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Saowavuj Rattanakhamfu, Somkiat Tangkitvanich, Wirot Sukphisan and Ploy Thammapiraman

ASSESSING HIGH-SPEED RAILWAY PROJECTS: A COMPARISON OF THE NETHERLANDS AND THE UNITED KINGDOM
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RELOCATING LABOR-INTENSIVE INDUSTRIES FROM THAILAND TO NEIGHBORING COUNTRIES: POSSIBILITY AND POLICY IMPLICATIONS*

Saowaruj Rattanakhamfu
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1. INTRODUCTION

Labor-intensive industries, such as textiles and garments, shoes and leather goods, and gems and jewelry, have played important roles in the Thai economy. They are the country's major export industries and the main source of employment. In terms of export value in 2012, the textile and garment industries contributed 3.2 percent to the total, and the gems and jewelry industries contributed 2.6 percent. In addition, the textile and garment industries accounted for about 11.8 percent of the total employment in the manufacturing sector in the same year.

However, the competitiveness of these labor-intensive industries has declined. Figure 1 shows that their market shares in the global market have decreased over time.

In the past, Thailand enjoyed comparative advantage in labor-intensive industries due to its cheap and abundant labor. The continual increase in wages has however decreased its comparative advantage. In the short run, one way to stay competitive in labor-intensive industries is to move production bases to low-wage countries. In the long run, to be competitive those industries have to move up the value chain by pursuing research and development, design, marketing or branding.

This research is drawn from the literature on manufacturing relocation, and some case studies, including trips to operation sites. The examples of case studies of relocation include Alliance One Apparel's relocation to Viet Nam, a Myanmar subcontractor for a Thai shoe company, and Pranda Jewelry's relocation to Viet Nam.

The next section will consider the possibility of relocating Thai manufacturing bases in labor-intensive industries to neighboring countries.

** This article is based mainly on the study, entitled "Relocating Labor-intensive Industries to Neighboring Countries: Case Studies of Textiles and Garments, Shoes and Leather Goods, and Gems and Jewelry," which was commissioned by the Office of Industrial Economics, Ministry of Industry.*

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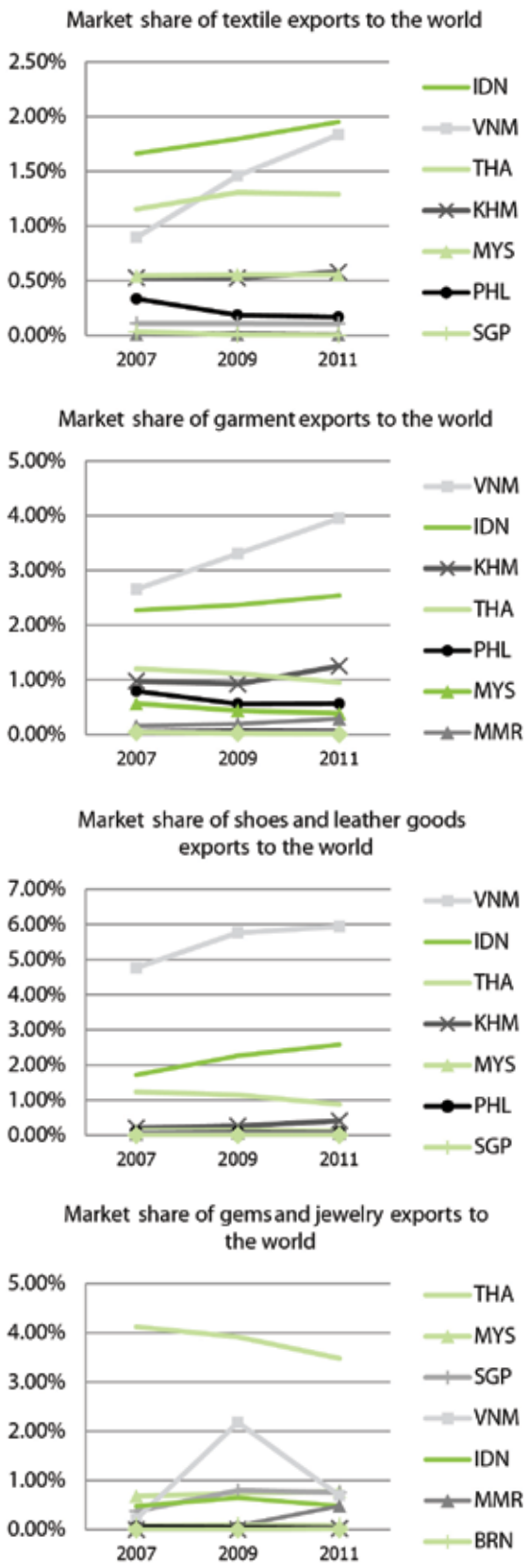
Figure 1 *Market share of exports to the world, by products and countries*



The third section will provide an overview of the companies likely to relocate, and how they would do so. The fourth section will describe to where they could relocate. The fifth section will provide case studies of companies that relocated to neighboring countries. The cases will not only highlight how and why they relocated but also help us draw lessons on the factors that determine a successful relocation. The sixth section will compare the differences in production cost differences in different locations, namely Bangkok, Ho Chi Minh City, and Yangon. The last section will contain a summary of the research and a set of policy recommendations.

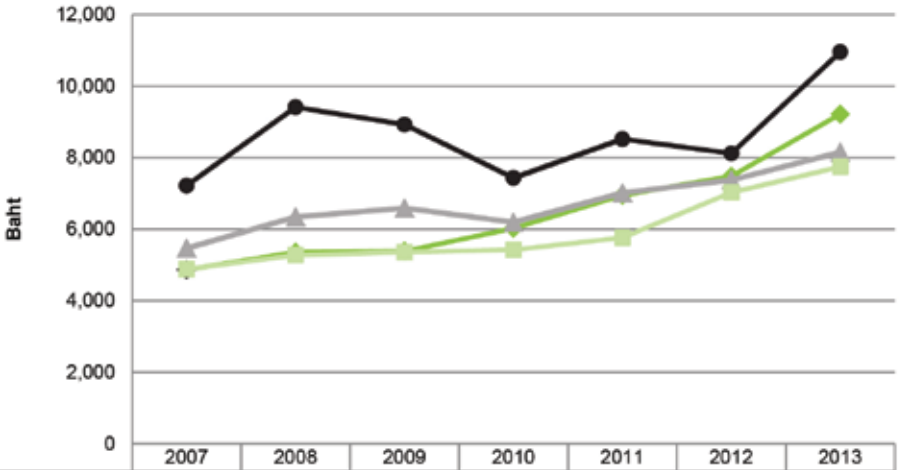
2. POSSIBILITY OF RELOCATING LABOR-INTENSIVE INDUSTRIES TO NEIGHBORING COUNTRIES

According to the so-called "flying geese" theory (Akamatsu, 1962), more highly developed countries tend to move their production bases to less developed countries. In Asia the process started in Japan, with the technological leader relocating to newly industrializing economies (NIEs), (i.e., the Republic of Korea, Taiwan, Singapore and Hong Kong), followed by four of the original members of the Association of Southeast Asian Nations (ASEAN) (i.e., Indonesia, Malaysia, the Philippines, and Thailand) and finally new ASEAN countries (i.e., Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam). Under that theory, it is argued that the economic development model in Asian countries is similar to a flying-geese pattern.

The main driver for change in production pattern is the internal structure of leading countries. In particular, an increase in wages in more

Abbreviations: BRN (Brunei Darussalam), IDN (Indonesia), KHM (Cambodia), LAO (Lao PDR), MMR (Myanmar), MYS (Malaysia), PHL (Philippines), SGP (Singapore), THA (Thailand), and VNM (Viet Nam).
Source: Authors, compiled from United Nations Comtrade database.

Figure 2 *Average monthly wages in labor-intensive industries*



	2007	2008	2009	2010	2011	2012	2013
Textiles	4,867	5,355	5,385	6,026	6,948	7,481	9,217
Garments	4,884	5,275	5,359	5,422	5,761	7,027	7,745
Shoes and leather goods	5,467	6,340	6,590	6,192	7,014	7,377	8,150
Gems and jewelry	7,219	9,413	8,926	7,434	8,519	8,119	10,955

Source: Authors, compiled from Labor Force Survey by the National Statistical Office, various years.

developed countries reduces their comparative advantage in labor-intensive products; therefore, they have to relocate low value-added activities to less developed countries with lower wages.

In Thailand, most manufacturers are original equipment manufacturers,[1] of which only 5 percent conduct research and development; therefore, their comparative advantage depends mainly on labor costs (Somkiat, Saowaruj, and Nuthasid, 2013). As domestic labor costs have increased significantly, companies in labor-intensive industries find it increasingly difficult to continue their operations in Thailand. Some have relocated their production bases to lower-wage countries, especially Cambodia, Lao PDR, Viet Nam, and lately Myanmar.

In particular, the reduction in competitiveness of Thai labor-intensive industries is due to the following reasons.

First, wages have continuously increased in Thailand. Recently, a nationwide increase in the daily minimum wage to 300 baht (or about US$10) has further reduced the already thin profit margins of labor-intensive industries.

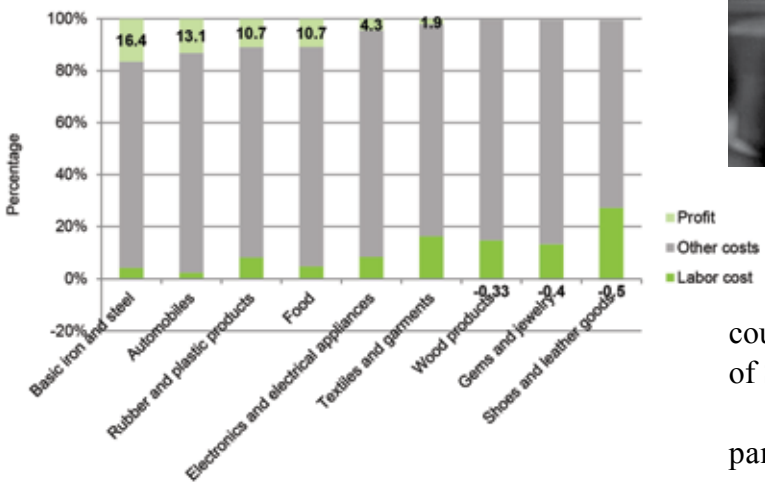
The continual rise in labor costs has gradually diminished Thailand's cost advantage in labor-intensive products in the international market. Figure 2 shows the differences in the average labor wages in some labor-intensive industries between 2007 and 2013. During this period, the average wage in these labor-intensive industries has increased significantly. For example, the average monthly wage in the textile industry increased from 4,867 baht in 2007 to 9,217 baht in 2013, accounting for a growth rate of 89 percent in those wages over that period. Similarly, the average wage in the garment industry increased from 4,884 baht in 2007 to 7,745 baht in 2013, accounting for a growth rate of 59 percent.

The rise in average wages is due partly to the introduction of a new daily minimum wage policy which started in some provinces in April 2012 and nationwide in January 2013. The new minimum wages resulted in annual growth rates for wages in 2013 of 23 percent in the textile industry, 11 percent in the garment industry, 10 percent in the shoes and leather goods industries, and 35 percent in the gems and jewelry industries.

As a result of higher wages, companies in these industries have become more sensitive to external pressures, such as appreciation of the

Baht.[2] Furthermore, some of them are at risk of shutting down their business. Based on data from the Office of Industrial Economics, our estimation shows that, after the introduction of the new minimum wage policy, the average profit margin of the textile and garment industries dropped to only 1.9 percent. Moreover, companies in the shoes and leather goods industries as well as those in the gems and jewelry industries potentially could suffer losses (Figure 3).

Figure 3 *Average cost and profit for sales after the introduction of new minimum wage policy*



Source: Authors, calculated based on data from the Office of Industrial Economics.

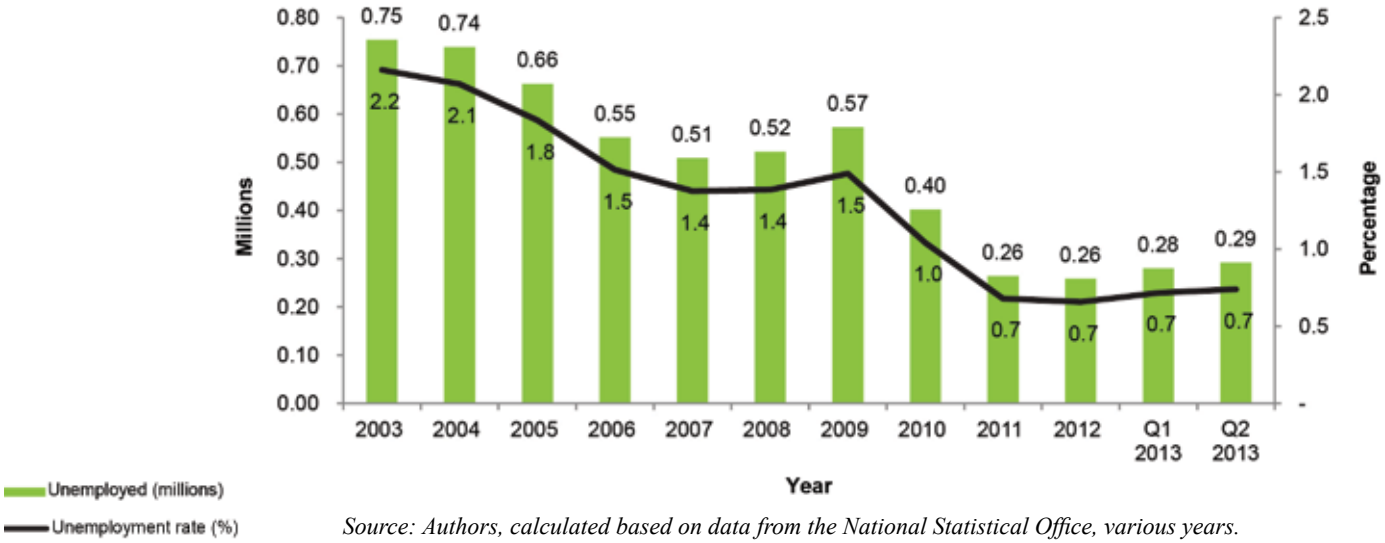
Second, the labor shortage problem, especially that of unskilled labor, has become increasingly severe in Thailand. During the past 10 years, the unemployment rate has gradually decreased, so that the absolute number of persons unemployed, as shown in Figure 4, in 2013, was fewer than 300,000, and the unemployment rate stood at only 0.7 percent.

In looking forward, it may be observed that Thailand is quickly becoming an aging society. Figure 5 shows that the share of people aged 60 and older to the total number of the population in Thailand has exceeded 10 percent since 2004, and the share continued to increase to almost 13 percent in 2012 (NSO, various years). According to a recent publication (United Nations, 2013), Thailand will reach the stage of an aging society before any other country in Southeast Asia, excluding the city state of Singapore.[3]

Third, competition from other countries–particularly emerging economies–in the global export market has increasingly intensified. Figure 6 shows that China has sharply increased its market share of manufactured products in the global market since 2003. Currently, Thailand's main competitor for the low-end market is China, which has a comparative advantage in cheap labor. Although India has slightly increased its market share, which is still at a low level, its market share is likely to increase when it gradually industrializes. It is expected that India will become another main competitor in labor-intensive products because India recently started developing its manufacturing sector, and will become one of the most attractive manufacturing destinations due to its abundant supply of cheap labor and large domestic market.

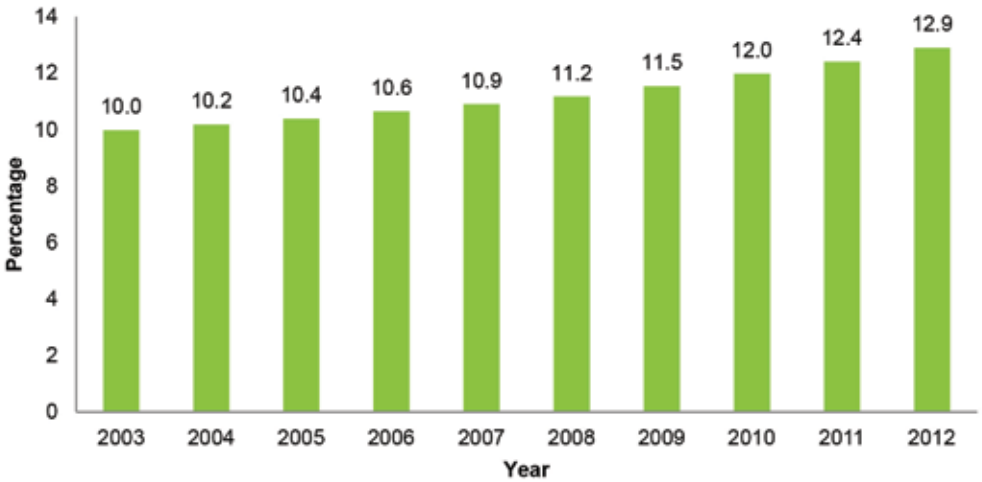
Finally, Thailand is having more difficulty accessing major export markets than its competitors for two main reasons. The first reason is that Thailand's main trading partners are also in the process of negotiating trade deals with its main competi-

Figure 4 *Number of persons unemployed and unemployment rates in Thailand*



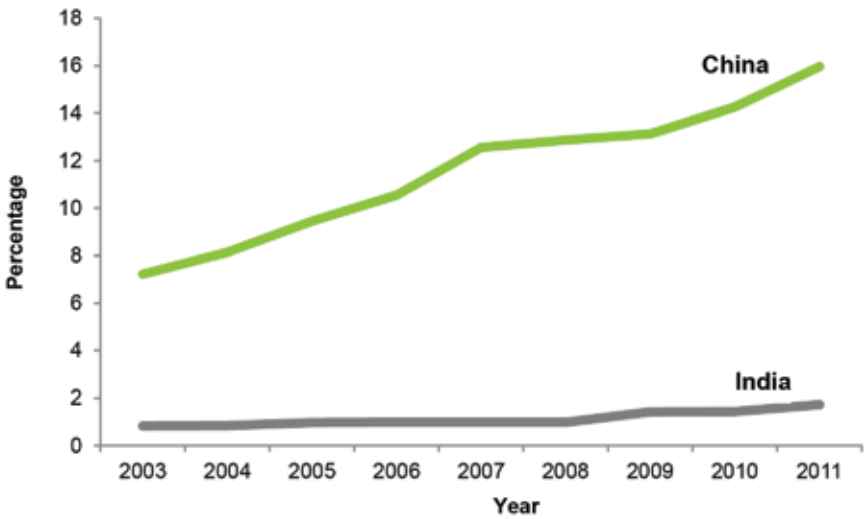
Source: Authors, calculated based on data from the National Statistical Office, various years.

Figure 5 *Share of people aged 60 or older in the total population of Thailand*



Source: National Statistical Office, various years.

Figure 6 *Market shares for manufactured products from China and India in the global market*



tors. For example, Malaysia and Viet Nam are not only participating in the Trans-Pacific Partnership trade negotiations, but also actively negotiating a bilateral free trade agreement with the European Union (EU), while Thailand is negotiating only with the EU. If their negotiations are successful but Thailand's is not, they will have tariff advantages over Thailand in these major markets. Furthermore, some agreements are already effective, such as the Economic Partnership Agreement (EPA) between Indonesia and Japan (effective since 2008), and the EPA between Japan and Viet Nam (effective since 2009). The conclusion of these agreements has seen Thailand's tariff advantages over its main competitors taken away in the Japanese market. Second, Thailand is also graduating from the Generalized System of Preferences (GSP) granted by the United States of America and the EU. For example, the EU abolished the GSP privilege for gems imported from Thailand during the period 2006-2016. Moreover, it is highly likely that the EU will abolish the GSP privileges for all manufactured products from Thailand in 2017.

3. WHO ARE LIKELY TO RELOCATE, HOW AND WHY?

In this section, we provide a description of the companies that are likely to relocate and the way they are expected to relocate. We have selected three labor-intensive industries, namely textiles and garments, shoes and leather goods, and gems and jewelry, for our in-depth study. Based on data collection from field trips and interviews with trade associations and government agencies in the countries concerned, we found that large enterprises are more likely than small and medium-sized enterprises (SMEs) to relocate or expand their production bases to low-wage neighboring countries owing to their ability to take more risks. In particular, they are better equipped to handle regulatory risks and inefficient financial systems. Low value-added, labor-intensive, and low-tech production processes are especially likely to relocate or expand into neighboring countries. For the textile and garment industries, such production processes are cutting, sewing, and making garments, especially sport-specific clothing, non-fashion apparel, and uniforms. For the shoes and leather goods industries, such processes are non-fashion athletic and leather footwear production and preparation, which includes replicating, cutting, insole decorating, assembling and trimming. Similarly, for the gems and jewelry industries, the unsophisticated final production processes for medium and low-end products, particularly costume jewelry, are prone to be relocated to neighboring countries.

Based on our case studies, it appears that the common form of relocation to neighboring countries with an abundant supply of cheap labor is direct investment by setting up factories. The upside of a wholly owned investment is getting full control of the company's decision-making process. In some cases, Thai enterprises choose to do a joint investment with local partners, which have the advantages of better access to local knowledge, a deeper understanding about domestic market demand and local authorities. The disadvantages are difficulties in finding reliable local business partners and the risks related to corporate governance. Some Thai enterprises choose to invest in neighboring countries through nominees in order to avoid regulatory limitations or discrimination against foreign investors. In Myanmar, for example, foreign investors have different rights from local ones in terms of the exploitation of natural resources, such as gemstone mining rights. Another alternative is to outsource production to suppliers in foreign countries. The advantage of outsourcing is the reduced investment risks, while the disadvantage is the risk of losing control over production. In general, the main reason behind relocation to low-wage countries is to maintain cost comparative advantages.

In comparing these three labor-intensive industries, many more enterprises in the textile and garment industries than those in the other two industries have relocated to neighboring countries. This is because the size of the textile and garment industries is much larger than the other two. The share of large enterprises is also higher in the textile

and garment industries. In particular, in 2012 the share of large enterprises to total enterprises in the textile and garment industries was 15.9 percent out of 2,390 enterprises, compared with 10.3 percent out of 1,037 enterprises in the shoes and leather goods industries. In addition, labor in the gems and jewelry industries tends to be rather skilled or semi-skilled, which requires investing heavily in training, thus making relocation more challenging.

4. WHERE TO RELOCATE?

Regarding target countries for relocation, Thai companies are likely to move to the neighboring countries of Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV), due to their large supply of cheap labor and their geographical advantages. Among CLMV, the country with the lowest average monthly wage for a factory worker is Myanmar (US$53 in Yangon), followed by Cambodia (US$74 in Phnom Penh), Lao PDR (US$132 in Vientiane) and Viet Nam (US$148 in Ho Chi Minh City) (JETRO, 2013). In terms of labor force, the country with the largest number of laborers is Viet Nam (52.9 million), followed by Myanmar (33.3 million), Cambodia (8.4 million) and Lao PDR (3.3 million).[4]

In addition, although production linkages between Thailand and its neighboring countries were quite weak due to poor connectivity among these countries, the current development plan for road and rail transportation in economics of the Greater Mekong Subregion (GMS) and emerging economic corridors will most likely result in improved connectivity. Under the GMS development program, three economic corridors intersect in Thailand: the East-West Economic Corridor (connecting Lao PDR, Myanmar, Thailand and Viet Nam); the North-South Economic Corridor (connecting Malaysia, Myanmar, Lao PDR, Thailand, and the southern provinces of China); and the Southern Economic Corridor (connecting the Dawei deep sea port of Myanmar, the Laem Chabang deep sea port of Thailand, and Cambodia), as shown in Figure 7. It is expected that the economic corridors will play a key role in linking production and trade in the region.

The CLMV countries also have advantages in terms of trade privileges granted by major markets, as shown in Table 1. For example, the EU provides duty-free and quota-free incentives, with the exception of armaments, for imports from Cambodia, Lao PDR, and Myanmar, as they are least developed countries under the Everything but Arms (EBA) initiative.

In spite of the aforementioned strengths, Thai companies planning to relocate to CLMV should be aware of some pitfalls. For example, Viet Nam still has many unresolved problems. These include sharp increases in wage rate, unclear laws and ineffective enforcement, inefficient infrastructure and unstable macroeconomic conditions, especially high inflation, high level of non-performing loans in the banking sector, and low confidence in the local currency.

Similarly, Myanmar has some disadvantages as an investment destination. The main difficulty is inefficient infrastructure, especially that of the electricity and transportation system. It also suffers from other problems, such as skyrocketing land

prices, difficulties in finding sizable land lots, an underdeveloped banking system, a lack of market information, and uncertainty about laws and regulations, as well as political instability.

5. CASE STUDIES OF THAI COMPANIES RELOCATING TO NEIGHBORING COUNTRIES

Thai garment factory in Viet Nam

One Thai company that successfully relocated to Viet Nam is Alliance One Apparel, a company under the Liberty Garment Group. Alliance One Apparel used to have three factories in Thailand, but there is currently only one domestic factory. The company executives decided to relocate to Viet Nam 4-5 years ago due to wage increases in Thailand and difficulties in hiring unskilled labor. Viet Nam was chosen because of its abundant supply of cheap labor and high population growth rate. The company also has trading partners there. The first factory in Viet Nam was located in Giao Long Industrial Estate in Ben Tre Province; its area is 100,000 square meters, and it employs 5,000 employees. The production there mainly serves clients who are the owners of global sports brands. The purchase orders are usually small in volume, with frequent design changes, and sports jackets. The second factory is currently being built nearby the first factory.

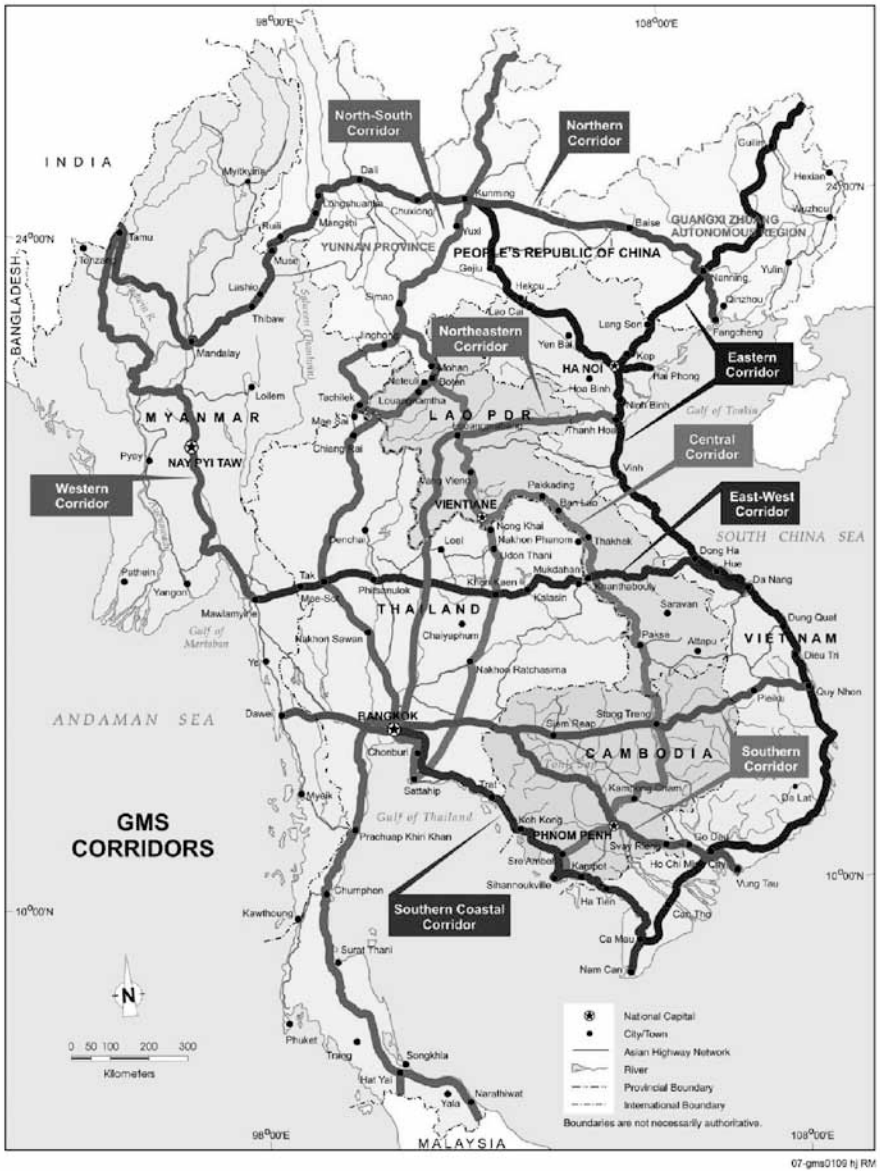
Factories were set up in Ben Tre Province rather than Ho Chi Minh City because of lower wages (US$80 difference per worker per month) and the ease of finding workers. The company can usually recruit 100 workers within one week. In spite of the cheaper labor costs in Viet Nam, there are other costs involved in setting up a business. For example, the company had to invest more in human capital development by providing training courses for local workers in order to assure their quality of production. This is because the labor productivity of Vietnamese workers currently is comparatively lower than that of Thai workers. Furthermore, the costs connected with learning a country's laws and regulations and dealing with different legal interpretation by different government officials are not negligible.

Thai shoe factory subcontracting to a supplier in Myanmar

In contrast to setting up a new factory in neighboring countries to supply a global brand, a Thai company in the leather shoes industry chose to keep its comparative advantage in costs by relocating some production lines to Myanmar. The company outsources CMP (cut-make-pack) operations to a Myanmese subcontractor. To assure the quality and standard of production, the Thai company provides some technological assistance, such as giving advice on machines to be used for production and dispatching Thai technicians to monitor and control production. The company also provides raw materials, such as cow and pig skins, for its subcontractor in Myanmar.

In spite of the low labor cost, there are significant extra costs of production in Myanmar. In particular, Myanmar's infrastructure is poor, especially that for electricity supply and roads. Electricity shortages in Myanmar cause higher production costs

Figure 7 *Economic corridors connecting Thailand and neighboring countries*



Source: Asian Development Bank

Table 1 *Preferential trade arrangements in major markets*

Major markets	Cambodia	Lao PDR	Myanmar	Viet Nam
United States of America	Zero tariff rates and no quotas	No GSP benefit	Under the process of easing economic sanctions	Under Trans-Pacific Partnership negotiation
European Union	Under the EBA[a] scheme, zero tariff rates and no quotas	Under the EBA scheme, zero tariff rates and no quotas	Abolish economic sanctions from April 2012, and provide GSP from 19 July 2013 under the EBA scheme.	Textiles and garments: non-zero tariff rates and quotas Leather goods and shoes: no GSP due to export quantities over the quota Gems: most tariff rates are zero under GSP but there are quotas

Note: Data cover only those products under the GSP and EBA schemes.
[a] EBA = Everything but Arms.

because the state can provide electricity for only about 5 hours per day on average. Producers have to use their own electricity generators to continue their production lines. In addition, complex export and import laws and regulations cause slow customs processes, resulting in higher operating costs.

Case study of a Thai jewelry factory in Viet Nam

Pranda Jewelry Public Company Limited, a Thai leading manufacturer of medium to high-end quality jewelry, has established four factories in Thailand and expanded its manufacturing bases into other countries, including Germany, Indonesia, and Viet Nam. Pranda Viet Nam Company Limited has been operating in Dong Nai Industrial Zone since 1995. The main reasons that it set up a factory there were low wages, high potential domestic market and GSP privileges from the EU, which has been one of Pranda's main markets.

Currently there are about 200-300 workers in Pranda's Viet Nam factory. Although still low compared with Thailand's wages, those in Viet Nam are quickly increasing. For example, wages have increased three times in a single year (2012), resulting in an average monthly wage of US$120. The quoted wage rates are exclusive of social security contributions, which were 17 percent of the total in 2013, and recently (2014) increased to 18 percent.

Although its factory in Viet Nam has the advantage of lower labor costs over those of its Thai counterparts, the company still has to import raw materials from abroad. Therefore, the net production cost in Viet Nam is only 7-8 percent lower than that in Bangkok.

For Pranda, 90 percent of its total production in Viet Nam is for export, with the remaining 10 percent for the domestic market. The main export markets are Germany, France and the United Kingdom. Because the EU provides GSP for imported products from Viet Nam, the tariff charged for jewelry exported from Viet Nam is 2.5 percent lower than that from Thailand. For the domestic market, the company sells the products under its own brand name "Prima Gold" to serve its medium and low-end customers. As distribution channels are key to expanding sales, Pranda plans to increase its retail outlet in Viet Nam from 4 locations in 2012 to 16 in the near future.

While labor costs are on the rise, the business environment in Viet Nam has improved during the past five years. In terms of public utilities, both roads and the electricity system have been upgraded, even though power blackouts are still a problem in Viet Nam, especially during the dry season. The government has also amended laws and regulations to be friendlier to foreign investors. However, inconsistency in interpretation of laws among government agencies remains a problem. In addition, bureaucratic red tape adds more cost in doing business in Viet Nam.

6. COST STRUCTURE ANALYSIS

In this section, there is a comparison of the differences in ex-factory production costs between major cities in neighboring countries, namely Yangon and Ho Chi Minh City, to that of Bangkok. The costs in the two cities were obtained by imputing the production costs of factories in Bangkok, adjusted for the differences in labor and facility costs among the three cities.

For all three industries, the ex-factory costs in Bangkok are the highest among these three locations, followed by those in Ho Chi Minh City and Yangon, as shown in Table 2. In comparing among the three industries, the gap in the ex-factory cost is the least in the gems and jewelry industry. The key factor contributing to the cost differences among these three locations is the cost of labor, as seen in Tables 3, 4, and 5. It should be noted that Yangon has the lowest cost of labor, but at the same time the highest cost for electricity among these three locations. Because of electricity shortages in Yangon, factories there need to have their own electricity generators to ensure continuous operations, resulting in a high effective electricity cost. However, in general, Yangon is still the location with the lowest ex-factory cost of production of all three industries.

Table 2 *Ex-factory cost of production in three industries in different locations*

Industry	Bangkok	Ho Chi Minh City	Yangon
Garments	100.00	90.16	86.19
Shoes and leather goods	100.00	92.21	83.95
Gems and jewelry	100.00	95.98	93.73

Source: Authors, based on field-trip data and the Office of Industrial Economics survey.

Table 3 *Comparison of garment production costs*

Cost	Bangkok	Ho Chi Minh City	Yangon
Raw materials	47.05	47.05	47.05
Labor[a]	22.91	18.46	9.39
Office cost	6.83	3.54	1.92
Electricity	4.15	2.05	8.74
Water	0.05	0.04	0.09
Others	19.01	19.01	19.01
Total production cost at factories[b]	100.00	90.16	86.19

[a] *Labor cost includes labor wage, and employers' payment for social security contribution.*
[b] *Exclusive of logistics and transportation cost from factories to ports.*
Source: Authors.

Table 4 *Comparison of production costs for shoes and leather goods*

Cost	Bangkok	Ho Chi Minh City	Yangon
Raw materials	46.10	46.10	46.10
Labor[a]	20.13	17.77	9.16
Office costs	9.58	4.97	2.69
Electricity	1.58	0.78	3.33
Water	0.08	0.06	0.14
Others	22.53	22.53	22.53
Total production cost at factories[b]	100.00	92.21	83.95

[a] *Labor cost includes labor wage, and employers' payment for social security contribution.*
[b] *Exclusive of logistics and transportation cost from factories to ports.*
Source: Authors.

Table 5 *Comparison of production costs for gems and jewelry*

Cost	Bangkok	Ho Chi Minh City	Yangon
Raw materials	64.11	64.11	64.11
Labor[a]	12.17	9.55	5.54
Office costs	1.54	0.80	0.43
Electricity	1.26	0.62	2.65
Water	0.10	0.08	0.18
Others	20.82	20.82	20.82
Total production cost at factories[b]	100.00	95.98	93.73

[a] *Labor cost includes labor wage and employers' payment for social security contribution.*
[b] *Exclusive of logistics and transportation cost from factories to ports.*
Source: Authors.

7. CONCLUSION AND POLICY RECOMMENDATIONS

In conclusion, owing to wage pressure and labor shortages, companies in labor-intensive industries have to adjust in order to survive and grow. The best long-term solution is to upgrade to higher value-added activities to increase their competitiveness. However, some companies may not be able to do so, and choose to relocate their production bases to neighboring countries with lower wage rates. In this case, the off-shoring production activities

should be limited to low value-added ones, such as cutting and making, while keeping high value-added activities, such as design and marketing, in Thailand. Companies may consider keeping their local production to serve customers that require rapid delivery, which needs close monitoring and engagement.

It is necessary to recognize that relocating to poorer countries with cheaper labor would increase competitiveness of the companies only in the short term. Companies in labor-intensive industries should strive to upgrade their technical capabilities by using information and communication technologies to manage their supply chain and increase the linkages with their buyers. In order to increase their long-term competitiveness, they have no choice but to move up the value chain to higher value-added activities, by transforming themselves to preferred original equipment manufacturers, original design manufacturers, or original brand manufacturers.

Our study provides the following policy recommendations for the government if it wants to help Thai companies relocate to neighboring countries as well as promote industrial development in the labor-intensive sectors.

7.1 Policy recommendations for supporting Thai companies to invest in neighboring countries

First, the government should establish a one-stop service unit which can provide both basic and in-depth information necessary for making decisions concerning investments in neighboring countries (see Figure 8). The basic information should include trade and tax rates, incentives for foreign investors, information on laws and regulations on foreign investment, availability and quality of infrastructure, spatial and industrial information, and procedures and documents required for establishing a business. The in-depth information could include information on market conditions and consumer tastes. In addition to providing information, the one-stop service unit should also facilitate Thai companies in doing business in neighboring countries, as well as support them to build business linkages with local companies in such countries. The Japan External Trade Organization (JETRO), considered one of the best agencies for supporting and facilitating companies in investing abroad, could serve as a model.

Second, the government should consider establishing special economic zones (SEZs) in border areas. The laws and regulations for such SEZs should provide some privileges for investors, such as help in hiring foreign workers and expediting customs and government procedures by establishing a one-stop service center. The establishment of SEZs in border areas would benefit Thai companies, especially SMEs, because they would be able to operate their production in Thailand where they are accustomed to local laws and regulations, while avoiding the risks involved in investing abroad, such as regulatory, business, and cultural uncertainties.

7.2 Policy recommendations on promoting the process of industrial upgrading

The government should support and promote Thai companies to upgrade their production capabilities to higher value-added activities. The strategies for sustainable competitiveness are varied according to their production approach, as follows:

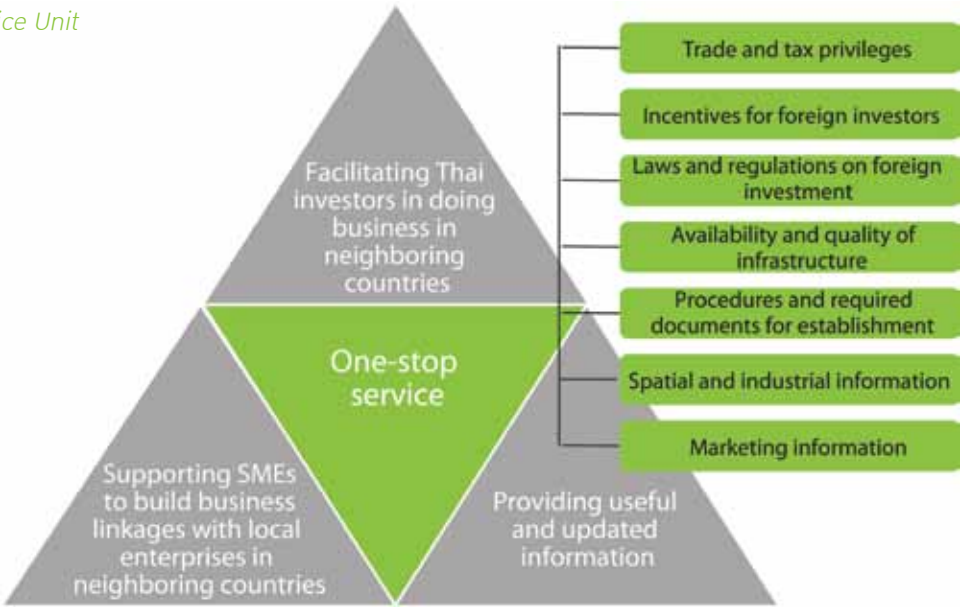
• ***Assemblers (e.g., garment makers)***

In the short term, assemblers may offshore their production base to areas with cheaper labor costs. They should also aim at upgrading their production capabilities to be original equipment manufacturer suppliers in the long term. In this regard, the government should support their upgrading efforts by facilitating access to capital and equipping them with necessary skills concerning procurement and logistics.

• ***Original equipment manufacturers***

The original equipment manufacturers might consider sub-contracting or off-shoring their production bases to areas with cheaper labor costs in the short term. In addition, they should strive to become the preferred original equipment manufactur-

Figure 8 *One-Stop Service Unit*



ers suppliers by complying with international labor and environmental standards. In the long term, they should upgrade their production to become original design manufacturers (see below). Thus, the role of the government is to equip them with technological knowledge and skills on design, research and development, as well as management.

• ***Original design manufacturers***

In the short term, original design manufacturers should strengthen their design and production capacities to be more efficient. At the same time, they should strive to become original brand manufacturers in the long term. In this respect, the government should support them to gain knowledge and skills on branding, marketing and customer services.

• ***Original brand manufacturers***

The original brand manufacturers might consider upgrading their domestic brands to regional ones in order to expand their markets. Correspondingly, the role of the government is to support their activities in marketing and networking. For instance, this can be achieved by facilitating the participation of companies in regional trade exhibitions and roadshows.

In general, to support Thai companies to upgrade along value chains and to increase their competiveness, the government should play the following roles.

First, it should facilitate SMEs' access to capital. SMEs, especially in labor-intensive industries, usually have difficulty getting bank loans because some labor-intensive industries, such as textiles and garments and shoes and leather goods, are considered waning industries, regardless of the Thai firms' position in the international value chain. To promote greater access to capital, the government's specialized financial institutions, such as the Export-Import Bank and the Thai Credit Guarantee Corporation, should play a leading role.

Second, government agencies should provide support for SMEs to develop and strengthen linkages among themselves and with large companies. In this regard, the Department of Industrial Promotion should partner with related industry associations to strengthen its cluster support programs.

Third, public universities and specialized institutes should provide support in terms of education and training in order to equip companies with essential skills, such as technical, management, product development, design, and marketing research skills. Subsidies for this purpose might come from the Ministry of Industry and the Skill Development Fund.

Fourth, government agencies should support SMEs to expand their marketing and networking activities by providing useful and up-to-date information, such as information on potential markets and technology. In particular, the Department of Foreign Trade Promotion should support the attendance of SMEs at international trade shows and events.

Fifth, the Ministry of Industry should encourage SMEs to upgrade their technological capabilities. Focus should be put on technological developments and transfers through various activities, such as provision of industrial experts, promotion of industrial network, and strengthening of linkages between the industry and academia.

Finally, relevant government agencies, especially the Ministry of Industry, should encourage SMEs to improve their manufacturing process in order to achieve international standards, such as ISO 9000 and ISO 14000. Manufacturers should also be encouraged to adopt lean manufacturing techniques to make their operations more cost efficient.

The government should declare this decade to be the "Decade of Productivity Improvement" to set a clear direction for all relevant stakeholders to follow. The government, businesses and workers are advised to get together to formulate policies that would accommodate predictable and continual wage increases and productivity improvements. Collaboration between the government and private sector organizations, especially the Thai Chamber of Commerce and the Federation of Thai Industries, is the key to successful upgrading.

ENDNOTES

1 In this paper, an original equipment manufacturer refers to a company producing products for another company that sells those products under its own brand name.

2 The exchange rate for the Thai baht to the US dollar has changed from 34.56 baht per dollar in 2007 to 30.73 baht in 2013 (www.bot.or.th).

3 For further details, see http://esa.un.org/wpp/Excel-Data/population.htm.

4 For additional details, see World Bank database (2013).

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ASSESSING HIGH-SPEED RAILWAY PROJECTS: A COMPARISON OF THE NETHERLANDS AND THE UNITED KINGDOM

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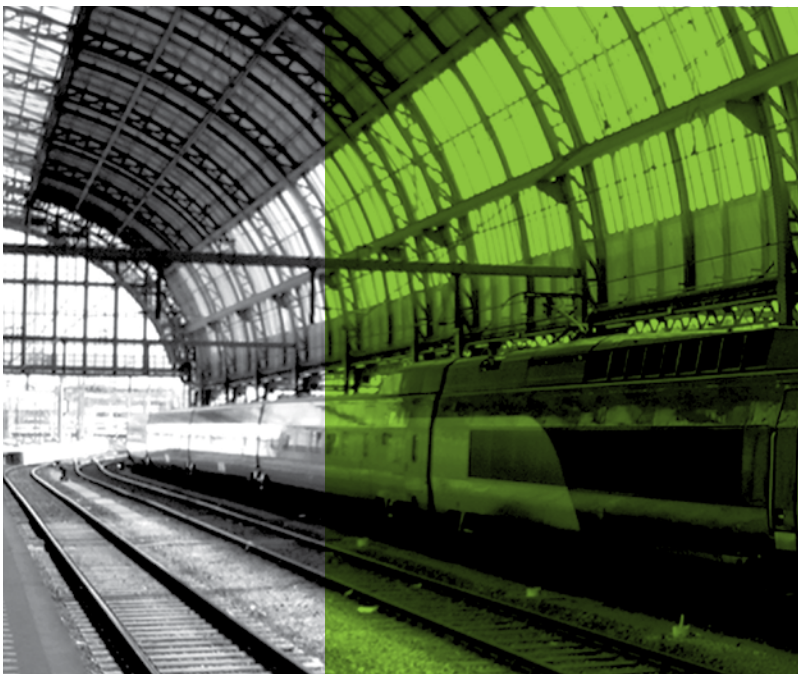

1. THE COMPLEXITY OF PLANNING HIGH-SPEED RAILWAYS

Now that the Thai government is evaluating the case for making significant investments in high-speed rail transport, it would be useful to look at the ways in which other countries have dealt with the assessment of their high-speed railway projects. While governments can, and do, embark on projects where budgets are effectively open-ended (e.g., for war, relief work following natural and economic disasters), in practice project appraisal is a very important stage in the planning process for major infrastructure projects. This is because social responsibility and proper accountability to stakeholders and investors depend on proposals for investment in major infrastructure projects such as a high-speed rail system underpinned with a robust business case. Large high-speed rail projects in the Netherlands and the United Kingdom have been subject to rigorous feasibility studies. However, as discussed below, both of these highlight the problems that governments can encounter as they seek to address political constraints while also demonstrating commercial prudence. In the case of the Netherlands, feasibility studies were brushed aside politically in order to move the project ahead. This came at a very high price as the project involved a budget overrun of about 100 percent and nearly bankrupt the main train operating company.

In the case of the United Kingdom, political consensus within Westminster contrasts sharply with the visceral and strident opposition of citizen groups and even business lobbies. While the enabling legislation for Britain's second high-speed rail project slowly grinds forward, a robust and universally convincing business case has yet to be made.

The aim of the present review is to hold up the Dutch and British cases as a mirror for the high-speed rail system being considered for in Thailand by looking into the ways in which the feasibility studies in the Netherlands and the United Kingdom

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were conducted and the business models that were developed in order to make the projects work.

2. THE QUESTIONABLE FEASIBILITY OF THE NETHERLANDS PROJECT

The roots of the Netherlands project can be traced back to the late 1970s, when the governments of France, Belgium, Germany and the Netherlands agreed to connect Paris (France), Cologne (Germany), Brussels (Belgium) and Amsterdam (Netherlands) to the emerging European network of high-speed railways. The Netherlands project called for two main corridors: one running from Amsterdam to the east, past Utrecht and onward to Cologne, and the other running from Amsterdam in a southerly direction to Rotterdam and Brussels. In addition, a minor branch would serve the northern provinces. Of those three routes, the only one that made it through the project appraisal process was the southern connection, which was appropriately named Hoge-SnelheidsLijn-Zuid (HSL-Zuid; High-Speed Railway-South); it opened in 2010. This line turned out to be impossible to run profitably. Ultimately, the operator, NS HiSpeed, had to be saved from bankruptcy three times. Clearly, appraisal of the project had been wide of the mark. So what happened?

The formal planning procedure started in 1987 and encompassed three major studies: the formal feasibility study, the route decision, and the environmental impact assessment of all variants. There were multiple alternatives for track alignment but from the onset it was clear that the Minister for Transport strongly favored a newly built track over the upgrading of existing tracks. In addition, the new track was to be as short as possible and offer a maximum speed of 300 km/hr. These preferences had a defining impact on the scope of the feasibility studies and the whole project (Gerrits and Marks, 2014).

When the proposal was sent to the Parliament for approval in 1991, it met severe criticism from both its members and the media. First, the costs were estimated to be fl. 3.2 billion (the exchange rate was then equivalent to 1 Dutch guilder = approximately 18.18 baht), of which only fl. 1.5 billion could actually be covered under the national budget. Second, it was widely believed that the budget estimate was too low and that costs of fl. 5 billion would be more realistic. Third, the

Minister stated that 50 percent of the construction costs would be paid for by the private sector in a public-private partnership, but the private sector showed no interest at all in the project. Fourth, the choice of new over existing track was considered to have been poorly conceived, especially given the marginal shorter travel times in comparison to alternatives. Fifth, lack of agreement with Belgium about alignment across the border meant that the plan was not as robust as had been presented. Given these considerations, it is no surprise that the whole proposal was rejected and that the government returned to the drawing boards.

Development of the second version of the plan took place between 1992 and 1996; a total of 23 research reports were produced during this time. When the plans were presented, it turned out that the government kept favoring new tracks over upgrades of existing ones. In fact, it pushed the so-called A1 route from Amsterdam to the border with Belgium. A1 was indeed the shortest possible route offering the highest average speed, but it was also the most expensive one because of the costs of land acquisition and the construction of a considerable numbers of tunnels and viaducts. In order to avoid another rejection, the government engaged in extensive consultation with stakeholders. It soon became clear that there was mixed political support from political parties and local governments for the A1 route, especially because it runs through a protected nature reserve. In response to the opponents, the government proposed to build that particular section inside a 7 km tunnel. Although this meant an increase in political support, it also added fl. 900 million to the projected budget. Additional measures such as elevation of tracks and grade separation added to both political support and increased costs (Algemene Rekenkamer, 2007).

Subsequently, the feasibility studies became more realistic but the prospect of having a sound financial, economic and social basis was still a distant prospect. The net present value of a full high-speed railway was estimated at about fl. 2.1 billion, while other options perform somewhat better: fl.1.3 billion if a partially new track would be used, and fl. 0.4 billion for an upgrade of the existing routes. The cost-benefit ratios were estimated at 0.97 for the project itself (it had been 1.47 in the previous version of the feasibility study) and 1.45 for the wider economic impact (it had been 1.75 in the previous version). Some changes were made in the prognoses, but only to the most optimistic scenario, and more negative scenarios were taken out of the policy proposal. It should be noted that there were no valid and calibrated reference scenarios for calculating direct revenues and the expected number of passengers.

When the project was proposed to Parliament, there was just enough support to have it passed. In hindsight, it is clear that this outcome first and foremost reflected the outcomes of a political game that was played out in Parliament, where the government threatened to resign if the project was not approved. In other words, while a decision to build was made, the foundations of that decision were not very firm; in fact, they were questionable.

As for the construction phase, it turned out that the private sector had no interest in a public-private partnership for financing, building and maintaining the infrastructure, as had been predicted. Ultimately, the government decided to build the track foundations, tunnels, bridges and overpasses using classic design-and-construct contracts. By bearing the risks of, for example unstable ground conditions, the government could persuade the private sector to build the tracks, catenary and signaling system through a design-build-finance-maintain-operate contract, granted to a consortium called Infraspeed. The construction was plagued by setbacks and issues with the underdeveloped technology of the new European train control system. At € 11.8 billion (€ 1 = 44.37 baht), the construction ended up being twice as expensive as had been forecast in the most recent estimate.

The operation of the railway was separated from the construction phase. The Minister decided to put it out to tender, which was a first in the history of Dutch railways. This move was motivated

by a general assumption that the trains could be run profitably, which would help the government to recoup some of the enormous capital investment. The value for the concession was estimated at about € 100 million annually. Private companies thought that the price was too steep, a sentiment shared by Netherlands Railway (NS), the semi-independent state railway company of the Netherlands. Parliament pressured the Minister to grant NS the first opportunity to hand in its offer. The offer made by NS was considered too low so the tendering process went ahead. This time NS, fearing a defeat by competing train operators, made the highest offer, capped at € 148 million annually. The poor foundations of the project appraisal became apparent during the actual operations; it turned out that the number of passengers willing to pay a surcharge for the service was 10 times lower than had been projected. The burden of the very expensive concession, the lack of passengers and technical failures of the (cheap) trains meant that the operation folded in early 2013 (Gerrits and Marks, 2014). At the time of writing, the government is working on an alternative approach, which means the introduction of a different business model and, above all, taking a big financial hit as the concession collapsed and the project turned out to be much more expensive than had been estimated.

3. THE INCONCLUSIVE FEASIBILITY OF THE BRITISH HS2

In March 2010, the Labour Government of the United Kingdom announced a plan to build a new high-speed rail system. The new system, known as HS2, would cost £ 32 billion (£ 1 = 54.82 baht) and would be constructed in two phases. The first phase, due to begin operations in 2017, would link London to Birmingham, and would be operational by 2025. Birmingham is the country's second-largest city by population and lies in the middle of England, 190 kms from London. This would be followed by further connections from

Birmingham to Manchester (320 kms from London) and Leeds (313 kms from London). The whole system is planned to be operational by 2032. The plans by HS2 Limited state that trains traveling at up to 400 km/hr 18 times an hour, carrying up to 1,100 people on each trips, are expected to greatly increase passenger capacity while almost halving journey times between all of these places.

As Campos and de Rus (2009) has argued, high-speed rail (HSR) is about "more than speed." Instead, what matters is the relationship of HSR with existing conventional services and the way in which the use of infrastructure is organized. Four basic operational models for HSR have been outlined:

1. The exclusive exploitation mode: a complete separation between high-speed and conventional rail services, each one with its own infrastructure. This is the model adopted by the Japanese Shinkansen opened in 1964 (Smith, 2007) and is also very close to the one proposed for HS2.
2. The mixed high-speed model: high-speed trains run either on specifically built new

lines, or on upgraded segments of conventional lines. This is the French model of HSR whose TGV (Train à Grande Vitesse) has been operating since 1981.

3. The mixed conventional model: some conventional trains run on high-speed lines. This model has been adopted by Spain's Alta Velocidad Española (AVE).
4. The fully mixed model allows for the maximum flexibility, since this is a case where both high-speed and conventional services can run (at their corresponding speeds) on each type of infrastructure. This is the model reflected in the German intercity trains where high-speed trains occasionally use upgraded conventional lines, and freight services use the spare capacity of high-speed lines during the night.

The timing of the 2010 HS2 announcement reflected the fact that just two years after the global financial crisis, the Labour Government was facing a general election and needed a big idea to excite the electorate (Darling, 2011). A new HSR system seemed to offer the promise of rebalancing the national economy, which meant redistributing the growing wealth of London to the struggling post-industrial regions in the midlands and region north of England. However, as discussed below, professional bodies and academics have challenged the rationale for HS2 in three key areas: the scale of state investment; the risk of cost overrun; and the viability business case, or the extent to which HSR could meet social and regional objectives.

Further, HS2 seemed to offer an innovative solution to the growing passenger congestion on English rail networks (Eddington, 2006) as well as a potent means of attracting passengers away from using cars and airplanes, thus implying a reduction in the emissions of carbon dioxide. The announcement of HS2 surprised many, especially as the Labour Government had recently accepted the Eddington report which argued that, because Britain's urban centers were relatively close to one another, existing rail services could provide adequate services. Moreover, Eddington cautioned against concentrating scarce investment resources in large-scale transport schemes.

Subsequently, the Labour Party lost the general election. The United Kingdom was now governed by a coalition of the Conservative and Liberal parties. Almost immediately, however, the new government adopted the HS2 policy. Three reasons underpin this apparent spontaneous political consensus. First, a public conversation about fast trains was already under way in the United Kingdom. The Intercity 125 service (i.e., up to 201 km/h) had been introduced in 1976. Furthermore, both the Liberal and Conservative parties had begun to talk about the virtues of HSR even before Labour's 2010 announcement. Second, the United Kingdom is a signatory to the European Union's Leipzig Agreement, which is aimed at creating a Europe-wide HSR network (Cattan, 2007).

Third, the HSR idea had a number of champions in government and the general economy; they used their influence to keep the HS2 concept alive, and this championing or "thought leadership" continues to be crucial in sustaining the HS2 idea

(Jenkins, 2014). Moreover, by 2010, as many as 20 countries had embraced the HSR concept (Abbalate, 2014), reflecting perhaps an emerging trend for economic policy in general to be increasingly driven by cross-border harmonization and supra-regional dynamics rather than national governments alone (for example, see Jayasuriya, 2005).

Soon after the 2010 announcement, a well-organized community-based campaign against HS2 was launched. Those opposed to HS2 argued that the scheme is an immediate threat to their homes and overall quality of life. Railways designed to carry 300 km/h trains cannot change course to avoid cherished local environments and buildings. The government subsequently sought to nullify community objections with agreements to create tunnels beneath sensitive areas but this drove HS2 budget forecasts to £ 50 billion. Furthermore, in the eyes of the protesters only those living near the relatively few stopping points of HS2 (nine points, including London) stand to benefit from the project. Yet, increasing the number of stops would be difficult as a high-speed train's efficient running requires infrequent stops.

In particular, there is skepticism that HS2 can reverse the flow of the nation's talent from the regions concerned to London. Studies of the impacts of HSR on regional economic growth in France have suggested that enhanced proximity between places can result in the major regional center growing at the expense of the weaker one (Vickerman, 2007). Yet, governments are increasingly aware that the challenge of job-creating innovation takes place in international networks reaching far beyond their region's boundaries (Benneworth and Dassen, 2011). Thus, overruling objectors and insisting that an unpopular proposal for high-speed rail go ahead could be construed as an act of visionary governance striving for long-term job creation through enhanced interregional connectivity.

However, the plausibility of the business case for HS2 continues to test the loyalty of even the project's most ardent supporters. On one hand, the United Kingdom has experienced severe budget overruns in HSR projects; the country's first HSR service, HS1, between the United Kingdom and France, came in 80 percent over budget for construction and 140 percent over budget for financing. On the other hand, the HS2 proposals have struggled to meet the minimum benefit-cost ratios (BCR), the test of viability applied to all government projects. So far the government has made five attempts to publish a business case which conforms with Treasury guidelines and has managed to silence the critics of the HS2 plan. Controversially, the target BCR has been met only by consistently widening the variables on which HS2 has been assessed and lengthening the time taken to reach the target figure. From the outset, the projections of demand and ticket revenue were driven by an assumption of sustained national economic growth. As optimism about renewed growth following the 2008 financial crisis has persistently waned, the already disputed plausibility of the HS2 business case has weakened. The practical consequence of all of this is that the BCR has been relentlessly falling. Earlier editions of the business case had suggested that HS2 would return £2.50 for every £1 (i.e., a BCR of 2.5) invested in the overall project. Impor-

tantly, the most recent update of the government's case for HS2 now anticipates a BCR outturn of 2.3 (Department of Transport, 2013). In mitigation, the government has pointed out that the HS2 BCR is still higher than that forecast for the Jubilee Line, the London Underground line completed in 1979. Furthermore, the Jubilee line has now become the main transport corridor into Canary Wharf, London's major financial district, as well as connecting central London with the zone that had been created for the 2013 Olympics.

4. REFLECTION ON THE THAI PROPOSALS

The creation of high-speed railways has been widely discussed in Thailand since January 2013 following the Thai government's proposal to launch a new infrastructure investment regime in the form of the transport infrastructure investment loan bill, which is usually refered to as the "2 Trillion Baht Loan Bill." This bill includes investment in four HSR lines.

In this section, we describe the transport infrastructure investment bill and the feasibility studies of HSR in Thailand in the past. Then, we report on the current development of the transport infrastructure investment bill and the possibility of the HSR in Thailand in the future.

In January 2013, the Thai government anounced its plan for making a major investment in transport infrastructure, in the form of the transport infrastructure investment loan bill. This bill dedicated the budget mostly to railway infrastructure investment. The rational of this bill is that the current budgeting scheme does not allow the government to secure long-term investment funds for railway development due to the constraints imposed by the annual budget rules. The bill consists of a plan for transport infrastructure investment projects that cover four major groups: the first group comprises HSR projects accounting for roughly 40 percent of the total budget; the second group involves upgrading the existing railway projects and accounts for roughly 20 percent of the total budget; the third group involves the metro system in Bangkok and vicinity at roughly 20 percent of the total budget; and the fourth group involves road construction projects and other transport facilitation projects at roughly 20 percent of the total budget.

However, one critical point concerning this bill is that for about half of the proposed projects no feasibility studies have been conducted. Somchai and Sumet (2013) categorized projects in the bill into four groups as follows:

(a) Projects which do not need feasibility studies, which are worth about 56 billion baht;
(b) Projects for which feasibility studies have been completed, which are worth about 473 billion baht;
(c) Projects for which environmental impact assessments (EIA) have not been completed, which are worth about 529 billion baht; and
(d) Projects that have yet to conclude or to start feasibility studies, which are worth about 932 billion baht.

HSR projects are in the fourth group, i.e., the feasibility studies have not yet been concluded or started. Although there were several feasibility studies on HSR in the past, the details of each study are not complete to the degree that would enable decision-makers to decide to invest in the projects. Furthermore, both Japan and China expressed interest in bringing their HSR-technology to Thailand. In 2012, both of those countries, through their subsidiaries, prepared pre-feasibility study reports on HSR and submitted these to the Ministry of Transport. Although the reports are not publicly available to review, the results of these reports suggested that HSR is feasible only with substantial subsidy from the government, at least for the infrastructure costs.

In fact, the key document that is publicly available is the Thailand Master Plan for Development of Double Track Rail and High-Speed Rail (Office of Transport and Traffic Policy and Plan-

ning, 2010). This report furnishes a sort of pre-feasibility study of the HSR lines, and also comes to a vague conclusion on whether to invest in the HSR projects.

The crucial aspect that the government failed to mention is the situation of normal railway development in Thailand. Currently, railways are operated by the State Railway of Thailand (SRT), which is the state-owned enterprise that holds a monopoly to operate the country's railways. In terms of railway infrastructure, SRT operates a network of 4,180 km of rail tracks that have seen little development in the past three decades. Most are single, narrow-gauge (1 meter) tracks that account for 3,901 km or 93.3 percent of the total railways, while double and triple tracks constitute only 220 km (5.3%) and 59 km (1.4%), respectively, of the total. The tracks can carry loads of 15-18 tons. As such, much could be gained from upgrading the existing network instead of going for full (and expensive) HSR.

HSR is one of the central issues that have been publicly debated in Parliament; the previously mentioned bill was finally put through in November 2013. However, the opposition party that filed a case against it with the Constitutional Court argued that this bill violated the Constitution on two counts: first, the government allowed its Members of Parliament to vote on behalf of absent colleagues; second, the government chose, under this bill, to finance the infrastructure projects with off-budget loans that would not be scrutinized by Parliament. In March 2014, the Constitutional Court ruled that this bill was unconstitutional on both counts.

5. CONCLUSIONS

We have looked at three attempts to develop HSR in three different countries. There are some remarkable similarities here. First of all, it seems that HSR becomes a goal in itself instead of a means to achieve something. The most prominent sign of this is the tendency to overlook or even ignore the fact that upgrades to the existing normal rail network could already meet most of the goals of HSR without incurring the enormous costs associated with such systems. This is testimony to the fact that the project appraisals are partially blinded by the optimism stemming from the often unsubstantiated claims that HSR produces many benefits. As such, it is fair to say that project appraisals are often shaky and skewed toward politically desired outcomes. For instance, the Netherlands case showed that the project went ahead even after the appraisals were rejected; as we now know, there were good reasons to question the supposedly optimistic outcomes. Knowing this, the Thai project should be approached with caution. Even more to the point is the ample evidence that most large infrastructure projects are structurally over budget and out of time. In the words of Flyvbjerg et al. (2005):

> "In the grip of the planning fallacy, planners and project promoters make decisions based on delusional optimism rather than on a rational weighting of gains, losses, and probabilities. They overestimate benefits and underestimate costs. They involuntarily spin scenarios of success and overlook the potential for mistakes and miscalculations.

As a result, planners and promoters pursue initiatives that are unlikely to come in on budget or on time, or to ever deliver the expected returns."

One should not forget the above warning; prestigious HSR projects should be avoided as they are likely to become bottomless money pits, especially if credible railway alternatives are available at lower costs.

This comparison offers an important lesson for Thailand. SRT has financial problems, i.e., it has debts of about 120 billion baht. In the past, SRT's performance with regard to passenger and freight transport has been declining, and its debts increasing. To increase Thailand's international competitiveness, rail transport is an essential mode in the logistics system to reduce overall logistics cost. In a study on railway reform (TDRI, 2009), it was proposed that a railway reform process be initiated in which the restructuring of SRT would be an important element. Because of SRT's problems, it is not clear that SRT would be the agency that implements HSR projects. However, it is essential to acknowledge that the normal railway will be an important element in supplementing HSR lines in the future, and SRT needs to undergo a transformation to make this possible.

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