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NHỮNG TRỞ NGẠI CỦA GIAO THÔNG XUYÊN BIÊN GIỚI TẠI TIỂU VÙNG SÔNG MEKONG MỞ RỘNG: NGHIÊN CỨU SÂU VỀ VIỆT NAM

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Tóm tắt

Hiện nay, các thỏa thuận hợp tác thương mại tự do giữa các khu vực trên thế giới được thực hiện vì sự phát triển bền vững của quốc gia và liên minh. Một trong những liên minh quan trọng tại Đông Nam Á về thương mại biên giới là Liên minh Tiểu vùng Sông Mekong Mở rộng (GMS), một điểm giao thoa quan trọng của thương mại và văn hóa giữa các vùng lân cận và là một mạng lưới liên minh được thành lập đảm bảo sự bền vững, hòa bình và phúc lợi cho người dân. Nhận thấy sự quan trọng của thương mại và giao thông xuyên biên giới, nghiên cứu tập trung phân tích quản trị giao thông xuyên biên giới giữa các quốc gia trong GMS thông qua nghiên cứu về Việt Nam, một thành viên GMS. Mục tiêu của chúng tôi là xác định những yếu tố quan trọng ảnh hưởng đến sự kết nối giữa Việt Nam và GMS và đề xuất các biện pháp để phát triển sự hiệu quả của giao thông, thương mại biên giới cho các quốc gia khỏi GMS. Nghiên cứu chỉ ra rằng sự phát triển về công nghệ, hạ tầng là yếu tố quan trọng để tạo điều kiện hợp tác lâu dài giữa các quốc gia. Ngoài ra, sự đoàn kết trong khối GMS sẽ được phát huy thông qua sự làm ăn hòa bình và hỗ trợ lẫn nhau giữa các nước.

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Từ khóa: Giao thông xuyên biên giới, Tiểu vùng Sông Mekong Mở rộng, Việt Nam, phát triển bền vững, đoàn kết vùng lãnh thổ, động lực thương mại.

CROSS-BORDER TRANSPORTATION CHALLENGES IN THE GREATER MEKONG SUBREGION: A CASE STUDY OF VIETNAM

Abstract

It is obvious that free trade agreements between regions and areas are made with the goal of cooperation for the development and sustainability of nations and unions. One important area of unity in Southeast Asia is the Greater Mekong Subregion (GMS). The GMS is an important intersection for trade, commerce, and cross-cultural exchange because of its joint-area and extensive networks along the geographical positions, to guarantee sustainability, peace, and the welfare of citizens. Given the significance of cross-border trade and transportation, this study focuses on analyzing specific opportunities, difficulties, and solutions for improving cross-border transportation management between nations under GMS through a study of Vietnam. Our objective is to identify the significant factors that affect the country's connectivity in the setting of the GMS and suggest potential strategies to improve cross-border transportation efficiency in the broader GMS region. The findings suggest that technological and infrastructural development is essential for fostering greater cooperation amongst nations under the GMS. Moreover, an enhanced and more sustainable cooperation in GMS unity will be nurtured by harmony, peace, and acts of support among neighboring countries.

Keywords: cross-border transportation, Greater Mekong Subregion (GMS), Vietnam, sustainable development, regional integration, trade dynamics.

1. Introduction

1.1. Overview

Building on their common histories and cultures, the six neighboring countries - Cambodia, China, Laos, Myanmar, Thailand, and Vietnam, along the Mekong region, initiated the GMS Program, a subregional economic cooperation program, in 1992 with support from the Asian Development Bank (ADB).

The GMS is home to a wide variety of natural resources, including powerful rivers, mountain ranges, lush forests, and fertile plains. The Asian Development Bank (ADB) launched the GMS Economic Cooperation Program (GMS Program) intending to foster economic integration and cooperation among its member nations through a range of sector-specific cooperation initiatives, such as trade, energy, tourism, and transportation.

Cross-border transportation infrastructure within the GMS plays a pivotal role in facilitating the movement of goods, people, and ideas across national boundaries. This infrastructure includes roads, railways, waterways, and air transport systems, all of which are essential for fostering connectivity and enhancing economic cooperation within the region.

1.1.1. Importance of Cross-Border Transportation in the GMS

The foundation of the GMS is cross-border transportation infrastructure, which supports investment, trade, and tourism. Enhanced market accessibility, lower transportation costs, and the promotion of cross-border economic growth are all benefits of improved connectivity via road, rail, and water transport corridors. Additionally, effective transportation systems strengthen the region's ability to withstand external shocks like climate change and geopolitical changes.

It could be argued that the Mekong region's cooperation has changed dramatically in terms of quantity and quality, becoming an important component of the process of connecting and integrating the region. Thanks to these mechanisms, neighboring countries have had more opportunities to improve infrastructure, transportation connectivity, sustainable water resource management, and people's livelihoods. Connectivity initiatives not only help the countries within the subregion, but they also make communication easier between it and the prosperous economic centers of the broader Asia-Pacific region.

1.1.2. The Role of Vietnam in the Greater Mekong Subregion (GMS)

According to the GMS' official website, during the past few decades, Vietnam has transformed from being one of the poorest countries in the world to a lower-middle-income country. GMS cooperation has played an important role in Vietnam's massive development.

Along with the role of GMS in Vietnam's development, the main topic that we want to investigate is the role of Vietnam as a part of the cooperation with other neighboring countries and Vietnam's strategies for cross-border transportation. According to Ph.D. Le Hai Binh (2018), Vietnam has actively participated in cooperative frameworks and made contributions to regional development in a variety of ways, in line with the Mekong mechanisms' development momentum. These contributions include organizing summits and conferences, producing significant documents, developing and promoting initiatives, and giving financial aid to neighboring nations. Vietnam has actively and attentively contributed to the development of the GMS.

1.2. Purpose of the Study

Given the crucial role that cross-border transportation plays in the GMS, the goal of this study is to examine the distinctive possibilities and obstacles that exist in the Vietnamese context. The study looks at cross-border trade dynamics, policy, and transportation infrastructure in Vietnam to pinpoint the major variables influencing the nation's connectivity within the GMS framework. This study aims to offer insights into possible approaches for improving the effectiveness of cross-border transportation and fostering sustainable development in Vietnam and the larger GMS region. This study's result will support current initiatives aimed at enhancing regional integration and connectivity, promoting equitable and sustainable development in the GMS.



2. Theoretical framework

2.1. Historical context of cross-border transportation in the GMS

From ancient Silk Road trade routes which facilitated the trading of goods and cultures across borders, the GMS was established to promote economic cooperation and development with shared-border countries in the Mekong area. In the early years, its transportation networks were famous for river transportation. The Mekong River served as a primary transportation artery, connecting six countries in the GMS, thereby facilitating the exchange of goods and cultures of people nearby. Another key network during that time was the road network. It consisted of several

basic routes connecting major towns and cities. Yet, many of these needed to be recovered, leading to the risks of flooding and erosion during the rainy season. Hence, attempts were made to improve road infrastructure to encourage trade and travel.

With the increasing demand for transportation and technology development, transportation in the GMS has developed beyond river transportation and road networks. In recent years, there have been significant improvements in road and rail networks, which help to enhance connectivity in the GMS and the world. Countries in the GMS are working to make across-border transportation cheaper, faster, and easier. According to the website Greater Mekong Subregion, Over the past decade, GMS's road network has expanded by almost 200.000 kilometers, and overland road freight has almost doubled. The progress in developing road networks, such as the East-West Economic Corridor, connecting Vietnam, Laos, Myanmar, and Thailand has successfully reduced transportation costs and time. This, therefore, helps to promote exchanging goods across borders. Despite all these advances, remaining trade barriers continue to limit the GMS's economic potential. Additionally, across-border freight costs remain high.

2.2. Key concepts and definition: Cross-border transportation

E-commerce has been developing rapidly, leading to a significant growth in international trade; thereby increasing the need for cross-border transportation.

Cross-border transportation refers to the movement of shipments across an international border (Courtney, 2023). In other words, international shipping plays a crucial role in global trade. This encompasses a variety of shipping methods, such as air and maritime transportation, rail and road networks, etc. It also focuses on border management and operations. Additionally, it requires

strict compliance with taxes and international laws. Therefore, it does not include only the exchange of goods from one country to another.

Cross-border transportation enables the efficient movement of goods and services internationally, encouraging economic integration, trade expansion, and regional development. By reducing freight costs, enhancing market access, and promoting investment, transnational shipping plays a crucial role in fostering the overall prosperity and competitiveness of the GMS economies.

Cross-border transportation offers several benefits that contribute to economic growth, regional integration, and social development.

- *Market Expansion:* Cross-border transportation enables businesses to operate beyond the domestic market and reach an international customer base. With effective transportation networks, companies can deliver their goods everywhere. Businesses can diversify their customer base and expand their market segment by exploring and entering previously unexplored markets, thus gaining their market share in various areas. Not only does this broaden the market segment, it also enables the boost of production and R&D initiatives to generate demand in other markets, thereby giving them growth and expansion opportunities.

- *Reduced Inventory Costs:* When an organization starts to enter a new market, it will have to hold inventory to meet the demand of customers there. However, the risk of unsold or obsolete goods can happen. Establishing and maintaining physical warehouses in foreign countries can be expensive, unnecessary, and time-consuming. Leasing warehouse space incurs rental expenses, together with other additional costs (e.g., staffing, maintenance and repairs, property taxes and insurance, and operational expenses). By utilizing cross-border transportation, companies can bypass the need to establish inventories in other markets, thus avoiding inventory and related costs. It also minimizes the complexity of operating due to multiple facilities management and allows companies to increase their earnings without paying higher costs.

- *All-year Trading:* Businesses producing seasonal products face a reduction in demand during off-season periods (e.g., companies selling winter clothes may have to deal with lower demand during other seasons). Despite seasonal fluctuations, they need to maintain continuous operations to create revenue and cover ongoing expenses (e.g., rent, salaries, utilities, etc.). Relying on one domestic market prevents them from continuous production, thus can lead to financial risk in the long run.

- *Cultural Exchange and Social Interaction:* Cross-border transportation is a trade link between nations and countries. It helps in cultural exchange, tourism, and interaction among neighboring countries. In this way, it opens up cultural exchange opportunities and multi-cultural experiences. Exposure to different cultures, languages, and traditions provides diverse perspectives. This will eventually foster diplomatic relations.

3. Case Study: Vietnam's Role in Cross-Border Transportation

3.1. Overview of Vietnam's Cross-Border Transportation

3.1.1. Importance of Cross-Border Trade in the Greater Mekong Subregion for Vietnam

Cross-border trade goes beyond a transactional endeavor for Vietnam. It also shows the desire of Vietnam for sustainable development and global prominence by imbuing the nation with numerous benefits. In other words, it plays a crucial role in Vietnam's economic vitality. Cross-border trade brings the country many export-import opportunities. By expanding its export horizons, Vietnam has mitigated the risks of overreliance on any single market, thus shielding itself from global economic fluctuations. Moreover, importing allows the country to access a treasure trove of essential resources and inputs from all over the world, thereby facilitating manufacturing sectors. For example, Vietnam typically exports agricultural products, pharmaceuticals, and machinery to Laos, and imports some products from Laos such as timber, coal, and electrical energy; exports rubber, crude oil, and electronics to Thailand, and imports automobiles, machinery, and electrical equipment from Thailand; exports electronics, garments, and machinery to China, while importing some products such as machinery, auto parts, and raw materials from China.

By this, Vietnam fortifies its bonds with neighboring countries, fostering collaboration and solidarity within the ASEAN community and the GMS.

3.1.2. Key Trading partners and routes

- *China-Vietnam Border:* The border between Vietnam and China is one of the busiest trade corridors, facilitating the exchange of goods, commodities, and raw materials between the two countries. Key border crossings such as Mong Cai, Lao Cai, and Lang Son serve as important gateways for bilateral trade and economic cooperation.
- *Vietnam-Laos-Cambodia Economic Corridor:* The Vietnam-Laos-Cambodia Economic Corridor connects Vietnam to its neighboring countries through a network of highways, railways, and waterways. This corridor enhances trade connectivity and economic cooperation among the Greater Mekong Subregion (GMS) countries, fostering regional integration and development.
- *Maritime Trade Routes:* Vietnam's extensive coastline along the South China Sea provides strategic access to maritime trade routes and shipping lanes. Major seaports such as Hai Phong, Da Nang, and Ho Chi Minh City serve as key hubs for maritime trade and container shipping, facilitating the movement of goods to and from international markets.
- *ASEAN Integration:* Vietnam actively participates in regional trade agreements and initiatives within the Association of Southeast Asian Nations (ASEAN) framework. As an ASEAN member state, Vietnam benefits from preferential trade arrangements, tariff reductions, and market access opportunities, strengthening its trade relations with ASEAN member countries and promoting regional economic integration.

3.2. Specific Cross-Border Transportation Challenges Faced by Vietnam

Along with the trend of globalization, the logistics activities of Vietnam in recent years have grown significantly. With a distinctive geographic position in a dynamic area where the flow of goods is highly concentrated, Vietnam has geoeconomic advantages that are very beneficial for increasing production, exports, and logistics services. One of the particularly important areas with cross-border traffic of people and goods which holds great potential for Vietnam's logistics industry is the Greater Mekong Subregion. Vietnam has taken several steps to promote cross-border mobility to enhance freer regional trade and a better investment climate between countries. However, at present, developing transport infrastructure in Vietnam still has many challenges and limitations, reducing the competitiveness of Vietnamese goods and businesses.

3.2.1. Infrastructure shortcomings (Transportation Infrastructure Issues)

Vietnam pays attention to investing in transportation development, especially the transport system - road, airport, and sea. Recently, the Vietnamese Government has launched a plan, spending billions of USD to build and upgrade multi-transport infrastructure in the period 2021-2030. Still, Vietnam faces several shortcomings in transportation infrastructure within the GMS.

- *Road Network:* While Vietnam has made significant progress in expanding the road network, there are still challenges in capacity, quality, and connectivity. Some rural areas have limited access to well-paved roads, which hinders transportation efficiency and connectivity. Additionally, congestion and inadequate road maintenance in urban areas can lead to traffic jams and delays.

- *Railways:* All countries in the GMS, except for Laos, have railways, and except in some parts of Vietnam, they commonly have narrow gauges. When viewed as a subregional whole, the existing railway network can be considered incomplete. There are missing links between major cities in the subregion. Railways are mostly single-track with small capacities. They only serve a limited number of freight and passenger demands. Vietnam's railway system specifically also requires improvement and modernization.

- *Ports and Maritime Infrastructure:* There are challenges related to insufficient port capacity, outdated equipment, and inadequate infrastructure to handle increasing cargo volumes. An example in the seaport segment is that some businesses only invest in lifting and lowering equipment, but for super-sized and super-heavy shipments, these businesses have to hire outside partners which costs lots of time as well as expense. In Vietnam, there are currently major international seaports, in which ports of Hai Phong and Cai Lan are off the trunk shipping routes. They merely serve as feeder ports to major regional ports in Singapore and Laem Chabang.

- *Airports:* Vietnam has experienced a significant increase in air travel demand, particularly in major cities like Hanoi and Ho Chi Minh City. However, the demand for air cargo transport is still very limited in the subregion. Airports mainly serve passenger traffic.

3.2.2. Regulatory and bureaucratic hurdles (Regulatory and Customs Challenges)

Despite the Vietnamese government's many ground-breaking policies aimed at promoting and creating conditions for the development of the transport and logistics industry, up to 54.55% of businesses believe there are many shortcomings such as ineffective policies (Vietnam Report [VNR], 2019).

Regarding import and export, customs clearance of goods is still quite strict, causing many difficulties. The Decree's instructions are unclear, making it confusing for new businesses to get acquainted. Vietnam's customs procedures can be considered complex and time-consuming, leading to delays and administrative burdens for cross-border transportation as well as slowing down the pace of development of the logistics industry.

The documentation requirements, customs declarations, and inspection processes can vary across different border checkpoints, leading to inconsistencies and inefficiencies. For example, when reviewing the commitments of the European Union-Vietnam Free Trade Agreement, Vietnam's Customs Law is compatible with other countries' customs laws. However, in reality, the results of measuring the time to release import and export goods of the General Department of Customs show that, in the total time from declaration registration to customs clearance/release of goods, the customs time authorities account for 28%, the remaining time depends on the handling of procedures by specialized management agencies related to the process of import and export goods of the enterprise.

Additionally, one of the reasons for prolonging the clearance time for imported and exported goods, leading to increased logistics costs, is the lack of synchronous coordination between management agencies to inherit the reporting results of each other's inspections.

3.2.3. Economic Impacts

Economic impacts, such as rapid changes in trade patterns, currency fluctuations, and varying levels of economic development among countries within the GMS, can collectively contribute to a range of challenges for cross-border transportation in Vietnam.

- *Trade Volume and Patterns:* Increased trade activities between Vietnam and its neighboring countries within the GMS can lead to higher demand for transportation services, including road, rail, and maritime transport. However, if the growth rate of the economy outpaces the development of transportation infrastructure in Vietnam while Vietnam is still trying to overcome previous limitations, it can lead to infrastructure gaps and disrupt the transportation and circulation of goods.

- *Trade Imbalances:* Trade imbalances can lead to uneven transportation flows, with more outbound or inbound shipments, creating challenges in optimizing transportation networks and balancing capacity utilization. Unequal trade flows can result in imbalanced logistics and transportation operations, impacting efficiency and cost-effectiveness.

- *Currency Fluctuations:* Volatile currency exchange rates can affect transportation costs, particularly for fuel and imported equipment or spare parts. Currency fluctuations can also influence trade competitiveness and pricing strategies, impacting the demand for cross-border transportation services.

Furthermore, the macroeconomic context can also have an adverse effect on global transportation activities. For example, in 2023, as the war between Russia and Ukraine escalated, the global inflation index rose, raising the risk of a recession in many countries. People and governments in those countries will also tighten spending and reduce trading, import, and export activities, resulting in a significant decline in trade flows and minimal indications of recovery. This is an unavoidable challenge that Vietnam might have to cope with; logistics businesses must take steps to mitigate macroeconomic risks.

3.2.4. Technology Integration

To enhance cross-border transportation mobility among countries in the Greater Mekong Subregion, technology plays one of the most important roles. However, according to a survey by Vietnam Logistics Business Association (2018), the level of integration of science and technology in logistics in Vietnam is not high, international standard software has not been widely applied, and customs declaration is the most used, accounting for 75 - 100%. Small logistics businesses in Vietnam still have to process orders and classify goods manually. The cost of investing in such synchronous IT infrastructure is up to hundreds of billions of dong, which is a huge burden for small and medium-sized logistics businesses.

Lacking technology integration in transportation may raise the cost of delivery and services. Total logistics-related expenses in Vietnam account for 25% of GDP, with transportation costs taking up 30-40% of product costs, meanwhile in other countries it only accounts for 15% (Vietnam Industry Research And Consultancy [VIRAC], 2023).

3.3. Initiatives and solutions implemented by Vietnam

3.3.1. Government policies and programs addressing transportation challenges in Vietnam

Vietnam have implemented several initiatives and programs to address the cross-border transportation challenges in the GMS. Here are some key government policies and programs implemented by Vietnam.

a. Infrastructure Development

Infrastructure development plays a crucial role in improving cross-border transportation in Vietnam. The Vietnamese government recognizes the importance of well-maintained and efficient road networks for facilitating the movement of goods and people across borders. This includes the construction and renovation of roads that connect Vietnam with neighboring countries.

Upgrading and expanding these road networks not only improves connectivity but also enhances trade and economic growth. For example, the construction of the Hanoi-Lao Cai Expressway has significantly improved transportation connectivity between Vietnam and China.

This expressway serves as a vital link for trade and tourism between the two countries, facilitating the movement of goods and people.

By prioritizing infrastructure development, Vietnam is not only improving cross-border transportation but also promoting economic growth and regional integration. These initiatives contribute to the overall development of the GMS and enhance connectivity with neighboring countries.

b. Investment in Transport Networks

Investment in transport networks is also a key strategy implemented by the Vietnamese government to enhance cross-border transportation. By focusing on developing this area, Vietnam aims to address the challenges and limitations faced in cross-border transportation.

The government invests in upgrading ports to handle increased cross-border traffic. Ports play a vital role in facilitating international trade and transportation. By improving port facilities, such as expanding container terminals and enhancing cargo handling capabilities, Vietnam aims to streamline logistics and trade operations. An example of such development is the Hai Phong International Gateway Port, which serves as a modern transport hub and facilitates smoother logistics and trade operations.

Airports are crucial for international connectivity and play a significant role in facilitating trade and tourism. By expanding airport infrastructure, Vietnam aims to enhance its capacity to handle increased passenger and cargo traffic. This investment not only improves cross-border transportation but also boosts tourism and economic development.

Overall, by improving road conditions, upgrading ports, and expanding airports, Vietnam aims to facilitate smoother logistics, trade operations, and the movement of goods and people across borders. These initiatives contribute to the overall development of the GMS and strengthen regional integration and connectivity.

3.3.2. Collaborative efforts with neighboring countries

Vietnam understands the importance of collaboration with neighboring countries to address cross-border transportation challenges. Here are some collaborative efforts undertaken by Vietnam:

a. Greater Mekong Subregion Economic Cooperation:

Vietnam actively participates in the GMS Economic Cooperation Program, which focuses on enhancing regional integration and connectivity.

Through the GMS Economic Cooperation Program, Vietnam collaborates with other GMS countries to develop and implement joint projects that improve transportation infrastructure and facilitate cross-border trade. The program's strategic framework emphasizes increasing connectivity through the sustainable development of physical infrastructure and transforming transport corridors into transnational economic corridors.

The GMS program also aims to improve competitiveness through market integration and facilitation of cross-border trade and travel, including streamlining customs procedures, simplifying border crossing formalities, and promoting trade facilitation agreements between GMS countries.

Vietnam's participation in the program demonstrates its commitment to regional cooperation and integration. By collaborating with neighboring countries, Vietnam aims to address cross-border transportation challenges, promote trade and economic growth, and strengthen regional connectivity within the GMS.

b. Bilateral Agreements:

Vietnam has entered into bilateral agreements with neighboring countries to enhance cross-border transportation. These agreements aim to streamline customs procedures, simplify border-crossing formalities, and promote trade facilitation. For example, a bilateral agreement, Vietnam-China Border Trade Agreement, has played a significant role in reducing trade barriers and promoting cross-border transport efficiency between the two countries. It has facilitated smoother trade operations and improved connectivity by addressing issues related to customs procedures, border regulations, and trade facilitation.

Bilateral agreements are legally binding agreements between two countries that require mutual consent and cooperation. They provide a framework for collaboration and coordination in various areas, including transportation. These agreements often involve negotiations and discussions between the involved parties to ensure that the terms and conditions are mutually beneficial.

By streamlining customs procedures and simplifying border crossing formalities, bilateral agreements help reduce bureaucratic hurdles and facilitate the movement of goods and people across borders. They promote efficiency and transparency in cross-border transportation and enhance trade and economic growth.

Moreover, these agreements contribute to building trust and fostering stronger relationships between countries. By working together to address transportation challenges, countries can strengthen regional integration and cooperation. Bilateral agreements also provide a platform for ongoing dialogue and collaboration, allowing countries to address emerging issues and adapt to changing circumstances.

Overall, by implementing government policies and programs addressing transportation challenges and engaging in collaborative efforts with neighboring countries, Vietnam has made significant progress in improving cross-border transportation in the GMS. These initiatives have facilitated trade and economic growth and strengthened regional integration and connectivity.

3.4. Evaluations of Vietnam's current situation

Vietnam is currently facing several challenges and opportunities in the realm of cross-border transportation.

3.4.1. Infrastructure:

Vietnam has made significant progress in infrastructure development, particularly in improving road conditions, upgrading ports, and expanding airports. However, there is still a need for further investment and development to meet the increasing demands of cross-border transportation.

3.4.2. Government Policies:

Prioritizing infrastructure development and investment in transport networks showcases a proactive approach to improving cross-border transportation. Still, the government should make a continuous assessment and revision of policies to adapt to evolving needs and emerging challenges.

3.4.3. Collaboration:

Vietnam actively participates in regional cooperation initiatives, such as the GMS Economic Cooperation Program. Continued collaboration and coordination are essential for further progress in addressing transportation challenges.

3.4.4. Economic Factors:

Vietnam's growing economy and increasing trade volumes present both opportunities and challenges for cross-border transportation. The country's participation in regional economic integration initiatives, such as the ASEAN Economic Community, provides access to larger markets and trade opportunities. However, the surge in cross-border trade also puts pressure on existing transportation infrastructure and requires continuous investment and adaptation.

Overall, Vietnam's current situation in cross-border transportation reflects a mix of progress and ongoing challenges. It has shown commitment through infrastructure development, government policies, collaboration, and participation in regional initiatives. Meanwhile, there is still a need for continuous evaluation, investment, and adaptation to address the evolving demands and overcome the remaining challenges.

4. Recommendations

4.1. Future Trends

4.1.1. Exploration of emerging trends in cross-border transportation within the Greater Mekong Subregion.

There have been significant developments in cross-border transportation within the GMS, due to various factors such as infrastructural improvements, technological innovations, and economic collaboration between neighboring nations.

- ***Infrastructure Advancements:*** GMS nations, including Cambodia, China, Laos, Myanmar, Thailand, and Vietnam, are investing heavily in infrastructure ventures to develop cross-border

transportation. This includes constructing roads, railways, bridges, and ports to encourage the movement of goods and people. According to the Asian Development Bank, over two decades, the GMS Program has invested about \$15 billion in projects covering sub-regional roads, airports and railways, power facilities, tourism infrastructure, and communicable disease prevention.

- *Regional Integration Initiatives:* Actively engaging in regional integration efforts such as the Greater Mekong Subregion Economic Cooperation Program (GMS Program) and the ASEAN Economic Community (AEC), GMS countries are striving towards harmonizing regulations, streamlining customs procedures, and enhancing infrastructure connectivity to foster cross-border transportation. According to the Minister of Transportation of Vietnam Nguyen Van The, the GMS-CBTA Agreement is very important in promoting cooperation among the GMS countries both in terms of transportation and trade. By participating in the Agreement, transportation connection infrastructure has been improved, basically meeting the socio-economic development needs of countries in the region. This promises a bright future for transportation among the Mekong subregions.

- *Digitalization and Technological Integration:* Digital technologies play an increasingly integral role in GM's cross-border transportation, including the adoption of digital platforms for logistics management, electronic customs clearance systems, GPS-based cargo tracking, and blockchain applications to increase transparency and security in trade transactions.

- *Cross-Border Economic Collaborations:* The establishment of cross-border economic collaboration fosters economic integration, cross-border trade, and investment. Within the GMS, there have been efforts to prioritize such collaboration, through the establishment of economic corridors aimed at enhancing mobility, connectivity, and stimulating economic activity. A very promising endeavor within this framework involves the strategic development of special economic zones (SEZs) along these corridors. Initially introduced by China during its open-door policy in the 1980s, this concept has since been embraced by Vietnam and Thailand, and more recently, by the remaining countries in the region – Cambodia, Laos, and Myanmar.

4.1.2. Anticipation of how technological advancements and geopolitical changes may impact the landscape.

Technological advancements and geopolitical changes significantly impact the landscape of cross-border transportation in the Greater Mekong Subregion.

a. Technological Advancements

- *Automation and Artificial Intelligence (AI):* Advancements in automation and AI could lead to revolution in transportation logistics, consequently more efficient supply chains, optimized route planning, and reduced costs.

- *Electric and Autonomous Vehicles:* The widespread adoption of electric and autonomous vehicles could result in much cleaner and safer transportation systems, reducing carbon emissions and improving safety on the roads.

- *Digitalization and Data Analytics:* The increase in digitalization and the use of data analytics will improve transparency, efficiency, and security in cross-border trade and transportation processes, resulting in much smoother and more streamlined operations.

b. Geopolitical Changes

- *Changes in Trading Policies:* Changes in trade agreements, tariffs, and geopolitical alliances can reshape trade patterns within the region, affecting volume and direction of cross-border transportation flows.

- *Infrastructure Investment:* Geopolitical tensions or shifts in alliances could strongly affect infrastructure investment decisions, leading to the prioritization of some specific transportation projects over others and therefore, altering the regional connectivity dynamics.

- *Security Concerns:* Different security concerns such as border disputes and geopolitical conflicts, can disrupt cross-border transportation routes and require many new security measures to improve the efficiency and reliability of transportation networks.

While technological advancements may offer opportunities to increase the efficiency and sustainability of cross-border transportation in the GMS, geopolitical changes can create challenges that may influence the direction of infrastructure development, and regional integration efforts. Actions can be taken include active planning, collaborations, and adaptability among members in the subregion.

4.2. Policy Recommendation

4.2.1. Enhancing Infrastructure Development

To enhance the infrastructure development, the Greater Mekong Subregion needs to make changes to improve its policies.

- *Encouraging Investment:* Governments in the Greater Mekong Subregion should actively create a favorable investment market to attract both domestic and foreign investors to take part in infrastructure development projects within the region. Governments should also enact new policies that can attract both local and foreign investment in different infrastructure projects, potentially by offering incentives like tax benefits or permission to simplify processes.

- *Promoting Public-Private Partnerships (PPPs):* PPPs play a key role in improving private sector investment in infrastructure projects. Governments should productively promote PPPs as a means to increase capital for the private sector and expertise in infrastructure projects. Clear legal and regulatory frameworks should be established to PPPs to ensure transparency, accountability, and risk-sharing between both private and public partners.

- *Technology Integration:* Promoting the adoption of technology innovations and digital solutions can boost infrastructure efficiency, reliability, and sustainability. Thanks to advanced technologies, processes may take much less time and as a result, be much more conducive to GMS transportation.

Implementing these recommendations for policies can definitely enhance infrastructure development, and foster regional connectivity, and economic prosperity in the GMS.

4.2.2. Streamlining regulatory processes

It is also important to streamline regulatory processes, leading to more efficient regulatory procedures. Governments across the GMS should prioritize the simplification and harmonization of regulatory processes relating to infrastructure development, including optimizing permission procedures, minimizing administrative processes, and ensuring homogeneity and transparency in regulations across the regions. By enhancing the efficiency of regulatory frameworks, authorities can accelerate the productivity of infrastructure projects, and have timely and cost-effective implementations while creating a conducive environment for investment and economic prosperity.

4.3. Collaborative Solutions

One of the primary solutions for addressing cross-border transportation challenges in the GMS is to promote regional cooperation and strengthen partnerships and agreements among the members.

4.3.1. Regional cooperation for improved cross-border transportation

To achieve this, GMS members, including Vietnam, can establish joint committees, working groups, and forums dedicated to address transportation issues.

High-level forums and summits provide platforms for policymakers to engage in discussions on cross-border transportation challenges. For example, the GMS Ministerial Conference on Transport brings together transportation ministers from GMS countries to exchange views, share experiences, and identify areas for collaboration.

Harmonizing norms and rules is critical to facilitating cross-border transportation. GMS countries can work together to standardize customs procedures, transportation documentation requirements, and technical standards.

4.3.2. Strengthening GMS partnerships and agreements

Firstly, existing agreements, such as the Cross-Border Transport Agreement (CBTA), should be reviewed and updated to address emerging challenges and opportunities. This includes streamlining customs procedures, simplifying documentation requirements, and harmonizing regulations to facilitate smoother and faster movement of goods and people across borders.

Secondly, expanding transport corridors is another important aspect. GMS countries can collaborate to develop new road, rail, and waterway connections that link key economic centers and border crossings.

Moreover, encouraging information sharing and technology adoption can significantly improve cross-border transportation. GMS countries can enhance the exchange of information and adopt digital platforms for real-time tracking and monitoring of cargo.

5. Conclusion

5.1. Scope of study

This study focuses on examining the challenges and solutions related to cross-border transportation in the GMS, with an emphasis on Vietnam. It encompasses an overview of the historical context and key concepts of cross-border transportation in the GMS, then a detailed analysis of Vietnam's role in facilitating cross-border trade and the challenges it faces, including infrastructure shortcomings, regulatory hurdles, economic impacts, and technology integration issues. Additionally, the study evaluates the initiatives and solutions implemented by Vietnam to address these challenges. The study offers recommendations for future trends, policy enhancements, and collaborative solutions to improve cross-border transportation efficiency and connectivity within the GMS.

5.2. Limitations

This study has several that should be acknowledged. Firstly, it relied primarily on existing literature and previous studies, which may have limitations in terms of data availability and accuracy. The reliability and completeness of the data used are dependent on the quality and scope of the sources accessed. Secondly, the study focused primarily on Vietnam as a case study, which may not fully capture the specific challenges faced by other countries in the GMS. Each country in the region has its unique circumstances that influence their cross-border transportation dynamics. Therefore, the findings and recommendations of this study should be interpreted with caution when applied to other GMS countries.

5.3. Future suggestions

Investment in Infrastructure: Continued investment in transportation infrastructure is paramount to overcome the shortcomings identified, such as inadequate road networks and border crossing facilities. Public-private partnerships and international aid can play a significant role in financing large-scale infrastructure projects aimed at enhancing connectivity and trade facilitation.

Technology Integration: Embracing technological advancements, such as digital platforms for customs clearance and tracking systems for logistics, can streamline cross-border processes and reduce bureaucratic delays. Vietnam should prioritize the adoption of modern technologies to improve efficiency and transparency in cross-border transportation operations.

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