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From the border of 'barrier' to the border of 'connectivity': The current development and connectivity of Vietnam-China cross-border infrastructure

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Abstract: The purpose of the article is to examine the changes in cross-border cooperation between Vietnam and China as a result of the development and connectivity of cross-border infrastructure between the two countries. This article is based on a mixed-methods study that includes desk research and surveys. The article explains how the two countries' approaches to border shifted from 'barrier' to the border of 'connectivity'. Accordingly, the article examines the changes in border management cooperation between the two countries, which serves as a vital basis for cross-border development cooperation. Furthermore, the article examines the perceptions of the two countries regarding the development and connectivity of cross-border infrastructure for comprehensive cooperation between the two countries and beyond. At the same time, the article examines how the two countries promote the development and connectivity of cross-border infrastructure, both hard and soft. The article also examined some initial results and some issues facing the two countries. The paper concludes with some findings. In particular, the article concludes that increased border connectivity will encourage cross-border cooperation and integration between the two countries and help to alleviate security concerns. Although the two countries have made efforts to open their borders, in the transition from a border of 'barriers' to a border of 'connectivity' remain partly to Vietnamese people's memories of the 1979 Sino-Vietnamese border war, as well as the impact of the two countries' unresolved South China Sea disputes. However, Vietnam also tries to promote crossborder cooperation within a controllable level.

Keywords: borders; barrier; development; connectivity; Vietnam-China; cross-border; infrastructure

1. Introduction

Vietnam plays a significant role as a bridge and a driving factor for the development and connectivity of China-ASEAN. Vietnam has a significant strategic position as the connection hub between China and ASEAN. The Vietnam-China land border is 1,449,566 km long, of which 383,914 km of the border line follows rivers and streams, contiguous between 7 provinces of Dien Bien, Lai Chau, Lao Cai, Ha Giang, Cao Bang, Lang Son, and Quang Ninh of Vietnam with Yunnan province and Guangxi Zhuang autonomous region (hereinafter referred to as Guangxi) of China. After normalising relations between the two countries in 1991 and especially since the establishment of a comprehensive strategic partnership in 2008, Vietnam-China relations have continuously expanded and deepened in all fields. Accordingly, border cooperation receives more attention from both China and Vietnam and has become an important issue in bilateral cooperation between the two countries. In particular, the two countries have also actively promoted the process of resolving the issue of land

border demarcation and promoting development and cross-border connectivity between the two countries. On that basis, the development and connection of crossborder infrastructure between the two countries is strongly promoted, especially in the context of China and Vietnam promoting connectivity through the Belt and Road Initiative (BRI) by China with the strategy of "two corridors, one belt" by Vietnam. Accordingly, connecting hard infrastructure such as roads, opening and upgrading border gates, and building cross-border cooperation zones are strongly promoted. At the same time, soft infrastructure between the two countries is also promoted as border cooperation mechanisms between the two sides are signed to create conditions to promote cooperation and integration between the two countries.

Research methods: The research results in the paper are based on desk analysis. Desk analysis comprised a thorough assessment of relevant scientific literature (books and journals) as well as internet-based resources. To collect the outcomes of relevant scientific research. The data analysis involved gathering, analysing, and evaluating cross-border cooperation activities as well as the two countries' policies promoting cross-border cooperation. To achieve these goals, we collected and analysed statistical databases officially released by the central and local governments of both Vietnam and China. In particular, we strive to exploit documents from relevant departments and agencies of Vietnam, such as customs, border guards, the Ministry of Planning and Investment, and the Ministry of Industry and Trade. At the same time, we refer to the plans for infrastructure development in border areas of localities, especially those of border economic zones. As a result, we carried out surveys at international border gate pairs along the Vietnam-China border, such as Mong Cai-Dongxing, Lao Cai-Hekou, Tra Linh-Longbang, Huu Nghi-Youyi Guan, and Dong Dang-Pingxiang, during the years 2013, 2014, 2018, 2019, and 2023. In particular, we have surveyed border economic zones along the Vietnam-China border, such as Mong Cai Border Economic Zone (2014, 2018, 2023), Dong Dang-Lang Son Border Economic Zone (2013, 2019); Tra Linh Border Economic Zone (2018, 2023); and Lao Cai Border Economic Zone (2018, 2023). Simultaneously, we have discussed with the management boards of these economic zones, with the customs of the border economic zones, and with the border guard the situation of Vietnam's border infrastructure construction as well as its cooperation with China in connecting cross-border infrastructure. These surveys not only helped us to better grasp the situation of the development and connectivity of cross-border infrastructure on the Vietnamese side but also better understand the current situation of cross-border cooperation between Vietnam and China.

The purpose of the article is to analyse the transition from the border of 'barriers' to the border of 'connectivity' by studying the development and connectivity of crossborder infrastructure as a case. Accordingly, the article focuses on some content, such as: Firstly, clarify the characteristics of the research area in the Vietnam-China border area, in which research shows that this area is located in a difficult periphery far from the economic centres of both countries and has difficult natural conditions and poor infrastructure conditions. Second, the study analyses the process of the two countries cooperating to overcome 'obstacles' in border cooperation issues through promoting demarcation, which creates an important basis for the two countries to promote the process of connection, cooperation, and integration between the two countries and beyond. Third, the article analyses how the two countries promote infrastructure development and connection, including hard infrastructure and soft infrastructure, in border areas. In particular, the article analyses the process of the two countries cooperating in building and upgrading border border systems, building cross-border economic cooperation zones, investing in building other hard infrastructure such as roads and railways, as well as building a soft infrastructure system such as policy connections, building cross-border cooperation mechanisms between the two countries, and improving other conditions to help promote cross-border cooperation between the two countries. Finally, the article discusses and concludes, as well as offering some findings.

2. Theoretical framework: concepts of border of barrier, crossborder connectivity, cross-border cooperation, and cross-border integration

Through reviewing the literature, the first part explores the border concepts of 'barriers', 'cross-border connectivity', 'cross-border cooperation', and 'integration' as well as the establishment of cross-border cooperation mechanisms between countries (Arnold and Wade 2015). First, viewing the border as a "barrier" or a "connectivity" depends on the relationship between the states at each specific time, as well as how states perceive security and development cooperation issues along the border. In all cases, borders are closely related to the national security and defence of states. The border is considered a "hard shell" for the territorially sovereign state to defend against would-be invaders, thus making the state the dominant form of organisation within its borders. For many centuries, the characteristic of the basic political unit, or nationstate, was its "territory", that is, its being identified with an area that, surrounded by a "defensive wall," was relatively impermeable to outside penetration and that was capable of protecting people (Starr, 2006). It can be said that the first role of political borders is a national 'barrier'; it represents the integrity of any country's territorial sovereignty. Therefore, the border also has significance in terms of national security. Over the years, the securitization of boundaries, as well as the construction of walls and barriers, increased surveillance, and the use of technology to regulate flows across international borders, have become more evident than ever in scholarship on borders (Andreas, 2000; Andreas and Biersteker, 2003; Bevins, 2002; Dunn, 1996; Gault, 2000; Glodfard and Robinson, 2003; Nicol and Townsend-Newman, 2003; Payan, 2010; Zaiotti, 2011). The literature documents the outcomes of increased security on border communities as well as the process by which borders are securitized (Vallet and David, 2012). The process of securitization of borders is also being theorised in the literature; however, scholars have paid little attention to reducing the costs associated with border security and developing a corresponding model for desecuritizing borders (Hataley and Leuprecht, 2018).

To better understand the transition from the border of 'barrier' to the border of 'connectivity', van Houtum and van Naerssen refer to the conceptual framwork of 'Bordering', 'Othering', and 'Ordering', in which borders could no longer be studies solely from the perspectives of linearity and functionality, compounded by the realisation that borders are in fact processes-they are constantly made and remade. In which 'bordering' is the process that creates a sense of boundedness, or 'hereness' and

'thereness' in space. 'Ordering' is the process of creating meaning and stabilising knowledge regarding the world. 'Othering' is the process of creating a sense of sociospatial distinction. Besides, Stoffelen and Timothy focused on the bordering, ordering, and othering of society and space, referring, in turn, to creating a sense of boundness, a process of meaning-making, and a process of socio-spatial distinction through the symbolic and material construction of borders. (Stoffelen and Timothy, 2023) In addition, van Houtum and van Naerssen also stated that bordering, othering, and ordering were not monopolies of the state or state power but rather complex and interconnected combinations of economic forces, governance systems, cultural practices, and migration pressures (Van Houtum and Van Naerssen, 2002). Cerić also points out that the main obstacles, such as cross-border tourism cooperation across sea borders in the Baltic Sea region, are language barriers, poor human resource, reinbursement principles for funded projects, abministrative procedures, and cultural differences (Cerić, 2023). It should be noted that during the stages of bordering and re-bordering, the obstacles to cross-border cooperation may be different, with political obstacles being seen as the priority factors (Wieckowski and Timothy, 2021). Meanwhile, within the framework of the conceptual model of bordering-deborderingrebordering, Wieckowski and Timothy propose a complex and dynamic process in which international borders are continuously unsettled and evolving, with the debordering phase being marked by the opening of borders and increased cross-border cooperation.

For cross-border integration, previous studies suggest using a systems approach to eveluate cross-border networks due to their significant role as a decision-making support tool for reducing uncertainty and improving efficacy (Leibenath and Knippschild, 2005). Cross-border integration is a complex process that largely enhances cross-border regions and contributes to the rise of cross-border regionalism (Sohn, 2014). Cross-border cannot be examined using a single indicator because it is a multidimensional process (Decoville and Durand, 2018; Espon, 2010; Houtum, 2000; Oecs, 2017; Van Liser et al., 2015). There are basically two approaches to explaining the cross-border integration process: first, cross-border integration as a set of integrations (flows) across border territories that are limited by border barrier effects, and second, cross-border integration as the process of converging territorial characteristics to increase homogeneity (similar patterns of development) by reducing their disparities (territoial gaps) (Wong et al., 2020).

Regarding the concept of cross-border connectivity, improved infrastructure, together with rapidly falling transport and other trade costs, indicates that countries are becoming more connected and interdependent. Better transport infrastructure and better quality of infrastructure will lead to faster production at lower costs. This pushes international trading companies to move to places with good transportation access and better infrastructure (Kurmanalieva, 2020). As Brooks states, "each country's manufacturing competitiveness depends on other countries in its production networks as well as the effectiveness of trade links between those countries. Therefore, there is a strong incentive to cooperate with each other, especially to improve physical and soft infrastructure to reduce transaction costs between them." Thus, connection is defined as the implied meaning of connection that links it to a network in which nodes connect to each other directly or through other nodes. A node can be any spatial entity,

such as a person, city, or country. As a result, connectivity is a measure of how connected any node is to all other nodes in the network (World Bank, 2019). Like infrastructure, connectivity has both hard and soft aspects. The hard aspect includes physical infrastructure, while the soft aspect includes a node's skills, knowledge, and other comparative advantages. As a result, cross-border connectivity refers to a network and can quantify how connected one node is to all other nodes in the network. The significance of a link is determined by the node's role and home area in the network. The cost of accessing that node and the reliability of connecting to that node both influence the value of connectivity (Kurmanalieva, 2020).

Furthermore, connectivity within a country is frequently measured by transport infrastructure such as roads (Axhausen et al., 2008; Patarasuk and Binford, 2012; Weiss et al., 2018). Measuring connectivity without considering flow data risk confuses a requirement with appropriate conditions. Cross-border connectivity has been assessed through trade policy, international trade flow, or combinations of both Leamer (1998), Edwards (1997). Trade policy is a form of soft infrastructure for international trade. International trade allows for the development of connectivity measures that take into account flows.

Furthermore, cross-border cooperation is considered a fundamental strategy or political procedure for strengthening territorial integration by taking advantage of opportunities in border regions. (Knippschild, 2011; Van Houtum, 2000). Formalised and less formalised forms of cross-border cooperation can be seen as ways to overcome territorial challenges (Zumbusch and Scherer, 2015); this may emerge from the transformation of existing arrangements between cross-border networks, developing governance structures involving multiple stakeholders (Terlouw, 2012). Cross-border cooperation, as a long-term process, requires certain degrees of stability and reliability from the structures of governance (Zumbusch and Scherer, 2015), which are determined by the nature and structure of the actors' interactions (Blatter, 2004; Fricke, 2015). In this way, social capital, characterised by relationships entrenched in cross-border social structures, allows for collective action to shape cross-border cooperation prospects, while cross-border cooperation generates multiple types of social capital (Dvalishvili, 2019).

The above concepts serve as tools to explore the transformation process in Vietnam-China border cooperation from a border as a national "barrier" to a border of "connectivity", cooperation, and integration. The Vietnam-China border used to be an "obstacle" in the relationship between the two countries, especially during the period when the border demarcation between the two countries was not completed due to the impact of the China-Vietnam border war in early 1979. However, along with the process of normalisation and development in relations between Vietnam and China, especially since the two countries normalised relations in 1991, cooperation between the two countries on border issues has received more attention, along with the process of border demarcation. The two countries have also actively promoted development cooperation and cross-border connectivity, including opening and upgrading the border gate system and building other connecting infrastructure such as roads and railways. At the same time, the two sides also coordinated to adjust policies and build border cooperation mechanisms to transform the Vietnam-China border from a border of 'barrier' to a border of 'connectivity'.

3. The transformation from the border of 'barrier' to the border of 'connectivity'

The above theoretical approaches help us to further explore the transition from the border of 'barrier' to the border of 'connectivity'. In particular, the perspective of Henk van Houtum and Ton van Naerssen on 'Bordering, Othering, and Ordering' helps us to consider the importance of border demarcation for cross-border cooperation and integration between two countries that share a common border. As a result, the completion of border demarcation and marker planting between Vietnam and China is critical to reducing barriers, opening the border, and encouraging bilateral cooperation and integration. After President Ho Chi Minh read the Declaration of Independence in 2 September 1945 founding the Democratic Repulic of Vietnam, now the Socialist Republic of Vietnam, and Chinese Communist Mao Zedong declared the creation of the People's Republic of China (PRC) on 1 October 1949, the process of negotiating borders and demarcating land boundaries between Vietnam and China experienced important milestones). In the early 1950s, diplomatic relations between the two countries were officially established. More than 3 years after the victory of the resistance war against the French colonialists, in November 1957, Vietnam sent a letter to China asking the two sides to respect the historical border established by two Conventions on Border Planning signed in 1887 and 1895 between the French government in Indochina and the Qing court in China. All disputes were resolved through negotiations. In April 1958, China responded by agreeing to Vietnam's proposal, respecting the historical border established by the two Franco-Chinese Conventions of 1887 and 1895. It was not until after the Paris Agreement in January 1973 that negotiations on the Vietnam-China border were launched. The first negotiation was conducted in August 1974. After that, due to the volatile regional situation, relations between the two countries became difficult; negotiations continued but did not bring results. The second negotiation started from 7 October 1977 to June 1978. The third negotiation was resumed in Hanoi on 18 April 1979 (Nguyễn, 2009). Notably, the 1979 Sino-Vietnamese border war had a strong impact on the border negotiations between the two countries. It can be seen as a significant obstacle not only to the border negotiations between the two countries but also as an 'invisible barrier' to cross-border cooperation as well as bilateral relations since then.

After normalising relations, negotiations on territorial borders between Vietnam and China for the fourth time began in October 1992. On 19 October 1993, the two government negotiating delegations signed an agreement on basic principles to resolve the territorial border issue between Vietnam and China. On 30 December 1999 in Hanoi, the two governments signed the "Treaty on Land Border Planning between the Socialist Republic of Vietnam and the People's Republic of China" (Nguyễn, 2009). 30 December 1999 marked an important milestone in Vietnam-China relations; that is the two sides signed the Land Border Treaty between Vietnam and China, ending the decades-long negotiation process between the two countries on this issue. The treaty is an important international legal basis for the two sides to carry out border demarcation and demarcation work on the ground. In November 2000 after the treaty took effect, Vietnam and China officially established the "Joint Committee for Demarcation and Land Border Marking of Vietnam-China". After more than a year of preparing the necessary contents in terms of legal, technical, human, and material resources, on 27 December 2001 at the Mong Cai (Vietnam)-Dongxing (China) international border gate, Vietnam and China set up the first milestone between the two countries, numbered 1369, marking the implementation of this work across the land border between the two countries. Next, on 31 December 2008 Vietnam and China issued a joint statement on completing the work of demarcation and placing markers on the land border between the two countries. With the above results, the border between Vietnam and China is 1449.56 km long, of which 383,914 km follow rivers and streams, and has been installed with 1971 markers, including 1548 main markers and 422 secondary markers (Nguyễn, 2021).

After eight years of negotiations, on 31 December 2008, the two sides officially issued a declaration ending all demarcation work on the ground. In 2008-2009, both sides focused on three legal documents governing territorial borders: The Protocol on Demarcation and Demarcation, the Agreement on Border Management Regulations, and the Agreement on Border Gates and Regulations on Management of Vietnam-China Border Gates. These legal documents will take effect after the two parties notify each other in writing through diplomatic channels of the completion of domestic and international legal procedures. The date the last written notice is sent will be the effective date, unless otherwise specified. The Demarcation Protocol, maps, and attached appendices will be registered and deposited with the United Nations. In addition to clearly defining a border between the two countries, the agreements also create favourable conditions for the functional sectors of both sides to effectively manage the border on the basis of respecting each other's sovereignty, opening up new opportunities for the development of each country, and creating conditions for localities on both sides of the border to expand cooperation, develop the economy, enhance friendly exchanges, and turn the Vietnam-China border into a border of peace, friendship, stability, cooperation, and development (Nguyễn, 2021). On 14 July 2010 at the Thanh Thuy border gate (Ha Giang Province), the two sides officially declared the three border documents effective and officially managed the territorial border between Vietnam and China according to the three border documents and the new system of national boundary markers.

The Vietnam-China land border has been concretized on the ground in a scientific, detailed, and consistent way with reality by a modern boundary marker system consisting of 1971 landmarks (including 1 landmark). Vietnam-Laos-China border junction, 1548 main milestones; 422 secondary milestones. Currently, the two countries are managing the border according to three documents and promoting the signing of an agreement on cooperation in exploiting and protecting tourism resources in the Ban Gioc and Waterfall areas and the Agreement on Freedom of Navigation for Ships in the Ka Long (Beilun in Chinese) river mouth area.

Despite that, the South China Sea (SCS) disputes so far can be seen as a 'barrier' in cross-border cooperation between China and Vietnam, especially after the tension between the two countries in 2014 related to China's HYSY-981 conducting its operations in waters lying within Vietnam's Exclusive Economic Zone (EEZ). This may increase Vietnamese scepticism in cooperation with China in general and in cross-border cooperation between the two countries in particular.

It can be said that, although the two countries still have barriers to cross-border cooperation, the completion of negotiations on border demarcation between the two countries lays an important foundation for the two sides to promote cross-border cooperation and development. Accordingly, both sides actively implement border development policies, investing heavily in hard and soft infrastructure systems in border areas to promote connection and exchange between the two countries. In particular, the construction and upgrading of border gate systems, road systems, and border gate economic zones are considered spearheads for both countries. At the same time, both countries also adjusted the legal policy system and administrative reform in the border area to contribute to promoting connection and integration between the two countries. Accordingly, the Vietnam-China border changes from a border of 'barrier' to a border of 'connectivity' between the two countries.

In short, the border issue used to be a thorn in the relationship between the two countries. The border between the two countries has gone through many ups and downs, especially the conflict in 1979. Thus, the speed of demarcation and marker planting has been prolonged because there are sensitive areas on the border between the two countries, with a long history of disputes that are difficult to resolve. Therefore, to complete the demarcation and marker planting negotiations requires great efforts from both sides. The Vietnam-China border issue has been of interest to both countries since 1957. Direct negotiations went through four stages: 1974, 1977, 1978, and 1991-2010, when the border documents officially came into effect. The 1991–2010 stage was the longest negotiation stage, 19 consecutive years. Of which, on 31 December 1999, the Border Demarcation Agreement was signed; on 31 December 2008, the completion of border demarcation and marker planting was announced; on 18 November 2009, the Protocol on Border Demarcation and Marker Planting was signed; the Agreement on Border Management Regulations; the Agreement on Border Gate Management Regulations; and on 14 July 2010, the official documents came into effect. The negotiations were complicated, especially the final round of negotiations. The two sides conducted 13 official rounds of negotiations at the government level on the territorial border, many meetings between the two heads of delegations, and 31 rounds of negotiations at the chairman level of the Joint Committee for Border Demarcation and Marker Planting. The negotiations became more difficult and complicated towards the end. In 2008 alone, the two sides conducted 11 rounds of negotiations at the Chairman level, the shortest round lasting 9 days, the longest round 23 days (Chinhphu, 2010). After 19 years of negotiations and border demarcation, in 2010, Vietnam and China officially had a peaceful and friendly border, with the Vietnam-China Border Demarcation Agreement officially taking effect. Meanwhile, the issue of border demarcation in the Southwest between Vietnam and Cambodia has not been completed, with 16% of the remaining unfulfilled part.

4. The development and connectivity of Vietnam-China crossborder infrastructure—A fundamental element in cross-border cooperation and integration

Since the 18th National Congress of the Communist Party of China, this country has placed border governance in an important position in governing the country, put forward the strategic idea that governing the country requires governing the borders, and deeply promoted the action of developing border areas and enriching people in the new era. (Chen and Lan, 2018) With the steady progress of China's BRI strategy and the further improvement of the border opening strategy, the border areas are changing from nerve centries of the coastal opening strategy to the frontier positions of the border opening strategy. As a result, the geographical advantages of Guangxi and Yunnan will be particularly prominent. In the BRI strategy, China's orientation towards Guangxi is seen as an international link between the country and ASEAN, a new strategic fulcrum for opening up the country's southwestern and south-central regions, an important gateway for the organic integration of the BRI, and a 'radiation centre of South Asia and Southeast Asia'. In order to promote economic development in border areas, cross-border economic cooperation zones are regarded as a new development model and have gradually become a strategic choice for the socioeconomic development of China's border areas. Through Vietnam's active promotion of the 'Two Corridors, One Belt' strategy to connect the country with China, this has contributed to the development of economic cooperation in the Greater Mekong Subregion (GMS) and created a breakthrough in building an upgraded version of the China-ASEAN Free Trade Area (CAFTA), as well as the construction of China-Vietnam cross-border economic cooperation zones with more spacious and practical development space (Qing and Ming, 2019).

In addition, China implements border area policies, including the border area with Vietnam. After implementing the policy of "making the frontier prosperous and its people rich" (Xingbian fumin), followed by BRI, China's border provinces and autonomous regions have increasingly received strong support from the central government. Accordingly, China's border areas with Vietnam, such as Guangxi and Yunnan, have become gateways to ASEAN. At the same time, China implements policies on building and developing border economic zones. For instance, in 2015, China issued an important document such as "Some opinions of the State Council on improving border gate work to support foreign trade development." This document has strengthened local power in economic and foreign affairs in border areas. The document has many important contents focusing on improving the trade and investment environment between China's border provinces and its neighbors. The policy category on improving the quality of border services and promoting foreign trade development includes increasing the level of empowerment and simplifying administrative procedures; improving customs clearance services at border gates; standardising border gate fee collection in accordance with legal regulations; and promoting the implementation of electronic customs clearance procedures. The policy category on strengthening border economic construction and promoting foreign trade upgrading includes strengthening the construction of border gate infrastructure and actively building a "one-stop" trade mechanism; supporting new forms and products

of commerce; supporting the construction of a comprehensive pilot of border ecommerce; building and perfecting the customs clearance management system and quality safety monitoring system for e-commerce; promoting institutional innovation in electronic customs supervision zones; and supporting local economic development based on border gates. The policy category on deepening border gate cooperation and improving the foreign trade development environment includes creating models and mechanisms for customs clearance cooperation; strengthening law enforcement cooperation at border gates; promoting smooth connections with neighbouring countries and actively promoting two-way cooperation at international border gates; and ensuring your password is always safe and clear. Policy category on border opening: improve the level of openness of border provinces, including accelerating the opening speed of border gates, and gradually promote the strengthening of border gate pairs between China and neighbouring countries, including Vietnam.

In addition, the three cities of Baise, Chongzuo, and Fang Chengang of the Guangxi Zhuang Autonomous Region (hereinafter referred to as Guangxi) and another 8 cities and districts bordering Vietnam have a land border of 1020 km long. In 2017, when General Secretary Xi Jinping inspected Guangxi, he emphasised the need to rely on its unique position, exploit the potential of the "sea," arouse the vitality of the "river," and make a comprehensive contribution to the "border." Accordingly, Guangxi has deeply implemented the "six major projects" of strengthening the foundation and consolidating the border, ensuring the people's livelihood and ensuring border security, developing the border industry, opening up and making peace with the border, protecting the border ecologically, and uniting and stabilising the border (CCTV, 2022).

Dongxing Port was built to become a state-level, first-class port of China to facilitate economic and trade exchanges between China and Vietnam. Furthermore, Dongxing City is a border trade city corresponding to Vietnam's Mong Cai Border Gate Economic Zone, and it is also a significant gateway of Guangxi to ASEAN. In 2017, the two countries strongly promoted cooperation between China's Dongxing Border Gate Economic Zone and Vietnam's Mong Cai Border Gate Economic Zone. This created a new growth pole for China's border economic development. At the same time, Dongxing is the cross-border land transport hub of the new-sea corridor in southwest China and plays an important role in the BRI and the Regional Comprehensive Economic Parnetship (RCEP). The role of Dongxing is not only significant for Guangxi, but more broadly, it also contributes to promoting economic and trade exhanges between other provinces of China, such as Chongqing, Shanxi, Sichuan, and Guizhou, with Vietnam (Wu et al., 2022).

Additionally, Yunnan Province's border is 4060 km long, with 25 border counties (cities) in 8 districts/prefectures (cities) bordering Myanmar, Laos, and Vietnam. China's Yunnan province is adjacent to four Vietnamese provinces, including Dien Bien, Lai Chau, Lao Cai, and Ha Giang. At the same time, it is also an important trade gateway in the economic corridor of Kunming-Lao Cai-Hanoi-Hai Phong-Quang Ninh. Yunnan province (China) is the gateway to Southwest region for exporting goods from Vietnam and ASEAN countries through Hai Phong and Quang Ninh to China. In recent years, China's Yunnan province and Vietnam's border provinces have actively cooperated and invested in building traffic infrastructure systems in border

areas, accelerating planning, construction, and promoting road traffic connections. In 2023, Yunnan province and four northern Vietnamese provinces jointly promoted major projects such as cross-border highway bridges and China-Vietnam railway standard bridges. At the same time, in the same year, Vietnam and China recently signed an agreement on promoting the construction of road bridges across the Red River between Lao Cai (Vietnam) and Yunnan (China). On the occasion of the state visit to Vietnam by General Secretary and President of China Xi Jinping on 12-13 December 2023, the two countries signed 36 cooperation agreements. Including the Agreement and Protocol on the construction and simplification of import and export procedures for employees, means of transport, construction equipment, and construction materials to jointly build road bridges across the river. Red border area of Bat Xat, Lao Cai province (Vietnam)-Basa, Yunnan province (China) (VOV, 2023). Yunnan Province has increased investment in infrastructure and public services in border areas to solve problems such as water, electricity, housing, travel, schooling, and medical care for the people. It has taken advantage of its resources to cultivate specialty industries such as tea, coffee, and nuts and promoted the integration of agriculture and tourism. Yunnan Provice also relies on its locational advantages to accelerate the construction of infrastructure corridors connecting South Asia and Southeast Asia. Since 2022, a variety of new railway international transportation modes such as "China-Laos Railway plus Cross-border E-commerce" and "China-Laos Railway plus China-Europe Express" have been opened one after another, and the China-Myanmar Indian Ocean sea-railway combined transport logistics corridor with Lincang as the main node city has made key progress (CCTV, 2022).

Regarding the border gate system between Yunnan province (China) and Vietnam, Yunnan province currently has 12 international border gates, including air, road, and waterway border gates, as well as 8 national border gates. For the border area with Vietnam, Yunnan province has 3 international border gates, including 1 air border gate and 2 land border gates. Specifically, Hekou border gate adjacent to Lao Cai border gate in Lao Cai province is an international border gate by both road and rail; Tian Bao border gate is adjacent to Thanh Thuy border gate of Ha Giang province; and there are two national border gates, including Jinshuihe border gate adjacent to Ma Lu Thang border gate in Lai Chau province; and Dulong border gate adjacent to Xin Man border gate of Ha Giang province. In addition, Yunnan province also has a system of 16 border markets. Among the two international land border gates between Vietnam and China (Yunnan), Lao Cai-Hekou international border gate is the most important traffic gateway between Vietnam and Yunnan and southwest China (including 12 provinces and cities with an area of nearly 5 million square kilometres and a population of over 300 million people) (Việt, 2024). Furthermore, on 17 October 2023, Vietnam and China officially opened the bilateral border gate Sam Pun (Meo Vac district, Ha Giang province, Vietnam)-Dien Bong (Funing district, Yunnan province, China). Two new international passenger and cargo transport routes from Yunnan to Lai Chau and Ha Giang were opened (China News Network, 2024).

At the same time, Yunnan and Vietnam's border provinces also promote the construction and connection of road traffic, and the two sides also actively advise the governments and central agencies of the two countries for approval. Implementing cross-border traffic projects such as: traffic works across the Thanh Thuy (Vietnam)-

Tianbao (China) international border gate border; road bridge across the Red River in the Bat Xat border area (Vietnam)-Basa (China); and multi-function bridge at the Ma Lu Thang border gate area (Vietnam)-Jinshuihe (China). The two sides actively coordinated to promote the planning of the 1435 mm standard gauge railway route Lao Cai-Hanoi-Hai Phong and discussed and agreed on a plan to build a railway connecting from Lao Cai station (Vietnam) to Kekoubei station (China). Accordingly, the localities of the two countries have actively coordinated to promote the planning of the 1435 mm standard gauge railway route Lao Cai-Hanoi-Hai Phong and exchange and agree on plans to build the railway section. connecting from Lao Cai station (Vietnam) to Hekoubei station (China); open new international passenger transport routes (Hồng, 2024).

In addition, the Hanoi-Lao Cai expressway was officially opened to traffic in September 2014. This is the first expressway in Vietnam connecting the Vietnam-China border. In addition, the Kunming-Mengzi-Hekoubei-Hekou-Lao Cai-Hanoi-Hai Phong railway container transport route has officially operated since April 2015. Besides that, the 80 km long Van Don-Mong Cai expressway, the starting point near Van Don International Airport, and the ending point connecting to the Bac Luan 2 bridge approach road (Mong Cai city) were put into operation in September 2022 contributes to connecting and promoting "Two Corridors, One Belt" cooperation between Vietnam and China. Mong Cai border gate area of the Bac Luan II bridge directly connects with the Mong Cai-Van Don-Ha Long-Hai Phong-Hanoi highway, forming a dynamic transportation system not only for Quang Ninh province, but also the entire northern region, which is an important road corridor connecting the northern provinces of Vietnam with China, creating a driving force to promote the development of regional links. (Chinhphu, 2022) Besides, the Ha Giang-Tuyen Quang expressway in Vietnam will start in 2023. Phase 1 of the project is expected to be completed and put into use at the end of 2025. In the future, it will be connected to the Yunshan-Tianbao Expressway in Yunnan province, China (China News Network, 2024). The completed Tuyen Quang-Ha Giang Expressway Project (phase 1) will create an economic development corridor from the centre of Hanoi city along the Noi Bai-Lao Cai Expressway and the Tuyen Quang-Phu Tho Expressway to Ha Giang to meet the growing demand for travel and freight transport. At the same time, solve traffic bottlenecks connecting the region and within the region between Tuyen Quang and Ha Giang provinces. Thereby, it makes an important contribution to commune-economic development and promotes cross-border cooperation between Vietnam and China in the Ha Giang-Yunnan region.

In addition, in 1999, Vietnam and China signed the Land Border Management Agreement, which is an important basis for the two sides to promote border cooperation. In 2011, the two countries signed the Protocol amending the Agreement and the Protocol implementing the Road Transport Agreement. The Protocol aims to strengthen and develop the friendship between the people of the two countries on the basis of equality and mutual benefit, promoting economic development, trade, and passenger and cargo transport by road between the two sides (Biengioilanhtho, 2016). Furthermore, on 28 December 2023, the Longbang (China)-Tra Linh (Vietnam) border gate pair was upgraded to an international border gate pair (Nhandan, 2023a). Accordingly, means of transport between the two countries are allowed to pass through seven pairs of border gates and nine additional routes to transport goods and passengers deep into the territories of the countries (see **Table 1**).

No.	Pair of border gates (Vietnam-China)	Location
1	Ma Lù Thàng-Jinshuihe (bilateral border gate)	This border gate is located near landmark number 66 on the Vietnam-China border. Ma Lu Thang border gate connects with Jinshuihe international border gate in Jinping district, Yunnan Province, China. Ma Lu Thang border gate is the end point of National Highway 1250 km from Lai Chau city. This border gate is a bilateral border gate.
2	Lao Cai (by road)-Hekou (international border gate by road)	The Lao Cai (Vietnam)-Hekou (China) border gate pair is located near border markers 102 and 103 on the Vietnam-China border. On both sides of the border gate are Lao Cai city, Lao Cai province, Vietnam, and Hekou town, Hekou district, Honghe prefecture, Yunnan province, China. This pair of border gates is an international border gate by road.
3	Lao Cai (railway)-Hekou (international railway border gate)	This is the international railway border gate. It is located near border markets 102 and 103 on the Vietnam- China border. The border gate is situated between Lao Cai city, Lao Cai province, Vietnam, and Hekou town, Hekou district, Honghe prefecture, Yunan province, China. The Lao Cai-Hekou international railway border gate is one of the important crossing point between Vietnam and China.
4	Thanh Thuy-Tianbao (International Border Gate)	The Thanh Thuy-Tianbao international border gate connects Vietnam and China. Thanh Thuy international border gate is situated in Vi Xuyen District, Ha Giang Province, Vietnam. Tianbao international border gate is situated in Malopo District, Wenshan Prefecture, Yunan Province, China.
5	Tra Linh-Longbang (international border gate by road)	The Tra Linh (Vietnam)-Longbang (China) border gate pair is an international border gate, including the Na Doong (Vietnam)-Na Ray (China) customs clearance. This border gate in located near border markets 741 and 742 on the Vietnam-China border. On both sides of the border gate are Tra Linh towm, Tra Linh district, Cao Bang province, Vietnam, and Longbang town, Jingxi district, Baise city, Guangxi, China.
6	Ta Lung-Shuikou (international border gate)	Ta Lung (Vietnam)-Shuikou (China) international border gate pair. This pair of border gates is located near border marker number 943 on the Vietnam-China border. Ta Lung international border gate is in Tan Thinh residential area, Ta Lung town, Quang Hoa district, Cao Bang province, Vietnam. Shuikou international border gate, in Longzhou district, Chongzuo city, Guangxi, China.
7	Huu Nghi-Youyi Guan (international border gate by road)	Huu Nghi (Vietnam)-Youyi Guan (China) international border gate pair. Huu Nghi international border gate is located in Dong Dang town, Cao Loc district, Lang Son province, Vietnam. Youyi Guan international border gate is located in Pingxing city, Chongzuo, Guangxi, China. This is considered one of the largest international border gates on the Vietnam-China border. As an international point in the Naning-Lang Son-Hai Phong economic corridor, according to the agreement of the senior leaders of Vietnam and China on the policy of building "two corridors, one economic belt," the Huu Nghi-Youyi Guan international border gate plays a particularly important role in the relationship between China, Vietnam, and ASEAN countries and vice versa.
8	Dong Dang-Pingxiang (international railway border gate)	Dong Dang-Pingxiang international railway border gate in located near the border markets 1121 and 1122 in the Vietnam-Chine border. The two sides of the border gate are Dong Dang town, Cao Loc district, Lang Son province, Vietnam, and Youyi town, Pingxiang city, Guangxi, China. Dong Dang-Pingxiang international railway border gate, where standard-gauge trains can cross the Sino-Vietnamese border on the Nanning-Hanoi line.
9	Mong Cai-Dongxing (international border gate by road)	The Mong Cai (Vietnam)-Dongxing (China) international border gate is located near landmark 1369 on the Vietnam-China border. On both sides of the border gate are Mong Cai city, Quang Ninh province, Vietnam, and Dongxing city, Fangcheng Port city, Guangxi, China. In particular, Mong Cai city is located in the Gulf of Tokin Economic Belt, an important connection point in the "two corridors, one belt" cooperation between Vietnam and China. Mong Cai-Dongxing international border gate has two areas: Beilun Bridge I and Beilun Bridge II.

In recent years, the Guangxi Zhuang Autonomous Region (Guangxi) of China has also actively increased the number of passenger transport routes and planned and built many railway and road routes connecting with Vietnam. Guangxi is hoping to form a transportation network connecting China with Vietnam and the entire ASEAN region. According to the Guangxi Department of Transport, in February 2023, between this locality and Vietnam, there will be an additional pair of border gates for international road transport between Aidian (China) and Chi Ma (Vietnam) and 10 international road passenger transport routes. In February 2023, the Ministries of Transport of China and Vietnam signed the "Agreement on Supplementing China-Vietnam International Road Passenger and Freight Transport Routes and International

Road Transport Vehicle Ports" (hereinafter referred to as the "agreement"), which is now in effect. In the spirit of the agreement, a pair of international road transport ports and 10 international road passenger and freight transport routes have been added between Guangxi and Vietnam, which are the Aidian border gate (China) and the Chi Ma border gate (Vietnam). So far, the number of international road transport routes in Guangxi, jointly confirmed by China and Vietnam, has increased from 20 routes in 2011 to 30 routes in 2023 (Guangxi Transportation News Center, 2023). The signing and implementation of the agreement is an important measure to promote the construction of the international road traffic network, improve the level of international traffic connectivity, and help Guangxi accelerate the pace of opening and development. towards ASEAN. Among the 10 new international road passenger and freight transport routes, 5 routes start in Nanning, Chongqing, and Fangchenggang in Guangxi, respectively. The other five routes start in Guangzhou, Shenzhen, Kunming, and Chongqing, respectively, and pass through Guangxi. Currently, in Guangxi, there are 30 international road transport routes that have been jointly confirmed by China and Vietnam, of which 17 passenger routes, of which 11 have been opened, and 13 cargo routes, including 6 international routes; the port of road transport has increased to 5 pairs, such as Dongxing border gate (China)-Mong Cai border gate (Vietnam), Youyiguan border gate (China)-Huu Nghi border gate (Vietnam), Longbang border gate (China)-Tra Linh border gate (Vietnam), Shoukou border gate (China)-Ta Lung border gate (Vietnam), and Aidian border gate (China)-Chi Ma border gate (Vietnam) (China Traffic News Network, 2023).

In addition, Guangxi is currently constructing eight expressways, including Chongzuo to Aidian border gate, Shangsi to Fangzhenggang (Dongxing border gate), Shangsi to Dongzhong border gate, Napo to Pingmeng border gate, Hena expressway to Yuewe border, Chongjing expressway to Shuolong border gate, Dongxing to Pingxiang, and Datang of Nanning to Pingxiang. In addition, Guangxi will continue to strengthen highway construction towards the ASEAN international corridor, especially by promoting the progress of traffic connection projects with Vietnam on the Chinese side, actively promoting advanced planning and construction of road routes on the Vietnamese side to connect with Guangxi, and forming the road network layout connecting China and Vietnam (Nhandan, 2023b).

On the other hand, according to Guangxi Expressway Network Planning (2018–2025), Guangxi will have a total of 13 expressway routes directly connecting to border gates bordering Vietnam (Guangxi Zhuang Autonomous Region Development and Reform Commission, 2018). There have been so far 5 completed routes: the Nanning-Pingxiang Friendship Expressway connecting with Lang Son province (operating since 2005), the Fangcheng-Dongxing Expressway connecting with Quang Ninh province (in 2013), and the Jingxi-Longbang Chongzuo-Shuikou expressways connecting with Cao Bang province (in 2018 and 2019). Most recently, the Daxin-Longzhu-Pingxiang expressway (China) connected with Lang Son province and was put into use in January 2023 (CCTV News, 2023).

Furthermore, on 27 December 2023, China's first high-speed railway line going directly to a China-Vietnam border port city, Fengcheng-Dongxing Railway, was officially opened for operation, and the city The China-Vietnam border is Dongxing, which is connected to China's national railway network. This high-speed railway line

runs directly from Fangchenggang City to Dongxing City, with a total length of 47 km and a design speed of 200 km/h. This will become the first high-speed rail line in Dongxing city, reducing the time from Fangzhenggang to Dongxing from 60 min to 20 min and connecting Dongxing with China's high-speed rail network. Mong Cai-Dongxing border gate is the only port connecting Vietnam and China by sea and land. After opening this high-speed railway, the distance between China's high-speed railway, the Van Don-Mong Cai highway of Vietnam, and Vietnam's entire highway network will be only 5 km. This will make travel between China's Guangxi Beibu Gulf Economic Zone and even the Greater Bay Area and ASEAN countries more convenient (Guangxi Daily, 2023).

China's Fengchenggang city sees the opening of the Fangcheng-Dongxing railway as an opportunity to promote the country's foreign strategy, including the plan to promote the construction of the high-speed railway section 'Dongxing (China)-Hai Phong (Vietnam)' belonging to the 'Southern Corridor of China-Vietnam Railway'. This promotes cross-border standard gauge railway connections between China and Vietnam, strengthens cultural exchanges and relations in the in the economy and trade between China and ASEAN countries, promotes the formation of a comprehensive strategic partnership between the two countries, promotes the "going out" of high-quality transportation construction, and strives to create an important gateway for the organic connection of the BRI by building a modern industrial city facing the seaport, connecting China with ASEAN, and facing the world (Guangxi Daily, 2023).

Besides, Vietnam and China have also actively promoted connectivity under various cooperation mechanisms, especially connectivity within the BRI framework. In the Joint Statement between the two countries during the State visit to Vietnam of Chinese President Xi Jinping (5–6 November 2015), the two countries announced to "strengthen the connection of development strategies between the two countries and promote the connection between the framework of 'Two Corridors, One Belt' of Vietnam and the 'Belt and Road Initiative' of China" (VietnamNet, 2015). In 2004, the "Two Corridors, One Belt" cooperation framework, considered the idea of building a common economic development zone between Vietnam and China, was proposed to China by the then Vietnamese Prime Minister Phan Van Khai. Accordingly, the "two corridors" include the corridor from Guangxi (China)—Quang Ninh—Hai Phong (Vietnam) and the corridor from Yunnan (China)—Lao Cai—Hanoi—Hai Phong (Vietnam). The "one belt" is the "Tonkin Gulf economic belt," which includes some border provinces in southern China and some northern provinces of Vietnam, extending to Quang Binh province of this country.

Not only that, in 2006 Guangxi (China) and later with the support of the Chinese Government proposed the "One Axis and Two Wings" strategy with a wider scale in terms of number of countries, territories and people. All are far beyond the original idea of "Two Corridors, One Belt" of Vietnam. The "One Axis and Two Wings" strategy is part of China's southern policy. "One Axis" is the economic corridor from Nanning connecting to Singapore. And "Two Wings" include left and right. The "left Wing" is the cooperation of the Greater Mekong Subregion, with participating countries including Vietnam, Laos, Cambodia, Myanmar, Thailand and Guangxi and Yunnan provinces. The "right Wing" is the expanded Gulf of Tonkin cooperation, with the participating countries of Laos, Cambodia, Thailand and most other ASEAN members, along with the provinces of Guangxi, Yunnan, Hainan, Guangdong and Hong Kong.

In addition, on 29 June 2010 China issued a document entitled 'Some Opinions of the State Council of the Communist Party of China on Promoting the Implementation of the Western Development Strategy.' The document also stated clearly that China would build the Dongxing Key Exploration and Opening-up Pilot Zone, which has been officially upgraded to a state-level key development strategy and will serve as the leading pilot zone in Guangxi's border opening and development. In April 2015, China also announced the Guangxi Border Opening and Development Plan (2015–2020), which clearly stated the plan of 'One Ring and Three Belts', in which 'One Ring' is the Guangxi Border Gate Economic Cooperation Belt, and 'Three Belts' are Nanning-Fangcheng-Dongxing (China)-Mong Cai and coastal areas (Vietnam) economic cooperation belt towards ASEAN, Nanning-Chongzuo-Pingxiang (China)-Dong Dang (Vietnam) economic cooperation belt, and Nanning-Jingxi (China)-Tra Linh (Vietnam) peripheral economic cooperation belt.

China also proposed a model for building an economic cooperation zone across the border with Vietnam. According to the idea proposed by the Chinese side, this economic cooperation zone is built according to the model of "two countries, one zone, free trade, closed operations." In this economic cooperation zone, there are functional subdivisions such as manufacturing and processing areas, goods clearance areas, warehouse areas, shopping centres, and entertainment areas. The two governments will coordinate management, exploitation, and profit sharing and apply preferential policies to attract businesses. The idea of building a cross-border economic zone has been agreed upon by the leaders of Vietnam and China since 2006 through a Memorandum of Understanding between the two governments on the cooperation programme "Two Corridors, One Belt", which was signed on 16 November 2006. This is an important basis for the two countries to sign agreements as well as for the ministries, branches, and localities of the two countries to develop the next implementation steps to promote development and infrastructure connection. cross the border. Accordingly, on 30 August 2007, the Government of Vietnam issued Decision No. 1151/QD-TTg on the construction planning of Vietnam-China border areas until 2020; Decision 98/2008/QD-TTg, issued 11 July 2018 on the development planning of the Lang Son-Hanoi-Hai Phong-Quang Ninh Economic Corridor until 2020; and Decision 34/2009/QD-TTg, issued 02 March 2009 on the planning for development of the Gulf of Tonkin's coastal economic belt until 2020.

Accordingly, the Ministry of Commerce of China and the Ministry of Industry and Trade of Vietnam were assigned to sign a Memorandum of Understanding on building economic cooperation zones at the Mong Cai-Dongxing border gates; Dong Dang-Pingxiang; and Lao Cai-Hekou. During Mr. Xi Jinping's official visit to Vietnam in November 2017, the two countries signed a Memorandum of Understanding on accelerating negotiations on a framework agreement on building cross-border economic cooperation zones. However, to date, progress in developing the framework agreement has been very slow. After more than 10 years, the two sides have still not reached a consensus on the border economic cooperation model because there is no consensus on policies. Three cooperation zones in Lang Son, Quang Ninh, and Lao Cai of Vietnam are congested because the Chinese model of "two countries, one zone, free trade, closed operations" is not suitable for Vietnam. Only the Tra Linh (Cao Bang)-Longbang (Guangxi) area, built according to the two-country, two-zone model, has made much progress. In addition, the Chinese Ministry of Commerce and the Vietnamese Ministry of Industry and Trade held the first department-level consultation conference in Chongqing to discuss the construction of a cross-border economic cooperation zone between the two countries. in March 2015. Then, in April 2015, during General Secretary Nguyen Phu Trong's visit to China, the leaders of the two countries reached many common understandings. In the Joint Communiqué of Vietnam and China dated 08 April 2015, the two sides proposed to quickly negotiate and decide on a common overall plan for building a cross-border economic cooperation zone, effectively promoting connectivity infrastructure projects.

The border provinces of Vietnam and China are very actively preparing for the construction and formation of cross-border cooperation zones. Since 1996, Vietnam has begun to pilot the construction of the Mong Cai economic zone through the approval of a number of preferential mechanisms for this economic zone, in which the Mong Cai border gate on the Vietnam-China border is the first area to apply the policy of the border gate economic zone by the Vietnamese government. After that, Vietnam continued to allow the pilot application of a number of mechanisms and policies at several border gates in provinces bordering China, such as Lang Son (1997), Lao Cai Province (1998), and Cao Bang Province (1999). Vietnam then also issued Decision No. 53/2001/QD-TTg on border economic zone policy, applicable to all border economic zones in 2001, and the country also issued an official decision to establish border economic zones in 2008. Accordingly, the economic zones along the Vietnam-China border were established, such as the Dong Dang border economic zone in Lang Son province as the first economic zone, followed by the Thanh Thuy border economic zone in Ha Giang province (2009), the Mong Cai border economic zone in Quang Ninh province (2012), and the Cao Bang border economic zone in Cao Bang province (2014). Vietnam so far has had 12 border economic zones, or areas that have applied the border economic zone policy along the Vietnam-China border.

Currently, one of the focuses in Vietnam's general development plan is to promote the construction and development of border economic zones, and the country also has many support policies for border areas. These border economic zones are expected to become trade, service, and tourism centres of the midlands and mountainous areas of northern Vietnam and the hub of the economic corridors of Hanoi-Lang Son-Nanning, Hanoi-Lao Cai-Yunnan and Hanoi-MMong Cai-Fangcheng. In addition, Vietnam also believes that border economic zones will be a lever to develop urban areas or urban centres and concentrated residential areas along the border (Nguyễn and Chu, 2021).

China is also promoting the construction of the border economic belt by establising 'National Key Development and Opening-up Experimental Zones' in border areas. In it, there are two 'Zones' in Guangxi located in the border area adjacent to Vietnam, namely the Pingxiang National Key Development and Opening-up Experimental Zone and the Dongxing National Key Development and Opening-up Experimental Zone. This has important implications for promoting economic development between the two countries, including cross-border cooperation. Moreover, the Guangxi coast is along the border and the river, connecting the southwest, central and south and ASEAN. Since the BRI was put forward, Guangxi has fully implemented a more proactive strategy of opening up A new pattern of development is taking shape at an accelerated pace. Data shows that Guangxi Beibu Gulf Port has achieved full coverage of major ports in ASEAN and is open to navigation with more than 200 ports in more than 100 countries and regions in the world. Beibu Gulf Port has opened 8 trains to Chongqing, Lanzhou and other places, and the liner to Hong Kong and Singapore has achieved normal operation (Xinhua, 2019).

Guangxi's Pingxiang, Dongxing and other border ports are connected with Vietnam by railway and highway, which are the most convenient land passages from China to Vietnam and even ASEAN countries. Dongxing is the only city in China that is connected to ASEAN by land and sea, and is separated from the northern city of Mong Cai in Vietnam by a river. At the Jingxi Longbang Port, which is more than 200 km away from Pingxiang, Vietnamese vehicles shuttle back and forth. These goods go north from the newly built Jingxi Xinjing Town to Longbang Expressway, and are directly sold to Chongqing, Chengdu and other places, Lanzhou, Chongqing and other places. It will also enter ASEAN from here. Today, there are 8 national first-class ports on the China-Vietnam border in Guangxi, and all border counties have achieved full coverage of national first-class ports, a total of more than 20 large expressways have been built to go to sea, borders and provinces, and 17 international passenger and freight transportation routes have been opened. At the same time, the border provinces of Guangxi and Vietnam are accelerating the construction of cross-border economic cooperation zones such as Dongxing-Mong Cai, Pingxiang-Đông Đăng, Longbang-Tra Linh, etc., to promote the development of "Two Corridors, One Belt". The Guangxi land port is an important node in the construction of the China-Indochina Peninsula Economic Corridor under the BRI, the accelerated upgrade of connectivity.

China and Vietnam promote mechanisms to promote cross-border cooperation, such as the Vietnam-China Land Border Gate Management Cooperation Committee, which has so far organised nine conferences. In particular, the two sides agreed to further enhance the effectiveness of the Vietnam-China Land Border Gate Management Cooperation Committee, improve the level of cooperation and exchange, promote synchronous planning, opening, upgrading, construction, and management of border gates, continue to research and promote the synchronous construction of smart border gates, accelerate the connection of land border gates, improve the business environment, enhance border clearance capacity, and promote facilitation commerce (QDND, 2024). In particular, in November 2009, the two countries agreed to establish the Vietnam-China Joint Land Border Committee to coordinate the management of borders, border markers, and border gates between the two countries in accordance with regulations. Relevant regulations are in the Protocol on Demarcation and Demanrcation, the Agreement on Border Management Regulations, and the Agreement on Border Gates and Border Gate Management Regulations in the Vietnam-China border. The Vietnam-China Joint Land Border Committee has focused on handling many important issues related to the management of the land border between the two countries (Bienphongvietnam, 2021). The promotion of cross-border infrastructure connections between Vietnam and China has contributed to increasing bilateral exchange and cooperation between the two countries, especially in the

economic field. For many years, China has been Vietnam's largest trading partner. On the contrary, Vietnam is also China's 6th largest trading partner in the world and China's largest partner in ASEAN. Some border gates have applied technology, improved customs clearance frequency, and better promoted border trade (Vũ, 2023).

However, 'barriers' to the development and connectivity of cross-border infrastructure between Vietnam and China still exist. Although both Vietnam and China are actively promoting the development and connection of cross-border infrastructure between the two countries, it is easy to see that Vietnam's infrastructure projects connecting across the border with China are almost devoid of any investment projects labelled BRI. Vietnam remains cautious in promoting cross-border cooperation with China. This is related to Vietnam's concerns about China in crossborder cooperation, which may include the haunting memories of the 1979 border war as well as the unresolved conflict in the South China Sea (SCS), which, if it erupts, will directly affect infrastructure connectivity and the integration of the two countries across the border. Therefore, instead of taking advantage of China's investment capital within the BRI framework to invest in building cross-border infrastructure, Vietnam instead does it on its own. For example, China has offered to lend Quang Ninh Province of Vietnam a loan worth 300 million USD to build a highway from Mong Cai to Van Don (Dantri, 2016). China, via the state-owned Export-Import Bank of China, has offered to lend Vietnam 304.6 million USD, or nearly 80 percent of the total investment of 382 million USD, to implement the project (Vnexpress, 2016a). However, Vietnam seems to have enough of notorious Chinese deals that come with strings attached (Vnexpress, 2016a). Vietnamese experts also warned carefully with strings attached to China's loans (Người Lao Động, 2016). As a result, Vietnamese ministries are carefully assessing China's offer to finance the road project in the northern province of Quang Ninh. Vietnam's Ministry of Finance stated that the country should take China's proposal seriously. It stated that China typically requires the borrower to employ their contractor, technology, and machines as part of the loan terms. Meanwhile, Vietnam's Ministry of Planning and Investment stated that the agreement should not include limitations for engaging Chinese engineering, procurementor construction contractors (Vnexpress, 2016a). At the same time, the opinion of Vietnamese economic experts at this time said that Chinese loans should not be borrowed for project implementation; in the case of Chinese loans for project implementation, loan conditions, loan interest rates, and strict supervision should be considered to avoid the increase in cost and delayed progress (Investinguangning, 2016). Therefore, the provincial government of Quang Ninh has refused a Chinese loan to make highways in this province (VnEconomy, 2016). Simultaneously, in 2017, Vietnam's Cao Bang province, which borders China, also sought government approval to borrow \$300 million from China to build a 144 km (90-mile) highway linking the Tra Linh border gate in Cao Bang province with the Dong Dang border gate in Lang Son province. However, the Vietnamese government at the time expressed concern that Chinese loans often come with conditions that could delay projects (Vnexpress, 2017b). So, the deal fell through due to issues with loan conditions (Vnexpress, 2017b; Vnexpress, 2018c).

Besides, we conducted surveys in different years in the Vietnam-China border area and found that there are differences in the views between local and central authorities in promoting cross-border infrastructure connectivity between the two countries. While Vietnam's local authorities are more concerned with the development of their own localities, they are very active in promoting cross-border connectivity, while the central government is more concerned with border security issues. This can be seen as one of the obstacles to promoting the development and connectivity of Sino-Vietnamese cross-border infrastructure between Vietnam and China.

5. Conclusion

The Vietnam-China border was once one of the obstacles in the relationship between the two countries, especially the border war in 1979, which left bad memories in bilateral relations. However, since the two countries demarcated the border and completed it in 2010, the Vietnam-China border has transformed from a border of "barrier" to a border of "connectivity". In the transition from a border of 'barriers' to a border of 'connectivity', completing border demarcation and marking is extremely important. Obviously, demarcation and demarcation contribute to more effective border management and contribute to removing 'barriers', creating a key basis for cross-border cooperation and integration between the two sides, including the development and connection of cross-border infrastructure. Comparing the case of Vietnam-China cross-border cooperation with Vietnam-Cambodia cross-border cooperation, it is clear that the incomplete demarcation of the border between Vietnam and Cambodia has created many obstacles in promoting the development and connectivity of cross-border infrastructure between the two countries. However, the border itself is no longer a 'barrier' to Vietnam-China cross-border cooperation, but the 'barrier' lies in other factors, mainly from the SCS disputes.

As a result, cross-border cooperation between the two countries has become one of the key factors in bilateral relations. Particularly in economic relations between Vietnam and China, cross-border trade cooperation plays a key role. One of the factors promoting the development and connection of cross-border infrastructure is the role of border gates. The system of Vietnam-China border gates not only serves the development between the two countries but also strongly promotes trade activities, promoting comparative advantages on the basis of adding advantages to each other and having advantages. This has a significant impact on economic development and job creation for the people of the two countries, especially the jobs and livelihoods of people living on both sides of the border. In addition, the development of Vietnam-China border economic zones, especially areas such as Dongxing-Mong Cai border economic zone, Pingxiang-Lang Son border economic zone, Hekou-Lang Son border economic zone, Lao Cai, and Longbang-Tra Linh border economic zone, has been strongly promoted by both sides in recent years. However, border infrastructure is still limited, and the connection between the two sides is not yet complete. Upgrading and opening new pairs of border gates have not kept up with commercial demand. The application of new technology to managing border gate operations is only a pilot and not yet widespread at border gates. In addition, localities in border provinces on the Vietnamese side have not received adequate investment in socio-economic infrastructure in border areas, especially border economic-trade infrastructure, including traditional trade infrastructure and digital trade infrastructure.

Besides, the asymmetry in the development and connection of cross-border infrastructure between Vietnam and China is relatively obvious. China is a leading economic power in the world, is proactive, and has advantages over Vietnam in promoting infrastructure development in border areas. China actively promotes its development strategy and opens its borders as one of the key stages in its connection strategy with the regions, especially within the framework of the BRI. Meanwhile, Vietnam is relatively slower than China in promoting border infrastructure development; this is also because Vietnam's economic capacity is weaker than China's. On the other hand, China is often more proactive than Vietnam in promoting cross-border cooperation and connection. For China, developing and connecting crossborder infrastructure with Vietnam not only promotes its cooperation with this country but also more broadly with ASEAN and beyond. But for Vietnam, border development and cooperation are mainly about accessing the Chinese market. Though the two countries have actively promoted cross-border infrastructure development and connectivity in recent years and have achieved positive results, cross-border cooperation has become a key cooperation factor in bilateral relations, but that does not mean that the two countries do not face obstacles in this issue. Cooperation between Vietnam and China in general and border cooperation in particular is always affected by challenges in terms of the territorial sovereignty of the two countries in the South China Sea (SCS). Therefore, when the relationship between the two countries on the SCS issue is controlled, it means that border cooperation between the two countries is strongly promoted, but increasing disagreement between the two countries on the SCS issue will be an obstacle for cross-border cooperation between the two countries. Besides, the impacts of non-traditional security issues are also obstacles to border cooperation and connection between the two countries, such as the recent COVID-19 pandemic, for example. The border connection between the two countries seems to be "frozen" for a while. On the contrary, the development of effective crossborder cooperation between the two countries also contributes to reducing security risks, including cross-border security issues between the two countries. However, because economic cooperation and people-to-people exchanges across the border are the main activities between the two countries, Vietnam also tries to promote crossborder cooperation within a controllable level. Because Vietnam and China cannot be separated from each other due to similar political and institutional factors, as well as the two countries having relatively close cross-border relations currently.

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