.

This research was conducted over four months and included several stages, such as identifying literature, classifying data, analyzing, and compiling the final report. Because this research uses a literature study method, the research location is not limited to a specific geographic area, but was instead conducted by searching for information through digital academic databases such as ScienceDirect, Frontiers, and Google Scholar. The data collection technique used the documentation method, gathering primary data in the form of Chinese environmental policy documents and financial institutions' operational guidelines, as well as secondary data in the form of scientific journal articles and research reports discussing environmental footprints and carbon emission levels. The data was validated using source triangulation techniques to ensure the credibility of the information obtained (Moleong, 2017).

The data analysis technique used content analysis conducted systematically in three steps: data reduction, data presentation, and drawing conclusions. This stage used the interactive analysis model developed by Miles, Huberman, and Saldãna in 2014. The analysis was carried out by identifying global sustainability indicators as well as Environmental, Social, and Governance (ESG) principles, then comparing government statements on green BRI policy with the actual investment practices on the ground, in order to determine the extent to which the soft-regulation model works in managing the environment globally.

RESULTS AND DISCUSSIONS

Normative Character of Environmental Standards within the Green BRI: Voluntary or Binding?

The transformation of the Belt and Road Initiative toward the concept of the Green BRI is part of China's strategy to respond to international criticism regarding the ecological impact of cross-country infrastructure projects. Since it was introduced by Xi Jinping in 2013, the BRI has developed into the largest global connectivity project, encompassing the construction of ports, railways, industrial zones, power plants, and even digital connectivity in more than 140 countries. Through this project, China has sought to strengthen its economic and geopolitical

influence, particularly in Asia, Africa, the Middle East, and Latin America. However, behind this economic expansion, global concerns have emerged regarding rising carbon emissions, deforestation, natural resource exploitation, biodiversity degradation, and developing countries' dependence on fossil-energy-based development. International pressure over the BRI's environmental impact increased significantly during the 2016–2019 period, when various reports showed the dominance of Chinese investment in overseas coal-fired power plant projects. Many observers assessed that the BRI could actually slow down the global energy transition due to the export of high-carbon technology to developing countries. This condition prompted the Chinese government to begin building the Green BRI narrative as an effort to reconstruct its global legitimacy. The Green BRI was subsequently reinforced through various policy instruments, such as the Belt and Road Ecological and Environmental Cooperation Plan (2017), the Green Development Guidance for Overseas Investment and Cooperation (2021), and the Green Investment Principles (GIP), which were designed to integrate sustainability principles into cross-country investment projects.

Normatively, these various policies show that China has sought to align the BRI with the Sustainable Development Goals (SDGs) and the Paris Agreement. However, the results of this research show that environmental standards within the Green BRI still represent the characteristics of soft law rather than hard law. In international governance theory, Abbott and Snidal (2000) explain that hard law is marked by three main elements: obligation, precision, and delegation. These three elements are not yet fully present in the Green BRI. In terms of obligation, various Green BRI environmental guidelines lack formal binding legal force over state enterprises, private investors, financing institutions, or recipient countries. Policy implementation still depends on the voluntary commitment of each actor. There is no international legal obligation that can compel companies to halt projects that pose high environmental risk. This condition differs from international regimes such as the World Trade Organization, which has formal dispute-settlement mechanisms and sanctions for rule violations.

In terms of precision, various Green BRI documents still use general terminology such as green development, ecological civilization, and sustainable infrastructure, without detailed and measurable implementation indicators. This lack of clear indicators creates broad room for interpretation among recipient countries and project-implementing companies. As a result, the definition of a “green” project can vary between countries. A project may be claimed as sustainable simply because it has better energy efficiency than an older project, even though it still uses fossil energy on a large scale. Meanwhile, in terms of delegation, the Green BRI does not yet have an independent international body authorized to conduct formal oversight and impose sanctions for violations of environmental standards. Project evaluation mechanisms still depend heavily on the domestic institutions of recipient countries, whose regulatory capacities vary widely. Countries with weak environmental institutions tend to more readily accept high-risk projects because of short-term economic development needs.

These findings reinforce the research of Coenen et al. (2021) and Sun & Yu (2022), which shows that Green BRI environmental governance still relies heavily on a voluntary approach. Nevertheless, this research also shows that the dominance of soft law is not merely an institutional weakness, but part of China's geopolitical strategy to maintain political flexibility in developing countries. From the perspective of orchestration governance (Abbott et al., 2015), China acts as an orchestrator that attempts to coordinate various state and non-state actors through normative persuasion, rather than formal legal coercion.

This strategy provides China with a political advantage because it allows recipient countries to retain flexibility in adjusting environmental standards to their domestic conditions. This approach makes the BRI more readily accepted compared to Western development models, which often require institutional reform and strict environmental standards. However, this flexibility also produces a fragmentation of global environmental governance, because implementation depends heavily on the domestic regulatory capacity of recipient countries. In the context of a regime complex, the Green BRI shows how China is building an alternative environmental governance model outside the dominance of Western institutions. Keohane and Victor (2011) explain that global climate change governance today is not regulated

by a single regime, but by various overlapping institutions. The Green BRI is part of this fragmentation because it develops its own environmental standards, which are not always aligned with existing international standards. Thus, this research shows that the normative character of the Green BRI remains dominated by a soft-law approach that is flexible, persuasive, and based on normative coordination. This approach is indeed effective in expanding the participation of developing countries, but has not yet been able to create consistent and legally binding global environmental standardization.

These findings show that the normative character of the Green BRI is closer to the concept of soft law as explained by Abbott and Snidal (2000). The absence of strong legal obligations, the low level of clarity in standards, and the lack of a delegation mechanism to an independent institution indicate that Green BRI instruments rely more on norm-based legitimacy than on the formal use of law. Thus, the results of this research reinforce the argument that the success of the Green BRI does not depend on its degree of legal force, but rather on the ability of these norms to shape the behavior of parties through methods of persuasion and the coordination of cooperation.

Implementation of Green BRI Environmental Standards: Ambivalence between Rhetoric and Reality

Table 1. Comparison of Green BRI Implementation in Several Countries

Country	Project	Form of Implementation	Environmental Impact
Pakistan	Sahiwal Coal-Fired Power Plant	Coal-based energy	High carbon emissions
Indonesia	Nickel Downstreaming	Smelter industry	Dependence on coal-fired power plants
Kenya	Standard Gauge Railway	Transportation infrastructure	Disruption to conservation ecosystems

Laos	Laos-China Railway	Regional connectivity	Fragmentation of wildlife habitat
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Although the Green BRI normatively demonstrates a commitment to sustainable development, this research finds a significant gap between policy rhetoric and empirical implementation on the ground. This ambivalence is clearly visible in the continued dominance of high-carbon-intensity projects across various BRI regions, even though China has officially adopted a green development narrative. Fang et al. (2021) show that BRI member countries contribute around 39 percent of global carbon emissions. This large contribution is related to the high level of energy, transportation, and extractive industry infrastructure development that remains fossil-fuel based. In the early phase of the BRI, most of China's overseas energy financing was concentrated on coal projects, as these were considered capable of meeting developing countries' energy needs quickly and cheaply.

One prime example is the Sahiwal coal-fired power plant project in Pakistan, part of the China-Pakistan Economic Corridor (CPEC). This project successfully increased Pakistan's national electricity capacity and supported domestic industrialization. However, it also drew criticism for increasing carbon emissions and local air pollution. A similar condition can be seen in Bangladesh, where several coal-fired power plant projects have faced civil-society opposition due to the risk of coastal ecosystem damage and threats to local livelihoods. In Indonesia, the ambivalence of the Green BRI is evident through the nickel downstreaming industry project supported by coal-fired power plants. The Indonesian government views this project as an important instrument for increasing the value added of national industry and strengthening Indonesia's position in the global electric-vehicle supply chain. However, various international environmental organizations have criticized the high carbon emissions from this coal-based industrial zone. The case of Indonesia shows how a green energy transition agenda can proceed in parallel with the expansion of high-carbon industry.

Meanwhile, the Standard Gauge Railway project in Kenya has sparked controversy because the construction route passes through conservation areas around Nairobi National Park. In Laos, the China-Laos railway project has been criticized for its potential to trigger wildlife habitat fragmentation and increase environmental degradation. The similarity of patterns across these various cases shows that the implementation of the Green BRI is still heavily influenced by priorities of economic growth and the need for rapid infrastructure development, rather than long-term environmental protection. In 2021, Xi Jinping stated at the United Nations General Assembly that China would no longer finance new overseas coal projects. This policy was seen as an important turning point in the transformation of the Green BRI. Nevertheless, Zhang et al. (2023) show that a number of coal projects that had already received approval prior to this policy continued to proceed. This condition reveals a gap between normative policy change and actual implementation on the ground.

Beyond the energy sector, ambivalence is also evident in the implementation of ESG principles and green finance. Many Chinese financial institutions have begun adopting sustainability principles in investment evaluation. In practice, however, economic and geopolitical considerations often remain the primary priority over environmental protection. As a result, ESG standards tend to be applied inconsistently across projects and countries. On the other hand, this research also finds positive developments in the form of increased renewable energy investment in several BRI regions. Fang et al. (2023) recorded growth in solar power investment in Saudi Arabia, wind power in Kazakhstan, and green energy projects in Brazil. In addition, China has also begun expanding its exports of electric-vehicle technology, solar panels, and batteries to various developing countries. These developments show that the Green BRI has not entirely failed to advance the green energy transition.

Nevertheless, this increase in green investment has not been able to offset the ecological impact of high-carbon projects that have been ongoing for the past decade. Wu et al. (2021) show that carbon intensity in the BRI region remains higher than the global average. This indicates that the transformation toward low-carbon development is still proceeding only partially and unevenly. The findings of

this research reinforce Tukur's (2024) argument that the success of the Green BRI is strongly influenced by the institutional capacity of recipient countries. Countries with weak environmental oversight systems are more vulnerable to failures in implementing sustainability standards. In many cases, Chinese companies tend to adapt to the minimum standards of the recipient country rather than apply higher environmental standards.

Thus, this research shows that the implementation of the Green BRI remains in an ambivalent condition. Normatively, the Green BRI seeks to support the global sustainable development agenda. In practice, however, high-carbon projects still play a dominant role in China's economic and geopolitical expansion.

In addition to being influenced by the regulatory capacity of the recipient country, the effectiveness of Green BRI implementation is also strongly influenced by differences in economic and political interests across regions. In the case of Pakistan, projects under the China-Pakistan Economic Corridor (CPEC) framework are viewed as an important instrument for overcoming the domestic energy crisis and accelerating national industrialization. Therefore, the Pakistani government tends to give high priority to accelerating development over strengthening environmental regulation. This condition has allowed coal-based projects to continue receiving support despite conflicting with the global decarbonization agenda. A different situation can be seen in Kenya, where pressure from civil society organizations and environmental conservation groups is relatively stronger, so that several BRI projects face tighter public scrutiny. This shows that the implementation of Green BRI environmental standards is strongly influenced by the domestic political dynamics of the recipient country.

In Indonesia, the implementation of the Green BRI reveals a fairly complex contradiction. The Indonesian government is promoting nickel industry downstreaming as a strategy to increase national economic value added while also supporting the global electric-vehicle supply chain. In this context, Chinese investment plays an important role in the development of industrial zones and nickel smelters. However, most of these industrial zones still depend on coal-fired power plants to meet their production energy needs. This creates a paradox within the green energy transition agenda, since the very industry supporting global electric

vehicles is being built using high-carbon energy. The case of Indonesia shows that the “green development” label within the Green BRI is often still oriented toward economic outcomes and industrialization rather than comprehensive ecological transformation.

Beyond the recipient-country factor, the role of Chinese companies is also an important variable in determining the success of environmental standard implementation. This research finds that many Chinese construction and energy companies still use a pragmatic approach when carrying out projects overseas. In many cases, companies tend to adapt to the minimum standards of the recipient country rather than apply the higher environmental standards that apply within China itself. This condition reveals a gap between the normative commitments of China's central government and the practices of companies on the ground. These companies fundamentally continue to operate based on the logic of cost efficiency and economic profit, so environmental issues are often placed as a secondary priority.

The limitations of Green BRI implementation are also evident in the application of Environmental, Social, and Governance (ESG) principles. Normatively, ESG is promoted as an instrument for enhancing investment sustainability and strengthening corporate accountability. However, this research shows that the application of ESG within BRI projects remains uneven. Many ESG indicators still lack clear universal standards, so the evaluation process depends heavily on the interpretation of individual financial institutions or companies. As a result, projects with high ecological risk can still obtain a “sustainable” label if they meet certain administrative indicators. This condition shows that ESG within the Green BRI still has the potential to function as an instrument of political and economic legitimacy rather than a genuinely effective environmental oversight mechanism.

From the perspective of global governance, this phenomenon reveals the limitations of the soft-law model when not accompanied by adequate oversight and sanction mechanisms. The voluntary approach does provide flexibility and accelerate the participation of developing countries in BRI projects, but at the same time creates uncertainty in implementation at the practical level. This differs from

the hard-law approach, which has clearer compliance mechanisms through systems of evaluation, reporting, and sanctions. Therefore, this research shows that the main challenge of the Green BRI lies not only in the lack of normative commitment, but also in the absence of a transnational institution capable of ensuring the collective compliance of all actors involved.

Furthermore, this research shows that the Green BRI is fundamentally an arena of norm competition in global environmental governance. On one hand, China seeks to build an image as a global leader in green development through the promotion of renewable energy, green finance, and climate change cooperation. On the other hand, Western countries and various international environmental organizations continue to question the credibility of this commitment, since high-carbon projects remain ongoing in a number of BRI regions. This situation shows that the Green BRI is not merely an economic project, but also part of a competition for global influence over who has the right to determine international sustainable development standards in the future.

The Role of Non-State Actors in Green BRI Implementation

In discussing the effectiveness of Green BRI environmental standards, it is important to note that policy implementation is determined not only by the Chinese government and recipient countries, but is also influenced by non-state actors such as development banks, construction companies, international organizations, and transnational civil society. Within the orchestration governance framework, state actors often act as orchestrators who mobilize intermediary actors to achieve global policy objectives (Abbott et al., 2015). In the context of the Green BRI, the Chinese government does not always carry out projects directly, but rather through various intermediary institutions. One of the most important actors is financial institutions such as the China Development Bank and the Export-Import Bank of China, which for many years have been the main providers of BRI project financing. Both institutions have significant influence in determining which types of projects receive funding. In the early phase of the BRI, most financing was still directed toward fossil energy projects, as these were considered to generate economic

returns more quickly and to meet the energy needs of developing countries. However, after international pressure emerged regarding climate change issues, both institutions began adopting ESG principles and incorporating environmental risk into their investment evaluation processes.

Nevertheless, the implementation of these standards still faces many challenges. Many Chinese construction companies operating overseas continue to prioritize cost efficiency over environmental protection. Companies such as Power Construction Corporation of China, China Railway Construction Corporation, and China Communications Construction Company have significant involvement in cross-country infrastructure projects. In several cases, these companies continue to operate according to the minimum standards set by the recipient country, even though those standards are far lower than China's own domestic regulations. For example, the railway project in Laos has faced criticism from international conservation groups because the railway route crosses wildlife habitat. In Kenya, the Standard Gauge Railway project has sparked debate because the construction route has the potential to disrupt the ecosystem around Nairobi National Park. A similar condition has also occurred in Indonesia through the nickel downstream project supported by coal-fired power plants.

Beyond the private sector, international organizations also play an important role in advancing the greening of the BRI. The United Nations Environment Programme has collaborated with the Chinese government to establish the International Coalition for Green Development on the Belt and Road. This organization aims to provide technical recommendations so that BRI projects better align with global sustainability targets. However, the role of international NGOs such as Greenpeace and the World Wildlife Fund is also quite significant, as they often act as watchdogs over problematic projects. The presence of non-state actors shows that the Green BRI is a complex, multi-level governance arena.

In addition, the role of civil society in recipient countries is also very important in determining how the Green BRI program is carried out. In some situations, pressure from local communities, domestic environmental organizations, and independent media can influence how project evaluations are conducted and make the development process more transparent and accountable. For example, in

Kenya, criticism from conservation groups regarding the Standard Gauge Railway project mobilized the public to pay greater attention to the environmental impact of infrastructure development. A similar situation has occurred in Bangladesh and Indonesia, where civil society organizations have participated in highlighting ecosystem risks from fossil energy and extractive industry projects. This condition shows that local non-governmental organizations act not only as watchdogs, but also as a source of pressure through norms and values that can influence government and corporate decisions.

On the other hand, the participation of non-state actors also reveals conflict between economic interests, political legitimacy, and environmental protection. Financial institutions, construction companies, and international organizations usually have different objectives when implementing Green BRI projects. Financial institutions typically prioritize investment stability and economic benefit, while environmental organizations focus more on environmental sustainability. These differences in orientation create complex negotiation dynamics in every project. From the perspective of orchestration governance, this condition shows that the success of the Green BRI depends not only on the state's capacity as regulator, but also on its ability to maintain relationships among non-state actors with differing interests. Therefore, the success of the Green BRI depends on how well various parties cooperate in creating environmental standards that are more uniform and accountable.

These findings confirm the central assumption of orchestration governance theory that the success of global governance does not depend solely on the state as the primary actor, but also on the orchestrator's ability to coordinate intermediary actors. In the context of the Green BRI, financial institutions, construction companies, international organizations, and civil society act as intermediary parties that determine whether environmental standards are genuinely implemented in the actual conduct of these projects.

Implications of the Green BRI for Global Environmental Governance

The findings of this research show that the Green Belt and Road Initiative serves not only as a tool for cross-country economic development, but also has a significant impact in shaping new rules regarding global environmental management. In the context of global environmental governance, the Green BRI reflects China's effort to create a sustainable development model that differs from the Western approach, which generally focuses more on requirements, legal obligations, and institutional implementation. Through the Green BRI, China applies a more flexible approach that combines sustainability principles, green investment, and development cooperation without emphasizing internal political change.

This approach reflects a shift in how global normative power is distributed, in which developing countries now have a development model option different from that offered by Western institutions such as the World Bank or the International Monetary Fund. In practice, the Green BRI continues to provide financing access for infrastructure while also accelerating the use of green technology such as solar panels, electric cars, and batteries. However, this flexibility also causes inconsistency in international environmental standards, since there is no uniform mechanism to ensure consistent implementation.

From the perspective of complex systems, the Green BRI shows that global environmental management is now increasingly multipolar and fragmented. Environmental standards are no longer held solely by Western institutions, but are also increasingly influenced by new powers such as China. This condition triggers competition in standard-setting between a green development model based on flexible regulation and a model with stricter rules. These findings show that the Green BRI has the potential to become a driver of change in global environmental management, but its success still depends heavily on improvements in accountability mechanisms, standard alignment, and regulatory capacity in recipient countries.

In addition, the results of this research also show that the Green BRI has an impact on the global division of environmental responsibility, particularly in the relationship between developed and developing countries. Fang and colleagues

(2023) showed that increased investment in renewable energy in the BRI region provides developing countries with greater opportunities to obtain green technology at lower cost. This strengthens China's role as an alternative financing option for sustainable development projects, particularly given limited access to funding from Western financial institutions. Nevertheless, Zhang and colleagues (2023) emphasize that the sustainability of these projects still faces considerable challenges, because the legacy of high-carbon investment from the BRI's early stage has not yet been fully eliminated. This situation creates two directions in global environmental management, in which the Green BRI helps accelerate the shift toward new energy, while on the other hand it still follows development patterns that allow continued dependence on fossil fuels.

From a broader perspective, the Green BRI shows that the way global environmental management is conducted today is increasingly influenced by competition in building development models and debates over the legitimacy of rules among major powers. Coenen et al. (2021) state that the success of the Green BRI depends heavily on the extent to which China is able to transform voluntary commitments into more consistent and measurable development practices. Thus, the Green BRI is not only a venue for implementing environmental policy, but also a venue for ongoing debate in shaping global sustainable development standards in the future. Thus, the results of this research show that the Green BRI not only reflects a change in China's development policy, but also demonstrates the emergence of a new pattern in global environmental management that relies more on soft law and transnational coordination. This condition broadens the discussion in International Relations studies regarding how global norms can be shaped through mechanisms of persuasion rather than binding legal instruments.

Institutional Challenges in Strengthening Green BRI Environmental Standards

This research shows that one of the main problems in improving the environmental standards of the Green Belt and Road Initiative is the lack of institutional capacity in recipient countries as well as the uneven quality of regulation there. Tukur (2024) explains that the success of the Green BRI depends on the government's ability to translate environmental guidelines into practical rules

applied in everyday policy. Countries with weak environmental institutions typically struggle to oversee large infrastructure projects, especially when economic pressure forces development to proceed more quickly.

These findings are also consistent with the research of Fang et al. (2021), which shows that the high level of ecological footprint among BRI member countries is strongly related to still-low institutional readiness in managing environmental impact. In many developing countries, the need for foreign investment is typically prioritized over long-term environmental protection. As a result, projects with major ecological risk can still proceed even when oversight is not particularly strict. In addition, Wu and colleagues (2021) show that carbon levels in the BRI region remain quite high because the process of transitioning to clean energy has not yet been distributed evenly. This problem is further compounded by differences in project assessment standards among these countries. Coenen et al. (2021) and Sun & Yu (2022) also state that the use of voluntary guidelines within the Green BRI weakens compliance mechanisms, because there are no clear legal obligations or sanctions. This condition shows that the challenges facing the Green BRI relate not only to the design of its rules, but also to institutional capacity that remains insufficient to support the continuous implementation of environmental standards.

In this context, strengthening the Green BRI requires the alignment of rules between China and recipient countries, increased transparency in investment, and the creation of a more organized joint assessment mechanism. Without strengthening these institutions, the Green BRI risks continuing to function as a soft-law tool used more to assert norms than as an effective means of driving global environmental change. Beyond the issue of regulatory capacity, institutional challenges within the Green BRI are also related to differing development priorities between China and recipient countries. Geng & Lo (2022) state that the Green BRI governance model is built on principles of flexibility and local adaptation, allowing each country to adjust the implementation of environmental standards according to its domestic needs. On one hand, this approach accelerates the project approval process and increases the participation of developing countries. On the other hand, this flexibility typically causes inconsistency in standards and creates room for

regulatory gaps to emerge. In some situations, domestic governments often lower environmental criteria in order to attract foreign investors, particularly in the fields of energy, mining, and critical infrastructure. This condition shows that the Green BRI remains caught in a difficult position between meeting short-term economic development needs and maintaining commitment to long-term environmental sustainability. As a result, the effectiveness of the Green BRI program depends heavily on the ability to create a balance between policy flexibility and consistency of environmental standards across different countries.

CONCLUSIONS

Based on the results of the research, it can be concluded that the environmental standards within the Belt and Road Initiative, particularly within the Green BRI framework, reflect the characteristics of soft law more than hard law. The research results show that various policy tools, such as the Green Investment Principles (GIP) and China's green development guidelines, do not yet have official and binding legal force, whether for companies, financial institutions, or recipient countries. The implementation of environmental standards still depends heavily on the voluntary commitment of the parties involved. In terms of orchestration governance, China acts as the primary party that manages the environment in a persuasive and flexible manner, rather than through official sanction mechanisms. This approach increases the BRI's appeal in developing countries by providing room for more flexible development, but on the other hand causes the fragmentation of global environmental management and a lack of awareness of international sustainability standards.

This research contributes to the development of International Relations studies by showing that the success of global environmental management depends not only on the existence of binding rules, but also on the ability of key actors to create legitimacy, cooperation, and compliance through coordinated governance mechanisms. These findings help broaden the understanding of the Green BRI's role as a state-led form of international environmental management that combines geopolitical interests, economic growth, and the formation of global environmental rules. From a practical standpoint, the results of this research show that

improvements are needed in oversight systems, alignment of environmental standards, and strengthening of institutional capacity in recipient countries so that the Green BRI can better contribute to advancing sustainable development globally.

In addition, this research finds a real discrepancy between the Green BRI's rhetoric and the actual actions carried out on the ground. Although China has increased funding for the renewable energy sector and environmentally friendly technology, coal-based projects and high-carbon infrastructure continue in several countries such as Pakistan, Indonesia, Bangladesh, Kenya, and Laos. The ecological transformation of the Green BRI remains only partial and has not yet been able to fully replace development methods that rely on fossil energy. The success of implementing environmental standards also depends on the domestic regulatory capacity of the recipient country, that country's economic interests, and the actions of Chinese companies and financial institutions.

Theoretically, this research contributes to the development of the field of International Relations and global management by highlighting the weaknesses of the soft-law model in shaping uniform environmental awareness across development projects involving multiple countries. In practice, these findings show how important it is to strengthen accountability systems, harmonize environmental standards, and create joint evaluation systems between China and recipient countries, so that the Green BRI can more effectively support the global sustainable development agenda.

Nevertheless, this research has several limitations. First, this research uses a literature study approach, so its analysis relies heavily on secondary data and does not involve direct field observation. Second, the research focuses more on normative aspects and global governance, and therefore has not deeply examined the local socio-economic impacts on communities in recipient countries. Third, the time limitation of the 2019–2025 period means that some recent developments regarding China's energy transition and environmental policy have not been fully covered. Therefore, future research is recommended to use a field-study or comparative case-study approach in order to provide a broader understanding of the effectiveness of the Green BRI at the local and regional levels.

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