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DEVELOPMENT OF LOGISTICS INFRASTRUCTURE IN THE CENTRAL PROVINCES OF VIETNAM

SUMMARY OF DOCTORAL DISSERTATION

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INTRODUCTION

1. Rationale of the Dissertation

The logistics system is widely regarded as one of the most important factors influencing a country's economic development and competitiveness. Logistics infrastructure refers to the system of physical and technical facilities that support the transportation, storage, and distribution of goods within supply chains. It includes transportation infrastructure, seaports, airports, warehouses, logistics centers, information systems, and technologies that facilitate logistics management. The synchronized development of logistics infrastructure plays a crucial role in ensuring the smooth flow of goods, reducing logistics costs, and enhancing supply chain efficiency.

Within modern logistics systems, transportation infrastructure serves as the backbone that connects various stages of the supply chain, ensuring the efficient movement, storage, and distribution of goods. In addition, logistics nodes such as seaports, airports, logistics centers, and warehousing facilities function as transshipment, consolidation, and distribution points within logistics networks. Meanwhile, advances in information and communication technologies improve the ability to manage, monitor, and optimize logistics operations, thereby enhancing the overall efficiency of logistics systems.

In Vietnam, the logistics industry has experienced rapid growth and has made significant contributions to economic development and international integration. However, according to various studies and industry reports, logistics costs in Vietnam currently account for approximately 16–17% of GDP, significantly higher than the global average of around 8–10% (Ministry of Industry and Trade, 2025). High logistics costs not only reduce business efficiency but also weaken the competitiveness of the economy, hinder foreign investment attraction, and limit Vietnam’s ability to fully capitalize on the benefits of the free trade agreements in which it participates.

In recent years, Vietnam has achieved certain improvements in national competitiveness. Nevertheless, infrastructure quality remains one of the major bottlenecks, reflecting the uneven development of the country's logistics infrastructure system. This situation is also reflected in Vietnam’s ranking in the World Bank’s Logistics Performance Index (LPI), where the country fell from 39th out of 160 economies in 2018 to 43rd out of 139 economies in 2023 (Ministry of Industry and Trade, 2025). These results indicate that Vietnam’s logistics infrastructure system has not yet fully met the development requirements of the economy in the context of increasingly deep international integration.

Central Vietnam, comprising the North Central Coast and the South Central Coast regions, occupies a strategically important geo-economic position in connecting different economic regions of the country as well as linking Vietnam with the Greater Mekong Subregion. The region is home to several important seaports, including Da Nang, Chan May, and Quy Nhon ports, and hosts major economic zones and industrial parks such as Chu Lai and Dung Quat. Located along key economic corridors, particularly the East–West Economic Corridor, Central Vietnam possesses significant potential for logistics development and for becoming a major regional cargo transshipment hub.

Despite these advantages, the logistics infrastructure system in Central Vietnam has not developed commensurately with its potential and geo-economic strengths. One of the major limitations is the imbalance in the allocation of investment capital for transportation infrastructure. During the period 2011–2021, approximately 75–80% of transportation investment was allocated to road infrastructure. In the 2021–2025 period, although this proportion has shown a slight decline, road transportation infrastructure—especially expressway development—continues to dominate investment allocation, as evidenced by the concentration of resources on the North–South Expressway and major interregional transport corridors. In 2025, road transport accounted for approximately 75.2% of total freight volume, while rail and inland waterway transport represented only about 0.18% and 19.75%, respectively (Ministry of Industry and Trade, 2025). Excessive dependence on road transportation not only increases logistics costs but also limits the utilization efficiency of lower-cost and higher-capacity transport modes such as railways and inland waterways.

Furthermore, although seaports play a critical role in import–export activities and international transport connectivity, seaport infrastructure in Central Vietnam has not yet been developed in a synchronized manner with hinterland transport networks and port-related logistics services. This limitation constrains the role of seaports within logistics supply chains and contributes to higher transportation and logistics costs for businesses. In addition, the shortage of large-scale and modern logistics centers across the region remains a significant obstacle to logistics development. The lack of logistics centers capable of providing storage, distribution, and value-added services not only reduces supply chain efficiency but also increases logistics costs throughout the economy.

Given these issues, research on the development of logistics infrastructure in the provinces of Central Vietnam is of great theoretical and practical significance. The findings of this study are expected not only to contribute to the theoretical and

empirical understanding of logistics infrastructure development under Vietnam's conditions but also to provide scientific evidence for policymaking and the formulation of solutions aimed at developing a synchronized, modern, and efficient logistics infrastructure system in Central Vietnam.

For these reasons, the doctoral candidate has chosen the topic **"Development of Logistics Infrastructure in the Provinces of Central Vietnam"** as the subject of the doctoral dissertation in Political Economy.

2. Research Objectives and Research Tasks of the Dissertation

2.1. Research Objective

The dissertation aims to clarify the theoretical and practical foundations of logistics infrastructure development from the perspective of Political Economy; assess the current status of logistics infrastructure development in the Central provinces of Vietnam during the period 2018–2024; and, on that basis, propose viewpoints, objectives, and solutions for developing the region's logistics infrastructure in a synchronized, modern, and efficient manner toward 2030, with a vision to 2045.

2.2. Research Tasks

To achieve the above research objective, the dissertation focuses on the following major tasks:

Reviewing and evaluating previous studies related to the research topic in order to identify existing research gaps;

Clarifying the fundamental theoretical issues concerning logistics infrastructure development;

Examining the experiences of selected countries in developing logistics infrastructure and drawing lessons applicable to Vietnam;

Analyzing and evaluating the current status of logistics infrastructure development in the Central provinces of Vietnam during the period 2018–2024, identifying achievements, limitations, and the causes of such achievements and limitations;

Proposing orientations and solutions to further develop logistics infrastructure in the Central provinces of Vietnam in a synchronized and modern manner by 2030, with a vision to 2045.

3. Research Object and Scope

3.1. Research Object

The research object of the dissertation is the process of logistics infrastructure development in the Central provinces of Vietnam from a political economy perspective. The study focuses on analyzing the role of the State in

planning orientation, allocation of investment resources, and coordination among stakeholders involved in the development of logistics infrastructure.

3.2. Research Scope

- Scope of content:

The dissertation examines logistics infrastructure development in the Central provinces of Vietnam from a political economy perspective, focusing on three main areas: (i) the formulation, promulgation, and implementation of institutions, policies, and planning for logistics infrastructure development; (ii) the development of various types of logistics infrastructure, including multimodal transport infrastructure, seaports, airports, logistics centers, warehouses, information technology infrastructure, and other supporting infrastructure; and (iii) mechanisms for mobilizing and allocating resources, as well as addressing the interests of the State, enterprises, local authorities, and communities in the process of logistics infrastructure development.

- Spatial scope:

The dissertation is conducted in the provinces and centrally governed cities of the Central region of Vietnam, including Thua Thien Hue, Da Nang City, Quang Nam, Quang Ngai, and Binh Dinh (currently Hue City, Da Nang City, Quang Ngai Province, and Gia Lai Province). This region plays a strategic role in connecting the North–South economic corridor and linking the Central Coast with the Central Highlands, while also serving as a maritime gateway for regional economic corridors. Although, from July 1, 2025, pursuant to resolutions of the National Assembly, several localities within the study area have undergone administrative boundary adjustments as part of the provincial reorganization process, the dissertation continues to use the administrative boundaries and locality names that existed prior to these changes. This approach ensures consistency in data collection, processing, and comparison, while facilitating alignment with socio-economic development plans, strategies, and logistics infrastructure planning documents implemented during the study period.

- Temporal scope:

The dissertation analyzes the current status of logistics infrastructure development in the Central provinces of Vietnam during the period 2018–2024 and proposes orientations and solutions for logistics infrastructure development in the region through 2030, with a vision toward 2045.

4. Theoretical Framework and Research Methodology

4.1. Theoretical Framework

The dissertation is grounded in the theoretical perspectives of Marxism–Leninism and Ho Chi Minh Thought, as well as the viewpoints, guidelines, and

policies of the Communist Party of Vietnam and the State concerning infrastructure development in general and logistics infrastructure development in particular. In addition, the study selectively inherits and synthesizes relevant theories and research findings from both domestic and international scholars on logistics, logistics infrastructure, transport infrastructure development, regional linkages, resource allocation, and the role of the State in logistics infrastructure development.

The practical basis of the dissertation is derived from the experiences of logistics infrastructure development in several representative countries, particularly Singapore and the Federal Republic of Germany. Furthermore, the study is based on the practical development of logistics infrastructure in the Central provinces of Vietnam during the period 2018–2024.

4.2. Research Methodology

The dissertation employs a combination of research methods, including analysis and synthesis, systematization, descriptive statistics, comparative analysis, and logical reasoning. In addition to secondary data, the study utilizes primary data collected through in-depth interviews and questionnaire surveys conducted from March to June 2025. After data screening and cleaning, 120 valid questionnaires were retained and analyzed using descriptive statistical techniques.

5. Original Contributions of the Dissertation

5.1. Theoretical Contributions

The dissertation systematizes and further clarifies the theoretical foundations of logistics infrastructure development from a political economy perspective. Specifically, it elaborates on the concepts, contents, evaluation criteria, and influencing factors of logistics infrastructure development. The study contributes additional scientific arguments regarding logistics infrastructure development at the regional level, particularly in the context of strengthening regional linkages, promoting international economic integration, and enhancing the State’s regulatory role in logistics infrastructure development.

5.2. Practical Contributions

The dissertation analyzes and evaluates the current state of logistics infrastructure development in the Central provinces of Vietnam during the period 2018–2024, identifying major achievements, limitations, and the underlying causes of those limitations. Based on the experiences of Singapore and the Federal Republic of Germany, the study draws lessons that may serve as valuable references for Vietnam. Furthermore, it proposes viewpoints, objectives, and solutions for developing logistics infrastructure in the Central

provinces of Vietnam in a synchronized, modern, efficient, and regionally integrated manner toward 2030, with a vision to 2045.

6. Scientific Significance of the Dissertation

6.1. Theoretical Significance

The dissertation contributes to the systematization and clarification of the theoretical foundations of logistics infrastructure development from a political economy perspective. It highlights the role of logistics infrastructure in socio-economic development, competitiveness enhancement, and regional integration. The research findings may serve as useful references for teaching, learning, and further research in the fields of political economy, logistics, and infrastructure development.

6.2. Practical Significance

Through an assessment of logistics infrastructure development in the Central provinces of Vietnam, the dissertation identifies shortcomings in management, planning, resource mobilization, and investment allocation for logistics infrastructure. The proposed solutions may provide useful references for state management agencies, ministries, sectors, and local authorities in formulating policies, developing plans, and implementing logistics infrastructure development strategies in the Central provinces of Vietnam toward 2030, with a vision to 2045.

7. Structure of the Dissertation

In addition to the Introduction, Conclusion, and References, the dissertation consists of four chapters.

Chapter 1
LITERATURE REVIEW OF STUDIES RELATED TO THE DISSERTATION TOPIC

1.1. OVERVIEW OF RESEARCH ON LOGISTICS INFRASTRUCTURE DEVELOPMENT

Previous domestic and international studies on logistics infrastructure development have approached the issue from various perspectives, including development economics, international trade, supply chain management, transport economics, public policy, and regional development management. In general, these studies confirm that logistics infrastructure, comprising transportation infrastructure, seaports, airports, logistics centers, warehouses, information technology infrastructure, and supporting services, plays a crucial role in optimizing supply chains, reducing transportation and logistics costs, expanding market access, promoting economic growth, and enhancing competitiveness.

Research findings also indicate that logistics infrastructure development is influenced by multiple factors, including institutions, policies, planning, investment mechanisms, public–private partnerships, natural conditions, economic development levels, science and technology, state management capacity, and the degree of regional integration. Among these factors, many studies emphasize the role of the State in strategic planning, resource mobilization and allocation, stakeholder coordination, and ensuring the synchronicity, modernization, and sustainability of logistics infrastructure systems.

In the Vietnamese context, domestic studies have initially clarified the role of logistics and logistics infrastructure in economic growth, logistics cost reduction, export promotion, competitiveness enhancement, and regional connectivity. Several studies have identified major bottlenecks in Vietnam's logistics development, including inadequate and fragmented transport infrastructure, a shortage of modern logistics centers, limited multimodal connectivity, high logistics costs, low levels of technology adoption, and ineffective coordination mechanisms among localities.

1.2. EVALUATION OF DOMESTIC AND INTERNATIONAL STUDIES RELATED TO THE DISSERTATION TOPIC

1.2.1. Scientific and Practical Contributions

Previous studies have systematized the theoretical foundations of logistics infrastructure and clarified its role in economic growth, supply chain optimization, logistics cost reduction, and competitiveness enhancement. Numerous studies have demonstrated the close relationship between logistics infrastructure quality and transportation efficiency, trade performance, and regional development, while also employing indicators such as the Logistics Performance Index (LPI) to quantify the impact of logistics on economic development. Furthermore, existing research highlights the importance of state governance, institutions, policies, planning, and public–private partnerships in the investment, operation, and improvement of logistics infrastructure projects.

1.2.2. Limitations of Existing Studies

1.2.2.1. Limitations in Research Content

Many studies primarily examine logistics infrastructure development from economic–technical or logistics management perspectives, whereas the political economy approach, particularly the relationship between institutions, resource allocation, and the interests of stakeholders involved in logistics infrastructure development, has not been sufficiently explored. In addition, domestic studies focusing on regional logistics infrastructure development, especially in the Central provinces of Vietnam, remain relatively limited.

1.2.2.2. Limitations in Research Methodology

Many studies rely on quantitative methods and focus mainly on indicators such as the Logistics Performance Index (LPI), providing general findings but lacking in-depth analysis of institutional contexts, policy frameworks, planning processes, regional governance, and coordination mechanisms among stakeholders. On the other hand, qualitative studies often fail to integrate practical evidence and survey data at the regional level comprehensively.

1.2.2.3. Limitations in Research Objects

The primary focus of many studies is the economic efficiency of logistics infrastructure for enterprises or national economies. However, the process of logistics infrastructure development at the regional level, particularly the roles and interests of the State, businesses, local governments, and communities, has not been comprehensively analyzed.

1.2.2.4. Limitations in Research Scope

Existing studies have not adequately integrated several key issues into a unified analytical framework, including resource allocation, the role of the private sector, regional linkages, economic corridor connectivity, logistics center networks, multimodal transportation connections, and coordination mechanisms among local authorities.

1.2.2.5. Limitations in Research Period

Many studies adopt a short-term perspective and therefore do not fully capture the long-term impacts and emerging transformations of logistics systems in the context of globalization, digital transformation, green logistics, smart logistics, and changes in global supply chains.

1.3. RESEARCH GAP AND RESEARCH ISSUES OF THE DISSERTATION

1.3.1. Research Gap

There is a lack of in-depth research on the development of logistics infrastructure in the Central provinces of Vietnam from a political economy perspective. In particular, issues concerning the role of the State in planning, mobilizing and allocating resources, coordinating interests among stakeholders, promoting regional linkages, connecting economic corridors and logistics center networks, as well as developing financial mechanisms and public–private partnerships under the specific conditions of the Central region, have not been sufficiently clarified.

1.3.2. Research Issues of the Dissertation

The dissertation inherits and builds upon theoretical foundations related to logistics, logistics infrastructure, the role and content of logistics

infrastructure development, influencing factors, and criteria for evaluating logistics infrastructure development. It also draws on international experiences in logistics infrastructure development. The dissertation focuses on the following key research issues: systematizing the theoretical framework of logistics infrastructure development from a political economy perspective; assessing the current state of logistics infrastructure development in the Central provinces of Vietnam during the period 2018–2024; identifying achievements, limitations, and their underlying causes; and proposing viewpoints, objectives, and solutions for the development of logistics infrastructure in the region toward 2030, with a vision to 2045.

Chapter 2
THEORETICAL FOUNDATION AND INTERNATIONAL EXPERIENCE IN LOGISTICS INFRASTRUCTURE DEVELOPMENT

2.1. CONCEPTS AND ROLES OF LOGISTICS INFRASTRUCTURE

2.1.1. Concept of Logistics

Logistics originated in the military sector and was later expanded into economic and commercial activities, becoming a core component of modern supply chain management. According to the widely accepted approach, logistics is the process of planning, organizing, implementing, and controlling the efficient movement and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customer requirements at the lowest possible cost.

In the contemporary context, logistics is no longer limited to traditional transportation and warehousing activities but also encompasses green logistics, humanitarian logistics, and smart logistics associated with the application of digital technologies. This reflects the increasingly important role of logistics in economic development, environmental protection, and social welfare enhancement.

2.1.2. Classification of Logistics

Logistics can be classified according to various criteria, including the flow of goods, position within the supply chain, transportation mode, and service levels ranging from First-Party Logistics (1PL) to Fifth-Party Logistics (5PL). Within the scope of this dissertation, logistics is primarily examined through transportation, storage, distribution, and logistics service activities associated with logistics infrastructure development.

2.1.3. Concept of Logistics Infrastructure

Logistics infrastructure refers to the system of physical and non-physical elements that support the transportation, storage, distribution, and management of goods throughout the supply chain. Logistics infrastructure consists of both “hard” infrastructure, such as transportation networks, seaports, airports, logistics centers, and warehouses, and “soft” infrastructure, including institutions, policies, administrative procedures, and information systems.

The quality of logistics infrastructure directly affects logistics costs, trade efficiency, and the overall competitiveness of an economy. Therefore, the development of logistics infrastructure is regarded as a fundamental prerequisite for promoting economic growth and international integration.

2.1.4. Roles of Logistics Infrastructure

(i) Economic Role

The development of logistics infrastructure helps reduce transportation costs, optimize supply chain operations, enhance productivity, and stimulate GDP growth. Modern logistics infrastructure creates favorable conditions for attracting investment, expanding import-export activities, and establishing large-scale production and service centers.

(ii) Social Impact

Logistics infrastructure contributes to job creation, improves access to goods and services, and helps narrow development gaps among regions. Moreover, logistics plays a vital role in disaster response, the provision of essential goods, and the enhancement of social resilience.

(iii) Political Significance

Logistics infrastructure serves as an important instrument for governments to implement regional development strategies, strengthen economic connectivity, and enhance a country's position within global supply chains. Effective planning and investment in logistics infrastructure contribute to political and social stability while reinforcing national soft power.

2.1.5. Political Economy Approach to Logistics Infrastructure Research

The political economy approach suggests that logistics infrastructure is not merely a technical issue but also the outcome of processes involving the allocation of power, resources, and interests among the state, businesses, and communities. In transition economies such as Vietnam, the coordinating role of the government, institutional capacity, and the participation of social stakeholders significantly influence the effectiveness of logistics infrastructure development, particularly in less-developed regions such as Central Vietnam.

2.2. LOGISTICS INFRASTRUCTURE DEVELOPMENT

2.2.1. Concept of Logistics Infrastructure Development

Logistics infrastructure development is a comprehensive process that reflects the integration of economic, technical, and institutional factors. It is also the outcome of coordination among various stakeholders in the economy under the guidance and direction of the State.

2.2.2. Contents of Logistics Infrastructure Development

a. Institutional Framework and Planning

Institutions and planning play a crucial role in guiding and regulating the development of logistics infrastructure. An effective institutional framework helps reduce transaction costs, create a transparent investment environment, and mobilize social resources. Logistics planning serves as a strategic tool for organizing infrastructure space, ensuring linkages among transportation, industry, trade, and urban development, while avoiding fragmented and uncoordinated investments.

b. Development of Logistics Infrastructure Components

Logistics infrastructure consists of the following major components:

(i) Multimodal transport infrastructure;

(ii) Logistics centers and transshipment hubs;

(iii) Warehousing and storage systems;

(iv) Information technology and telecommunications infrastructure.

The synchronized development of these infrastructure components is a prerequisite for enhancing supply chain efficiency and reducing logistics costs.

c. Managing Stakeholder Interests

The development of logistics infrastructure is closely associated with the interests of the State, businesses, local authorities, and communities. Therefore, effective coordination mechanisms are required to mobilize and allocate resources efficiently, promote public–private partnerships (PPPs), ensure a balance of interests among stakeholders, and enhance transparency and accountability throughout the investment, operation, and management of logistics infrastructure systems.

2.3. CRITERIA FOR EVALUATING LOGISTICS INFRASTRUCTURE DEVELOPMENT

This dissertation evaluates logistics infrastructure development based on three main groups of criteria:

Institutional and planning criteria, reflecting the degree of coherence, scientific rigor, forecasting capability, and effectiveness of logistics spatial organization;

Infrastructure development criteria, reflecting the level of modernization, multimodal connectivity, socio-economic effectiveness, and completeness of both hard and soft infrastructure;

Stakeholder interest coordination criteria, reflecting the ability to mobilize and allocate resources, coordinate interests among stakeholders, and ensure transparency, fairness, and sustainability in logistics infrastructure development.

2.4. FACTORS AFFECTING LOGISTICS INFRASTRUCTURE DEVELOPMENT

Logistics infrastructure development is influenced by a combination of factors, including:

(i) **Natural conditions** (geographical location, topography, and climate);

(ii) **Economic factors** (economic growth, public investment, private investment, and foreign direct investment);

(iii) **Technological factors** (automation, digitalization, and smart logistics);

(iv) **Socio-cultural factors** (behavioral patterns and social acceptance);

(v) **Political and governance factors** (political stability, institutional capacity, and development policies).

2.5. INTERNATIONAL EXPERIENCES IN LOGISTICS INFRASTRUCTURE DEVELOPMENT AND LESSONS FOR VIETNAM

Experiences from Singapore and Germany indicate that effective logistics infrastructure development should be based on:

(i) Integrated planning and multimodal infrastructure development;

(ii) Application of digital technologies and smart logistics solutions;

(iii) Transparent public–private partnership (PPP) mechanisms;

(iv) Promotion of green and sustainable logistics;

(v) Strategic positioning within global supply chains.

For Vietnam, particularly the Central Region, priority should be given to strengthening regional connectivity, developing strategic logistics centers, enhancing institutional capacity, and leveraging geographical advantages to integrate more deeply into regional and international logistics networks.

Chapter 3
CURRENT STATUS OF LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES OF VIETNAM

3.1. ANALYSIS OF FACTORS AFFECTING LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES

The development of logistics infrastructure in the Central provinces is influenced by a combination of natural, economic, technological, and socio-

cultural factors. From a political economy perspective, logistics infrastructure is not merely a technical issue but also reflects institutional capacity, the coordinating role of the State, and the level of participation of economic and social stakeholders within the region.

3.1.1. Natural Conditions

The Central region possesses a strategic geographical location, situated between the two largest economic centers of Vietnam and serving as a gateway to the sea for the Central Highlands, Southern Laos, and Northeastern Thailand through the East–West Economic Corridor (EWEC). Its long coastline and numerous deep-water seaports provide substantial potential for maritime logistics and international transshipment. However, the region's narrow terrain, fragmented by mountain ranges and mountain passes, together with frequent exposure to natural disasters, increases infrastructure investment and maintenance costs while limiting the expansion of large-scale logistics spaces.

3.1.2. Economic Factors

Economic growth and industrial structure directly influence logistics demand and development orientation. Provinces with relatively advanced industrial production and export-import activities, such as Da Nang, Quang Ngai, and Binh Dinh, exhibit greater demand for logistics services. In contrast, provinces that remain heavily dependent on agriculture and traditional service sectors face difficulties in attracting investment for modern logistics infrastructure. A major constraint is the limited fiscal capacity of local governments, resulting in heavy dependence on central government funding. Moreover, the absence of a strong regional fiscal mechanism hinders the allocation of resources according to spatial economic advantages.

3.1.3. Technological Factors

The application of technology and digital transformation in logistics across the Central region has made initial progress but remains slow and uneven. While Da Nang has emerged as a pioneer in digital logistics development, most enterprises continue to operate under traditional models characterized by limited data integration, low levels of automation, and a lack of value-added logistics services.

3.1.4. Socio-Cultural Factors

The dispersed population distribution, high proportion of agricultural labor, and limited quality of logistics human resources have negatively affected infrastructure utilization efficiency. In many localities, public awareness of logistics remains closely associated with traditional transportation activities

rather than recognizing logistics as a foundational service industry within modern value chains.

3.2. LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES OF VIETNAM DURING THE PERIOD 2018–2024

3.2.1. Institutional Frameworks, Policies, and Planning for Logistics Infrastructure Development

At the national level, various strategies and planning frameworks have identified the Central region as a key logistics hub connected to the North–South transport axis and the East–West Economic Corridor. These orientations provide an important legal foundation for regional logistics infrastructure development. At the local level, the Central provinces have issued numerous logistics development programs and action plans and have integrated logistics into provincial master plans for the 2021–2030 period. Da Nang has been designated as a national logistics center, while Quang Nam, Quang Ngai, Binh Dinh, and Thua Thien Hue have promoted logistics development linked to seaports and coastal economic zones. Nevertheless, planning activities remain largely fragmented along administrative boundaries, and the lack of an effective regional coordination mechanism has resulted in duplication, fragmentation, and unnecessary competition among provinces.

3.2.2. Development of Logistics Infrastructure Components

(i) Transport Infrastructure

The transport system, particularly the Eastern North–South Expressway, has received substantial investment, contributing to improved regional connectivity and reduced transportation costs. However, freight transport remains highly imbalanced, with road transport dominating the sector, while railways, inland waterways, and multimodal logistics have developed slowly. Railway infrastructure remains outdated and poorly connected to seaports, while inland waterways are limited in scale and have yet to fully realize their potential in reducing logistics costs.

(ii) Seaport and Airport Infrastructure

The Central region is home to several important seaports, including Da Nang Port, Chan May Port, Dung Quat Port, and Quy Nhon Port. Despite their strategic significance, substantial disparities remain in terms of scale and operational capacity, and supporting hinterland logistics systems are not yet fully integrated. International airports such as Da Nang International Airport, Phu Bai International Airport, and Chu Lai Airport have contributed to the growth of air logistics; however, connectivity between airports and ground-based logistics networks remains inadequate.

(iii) Logistics Centers, Warehousing, and Storage Facilities

The number of modern logistics centers remains limited and is concentrated mainly in Da Nang. Other provinces lack inland container depots (ICDs) and integrated logistics centers. Warehousing systems are generally fragmented and technologically underdeveloped, increasing logistics costs and constraining deeper participation in regional and global supply chains.

(iv) Logistics Enterprises, Digital Infrastructure, and Supporting Facilities

Most logistics enterprises in the Central region are small in scale and provide only single-service operations. The proportion of firms offering warehousing services and integrated logistics solutions remains low. Information technology applications and digital transformation efforts are still at a basic level, while advanced technologies such as Transportation Management Systems (TMS), Warehouse Management Systems (WMS), Big Data, and Artificial Intelligence (AI) have not yet been widely adopted.

3.2.3. Management and Harmonization of Stakeholder Interests

The relationship among the State, enterprises, local authorities, and communities in logistics infrastructure development has improved but remains insufficiently stable. Public–private partnership (PPP) mechanisms have yet to achieve their full potential. In several localities, social consensus regarding land acquisition and project implementation remains limited. Furthermore, regional benefits have not been effectively distributed due to the absence of a robust inter-provincial coordination mechanism.

3.3. ASSESSMENT OF THE CURRENT SITUATION OF LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES OF VIETNAM

3.3.1. Achievements and Their Causes

The Central provinces of Vietnam have achieved positive results in the development of logistics infrastructure, reflected in the following aspects: (i) institutions and policies have been increasingly improved; (ii) logistics planning has gradually been integrated into socio-economic development planning; (iii) transport infrastructure, seaports, and airports have been upgraded and expanded; (iv) awareness and organizational capacity in logistics have improved; and (v) initial progress has been made in the application of technology and green logistics practices. These achievements stem from consistent guidance and support from the central government, the region’s strategic geographical advantages, the increasingly proactive participation of enterprises, and the ability to mobilize diverse investment resources.

3.3.2. Limitations and Their Causes

Despite these achievements, logistics infrastructure in the Central region still faces several limitations, including: inadequate connectivity and synchronization among different transport modes; a shortage of integrated regional-scale logistics centers; slow adoption of technology and digital transformation; a lack of high-quality logistics human resources; and, in particular, the absence of an effective regional coordination mechanism. The main causes include shortcomings in interregional planning, institutional constraints and limited state management capacity, an inefficient investment structure, harsh natural conditions, the weak capacity of logistics enterprises, and the lack of a sufficiently strong regional governance mechanism to coordinate logistics infrastructure development.

Chapter 4
VIEWPOINTS, OBJECTIVES, AND SOLUTIONS FOR DEVELOPING LOGISTICS INFRASTRUCTURE IN THE CENTRAL PROVINCES OF VIET NAM TOWARD 2030, WITH A VISION TO 2045

4.1. CONTEXT FOR LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES IN THE COMING PERIOD

4.1.1. International Context

In the context of globalization and deep international economic integration, global logistics systems and supply chains are undergoing significant transformations driven by supply chain restructuring, digital transformation, and sustainable development requirements. Trends such as green logistics, smart logistics, international transport standardization, and the application of digital technologies are imposing increasingly stringent requirements on the modernization of logistics infrastructure. At the same time, the relocation of manufacturing activities, the implementation of new-generation free trade agreements such as the CPTPP and EVFTA, and growing demands for digital connectivity create both opportunities and challenges for the Central region in upgrading its logistics infrastructure toward greater modernization, sustainability, and international integration.

4.1.2. Domestic Context

Domestically, the development of logistics infrastructure has been identified as one of the key drivers for economic restructuring and enhancing national competitiveness. A relatively comprehensive framework of policies and strategies has been established through national plans and development strategies

for transportation systems, seaports, airports, and logistics centers for the period 2021–2030, with a vision toward 2050. The Central region is envisioned as a dynamic growth area closely associated with the marine economy, coastal economic zones, and the East–West Economic Corridor. However, in practice, the region's logistics infrastructure still faces significant limitations in terms of connectivity, integration, and operational efficiency. The pressures of urbanization, greenhouse gas emission reduction, and the need to ensure economic and national security further highlight the urgency of developing a modern, integrated, and sustainable logistics system for the region.

4.1.3. Challenges Facing the Central Provinces

In the coming years, logistics infrastructure development in the Central provinces will face several challenges, including fragmented logistics planning and insufficient regional integration; limited investment resources and heavy dependence on state budgets; inadequate connectivity among different transport modes; weak regional governance and coordination capacity; and increasing impacts of climate change, natural disasters, and green development requirements. These challenges necessitate a comprehensive set of solutions encompassing institutional reforms, planning, resource mobilization, infrastructure development, digital transformation, and regional cooperation.

4.2. VIEWPOINTS ON LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES

The development of logistics infrastructure in the Central region should be approached from a political economy perspective, recognizing logistics as strategic infrastructure that supports economic restructuring, regional integration, and international economic integration. Accordingly, logistics infrastructure development must be associated with the State's enabling role, effective regional coordination mechanisms, efficient mobilization of social resources, and the pursuit of sustainable development objectives.

4.2.1. Ensuring Comprehensive Planning, Regional Connectivity, and Effective Coordination Mechanisms

Logistics infrastructure development should be based on integrated and comprehensive planning, promoting regional connectivity and efficient linkages among transport modes, production and consumption centers, import-export gateways, and growth poles. At the same time, regional logistics coordination mechanisms should be institutionalized to ensure rational resource allocation, minimize fragmented competition, and maximize the utilization of shared infrastructure assets.

4.2.2. Mobilizing Resources Through Institutional Improvement and Sustainable Development

Given the limitations of public budgets, greater efforts should be made to promote private sector participation, improve public–private partnership (PPP) frameworks, and establish appropriate risk-sharing mechanisms. Logistics infrastructure development must also be aligned with green growth objectives, climate change adaptation, efficient land use, and the balanced consideration of economic, social, and environmental interests.

4.2.3. Strengthening the State's Coordinating Role in Conjunction with Digital Transformation and Institutional Capacity Building

The State should play a facilitating and coordinating role in establishing an enabling institutional environment for logistics infrastructure development in the era of digital transformation. Developing logistics data infrastructure, enhancing governance capacity, and improving information connectivity among stakeholders are essential conditions for improving operational efficiency, reducing logistics costs, and deepening integration into global supply chains.

4.3. OBJECTIVES FOR LOGISTICS INFRASTRUCTURE DEVELOPMENT IN THE CENTRAL PROVINCES TOWARD 2030, WITH A VISION TO 2045

The overall objective is to develop a synchronized, modern, and highly interconnected logistics infrastructure system in the Central provinces that effectively supports regional economic development, reduces logistics costs, enhances competitiveness, and promotes sustainable regional integration.

4.3.1. Objectives for Transport Infrastructure Development

To develop an integrated transportation infrastructure system encompassing roads, railways, airports, inland waterways, and seaports in order to improve connectivity, reduce logistics costs, and establish an efficient multimodal transport network.

4.3.2. Objectives for Logistics Center Development in the Central Provinces

To establish a network of regional and provincial logistics centers, along with specialized logistics hubs strategically located along major economic corridors and transportation gateways, operating in a green, smart, and multimodal manner.

4.3.3. Objectives for Warehousing and Storage Infrastructure Development

To develop modern and specialized warehousing systems closely linked with logistics centers, seaports, industrial parks, and key industries; to

strengthen the application of digital technologies; and to enhance resilience to climate change impacts.

4.3.4. Objectives for Information Technology Infrastructure and Digital Transformation in Logistics

To develop a synchronized digital logistics infrastructure, shared data platforms, and a regional digital logistics ecosystem that supports management, coordination, and supply chain integration across the region.

4.4. KEY SOLUTIONS FOR DEVELOPING LOGISTICS INFRASTRUCTURE IN THE CENTRAL PROVINCES OF VIETNAM TOWARD 2030, WITH A VISION TO 2045

4.4.1. Improving Logistics Infrastructure Planning toward Integration and Regional Connectivity

In addition to integrating logistics infrastructure development into provincial planning, it is necessary to shift from an administrative-boundary-based planning approach to one centered on cargo flows and logistics corridors. Logistics infrastructure planning should be closely aligned with production, consumption, and import-export networks, clearly defining the role of each locality within the regional logistics system as a hub, satellite, or specialized node. Furthermore, digital tools such as Geographic Information Systems (GIS), big data analytics, and logistics modeling should be applied to forecast transportation demand, optimize the location of logistics facilities, minimize fragmented investments, and enhance the efficiency of logistics land use.

4.4.2. Diversifying and Effectively Utilizing Investment Resources for Logistics Infrastructure Development

A key solution is to restructure mechanisms for mobilizing and utilizing capital by combining selective public investment with socialized investment and Public–Private Partnerships (PPP). State budget resources should focus on backbone infrastructure, essential connectivity projects, and projects with significant regional spillover effects, while the private sector should be encouraged to invest in and operate revenue-generating facilities such as logistics centers, inland container depots (ICDs), modern warehousing systems, and port-related logistics services. At the same time, risk-sharing mechanisms should be improved, project selection processes made more transparent, and accountability in capital utilization strengthened to increase investor confidence, particularly for large-scale and interprovincial logistics projects.

4.4.3. Developing Multimodal Logistics and Strengthening Regional Supply Chain Connectivity

The development of multimodal logistics should be considered the core technical pillar for reducing logistics costs and improving regional transport efficiency. Priority should be given to strengthening practical connectivity among road, rail, seaport, airport, and inland waterway transport systems through transshipment hubs, inland container depots, freight terminals, and multifunctional logistics centers. Simultaneously, supply chain linkages among logistics enterprises, manufacturers, import-export firms, and distribution networks should be promoted, gradually forming industry-specific logistics chains for key sectors such as agriculture, fisheries, processing industries, and seaport-based international trade.

4.4.4. Developing Regional and Local Logistics Centers in Accordance with Planning

Logistics centers should be developed under a functional hierarchy model to avoid overlapping competition among localities. Regional logistics centers should focus on cargo transshipment, coordination, multimodal transportation, and value-added logistics services; provincial logistics centers should serve local production and consumption needs, economic zones, industrial parks, and concentrated production areas; while satellite logistics facilities should support cargo consolidation, deconsolidation, and distribution activities. The development of logistics centers should be closely linked to long-term land-use planning, transport connectivity infrastructure, transparent PPP mechanisms, and modern management models to ensure operational efficiency.

4.4.5. Developing Warehousing Systems, Distribution Centers, and Port Hinterland Logistics Services

A crucial solution is to transform traditional warehousing systems into specialized, modern, and smart facilities that serve specific product groups and value chains. Port logistics systems should be expanded through the integration of bonded warehouses, cold storage facilities, container yards, inland container depots, and post-port logistics services, thereby extending the logistics value chain within the region. In addition, priority should be given to developing port-adjacent logistics spaces with strong resilience to natural disasters, climate change adaptation capabilities, and compliance with green operational standards.

4.4.6. Promoting Digital Transformation and Building Smart Logistics Platforms

Digital transformation should be implemented comprehensively, encompassing data infrastructure, digital platforms, and enterprise operations.

First, a shared regional logistics data platform should be established to support coordination, forecasting, and policymaking. At the same time, enterprises should be encouraged to adopt transportation management systems, warehouse management systems, traceability technologies, shipment tracking systems, electronic documentation, and operational automation solutions. The State should play a facilitating role by developing an enabling institutional framework, standardizing logistics data, and supporting small and medium-sized enterprises in accessing digital technologies, thereby narrowing the digital divide within the logistics sector.

4.4.7. Improving Institutions and Regional Logistics Governance Mechanisms

A fundamental solution is to establish a regional logistics coordination mechanism for the Central Region with clearly defined responsibilities in planning integration, prioritization of investment projects, resource allocation, and supervision of interprovincial projects. At the same time, relevant legal regulations governing logistics should be reviewed and harmonized to reduce overlap, enhance policy predictability, and ensure institutional stability. Logistics institutions should support efficient market operations, promote fair competition, guarantee equitable access to shared infrastructure, and balance the interests of the State, local governments, businesses, and communities.

4.4.8. Developing High-Quality Logistics Human Resources with an Innovative Mindset

Human resource development in logistics should be closely aligned with regional needs, the requirements of modern logistics infrastructure operations, and the digital transformation process. Priority should be given to strengthening collaboration among educational institutions, enterprises, and government agencies in vocational training, reskilling, and upskilling programs. Special attention should be paid to developing expertise in logistics planning, seaport and inland container depot operations, warehousing management, logistics center administration, data management, infrastructure project management, and public–private partnership implementation. Furthermore, the establishment of logistics innovation centers, startup incubators, and international cooperation programs should be encouraged to enhance professional capabilities, managerial thinking, and global integration capacity of the logistics workforce in the Central Region of Vietnam.

4.5. RECOMMENDATIONS

4.5.1. Recommendations for the Government and Central Ministries

The Government and central ministries should continue to improve the legal and regulatory framework for logistics infrastructure development, prioritize resource allocation for interregional projects, promote digital transformation in logistics, and establish a regional logistics coordination mechanism for Central Vietnam within the existing regional governance framework. In addition, it is necessary to develop and refine technical standards for logistics centers, inland container depots (ICDs), warehousing facilities, multimodal transportation systems, and logistics data platforms.

4.5.2. Recommendations for Provincial and Municipal Authorities in Central Vietnam

Local governments should proactively integrate logistics infrastructure development into provincial planning, formulate priority project portfolios, allocate appropriate land resources, improve the investment environment, and strengthen state management capacity in the logistics sector. Furthermore, greater interprovincial cooperation is required in developing logistics hubs, transport connectivity infrastructure, data-sharing platforms, and regional logistics projects.

4.5.3. Recommendations for Enterprises and Investors

Enterprises and investors should proactively restructure their business models toward greater professionalism, modernization, and supply chain integration; enhance the application of digital technologies; and participate in the investment and operation of logistics infrastructure projects through market-based mechanisms and appropriate public–private partnership (PPP) arrangements. At the same time, they should place greater emphasis on workforce development, compliance with technical standards, environmental protection, and the fulfillment of corporate social responsibilities in the operation and utilization of logistics infrastructure.

CONCLUSION

The development of logistics infrastructure in the Central provinces of Vietnam is of strategic significance for enhancing national competitiveness, promoting sustainable economic growth, and strengthening Vietnam’s integration into the global economy. In the context of the ongoing restructuring of global supply chains, the transformation of growth models, the expansion of

the digital and green economies, and the increasing demand for climate change adaptation, logistics has evolved beyond its traditional supporting role in production and trade activities to become a key driver of economic development. For the Central region—occupying a strategic geo-economic position in connecting North and South Vietnam, linking the Central Coast with the Central Highlands, and facilitating East–West regional connectivity—the development of a synchronized, modern, efficient, and regionally integrated logistics infrastructure system is particularly important.

Based on an analysis of the current state of logistics infrastructure development in the Central provinces of Vietnam, including Thua Thien Hue, Da Nang City, Quang Nam, Quang Ngai, and Binh Dinh during the period 2018–2024, this dissertation has identified both the achievements attained and the existing limitations together with their underlying causes. In recent years, seaports, airports, transportation networks, warehouses, and several logistics centers have gradually been established, contributing to improvements in transport capacity, goods circulation, and regional economic connectivity. Nevertheless, the logistics infrastructure system remains insufficiently integrated; intermodal transport connectivity is still limited; logistics hubs, warehousing facilities, distribution centers, and port-related logistics services have not developed commensurately with regional needs; information technology infrastructure and logistics data systems remain underdeveloped; mechanisms for mobilizing and allocating investment resources have not been sufficiently effective; the logistics workforce remains inadequate in both quantity and quality; and regional coordination mechanisms as well as the management of stakeholder interests continue to face significant challenges. These shortcomings have adversely affected logistics efficiency, regional connectivity, and the overall competitiveness of the Central region.

Drawing upon both theoretical and empirical analyses, the dissertation proposes a comprehensive set of solutions for the development of logistics infrastructure in the Central provinces of Vietnam toward 2030, with a vision to 2045. The proposed solutions focus on eight major areas: improving logistics planning through integrated and regional approaches; diversifying and effectively mobilizing investment resources for infrastructure development; promoting multimodal logistics systems; developing regional and local logistics centers; expanding warehousing systems, distribution centers, and port-related logistics services; accelerating digital transformation and the development of smart logistics platforms; improving institutional frameworks and regional logistics coordination mechanisms; and developing a highly qualified logistics

workforce. These solutions aim to establish a modern, green, and digital logistics ecosystem capable of effectively connecting localities within the region, linking the Central region with major domestic economic centers, and integrating it into regional and global logistics networks.

In addition, the dissertation provides policy recommendations for the Government, central ministries and agencies, local authorities, and the business community to ensure the feasibility and effectiveness of implementing these solutions. In this process, the State plays the role of institutional architect, strategic planner, regional coordinator, and investor in fundamental infrastructure; local governments in the Central region are responsible for policy implementation, spatial planning, creating a favorable investment environment, and strengthening interregional cooperation; while logistics enterprises, port operators, transport companies, and private investors serve as the principal actors directly involved in the investment, operation, management, and provision of logistics services in a professional, modern, and sustainable manner.

Overall, the successful development of logistics infrastructure in the Central provinces of Vietnam will not only contribute to reducing logistics costs and enhancing supply chain efficiency but also create new momentum for regional economic growth, strengthen national competitiveness, and support Vietnam’s long-term objective of sustainable and inclusive development in the era of deep international integration.

LIST OF THE AUTHOR'S PUBLISHED WORKS RELATED TO THE DISSERTATION

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2. Nguyen Van Thanh, Nguyen Van Tuan (2025), "Development of Transport Infrastructure in Vietnam: Current Situation and Solutions", Journal of Economic Forecasting, No. 05, March 2025, p. 82.
3. Nguyen Van Thanh, Bui Van Vien, Tran The Tuan (2025), "Development of Logistics Infrastructure in Central Vietnam in the Context of Digital Transformation", Journal of Finance and Accounting Research, Issue 1, December 2025 (No. 301), p. 75.