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# Analysis of Cross-Border Enterprise Cooperation Cases under the Belt and Road Initiative——Take the Padma Bridge of China Railway Group as an Example

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**Abstract:** During the high-quality development process of the "Belt and Road Initiative", Chinese multinational enterprises, represented by central enterprises, have become the core carriers for infrastructure connectivity and international production capacity cooperation. The Padma Bridge, as a major national project of Bangladesh and a landmark project of the "Belt and Road" in South Asia, is a typical sample of China Railway Group's cross-border infrastructure cooperation carried out under complex institutional environments and harsh geological and climatic conditions. This paper, based on the resource-based theory and the scale economy theory, adopts the single-case in-depth Research method and the PEST analysis framework to systematically analyze the business environment identification, risk response, cost control, technological innovation and local integration strategies of China Railway Group throughout the project's entire life cycle. The research finds that China Railway Group effectively overcomes the institutional distance, resource constraints and environmental constraints of the host country through dynamic political risk prevention and control, economic scale effect release, deep social and cultural integration, and independent innovation of the technical system, achieving the collaborative creation of project commercial value, social value and strategic value. The project not only directly drives the GDP growth of Bangladesh, reconstructs the national transportation network and creates large-scale employment, but also promotes the upgrading of China Railway Group's internationalization capabilities, the breakthrough of technical barriers and the shaping of a global brand. This paper constructs a business environment identification-cooperation strategy adaptation-scale economy realization-multidimensional value creation" analysis framework for cross-border infrastructure cooperation, extracts replicable practical experiences, provides theoretical references and practical guidance for Chinese enterprises "going global", and enriches the research system of cross-border enterprise cooperation cases of the "Belt and Road Initiative".

**Keywords:** The Belt and Road Initiative; Padma Bridge; China Railway Group; Cross-border Enterprise Cooperation

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## 1. Introduction

Since the launch of the "Belt and Road" initiative, infrastructure connectivity has served as the core driving force, facilitating the rapid development of China's foreign engineering contracting industry. Central enterprises, leveraging their advantages in funds, technology, and the entire industrial chain, have become the main force in overseas infrastructure investment and construction. However, the countries along the route generally face practical constraints such as insufficient political stability,

weak economic foundation, significant social and cultural differences, and backward technical support. Coupled with the anti-globalization trend and geopolitical competition, Chinese enterprises' cross-border cooperation is confronted with multiple challenges such as institutional distance, cultural conflicts, cost out-of-control, and expanded risk exposure. Politically, the political situation in the host countries fluctuates, policies are changeable, and external interference is strong, making projects prone to interruption; institutionally, standards are not mutually recognized, the approval process is cumbersome, compliance costs are high, and institutional transparency is low; financing-wise, Western multilateral institutions withdraw loans, commercial financing is expensive, and exchange rate risks are high; in the market, local support is weak, labor skills are low, and supply chains are unstable; socially, there are significant cultural differences, insufficient community trust, and high risk of public opinion. Existing studies mostly focus on the macro policy effects or a single risk dimension, lacking systematic analysis of the full-cycle business environment, scale economy realization, and local collaboration of specific projects, and are unable to address the real dilemmas faced by Chinese enterprises in their internationalization practices.

In this context, the Padma Bridge project, which was constructed by China Railway Group, successfully came into fruition under multiple constraints such as the withdrawal of World Bank investment, extremely complex geology, harsh climate, and weak institutional environment. It has become a landmark example for resolving the difficulties in overseas infrastructure operations. Its experience holds extremely strong demonstration value. The Padma Bridge is the largest infrastructure project in Bangladesh since its independence, with a total investment of 3 billion US dollars and a construction period of 8 years. It faced multiple constraints such as the withdrawal of international financial institutions, extremely poor geological conditions, harsh monsoon climate, and shortages of local technology and labor. Ultimately, China Railway completed the construction with its own technology and full-chain services, becoming a landmark achievement of the "Belt and Road Initiative" implementation.

Based on this, this paper raises the core research question: What are the typical institutional and market challenges faced by Chinese infrastructure enterprises in their overseas operations under the "Belt and Road Initiative"? How did the Padma Bridge project overcome the challenges through strategic adjustments and unlock the institutional benefits? What replicable institutional arbitrage and risk management strategies did this project provide for the overseas operations of Chinese enterprises?

This research is based on the "Padma Bridge" project of China Railway Group, a benchmark case of overseas infrastructure construction under the "Belt and Road Initiative". It systematically reviews the entire process of the project's practical experience, including environmental identification, risk management, institutional arbitrage, and value creation. Through in-depth analysis, it explores the internal mechanisms by which overseas infrastructure operations can leverage institutional benefits to break through the institutional constraints of the host country, rely on the risk closed-loop control to solve the overseas operation problems, and achieve sustainable operation by integrating standards with localization. This research not only provides theoretical references for the high-quality development of overseas infrastructure construction under the "Belt and Road Initiative", but also attempts to offer replicable practical models for Chinese enterprises facing institutional distance, political risks, and operational difficulties. It can provide practical guidance for Chinese enterprises to "go global" in response to overseas institutional risks, and also offer a typical sample for the international community to understand China's infrastructure cooperation model. Ultimately, this research will help solve the dual challenges of institutional and risk issues in the overseas operations of Chinese enterprises, provide solid support for the high-quality internationalization of enterprises, and contribute practical paths for cross-border infrastructure cooperation under the "Belt and Road Initiative".

# 2. Basic Concepts and Theoretical Foundations

## 2.1 Review of Core Literature

### 2.1.1 Research on Cooperation between the Belt and Road Initiative and Multinational Enterprises

The "Belt and Road Initiative" reduces the institutional and transactional costs for enterprises' cross-border cooperation through policy coordination, infrastructure connectivity, trade facilitation, financial integration, and people-to-people connectivity. State-owned enterprises, with policy support, financial advantages, and full industrial chain capabilities, occupy a dominant position in overseas infrastructure construction. However, they face risks such as institutional distance, cultural

conflicts, and geopolitical factors. The resource-based theory suggests that heterogeneous resources of enterprises are the core of international competitive advantages. Emerging market multinational enterprises can make up for their shortcomings by local adaptation, risk management, and technological innovation.[1]

#### 2.1.2 Research on the Business Environment of Cross-Border Infrastructure Projects

Infrastructure projects have characteristics such as large investment, long duration, irreversibility, and dependence on host country policies. The PEST environment directly determines the success or failure of the project. The political environment affects project approval and policy continuity;[2] the economic environment determines project costs, financing feasibility, and market returns; the social environment involves labor, community, and religious-cultural adaptation; and the technical environment concerns construction feasibility and efficiency. Current research lacks detailed scenario analysis for the South Asian market and super-large bridge projects.[3]

#### 2.1.3 Research on Economic Cooperation and Infrastructure Projects between China and Bangladesh

Bangladesh is an important node country along the "Belt and Road" initiative. The cooperation between China and Bangladesh centers around infrastructure construction.[4] The Padma Bridge is a milestone in bilateral cooperation. Most existing studies focus on the macro significance of the project, but lack in-depth exploration of strategies at the enterprise level, cost scale effects, and details of risk management. As a result, it is difficult to form replicable experiences.[5]

### 2.2 Theoretical Foundations

#### 2.2.1 Resource-Based Theory (RBV)

The technical, financial, management and policy resources of China Railway Group provide the core support for the project. Through resource integration and local transformation, a sustainable competitive advantage is formed. Economies of scale theory: Large infrastructure projects achieve cost reduction through capacity expansion, standardization of technologies, local procurement, and reuse of facilities, thereby enhancing the economic and sustainable nature of the projects.[6]

## 3. Overview of China Railway Engineering Group and the Padma Bridge Project

### 3.1 Introduction to China Railway Engineering Group

Founded in 1950, China Railway Engineering Group Co., Ltd. (CREC) has evolved into a world-leading comprehensive infrastructure construction enterprise. Its business covers railways, highways, urban rail transit, housing construction, water conservancy and hydropower, airports, ports and other sectors. CREC boasts rich experience in the construction of complex projects such as bridges and tunnels, with world-class construction technologies and management capabilities.

CREC holds an important position in the domestic market and enjoys a high reputation internationally. As shown in Table 1, the Group actively responds to the national "Going Global" strategy and expands overseas business under the Belt and Road Initiative (BRI). Its overseas projects involve railways, highways, bridges, tunnels, urban rail transit and other fields, with institutions and projects distributed in nearly 100 countries across Asia, Africa, Europe, South America and Oceania.

In terms of technological R&D, CREC continuously increases investment, establishes multiple national-level R&D centers and laboratories, and forms a complete scientific and technological innovation system. The Group has won 127 national science and technology progress and invention awards, holds 24,973 patents and 166 national-level construction methods, and has made remarkable breakthroughs in high-speed railways, shield technology, bridge structural health monitoring and other fields.

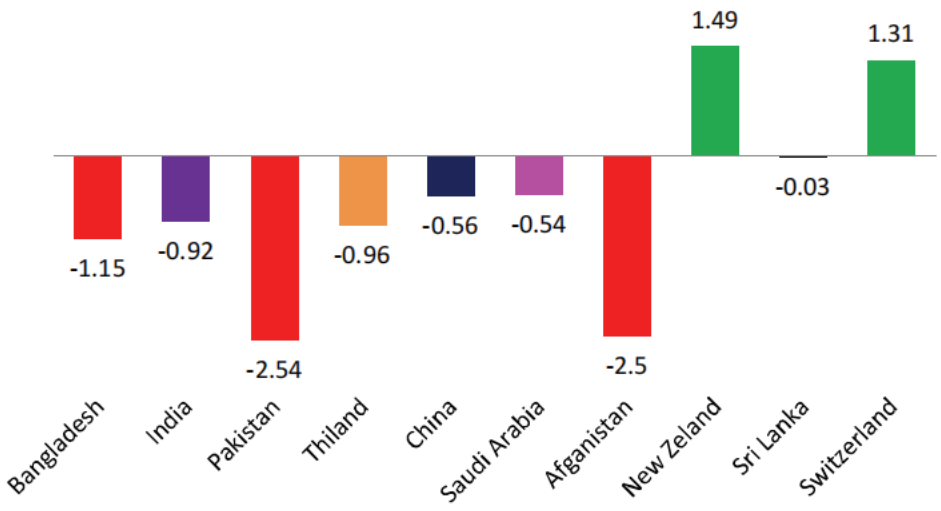
### 3.2 Background and Significance of the Padma Bridge Project

Known as the "water of life" of Bangladesh, the Padma River divides the country into southwestern and northeastern parts. Previously, no bridge was built downstream of the Padma River due to its wide channel, rapid current and frequent floods, resulting in extremely inconvenient cross-river transportation and severely restricting the economic and social development of the southwestern region. The Padma Bridge project has thus become a key step in the modernization of Bangladesh's transportation infrastructure.

As shown in Figure 1, the Padma Bridge Railway Link Project starts from the capital Dhaka, passes through the Padma Bridge to Jessore, with a total length of approximately 7.7 km, connecting the capital and 21 southern districts. The project shortens the cross-river travel time from seven to eight hours to just 10 minutes, significantly improving regional

transportation efficiency, promoting the rapid flow of people and materials, enhancing regional connectivity and driving economic development.

*Figure 1 Political Stability Index of Some Countries in 2015*




As a key infrastructure project promoted by the Bangladeshi government, the Padma Bridge not only resolves transportation bottlenecks but also boosts economic and social development in the southwestern region, improves people's livelihood and enhances the country's international image. As an exemplary project under the BRI framework in South Asia, it has earned international reputation for Chinese enterprises and provided valuable experience for other countries.

In conclusion, the Padma Bridge is not only a milestone in Bangladesh's transportation development but also a model for the successful implementation of the BRI in South Asia, facilitating Bangladesh's better integration into regional economic integration.

### 3.3 Project Planning and Implementation

Located about 40 km southwest of Dhaka, the capital of Bangladesh, the Padma Bridge crosses the Padma River and serves as a critical transportation hub linking Dhaka with 21 southern districts. It is a rail-cum-road bridge with a total length of 6.15 km, adopting a double-deck steel truss structure: the upper deck is a two-way four-lane highway, and the lower deck is a single-track railway, both designed for a speed of 100 km/h. With a total investment of approximately 3 billion US dollars, it is one of the largest infrastructure projects in Bangladesh's history. Construction started in 2014 and lasted nearly eight years, with official opening to traffic in 2022. At the peak of construction, the project employed 10,000 workers, including a large number of local laborers, effectively boosting local employment and economic development.

## 4. PEST Analysis of the Project Environment

### 4.1 Political Environment

Bangladesh has numerous political parties, with the Awami League and the Bangladesh Nationalist Party as the main ones. The current ruling party is the Awami League, which has maintained relatively stable governance by winning multiple elections in recent years . However, fierce political competition between the two parties has occasionally led to social unrest and political uncertainty. Opposition parties frequently organize protests and strikes to express dissatisfaction, highlighting political risks. Furthermore, although the government has intensified crackdowns on Islamic extremist terrorist groups, activities of the East Bengal Communist Party have increased, becoming a new source of political instability.

According to the 2015 World Bank World Political Stability Index, Bangladesh's political stability is relatively weak, which affected the smooth implementation of the Padma Bridge during construction. Fortunately, the bridge was a flagship project of the Awami League government, and Prime Minister Sheikh Hasina's administration regarded it as a symbol of governance capacity and development achievements. Thus, the project received strong government support with streamlined approval procedures. The government also provided necessary land acquisition support and introduced a series of preferential policies

to attract foreign investors in infrastructure construction.

### 4.2 Political Environment

The opening of the bridge has promoted progress in transportation, logistics, agriculture, industry and other sectors in the southwestern region, created favorable conditions for employment and real estate development, and improved people's living standards. Notably, before the bridge opened, over 90% of Bangladesh's international trade relied on Chittagong Port. The bridge has significantly shortened the distance between Dhaka-Mongla Port and Chittagong Port, elevated Mongla Port's role in cargo transit, accelerated the export of jute, fishery products and other agricultural products in the Khulna-Barisal region, and increased farmers' income and quality of life. According to the Bangladesh Bridge Authority, in the first year after opening , the bridge recorded 5.65 million vehicle crossings and toll revenue exceeding 7.9 billion taka (about 530 million RMB). On June 15, 2024, the day before the Eid al-Adha holiday, 44,033 vehicles crossed the bridge, generating tolls of over 480 million taka (about 30 million RMB), reflecting huge economic benefits.

### 4.3 Political Environment

The Padma Bridge has been widely anticipated by Bangladeshis, especially residents of the southwestern region, where about 27% of the population long suffered cross-river transportation difficulties. Before the bridge, residents relied on ferries to Dhaka, taking 2 hours one-way (up to 3 hours in rainy seasons) with high safety risks in bad weather.

After opening, the bridge connects 21 southwestern districts with Dhaka, cutting cross-river time to 10 minutes and shortening the distance by at least 100 km, reducing travel costs and boosting economic development .

Economic activities around the bridge have grown significantly, with increases in shops, restaurants, markets and water tourism services. Factories and gas stations have emerged on the north bank, improving living standards. The bridge has also strengthened people-to-people and cultural exchanges between China and Bangladesh, laying a solid foundation for bilateral friendship.

### 4.4 Political Environment

In recent years, global bridge construction technology has seen continuous innovation in new materials, intelligent monitoring systems and green construction. High-performance concrete and carbon fiber-reinforced composites have improved bearing capacity, corrosion resistance and durability. Digital technologies such as intelligent monitoring and big data analysis have enhanced operation, management and maintenance .

Prefabricated assembly and adaptive construction have become mainstream trends, improving efficiency and reducing safety risks, especially critical for complex environments like Bangladesh. The Padma Bridge adopted advanced technologies including double-deck steel truss structure, high-performance steel and anti-corrosion coatings, representing international advanced levels at the time . However, it still faced challenges from complex geology and extreme climates, and Bangladesh's weak technical foundation and talent shortage affected construction quality and progress.

## 5. Impacts of the Project on CREC and Bangladesh

### 5.1 Impacts on CREC

As a landmark project in South Asia, the Padma Bridge marks CREC's further expansion in international infrastructure construction. Its successful implementation enhanced CREC's global brand image and international competitiveness. Cooperation with the Bangladeshi government and enterprises accumulated cross-border project management experience, laying a foundation for exploring Southeast Asian, South Asian and broader markets. Hailed as the "Dream Road," the project showcased CREC's technical and management strengths, attracting global attention.

### 5.2 Impacts on Bangladesh

The World Bank estimates the bridge will directly boost Bangladesh's GDP by 1.2% and drive related industries. It improves north-south transportation, promotes regional trade and coordinated development of agriculture, manufacturing and services.

The project created over 40,000 direct and indirect jobs during construction, providing vocational training and income growth. Post-opening, logistics, tourism, catering and other industries will flourish, further boosting local economy.

The bridge improves logistics efficiency, promotes import-export growth, ends ferry dependence, shortens transport time and cuts costs. It strengthens economic ties with neighboring countries, advances regional economic integration and elevates

Bangladesh's status in South Asian cooperation.

## 6. Conclusions and Recommendations

CREC accumulated rich experience from the project, providing guidance for other large international projects. Complex geological and climatic conditions compelled technological innovation, enhancing the Group's technical capabilities. The Padma Bridge positively impacts Bangladesh's economic and social welfare and is crucial to BRI regional development. CREC overcame numerous difficulties, and its successful experience offers valuable references for international infrastructure construction.

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## Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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