

Sustainability and Global Replication of the PPC Model: A Coupling Effect Perspective on Chinese Port Enterprises' Overseas Development

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ABSTRACT: The imperative to harmonize economic growth with environmental preservation has catalyzed transformations in strategic management in current global landscape. The "Port-Park-City" (PPC) model, epitomized by the success of China Merchants Group Port (CMPort), offers a compelling case of how strategic sustainability revolutionizes international business. This research probes the innovative PPC model, initially thriving within China, to assess its adaptability to international investments. Through a meticulous analysis of two pivotal investment cases—the China Belarus Industrial Park (GSIP) and the Djibouti Port Industrial Park—we investigate the replicability of the PPC model and its capacity to confer a sustainable competitive edge. Adopting a "coupling effect" perspective, we scrutinize commonalities in PPC model implementation in these cases. This research address the pressing demand for global enterprises to adapt to evolving paradigms of strategic management. Our findings underscore the PPC model's potential not only in bolstering business success but also in advancing global sustainability, fostering competitive advantage, and catalyzing business model innovation. This encapsulates the essence of sustainable strategic management.

1 INTRODUCTION

China Merchants Group (CMPort) is a prominent port enterprise that has implemented an internationalization strategy for land-port system planning. Its Shekou model, known as "Port-Park-City" (PPC), has achieved remarkable success within China. In alignment with the Maritime Silk Road Advocacy, CMPort has extended the application of the PPC model to countries participating in the Belt and Road Initiative during overseas investments. This study aims to explore the viability of replicating the PPC model overseas by analyzing two representative investment cases: the China- Belarus Industrial Park (GSIP) and the Djibouti Port Industrial Park, which exemplify China Merchants Port Group's overseas port investments.

Drawing upon the concept of the coupling effect theory, this paper investigates the common characteristics of the PPC model's application in these cases, focusing on node radiation and regional-port linkage. By examining the replicability of the PPC model in overseas investments, this study sheds light on the essence and logic behind its success. The PPC model serves as a natural link fostering economic, trade, and cultural exchanges among countries along the ocean.

Among the port enterprises participating in the Belt and Road Initiative, CMPort has achieved notable success. With 53 ports in 20 countries and regions worldwide, CMPort has begun replicating the domestic PPC model overseas, reaching the practical stage. Notably, China-Belarus Industrial Park, Djibouti International Free Trade Zone, Colombo Port

in Sri Lanka, and Hambantota Port have exemplified the trinity PPC model. This investment approach, involving the port as the initial phase, followed by the establishment of industrial parks and the development of supporting cities, aligns with the development needs of countries along the Belt and Road route, making it a primary mode for future overseas investments by port enterprises.

The establishment of the 21st Century Maritime Silk Road signifies a new trade route connecting China with the world within a changing global political and trade landscape. This initiative's core value lies in its ability to enhance transportation channels and strategic security, particularly considering China's position as the second-largest global economy. Expanding the "Sea Silk Road" is instrumental in bolstering China's strategic security (Tao et al., 2019; Wang, 2019).

As vital nodes and carriers of the Belt and Road Initiative, Chinese port enterprises actively pursue internationalization strategies and participate extensively in investment projects along the route (Feng et al., 2019; Afonasiyeva, 2018; Terry, 2019). Chinese ports have established air links with over 600 major ports in 200 countries, and Chinese port enterprises have engaged in the construction and operation of numerous ports worldwide. For instance, Qingdao Port has established 22 overseas-friendly ports across Asia, Europe, Africa, and the United States. Shanghai Port Group's investment in Zeebrugge Wharf Company of Belgium secured the franchise rights for Haifa New Port Wharf in Israel for 25 years. Hebei Port Group officially registered Indonesia Qin Hai Port Co., Ltd. to facilitate the comprehensive international port project of Jember Iron and Steel Industrial Park in Indonesia.

However, port projects are complex and comprehensive endeavors that necessitate a high degree of internationalization for both investors and host countries. Many countries along the "Sea Silk Road" face challenges such as an imperfect policy and legal environment due to their economic development level and limited supporting infrastructure. Furthermore, China's port projects, characterized by substantial transaction volumes and numerous sub-projects, expose port enterprises to various uncertainties and complex risks during overseas investments (Jin et al., 2021; Huo et al., 2019). Therefore, analyzing the offshore investment environment of port enterprises and evaluating the feasibility of replicating the PPC overseas development model is a common challenge faced by port enterprises in their overseas endeavors. This paper aims to address this issue from the perspective of the coupling effect.

To achieve these objectives, this study selects the China-Belarus Industrial Park (GSIP) and Djibouti Port Industrial Park as two representative cases of China Merchants Port Group's overseas port investments. By analyzing the common features of PPC model application in these cases, particularly in terms of node radiation and regional-port linkage, we assess the replicability of the PPC model in overseas investments and provide insights into its underlying essence and rationale.

This study contributes to extend beyond theoretical speculation, offering a pathway for port enterprises to navigate the challenges of overseas investments strategically and successfully. First, this study significantly advances the understanding of port internationalization strategies within the context of the Belt and Road Initiative. By investigating the replicability of the Port-Park-City (PPC) model in overseas investments, this paper extends beyond the realm of theoretical frameworks and provides practical insights that resonate with the experiences of port enterprises and policymakers. This practical orientation is crucial in the face of complex challenges and uncertainties that accompany overseas port investments. Moreover, the integration of the coupling effect theory into the PPC model analysis represents a novel analytical approach that contributes to both theoretical discourse and practical applications. By shedding light on the commonalities of the PPC model's application in two representative investment cases – the China-Belarus Industrial Park (GSIP) and Djibouti Port Industrial Park – this paper bridges the gap between theoretical constructs and real-world outcomes. This nuanced examination enhances the potential for replicability by pinpointing strategic considerations, operational patterns, and success factors that resonate across diverse contexts.

2 THE DEVELOPMENT AND INTERNATIONALIZATION STRATEGY OF CHINESE PORT ENTERPRISES UNDER THE "MARITIME SILK ROAD" INITIATIVE

The "Port" in PPC refers to investing in the reconstruction of existing ports or the development and construction of new ports, starting from the transportation hub, and gathering logistics. The "Park" is building and operating an industrial park on the spot, relying on industrial real estate and rejuvenating the country with industry. "City" means to develop supporting people-oriented urban commercial and achieve sustainable development. The key of the PPC model is to create a sustainable development ecosystem, with ports taking the lead and industrial parks following up and supporting urban function development so as to achieve the integration and coordination of ports, industries, and cities. The PPC mode derives from CMPort's 30 years of experience developing Shekou Industrial Park. Investment is not limited to ports but includes industrial parks and cities, enabling mutual interaction between ports and urban areas. The concept of PPC has been applied to some international port projects, as well as the development of industrial parks near the port (Liu et al., 2020). An example of applying the "Shekou" model in foreign ports is the Djibouti Free Trade Zone investment project (CMPort Port, 2017) conducted by CMPort, Dalian Port, and the Djibouti government. Besides, CMPort also participated in the Build-Operate-Transfer (BOT) project of a deep-sea port and industrial park in Kyaukpyu Special Economic Zone in Myanmar and the project of Bagamoyo Port and Special Economic Zone in Tanzania. The PPC concept is also applicable to two projects in Malaysia in which local port groups are involved, namely the Malaysia China Kuantan Industrial Park (MCKIP) and the

Malacca Gateway Port Project. These projects promote regional economic growth through the comprehensive development of Port Park City, aiming to bring more shipping demand. The PPC model includes developing ports first and then building industrial parks. Some people believe that this "may lead to the establishment of a Chinese agency city in another sovereign country" (Pauley and Shad., 2019). Those who are optimistic point out that industrial parks with special economic or free trade zones will increase trade and investment, which can be used to recover the cost of infrastructure development.

Under the situation of slow global economic growth and weak growth momentum of the traditional port economy, the "Maritime Silk Road" initiative has opened a road of internationalization for Chinese port enterprises, and international cooperation in ports has yielded rich results. (Wang and Wu, 2018) advocated taking the construction of China ASEAN ports as the hub and opportunity to jointly build a "maritime port network" and establish a multi-level exchange mechanism, information sharing mechanism, and port city cooperation mechanism (Yu et al., 2017. Vangeli and Anastas, 2017). Chinese enterprises have strengthened their investment layout in overseas ports through mergers and acquisitions, franchising, joint ventures, and other forms. The new investment mode of "integration of port, industry, and the city" has gradually become a new business card for Chinese port enterprises to go global (Cheng, 2016; Du and Zhang, 2018). PPC mode investment is different from general port investment. It is a comprehensive investment and development mode with ports as radiation nodes, district port linkage, and centralized development taking root. The strategy of the PPC mode is to focus on regions, deepen urban cultivation and transform development. That is the comprehensive development mode of port, industry, and city, which is carried out so as to achieve the overall linkage development of the whole area (Liu, 2016).

Chinese enterprises play one of two main roles in overseas ports. In some projects, they are contractors whose responsibilities include design, procurement, construction, commissioning, and handing over the project to the end-user or the owner contract according to the engineering, procurement, and construction. In many cases, the Export-Import Bank of China provides export buyer credit to the host country or other types of contracts, such as construction, operation, and transfer (BOT) and investment models, including joint ventures and mergers and acquisitions (M&A), are used by Chinese enterprises to own and operate foreign ports. In many cases, these ports are joint ventures with public or private entities in the host country. Almost all Chinese enterprises involved in overseas port investment are state-owned enterprises. The vast majority of port projects are undertaken by a few state-owned enterprises owned by the central government of China, and state-owned enterprises in some provinces and cities are also active. Only one private enterprise participated in an overseas port project (Landbridge Group in Shandong Province) (Liu and Schindler, 2020).

CMPort also participated in the BOT project of a deep-sea port and industrial park in Kyaukpyu Special Economic Zone in Myanmar and the project of Bagamoyo Port and Special Economic Zone in Tanzania. The PPC concept is also applicable to two projects in Malaysia in which local port groups are involved, namely the Malaysia China Kuantan Industrial Park (MCKIP) and the Malacca Gateway Port Project. These projects promote regional economic growth through the comprehensive development of Port Park City, aiming to bring more shipping demand. The PPC model includes developing ports first and then building industrial parks.

3 A CASE STUDY OF THE PPC MODEL BASED ON THE COUPLING EFFECT.

The coupling effect, also known as the interaction effect and linkage effect, refers to the phenomenon that two (or more than two) systems or forms of motion influence each other through various interactions. According to this concept, two independent and interrelated systems-industrial park and port city-it are in line with the logic of the coupling effect. On the one hand, industrial parks have brought more economic growth and employment opportunities to port cities. On the other hand, a port city has a vast hinterland, labor force, and urban services to the industrial park. This paper selects two typical investment examples of the China-Belarus Industrial Park (GSIP) and Djibouti Port Industrial Park, which are representative of overseas PPC investment of China Merchants Port Group, to design a case study. Based on the coupling effect, this paper analyzes the case and discusses the effectiveness and replicability of the comprehensive investment and development model of regional and port linkage, centralized development, and rooting.

3.1 Case 1: China-Belarus Industrial Park (GSIP)

3.1.1 Investment background and overview

Great Stone Industrial Park (GSIP) is located in Minsk, Belarus, an essential hub of the Silk Road Economic Belt that runs through Europe and Asia. With a planned area of 91.5 square kilometers, it is a landmark project of the Silk Road Economic Belt jointly built by China and Belarus. GSIP is the largest special economic zone in Belarus. The park is located in Moljevic District, Minsk State, the Republic of Belarus, 25 kilometers away from Minsk, the capital of Belarus, and adjacent to Minsk International Airport, railway, and Berlin-Moscow trunk roads (E30 European Highway and E28 European Highway). GSIP is close to the main transportation trunk road, and a railway line connects Belarus and Lithuania, which are 500 kilometers away from each other, and Klay Pether, the Baltic port of Lithuania. The primary industrial orientation of the park is a high-tech industrial park focusing on machinery manufacturing, electronic information, fine chemicals, biomedicine, new materials, warehousing, and logistics. There are production and residential areas, offices, commercial and entertainment complexes, and financial and

scientific research centers planned in the park (Shi and Wang, 2019. Zhao, 2017).

GSIP has specially formulated the "1234" scheme during the construction: that is, around "the belt and road initiative", connecting two areas (the European Union and the European Union), connecting three points (GSIP/Lithuania's Kaunas Free Trade Zone/Klaipetta Port in the Baltic Sea), and integrating four flows (road/railway/aviation/maritime logistics) to build GSIP into a critical hub radiating the Eurasian market. During the construction of GSIP, CMPort communicated with the Belarusian government deeply and was invited to participate in the revision and improvement of the logistics industry planning of Belarus (2016-2020). Taking eco- environmental protection as the main task of the park development, GSIP built investment projects in the negative list system and formally issued the "Regulations and Implementation Methods of Eco-environmental Protection Management in China- Belarus Industrial Park."

For Belarus, although China is a competitor in some areas, in most areas, the advantages of domestic production instead of imports through cooperation with China outweigh the disadvantages. Especially compare to western countries' sanctions and various political standards, Belarus is more inclined to cooperate with China which does not have such a high political standard as westerns (Liu et al., 2021). In addition, according to the EAEU agreement, GSIP can help Belarus take advantage of the opportunity of tax-free access to the market of 170 million people, thus expanding its own economic benefits. For China, GSIP itself is a platform to support China's foreign direct investment and access to foreign markets, and it can help China companies lacking foreign direct investment experience to go global collectively. Providing a perfect and localized modern infrastructure system in the park could promote the positioning of enterprises, produce an agglomeration economy, and support the transfer and diffusion of knowledge. Once China starts to develop the park overseas, China enterprises can go global as a group (Brautigam and Tang, 2014. Liu and Wang, 2020). China Investment Zone not only provides opportunities for infrastructure investment in China but also plays a synergistic role between China's manufacturing capacity and partner countries' economic development strategies as China enterprises "go global". Therefore, GSIP was first put forward by the Belarusian President, but with the implementation of BRI in China, its development speed has been rapidly accelerated. In 2015, given Shekou's experience, CMPort carried out a series of impressive and efficient industrial construction. CMG announced it would invest USD 500 million in GSIP to build a trade and logistics sub-park.

3.1.2 *Investment effect based on the perspective of the coupling effect*

GSIP's investment has a positive coupling effect with the local area. First, GSIP has a very intuitive economic and social coupling effect with the local area. Minsk has a population of 1.9 million, of which 450,000 are highly educated. It provides a good market hinterland and a productive labor force for

local GSIP. The economic performance of Belarus is better than that of many other transition economies. Between 1989 and 2019, Belarus's real gross domestic product (GDP) increased by 1.96 times, which far surpassed Georgia and resource-rich Ukraine, which experienced the color revolution. Second, GSIP also provides local economic and social benefits. At present, the first batch of enterprises that signed the settlement agreement has brought a total investment of 2 billion dollars to the local area. According to Xinhua News Agency, GSIP is expected to attract 200 enterprises and bring 120,000 local jobs in the future. The economic benefits generated by the park are in line with the development goals of Belarus. Belarus has successfully maintained a significantly different social model from other European economies in transition and attaches great importance to its citizens' full employment and high social security (Yarashevich, 2014).

Furthermore, GSIP provides such a broader market hinterland coupling effect for the local area: Minsk, as a logistics hub of Europe and Asia, brings GSIP a general hinterland market, which in turn strengthens the importance of Minsk as a logistics hub in the international network of urban areas. A new 15-day railway line has crossed Eurasia, connecting China with western Europe (including Lodz in Poland and Duisburg in Germany) through Belarus. It is estimated that, if there is no epidemic situation, the container transportation volume on the China-EU route can increase from 260000 TEU (standard 20-foot container) in 2018 to about 500,000 TEUs in 2020, and it will reach 1.3-2 million TEUs in the long run, and the transportation revenue per 1 million TEUs will be about 2.75 billion USD (Lissovolik and Vinokurov, 2018. Lobyrev et al., 2018). Meanwhile, EAEU (Eurasian Customs Union), a subsidiary of Belarus, provides GSIP with a tariff-free market hinterland with a population of 170 million. Based on more convenient transportation with the economic hinterland, the development of GSIP is conducive to helping the local area better seize the opportunity to enter the hinterland market. With the end of the COVID-19 epidemic, similar to the PPC model in Shenzhen, GSIP will have more opportunities to use convenient railway transportation to sell its products to Asia and other European countries, thus bringing more economic growth and solving social unemployment in Minsk.

Moreover, GSIP also brought the coupling effect of scientific and technological progress to Minsk. GSIP has a positive scientific and technical linkage with the city. First, it has attracted many high-tech enterprises to enter the local area. Local services (capital functions) and economic hinterland are conducive to creating a good environment for GSIP, thus enhancing its attractiveness to enterprises. According to Xinhua News Agency, Huawei, ZTE, China Telecom, Zhonglian, Zhongke, and other enterprises have made it clear that they will stay in the park (great stone, 2021). Chengdu Capacitance R&D Center, Gansu Juxin Malt Production Base, Nano Pectin Production Center, and other bilateral cooperation research centers started project construction in 2015 (Ren, 2016). With the improvement of the project, the industrial park will inevitably increase the competitiveness of local science and technology.

Second, to improve GSIP, China also proposed investing in the communication infrastructure of GSIP on a large scale. Communication infrastructure could increase connectivity along a series of axes connecting major cities, while economic development zones will serve as cooperation platforms and create conditions (investor gardens) for subsequent industrial, trade, and commercial expansion. GSIP is located in the northern BRI economic corridor across Kazakhstan, Belarus, Poland, and Germany, and Belarus occupies a strategic position on the border between EAEU and the EU. At present, not only is this route the fastest but also safer than the southbound Caucasus and unstable Ukraine (Liu et al., 2021). According to People's Daily Online, China Unicom has settled in GSIP and actively participated in constructing smart parks and smart chemical plants. In this case, to support the development of GSIP, the communication enterprises settled on not only improving the park's communication but also promoting the development of local communication technology and communication services. For example, China Unicom indicated that it would speed up the development of its business in Eastern Europe and along the belt and road initiative, provide customized information and communication services for customers' pain points through deeper communication with local enterprises, and become a trusted and reliable partner for customers (Wu, 2021). In the GSIP case, the investment effect based on the coupling effect perspective is noticeable, good expected returns have been achieved, and the future prospect is also worth expecting.

3.2 Case 2: Djibouti Port Industrial Park

3.2.1 Investment background and overview

Djibouti is a port country located in the corner of East Africa and can effectively radiate to most areas such as North Africa, Central Africa, and East Africa, covering hot spots such as Sudan, South Sudan, Somalia, and Congo (DRC). Djibouti port has a unique geographical advantage, as if is one of the most important ports in Africa, and connects Asia, Africa, and Europe. First, Djibouti guards the entrance of the Red Sea, which is the passage connecting the Indian Ocean and the Mediterranean Sea and the "throat" of the Suez Canal. The annual throughput of ships passing through Djibouti is close to 20,000, and the total cargo exceeds 1 billion tons, accounting for 1/3 of the global total. In addition, Djibouti is currently the only seaport in Ethiopia. In recent years, Ethiopia's economy has proliferated, with a population of over 100 million, and the market demand for food, oil, consumer goods, and manufactured goods is enormous. Ethiopia is a landlocked country, and its relations with other countries bordering the northeast and southeast have been tense for a long time, Ethiopia can only use Djibouti as its shipping and trade gateway. Despite living in a port with excellent natural conditions, Djibouti's independent development ability is very low, which is mainly manifested in the scarcity of production factors such as material capital, labor skills, and management experience, which restricts the economic and social development and makes the local area fall into the trap of low-level equilibrium (Brass, 2008). As one of

the least developed countries declared by the United Nations, Djibouti's industrial base is fragile. More than 95% of domestic agricultural products are imported, and more than 90% of infrastructure needs foreign aid.

Until 2009, Djibouti still used an old port built during the French colonial period in 1896, namely, Djibouti International Free Port PAID (Port Autonome International de Djibouti), which is a statutory public institution. Under the attribute of integration of government and enterprise, the so-called "international port" has a very low operating efficiency, and its facilities and equipment are aging. No matter from the perspective of hardware facilities or software environment, the old port can't support the sustainable development of Djibouti, and the demand for port upgrading is increasing. However, Djibouti needs the technical level and capital strength to upgrade its port independently, so it is the only choice to introduce foreign capital. In 2009, with the cooperation of Dubai World and the local government, Djibouti Port won the most advanced DCT container terminal in Africa. However, hardware technology's improvement has yet to enhance fully the vitality of local ports and the economy.

In 2012, CMPort invested USD 185 million to acquire a 23.5% share of Djibouti Port Company. In 2014, it proposed to transform and upgrade the original port and build a new one 5 kilometers away from the old one. At the same time, CMPort invested in the joint construction of the Dorhalle Multi-function Port (DMP) and Djibouti International Free Trade Zone with an area of about 48.2 square kilometers with the Djibouti government and carried out urban development of the old wharf plot. The Djibouti Free Trade Zone project is divided into two project companies: asset company and operated company. Kyrgyzstan dominates the asset company, and China dominates the operating company. CMPort has brought a new port-city coupling effect to Djibouti- CMPort, and the Djibouti government has further reached an intention to cooperate in the construction of a free trade zone, and gradually copied the PPC model in Djibouti-an international port city with modern port facilities and modern operation concepts has steadily taken shape. "Port" refers to the completion of the new Djibouti Dorahle Multi-Purpose Port in 2017. "Park" refers to the completion of the Djibouti International Free Trade Zone, a new free trade zone, in 2018. "City" refers to the transformation and development of Djibouti's old port into a CBD business new city. In April 2019, CMPort signed the Framework Agreement for Project Cooperation with Djibouti, and the project personnel has been stationed in Djibouti to work in an all-around way.

3.2.2 Investment Effect from the Perspective of Coupling Effect

The PPC model has brought a positive coupling effect to Djibouti. First, the construction of ports and industrial parks has simultaneously promoted the modernization of urban areas. After taking a stake in Djibouti port, China Merchants first thought that the development space of Djibouti's old port had reached its limit, and it was not the best choice to continue

upgrading the port at the original site. Therefore, it put forward the idea of returning the port to the city, positioning the area where the old port is located as a CBD business functional area, and the urban transformation and port-park supporting construction based on the old port began. In September 2018, China Merchants and Djibouti Government formally signed the "Reconstruction Project of Djibouti Old Port: Memorandum of Understanding on Cooperation", giving full play to China Merchants' professional advantages in the comprehensive development and operation services of cities and parks and on this basis, the old port was urbanized and redeveloped, focusing on the development of commerce, logistics, finance, hotels, tourism, and other industries. Currently, the urbanization transformation industry of the old port has achieved initial results (Ji and Li, 2019).

Second, the local area also provides the labor force needed for the development of the port and the park. In 2020, Djibouti had a population of 988,000, of which 70% live in cities, and 650,000 live in the capital Djibouti, providing intensive and sufficient labor for the construction of ports and parks. In addition, the local labor price is also very competitive. In 2010, the per capita GDP was about \$1,000, which benefits the deployment of labor-intensive industries in ports and parks. Currently, the minimum wage in Djibouti is about 40,000 Geelong/month (about 226 US dollars/month), and the per capita GDP in 2020 is about 3,425 US dollars. Not only that, the new port has brought more economic benefits to Djibouti and provided more jobs. According to relevant data, the port logistics service industry alone has provided 3,000 jobs. With the training of China enterprises, Djibouti also has a lot of technical talents, which makes up for the need for more relevant technical talents in China.

Third, developing industrial parks has also brought positive industrial agglomeration effects to the local area. In November 2016, China Merchants Group jointly signed the Djibouti Free Trade Zone Project Investment Agreement with Dalian Port, Djibouti Port, and Free Trade Zone Administration. After the opening of the FTZ, the FTZ has focused on the development of logistics (transportation, bonded warehousing and distribution), commerce (bulk bonded goods trading, commodity display, duty-free goods retail), and processing and manufacturing (packaging production, light processing of materials and food processing). At present, 66 registered enterprises have been welcomed, and the occupancy rate of the park has exceeded 88%, which has caused a situation that the demand exceeds the supply. At present, four industrial clusters have been formed: logistics industry cluster, commerce industry cluster, export manufacturing cluster, and export manufacturing cluster. According to this trend, after the project development is completed in 2045, Djibouti Free Trade Zone is expected to become one of the largest free trade zones in Africa, and it is expected to create as many as 200,000 jobs, which is self-evident for Djibouti with a population of only over 900,000. In addition, the large-scale engineering contracting projects undertaken by China Company include the Djibouti section construction project of Djibouti-Ethiopia Railway, the Djibouti-Ethiopia

cross-border water supply project(Phase I), the multi-functional dock construction project of Dohere, the salt export dock construction project of Asare Salt Lake, and the project exhibition area of East Africa International Business District. After having the Djibouti-Ethiopia Railway, Djibouti's port advantages immediately appeared, and the economic benefits displayed began to affect neighboring countries. The establishment of the Djibouti International Free Trade Zone has enabled Djibouti to maximize its port advantages. With the port construction project, Djibouti, as the future "Dubai in East Africa", will also undertake more import business when the port is gradually completed, especially for some inland countries in East Africa. To sum up, the investment effect based on the perspective of the coupling effect, in this case, is noticeable, and it has achieved good, expected returns, and the future prospect is also worth expecting.

3.3 *PPC model closely combines economic coupling with strategic coupling*

First, from the case of the China-Belarusian Industrial Park, it can be concluded that the logic of the replicability of the PPC model is mutual benefit and win-win. China's cooperation model is to seek relations with other sovereign entities which are mutually beneficial (win-win), conducive to equal relations, and include the ownership and responsibility of partners (Dunford and Liu, 2019). For China, intergovernmental development projects (industrial parks) with Belarus are significant in strengthening economic, trade, and political cooperation and providing a platform for overseas investors in China (Liu and Dunford, 2021). Belarusian local elites are also willing to cooperate with the China Industrial Park project for their benefit (Hutchinson and Yean, 2021). Since COVID-19, the economies of all countries in the world have been affected to varying degrees. The conflict between Russia and Ukraine continued to ferment, and the United States imposed severe sanctions on Russia. Because of the relationship between Belarus and Russia, Belarus was also listed as the target of sanctions by the United States, Canada, Britain, and other countries. However, none of this has affected the general direction of win-win cooperation between China and Belarus. In April 2022, a video conference held the fourth round of negotiations on the Agreement on Trade and Investment in Services between China and Belarus. The two sides exchanged in-depth views on investment, specific service trade chapters, electronic commerce, and other chapters, and worked out the next work plan. In July 2022, the e-commerce opening ceremony of the "Belarus Pavilion" was held in Zhongbai Industrial Park, and Belarusian goods were officially sold through the account of "Belarus Pavilion" on the China e-commerce platform. The First Deputy Prime Minister of Belarus delivered a video speech, saying that Belarus was one of the first countries to respond to and participate in the "belt and road initiative" Belarus and China cooperated to build the "belt and road initiative" landmark project and the demonstration project and built a perfect platform for further expanding cooperation between the two countries.

Second, from the case of Djibouti Port Industrial Park, the logic of the replicability of the PPC model is still a mutual benefit and win-win. Through the implementation of the PPC model, China Merchants, together with Djibouti, has gradually turned it from a single country with a high dependence on ports into an "East African Shekou" integrating a regional shipping center, trade logistics center, and information finance center, which has also brought Djibouti brand-new development opportunities. Djibouti Prime Minister Kamil once said that Djibouti Free Trade Zone "will affect the country's transformation in the next few years". He said: "Djibouti International Free Trade Zone has a great influence on the people of Djibouti. The free trade zone drives economic growth and creates many employment opportunities and becomes an important lever for Djibouti's economic development." And Djibouti's cooperation with China continues. In 2018, Djibouti International Free Trade Zone, invested by China, was officially put into operation, and more than 70 enterprises settled in one year. By 2022, more than 190 enterprises will have settled in. According to the report of an international consulting company, after the free trade zone is fully developed in the future, it is estimated that the total GDP will reach 4 billion US dollars, and more than 100,000 jobs will be provided, which also means that more Djiboutians will get rid of their current living conditions and usher in the dawn of life.

Third, for enterprises in China and China, the positive effect of copying the PPC model overseas on China is to open up and consolidate the belt and road initiative, which is conducive to more China enterprises going abroad. After establishing a comprehensive park with PPC mode, it will provide a dense and localized modern infrastructure system, promote the common positioning of enterprises, generate an agglomeration economy, and support the transfer and diffusion of knowledge. Once China started to develop parks overseas, China enterprises would go global through groups (Brautigam and Tang, 2014). The PPC model is a ready-made template that has been exported to all parts of the world. It provides investment opportunities for a series of state-owned enterprises not directly engaged in financing, construction, or operation of ports. We believe that Shenzhen's "port-industrial park-city" model provides information for the port development of the central government and local state-owned enterprises. This model is an overall spatial planning method to balance internal interests-regional and local connectivity. As a whole, it impacts regional development. We believe that the PPC model promotes the "strategic coupling" between sub-national regions and global value chains anchored by leading enterprises in China (Liu and Schindler, 2020).

Fourth, for local investment cooperation, China Investment Zone not only provides opportunities for China to invest in infrastructure but also plays a synergistic role between China's manufacturing capacity and the economic development strategies of partner countries as China enterprises "go global" (Yang et al., 2020). The experience of CS-SIP (Singapore, China) shows that even in the case of slight cultural and language differences, joint projects may not develop smoothly, and overseas parks may

need to meet expectations. China's preferential loans and credit lines do not need political and macroeconomic reforms in the host country. By accepting China's international economic development goals, Belarus has strengthened diversified international partnerships, improved its domestic infrastructure and international connectivity, and strengthened its economy (Dunford et al., 2021. Chen et.al., 2022). Judging from the cooperation projects that have been promoted, both governments have provided convenience for the replication of the PPC model. For example, Belarus has simplified the usual cumbersome bureaucratic procedures, and in order to improve institutional performance, China has provided short-term training courses for Belarusian officials. In addition to supporting the infrastructure construction of the park, the China Municipal Government has also guided and encouraged China enterprises to settle in the park in various ways and invested much energy to strengthen the interconnection between China and Belarus Industrial Park and the outside world, such as introducing Liu and Dunford (2021). Since joining CAREC in 2010, Pakistan has implemented several policies to make their port a gateway for maritime trade of CA countries (including China's XUAR), such as developing Gwadar Port and investing in CAREC Corridor and infrastructure along CPEC (Shibasaki et al., 2019).

4 IS THE PPC MODEL REPRODUCIBLE?

4.1 *The essence of PPC overseas development model*

China's PPC model is essentially a form of government substitution, and it is a unique zone model authorized and controlled by the government, which was born in a relatively backward area, and the comprehensive ability of the government is relatively weak. It is an attempt by the provincial government to authorize enterprises to build a platform of integration or cooperation between government and enterprises, market-oriented operation, and rapid manufacturing of growth poles. The most significant difference between this platform and the current urban investment mode is that the level and scope of authorization are different. The difference between the PPC model and other similar government authorization platforms is that Shekou has started a five-in-one development model with economic construction as the center, politics, society, culture, and natural ecosystem, and it is not a big park or real estate model in which industries are isolated and deep. (Please find Figure 1) PPC mode has realized the organic integration and coordinated development of "Port, Park and City". The story of the port has brought great convergence of economic factors and critical factors of urban development and promoted the formation of the port economy with continuous aggregation and circular development of people flow and logistics. The logic of the PPC mode is to construct an ecological circle mode of sustainable development.

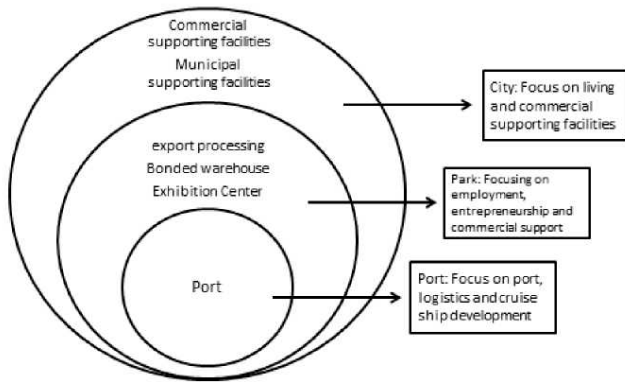


Figure 1. Shekou PPC Model

When the PPC mode expands overseas with China port enterprises, its manifestation has changed compared with that in China, but its essence and logic are similar. First, PPC and centralization; PPC mode is reasonable from the perspective of space. From Rotterdam to Hong Kong, port cities all over the world conform to this basic logic. The former port is a process of centralization, which is also in line with Christelle's central place theory. Port changed the centrality of the port it invested in, which made it the reason to gather resources and follow the market, traffic, and administrative principles to develop orderly. Second, the central organizer and co-governance; the governance system is the soul of the PPC model. The most significant advantage of joint governance is that it can take care of the main demands of stakeholders. In the stakeholder governance model, the platform company has always played the role of organizer. Because they advocate promoting social progress with commercial success, they are both investors and important participants who can participate in the local governance system. This means they can better balance the demands and interests of all parties. In the process of taking root and sprouting overseas, the PPC model develops society, culture, politics, economy, and natural ecology together.

5 APPLYING PPC MODAL TO OVERSEAS INVESTMENT

The replicability of the PPC modal in the host country depends on local strategy, economic benefit, and cooperation concept. First, the key to realizing the strategic coupling effect of the PPC modal is whether the PPC investment scheme can meet the strategic needs of the host country. In addition to economic attributes, many ports have high strategic value because they function as a geo-transportation hubs. For the host government, ports with significant geographical advantages are often the focus of policy support. Suppose the PPC investment scheme is more aligned with the local strategic policies. In that case, it will be more conducive to implementing the PPC model and promoting the host country's strategic interests through the coupling effect. In particular, the PPC modal has more opportunities to be applied in underdeveloped countries along the BRI. The reason is that these countries need more capital and

technology, so they need to rely on the power of foreign investment to improve their strategic needs and realize the value of transportation hubs. As mentioned above, the PPC modal can realize strategic and economic value through the coupling effect. When investing in these countries through the PPC modal, if the investment can meet the local strategic interests and the function of the BRI transportation hub, this model will be better applied locally. Second, whether the PPC modal can be applied locally depends on whether the economic coupling effect can find a balance point for both sides. The benefits of international cooperation are apparent, but conflicts in interests are often an important reason for the failure of cooperation.

Fortunately, with the help of the economic coupling effect, the PPC modal mediates the conflict of interest well. The core of the economic coupling effect is the principle of sustainable development: compared with short-term construction income, and the PPC mode pays more attention to long-term investment and sustainable development. (Please find Figure 2) The PPC model will build ports, industrial parks, and urban construction into an interconnected comprehensive platform, closely combine the host country's local customs and industrial base, appropriately adjust the investment plan, and build an investment plan suitable for the host country. Rather than belittling management and pursuing short-term profits, if the investors of the PPC modal pay more attention to cooperation with the host country, emphasize a high degree of consistency in the concept of park development and operation, and move from short-term development to cooperation to build a comprehensive industrial development model to promote BRI international capacity cooperation, PPC modal will be more likely to succeed in the local area. Third, the investors adopting PPC mode and the host country should have the economic concept and political philosophy of win-win cooperation, which is the premise and guarantee of cooperation. This model is not to export production capacity or technology to the host country unilaterally or unilaterally but to build a community of interests with the host country through the concept of sharing and integration. In summary, if the investor and the host country can reach a consensus on the above three points, then the PPC model is replicable overseas.

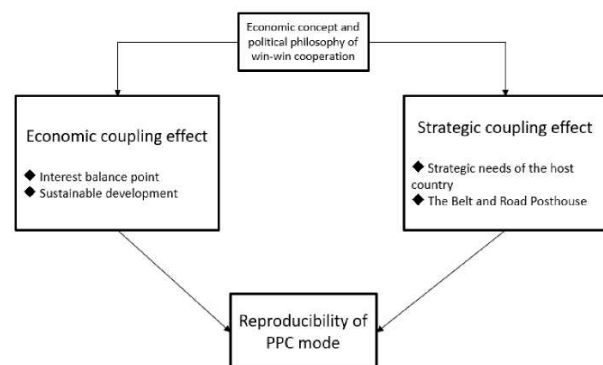


Figure 2. PPC Oversea Model

6 CONCLUSION

In our in-depth analysis of two prominent investment cases—the China-Belarus Industrial Park (GSIP) and Djibouti Port Industrial Park—this study has scrutinized the replicability of the "Port-Park-City" (PPC) model in overseas contexts, with a specific focus on the regional economic coupling effect. The insights drawn from this examination shed light on the model's successful adaptation in host countries, even amid diverse national conditions and strategies. Despite variations, a common thread emerges in the application of the PPC model.

This research has effectively bridged the theoretical constructs and practical outcomes, enriching the academic discourse while offering valuable guidance to port enterprises and policymakers navigating the intricate landscape of overseas port investments. During the initial phases of these projects, the PPC model's emphasis on harmonious collaboration with host countries emerges as pivotal. By integrating development needs and competitive advantages, the model adopts a comprehensive approach that provides consistent institutional support and policy requisites for the park. In contrast to conventional short-term profit-centric approaches, the PPC model underscores the significance of long-term management and sustained cooperation with host nations. This commitment is evident in its alignment with operational concepts and a dedication to consistency throughout park development. Serving as a foundational platform, the PPC model facilitates industrial consolidation and fosters collaborative capacity, aligning seamlessly with the vision of international capacity cooperation and global expansion championed by the Chinese government through the Belt and Road Initiative.

Acknowledging inherent limitations, such as the scarcity of comprehensive and mature data, this study adopts a pragmatic approach by examining three selected cases with more comprehensive and detailed data. These cases serve as critical exemplars for elucidating the intrinsic internationalization mechanisms of the PPC model, viewed through the analytical lens of the "coupling effect theory."

This research paves the way for future research endeavors aimed at enhancing our comprehension of port enterprises' overseas investments and the dynamics of the PPC model. Subsequent research should explore the refinement of the PPC model's applicability across different cultural and geopolitical contexts, delve into the roles played by governmental policies, regulatory frameworks, and cultural factors in the successful adoption of the PPC model, and conduct a comprehensive analysis of the risks and challenges associated with implementing the PPC model in diverse overseas settings. Such investigations could encompass matters related to regulatory compliance, local partnerships, environmental sustainability, and stakeholder engagement. An in-depth understanding of the intricate interplay between economic, social, and environmental factors will be pivotal in shaping the sustainability of the PPC model's overseas replication.

In conclusion, our findings substantiate the viability and potential replicability of the PPC model

as a premier strategy for overseas investments by port enterprises. Rooted in the principles of "cooperation, co-construction, and sharing," inherent to the PPC model, is a blueprint empowering Chinese port enterprises to attain mutual prosperity and enduring development along the Maritime Silk Road. These benefits extend beyond the growth of port enterprises, profoundly impacting the prosperity and well-being of nations and communities along this historic route. The successful replication of the PPC model hinges not only on its investment and operational dimensions but also on its alignment with the strategic goal of sustainable long-term development. Serving as a conduit for government-enterprise collaboration, the PPC model seamlessly merges port strengths, urban planning, and economic hinterland into an efficient regional circular economy powerhouse. In this light, the PPC model stands as an actionable and replicable overseas investment strategy for port enterprises, bearing significant economic and strategic implications.

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