

## Executive Summary

The Lao People's Democratic Republic (Lao PDR) faces development gaps due to its unique landlocked location. To turn the weakness of being 'landlocked' into the strength of being 'land-linked' in the Mekong Region, Lao PDR needs to play a greater role as a logistics hub and to promote its own manufacturing exports in tandem with enhanced connectivity with China, Thailand, and Viet Nam. Complete national transformation is crucial not only for the country's industrial development, but also for accelerating the economic growth of the whole Mekong region. Against this background, the Vientiane–Hanoi Expressway (VHE) has been one of the most anticipated transportation projects between Lao PDR and Viet Nam. While these two countries concluded a memorandum of understanding on the VHE, the Lao PDR government endorsed ERIA and the Ministry of Public Works and Transport creating a working group with a keen interest in its early completion. This study project started out reflecting the Lao PDR government's expectations, and this report is submitted on the basis of the output produced by the working group.

This report: (1) explores the potentiality of the corridor between Hanoi and Vientiane as designated by the Greater Mekong Subregion Economic Development Program to obtain financial support from donors (e.g. ADB, World Bank, other official development assistance); (2) illustrates impacts on economies and industries of Lao PDR and surrounding countries such as China, Thailand, and Viet Nam via the VHE; (3) lays down industrial development strategies for Lao PDR, Viet Nam, and Thailand that take maximum advantage of the VHE; and (4) suggests appropriate financial mechanisms to construct the VHE. Thus, this report focuses on how Lao PDR and neighbouring countries can benefit from the expressway by strengthening relevant industries. In sum, our study analyses the economic and industrial impacts from the perspective of global value chains (GVCs) and production networks developed in the Mekong region.

**Chapter 1 (by Masahito Ambashi)** indicates that there is a high expectation of policymakers and the private sector toward connecting Bangkok and Hanoi, which have been growing as pillars of economic development in the Mekong region. While the road and railway connections between

Bangkok and Vientiane have been reinforced particularly on the Thailand side, those between Vientiane and Hanoi are still a missing link of this connectivity. In this regard, Chapter 1 stresses Vientiane–Hanoi connectivity in terms of GVC strategies. Specifically, as is currently happening in the manufacturing base dispersion from Thailand to the borders with the CLM countries Cambodia, Lao PDR, and Myanmar, i.e. ‘Thailand-plus-one’, this plus-one strategy may also be expanded to multinational companies in Viet Nam due to its rapid industrial advancement and resultant wage increases evolving around Hanoi and Ho Chi Minh City (i.e. ‘Viet Nam-plus-one’). If these plus-one strategies are carried out in a full-scale operation, neighbouring countries will benefit from opportunities to be involved with deeper and wider GVCs, which will help them upgrade and export structures. Indeed, Lao PDR is expected to link both Thailand and Viet Nam as a core logistics hub between the two developed Mekong countries; at the same time, it will become a production hub that can serve as satellite factories linking mother factories in Thailand and Viet Nam. If Lao PDR played these roles, a Bangkok–Vientiane–Hanoi industrial corridor would emerge. For this reason, Chapter 1 insists that it is important to strengthen connectivity between Vientiane and Hanoi through the early completion of the VHE.

**Chapter 2 (by Souknilanh Keola and Satoru Kumagai)** quantifies the national, regional, and industrial economic impacts of the VHE and the Lao–Chinese High-Speed Railway using the Institute of Developing Economies and ERIA’s Geographical Simulation Model. In addition, this chapter compares the impacts of using the official VHE candidate route (Vientiane–Bolikhamsay; approx. 450 km) to those of upgrading existing national roads (National Roads 8 and 12) into an expressway. The alternative simulation scenario assumes that logistic infrastructures will be completed by 2025. Gross regional product (GRP) is compared with that of the baseline scenario in 2030 and surplus (deficit) is regarded as a positive (negative) economic impact of the development of logistics infrastructure. Under this preparation, Chapter 2 simulates five major scenarios: (S1) the Lao–Chinese High-Speed Railway is completed in 2020; (S2) the official proposed route of VHE is completed in 2025; (S3) S2 + VHE from Nahkon Ratchasima is extended to Nong Khai in 2025; (S4) The upgrade of National Road No. 8 to VHE is completed in 2025; and (S5) The upgrade of National Road No. 12 to VHE is completed in 2025.

The first finding is that that Lao PDR obtains the most benefit (US\$318.15 million) from Scenario 1 mainly through an increase in GRP in the services industry followed by apparel and food industries. Second, with respect to the VHE construction, Scenario 3 produces the highest gain for Lao PDR (US\$201.04 million) amongst all other scenarios except Scenario 1, with which it shares a similar industrial growth pattern of GRP increase. In this scenario, the VHE literally becomes a part of a Bangkok–Hanoi expressway. Third, it is revealed that sub-regions along the expressway in Lao PDR and Viet Nam, but also in Thailand, would gain the most, but the location of the expressway within Lao PDR is profoundly important to its expected economic benefits. The VHE is expected to generate traffic volumes (in particular, between Vientiane and the border with Viet Nam) significantly larger than the national average. Finally, the region-wide benefit depends less on the Lao PDR section, and more on Viet Nam’s and Thailand’s sections, which suggests that the VHE would link two of the most prominent economic agglomeration cores of the lower Mekong region.

The VHE will connect the capitals of Lao PDR and Viet Nam, which have established special relations in politics, security, and ideology. Vientiane, however, has closer economic relations with Thailand than with Viet Nam and is farther from Hanoi than from Bangkok. Taking this disadvantage of the VHE into consideration, **Chapter 3 (by Masami Ishida)** comprehensively analyses the economic potential of the VHE based on the experience of the Mekong region in terms of trade, tourism, and foreign direct investment (FDI). First, although Lao PDR’s largest trade partners as of 2017 are Thailand, China, and Viet Nam in ascending order, exports to the United States, Japan, and the Republic of Korea are strategically important. Since Lao PDR trade is skewed toward Europe and India, but weaker with the Pacific island countries, the VHE would have the potential to increase trade, especially exports, to these countries. Second, according to interviews with travel agents in Thailand and Viet Nam, Thai tourists in northeastern and northern Thailand (especially Chiang Mai) and Vietnamese tourists in central Viet Nam are likely to use the VHE. Third, the econometric analysis using data on Viet Nam reveals that with the expressway’s development thus far, the amount of FDI increases while the effect of attracting FDI depreciates with distance from Hanoi. Thus, Viet Nam’s experience in developing its

expressway network suggests the VHE's potential. For Lao PDR to realise this potential, planting high-value-added vegetables and fruits in mountainous areas, for example, should be promoted using the VHE that allows Lao PDR farmers to transport perishable goods to Hanoi. Furthermore, Chapter 3 points out that the potential of the VHE can be enhanced by deepening and expanding friendship agreements amongst cities and provinces and that cross-border costs including customs clearance should be reduced.

Then, Chapters 4 to 6 discuss the necessary development strategies of Lao PDR, Viet Nam, and Thailand vis-à-vis the VHE. **Chapter 4 (by Leeber Leebouapao and Sthabandith Insisienmay)** argues how Lao PDR can maximise economic benefits and enact industrial development strategies through the development of the VHE. To begin with, it is pointed out that Lao PDR's mountainous topography and lack of infrastructure are obstacles to further development and realising the potential for being a land-linked country, and connectivity within the country and with the region remains a major challenge. In this connection, the construction of the VHE—the shortest connecting road between Vientiane Capital and Hanoi—is also one of the focal tasks specified in the above-mentioned strategy on road transport. With respect to potential benefits brought about by the VHE, Chapter 4 predicts that it will facilitate not only expansion of Lao PDR's exports as transit trade, but also, to a greater degree, those of Thailand and Viet Nam.

Chapter 4 also draws attention to direct involvement of the VHE with at least five Special Economic Zones or Specific Economic Zones (SEZs), stressing the roles played by the Vientiane Industrial Trade Area (VITA Park) and Saythetta Development Zone. In fact, these two SEZs benefit from a direct connection to the Thai road network via the Lao PDR–Thai border checkpoints, particularly in Vientiane Capital, and have access to Bangkok harbour via the existing Thai railway from Vientiane Capital. But for these zones, the VHE will provide more opportunities for investors interested in Viet Nam, whether for market access or utilisation of Vietnamese seaports such as Vung Ang Seaport. In addition to the SEZs in Vientiane, other zones in the central part of the country, such as Phoukhyo Specific Zone and Savan–Seno SEZ, will be able to use the VHE as an alternative future route to Hanoi. As in the analysis of Chapter 3, the authors expect that the VHE will provide access to destinations both in Hanoi for tourists from

the northern part of Thailand and in the central and northern parts of Lao PDR for Vietnamese tourists.

Therefore, Chapter 4 concludes that Lao PDR will benefit greatly from the construction of the VHE as a result of trade generated from the use of the expressway and spillover effects from connection to major cities, industrial estates, and tourist sites along or near the road. The VHE will achieve smoother flows of goods, more reliable service delivery, and higher business profits enabled by the faster and cheaper movement of freight, which helps Lao PDR's businesses be more competitive internationally. It is also concluded that increasing activities and employment in other supporting industries are expected through both direct and indirect effect of the construction. However, such benefits depend on improving the capacity to cope with infrastructure projects, soft infrastructure, or institutional arrangements. It is imperative that Lao PDR improve the quality of construction materials and the capacity of local companies to meet the demands of large-scale construction projects. Furthermore, improvements and initiatives need to be more closely aligned with the committed international, regional, and bilateral transport agreements, particularly the Greater Mekong Subregion Cross-Border Transport Facilitation Agreement.

**Chapter 5 (by Vo Tri Thanh)** argues that, in the Socio-Economic Development Strategy, 2011–2020, Viet Nam also emphasises infrastructure, including roads, as one of the major breakthroughs. As observed in the Master Plan for ASEAN Connectivity and the Asia–Pacific Economic Cooperation Framework on Connectivity, Viet Nam's road projects no longer serve only domestic needs, but incorporate cross-border links for smoother and less costly flows of goods, services, and people. In this sense, the VHE is an initiative to enhance road links from Vientiane, as well as provinces in Viet Nam, to Hanoi. In a review of the road system in Viet Nam, Chapter 5 reveals that its underdevelopment is amongst the reasons for the country's logistics costs (20% of gross domestic product [GDP]), which are almost twice the international average, making the country uncompetitive. On the other hand, it is demonstrated that the provinces along the VHE have attracted FDI to a varying degree in tandem with their economic growth. Therefore, these findings suggest that the VHE could improve facilitating the flow of goods and

services across the five provinces the expressway transverses (Hanoi, Ha Nam, Ninh Binh, Thanh Hoa, and Nghe An). This impact can be realised through the widening of roads and/or shortening of travel times, with similar highways (e.g. Hanoi–Hai Phong highway) illustrating the potential improvements.

Thus, due to the development of the VHE, FDI in the aligning provinces would further increase, and this in turn would induce their industrialisation by facilitating their flows of goods to the major provinces and seaports in the northern economic triangle. Furthermore, according to the interview conducted by the author, the construction of the VHE is good timing because the Vietnamese government has deepened efforts to reform the business environment and strengthen competitiveness, including measures to reduce costs of doing business. Finally, Chapter 5 concludes by highlighting the need for prefeasibility study, funding, and project scope scenarios, the fiscal space for finance, designing a network of secondary road links, and coordination with other neighbouring countries (especially Lao PDR and Thailand).

**Chapter 6 (by Narong Pomlaktong)** addresses how to maximise Thailand’s VHE benefit, showing an expectation that it will increase trade flows with neighbouring countries, in particular, Viet Nam. Since logistics becomes increasingly important as the world economy develops, having additional routes is considered a solution that tightens connectivity and narrows the development gap between countries and regions. In this respect, the 5th Mekong River Crossing Bridge (5th Mekong Bridge) from Muang District, Bueng Kan Province in Thailand to Pak San District, Bolikhamxay Province is a highway network development aimed at making connections with Thailand (especially the upper northeastern region), Lao PDR, and Viet Nam. Then, Chapter 6 employs a computable general equilibrium (CGE) model to examine how collaboration of related countries in the development of the VHE and the consolidation of a Bangkok–Vientiane–Hanoi industrial corridor will affect national economic growth and geographical distribution of income in Thailand.

To assess the impact of regional collaboration on the development of cross-border transport infrastructure, the author assumes three alternative scenarios in Thailand: (i) Eastern Economic Corridor (EEC); (ii) EEC + 5th Mekong Bridge; and (iii) EEC + 5th Mekong Bridge + Kanchanaburi

SEZ. This CGE projection finds important contributions to a real GDP increase ranging from 0.164% to 0.168%. It is also demonstrated that the geographical impact on income redistribution expands in many provinces because of the benefits of being the production base for suppliers' raw materials and goods for export to Lao PDR at Bueng Kan border via the 5th Mekong Bridge. Chapter 6 also explores the effect of collaborative industrial policies amongst Thailand, Lao PDR, and Viet Nam, which supposes external shocks with 10%–30% trade flow increases, resulting in 0.181%–0.184% real GDP increases. In conclusion, it is suggested that development of the economic corridor with an effort for increased trade flow is necessary to increase GDP and reduce the inequality of the geographical distribution.

One reason why the construction of the VHE is difficult is attributed to its cross-border surface transport infrastructure. This means that a strategic and operational framework for supplying international public goods and mobilising financial resources is crucial for successful cooperative development. **Chapter 7 (by Narong Pomlaktong)** discusses the challenge of how to share the costs and benefits amongst participating countries by indicating outsourcing and devolution as major ways to reduce government control of infrastructure development and management, the choice of which depends on the policy objectives and degree of stakeholder readiness. And yet, the combination of outsourcing and devolution being employed to supply infrastructure becomes more complicated when the design and implementation involve more than one country with diverse financial capabilities and fiscal constraints. In particular, the level of public debt is crucial to the country credit rating. Hence, Chapter 7 finds that the option of public–private partnerships (PPPs) for infrastructure development can be useful, showing various reasons why the private sector may be more efficient in carrying out operational activities than the government (e.g. management experience). On the other hand, the challenge of PPPs is how to reach a reasonable agreement when the operation is socio-economically beneficial but not financially viable, which is common, particularly for transport infrastructure development. This suggests that the choice between PPPs and government borrowing should be based on the need to balance the socio-economic merits of the project and its financial profitability. In addition, Chapter 7 insists that a special purpose vehicle must be created to manage PPP tasks efficiently

without undertaking any business other than the construction and operation of the project; this would internalise operation and management costs at the design stage to ensure that the project life cycle costs are minimised.

Another difficult issue is how to set up the burden sharing for transnational infrastructure development. Specifically, sharing the burden based on the proportionate length of road portion to be constructed in Lao PDR might not be perceived as fair by the country. Economic assessment based on the expected improvement of GDP stemming from the project cannot be the only determining factor. It is therefore necessary to establish a mechanism to ensure that financial strategies and conditions accommodate stakeholders' interests. In this respect, the steps of the contract design mechanism should be as follows: (i) determine the amount of financing required for construction, management, and operation; (ii) enumerate financing sources in accordance with the amounts, financial conditions, and costs; and (iii) select the financing source. It should be noted that this mechanism can be supported by two types of agreements, that is, both intergovernmental and host government agreements. In a nutshell, a good contract design should have a clear allocation of responsibilities and risks between stakeholders, a workable price adjustment mechanism, performance-based measurement, fair rewards and penalties, appropriate contract duration, and a dispute settlement mechanism. Finally, Chapter 7 analyses a concise financial model that incorporates various financing instruments with hypothetical financing volumes for a PPP project of the VHE. According to the most likely estimate, the payback period will be 8.6 years, although the result could vary on assumptions of interest rates, demand, etc.

**Chapter 8 (by Masahito Ambashi)** concludes with VHE promotional policy recommendations that are formulated in accordance with both multiple and individual countries of Lao PDR, Viet Nam, and Thailand in what follows.

(1) Policy recommendations of multiple countries:

- Establish a specific consultation system amongst Lao PDR, Viet Nam, and Thailand to work on a detailed study of the VHE;

- Deepen and expand friendship agreements amongst relevant cities and provinces to promote discussion of the VHE;
- Harmonise transport-related policies in coordination amongst the relevant countries;
- Reduce cross-border transport costs such as non-tariff measures.

(2) Policy recommendation for Lao PDR

- Improve the quality of construction materials and the capacity of local companies to meet the demands of large-scale construction projects;
- Improve soft infrastructure and institutional arrangements to reduce time and cost of custom clearance and quarantine;
- Establish an inland container depot in Vientiane as a logistics hub in the Mekong region;
- Promote planting vegetables and fruits in mountainous areas.

(3) Policy recommendation for Viet Nam

- Implement effectively the international economic integration process;
- Design a network of secondary road links to help connect the local districts with the VHE;
- Explore the fiscal space to finance certain components of the VHE project.

(4) Policy recommendation for Thailand

- Conduct necessary investments in the economic corridor;
- Redesign logistics in relation to Lao PDR and Viet Nam to increase trade flows;
- Develop a modal shift strategy to reduce costs and provide service advantage.