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# The status quo of Vietnam's logistics, the opportunities and challenges to become the regional transshipment hubs

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**WORLD MARITIME UNIVERSITY**

Malmö, Sweden

**THE STATUS QUO OF VIETNAM'S LOGISTICS,  
THE OPPORTUNITIES AND CHALLENGES  
TO BECOME THE REGIONAL  
TRANSSHIPMENT HUBS**

By

**DUONG ANH MINH**

Vietnam

A dissertation submitted to the World Maritime University in partial  
Fulfilment of the requirements for the award of the degree of

**MASTER OF SCIENCE**

In

**MARITIME AFFAIRS**


**(SHIPPING MANAGEMENT AND LOGISTICS)**

2016

## DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature):  - Dương Anh Minh.

(Date): 19 / 09 / 2016

**Supervised by: Shuo Ma**  
**World Maritime University**

---

**Assessor: Dong-Wook Song**  
**Institution/organization: World Maritime University**

**Co-assessor: Jan Hoffmann**  
**Institution/organization: Chief of the Trade Facilitation Section of UNCTAD**

## **Abstract**

Title of the Dissertation:       **The status quo of Vietnam’s logistics, the opportunities and challenges to become the regional transshipment hubs.**

Degree:                               **MSc**

In this dissertation, the author would like to identify the role of logistics in Vietnamese economy and its importance to the overall development strategy of Vietnam. In addition, this dissertation also explores strong and weak points of logistics systems and suggests measurements to mitigate harmful impacts. The goal is to attract more investment and improve the competitiveness comparing with neighboring South East Asia countries. The cost-benefit of highway investment will also be analyzed to assess the effectiveness of the project. Two additional case studies are provided in the last chapter as examples of port development in other Asia countries.

## **Acknowledgements**

Before any thing, I would like to express my greatest gratitude to the International Transport Workers' Federation - Seafarers' Trust for their unconditional support. They've opened a great chance for me, not only to further expand my knowledge, but also provided an invaluable opportunity to connect with colleagues of the the world, all under the roof of World Maritime University. Also, I would like to thank Professor Dr. Dinh Xuan Manh – vice president of Vietnam Maritime University. Without your trust and encouragement, I would not be here to undertake this course.

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To all of my WMU colleagues at WMU, thanks you all for the good time we are together. I wish you all well with the brightest future and success. We are one. We are unity. Forever.

And lastly, special thanks are given to my family, to my father, mother and brother for their motivation, assistance and caring. This dissertation is dedicated to you all. Thanks you!

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## **Chapter 1: Introduction**

Globalization has enabled humanity to accomplish such achievements which were seen as impossible just a few decades ago. For example, it is common now to have merchandise to be manufactured on one side of the globe and to be distributed on the other side in just a matter of a few days. We have developed a very sophisticated and complex system to move the goods from one place to another. But that system is also very fragile. Just like a chain, when the flow of goods is disrupted, it will immediately affect the whole system, as a domino effect. In a worst case scenario, that sophisticated and complex mechanism may crumble due to disruption at the upstream of production flow. Therefore, the flow of materials and goods is crucial to every business. Logistics was born to maintain and strengthen the links between every stage of production.

### **Research background**

Mobility and logistics activities have been fundamental to economic development and social well-being for centuries, but it is only over the past 50 years that this has received interest as a major field of academic study (Macharis, Sustainable Logistics, 2014). Since then, many studies have been conducted to point out the relationship between an efficient logistics system and a successful business. One of many strategies to gain a competitive edge in the market is to embrace the Economies of scale theory. However, having larger production plants is not enough, but the advantages must also come from more efficient logistics networks. By combining both, Honda, one of the biggest automobile manufacturers, is able to lower the production and transportation cost, hence, increase the total profit. (Hout, Porter, & Rudden, 1982) The flow of goods, according to Christopher et. al., if disrupted, will directly affect the exchange of commodity and lead to profit reduction (Jüttner, Peck, & Christopher, 2003). This is because logistics controls the movement of raw materials from different suppliers, through operative activities within a company, and the flow of finished products to end users (Christopher M. , 1986). These activities are linked together in an integrated system from the beginning to the end. Any component of the system, therefore, requires proper function from the prior stage in order to process. For example, the customer in the United States can not receive his ordered packet if the shipper in Vietnam failed to deliver in time. As a chain reaction, that person in the United States also can not fulfil his client's requirement due to delay of the supply from Vietnam. That said, the world economy is a sophisticated and complex system, but also a fragile system. Therefore, logistics can be seen as the oil that keeps any business running smoothly. Without logistics, materials can not be delivered at the right time to the right place;



goods transportation becomes unreliable. More costs will incur due to waste of time and money for transporting, storing and distributing commodities. In other words, efficient logistics will reduce the wait time as well as the cost for storage and shipping and ultimately, generate surplus and increase profit.

Moreover, efficient logistics is also the key for the overall development of national economy. In a recent research conducted by Armstrong & Associates Inc., a common ground between developed countries such as United States, Germany, Hong Kong, Japan or Singapore is discovered. The logistics costs in these countries only account for less than 9% of total Gross Domestic Production (GDP) whereas in case of developing countries, it is close to 15% (Armstrong & Associates Inc., 2016). Even though just a tiny gap in the proportion, it created a huge difference in the level of development. Logistics, therefore, is an essential element of all economic activities. Better understanding of logistics systems will be a major benefit for all stakeholders in the market.

## **Research area**

As economies continue to expand and develop, we can no longer ignore essential values logistics created. In fact, logistics has become a popular theme not only in developed countries but as a world wide discussion. Until now, it is roughly estimated that there are over 550,000 researches, journals and academic articles about logistics and supply chain. It proved one thing that logistics is an important aspect of every business, every economy regardless of size, scale, natural conditions and starting point. However, in Vietnam, logistics is a relatively new concept and as yet there is no official authority with total responsibility over logistics. (Banomyong, Thai, & Yuen, 2015) Moreover, Vietnam also lacks of a comprehensive legislative policy and strategy to promote the development of logistics industry. As a consequence, many foreign firms when investing in Vietnam encountered many obstacles, and majority of them are on the legal side.

Vietnam has been favored with strategic geographical location, especially for trading. South China Sea has been recognized as an important gateway between arising economies of Asia and the world. In particular, it links the Indian and Pacific Oceans and carries approximately 25% of all traded goods. (The Asia Maritime Transparency Initiative, 2016) With over 3,200 km of coast line, maritime transport has been a key component of Vietnam's economy. On the other hand, land transport is also note worthy since Vietnam is located on the Trans-Asia route. This is a very busy 5,000 km route that connects China with Vietnam, Laos, Cambodia and Thailand. It has enabled trucks, by now, to pass through border without transshipment, thus, reducing wasted time and cut transshipment cost.

Since 2007, Vietnam became the 150<sup>th</sup> member of the World Trade Organization. Just in February 2016, Vietnam has signed to become one of twelve members of Trans-Pacific Partnership Agreement (TPP). They are widely seen as major drivers to stimulate economic growth; enhance productivity and competitiveness; raise living standards; as well as promote transparency and environmental protections. (United States Trade Representative, 2015) This comes with opportunities but also challenges, and pressure upon logistics system is one among them.

South East Asia is a troublesome region. Except Singapore, all other ten state members are still in developing stage. With a population of nearly 620 million condensed in an area of 4.5 million km square, it creates a huge pressure up on the infrastructures. Even though GDP growth, industrial output, and consumption plummeted, the power, water, and the most importantly, transport systems still remain as a problem. (Lord, 2011) As a result, these shortcomings limit the true potential of the whole region.

Being the third most populated country in the South East Asia, however, Vietnam only ranked eighth among eleven in term of GDP per capita (IMF, 2015). Despite low ranking, the gaps between Vietnam and higher rankers such as the Philippines, Indonesia and Thailand are margin. On the other hand, Cambodia, Laos and Myanmar are very close behind. In other words, it is these countries which are the main competitors of Vietnam in the region. The content of the dissertation mostly will focus on Vietnam and how it will compete against such countries in medium and long term.

## **Research questions, aims and objectives**

### **a) Research questions**

- How important is the logistics in Vietnam's economy?
- What is the current situation of Vietnam's logistics system compared with neighboring countries?
- What are the opportunities in the upcoming years for Vietnam?
- Can the current logistics system take advantage of those opportunities?
- What are the challenges and limitations for Vietnam's logistics system?
- How can these challenges and limitations be addressed within contemporary human and physical resources?

#### b) Aims and objectives

- Clarifying the role of logistics and its importance and contribution toward Vietnam's economy.
- Indicating the status quo of the logistics and supply chain industry in Vietnam, including all the opportunities, challenges and limitations.
- Proposing possible solutions to take advantage of these opportunities, addressing remaining limitations as well as mitigating any probable negative impacts.
- Comparatively analyzing Vietnam's logistics development with other countries within South East Asia region.
- Recommend a possible roadmap of better implementation into practice.

#### **Brief description of methodology**

To improve the productivity, efficiency and competitiveness of Vietnam's logistics system, initial investment is necessary. In order to measure the effectiveness of the investment, the author will use Cost-benefit analysis to see whether the benefits justify the costs. In particular, highway projects linking industrial and consumer area to key ports such as Lach Huyen and Cai Mep – Thi Vai is capital intensive and require huge investments. The money is paid for site acquisition and clearance, construction cost as well as capital cost and many other costs. This is the initial investment, but there is also maintenance cost to be paid on a periodical timeframe. The benefits, on the other hand, can be easily measured such as revenue from road tolls, but more often, they are very hard to quantify. The benefits from high quality expressway are faster transit time, congestion reduction, fuel saving, etc. With faster transit time and no congestion, cargo delivery will be more reliable, and thus, cutting the cost of holding extra inventories. Capital cost is also reduced because cargo would spend less wasted time on road which generates no money at all. Then, it can be assumed that the project has stable cash flow with a huge investment at year one but starts to profit years after. Next, tools such as Net Present Value (NPV) and Internal Rate of Return (IRR) will be used to calculate and based on that result, to determine whether the project is effective or not.

#### **Dissertation structure**

This dissertation begins with an abstract then followed by six chapters. The first one is the introduction that provides research background, area of study, research questions, along with aims and objectives. Chapter two includes the literature review while the next one is the main

part of the dissertation. It will give some insights about the current situation, strengths, weaknesses as well as opportunities and challenges for Vietnam's logistics industry. Suggestions and recommendations will be given in the fourth chapter. A few case studies will be analyzed in the fifth and the last chapter offers conclusions. Supporting documentation may be found in the appendix after the References list.

## Chapter 2: Literature review

As mentioned in the first chapter, logistics is a common topic for many scholars. This is due to the fact that logistics has an irreplaceable role in any economy, which, according to Porter, (2004), is an indispensable complementary sector for the other business activities. Logistics develops, facilitates and optimize the flow of material, goods and information through many nodes of transportation, production and distribution. Efficient, reliable and responsive logistics systems are the sign of a healthy economy. Improvement of logistics system, therefore, is very important. It is not just a mission for any company, but government should consider this as a national plan of development.

After Doi Moi, the economic reforms initiated in Vietnam in 1986, Vietnam started to transform, from a primarily agriculture-based economy to an industry-focused and export-oriented country. Since then, Vietnam has achieved many successes in terms of economic and social development. GDP growth has been steady at 6–8% over the past 20 years, making Vietnam one of the world's fastest growing economies. The growth, however, was stalled by massive inflation in December 2010 of 11.8%. At the same time, real GDP growth has decelerated, going from 6.8% in 2010 to 5.9% in 2011, and further to 5.0% in 2012. (The World Bank, 2014)

Why can Vietnam not be able to maintain that impressive economic growth? As a country dependent heavily on low labor costs and abundant natural resources, it is pointed out that Vietnam's growth can be "easily lost through inefficient logistics" (The World Bank, 2014). In addition, Blancas et al. believe that within-sector productivity improvements play the key role to sustain its economic growth (Blancas, Isbell, Isbell, Tan, & Tao, Efficient logistics: A key to Vietnam's competitiveness. Directions in development; Countries and regions., 2013). To be more specific, remarkable development of Vietnam in the last 20 years is supported by numerous investment from the both the government and foreign direct investment (FDI) into infrastructure and system. Custom operations are also improved and innovated to reduce red-tape and wait time. These are low-hanging fruits that low-developed countries could employ to create a foundation for growing. However, at the moment, Vietnam is on transition between low and mid-level of development. The stagnant in economic growth proved that. Therefore, Vietnam needs to step up to the next stage. According to Banomyong and his colleagues, better performing logistics is decisive factor to increase productivity, and at the same time, prepare an attractive investment environment for both international and domestic stakeholders. Ultimately, logistics is the tool Vietnam needs to gain competitive advantage, especially in global market. (Banomyong, Thai, & Yuen, 2015)

So, the important question is: how good is the logistics system in Vietnam right now? In order to assess and measure the performance and efficiency of a country's economy, in general, and its logistics sector, in particular, several indexes were developed, notably the Global Competitiveness Index (GCI), the Competitive Industrial Performance Index (CIP), the Logistics Performance Index (LPI).

Starting in 2005, the World Economic Forum has come up with a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness and they named it the Global Competitiveness Index (GCI). According to WEF's Global Competitive Report 2014-2015, Vietnam scored 4.23/7 ranked 68<sup>th</sup> above India, Cambodia and Bangladesh, below Philippines, Indonesia, Thailand, China and Malaysia. Also, Vietnam is considered to be at the factor-driven stage which depends largely on unskilled labor and natural resources. Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. Compared with other countries in the South East Asia region, in all 12 criteria, Vietnam was below Indonesia and Thailand, except health and primary education and labor market efficiency (Schwab, 2014).

Meanwhile, the Competitive Industrial Performance Index (CIP 2013), developed by the United Nations Industrial Development Organization (UNIDO), aims to assess and benchmark industrial competitiveness, to emphasize countries' manufacturing development and to imply that industrial competitiveness is multidimensional. Vietnam ranked 50 with 0.071 point (2013), below India, Indonesia, Thailand and Malaysia (UNIDO, 2015).

Since 2007, the World Bank has published the Logistics Performance Index (LPI) every two year. In 2014, LPI ranked Vietnam 48<sup>th</sup> among 160 with 3.15/5 points in 2014, above Indonesia, India and the Philippines, below Malaysia, China and Thailand. It also categorized Vietnam into group of consistent performer (The World Bank, 2014).

In all of those assessments, Vietnam is recognized for having a base infrastructure and legal framework for international trading. However, challenges are still ahead since all the low-hanging fruits have already been harvest. The next target to aim for is to innovate and eliminate the existing flaws in the system in order to increase the efficiency of the logistics services.

## **Definition of logistics**

In order to have a holistic and comprehensive view about logistics, first of all, we need to understand what logistics is and the history behind. It is believed that the logistics activities originated from military field in such ancient wars. Thousands of year ago, logistics has been seen as the basis of military strategy and tactics, the decisive factor for the rapid march of Alexander the Great and his Macedonia army (Engels, 1980). Hence, in the Merriam-Webster Online Dictionary, logistics is defined as "the aspect of military science dealing with the procurement, maintenance, and transportation of military material, facilities, and personnel" (Merriam-Webster Dictionary, 2016). However, in this dissertation, logistics is treated from the aspect of economic and civil subject.

According to the Council of Logistics Management (1985), now the Council of Supply Chain Management Professionals, logistics is "the process of planning, implementing and controlling the efficient flow and storage of raw materials, in-process inventory, finished goods, services, and related information from point of origin to point of consumption (including inbound, outbound, internal and external movements) for the purpose of conforming to customer requirements." (Council of Supply Chain Management Professionals, 2013) Christopher also argued that logistics is "a planning orientation and framework that seeks to create a single plan for the flow of products and information through a business". (Christopher M. , 2005). Or another definition from Kotler that considers logistics as the activity of "planning, implementing, and controlling the physical flows of materials and finished goods from the point of origin to the point of use to meet customer's need at a profit" (Kotler, 2001). All of these definitions have a common ground that highlights the importance of efficient physical and information flow within the system. The seamless flow is the key to determining the efficiency and the reliability of the logistics system. Whether it is in inventory, transporting, warehousing, manufacturing, packaging or distributing phase, a capable logistics system ensures that the material, semi-finished or finished product would be delivered safely to the end node at shortest time and lowest cost. As a result, efficient and reliable logistics enhances the productivity and competitiveness by reducing cost and wasted time. And thus, it does not only benefit the one at the end of the supply chain but for the whole system.

## **Upcoming trends**

The world economy is exceptionally complex and dynamic; it is almost impossible to forecast precisely. However, there are two major trends that are also reflected in logistics business. The first one is the increasingly adaption of information technology and e-commerce into

business. There are many business models but the most successful following this trend is Amazon.com, Inc. Founded in 1994 as an online book store, now Amazon has expanded its services into various fields, notably online shopping, web hosting and content distribution such as e-book, music and movie in digital form. In fact, almost all of its services take advantage of the Internet to arrange, fulfil and deliver order. The advantages, from a logistics aspect can be listed as reducing labor and administrative cost, lowering human-error risk as well as instant order fulfilment. In 2015, Amazon became the most valuable retailer of the United States, surpassed even giants like Walmart or Costco (Kantor & Streitfeld, 2015).

The second trend is outsourcing. Competitiveness now has become an international battlefield due to globalization. To meet the increasing demands of customers as well as threats from competitors, logistics service providers have to maintain higher quality service but with affordable cost. Outsourcing is the answer. By outsourcing the logistics services to a third party, firms can focus on their core competencies without tasking their employees with non-expertise in logistics area, which may reduce their performance. In fact, outsourcing frees-up your staff to concentrate on what they are good at, to maximize their talents. On the other hand, specialists in third party companies are well-trained and dedicated to their specific field of expertise, which, here, is logistics. They can, as a result, handle the logistics tasks more proficiently and efficiently, with better quality and still be able to save time and costs for the parent firms. Outsourcing in logistics is a sign of strong logistics performance and of a mature logistics market, and is often a direct marker of logistics sophistication. In developed logistics markets, shippers and other 3PL users generally outsource some 60% of their freight forwarding, 70% of their warehousing, and 80% of their transport services. The remainder is provided in house (The World Bank, 2014).

The last factor but not least is green logistics. This third trend had its origin in the mid-1980s but emerging quickly as a decisive factor in many industries. As the global economy develops and societies become more civilized, harmful impacts towards the environment are gradually receiving more and more attention from the public. Social, political and economic demands for sustainable development have given birth to green logistics. Green logistics essentially focuses on ways to reduce the environmental effects of logistics (Macharis, Sustainable Logistics. , 2014). It aims to create a sustainable development strategy by the balancing of economic and environmental objectives. Green logistics in Vietnam is a very new concept. It has not been widely practiced due to additional cost it applies on top of value chain. Higher cost lowers the competitiveness of Vietnam logistics service in particular and the whole economy in general.



## **The role of logistics**

Better performing logistics can play a significant role in increasing productivity, as well as provide international and domestic investors with an favorable export environment which results in lower total export costs than what they incur in other countries. National logistics systems focus on developing and providing infrastructures whereas business logistics systems focus on optimizing supply chain decisions based on the infrastructures provided by national logistics systems (Banomyong, Thai, & Yuen, 2015). Logistics is always a significant factor, a backbone of any economy. First, logistics is one of the major expenditures for businesses, thereby affecting and being affected by other economic activities. Second, logistics supports the movement of many economic transactions; it is an important aspect of facilitating the sale of all goods and services (Ellram, Stock, Lambert, & Grant, 2006).

Transportation and especially logistics have a close relationship with globalization. According to Hesse and Rodrigue (2006), they are fundamental to the emergence and operation of the development of networks, material flows and interconnectedness which, in turn, are essential foundation for globalization. In other words, logistics is necessary tool to develop an efficient global value chain of supply, production and distribution. This is true for small business to multi-national corporations and even for the national economy.

Regarding the national economy, logistics plays an irreplaceable part in every country. It can be seen as a facilitator, a coordinator connecting a number of different and separate industries together resembling a supply chain. These different and separate industries now are linked as a chain, sharing the same goals and targets, thus, making it easier for managers to control and adjust to satisfy the market's demand. Moreover, logistics is also an optimizer; it enhances the proficiency of every stage of the chain by reducing the wait time and wasted expenditures. As a result, it will help shrink the overall cost as well as increase investment effectiveness and value of national resources. It is impossible to become cost leader in the market without an efficient logistics system behind.

Logistics, from Lambert and his colleagues' point of view, is an important source of differentiation (Lambert, García-Dastugue, & Croxton, 2008). This implies that logistics service can be tailor-made to suit market's demand. Dima et al shared the same view point when they also believe logistics service "integrated various operational functions", "becoming the manufacturer of the offer of services suggested by the client" (Dima, Grabara, & Modrak, 2010). Excel logistics system will ensure the availability, accessibility, reliability and operating

range of product or service. It will help producer or service provider targets on the market segment which has better profitability.

And finally, as pointed out by World Bank (2014), the core of economic growth and competitiveness depends on logistics performance. In fact, seamless and sustainable logistics is an engine of growth and of integration with global value chains. Without it, trading costs would be much higher as well as global integration severely affected.

### **The benefits of logistics**

Carruthers, Bajpai and Hummels listed down five major advantages of having an advance logistics system (Carruthers, Bajpai, & Hummels, 2003). First of all, a good logistics provider can help reduce the cost of moving goods between seller and buyer, especially cross-country. The customers, therefore, pay less while the producers receive more profit. Secondly, logistics can make the timing of the delivery more reliable. It means that producers and retailers no longer need to overstock, saving money because large inventory can cost up to 55% of the inventory's value itself (Richardson, 1995). This is actually a hot topic in developing country due to poor infrastructure and urban congestion. In addition, a seamless flow of goods can smooth out the price fluctuation between market-caused supply and demand differences. This is especially true in agriculture market when one region may enjoy surplus output while other may suffer from shortage. Moreover, well-developed logistics has potential to expand the market reach of the producers as well as providing consumers with a wider range of selection. In fact, global logistics system is the reason why multi-national corporations can establish their business all over the world. And last but not least, logistics capabilities are the requirement for the country to move up the value chain from resource extraction to sophisticated manufacturing. For example, electronic devices and other types of cargo that require timely delivery, careful cargo handling and standardization demand better logistics and transport service rather than iron ore and bulk grain. This is a challenge but also an opportunity to become a competitive exporter of the region.

National logistics systems focus on developing and providing infrastructures whereas business logistics systems focus on optimizing supply chain decisions based on the infrastructures provided by national logistics systems (Banomyong, Thai, & Yuen, 2015). The benefits of logistics, as seen from different perspectives, are analyzed as below:

*From the company's point of view:*

The benefits of logistics can be recognized in many respects. Towards transportation business, logistics may help improve the quality of service. Quality, here, means shorter transit time, lower cost for shipment of goods along the corridor, and the reliability and flexibility of the transport services offered on multimodal routes. To be more specific, logistics ensures the goods is delivered to the right place, at the right time with the right quantity and quality. For that, there is no need to stock more than necessary and thus, reduce inventory cost. It also improves the utilization of container and other asset by professional planning and organizing, therefore, reduces the cost for empty-container moves within the supply chain.

Moreover, transportation activities do not stop at just moving cargo from one place to another as many other value added services are included. Effective logistics system requires supporting services such as consolidation, deconsolidation, packaging, labelling, light assembling and trans-loading. Apart from intermodal freight charges, these value-added services can be major sources of income, boosting profitability for transport companies, either in shipping or trucking business.

*From the government and society's point of view:*

In general, logistics activities contribute to economic development, employment and added value. First of all, logistics offers a favorable environment for business activities. Obviously, no one would run a company in a country which has expensive cost for transport with low quality and unreliable service. In other words, a good logistics environment is the key element to sustain economic growth, increase the national competitiveness, makes it become an attractive destination of foreign investment. This is the stepping stone Vietnam needs in order to expand the market into international territory.

Secondly, logistics, as mentioned above, comes with many support services. In a logistics park, for example, not only traditional cargo-handling services are provided, but also many related and value-added services, such as distribution centers, shipping agents, trucking companies, forwarders, and packing firms are attracted to the area. This cluster of services can offer hundreds of employment opportunities from low to high skilled. A diversified and sophisticated logistics service market strengthens local expertise and creates jobs. In addition, it can be a considerable source of fiscal income via taxes and rent for the government.

An often-neglected dimension of freight distribution, according to Rodrigue, concerns the array of goods moving within metropolitan areas (Rodrigue, 2012). Even though urban transport is

a short distance and mostly involves a local carrier, it still poses a lot of unique challenges for logistics and supply chain management, especially in developing countries like Vietnam. Rodrigue argued that an effective logistics plan can improve the efficiency of urban freight transportation, reducing traffic congestion, and mitigating environmental impacts.

Regarding environmental impacts, the carbon footprint of the supply chain has become the target of public attention. Green logistics, therefore, was born to promote environmental sustainability among actors within the chain. By utilizing the use of input material and effectively disposing and recycling of waste, green logistics hopes to mitigate the harmful effect of industrialization.

## **Chapter 3: Overview about Vietnam's logistics and competitiveness**

### **Overview**

#### **The Strength**

Vietnam is situated in a favorable geographic location. With over 2100 km of coast line and situated between two major shipping hubs, Singapore and Hong Kong, it is a right decision of Vietnam's government to pursue an ambitious shipping strategy. Realizing the potential, the Vietnamese government has heavily invested in the shipping industry. Since 1995, hundreds of millions of US dollars have been spent to build and expand ports from the northern to southern regions. After almost ten years, the number of seaports in Vietnam have reached 44, in 2014. Highway and railway systems were also upgraded in order to support transportation activities. Overall, investment into the infrastructures of Vietnam recently is impressive compared with other more advanced economies in the same region. For example, Vietnam's national budget for infrastructure development increased gradually and now is maintained at 12% of GDP. Other countries such as Taiwan or Korea, in the 1970s, spent on average around 9.5% and 8.7% of GDP, respectively (Nguyen T. X., 2010).

The shipping-focused strategy was also supported by a huge young labor pool with competitive wage. Among a population of over 94 million (2015), over 66 million is of working age (CIA, 2016). On top of that, the average wage is about US\$200 per month, which is able to compete with other cheap sources of labor within the region. To illustrate, the average monthly wage in Vietnam in 2013 was US\$197, slightly below the Philippines and India at US\$215, while, it was roughly half of Thailand and a third of China average wage (ILO, 2014). As a result, Vietnam is always one of the most attractive countries for foreign direct investment (FDI), among top ten recipients of FDI flows in Asia (UNCTAD, 2014). The FDI poured into Vietnam in 2015 was the highest ever, reaching a record number of US\$ 9.65 billion and rising by 8.4% from 2014 (Ho, 2015).

And last but not least, a stable political regime can be considered as a plus point for the development of Vietnam's economy. It is true that no economic engine can operate smoothly within an unstable state apparatus. A lesson can be learnt from a neighboring country – Thailand. Multiple political crises in the period of 2008-2014 severely affected the Thai economy. GDP growth dropped significantly to 0.6% while consumption expenditure and

national credit rating also declined. (Sethapramote, 2014). At the same time, Vietnam has still been able to keep its GDP growth above 6%, thanks to a stable political regime.

### **The weakness**

A major flaw of Vietnam's economy is that it heavily relies on imported inputs. It means a large proportion of retail price breakdown is to compensate for importing costs. It is due to a weak, small scale manufacturing sector with obsolete technology. It is reported that Vietnam is unable to produce simple components such as screws and bolts that have to be imported (Vietnamnet, 2015). And as a consequence, profit margins are shrunken for manufacturers. For example, imported raw materials used in the manufacturing of apparel exports account for 70–80% of the value of the end product. The equivalent number for footwear exports stands at around 50% (The World Bank, 2014). On the other hand, it also affects the trade balance and makes the whole economy become more exposed to international market fluctuation. The reasons for this heavy reliance on importing are the lack of supply cluster and integrated supply chain. There were, however, many policy and capital supports from the government to develop sophisticated supply clusters and supply chain. Even though, due to the inefficient use of investment as well as complex and inconsistent regulations, many of those are just in primitive stage of development.

Vietnam's economy still suffers from inflation. Especially from the period between 2007 and 2011, double digit inflation haunted the country with an annual average of 14%. Consumer prices, therefore, increased by 23% in 2008 until 2011 when it started to decrease to 19% in 2011. As a result, it led to the reduction of purchasing power and the national credit rating as well as increases in borrowing costs of capital that lowered the performance of the whole economy. In the situation, in February 2012, the government of Vietnam passed Resolution 11 to switch its policy stance from primarily supporting growth to primarily taming inflation and bolstering market confidence (Banomyong, Thai, & Yuen, 2015). It proved effective by halting the inflation and dragged it down to 0.6% in 2005 (World Bank, 2015).

There are issues in the regulation and administration system that also need tackling. Most of them are produced as a result of red-tape and cumbersome bureaucracy. On top of that, regulatory uncertainty adds to the administrative burden of freight stakeholders, who are subject to monitoring over 5,700 administrative procedures and 9,000 legal documents (EuroCham, 2012). Moreover, according to the US-ASEAN Business Council (2012), "Vietnam does not implement regulations consistently ... the government may start down a good path, but then special interest groups pressure the government for special favors, which

throws the government off-course.” The inconsistency in legislation also created a lot of interpretations that can be a challenges for firms when communicating with government officials. It also created loopholes, or in other words, opportunities to abuse the law for personal interests. An ineffective law system limited a lot of development potential. In one of the World Bank’s surveys, according to logistics service providers, their operating costs are generally lower in Vietnam compared with their operations in China, India, Malaysia, and Thailand. However, 70% of respondents noted that regulations negatively impact their business operations and cited inflation as a recurrent concern for them and their customers (The World Bank, 2014).

## The status of logistics in Vietnam

### Logistics costs

Cost can be a key performance indicator of logistics activities. Logistics costs relate to the charges for the movement of goods using various transportation methods such as railway, road, airway and ocean transport, including fuel and passage costs. Additional logistics costs include warehousing space, packaging, security, materials handling, tariffs and duties. Vietnam’s logistics costs are relatively high. It was estimated to be approximately 25% of GDP (Vietnam Chamber of Commerce and Industry, 2012) in which shipping costs took a large share of up to 50-60% (Vietnam Chamber of Commerce and Industry, 2012). Some studies, however, have also stated that Vietnam’s logistics costs as a percentage of GDP are lower, around 20% or even closer to 15% (Meyrick and Associates, Transport Development and Strategy Institute, 2006). Nevertheless, the logistics cost is still at higher level compared with other developed countries.

Country	Logistics cost (% GDP)
United States	10.5%
France	11.1%
Hong Kong	13.7%
Singapore	13.9%

*Table 1: Logistics cost of developed countries (Donald & Roger, 1998)*

So, is logistics costs more expensive or cheaper in Vietnam compared with other countries within the region? For example, in order to import from the U.S., it costs \$8 per FEU higher in

Vietnam than the equivalent cost for Yantian, China, and \$280 lower than that for Jakarta, Indonesia. Regarding export: without destination duty, Vietnam’s logistics cost is \$92 less expensive than a shipment from Yantian, China, to Los Angeles and \$205 less than a shipment from Jakarta, Indonesia, to Los Angeles (Blancas, Isbell, Isbell, & Tan, Efficient Logistics: A Key to Vietnam's Competitiveness, 2014). The above results suggest that Vietnam’s logistics costs are about on-par with China’s and below those of Indonesia. On the other hand, it is reported that the inland transport in China may take up to two-thirds of the total export costs to overseas markets (Carruthers, Bajpai, & Hummels, Trade and Logistics: An East Asian Perspective, 2003). Excessive cost in the logistics activities and customs clearance are the main culprits and it may be expected to be the same in Vietnam.

<i>Import: estimated landed cost per FEU at origin</i>				
<i>Country</i>	<i>Origin cost</i>	<i>Ocean freight</i>	<i>Total</i>	<i>Over/under Vietnam's landed cost per FEU</i>
Vietnam	515.00	500.00	1,015.00	
China	707.00	300.00	1,007.00	(8.00)
Indonesia	595.00	700.00	1,295.00	280.00

Source: Authors.

a. CY FEU refers to a factory-loaded, 40-foot container drayed to ocean port.

*Export: estimated landed cost per FEU in Los Angeles, California*

<i>Country</i>	<i>Origin cost</i>	<i>Ocean freight</i>	<i>Total</i>	<i>Over/under Vietnam's landed cost per FEU</i>
Vietnam	572.00	1,960.00	2,532.00	
China	774.00	1,850.00	2,624.00	92.00
Indonesia	637.00	2,100.00	2,737.00	205.00

Table 2: Estimated Vietnam's import and export cost (Efficient Logistics – World Bank, 2014)

Vietnam's logistics costs, compared with others in the Southeast Asia region, are on the middle level. Even though below some countries, they are, however, on-par or even above some key competitors of the region. This is the result of the heavy investment into these “lower-hanging fruits” in the logistics performance, namely basic transport infrastructure, sufficient electricity supply along with custom modernization. It pushes Vietnam to become a capable competitor in the market as well as claims a new position as a lower middle income country. But when all these “lower-hanging fruits” have been harvested, it is time for a new stage of development, focusing on improving efficiency, innovation and sophistication of the logistics system in particular and the whole national economy in general. In other words, productivity-boosting, well-coordinated performance, effective investments and institutional reforms have now become a priority for Vietnam’s government in the upcoming years.



## **Assessment of logistics' components**

As mentioned in chapter two, logistics is an essential tool to enhance the productivity and competitiveness of a country. How efficient a country's economic activities are largely depends on the logistics performance. In order to assess the logistics performance, it needs to be recognized as a system with multiple components. Therefore, the logistics system in Vietnam will be broken into seven aspects, which are port and terminal, airport, cargo-handling facilities, land infrastructure, trucking industry, custom and regulations and finally human resources. All of them are key nodes in the whole supply chain and play important roles in determining whether the logistics system is efficient and productive or not. They will be assessed thoroughly below.

### **Port and terminal**

The Liner Shipping Connectivity Index (LSCI) is another indicator established by United Nations Commerce, Trade and Development (UNCTAD) in 2004 to quantify and to rank each coastal country's accessibility to the global container shipping network. The LSCI is largely determined by the position within the global network, not by trade volume of a nation. The most recent statistics have shown that Vietnam achieved 46.4 points, surpassed other neighboring countries like Cambodia (6.7 points), Indonesia (27.0 points), the Philippines (18.3 points) and on par with Thailand (44 points). It is, however, still far behind other shipping powerhouses like China and Singapore. From the results, it can be seen that there is a lot of room for improvement to start becoming an attractive location for liner vessels to call (UNCTAD, 2015).

To begin with, Vietnam's shipping industry is highly concentrated in two major shipping centers: Haiphong in the North and Ho Chi Minh city (HCMC) in the South, along with several satellite ports, namely Cai Mep – Thi Vai and Cai Lan. Besides that, there are a lot of smaller and regional ports scattered from north to south, even though most of them are incapable of handling international shipments with obsolete facilities, shallow water channels and poor support services. In total, there are 44 seaports that handle a total throughput of over nine million TEUs in 2013 (UNCTAD, 2015).

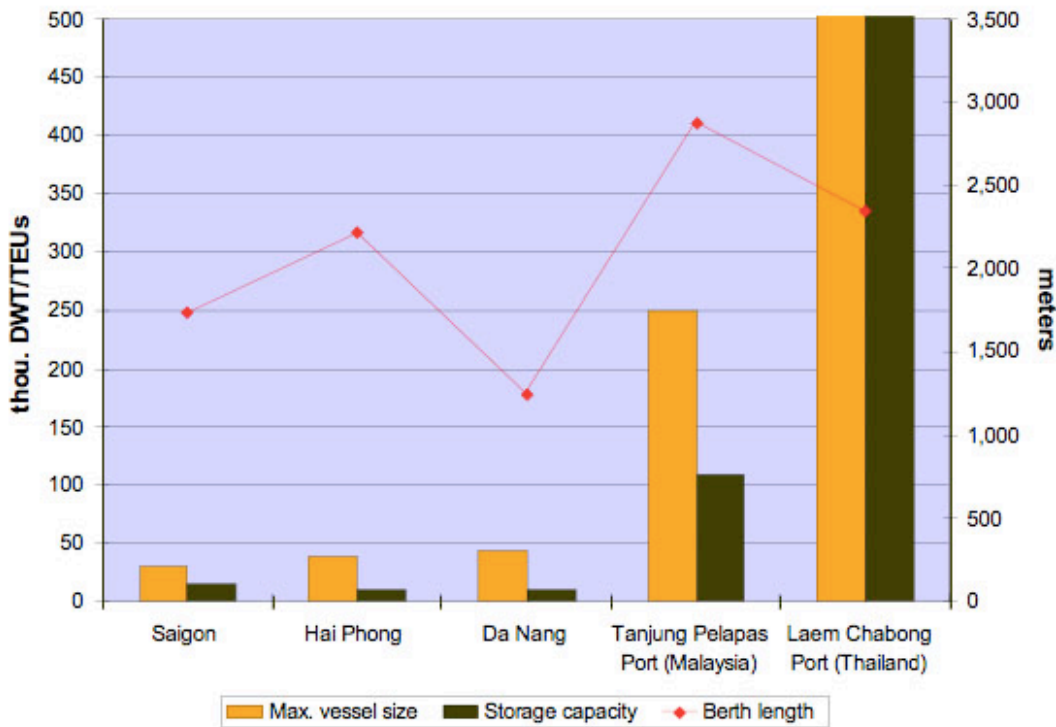


Figure 1: Vietnam's ports performance vs. others

Despite the fact that Vietnam's nationwide container volume is projected to grow at an average annual rate of 8–9% through 2020, (Blancas, Isbell, Isbell, & Tan, *Efficient Logistics: A Key to Vietnam's Competitiveness*, 2014) there is a sign of structural deficiencies in port development. Vietnam's government wants to emphasize a "quantity over quality" port development strategy. The fact that there are 44 sea ports in Vietnam but the majority are unable to receive vessels above 3,000 TEU proved this statement. By building more ports is an ambitious plan to directly compete with maritime powerhouses of the region such as China, Hong Kong and Singapore. It has become a "port race" to some extent that "almost every province along the coast of Vietnam managed to have a port project," Vu Tu Thanh, chief Vietnam representative of the U.S.-ASEAN Business Council, said in an interview in Hanoi (Bloomberg, 2014). That plan, however, may backfire due to overcapacity. Insufficient port demand and incapability of port service are the main reasons.

Such spreading investment is a waste of capital, drives the market to the verge of over-supply and fragment, damages the economies of scale and causes additional costs for the users of services. Besides, overcapacity may weaken Vietnam's ability to attract more higher-value manufacturing that demands efficient transportation systems. Scattered port and terminal projects also created challenges to provide sufficient landside and supporting infrastructure, namely roads, bridges, warehouses, in-land container depot (ICD) ... A fragmented terminal

market also distinguished economy of scale effects. The promotion of multiple small ports causes the loss of \$1.5 billion just in Cai Mep alone due to oversupply. However, Deputy Transport Minister Nguyen Hong Truong believed the other way when he blamed the global economic slowdown and insisted that Vietnam still needs more ports from now until 2020 (Bloomberg, 2014).

On top of that, port congestion still exists, it would increase service users' inventory carrying costs, especially for time-sensitive cargo because they now have to stock more cargo in order to compensate the unreliable delivery. The congestion in the port is not caused by large number of vessels berthed at the same time; however, it is due to time-consuming cargo handling coped with slow and redundant custom clearance process. Handling equipment in most of the port, especially regional ports, are obsolete, some of them cannot handle containership. Port area are often small without enough space for warehousing and storage. Access to the port mostly depends on land connections such as highway or railway, and again, this is another source of bottleneck. The congestion situation confirms the above point: specialized, deep port facilities are in shortage while inefficient, small regional ports are excessive.

The southern region is the most developed, handling around 70% of Vietnam's foreign trade. Saigon New Port, along with Cai Mep – Thi Vai, are considered to be of the best operated port facilities in the country with the fastest vessel turnaround time thanks to new quay cranes of Super-post Panamax class with an average of 30 moves/crane/hour. However, Saigon New Port actually is just a river port which limits its maximum capacity to only 20,000 DWT. Apart from Cai Mep – Thi Vai, which are able to receive ships up to 14,000 TEU or 160,000 DWT, the majority ports in Vietnam are small and incapable for ship above 3,000 TEU to call. (The World Bank, 2014) Moreover, southern terminals lack of frequency of vessel calls because of the oversupply that has been explained above. For example, Cai Mep – Thi Vai is only running at 30% of capacity according to one Maersk's report, while four of the terminals have no container ship customers and have to rely on business such as bulk and cruise liners (Bloomberg, 2014).

Regarding the operation limit, the government set up a cap for Cai Mep – Thi Vai port at 80,000 DWT but, in fact, ships calls already exceeded that number. On 19<sup>th</sup> December 2011, Cai Mep International Terminal (CMIT) welcomed the CMA CGM LAPEROUSE to the Cai Mep – Thi Vai Port Complex in Ba Ria – Vung Tau Province. Belonging to CMA CGM, the world's third largest container shipping company, and with a nominal capacity of 13,830 TEU and DWT of 157,092, CMA CGM LAPEROUSE was the largest container vessel to ever call a Vietnamese

port at that time. On 29<sup>th</sup> October 2015, it also received a 160,000 DWT CSCL Star container ship to berth at one of its four quays. (Cai Mep International Terminal, 2011) This “soft” limit, in the near future, may constrain Cai Mep – Thi Vai’s operation development.

Cat Lai is another efficient operating terminal that is also located within the HCMC region. With the advantage of being close to major manufacturers. Cat Lai service users can enjoy having closer cutoff times to vessel departures and lower drayage rates. Transport time and cost to Cat Lai, because of the same reason, is relatively cheaper than other ports of the region. However, along with Cai Mep – Thi Vai, Cat Lai also has to share the market with many other smaller ports in the area. Vietnam’s government, therefore, should focus on developing and modernizing a few key ports, rather than all ports across Vietnam.

Meanwhile, most of the seaports in the North are considered outdated with shallow water depth of approaching channels and crippled by inefficient container handling terminals (Banomyong, Thai, & Yuen, 2015). Cargo owners already reported several connectivity challenges facing Haiphong port in Northern Vietnam including dredging, outdated handling facilities and congestion (The World Bank, 2014). Located at the mouth of a river that constantly affected by sedimentation, Haiphong port cannot welcome bigger than 10,000 DWT vessel. Also, almost all container services are served by feeder vessels due to the fact that there is no deep-water terminal. By using less efficient vessels of below 1,200 TEUs that would rise the cost, shipments from Haiphong are more expensive than HCMC. The only deep-water port in the north are Lach Huyen, however, it is not fully utilized to operate at 100% potential, the same problem as Cai Mep – Thi Vai.

The quality of the investment projects is also questionable. Many of them were made by Vietnam National Shipping Lines (Vinalines) – a state-owned company established in 1995. Vinalines has been criticized for inefficient investment and corruption among top managers. According to Vietnam Government Inspection Committee, in the period of 2007-2010, the irrecoverable debt upon Vinalines is over 23,000 billion Vietnam Dong (approximately US\$1.03 billion). The inefficiency of their financing framework might delay port and terminal development and renovation, especially in the northern region of Vietnam.

## **Airport**

Despite having up to 45 airports, 38 among them with paved runways across the country (CIA, 2016), only two, Tan Son Nhat (HCMC) airport and Noi Bai airport (Hanoi) can handle international cargo and both are state-owned. Cargo throughput via these airports grows with

an average rate of 15%, reached up to 467,000 tonnes in the first half of 2015. (Airports Corporation of Vietnam, 2015) Even though, Vietnam's air fleet has to depend mostly on chartered planes without any professional freighters yet. The quality of service, however, compared with other international airports within the region, is left behind. In a survey conducted by World Bank, service users ranked these airports as delivering substandard service relative to other Asian countries. The terminals offer small + noun that do not have enough space for cargo storage, but, on the bright side, they do have cold storage facilities and separated areas for dangerous cargo. On top of that, airport operators and workers lack adequate skill level and training together with poor work ethic which results in delays, cargo damage, and increased costs for customers. Security is also lax making cargo theft another concern. Several logistics service providers also reported that there is also a high degree of corruption at tally stations. If the airports are owned and operated by private companies, they would be more competitive and cut the cost about 50% (The World Bank, 2014).

## **Logistics service providers**

### *1. Cargo-handling facilities*

Cargo-handling facilities, as one of those links in the supply chain, greatly contribute to the efficiency of the whole system. These facilities could range from a warehouse, cross-docking center, consolidation center to an in-land container depot (ICD). They provide essential and basic services such as storage, preservation and transportation to more complex tasks such as consolidating, packaging, labelling, transshipment and distributing. Some can even offer inspection and custom clearance services, as well as recycling and reserve logistics. These are value added services, a great source of income for any logistics provider if they are able to seize the opportunity. These are estimated to account for around 20% of total origin of costs before export, without ocean freight.

Most cargo-handling facilities are substandard. General criteria such as fire protection and security, even though they do so, only exist at a minimum just to satisfy regulations. It is reported that many cargo-handling facilities lack full concrete floors and are built with bricks over sand that settles, resulting in uneven floors that can lead to cargo damage. Ventilation is limited, which impacts product quality when cargo is stored for any length of time (The World Bank, 2014). The skill level as well as the work ethic of employees also needs to improve to understand and respect handling instructions, which causes damage to the cargo while in transport or storage. All these unprofessional factors reduce efficiency, increase risks to the goods and also operating costs of logistics service provider.

Another weak point of cargo-handling facilities in Vietnam is that not so many are located near highway connections, ports or production areas. Many logistics service providers had to admit that it is difficult to locate cargo-handling facilities in Vietnam of the quality adequate to satisfy their customers (The World Bank, 2014). On top of that, all 17 ICDs across the country are accessible by roads, or in-land waterway in the South but not railway (Banomyong, Thai, & Yuen, 2015). The reason behind this phenomenon is because most of warehouses are built spontaneously by the private sector solely to meet their demand. There is almost no strategy coming from the government to create efficient, well-placed logistics parks. And attempts to establish logistics facilities by the private sector are also hindered by complex and difficult to navigate regulations.

For that reason, logistics support facilities in Vietnam lack the co-ordination and connection of a network. According to Banomyong et al. (2015), logistics parks and cargo-handling facilities, instead, should be treated as an integral elements of end-to-end supply chains and, therefore, integrated into the transportation infrastructure network (Banomyong, Thai, & Yuen, 2015). Accessibility to logistics and cargo-handling facilities must be maintained at maximum level, for example, to avoid congestion at peak time, fly-overs might be considered. Railroad systems should be utilized to share land cargo capacity by connecting with logistics parks so that they can enable boxcar loading within the facilities. In short, cargo handling facilities must be modernized and established as a part of the supply chain, near production clusters and have better access to other transport modals such as highways, railways or ports.

## *2. Trucking industry*

The trucking industry is fragmented by many small companies without any attempt to consolidate from both government and the private sector. Most of the land transport companies only own one to two container tractors. And for that reason, cargo owners or logistics service providers often have to sign the transportation contract with multiple trucking companies for their shipment. Even so, the reliability of delivery sometimes is not guaranteed.

Most logistics service providers consider trucking costs to be higher in Vietnam than in China, India, Malaysia, and Thailand. This might due to the differences in labor wages, fuel cost, exchange rate and more importantly, facilitation payment, which will be discussed later. At the same time, trucking service delivery is considered to be substandard compared with India and Thailand, and similar to China and Malaysia. Trucking companies generally are small, with old and obsoleted trucks, which, in turn, will increase expenses for fuel consumption and maintenance. Also, driver attitudes are reflected to be poor and unprofessionalism. Estimating

about 20-30% of trucks are overloaded. Cargo is often loosely-loaded without pallets and might lead to accidents or damage as the cargo can easily shift. In addition, there are no trucking companies providing cargo tracking services. If a service user desires reliable, quality service, it has to pay higher rates, up to 40% higher (The World Bank, 2014). However, since there is little to no strict sanctions for delivering substandard trucking services, those companies will still try to compete by getting the price as low as possible. This, undeniably, will damage the overall quality of the logistics service in general.

With most of the trucking companies in Vietnam not meeting international standards, one of the four international ocean carriers interviewed in a World Bank report described having to invest in its own fleet of trucks to maintain the high service level demanded by its customers (The World Bank, 2014). The damage by this action is not only in the increasing in logistics cost, but also stealing market share from domestic trucking companies. This can be seen as a wake-up call for domestic trucking companies to improve their services otherwise being excreted off their homeland.

### *3. Third party logistics service provider (3PL)*

It is common in Vietnam for large exporters to have a dedicated in-house department for import and export process. The reason is because the trade documentation and custom clearance are often time-consuming, costly and cumbersome. But moreover, Tongzon and Cheong have indicated the fatal weakness of Vietnam's logistics industry or rather most of the ASEAN countries is that the domestic providers are "at their infancy stage". This is due to the protectionist policies and poor governance that over protect domestic firms but turn out spoiling the healthy competitive environment. (Tongzon & Cheong, 2014) Most of them are, the same with trucking industry, highly fragmented and, therefore, significantly reduce the competitiveness, especially in the international market. It is not until January 2014 when Vietnam government started to allow fully foreign-invested enterprises to enter the logistics market and since then, foreign logistics firms, such as Maersk Logistics, APL Logistics, NYK Logistics and MOL Logistics, are dominating Vietnam's market, holding 80% of the market share which worth up to US\$48 billion (Vietnam Briefing, 2014). They mostly target on Cold Chain (storage and cold transportation) because that is the new, uncharted market fragment that have not received much attention from domestic logistics companies. This new opportunity requires intensive capital investment coupled with sophisticated and efficient management – these are also elements that domestic firms are lacking of. It is reported that DHL invested US\$13 million in a total of 141,000m<sup>2</sup> of storage with roughly 100 trucking vehicles in 2015. Meanwhile, Maersk Line, has also expressed their expansion ambition with

four new storage facilities in the same year. The rapid expansion of major foreign retailers in Vietnam and the ever increasing in export quantity of farming and seafood products are the main driver for the expansion (Vietnam Briefing, 2014). Third-party logistics (3PL) in Vietnam showed positive signs with an estimated revenue of US\$ 1.5 billion in 2014, accounting for 7.4% of GDP.

Country	2014 GDP	Logistics (GDP %)	Logistics cost - 2014	3PL Revenue %	2014 3PL Revenue
China	10,360.0	18.0%	1,864.8	8.0%	149.1
Indonesia	856.1	10.7%	91.6	7.2%	6.6
Malaysia	336.9	10.7%	36.1	7.1%	2.6
Philippines	289.7	10.7%	31.0	7.1%	2.2
Singapore	307.1	8.5%	26.1	11.5%	3.0
Thailand	380.5	10.7%	40.7	7.2%	2.9
Vietnam	187.8	10.7%	20.1	7.4%	1.5

*Table 3: Global logistics costs and third-party logistics revenues (US\$ Billions) (Armstrong & Associates, Inc., 2016)*

## Land connections

Land connections play an important and irreplaceable role by connecting different nodes and maintaining a seamless flow of goods within the supply chain. The government has been spending an enormous amount of money to improve traffic infrastructure over the last decade. Until 2014, Vietnam has 2,600 km of railways, 195,468 km of roadways in which over 75% are paved and up to 47,130 km of waterways (CIA, 2016). Even though the road density (km of road per 100 square km of land area) is relatively high, surpasses even Thailand and Malaysia (Nation Master, 2016), nevertheless, major highways in Vietnam have not been paid adequate attention. This is expressed through the lack of proper highway and peak time congestion problem.

In the same survey conducted by World Bank (2014), highway congestion in Vietnam, as said among service users, is worse than in China, Malaysia, and Thailand, but similar or better than in India and Indonesia. For instance, road conditions and congestion between Cai Mep and HCMC are terrible. Three hour delays are common during the peak season. The same situation can be witnessed in National Highway No. 5 connecting Hanoi and Haiphong where 120 kilometers takes more than four hours to commute because of congestion. This, in turn,



makes cargo delivery becomes unreliable. Thus, it drives the shipper to overstock which will increase the overall logistics cost.

The root-cause of this problem has been identified as the rapidly expanding urbanization, increasing levels of car ownership, higher volumes of freight, a shortage of road capacity, and poorly designed highway and road intersections. The government has tried to combat the congestion problem by make-shift measurements such as banning trucks operate within urban area while limiting maximum weight load on bridges and roads. It may fix one problem but also rises the others, for example, increasing land cost and the delivery time of transportation. For that reason, increasing highway and road capacity is critical and top-priority for the government.

The cost of congestion when all motor vehicle highway users are included (i.e., beyond freight trucks), has an estimated cost of US\$1.7 billion on the Vietnamese economy. Annual savings in trucking costs can reach US\$121 million by 2020 if more truck trips per truck per day can be generated through better highway and road designs (The World Bank, 2014).

Due to narrow, low quality roads and their adjacency to residential areas, the speed limits on highways in Vietnam is exceptionally low, only 80 km per hour and some areas could be lowered to 60 km per hour. Recently, Vietnam's government increased the speed limit by 10 km per hour more but the effect is marginal. For a 100 km long way from Hanoi to Haiphong still takes two hours to travel. New projects to build "proper highways" with much higher speed limits were introduced. By 2020, 2,500 km of highways will be completed and open to traffic, connecting North and South region, but more importantly, linking Hanoi and HCMC to international seaports and border gates. The total amount invested in these projects are over US\$7.7 billion (Le, 2016).

There are problems with railways as well. Rail service is rated as substandard without cargo tracking and takes seven days for a consignee in HCMC to receive the cargo that shipped from Hanoi. Among 2,600 km of railways, only 178 km are in standard gauge where it connects bordering provinces with China, the majority are one-meter gauge (CIA, 2016). The railway system and its terminals, all were built 20-30 years ago, which now, are old and outdated. Most of them are unable to load and unload containers; meanwhile, there are only 500 flat beds cars designed to carry containers (Banomyong, Thai, & Yuen, 2015). The one-meter gauge is cheap to build, however, it lacks the physical space to grow. In other words, it is not suitable for larger, faster and heavier trains to run. On top of that, the railway system is still mostly in single track, even in some important routes like between Hanoi and Haiphong, which

severely limits rail service's total capacity and delivery time. That may explain why a rail modal only shares 7-8% of total freight transport (Banomyong, Thai, & Yuen, 2015).

Inland waterways in Vietnam, at the moment, are not suitable for container transport. The reason is only about 40% of the river system in Vietnam is regularly dredged and, consequently, navigable all year round (Banomyong, Thai, & Yuen, 2015). In fact, only 200-1700 tonnes barges are widely used to carry construction materials such as sand, gravel and cement on small rivers across the country. Small boats are utilized to transport agriculture products, especially tropical fruit in the Mekong River Delta. This region also has considerable water level difference between the rainy and the dry season, making cargo transport a difficult task. On one hand, inland waterways can be developed to share the pressure and reduce congestion on highways, but, on the other hand, the cost might be too high for an acceptable result.

To sum up, despite all the above shortcomings, the logistics costs in Vietnam are still able to compete with most neighboring countries mainly because of the low labor wages. The average wages of Vietnam, which are only one third of China helps keep the overall transportation costs down to competitive level. More specifically, the consolidation fee and terminal handling cost for exporting from Vietnam's ports are only 60% and 43% of China's, respectively, while trucking and ocean freight are about the same (The World Bank, 2014). Vietnam's government, however, cannot rely on this as a long-term strategy. Instead, improving the efficiency and productivity of the logistics system can be the key to open up more opportunities to become a powerhouse in exporting.

### **Customs and Regulations**

Customs decisions, policies, and directions are arbitrary and inconsistent, and also vary between regions with a cumbersome nature of working. According to logistics service providers, regulations are vaguely defined and ever-changing, creating confusion among stakeholders. Moreover, loopholes from a loose law system are exploited by corrupted State officials causing millions of U.S. dollars in terms of damage. And from the cargo owners' perspective, the functional areas of clearing customs in Vietnam is only better than Cambodia and Indonesia and is less competitive than in other Asian countries and needs to be simplified and universally applied by reducing the number of required certificates and licenses. To be more specific, more than half of respondents consider Vietnam's customs requirements to be more stringent and expensive to comply with compared with other Asian countries where they operate (The World Bank, 2014). For example, less-than-container load cargo can be cleared

in Malaysia in three days compared to six days in Vietnam. Full-container loads shipments are cleared in one day in Malaysia compared to three to four days in Vietnam. In addition, facilitation payments are common and accepted to be an “other fee” in many logistics contracts. These illegal payments are mostly given to custom officers by cargo owners or the logistics provider in order to accelerate the custom clearance process. It is also handed to police officers on highway outposts to allow overloaded or speeding container trucks. If operations were transparent and solicitation of facilitation was curbed, service users’ costs for activities relating to customs clearance could be reduced by up to 20% (The World Bank, 2014).

**Table 5.4: Customs clearance times**

	<i>Average days for customs clearance</i>		
	<i>Air</i>	<i>Sea LCL</i>	<i>Sea FCL</i>
France	1	4	2
Germany	1	1	1
Greece	1	1	1
Netherlands	1	2	2
Spain	2	2	2
Sweden	1	2	2
USA	2	3	3
Average sample of developed countries	1.3	2.1	1.9
China	4	30	5
Hong Kong	2	4	3
Indonesia	3	4	4
Malaysia	4	4	4
Philippines	4	5	3
Singapore	2	3	3
Taiwan	4	10	7
Thailand	5	5	5
Vietnam	5	7	7

*Table 4: Average days for customs clearance (Carruthers, Bajpai, & Hummels, Trade and Logistics: An East Asian Perspective, 2003)*

On the bright side, however, the automation and modernization of the customs clearance process has been partly implemented, and it has already yielded some positive results at simplifying and expediting clearance processes. Custom documents now can be created, declared and submitted via Internet within an hour. Single-door administrative policy on customs declaration saves logistics service providers considerable amount of time and efforts.

At the same time, they also can clear their goods for import or export at the warehouses or ICDs far away from the borders and seaports.

After being an official member of WTO, Vietnam has committed to remove obstacles and barriers for international companies to operate and compete on an equal footing with domestic companies. However, there are still many to improve. For international ocean carriers, it is a complex and costly process to file the necessary documents to avoid double taxation. Moreover, there is strict rule to prevent foreign flag carriers from carrying internationally destined containers from northern and central Vietnam to Cai Mep-Thi Vai to connect with mother vessels. All the limitations definitely not only reduce the competitiveness but also the performance of the shipping and logistics sector.

One of the first obstacles that needs to be removed is the restriction on transshipment volumes and cabotage. There is a strict rule from Vietnam government to prevent foreign flag carriers from carrying internationally destined containers from Northern and Central Vietnam to Cai Mep - Thi Vai to connect with mother vessels. In addition, foreign logistic providers and maritime carriers, they can only operate under joint venture with a domestic counterparty, in which the foreign investor's authorities and responsibilities is limited. The purpose is to protect domestic operators but at the same time, spoiling the competitive environment. In other words, overprotecting policy from the government indirectly reduces operational efficiency and competitiveness of the transportation and logistics industry. However, all these restrictions should have been removed in 2014 to comply with the Vietnam's commitment to becoming a member of the WTO.

So far, Vietnam has positively abided by its commitments to open the logistics service market. Bilateral agreements such as Cross Border Transport Agreement grant traffic rights and permit foreign trucks and containers to cross the border to deliver or collect export and import goods without wasting time for transshipment at the border. Along with positive internal changes in regulations and policy from Vietnam government, this further reduces the cost, cuts down the time of transportation, and, ultimately, increases the complete ability of Vietnam's logistics system in the global market.

### **Human resources**

With 54 million of total population of working age, a huge labor pool is, indeed, an advantage to the Vietnamese. The quality of labor force, however, is another problem. Even though general work force is plenty with the literacy rate above 90% (CIA, 2015), Vietnam still lacks

skilled and highly qualified employees such as experienced executive level managers and directors who have sufficient supply chain and logistics experience. Not only Vietnam but other developing countries of the Southeast Asia region, for example, Indonesia or the Philippines, are facing the same problem (Tongzon, Liberalisation of logistics services: the case of ASEAN, 2011). Tongzon, in his research, also pointed out the reason for this phenomenon. First of all, it is because of inadequate training opportunities available and the lack of academic institutions that provide logistics as an area of specialization. And secondly, there is no common standards for logistics education, thus, further limiting the development of logistics professionals within Southeast Asia. Though there are efforts such as multiple short-term courses on freight forwarding and logistics operations held by the International Federation of Freight Forwarders, UNESCAP or Japan International Cooperation Agency (JICA). Positive results have been yielded, but, on the other hand, they are just limited in scale and insufficient to create a strong push for the whole region.

## **Chapter 4: Limitations, recommendations and possible challenges**

Vietnam is a developing country. In order to reduce the gap with other more economically developed nations, there are a number of tasks Vietnam needs to undertake and improving logistics performance is one of them. Reports showed that improving logistics performance is the “core policies to bolster competitiveness and boost trade integration” and is “the most potential” for a developing country like Vietnam (The World Bank, 2014). The reason for that conclusion is derived from the fact that high cost of logistics in national GDP does not stem from the transport side but primarily from the warehousing and inventory carrying cost side.

As mentioned in the previous chapter, Vietnam’s logistics system is rated to be on lower-middle level of both performance and competitiveness. According to the WEF, Vietnam is at the “factor-driven stage” and mostly depends on “unskilled labor and natural resources”. (World Economic Forum, 2015) As a consequence, competition in both domestic and international market is mostly based on cheap materials and basic commodities. Companies often compete by bringing down the price for products and services as low as possible and that is reflected in the barely sustainable level of wages for labor with a little to no added value. With an inefficient and underperforming logistics system, it can easily wash out the competitiveness that is built upon low labor costs or abundant natural resources. As previously pointed out, Vietnam is recognized by having impressive development in term of infrastructure. This is important as a solid foundation to improve the quality of the logistics service. It still, however, needs a lot of efforts in order to catch up. Because it is the driving factor in logistics performance in emerging and richer economies, (The World Bank, 2014) quality of logistics must be in main agenda of Vietnam’s government in order to compete with other countries of region, to move up in the value chain.

To sum up, there are five striking drawbacks of Vietnam logistics system that require immediate attention from the government. Its impacts as well as recommendation are also included in order to provide a better strategy to improve the efficiency and quality of the logistics services in Vietnam.

### **1. Inappropriate investment into port planning**

As mentioned in the previous chapter, the investments into basic infrastructure such as motorways, bridges, electric or water system are impressive. It is on par or even surpasses many countries in the region with up to 12% of GDP. The problem is, however, these investments are often widely spread, while some key projects are invested inefficiently. The

reason behind the spreading investment initially came from the government policies and guidelines to eliminate the gap between the urban and other poorer regions. At first, lower developed provinces were provided preferential capital from the national budget or the FDI to establish start-up industrial projects, for example, sugar mills, cements or steel plants. Despite the fact that not all of these projects ended up fruition, a new wave of preferential capital for infrastructure development was disbursed as Vietnam committed to join WTO. (Thanh & Dapice, 2009) The outcome has both strengths and weaknesses. On one hand, road, bridge and other basic infrastructures building in poorer areas has achieved remarked results, rising the living standards and shortening the wealth disparity. On the other hand, however, allowing every coastal province to have expensive yet under-utilized ports is wasteful and counter-productive. The government policy had its good intention at first, but then was inappropriately modified and deviated due to political decisions involving group and personal interests.

On the other hand, that money should be invested into other supportive services for shipping activities. Vietnam currently has more than 100 ports but most of them only meet the needs of smaller vessels. In the last ten years, demand for transportation is switched to larger capacity container vessels and Vietnam's port system soon revealed its weaknesses. Port planners still pursuit outdated port design of 200-300 meters berth, while the latest containership generation requires up to 400 meters long. (Sa Huynh, 2016) Meanwhile, Cai Mep – Thi Vai has berths that is 600 meters long, which is more than enough for one big vessel but inadequate for two. Due to the lack of ancillary infrastructure, the potential performance of each port project can not fully be utilized. For instance Cai Lan port has a depth of 12 meters with extra capacity but receives only about 4% cargo throughput of the country, while Haiphong port has a depth of 8m and can only handle little less than 10,000 DWT container vessels, but has five times bigger in term of operation capacity. The same situation can be witnessed in the Southern area as Cai Mep – Thi Vai only reaches 20% of designed capacity. (Dong Ha, 2016)

Some regulations are obsolete and no longer appropriate. For example, the existing master plan limits Cai Mep-Thi Vai to receive container ships up to 8,000 TEUs or 100,000 DWT although 14,000 TEUs have already berthed. The cabotage restriction, which came into force in 2013 forbids foreign carriers to carry empty containers between Vietnam's ports. This created an unhealthy competitive environment, spoiling Vietnamese-flagged carriers, which is already in bad shape compared with other international competitors. Feeder service users now have to rely on higher operating cost domestic fleets, which is unable to provide a reliable fixture.

Impacts: Transportation infrastructure planning, especially port and terminal planning at the central and provincial government levels is not based on an integrated and holistic point of view. Instead, the rampant growth of regional port and terminal diverted the limited state budget from more critically needed projects. These regional port projects, without proper orientation and planning in the beginning often suffer from relatively low returns on invested capital, or in other words, inefficient investment. Take the case of deep-water terminals such as Lach Huyen and Cai Mep – Thi Vai for example. They are not able to fully utilize at 100% for the fact that smaller ports of the same region are siphoning off business from them. To be more specific, Lach Huyen and Cai Mep – Thi Vai have to compete for not only just shipping demand but also other supportive services with up to 12 and 14 other domestic ports respectively. (Vietnam Maritime Administration, 2008) Although, license for new port is still being granted despite the fact that there is sign of oversupply around Cai Mep – Thi Vai area. For that reason, it is really hard to develop a port-centric plan due to the fact that there is no specific investment strategy involving key international deep-water ports and terminals. In reality, as one of Vietnam's representative of the U.S.-ASEAN Business Council had to admit, almost every coastal province races to have its own port, even though there is no real shipping demand. It is estimated to cost from 18 to 22 billion U.S. dollar for the port and terminal development plan until 2020 (Nguyen S. , 2013). However, investment into key international deep-water ports and terminals such as Lach Huyen and Cai Mep – Thi Vai are only taken up US\$1.2 billion and US\$2 billion respectively (Vietnam Port Construction Consultant Jsc, 2013) (Xuan Tuyen, 2016). It means that more than US\$10 billion will be wasted into small and inefficient regional ports that have no capability to handle international shipment. The development and suspension of Van Phong port could be a lesson for the policy makers. More than US\$7.3 million has been wasted in an attempt to build regional transshipment hub even though there was no real demand for that port (The World Bank, 2014).

In addition, Da Nang and Tien Sa port development could be another good illustration. They were heavily invested in order to become one of the first class port like Haiphong and Sai Gon port. But one thing they did not take into account is that the low volumes of exports made ships call less frequently and thus, rising the shipping cost. Shippers, for that reason, often transported their cargo to Sai Gon port instead to enjoy an one-week faster service and \$300 cheaper in shipping cost, which were more than enough to compensate an extra cost of \$385 from moving container by truck (Thanh & Dapice, 2009). The big investment, in the end, did not meet the projected cost-benefit and was soon labeled as ineffective.



If deep water ports such as Cai Mep – Thi Vai and Lach Huyen are utilized at maximum potential, they could become medium size hub ports connecting Vietnam with North America and Europe market. The benefits are huge. As interviewed by World Bank, if export cargo no longer needs to transship at foreign ports, it could save shippers US\$100 - US\$200 per TEU and up to three days of transit. That will result in over US\$250 million of saving and could reach above US\$900 million at full capacity. Specific saving amounts are calculated as below.

<b>Saving if international cargo no longer need transshipment at foreign ports</b>			
Saving from not doing the transshipment (average)	150	USD/TEU	
Percentage of export cargo	45%		
Cai Mep - Thi Vai 2015 throughput	1,468,613	TEU	
Cai Mep - Thi Vai 2020 throughput (projected)	2,157,874	TEU	(Assuming that 8% annually increase in throughput)
Lach Huyen 2020 throughput (projected)	1,100,000	TEU	(Projected by World Bank)
Cai Mep - Thi Vai at maximum capacity	7,100,000	TEU	
Lach Huyen at maximum capacity	6,000,000	TEU	
Save from transshipment at Cai Mep - Thi Vai in 2020	<b>145,656,516</b>	USD	(Saving per TEU x projected 2020 throughput x percentage of export cargo)
Save from transshipment at Lach Huyen in 2020	<b>74,250,000</b>	USD	
Total	<b>219,906,516</b>	USD	
Save from transshipment at full capacity Cai Mep - Thi Vai	<b>479,250,000</b>	USD	(Saving per TEU x maximum throughput x percentage of export cargo)
Save from transshipment at full capacity Lach Huyen	<b>405,000,000</b>	USD	
Total	<b>884,250,000</b>	USD	

Table 5: Savings from transshipment, pt. 1 (source: author)

<b>Saving from 3 days of transit at foreign port</b>		
Average FEU export value	90000	USD/FEU
Cai Mep - Thi Vai 2020 throughput (projected)	2,157,874	TEU
Lach Huyen 2020 throughput (projected)	1,100,000	TEU
Percentage of export cargo	45%	
Interest rates per year	8%	
Saving at Cai Mep - Thi Vai	28,732,244.30	USD
Saving at Lach Huyen	14,646,575.34	USD
<b>Total saving</b>	<b>43,378,819.64</b>	USD

(Total throughput x export percentage x 3 days x interest rates per year/365)

Table 6: Savings from transshipment, pt. 2 (source: author)

Furthermore, without key international deep water terminals with high handling rate and little wait time, the competitiveness of Vietnam is diminished even though owing more ports than other neighbors. Bigger and more efficient ports, for example, Cai Mep – Thi Vai or Lach Huyen have to share the potential market with other smaller port. Since the cargo is dispersed from key gateway terminal, economies of scale becomes more difficult to achieve, and as a result, increases the cost not only to shipper but also to ocean carriers. Too many small ports but inadequate deep-water ones, as a consequence, drives most seaborne exports from Vietnam to the E.U. or the U.S. have to be transshipped by feeder vessel to bigger hubs like Singapore or Hong Kong and then, from that, the shipments were actually carried to the final destination by larger, more economical vessel because it is much cheaper. In fact, according to World Bank, it only cost \$460 to ship a container from Singapore, \$590 from Hong Kong compared with \$610 if it was exported from Vietnam (The World Bank, 2014).

Recommendation: The problem for Vietnam is that too many ports spoil the whole business. Therefore, the Vietnamese government should identify only a few important ports, emphasizing ones that have access to deep-water terminals, generous space to expand and

close to key transshipment hubs such as Hong Kong or Singapore. Giving that criteria, Lach Huyen, Cai Lan in the North and Cai Mep – Thi Vai in the South should have higher development priority. Cargo from other smaller ports sharing the same hinterland area should be gradually shifted to these key ports and eventually, small and inefficient ports can be closed. It is calculated that if Lach Huyen can utilize all of its potential to become a medium size hub port, up to \$74 million U.S. dollar can be saved from transshipping cargo to foreign port (The World Bank, 2014). Haiphong city are currently pursuing this strategy as it started to close several terminals inside the city that have too shallow draft. The space, instead, will be used for new housing complex, department store, entertainment center as well as other public infrastructures such as school and hospital (Haiphong Information Portal, 2013).

The same strategy should be followed by HCMC governor. By relocating cargo volume from inner city ports along side Saigon river to Cai Mep – Thi Vai, it helps fix the problem of overcapacity, and at the same time, free up space for the city to expand. More over, 80,000 Deadweight limitation also needs to be lifted as the master plan it belongs to is no longer up to date.

The cabotage restriction, on the other hand, should be thoroughly considered before abolishing. As it helps port industry to develop by attracting more foreign carriers, it will kill the domestic fleet since there is no way for them to compete.

Another solution could be privatization. It is proven fact that private investment often harvests better result with lower cost than state-funded project. And it seems like Vietnamese government started doing so in the hope to increase the performance of the both the investment and the port itself. Vietnam Maritime Administration will announce 19 seaports that are open for private investment, according to Do Duc Tien, Deputy Chief of the Vietnam Maritime Administration. At the same time, Minister of Transport, Dinh La Thang, state that the planned Lach Huyen deep-water port in the northern city of Haiphong would be the last maritime project to be state-funded. State-owned enterprises are also the target for privatization to combat against mismanagement and corruption, which, in turn, leads to heavily loss of state budget. Vinalines, the biggest state-owned shipping corporation of Vietnam, for example, has been the focus of criticism due to the the loss of over US\$76.4 million in 2014 and US\$330.95 million in 2013 (Vietnam Briefing, 2015). If taking in account member companies and subsidiaries, the total debts could be up to three billion U.S. dollar. This is massive given the fact that the GDP per capita of Vietnam was about \$1,900 in 2013.

## 2. Bottleneck on road while railroad is underutilized

Road capacity in the urban areas, especially Hanoi and HCMC is in the situation of overload. Rapid urbanization, increasing car ownership, ever rising in volumes of freight as Vietnam entered WTO and other international market, failure in traffic planning and poorly design intersections are the main reasons for this phenomenon (The World Bank, 2014). More specifically, highways are often based on outdated design and not constructed to handle today's larger sized, 45-foot containers. Together with low construction quality, it leads to the rapid deterioration of the road and hence, higher maintenance cost. Moreover, urban planning did not forecast road and highway capacity properly to meet the future demand. For example, the national highway no. 14 connecting Hanoi and Haiphong, a strategic corridor of freight transport, only has four lanes in most parts. Even worse, the road to Dinh Vu terminal in Haiphong is constantly in congested state because it is too small, only has two lanes and some parts are still under construction. Motorbikes are allowed in the highway only makes the situation worse as it increases the risk of accident. Highway congestion between Cai Mep – Thi Vai and HCMC is also terrible as three hour delays are frequent in the peak time. (The World Bank, 2014) Meanwhile, several Mekong Delta provinces banned container truck because of bridge limitations and poor road conditions. (Banomyong, Thai, & Yuen, 2015)

World Bank rated Vietnam highway congestion is worse than in China, Malaysia, and Thailand, but similar or better than in India and Indonesia. Normal from Hanoi to Haiphong is about two hours, and between HCMC and Cai Mep – Thi Vai is less than four hours. If congestion happens, however, the expected time of delivery may double (The World Bank, 2014). It is the unreliability in delivery that subsequently raises the transportation time and cost for every party. For the trucking company, higher travel time means lower asset rotation which will lower the profitability. Cargo owner, on the other hand, has to maintain higher than necessary stockpile to compensate the unreliable delivery time and it costs them to hold extra inventory.

It is completely opposite in term of railroad usage. Even though most of the ports are connected by railway, very few shippers actually use it. It is because the railway system was built more than 20 years ago which is outdated at the moment. The one-meter gauge only supports small and low speed boxcars. In fact, as the railway crosses many residence area, the average speed of the train is under 40km per hour. There is a plan to increase the train speed but only to 50km per hour, which is trivial (Doan, 2015). Important route, such as Hanoi – Haiphong is only in single track, almost impossible to high amount and frequent freight. But the most important problem is rail terminals in Vietnam are unable to handle container cargo effectively as they lack proper equipment, vehicle and infrastructure such as gantry crane,

lifter and consolidation warehouse. That is why road transport is still the dominant factor and the first choice of domestic consignors in Vietnam mostly thanks to its flexibility.

Impacts: Having a very efficient port and terminal is just not enough, other supportive services and infrastructure must be on par in order to utilize and not waste the port resources. Land connection in Vietnam incurred in a same problem as port development: without proper orientation and integrated multimodal transport planning. The government is not proactive in identifying and meeting the near future demand of land transportation. In fact, the administrator acts passively by just repairing and maintaining damaged roads and bridges. However, as they fix one, another bottleneck occurs. The halts still exist in the logistics system, causing unnecessary cost and time to be pressured on the service users. Since the transport time is unreliable and very frequently disrupted by traffic jams, more buffer time is needed to add when scheduling the shipping, and thus, increase the inventory carrying cost. It is estimated that highway congestion costs Vietnam economy up to \$1.7 billion each year. (The World Bank, 2014)

Moreover, the highway quality is substandard, therefore, truckers are very limited in term of weight and maximum speed, along with congestion, raising the total cost of freight shipment. In order to remain competitive, however, service quality is compromised by lower price. And this is not a good strategy for Vietnam to follow any time longer. According to the World Bank, it is not price but quality is the driving logistics performance in emerging and richer economies. As a country that just moved up from lower income group, improving the service quality is the strategy Vietnam should pursuit (The World Bank, 2014).

Recommendations: Since there is not any strategic corridor development so far, it should be one of the first things Vietnamese government implements. Most of the import and export throughput are concentrate in Haiphong and Sai Gon – Vung Tau area. The majority of industrial parks, manufacturers and processing plants also located around these areas as well. Therefore, it is rational to develop a transport corridor to foster trading activities. To be more specific, in the Northern area, the corridor could start from Hanoi and surrounding areas such as Bac Ninh, Phu Tho and end up in Haiphong and Quang Ninh. The southern corridor may consist of HCMC, Binh Duong and Vung Tau. In these corridors, cargo-handling facilities and other means of transport such as highway, railway, in-land water way belong to an integrated plan that support each other. Warehouses and consolidation centers should be able to utilize multimodal transport and located near key traffic routes to save the transit time. However, the current highway system is overloaded and, thus, needs to expand to avoid further congestion. Haiphong – Hanoi express is a newly constructed highway to replace outdated and out-

standard national highway no. 14. This project is expected to reduce the transit time between two cities to one hour. But more importantly, it directly connects Dinh Vu container terminal with Hanoi and other neighboring provinces while allowing heavier container to traffic. Cargo owners, truckers and logistics service providers are the beneficiaries thanks to significant decrease in transit time without worrying about unexpected delay due to congestion.

The highway construction and upgrading costs of key connections such as Hanoi – Haiphong and Ho Chi Minh City – Cai Mep Thi Vai are estimated to reach above US\$4 billion – a huge amount considering the 2015 Vietnam GDP is just little over US\$193 billion. Most of the capital comes from foreign preferential loans and Vietnam government provides the counterpart funds of 40%-50%. The benefits, however, are significant. Firms can expect to cut the costs for overstocking their inventory, which may account about 2.5% of total inventory value. Given that high container traffic through Haiphong and Cai Mep – Thi Vai ports, that 2.5% could be translated into more than US\$1.8 billion of saving. On the trucking company's perspective, traffic jam also causes a damage of about US\$3.8 million annually. On another report from World Bank, it is estimated to cost Vietnam about US\$1.7 billion due to congestion. Considering that cost and the benefit of the congestion-elimination project, even at 70% effective, it still rips fruitful result after 10 years. Details of the calculation will be given at the appendix.

<b>Cost-benefit analysis of improving Vietnam's logistics by eliminating road congestion</b>		
<b>The cost</b>		
Highway investment cost	19.6	million USD/km
Hanoi - Haiphong highway	2070	million USD
Long Thanh - Dau Giay highway	938	million USD
Highway 51 upgrade	1356	million USD
<b>Total initial investment</b>	<b>4364</b>	<b>million USD</b>
Custom modernization cost	6.35	million USD
Hanoi - Haiphong highway maintenance cost	2.27	million USD
Long Thanh - Dau Giay maintenance cost	9.38	million USD
Highway 51 estimated maintenance cost	13.56	million USD
<b>Total maintenance cost</b>	<b>25.21</b>	<b>million USD</b>
<b>The benefit</b>		
Estimated inventory cost saved	2.5%	
Saved value from overstock inventory	1830	million USD
Saved value from wasted fuel	3.84	million USD
<b>Total</b>	<b>1833.84</b>	<b>million USD</b>
Total (at 70% effective)	1283.688	million USD
Total (at 50% effective)	916.92	million USD

JICA's grant  
estimated 1% of investment cost

Table 7: Cost-benefit analysis details (source: author)

The government should avoid political reasons to influence infrastructure development decision. The Ho Chi Minh highway could be a perfect example. It was started in 2000 and planned as a highway that follows the path of the the famous wartime Ho Chi Minh Trail. The problem is, the new highway had to construct through the mountainous area of central Vietnam, therefore, it is much more expensive as the first stage already costs more than two billion U.S. dollar. (Thanh & Dapice, 2009) Due to the nature of the highland it goes through, the highway also exposes to the higher risk of damage caused by flood and land slide than normal. After completion, however, the Ho Chi Minh highway does not have much traffic. Cargo does not go on this highway because it only connects poor and mountainous area without much trade demand. To boost the economic opportunities in these areas, the government, instead, could develop smaller roads to connect poorer areas in the highlands to the richer ones in the coast, rather than linking all underdeveloped provinces together.

To handle cargo, especially containers, first of all, railway needs to be upgraded to bigger gauge system in order to support larger, higher speed train. Several cities and provinces have already updated to 1.4-meter gauges but the rest needs to adopt the new standard. Secondly, upgrading to 1.4-meter gauges means the locomotives and the boxcars also need to be updated accordingly. Thirdly, rail terminals require tools and vehicles to handle cargo effectively. That would be several billions of dollars investment that cannot be decided over a night. Right now, the Vietnamese government just focuses to improve the passenger carriage service quality as a new Hanoi – HCMC high speed rail is under consideration. With the total cost of over \$33 billion, it is one of the most expensive railway project in the world, with the cost per kilometer up to \$38 million, double than that of the Beijing – Shanghai route (Thanh & Dapice, 2009). Moreover, right now airline services between Hanoi and HCMC are more than enough for the passenger transport demand and also much more convenient. Therefore, the effectiveness of the project is in question, giving the absurd amount of required capital.

### 3. Unprofessionalism of the domestic logistics service providers

The biggest problem with Vietnam logistics practitioners is the unprofessionalism. This is reflected through numerous complains from the service users. Both cargo-handling facilities and trucking companies are substandard, lacking basic such as cargo tracking. General standards in warehouses, for example, fire prevention and protection as well as the ability to handle cold storage are poor. Trucks and lorries are often outdated and secondhand bought, not only less safe on the road but also with higher fuel consumption rate and maintenance costs. Moreover, the unprofessionalism also lies in the work ethic of the logistics employees. They often ignore, or probably, do not understand handling instructions printed on the cargo boxes. Truck drivers frequently overload and over speed his carriage in order to meet tight schedule and overcome ever rising fuel cost. As a consequence, the unappropriated work ethic, in turn, badly affects the overall quality of the delivered goods. All of these problems are reflected in a well-documented report from World Bank in 2014.

Two reasons might be the root of this phenomenon. First of all, as pointed out by many reports, the domestic logistics service is highly fragmented. This is especially true in the trucking industry where there are over 100 small size but less than ten big trucking companies. The market is dominated by private sector, however, majority of the truck owners only own one or two container tractors. And on top of that, it is not rare to see in Vietnam where the private truck owners compete on each other by bringing the total cost as low as possible in order to attract more customer. This, in turn, further drags down the quality of the service they offer. Without a wind of change coming from a big land transport corporation, the trucking industry in Vietnam still lags behind other countries in the region. In fact, some exporters have to



develop their own trucks to handle their shipment. It means the trucking companies in Vietnam are not reliable enough to handle sophisticated shipment that requires high quality and timely delivery. And secondly, the missing of developmental direction from the government could be the other reason. This is yet to have a specific logistics department in the government. All the logistics activities are often spontaneous without guidance from the policy maker. In fact, World Bank mentioned that the concept of logistics parks where many logistics service provider distribution and warehouse facilities are co-located is not well-understood in Vietnam (The World Bank, 2014). These facilities are usually standalone, near factories, ports, or airports to meet the storage demand of the company itself, rather than being developed under a sophisticated and integrated planning. Therefore, they are more often loosely connected with major highways between key ports and manufacturers, increasing the transit time. Even though, there are some efforts to improve the quality of the land transportation by limiting the weight and increase the maximum speed on the highway, the punishment for law violator is still meager and not enough deterrence. In addition, there is still no sign from the government to consolidate the trucking industry, which is highly fragmented.

Impacts: Unprofessionalism, especially in the trucking industry, causes huge damage to Vietnam's logistics reputation. It is known that even though with very competitive trucking rates, logistics service users are dissatisfied by the poor quality. In order to cut the cost, overloading container becomes familiar, which not only damages the road but is potential risk of accident. Driver often lacks training along with appropriate work ethic, and as a consequence, traffic accident is at alarming rate in Vietnam. According to World Health Organization (WHO), road fatalities rate per 100,000 inhabitants per year in Vietnam is 24.5, much higher than most other countries in the region except Thailand. (World Health Organization, 2015) Therefore, it is not for cutting but rather rising the trucking companies' cost of doing business, which will, in turn, pass to logistics service users. The lack of cargo tracking when transiting also makes Vietnam truck company less appeal before the eyes of cargo owners who ship high value, time-sensitive type of commodity. And last but not least, improper and outdated trucks in the traffic not only exhaust more air pollution but also reduce road safety.

<b>Countries</b>	<b>Road fatalities per 100,000 inhabitants per year</b>
Cambodia	17.4
China	18.8
Indonesia	15.3
Malaysia	24.0
Myanmar	20.3
Philippines	10.5
Thailand	36.2
Vietnam	24.5

*Table 8: Road fatalities rates of several Asian countries (WHO, 2015)*

Recommendations: In order to improve work ethic of truck driver, there is nothing better than enforcing stricter driving license requirement. For example, to apply for truck, lorry or container hauler type of driving license, or C class driving license, it requires the applier to be at least 24 years of age; however, the exam can be taken directly without any pre-requisitions. In other words, a man has not driven a car before can take the exam and becomes a truck driver. This is very dangerous and probably the main reason for very high traffic accident in Vietnam. Because the truck driver lacks necessary experience to handle tricky situation encountered on the road, the risk of accident, therefore, is much higher. Instead, Vietnam's government should rise the requirement for truck driving license to at least D class. At D class driving license, an exam taker is required to be at least 27 years of age, but, more importantly, the exam taker cannot apply for it directly before having B or C class driving license. It means prior driving experience is compulsory. The exam taker is also required to finish the high school curriculum program. At the same, the penalty framework should be more punishment for inappropriate or missing driving license. Audit program as well as random check need to be implement to prevent tests from being compromised by bribery.

Trucks should be frequently monitored in several aspects such as: vehicle and chassis condition (head and tail light, tires and brake working status, emission exhausting condition, etc.) Right now there is no periodically roadability inspection, that is why the truck is substandard in comparison with other countries. The government should enforce the inspection to be done annually and maybe consider authorizing a third party to conduct and give certificates, the same as the traffic insurance system.

Surveillance cameras, speed traps and weighting stations should be planted at important highways connecting to the port, so that they can identify and prevent overloaded and over speed trucker. Not only the driver but the trucking company are also being fined for violation. Consistent violator after a certain threshold, probably two or three times a year should be stripped the driving license or even business permit.

To improve the quality of storage service, in particular, a national standard about warehousing should be developed. There is a need to standardized cargo-handling facilities in Vietnam so that the cargo owner can inherit a better service base. The standard should lay out several criterions that a warehouse has to meet before giving operation permit, such as adequate fire protection and evacuation, security and theft detection, proper ventilation, cooling and lighting, etc. Warehouse design should be optimized, for example, by using ramps and lifts so that the truck can berth at the warehouse gate and forklift can go directly inside the container to work. By doing so, it would save a lot handling time, and the cargo will not be exposed to the raining or other unfavorable weather.

Electronic management also needs impact from the government to be one of the compulsory requirements. By using barcodes and scanners, along with databases analyzed by computer, it will ease the job of the tally and reduce the risk of human mistake. Sensors placed around the warehouse can help monitor temperature, humidity or even movement, improve the storage quality as well as security.

Lastly, incentives have to come from the policy makers to encourage logistics business in Vietnam. Encouraging loans, for example, may be given to small trucking operators and warehouse owner so that they have the required capital to renovate their assets, comply with newly adopted or amended regulations or even to expanse the business. Joint venture with foreigners is another way to improve service quality without a sacrifice to market share. Therefore, policies to attract foreign investment is necessary to level up the logistics service quality.

#### 4. Institutional framework is cumbersome, red tape and inconsistent

First of all, Vietnam's government has remarkable efforts to renovate custom clearance and foster trade activities in the last five years. Electronic custom clearance and single-window policy has saved shippers and freight forwarders tremendous amount of time and money. Just a few years ago, required import and export documents had to be submitted by physical papers to relevant government authorities, which located at different places. Since there was no shared database between these government authorities, it took a lot of unnecessary time

and money from the businesses to send repetitive information. Huge amount of paperwork also poses more risk of human error. But now, custom declarers no longer need to go to separated agencies but instead, when submitting the documents online, it would be distributed to relevant authorities accordingly, which is not only “more precise and efficient, but also saving time and resources for the Ministries and branches”, said Deputy Minister of Industry and Trade Nguyen Cam Tu (Vietnam Briefing, 2014). The Ministry also aims by 2015 to 100% e-custom procedures implementation in key areas and until 2020, 80% of enterprises will apply e-customs procedures. Physical goods inspection will be reduced to 7% while national custom single-window permits will be granted for 90% of the cargo in 2020. The target is to cut the clearance time to be equal with other developed countries of the region such as Singapore and Hong Kong in the next five years (Vietnam Customs, 2012).

So far, it has gained positive result as the clearance time, which used to take seven days in 2003 (Carruthers, Bajpai, & Hummels, 2003) down to just three days in the case of exporting nonagricultural or food products (The World Bank, 2014). However, it still takes an average of six days in case of importing. Savings from custom digitalization and simplification are estimated to reach US\$3.1 million at the end of 2015 (Hai Ha, 2015). The success of the e-custom project owned a big thank to the Japan International Cooperation Agency (JICA). Since 2012, JICA has provided US\$5.88 million in grants of US\$6.35 million worth project. The other was funded by Vietnamese government (Vietnam Customs, 2015).

Secondly, Vietnam has actively taken part in bilateral and international trade agreement within ASEAN group or even joined the World Trade Organization (WTO) in 2007 and the most recently, signed the Trans-Pacific Partnership (TPP) with other developed nations such as the United States, Japan and Canada. By doing so, trade barrier such as imported tax and quota are contracted to be remove, clear the way for Vietnam goods to invade these promising yet challenging market.

Despite all those signs of flourish, the cumbersome regulations and red tape still persist in the legal framework. Inconsistency is the serious problem in the legislation system, according to World Bank (2014). It is common to have a regulation to be amended or even abolished after just a few months coming into the force due to its impractical. The regulation is not always clear in the wording and loopholes still exist. Because it is not easy to understand, it poses a great risk for anyone when making business decisions. Unintentional noncompliance is often paid by unexpected cost and unnecessary delay in custom clearance. As a result, it created a lot of room for multiple interpretations and even worse, chances for corrupted government officers to exploit. This is reflected most clearly in the facilitation payments that shipper and

freight forwarder to pay custom officer or highway police in exchange to some privileges, for example, quicker process time or to avoid being stripped driving license. These undocumented fees or, in other words, bribery, which service users sometimes accepted as necessary, could account for up to 50% of the customs clearance costs. More specifically, these additional costs may take up to US\$78 per FEU which can translate into US\$261 million in 2012 and shoot up to nearly US\$500 million in 2020 just for facilitation payment (The World Bank, 2014). Transparency is what Vietnam customary regulations lacks and it is essential to reduce the uncertainty in doing business, decrease lead time and extra payments, and improve the reliability of the logistics service as a whole.

Even after joining WTO almost ten years ago, many domestic rules and regulations, especially in the case of import and export law, are still inconsistent with WTO commitments Vietnam has made. For example, the Circular No. 9 enacted by Vietnam government in 2007 posed some inconsistencies with the bilateral trade agreement with the U.S. and WTO commitments, as pointed out by the American Chamber of Commerce in Vietnam (AmCham). First of all, by restricting foreign invested importers to sell their goods to only one single domestic distributor, it is clearly a violation with one of the WTO commitments and also the National Treatment principle. Secondly, the “economic needs test” concept was misunderstood in the Circular, and unlike the WTO definition, it was used by the government as a protection barrier. This act is considered illegal as it can be abused to prevent foreign investors to further expand his retail outlets. In addition, Circular No. 122 on price stabilization in 2010 also rose some question as it allows government intervention in setting prices of products and services. There is a doubt that whether the Circular aims to control foreign companies pricing policy, which would break the discrimination prohibition commitment with WTO. Furthermore, over 100 consumer goods such as alcohol, cosmetics and mobile phones is under a restriction to be imported into Vietnam by the Ministry of Industry and Trade. Except duties, taxes or other charges, quotas or licenses, other kinds of restriction will violate the agreement with WTO, or to be precise, Articles XI.1, III.1, III.4 in General Agreement on Tariffs & Trade (Nguyen H. T., 2012). In general, these inconsistencies is a real challenge for those who already invested into Vietnam, while poses a great obstacle, discouraging anyone who intends to do so.

Bureaucracy, on the other hand, also creates a lot of frustrations. The chain of command from the central to provincial administration is a lengthy and costly process for the shipper, requires number of licenses and certificates in order to export or import. There are eight compulsory documents for shipment to import in comparison with five in Thailand or even three in Singapore (The World Bank, 2016). Even though e-customs has already been implemented, however, hard copy documents still need to be submitted. Partial implementation incurs more

unnecessary administrative work for both custom officers as well exporters and importers. Simplifying documentation requirement is essential for an efficient logistics system to be consist with other ASEAN countries and international standards.

Recommendations: First of all, the movement of changes must come from the government. It is their duty to promote transparency in custom clearance in particular or in other rules and regulations in general. The goal is to establish a solid base ground for consistent implementation, interpretation, and enforcement. In order to reduce to minimum any differentiations in interpretation, the draft of any new rule or regulation should be widely publicized to survey and collect comments and suggestions. For example, new regulations regarding custom clearance, before coming into force, should be made public so that practitioners like freight forwarder, shipping agent, shipper or even custom officer could rise their idea.

Furthermore, after the implementation stage, in order to measure how the new regulation performs, periodical surveys should be conducted annually or every two years. By doing so, the law makers could identify the existing and the desired outcome as well as the gap between them. From that, the could develop a better, more effective strategy to tackle problems the current regulation facing.

Transparency could be achieved through strict measurements such as, establishing a surveillance camera system in the custom office to prevent bribery, developing a 24/7 hot line to report any corrupted activities of the state employee. Petty corruption, even under \$100 should have more serious punishment such as discharging from the force or even pressing charge at the court. However, at first, the government should ensure the living standard of the state employee by making appropriate adjustment in the salary system so that they do not need to rely on facilitation payment to make a living.

The e-custom implementation process, on the other hand, should be accelerated to be fully applied in every province in 2020. Partial implementation still causes troubles for the shipper. With 100% electronic control, the importer and exporter can enjoy less wait time with lower cost, but more importantly, there is no interpretation differentiation among the custom officers because there is no human element involving. Paperless customs no longer needs printed documents also helps in reduce human error and the risk of missing or lost. Besides, the custom declarer can seek help from the automated system almost 24/7.

Vietnam can look into other logistics developed countries such as Hong Kong or Singapore to find a suitable model in order to reduce bureaucracy and red tape. The number of required documents for import and export are two times higher than Singapore, for example, some of them could be consolidated into one single certificate or completely be removed if no longer up-to-date with modern transportation. Or, in another case, it should be allowed for truck driver to carry only the House Bill of Lading rather than carry the whole set of documentation when transport. One less set of papers is one less problem for the shipper.

Furthermore, by developing a “trusted shipper” program in which fully complied shippers with good backgrounds and history of doing business can enjoy much faster clear time. Frequent shippers, thus, can benefit from timely customs clearance without lead time. Meanwhile, suspected shipment is still being checked as usual. Random inspection must be done to avoid abusing the privilege nevertheless.

It may be really challenging to renovate an obsolete apparatus and resistance may be expected to come from even the customs force. The government should be the pioneer to promote the benefits of a transparent and consistent system. E-custom and single window policy are the key to achieve this goal.

#### 5. Insufficient experienced and qualified human resources in logistics field

To begin with, Vietnam’s workforce is considered not only young but also well-educated. According to one article in *The Economist* (2016), the median age of Vietnam’s population is even younger than China, 30.7 compared with 37, respectively, while up to 6.3% of GDP is spent on education, higher than most low- and middle- income countries. In fact, in the WEF Global Competitive Report, the highest point among twelve competitiveness pillars is actually “health and primary education” (Schwab, 2014). This will come in handy in an industrialized country where machine operators are able to handle complex instructions.

The common labor pool is well-educated, but it is not the case in the logistics industry. Even though being highly rated in “health and primary education”, in that same report of WEF, one of the top three problematic factors for doing business is “Inadequately educated workforce”. It looks contradictory at the first sight, however, the current sources of labor force can only supply about 30% of the demand of logistics specialized operators for approximately 1,200 freight forwarders in Vietnam (Banomyong, Thai, & Yuen, 2015). But more importantly, it is the lack of experienced and qualified of top level logistics manager that hurts Vietnam in a long run. Right now, most of top level logistics managers in Vietnam are foreigners, even in some domestic companies. It is very hard to recruit, as well as expensive to train a qualified

domestic manager in the logistics field, therefore, it is more cost effective for a company to staff an experienced expatriate employee instead. As explained by Tongzon (2011), the lack of logistics training and education institutions not only in Vietnam but the whole region limited the development of the logistics industry. Furthermore, there is yet to have a standard on logistics teaching or whatsoever, in the region could be another serious drawback.

In addition, working attitude is another aspect that needs to improve in the common labor force. As mentioned previously, cargo is often being handled inappropriately especially at the port, airport or warehouse by stevedores, truck drivers or warehouse worker. This may greatly damage the quality of the goods after being delivered and, overall, affect the reliability of the service, which is seen as one of the principal elements of the logistics industry.

Recommendations: In order to improve quality of logistics staff, there is no other way than educating and training. So far, people have been sent to other strong logistics backbone countries for education, both full time curriculum and short course training. Government, on the other hand, also needs to encourage foreign educated and experienced managers to come back and work for the country by providing satisfied salary, reward and privilege.

Nevertheless, the main priority is to establish an education center for logistics. Haiphong is taking the first step in 2014 to open the Japan - Mekong Regional Logistics Training Center, one of the first logistics centers in Vietnam. Thanks to the support from Japan International Cooperation Agency (JICA) and Japan Ministry of Land, Infrastructure, Transport and Tourism for the required capital, equipment, knowledge and experiences, the center earned early accomplishment. As of 2016, the center has trained 2000 graduates from Vietnam and other countries of the Mekong sub-regional such as Laos, Cambodia and Myanmar (Japan - Mekong Regional Logistics Training Center, 2016). The center also serves as a field training for Vietnam Maritime University students. This is critical for the development of logistics human resources because right now, Vietnam lacks more than 18,000 logistics-capable labors. (Tran Quy & The Anh, 2015)

For now, most high level logistics managers are foreigners. However, domestic employees need to prepare to receive that position when the transition time comes. Recently, the government, in the requirement for expatriate work visa requests in Vietnam, entails an employee development plan so that domestic workforce can undertake that work position after the expatriate contract stops. It is for a smooth transition so that there will be no wide gap between domestic and foreign manager in term of proficiency and competence.



A national logistics capability certificate is necessary, as it provides a standard in logistics field and service providers have to commit to deliver. Since there is no such thing yet in Vietnam, the quality of the logistics service varies a lot among providers. Enforcing a national logistics capability certificate will help eliminate the difference in the service quality. However, as it renders low performers out of the business, the market may face the shortage in supply. Therefore, a preparation time window, probably one or two years, must be initiated before full adoption.

## **Chapter 5: Comparison with other countries of the region about logistics development strategy**

As mentioned in the previous chapter, the port development strategy Vietnam's government has pursued is to ensure that every coastal province will have a sea port. This is a part of a larger grand plan to establish essential public infrastructure in underdeveloped provinces, so that it can shorten the economic gap between rich and poor areas (Thanh & Dapice, 2009). However, these investments have been proven to be inefficient. Instead of focusing on a few key deep water ports and terminals, huge amounts of capital has been wasted in low shipping demand provinces. Moreover, while other key ports did not receive enough investment to reach its full potential, shipping throughput in these ports will be siphoned by smaller regional ports. The shipping market in Vietnam, as a consequence, will be further fragmented. The economics of scale cannot be exploited and shippers in Vietnam still have to rely on the feeder services with higher prices to continue their trading activities.

Nevertheless, when compared with other neighboring countries, Vietnam still holds some competitive edges. While China's manufacturing labor costs are growing at double-digit rates, Vietnam's labor costs remain attractive throughout developing Asia with a workforce of over 52 million. As in a report conducted by Japan External Trade Organization (JETRO), the wages have been increased by 72.2% especially in China and Indonesia. Cambodia is even worse with the rate of more than 80% (JETRO, 2014). Other seven countries which also have double-digit increase rate but Vietnam is not in the list. This might explain for the fact that firms with intention to expand business in China drop by 7.7 points to 46.5%, at the same time, business would "remain the same" increased. Meanwhile in ASEAN 60.3% of firms answered with "expansion" (JETRO, 2014). Besides the low labor cost, other expenditures for production facilities are cheaper than in other countries, according to 31% of respondents in the ASEAN-BAC survey (Wong & Wirjo, 2013). In the same survey, however, the most appealing reason to invest in Vietnam is the growth of the new and promising consumer market as agreed by 79% of respondents. 52% among them chose Vietnam because it is better there to supply main or leading customers.

	<b>China</b>	<b>India</b>	<b>Indonesia</b>	<b>Malaysia</b>	<b>Philippines</b>	<b>Thailand</b>	<b>Vietnam</b>
Annual minimum wage (US\$)	2,472	689	1,087	3,107	1,515	3,012	1,296
Hourly minimum wage (US\$)	1.19	0.28	0.52	1.24	0.73	1.21	0.64
Annual Total cost of labour (minimum wage plus welfare, US\$)	3,337	740	1,187	3,534	1,648	3,167	1,581

*Table 9: Minimum wage of several Asian countries (Zhang, Loh, & Thai, 2015)*

57% of businesses that had internationalized or planned to do so over the next three years selected an ASEAN country as offering the best prospects worldwide for their organization's OFDI over a three-year horizon (2013-2015). While interest in China fell from 28% to 17%, over 40% of businesses intended to invest in Singapore, Malaysia, Indonesia or Thailand. This is followed by Myanmar (38%) and Vietnam (36%). Thailand received the highest average rating of attractiveness with 6.25, followed by Singapore (5.97), Indonesia (5.92), Vietnam (5.87), Malaysia (5.67) and Myanmar (5.65). (Wong & Wirjo, 2013)

Another report in the Financial Times proved the same trend. One third of manufacturers in China's Pearl River delta plan to shift to cheaper locations. Reason for the movement is the same. In 2015, the average wages in China increased by 8.4% higher wages, making an annually increasing of 7.8%. Higher wages also come along with pressures for more generous social welfare payments. Therefore, 11% chose to move overseas and obviously, ASEAN countries benefit from the lower cost but abundant labor supply. Among them, 36% favored moving into VN, 25% to Cambodia, 10% to Bangladesh or Indonesia (Kynge, 2015). Total FDI in China's Pearl River delta is 12 times bigger than in Vietnam. So, if only 10% of that investment flows into Vietnam's territory, it would be a huge boost for the economy.

The question is: how could the Vietnamese utilize these opportunities, especially with fierce competition from Cambodia, Bangladesh and Indonesia? The answer is: through overall improvement and renovation, from the legal framework to the physical infrastructures and facilities, and, among them, port development should receive the highest priority. However, the strategy Vietnam's government has been chasing is controversial and does not prove its effectiveness. Below are some cases about port development, in particular and logistics improvement, in general from some both developed and developing countries of the region.

## **Hong Kong Port on the rise of global manufacturing**

Hong Kong Port has risen to be one of the busiest container ports since the 1990s. Despite the fact that it locates next to the workshop of the world – China with enormous trade demand, the right tactics is the most important factor that makes Hong Kong port as successful as of today. Recently, as manufacturers started moving out of Chinese Pearl River Delta to other less developed areas, such as Guangdong, or even oversea countries like Vietnam, Hong Kong Port faces many challenges. As it loses its proximity advantage, Hong Kong port becomes less attractive as a gateway for manufacturers in the Pearl River Delta. At the same time, it also encounters fierce competition from Shenzhen and Guangzhou ports.

Hong Kong, in the effort to take advantage of the rapid rise in global manufacturing, aimed to become the largest, most efficient shipping hub of the region. Instead of open more port to regain market share, its target is to clear the bottleneck in the border between mainland China and Hong Kong as well as enhancing port service levels. To be more specific, Hong Kong government believed that logistics infrastructure is a key factor. The Hong Kong-Zhuhai-Macau Bridge, which will be completed in 2016, will play an important role in fostering the flow of cargo between the industrial delta and Hong Kong port. In addition, policy makers are also considering abolishing the regulation that prevent mainland Chinese trucks from conducting cargo business in Hong Kong. Because of this limitation, it increases the cost as well as the lead transport time because the cargo now has to be transshipped from a Chinese company to a Hong Kong company at the border. The elimination of this regulation will certainly make Hong Kong more attractive for shippers from the mainland. At the same time, in order to ensure seamless border crossing, Radio Frequency Identification (RFID) and electronic customs clearance must be implemented. Moreover, Hong Kong port needs to resolve the congestion and inefficiency in the handling of river cargoes. Kwai Tsing terminals, where the majority of river cargoes are received from mainland has inadequate handling facilities. It leads to huge wait time for berth and it may reach two days. Meanwhile, River Trade Terminal at Tuen Mun is under-utilized because is not legally allowed to handle ocean-going vessels. Other measurements are mentioned by Zhang et. al. including: having preferential land lease policy to reduce terminal handling charges, improving transparency in service fees, establishing a cross-jurisdictional port authority to govern and eradicate unhealthy competition between regional ports (Zhang, Loh, & Thai, 2015).

## **Port of Tanjung Pelepas (Malaysia) on the strategy to directly compete with the giant – Port Singapore Authority**

Constructed from mid nineteenth but only until late twentieth centuries, Singapore Port started dominating the shipping industry in the South East Asia and, soon after that, became renown as the busiest port in the world. It turned out to be the main economic driver of Singapore, a tiny country with very limited land and other natural resources. It was, however, fortunate to have a strategic geographic location in the Malacca Strait, connecting the Pacific Ocean and the Indian Ocean.

The success of Singapore can be explained by a few key components. First of all, Port of Singapore Authority focus on the technology advancement in order to improve efficiency and, thus, be able to deliver higher quality service. In fact, it was one of the first to utilize remote-controlled yard cranes and automated guided vehicles to take care of the container movement within the port. It also features a computer-integrated terminal operation system (CITOS). The CITOS is an enterprise resource planning system that coordinates and integrates the port's multiple assets, ranging from container movers, cranes to container haulers and drivers. With the help of CITOS, containers can be moved and stacked in a very logical and optimized way. On top of that, Port of Singapore also implemented a fully automated system that identifies, security-clears and providing drop-off location to container trucks that entered or left the port by remote pagers and proximity cards – all within 25 seconds (PSA Singapore, 2016). As a result, shippers and logistics service providers can benefit from integrated communications and more importantly, paperless clearance systems. This is the fundamental reason to explain why Port of Singapore can handle and transfer twice as many containers than other ports in the world. Secondly, its network connectivity is one of the most comprehensive, offers the shippers the choice of 248 shipping lines with connections to 600 ports in 123 countries (Portnet, 2016). To support its complex shipping network, PORTNET was born as the world's first collaborative port community solution. It connects almost anyone involving in the shipping industry such as liners, truckers, freight forwarders and government agencies, helping them to manage and synchronize information and operational activities. PORTNET provides a wide range of services and information, which now becomes essentials including online ordering of port services, container track and trace, vessel location, and even reefer container temperature, ... Therefore, shippers can enjoy the flexibility in planning and shorter dwell time as fast as possible. And last but not least, the Keppel Distripack enables the Port of Singapore to expand its reach to cover integrated logistics services.

Port of Singapore has maintained its first-choice for “hub and spoke” liner shipping for a long time until Malaysia began to challenge Singapore’s well-established position on the map of international shipping. The battle between the two countries can be traced back as early as in the early 1990s. Taking the advantage of the vast availability of land resource and labor pool as well as much more affordable cost of living, the Malaysian government decided to turn Port Klang into a national load center as a part of an aggressive ports upgrading in mid 1990s. Port Klang was located along the Eastern shore of the Malacca Straits, which is only 64 km from the capital Kuala Lumpur. By 1997, the port was able to handle a maximum of 7.6 million TEUs annually with very competitive rates, only 1/3<sup>rd</sup> or even 1/4<sup>th</sup> of the similar ones in Singapore’s port (Leong & Chen, 2004). However, at the end of 1990s, Port of Singapore managed to grow to 17 million TEUs of annually throughput, meanwhile Port Klang struggled at 3 million TEUs despite of much lower terminal handling rates. So, what is the reason?

It turned out that many port users still favored the superior efficiency and network connectivity of Singapore. Their strategy to provide the highest quality service at premium prices showed no weaknesses at that time, and, thus, they continued to perfect its operations to achieve even higher levels of efficiency. It has been proven that providing the necessary infrastructures with cheaper rates are not enough, as shippers also need to ship their cargo as quickly as possible, an aspect that Port Klang was still way behind the Port of Singapore. This is the same pitfall Vietnamese port planners are falling into at the moment. Moreover, located at the midpoint of the straits made Port Klang only second choice because Port of Singapore, at a better position, can catch most of transshipment volumes in the South East Asia region.

Realizing the shortcomings of Port Klang, the Malaysian government prepared for the second round almost immediately with the opening of Tanjung Pelepas. Situated right at the entrance to the Malacca Straits, it is an ideal position to capture transshipment trade volumes. This time, Port of Tanjung Pelepas (PTP) focused on developing an information-technology system to help boost the container movement within the port. Similar to PSA’s CITOS, the system connects all port users such as shipping liners, agents, forwarders, custom and other authorities. It is also capable of providing paperless transaction. However, as a startup, PTP lacked the depth of operational experience, something that PSA had acquired over the years. But with appropriate policy, PTP was able to attract long-time partner of PSA, for example Danish container giant Maersk Sealand (December 2000) or Taiwan-based shipping liner Evergreen Marine (October 2001). Significantly lower rates and more flexible in term of terminal ownership along with almost on par level of service quality are the reason behind the huge shift of transshipment volumes to PTP. “In terms of technical expertise and services offered, PSA is matchless. But lines, which are operating under smaller and smaller margins,

will go where the costs are less.”, said Patrick T.C. Poon, Evergreen Marine’s director of shipping in Singapore (Leong & Chen, 2004).

The threat from PTP was stronger than ever and, consequently, leading to several changes to retain customers and perhaps regain lost clients. Starting from June 2002, a series of price reductions on the container-handling services was announced by PSA’s board of director in order to compete with PTP’s ever growing force. Furthermore, on February 2003 PSA continued to cut down more cost by laying off 13% of its 6,000 strong workforce. Even though, the overall charges were still 10% to 15% higher than what PTP offered.

Interestingly, PTP did not respond with another price cut. Instead, according to PTP chief executive officer Mohd Sidik Shaik Osman, the terminal rates played a part but were not the sole determining factor. PTP’s strength resided in its agility, flexibility and productivity (Selva & Xavier, 2002). As a retaliation, in May 2003, PTP opened the world’s first internal airport, allowing seamless sea-air cargo transshipment, effectively broaden their reach even to Australia and North America. At the same time, it established several regional distribution centers with an ambition to capture logistics demand of the region. One of its first customers was the German automobile manufacturer BMW.

A port is always considered as the most important node in the whole supply chain. A tremendous amount of cargo is concentrated at the port means that if there is no effectively way to ensure cargo is moved as fast as possible, congestion is inevitable and it will slow down or even clog the entire system. Therefore, port efficiency is the key to improve Vietnam’s logistics competitiveness. Two examples above can be a very good lesson for Vietnamese port planners to implement regarding the current situation. To sum up, the strategy to open as many ports as possible in coastal cities that Hanoi government are taking will only reap negative impacts toward the economy in the near future. Policy makers should refocus the investment priority into some few core deep-water ports and terminals and maintain a steady flow of cargo in and out of the port without obstructions. And secondly, it is not lower rates but productivity and efficiency which are the determining factors influencing liners’ choice. And the more shipping liners call a port, the better connectivity and flexibility it becomes. This is the key to establish a transshipment hub that Vietnam are dreaming of. Almost all the giant port operators in the region have some kind of operation system that control, manage and optimize every internal movement of cargo and information in the port, such as CITOS and PORTNET (Port of Singapore), “Yes! U-Port” (Port of Busan), Marine Department Electronic Business System – MDEBS (Port of Hong Kong). (Lee & Lam, 2015) Meanwhile, ports in Vietnam still handle these tasks manually and largely on paperwork. Port planners, therefore, should have

a practical roadmap of gradually replacing outdated practices and implementing technology advances to improve the ports' productivity and efficiency. This is especially true in the case of Lach Huyen or Cai Mep – Thi Vai becoming Vietnam-owned transshipment hubs.



## Conclusion

The logistics infrastructure of Vietnam, thanks to government priorities and foreign support, has gradually improved and plays an important role in the outstanding development of Vietnam's trade and economy. In the last decade, Vietnam's logistics system almost catches up with China's and Thailand's but there is still a huge gap when comparing with that of Malaysia or Singapore. With the movement of manufacturers out of Pearl River Delta lately in search of more cost competitive locations, it is a good opportunity for Vietnam to become a new major export nation on global stage. However, fierce competition is expected from other countries, for instance, India, Bangladesh, the Philippines, Indonesia or even Cambodia and Myanmar as a cheap source of labor and land. An efficient logistics system is believed to be one of the keys to gain the competitive edge in the international market. In order to improve, there are five most striking problems that Vietnam needs to address. They are: inappropriate and ineffective port investment, highway congestion and consequent delays, unprofessionalism of domestic logistics service providers, cumbersome and inconsistent institutional framework, and, finally, insufficient experienced and qualified human resources. While some of the strategies from the government proved effective such as modernization of the customs process or upgrading the highway connections, others, such as the port development plan, however, are not. By spreading investment to the building of multiple small regional ports, Vietnam cannot take advantage of the few deep-water terminals such as Lach Huyen or Cai Mep – Thi Vai to turn them into midsize transshipment hubs. The benefits of such hubs are huge, which include saving billions in costs of import and export, which, in turn, would lead to a massive boost to the economy but only when these issues are tackled, then the opportunity may materialize.

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## Appendix

### 1. The cost-benefit analysis of improving Vietnam logistics cost by eliminating road congestion

The cost-benefit analysis can be broken into three parts: the cost part, the benefit part following by the conclusion.

#### Highway construction cost

The cost of the project mainly consists of the highway construction cost, which are used to connect industrial areas around Hanoi and Ho Chi Minh city with Haiphong and Cai Mep – Thi Vai deep water port respectively. Customs modernization also plays an important role to clear the bottleneck at the port. The main source of fund for the customs modernization project, which are US\$6.35 million, came from JICA's grant. The highway construction cost breakdown is below.

The new highway connects Hanoi - Haiphong					
Category	Value				%
Construction cost	29,000,000,000,000	VND	1,318,181,818.18	USD	64%
Interests	7,900,000,000,000	VND	359,090,909.09	USD	17%
Land Acquisition and clearance	3,700,000,000,000	VND	168,181,818.18	USD	8%
Other:	4,922,000,000,000	VND	223,727,272.73	USD	11%
Total investment:	45,522,000,000,000	VND	<b>2,069,181,818.18</b>	USD	100%
Cost per km			<b>19,613,097.80</b>	USD	

Table 10: Hanoi - Haiphong Express investment (Vietnam Banking Times, 2014)

## Highway connects Cai Mep - Thi Vai and Ho Chi Minh City

Distance	58 km
Long Thanh - Dau Giay highway	24.5 km
Highway 51:	33.5 km

Investment:	Long Thanh - Dau Giay highway	55.7	km
	Total investment value:	20,630,000,000,000	VND
		937,727,272.73	USD
	<b>Cost per km:</b>	<b>16,835,319.08</b>	<b>USD/km</b>

Upgrade project:	Highway 51	81	km
	Estimated:	<b>1,356,179,440.25</b>	<b>USD</b>

(average cost per km without land acquisition cost x total length)

Table 11: HCMC - Cai Mep Thi Vai Highway investment

### Inventory cost calculation

Total inventory carrying cost on inventory value		
Category	Min	Max
Cost of money	6%	12%
Taxes	2%	6%
Insurance	1%	3%
Warehouse expenses	2%	5%
Physical Handling	2%	5%
Clerical & Inventory Control	3%	6%
Obsolescence	6%	12%
Deterioration & Pilferage	3%	6%
<b>Total:</b>	<b>25%</b>	<b>55%</b>

Table 12: Percentage of inventory cost on inventory value (Source: Richardson, 1995)



Assuming that a business needs around 20,000 input parts per month with the cost of US\$2.7 each. However, if the supply chain is unreliable, the company needs to stock more than it actually needs to compensate the delay, and it costs more money. The calculation below demonstrates how much it costs the company.

**Scenario 1: supply chain is reliable, firm does not need to over stock.**

Inventory quantity per month	Inventory value	Carrying cost		Total carrying cost	
		Min	Max	Min	Max
20000	\$2.70	25%	55%	<b>\$33,750.00</b>	<b>\$41,850.00</b>

Annual demand	Inventory quantity	Cost per order	Order cost	Total inventory cost	
				Min	Max
240000	20000	\$1,015.00	\$12,180.00	<b>\$45,930.00</b>	<b>\$54,030.00</b>

**Scenario 2: order is in the risk of being delayed, thus, firm need to overstock by 5%**

Inventory quantity per month	Inventory value	Carrying cost		Total carrying cost	
		Min	Max	Min	Max
21000	\$2.70	25%	55%	<b>\$35,437.50</b>	<b>\$43,942.50</b>

Annual demand	Inventory quantity	Cost per order	Order cost	Total inventory cost	
				Min	Max
240000	21000	\$1,015.00	\$11,600.00	<b>\$47,037.50</b>	<b>\$55,542.50</b>

**Increased by      2.41%      2.80%**

*Table 13: Estimation of overstock cost*

In this simulated scenario, if the company decides to overstock by 5%, it would cost about 2.5% more than normal. The cost per order and import cost are based on World Bank calculation.

	Volume (2015)		Average value (USD) per FEU	Value		Saved value of overstock inventory	
CMTV import	403,869	FEU	54,000	21,808,903,050	USD	545,222,576	USD
HP + Dinh Vu import	952,011	FEU		51,408,606,150	USD	1,285,215,154	USD
Total volume	1,355,880	FEU		73,217,509,200	USD	1,830,437,730	USD

(Total import/export volume and value per FEU are based on World Bank's calculation)

Table 14: Calculation of saved value from overstock

### Trucking related cost calculation

Traffic estimation			
Cai Mep - Thi Vai total throughput	1,468,613	TEU	(Assume that 60% are 20', 40% are 40")
Number of 20' container	881,168	TEU	
Number of 40' container	293,723	FEU	
Haiphong + Dinh Vu total throughput	3,461,859	TEU	(Assume that 60% are 20', 40% are 40")
Number of 20' container	2,077,115	TEU	
Number of 40' container	692,372	FEU	
Utilization rate	80%		(Assume that 20% are empty hauling)
Average traffic per day to CMTV	4,024	truck/day	
Average traffic per day to HP	9,485	truck/day	

Table 15: Traffic estimation

<b>Trucking cost of congestion</b>		
From HCMC to Cai Mep - Thi Vai	55 km	
From Hanoi to Haiphong	105 km	
<b>On the trucking company perspective</b>		
Average congestion time in CMTV	0.5	h/day
	7.60	day/year
Average congestion time in HP	0.5	h/day
	7.60	day/year
Idle fuel consumption	2.5	l/h
Fuel cost	13700	VND/l
	0.6227	USD/l
Average traffic to HP + Dinh Vu	9485	truck/day
Average traffic to CMTV	4024	truck/day
fuel cost due to congestion at CMTV	1,143,181.71	USD
fuel cost due to congestion at HP + Dinh Vu	2,694,742.52	USD
<b>Total fuel cost due to congestion</b>	<b>3,837,924.23</b>	<b>USD</b>

*Table 16: Trucking cost of congestion*

Idle fuel consumption rate (Office of Energy Efficiency & Renewable Energy, 2015)

### **Cost-benefit analysis**

The benefit from having better highway connections is that import/export businesses and even trucking companies can save a huge amount of money from wasted overstock and fuel. That money can be seen as a stable cash flow which will be accumulated at the end of the year for the sake of calculation. Because of the annually increase by 8% of total throughput, according to World Bank, the saved money will rise by 8% each year. The investment, on the other hand, is on the year 0. The calculations are made based on the benefits at 100% effective, 70% effective and 50% effective alternatively. Projects, then, will be assessed by the Internal Rate of Return (IRR) and the Net Present Value (NPV). The higher the IRR and NPV are, the more effective project is.

<b>Cost-benefit analysis of improving Vietnam logistics by eliminating road congestion</b>		
<b>The cost</b>		
		million USD/km
Highway investment cost	19.6	
Hanoi - Haiphong highway	2070	million USD
Long Thanh - Dau Giay highway	938	million USD
Highway 51 upgrade	1356	million USD
Total initial investment	<b>4364</b>	<b>million USD</b>
Custom modernization cost	6.35	million USD
Hanoi - Haiphong highway maintenance cost	2.27	million USD
Long Thanh - Dau Giay maintenance cost	9.38	million USD
Highway 51 estimated maintenance cost	13.56	million USD
Total maintenance cost	<b>25.21</b>	<b>million USD</b>
<b>The benefit</b>		
Estimated inventory cost saved	2.5%	
Saved value from overstock inventory	1830	million USD
Saved value from wasted fuel	3.84	million USD
Total	<b>1833.84</b>	<b>million USD</b>
Total (at 70% effective)	1283.68	million USD
Total (at 50% effective)	916.92	million USD

JICA's grant  
estimated 1% of  
investment cost

Table 17: The cost and benefit - quantified

	Year 0	1	2	3	4	5	6	7	8	9
w	-4364	1808.63	1955.33	2113.78	2284.90	2469.70	2669.30	2884.86	3117.66	3369.09
in		1833.84	1980.54	2138.99	2310.11	2494.92	2694.51	2910.07	3142.88	3394.37
ut	4364	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21

**IRR** 48%

**NPV** \$15,331.94 (assume the anticipated discount rate is 5%)

	Year 0	1	2	3	4	5	6	7	8	9
w	-4364	1258.478	1361.17	1472.08	1591.86	1721.23	1860.94	2011.84	2174.80	2350.80
in		1283.688	1386.38	1497.29	1617.08	1746.44	1886.16	2037.05	2200.02	2376.02
ut	4364	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21

**IRR** 33%

**NPV** \$9,364.76

	Year 0	1	2	3	4	5	6	7	8	9
w										
in	-4364	891.71	965.06	1044.28	1129.84	1222.24	1322.04	1429.82	1546.22	1671.9
ut										
	4364	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.21	25.2

**IRR** 23%

**NPV** \$5,386.64

*and NPV of the project*

## 2. Transshipment cost

Scenario: port capacity is fully utilized and develop to become medium size hub port of the region. Cargo of northern and southern area will be consolidated and shipped from Lach Huyen and Cai Mep - Thi Vai respectively.

As interviewed by World Bank, by shifting the transshipment from international ports such as Hong Kong and Singapore to domestic ports, the exporter may save US\$100 – US\$200 per TEU and up to three days of transit. The saving will be quantified as below.

Saving from 3 days of transit at foreign port		
Average FEU export value	90000	USD/FEU
Cai Mep - Thi Vai 2020 throughput (projected)	2,157,874	TEU
Lach Huyen 2020 throughput (projected)	1,100,000	TEU
Percentage of export cargo	45%	
Interest rates per year	8%	
Saving at Cai Mep - Thi Vai	28,732,244.30	USD
Saving at Lach Huyen	14,646,575.34	USD
<b>Total saving</b>	<b>43,378,819.64</b>	<b>USD</b>

total throughput x export percentage x 3 days x interest rates per year/365

Table 19: Savings from transit at foreign port

<b>Saving if international cargo will no longer need transshipment at foreign port</b>			
Saving from not doing the transshipment (average)	150	USD per TEU	
Percentage of export cargo	45%		(Assuming 45% are export container)
Cai Mep - Thi Vai 2015 throughput	1,468,613	TEU	
Cai Mep - Thi Vai 2020 throughput (projected)	2,157,874	TEU	(Assuming that 8% annually increase in throughput)
Lach Huyen 2020 throughput (projected)	1,100,000	TEU	Projected by World Bank
Cai Mep - Thi Vai at maximum capacity	7,100,000	TEU	
Lach Huyen at maximum capacity	6,000,000	TEU	
Save from transshipment at Cai Mep - Thi Vai in 2020	<b>145,656,516</b>	USD	saving per TEU x projected 2020 throughput x percentage of export cargo
Save from transshipment at Lach Huyen in 2020	<b>74,250,000</b>	USD	
Total	<b>219,906,516</b>	USD	
Save from transshipment at full capacity Cai Mep - Thi Vai	<b>479,250,000</b>	USD	saving per TEU x maximum throughput x percentage of export cargo
Save from transshipment at full capacity Lach Huyen	<b>405,000,000</b>	USD	
Total	<b>884,250,000</b>	USD	

Table 20: Savings from domestic transshipment