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Thailand's economic integration with neighboring countries and possible connectivity with South Asia

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ADB Working Paper Series

**Thailand's Economic Integration with
Neighboring Countries and Possible
Connectivity with South Asia**

Suthiphand Chirathivat and
Kornkarun Cheewatrakoolpong

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Abstract

Thailand's increasing importance as a regional co-production base and as an intra-regional trade and border trade hub is due mainly to recent changes in its economic structure, namely, the lack of operational workers, rises in wages, and increases in outward foreign direct investment (FDI), together with a change of regional policies in Southeast Asia. As a result, improvements in physical connectivity, trade facilitation, energy cooperation, and financing infrastructure play an important role within an ongoing Association of Southeast Asian Nations (ASEAN) framework. Extending connectivity to South Asia could also complement the current promotion of regional trade and regional production networks. This paper reviews the current stages of Thailand's intra-regional trade, physical connectivity, trade facilitation, energy cooperation, and infrastructure funding as there are projects planned in these areas that could impact Thailand and its links to Southeast Asia and beyond to South Asia. However, Thailand's political instability impedes the progress and implementation of such projects. The paper also examines the current financing mechanism of Thailand's infrastructure projects that relies heavily on public spending. The authors propose strategies to promote Thailand's physical infrastructure, trade facilitation, and energy cooperation with the mainland countries of Southeast Asia and South Asia.

JEL Classification: F15, F36, H54

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1. OVERVIEW

Amidst an uncertain global economic environment, regional cooperation and integration continue to set an unprecedented trend in Southeast Asia and worldwide. The Association of Southeast Asian Nations (ASEAN) regional grouping is embarking on its own regional integration through the establishment of the ASEAN Community. At the core of the concept of achieving the ASEAN Community is one of three pillars, the ASEAN Economic Community, aimed at creating a single market and production base within the region. In the same manner, ASEAN has been able to advance the master plan of ASEAN connectivity in order to further enhance its regional integration process through the economic, political-security, and sociocultural links among countries in the region.

Thailand has been an active member of ASEAN from the very beginning. With the transformation of ASEAN since 2011, particularly for the mainland countries of Southeast Asia¹ including the latest changes in Myanmar, Thailand has a naturally strong advantage in part of the regional community building process. In contrast to the Cold War period, Thailand's geographical location now faces the opposite direction from its past strategic role in linking with its neighboring countries in the Greater Mekong Subregion (GMS) and beyond. These unique opportunities are clear and tangible, and physical connectivity projects to facilitate trade and investment through new transport and other infrastructure development will foster Thailand's links within the region.

This paper discusses Thailand's economic integration and cooperation with South and Southeast Asia. As the country is undergoing tremendous change in its economic structure, particularly through the extension of manufacturing activities and the emergence of a new middle class in regions beyond Bangkok, it is interesting to see how improving connectivity, with both hard and soft infrastructure, in Thailand, within ASEAN, and between the two regions, can support Thailand's future growth. If successfully developed, these concrete projects will be a strong addition to ASEAN community building for better connections to South Asia.

1.1 Economic Structure, Macroeconomic Performance, and External Orientation

Thailand has gone through several shocks both from within and outside, from political transformation, major floods in 2011, and the 2008–2009 global financial crisis. On the other hand, Thailand has not been growing very fast since the recovery of the Asian financial crisis of 1997–1998, with an average growth of only 4.2% per year in the past decade. In 2012, Thailand's gross domestic product (GDP) growth recovered from the major flooding of 2011 at only 0.1% to stand at 6.4% with per capita income at \$5,473, taking the country into the middle-income level. However, there is still concern over the size of public debt, which has slightly increased due to the populist policies of the present government. Thailand's public deficit in 2012 stood at 9.3% or around 43.5% of GDP (Table 1).

Despite these setbacks, the country is looking forward to progressing, internally and externally, through strong-based middle-class demand, a large industrial base and strong supply chains, and a new path of greater connectivity to the regional economies. Since 2007, a major transformation has taken place in the regional GDP structure of

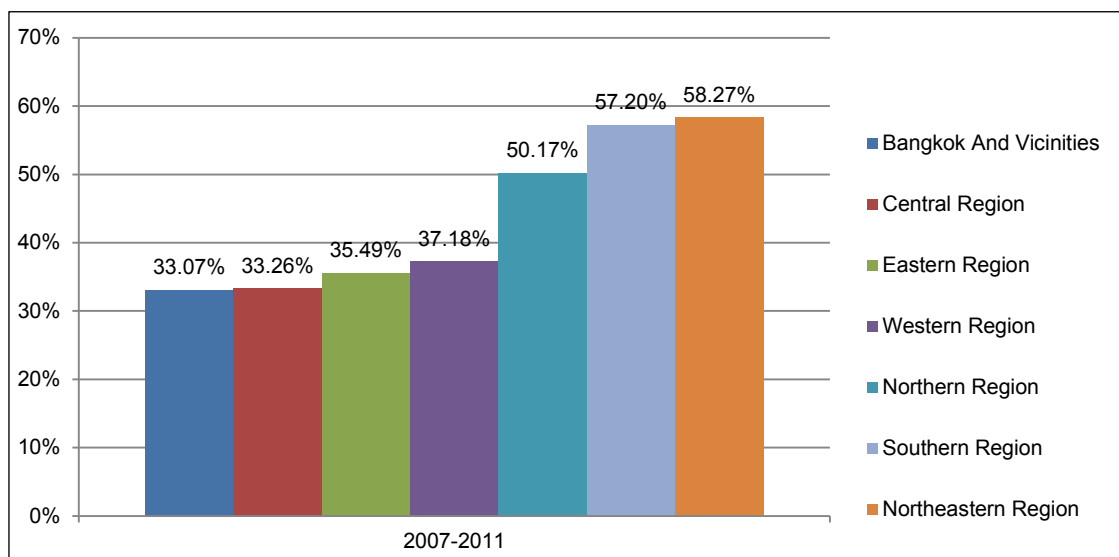
¹ Cambodia, the Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, and Viet Nam.

Thailand with Bangkok growing at the lowest level (33%), against the three highest regions; northern (50.2%), northeastern (58.3%) and southern (57.2%) (Figure 1). As a result, Bangkok and its vicinities' share of GDP has been reduced to stand at around 44% in 2011, while the rest takes the share as follows: eastern, 18.0%; southern, 10.0%; northeast, 10%; and northern, 8%. Given the recent changes to the regional economies of Thailand, it is important to question how the economic performance and external orientation of these regional economies will in fact impact Thailand's economic development as a whole.

Thailand is considered an open economy with greater trade and investment exposure than many of its other Asian counterparts, with the exception of Hong Kong, China; Malaysia; and Singapore. Exports have at times been an important engine of growth, particularly since the Asian financial crisis of 1997–1998, and foreign exchange earnings that have helped to replenish Thailand's reserve surplus. However, export performance has been weaker than the annual average of 12% experienced a decade earlier, particularly since the global financial crisis that contributed to unusual up-and-down trends in the economy. As a result, trade surplus has narrowed since 2011 (Table 1). This is not to say that Thailand has lost its trade advantage. On the contrary, like many Asian countries that suffered from their own export-oriented economies, Thailand is struggling to find ways of adjusting its external sector to the new “normal” reality of the global economy, given the impacts of the global financial crisis, which have lasted longer than expected.

Taking a closer look at Thailand's trade structure, the country has already changed its trade orientation and integration, moving toward the emerging economies in ASEAN, the People's Republic of China (PRC), and to a certain extent, India, in addition to traditional trade partners like Japan, the European Union (EU), and the United States (US). As a result of its increasing links to regional supply chains, Thailand supplies intermediate inputs and raw materials to the regional economies that also help to produce the final goods for the global economy. The country has also benefitted from these connected economies to produce its own final goods, as well as goods for the regional and global economies.

Figure 1: Regional GDP Growth, 2007–2011



GDP =gross domestic product.

Source: NSO (2013).

Table 1: Thailand's Macroeconomic Performance

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
GDP (\$ billion)	122.73	115.54	126.88	142.64	161.34	176.35	207.09	246.98	272.58	263.71	318.91	345.67	366.00	387.30
Real GDP growth (%)	4.75	2.17	5.32	7.14	6.34	4.60	5.09	5.04	2.48	-2.33	7.81	0.08	6.50	2.90
GDP per capita (\$)	1,968.5 4	1,831.90	1,988.73	2,211.8 7	2,478.8 2	2,689.95	3,143.2 4	3,737.7 2	4,118.4 0	3,978.9 1	4,802.66	5,192.12	5,479.7 6	5778.98
Exports (\$ billion)	67.90	63.10	66.10	78.10	94.90	109.40	127.90	151.30	175.20	150.70	191.60	219.10	225.90	225.40
Imports (\$ billion)	56.20	54.50	57.00	66.90	84.20	106.00	114.30	124.60	157.90	118.10	161.90	202.10	219.90	218.70
Trade balance (\$ billion)	11.70	8.60	9.10	11.20	10.70	3.40	13.60	26.70	17.30	32.60	29.70	17.00	6.00	6.70
Current account balance (\$ billion)	9.30	5.10	4.70	4.80	2.80	-7.60	2.30	15.70	2.20	21.90	10.00	4.10	-1.50	-2.50
Current account balance to GDP (%)	7.60	5.40	5.50	5.00	1.70	-4.30	1.10	6.30	0.80	8.30	3.80	1.20	-0.40	-0.60
Population (million people)	61.88	62.31	62.80	63.08	61.97	62.42	62.83	63.04	63.39	63.53	63.88	64.08	64.46	64.79
CPI inflation (%)	1.60	1.60	0.70	1.80	2.70	4.50	4.70	2.30	5.50	-0.90	3.30	3.81	3.02	2.18
Exchange rate, US dollar–baht (B)	40.16	44.48	43.00	41.53	40.27	40.27	37.93	34.56	33.36	34.34	31.73	30.49	31.08	30.73
Deficit ^a (\$ billion)	-2.90	-2.43	-2.76	0.83	0.43	0.42	0.12	-2.74	-0.72	-12.15	-6.26	-6.58	-9.23	-6.80
Deficit share of GDP ^a (%)	-2.40	-2.10	-2.20	0.60	0.30	0.20	0.10	-1.10	-0.30	-4.70	-2.00	-1.90	-2.60	-1.80
Debt ^a (\$ billion)	69.83	65.97	68.44	70.55	77.64	81.39	85.24	91.97	102.16	116.54	133.33	145.89	160.66	176.72
Debt share of GDP ^a (%)	56.90	57.10	53.94	49.46	48.12	46.15	41.16	37.24	37.48	44.19	41.81	42.21	43.45	41.34

CPI = consumer price index, GDP = gross domestic product.

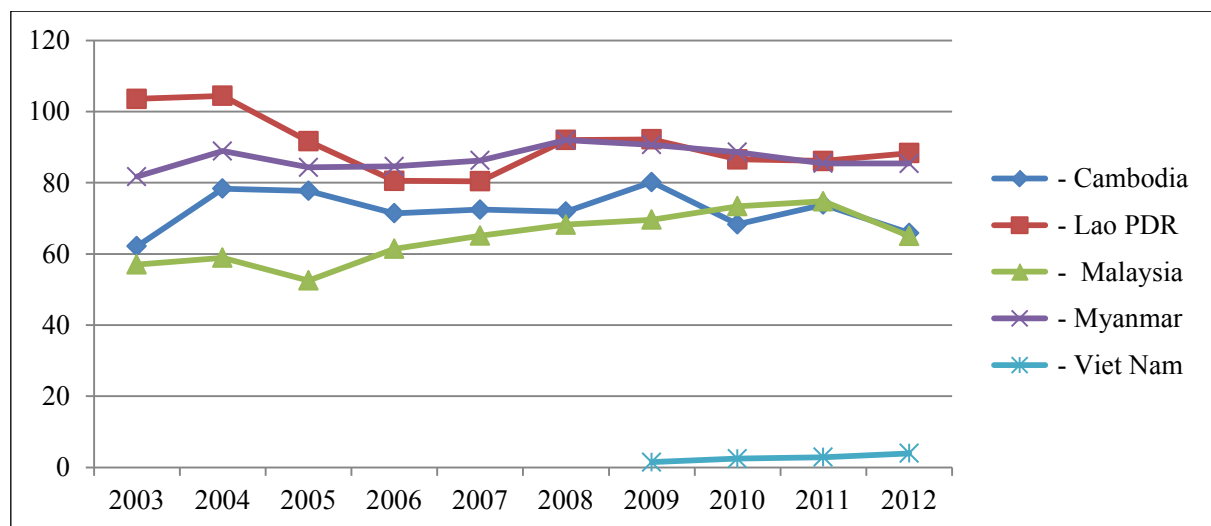
^a Positive values indicate a surplus.Source: Division of Economic Information, Department of International Economic Affairs, Ministry of Foreign Affairs, Kingdom of Thailand. Thailand's Economic Fact Sheet. (Annual reports for the years 2002-2014) and * author's calculation from Bank of Thailand. External Debt. <http://www.bot.or.th/English/Statistics/EconomicAndFinancial/ExternalSector/Pages/StatExternalDebt.aspx> Accessed 25 October 2014.

1.2 Recent Trade Trends with Mainland Southeast Asian Neighbors and South Asia

For Thailand's trade with its immediate neighbors, it is interesting to observe the impressive growth and the patterns of border trade; from a total of less than \$10 billion in 2003 to a surge of around \$30 billion in 2012, an increase of 3.2 times compared to an increase of 2.3 times of Thailand's total trade. As a result, the share of border trade to Thailand's total trade has also increased from 4.4% in 2003 to more than 6.0% annually since 2008 (Table 2).

Figures for 2012 show Thailand's share of border trade to total trade for the four countries as follows: Cambodia, 65.9%; the Lao PDR, 88.3%; Malaysia, 65%; and Myanmar, 85.4% (Figure 2).

Figure 2: Share of Border to Total Trade



Lao PDR = Lao People's Democratic Republic.

Note: Border trade includes trade flows of both goods that are consumed in the neighboring countries (cross-border trade) and trade flows of goods in transit to the third country (trans-border trade). As a result, border trade can exceed total trade.

Source: Ministry of Finance (2014).

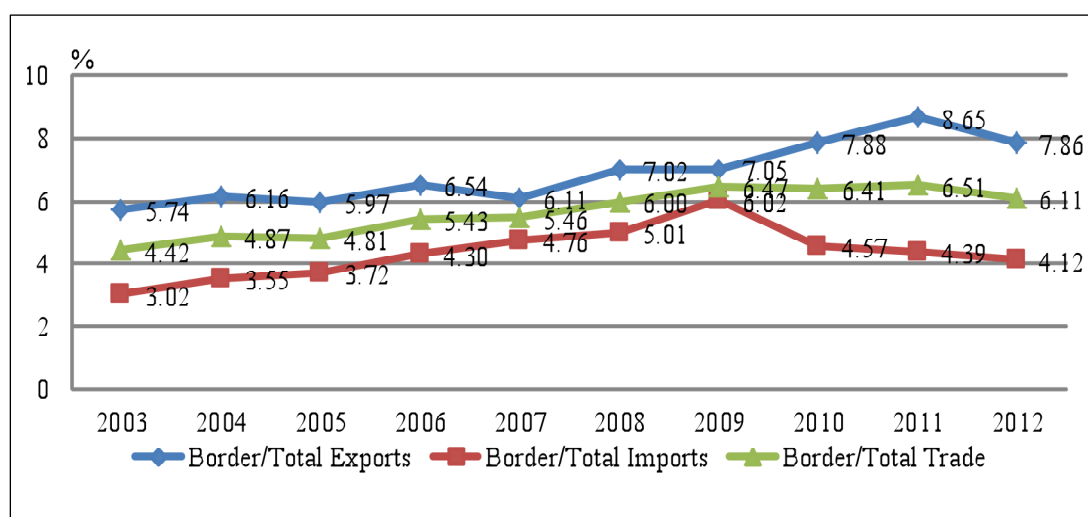
When taking into consideration the export and import figures with its four neighbors (Figure 3), the trade balance has always been favorable for Thailand, with border exports contributing around 8% to Thailand's total trade volume and border imports around 4% of the same total. The surplus position has been large for any single trading partner, like Cambodia, the Lao PDR, and Malaysia. Myanmar is the only exception because of Thailand's imports of natural gas of \$3.5 billion, or more than 95% of total imports. Without this trade in natural gas, Thailand would have a large surplus with Myanmar.

Table 2: Share and Growth of Thailand's Four Neighboring Countries

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Thailand total trade (world) (B billion)	6,466.6	7,755.7	9,185.0	9,811.0	10,106.5	11,797.0	9,795.0	12,016.1	13,690.6	14,895.4
Total border trade 4 (B billion)	285.92	377.46	441.61	532.33	551.80	708.38	633.80	770.11	890.67	910.50
Total border trade 4 + Viet Nam (B billion)	285.92	377.46	441.61	532.33	551.80	708.38	636.88	775.77	898.55	922.18
% border 4/total trade	4.42	4.87	4.81	5.43	5.46	6.00	6.47	6.41	6.51	6.11
% border 4 + Viet Nam/total trade	4.42	4.87	4.81	5.43	5.46	6.00	6.50	6.46	6.56	6.19
% change total trade	...	19.94	18.43	6.82	3.01	16.73	-16.97	22.68	13.93	8.80
% change border 4	...	32.02	17.00	20.54	3.66	28.38	-10.53	21.51	15.65	2.23
% change border 4 + Viet Nam	...	32.02	17.00	20.54	3.66	28.38	-10.09	21.81	15.83	2.63
Growth rate total trade (%)	100	119.94	142.04	151.72	156.29	182.43	151.47	185.82	211.71	230.35
Growth rate border 4 (%)	100	132.02	154.45	186.18	192.99	247.75	221.67	269.35	311.51	318.45
Growth rate border 4 + Viet Nam (%)	100	132.02	154.45	186.18	192.99	247.75	222.75	271.32	314.27	322.53

Note: Thailand's four neighboring countries are Cambodia, the Lao People's Democratic Republic, Malaysia, and Myanmar.

Source: Ministry of Finance (2014).

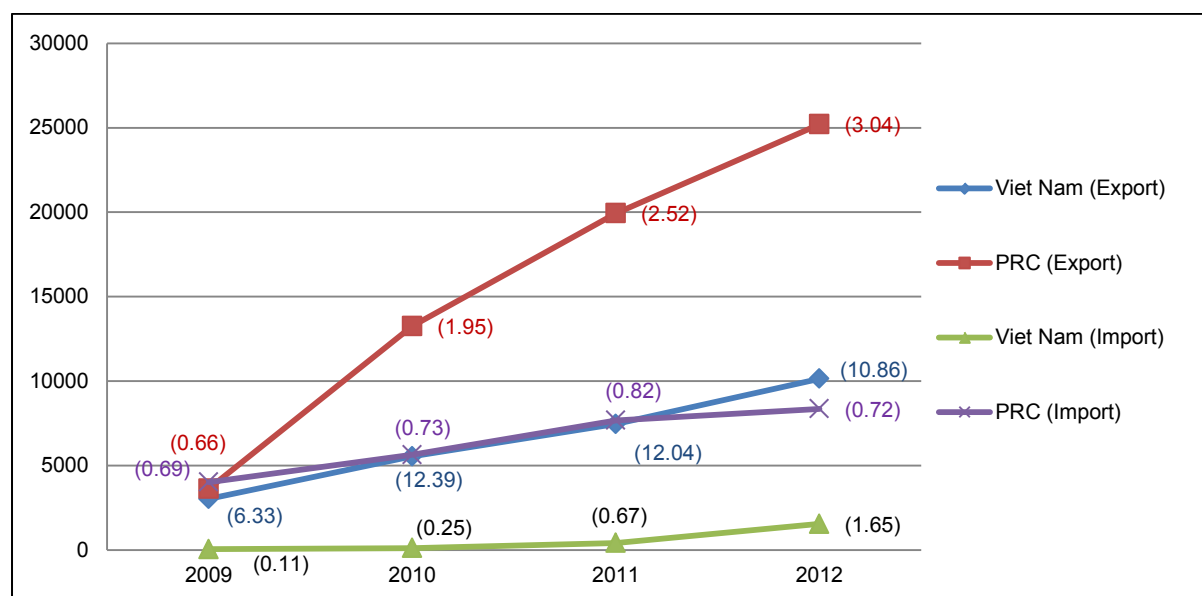
Figure 3: Share of Border to Total Trade, Exports and Imports

Source: Ministry of Finance (2014).

Although not sharing an immediate border with Thailand, border exports to the PRC and Viet Nam have increased rapidly. As of 2012, the value of exports to the PRC stood at more than B10.1 billion (or more than 3% of total trade), while exports to Viet Nam were valued at B25.2 billion (or 10.8% of total trade). On the other hand, border imports from the PRC and Viet Nam to Thailand are still small (0.7% of total trade and 1.6% of total trade) despite a recent increase (Figure 4). This suggests that the improvement of economic corridors, trade facilitation, and logistic arrangements, in particular, those sections linking Thailand–Lao PDR–PRC and Thailand–Lao PDR–Viet Nam, have contributed to such an increase.

Figure 4: Export and Import Values of Border Trade to the PRC and Viet Nam

(B million)



PRC= People's Republic of China.

Source: Ministry of Finance (2014).

Table 3: Thailand's Top Ten Products Exported to Cambodia, the Lao PDR, and Myanmar (Border Trade), 2012

Rank	Cambodia		Lao PDR		Myanmar	
	Product	Value (B million)	Product	Value (B million)	Product	Value (B million)
1	Internal combustion piston engine and components	3,602.34	Diesel fuel	17,253.55	Diesel fuel	7,191.90
2	Sugar	3,484.76	Cars, parts and accessories	12,206.01	Gasoline	5,074.85
3	Non- alcoholic beverages	3,203.08	Computers, parts and accessories	5,979.62	Alcoholic beverages	4,877.81
4	Cosmetics, perfumes, and soaps	3,011.13	Gasoline	5,443.79	Non-alcoholic beverages	3,993.44
5	Tires	2,871.83	Machines used in construction and components	4,784.05	Fabric and yarn	3,122.91
6	Motorcycles and parts	2,778.82	Iron and steel	4,282.43	Palm oil	2,057.65
7	Alcoholic beverages	2,633.39	Other refined oil	3,054.33	Instant noodles and instant food	1,899.06
8	Automobile parts and accessories	2,557.36	Iron and steel products	2,799.73	Iron and steel	1,817.18
9	Mechanical and other components	2,484.89	Non-alcohol beverages	2,451.87	Cosmetics, perfumes, and soaps	1,801.22
10	Other vehicles and components.	2,110.13	Other vehicles and components	2,307.68	Vehicle tires	1,700.38
	Total 10 Products	28,737.72	Total 10 Products	60,563.05	Total 10 Products	33,536.40
	Total all Products	74,921.52	Total all Products	109,059.22	Total all Products	69,975.66

Lao PDR = Lao People's Democratic Republic.

Source: Ministry of Finance (2014)

Table 4: Thailand's Top Ten Products Imported from Cambodia, the Lao PDR, and Myanmar (Border Trade), 2012

Rank	Cambodia		Lao PDR		Myanmar	
		Value (B million)		Value (B million)		Value (B million)
1	Vegetables and garnish of vegetables	2,809.56	Copper and products	16,015.34	Natural gas	106,970.14
2	Iron	755.68	Timber	1,671.45	Aquatic animals	1,137.22
3	Aluminum and products	464.69	Vegetables and garnish of vegetables	857.91	Timber products	507.07
4	Oil plants and products	402.01	Inorganic chemicals	629.6	Cattle, pigs, goats, sheep	428.07
5	Copper and products	397.75	Grains	608.46	Other metal ores, metal waste scrap, and products	354.83
6	Electric motor and generator	309.73	Wire and insulated cable	361.83	Oil plants and products	250.64
7	Wire and cable insulated	292.83	Fruit and fruit flavored	284.85	Fresh and frozen squid	118.15
8	Paper	241.98	Oil plants and products	259.56	Fruit and fruit flavored	89.93
9	Transceivers and equipment for installation	240.22	Fertilizer	226.3	Plywood and veneer	69.33
10	Grains	192.95	Industrial machinery and components	205.65	Plants and other plant products	68.47
	Total 10 Products	6,107.39	Total 10 Products	21,120.95	Total 10 Products	109,993.85
	Total all Products	7,167.55	Total all Products	22,957.14	Total all Products	110,495.87

Lao PDR = Lao People's Democratic Republic.

Source: Ministry of Finance (2014).

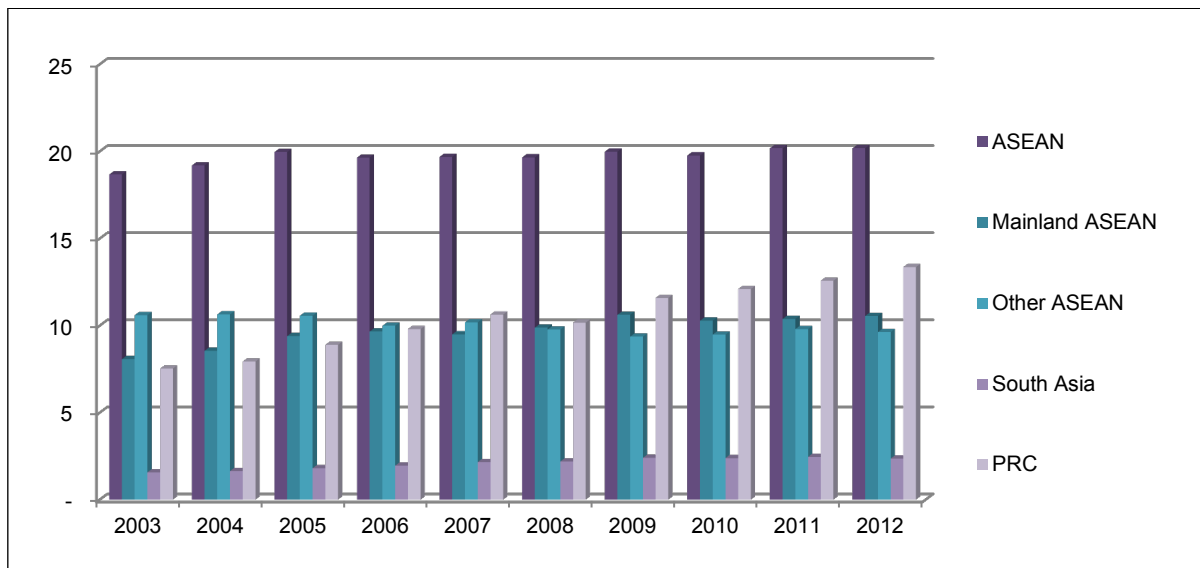
Thailand's exports and imports trade pattern with the Lao PDR and Cambodia is similar to the pattern with Myanmar. These countries have joined the rest of ASEAN and have come out from their economic isolation, looking for a more developed market economy to steer their future economic development. It is for this reason that Thailand has an immediate advantage as a more developed economy and could serve as a bridge for further development and integration of these economies in the regional and global context. Malaysia is different from the rest of Thailand's neighboring countries; the country is an emerging high-income developing economy with a well-developed and deepened trading relationship with Thailand over the years.

Thailand's share of trade with mainland Southeast Asia has always been larger compared to the rest of ASEAN, which comprises around 10.6%. This reflects the appetite of Thai traders, particularly small and medium-sized enterprises (SMEs), with regard to new markets opening closer to home as a result of the ASEAN Free Trade Area (AFTA) and new open border access to all kinds of goods and services for trading among themselves. The same cannot be said for South Asia, which has seen only a small increase of its share of Thailand's total trade to stand at around 2.4% in 2012. The PRC's share was 13.4% in 2012, but it is still smaller than total ASEAN trade, at 20.2% in the same year (Figure 5).

Despite the small share of trade with South Asia compared to mainland Southeast Asia, the region is becoming increasingly linked to Thailand's trade, with a particular role by India. Most of Thailand's trade with South Asia is with India, equaling around 75% of the total trade in 2012, while other countries (Bangladesh, Nepal, Pakistan, and Sri Lanka) still trade very little with Thailand (Figures 6 and 8). Thailand has ample opportunity to work with India since the country implemented a free trade agreement in 2004, which helps Thailand to trade more with India and have a trade surplus. Thailand's overall share of imports from South Asia stood at only 1.5% in 2012 as compared to a similar export share of around 3.3% in the same year (Figures 7 and 8). This means Thailand has gained substantially since these countries, particularly India, opened their doors to the outside world.

Figure 5: Share of Thailand's Total Trade

(%)

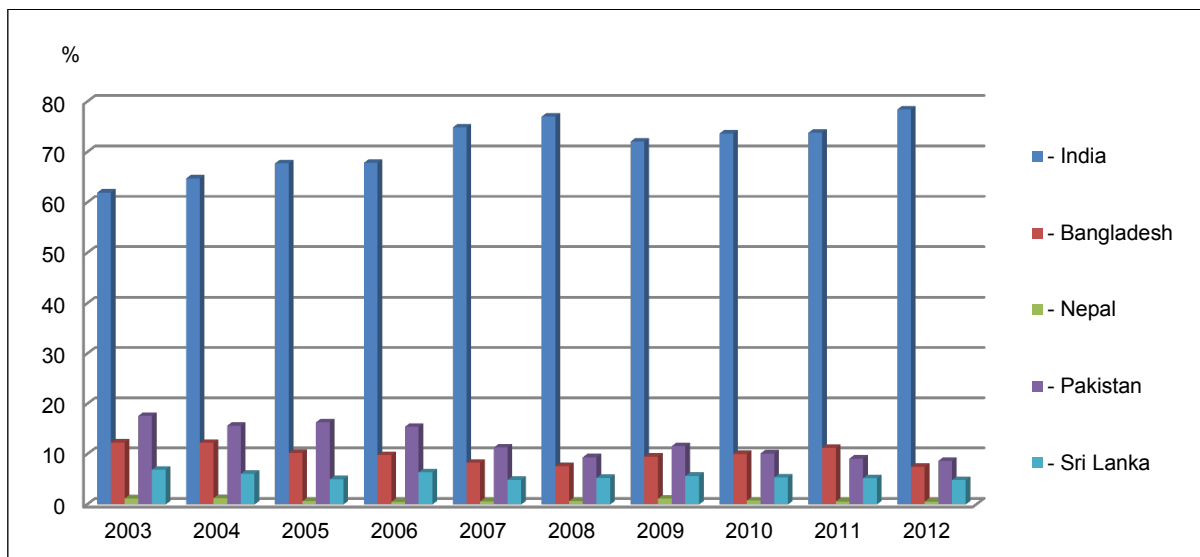


ASEAN = Association of Southeast Asian Nations; PRC = People's Republic of China.

Source: Author's calculation from Global Trade Information Services. <https://www.gtis.com/gta/> (accessed 5 October 2014).

Figure 6: Share of Thailand's Total Trade with South Asia

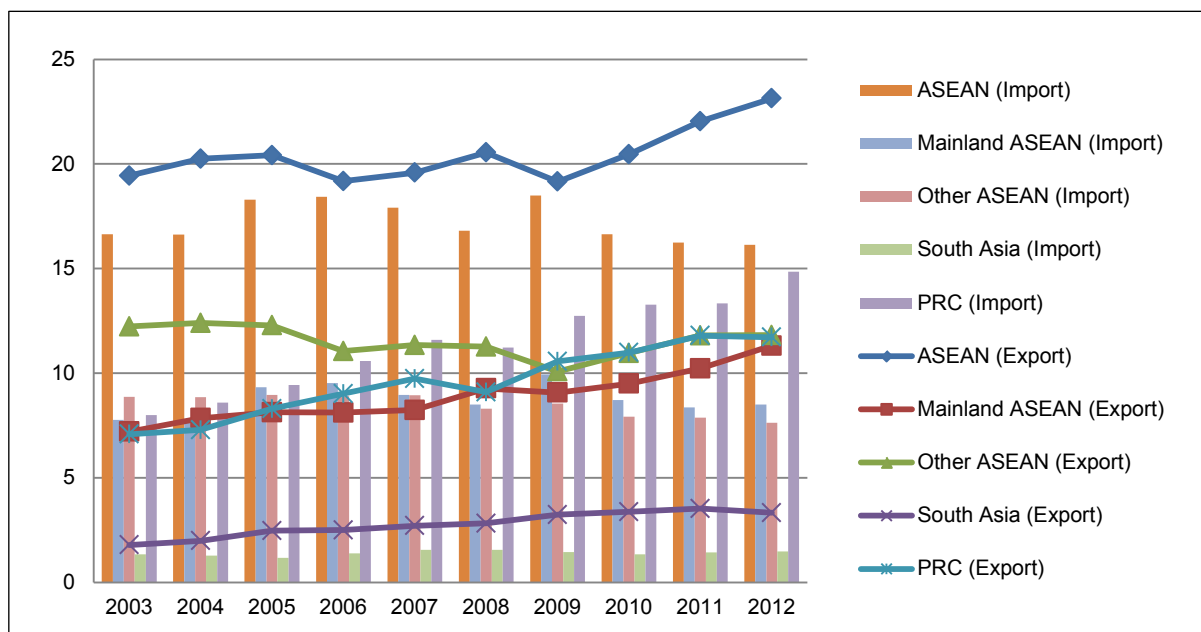
(%)



Source: Author's calculation from Global Trade Information Services. <https://www.gtis.com/gta/> (accessed 5 October 2014).

Figure 7: Share of Thailand's Total Imports and Total Exports

(%)

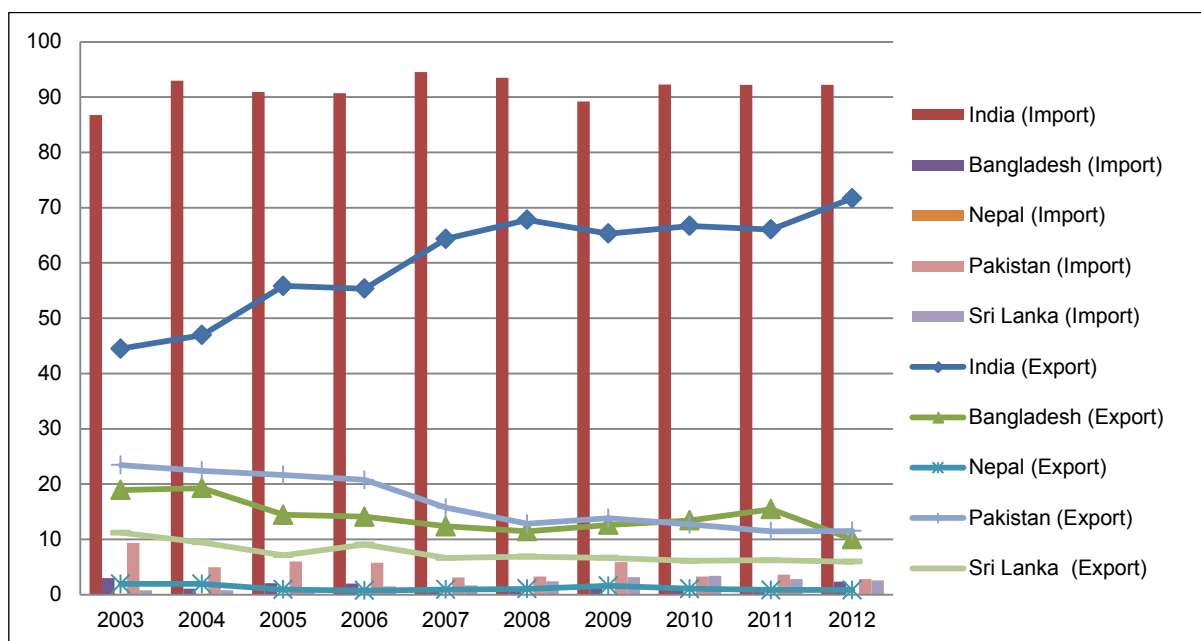


ASEAN = Association of Southeast Asian Nations; PRC = People's Republic of China.

Source: Author's calculation from Global Trade Information Services. Export, import, and trade statistics. <https://www.gtis.com/gta/> Accessed 5 October 2014.

Figure 8: Share of Total Imports and Exports with South Asia

(%)



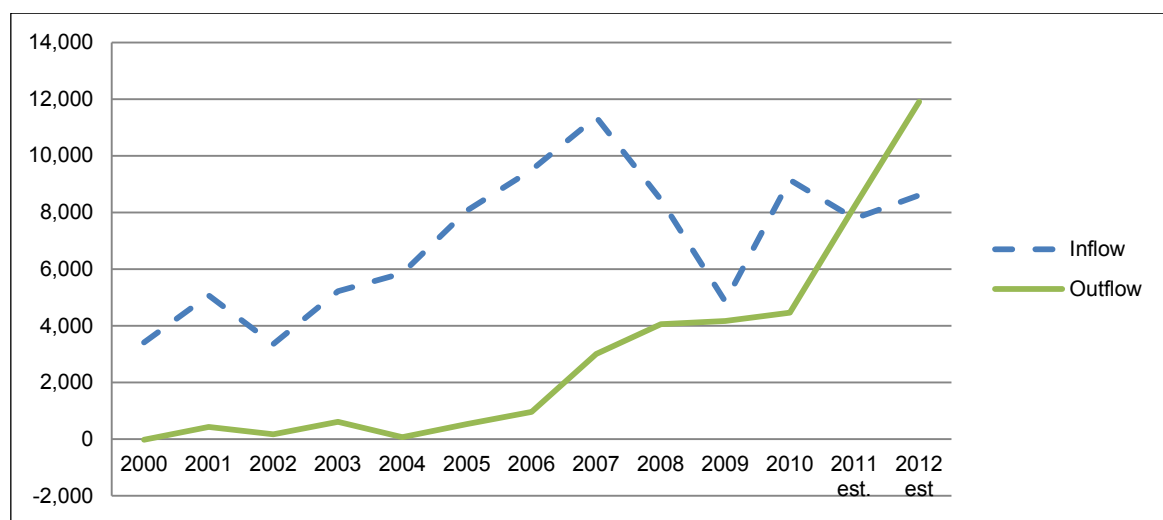
Source: Author's calculation from Global Trade Information Services. Export, import, and trade statistics. <https://www.gtis.com/gta/> (accessed 5 October 2014).

1.3 Recent Trends of Inward and Outward Foreign Direct Investment

While examining increasing globalization of the Thai economy, international investment has also offered another force to explain its links to Thailand's international trade. For instance, the recent trend of Thailand's foreign direct investment (FDI) is not very different from that of exports. Due to the global financial crisis, FDI has fluctuated, declining by 15.0% in 2011 before a recovery of 10.6% in 2012, or around \$8.6 billion (Figure 9). This suggests that it has become more difficult for Thailand to rely on external funding and investment as other emerging countries and regions are also looking to attract FDI given the limited funds available worldwide.

Figure 9: Thailand's FDI Inflows and Outflows

(\$ million)



FDI = foreign direct investment.

Source: UNCTAD (2013).

This issue is linked to how FDI is adjusting to the new reality given Thailand's recent changes and how seriously Thailand takes the process of production transformation through technology transfer, knowledge management, and a more capital-intensive process, unlike in the past. Compared to the rising ASEAN members like Indonesia, Myanmar, and Viet Nam, there is a question of how Thailand can continue to be attractive and still rely on traditional investors like Japan, the EU, and the US. In addition, an important issue is how the country can attract new investors like the PRC, India, Malaysia, and Singapore, to cite just a few.

Given such a rising trend, Thailand needs to continue to improve global supply chain links, enhance technology, improve trade liberalization, and reduce communication and transport costs. Thailand had early embarked on its links with the global and regional production networks which also help the country to expose to a multitude of foreign production chains in connection with domestic firms, producing parts and components, or being suppliers of these industries, thus widening and deepening Thailand's role in the regional and global economies.

More Thai firms are pursuing their business abroad, creating a surge in the country's outward FDI, in addition to the inward one. This outward FDI trend started to emerge in 2003, rising from around \$500 million in 2005 to almost \$12 billion in 2012, making Thailand, for the first time since 2011, a net exporter of capital, meaning outward FDI

outpaced inward FDI. The appreciated baht and extension of production facilities, in addition to more attractive low-cost and resource-rich availabilities in neighboring countries are pressuring Thailand to allow local firms to get open access to neighboring markets and low-cost production bases to reduce operating costs as well as to working and sourcing for better integration within the regional and global production networks.

1.4 Policies and Initiatives in Regional Economic Integration and Cooperation

As shown earlier, because of Thailand's position with regard to trade and foreign direct investment, the country has no other options but to pursue consistent outward-oriented policies and initiatives in response to regional dynamic changes and the global economic environment. After the Asian financial crisis of 1997–1998, Thai policymakers had an even higher priority to enhance trade and foreign direct investment. This included both increasing foreign reserves, and, more importantly, improving productivity and competitiveness of exports in various goods, while balancing imports in tandem with the needs of industry, in particular foreign and multinational firms that have a strong presence in regional and global supply chains. Despite the slowdown of trade and investment as a result of the 2007–2008 global financial crisis, policymakers have weathered the storm with trade orientation adjustment to emerging economies and capital export reshaping in the form of outward foreign direct investment, supported by government policies both for trade and investment.

Thailand is currently involved in regional, subregional, and bilateral trade agreements as well as a wide range of economic and technical cooperation initiatives. With an increasingly uncertain global trading environment, it is in Thailand's interests to find a path that could contribute positively to its external sector. This is why the ASEAN arena, closest to Thailand, has become a centerpiece for deeper and wider regional integration. Indeed, before the end of the Cold War, Thailand was a founding member of ASEAN. The country is a prominent player in regional economic affairs, from the launching of the ASEAN Free Trade Area (AFTA) in 1993 to the preparation for the upcoming ASEAN Economic Community (AEC) by 2015.

Indeed, Thailand had perhaps been able to foresee the end of the Cold War, when Thailand's former prime minister, Chatchai Choonhawan, proposed to its neighbors in the late 1980s, to "turning the battlefield to the marketplace," with the decision to build the first Mekong bridge, linking Thailand and the Lao PDR, in the early 1990s. Later, Thailand joined the ASEAN efforts in its Ha Noi Action Plan to assist the development of Cambodia, the Lao PDR, Myanmar, and Viet Nam (CLMV) after the crisis or by the end of the 1990s. By the beginning of the 21st century, Thailand proposed to its mainland Southeast Asian neighboring countries, the Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS), another scope of cooperation essentially with CLMV and Thailand, without the involvement of countries or organizations outside the group. Another major subregional economic cooperation initiative is the Greater Mekong Subregion (GMS), where Thailand also plays an active role, with the help of the Asian Development Bank (ADB), for its links to the six countries involved within the framework.

Domestic and regional changes have also shaped Thailand to become closer to South Asia, particularly India, the core country of the region, where Thailand has gradually built a new path toward a strong economic partnership. India's "Look East Policy" and Thailand's "Look West Policy" have been instrumental to bridge mutual understanding. Thailand's support of India to become an ASEAN dialogue partner has contributed to

India fostering links with the region, with the ASEAN–India Free Trade Agreement (ASEAN–India FTA) concluded in 2009, in addition to an earlier concluded Thai–India FTA in 2004. Indeed, with such a Thai–India FTA, Thailand has been able to reverse its trade deficit with India to a trade surplus since 2005, with a view of linking India through Thailand to Southeast Asian production networks, and working with multinational firms from Japan and the Republic of Korea, among others.

Beyond the scope of the Thai–India and the ASEAN–India FTA, Thailand has also contributed to India fostering links with the region, through ASEAN–India cooperation that also extends to other cooperative efforts at the subregional level, like the Bay of Bengal Initiative for Multi-Sectoral and Technical Cooperation (BIMSTEC) and the Mekong–Ganga Cooperation (MGC). Linking these new frameworks to the India Look East Policy, it is evident to see a new landscape of connectivity within India and linking it to neighbors in South Asia, with the ambition of linking more to Southeast Asia. At least two initiatives, one by India, and another by Thailand, relate to a new emerging landscape of cooperation and integration, not only for the two countries, but also for Myanmar as the bridge connecting South Asia and Southeast Asia.

The first initiative is related to a metamorphosis taking place in Myanmar that has encouraged countries, including India, to take a more proactive role in its engagement. The Indian government has been pursuing the Look East Policy with regard to Myanmar's economic development and seeing its connection by land to mainland Southeast Asia, a new reality. Thailand is also seeing this important change, sought also by Myanmar and India, to work on possible new connectivity such as a new highway linking the three countries to unlock the potentials of northeast India, Myanmar, Thailand, and the rest of Southeast Asia. In the meantime, Thailand recently announced its new strategic border crossings with Myanmar in 2013—Mae Sai in Chiang Rai, Mae Sot in Tak, Phu Nam Ron in Kanchanaburi, and Koh Song in Ranong.

The second is Thailand's initiative, firstly by the private sector, then convincing the government to join, on the seaport and industrial development of Dawei. The Myanmar government has accepted the proposal, pending the feasibility study for its long-term viability. Meanwhile, Thailand has sought a joint investment with the Myanmar government in order to become a strong and important partner. The rationale of the project is to open up Thailand's maritime connectivity to South Asia, as well as relocating its heavy industrial facilities from its own eastern seaboard, now quite congested, to this part of Myanmar, while Myanmar's participation will allow the country to develop and own heavy industries, as well as an alternative to the deep seaport beyond the Thiwala seaport near Rangoon. However, the impending development of Dawei raises concerns relating to issues like environmental degradation, heavy investment involvement, and the requirement of more partners, in particular, Japan for funding, and India for its links to South Asia.

2. THAILAND'S STRATEGY TOWARD CONNECTIVITY

In this section, we portray Thailand's strategies in domestic connectivity, ASEAN connectivity, and possible connectivity to South Asia. We start with structural changes in Thailand that drive the improvement and development of connectivity. We then summarize Thailand's current policies regarding connectivity in all mentioned aspects.

2.1 Driving Forces for Connectivity

The key driving forces that bring about the need for connectivity development and improvement come from internal changes in the economic structure of Thailand and changes in regional policies. This section explains these driving forces.

Changes in Economic Structure of Thailand

The important changes in Thailand's economic structure that drive the need for connectivity come from two factors. First, Thailand is becoming a home country of FDI instead of the sole recipient of such flows. Second, because of logistics costs, Thailand experiences major obstacles to facilitating trade.

Similar to other countries in the region, Thailand is an important production and assembly base for industries such as automobiles and hard-disk drives. As a result, the country attracts investment from multinational enterprises in countries including Japan, the EU, and the US. FDI from developed countries leads to technology transfer and knowledge spillovers. It also promotes employment, productivity, and international trade. Studies such as Jansen (1995) and Chen and De Lombaerde (2009), suggest that FDI was the crucial factor behind the miraculous economic growth in Thailand and East Asian economies during the 1990s.

Thailand has experienced an increasing shortage of operational workers. This problem comes from a mismatch between demand and supply in the labor market. While the demand for workers who graduate from vocational school has been increasing because of a rise in manufacturing bases in Thailand, a larger portion of the new generation chooses to pursue a bachelor's or higher degree instead. Furthermore, one of the current government's policies is to increase the minimum salary of workers with a bachelor's degree to B15,000 per month (approximately \$500). This policy further drives students away from pursuing vocational study. According to the World Bank (2012), Thailand faces the most severe problem of a shortage of operational workers and skilled labor compared with other ASEAN countries.

Also, Thailand is becoming an aging society. Compared with other ASEAN countries, Thailand has a more severe aging problem than all the others except for Singapore (Table 5). The aging problem causes a decline in the labor force and intensifies the lack of operational workers.

Table 5: Distribution of ASEAN Population by Age

(%)

Country	1980					2000					2020 (forecast)				
	%			Aging Index	Median Age	%			Aging Index	Median Age	%			Aging Index	Median Age
	<15	15–64	65+			<15	15–64	65+			<15	15–64	65+		
Brunei Darussalam	38.6	58.6	2.9	7.51	20.4	31	65.8	2.9	9.27	25.1	24	70.3	5.8	24.27	30.0
Cambodia	40.2	56.9	2.8	6.97	19.2	41	56.1	3.2	7.86	18.5	33	62.2	5.0	15.20	24.4
Indonesia	40.4	56.1	3.5	8.66	19.6	30	64.9	4.9	16.23	24.8	23	69.9	7.3	31.60	31.8
Lao PDR	42.0	55.2	2.8	6.67	18.8	43	53.8	3.5	8.20	18.5	35	64.4	3.9	11.14	22.4
Malaysia	39.3	57.0	3.7	9.41	19.7	34	62.2	4.1	12.17	23.6	25	67.4	7.4	29.37	29.3
Myanmar	40.6	55.3	4.1	10.10	19.7	33	62.8	4.7	14.46	23.6	22	70.3	7.5	33.94	31.4
Philippines	43.1	53.7	3.2	7.42	18.1	38	59.0	3.5	9.33	20.9	28	66.3	5.8	20.79	27.0
Singapore	27.1	68.2	4.7	17.34	24.5	22	71.1	7.2	33.03	34.5	13	69.8	18.0	137.80	45.3
Thailand	39.4	57.2	3.3	8.38	19.5	26	68.4	6.0	23.44	28.9	20	68.7	11.0	55.72	35.8
Viet Nam	41.7	53.3	5.0	11.99	18.6	34	61.1	5.4	16.12	23.1	24	69.8	6.7	28.51	31.2
Southeast Asia	40.7	55.6	3.7	9.09	19.3	32	66.9	4.8	15.05	24.1	24	68.6	7.4	30.83	31.0

ASEAN = Association of Southeast Asian Nations; Lao PDR = Lao People's Democratic Republic.

Note: The aging index is the ratio of the population age 65 and over to the population under age 15 (%).

Source: International Labor Organization. LABORSTA. Economically Active Population Estimates and Projections. Data Version 5: 1980–2020. http://laborsta.ilo.org/applv8/data/EAPEP/eapep_E.html (accessed 5 September 2014).

Another reason to explain the shortage in labor supply of operational workers is due to agricultural subsidy policies. A key platform of the previous prime minister, Yingluck Shinawatra, was huge agricultural subsidies, especially the rice pledging policy. These policies brought about a movement of labor from the industrial sector to the agricultural sector. However, this response may only last in the short term. The long-term effect of the high minimum wage policy and the agricultural subsidies could lead to industrial restructuring toward a more skills-intensive secondary sector and a services sector with a higher unemployment rate.

Additionally, Thailand faces a sharp increase in the wage rate. Thailand enacted a national minimum and uniform wage that mandates a daily rate of nearly \$10 (around \$9.86 per day) in 2013. The minimum wage was around \$7.17 in Bangkok and \$5.40 in provincial areas in 2011 and became \$9.86 and \$7.44 respectively in 2012.² An increase in the national minimum wage affects labor-intensive industries such as textiles, garments, electronics, and leatherwear.

The shortage in the number of operational workers and the higher wage rate have led to a sharp increase in Thailand's outward FDI. This pattern reveals the important economic structure of Thailand.

As mentioned earlier, Thailand has positioned itself as an investment-recipient country for decades and it had very few outward FDI stocks compared with other ASEAN countries (Table 6). However, Thailand's economic reforms led to huge outward FDI in labor-intensive and resource-intensive sectors. The major recipients of Thailand's direct investment are ASEAN member countries (Figures 10 and 11).

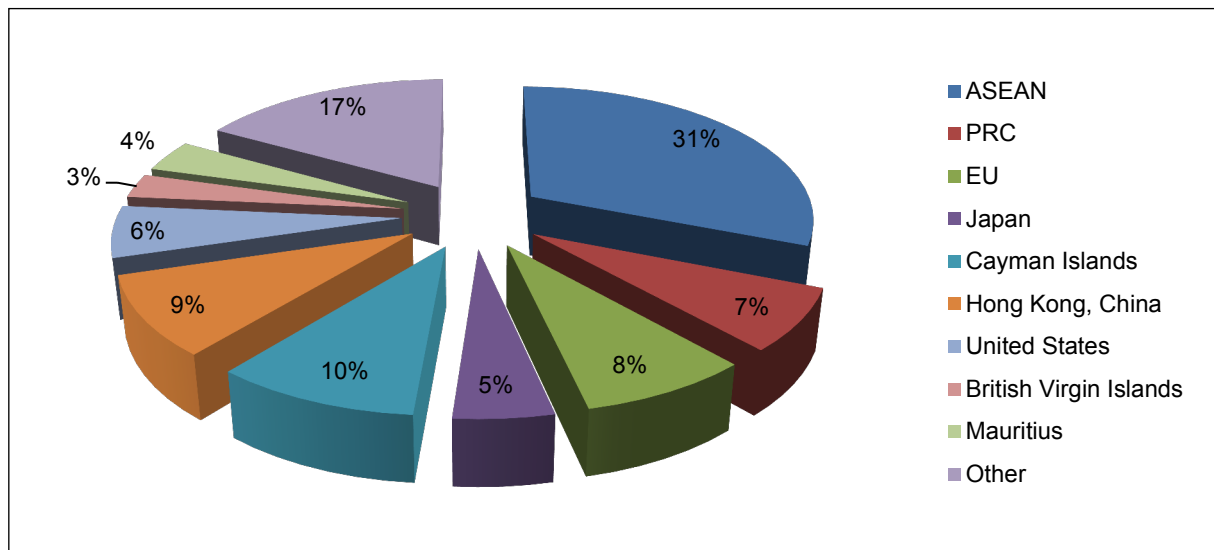
Table 6: Outward FDI Stocks in Selected ASEAN Countries

Country	Outward FDI (stock) (\$ million)			
	1990	2000	2011	2012
Singapore	7,808.37	56,755.20	378,346.00	401,426.10
Malaysia	753.29	15,877.58	106,448.20	120,395.80
Thailand	417.57	3,406.00	40,650.01	52,561.15
Indonesia	86.00	6,940.00	6,203.60	11,626.60
Philippines	405.00	1,032.00	7,107.51	8,952.51
Brunei Darussalam	0.14	512.10	691.10	699.10
Cambodia	0.00	193.20	382.78	422.72
Lao PDR	1.00	20.35	11.79	NA

ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic, NA = not available.

Source: UNCTAD. Inward and outward foreign direct investment stock, 1980–2013. <http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx> Accessed 10 October 2014.

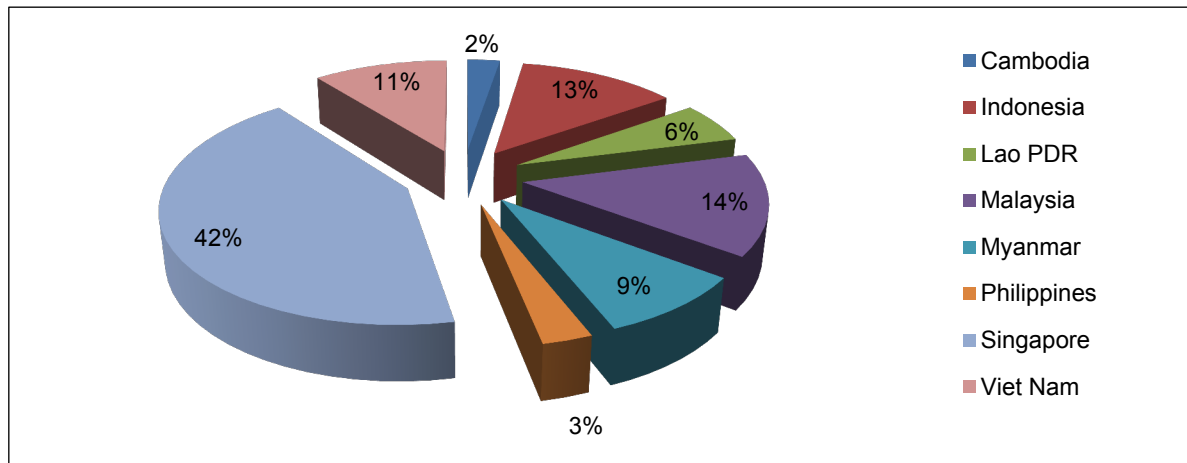
²Minimum wage, Ministry of Labor, Thailand, http://www.mol.go.th/employee/interesting_information/4131

Figure 10: Thailand's Outward FDI by Recipients, 2012

ASEAN = Association of Southeast Asian Nations; EU = European Union; FDI = foreign direct investment; PRC = People's Republic of China.

Source: Bank of Thailand. Foreign Direct Investment.

<http://www.bot.or.th/Thai/Statistics/EconomicAndFinancial/ExternalSector/Pages/StatInternationalInvestmentPosition.aspx#> (accessed 10 October 2014).

Figure 11: Thailand's Outward FDI by Recipients in ASEAN, 2012

ASEAN = Association of Southeast Asian Nations; FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.

Source: Bank of Thailand. Foreign Direct Investment.
<http://www.bot.or.th/Thai/Statistics/EconomicAndFinancial/ExternalSector/Pages/StatInternationalInvestmentPosition.aspx#> Accessed 10 October 2014.

The transition to an investor country, with ASEAN members as the major host countries, brings about the need to promote connectivity with regional countries.

Among the ASEAN members, Singapore is the most important recipient of investments from Thailand. However, the figure might be biased as many companies have their regional headquarters in Singapore. If Singapore is taken from consideration, Malaysia, Indonesia, Viet Nam, and Myanmar are the most important investment recipients,

which emphasizes the importance of connectivity since they are Thailand's neighboring countries or a country that can be connected by land corridors.

Another domestic structure that drives the need for connectivity improvement is the high cost of logistics. Despite the fact that Thailand relies on trade, it still has a poor logistics system. According to the World Trade Indicators Index, Thailand's logistics performance index is at the level of 3.5 of 5, ranked 35 out of 183 countries (Table 7).

Table 7: World Trade Indicators of Selected Asian Countries

Indicators Category	Trade Policy	External Environment	Institutional Environment	Trade Facilitation	Trade Outcome
	TTRI (MFN applied tariff)	MA-TTRI (applied tariff incl. prefs.)	Ease of Doing Business (rank out of 183)	LPI Overall	Real growth in total trade (g+s,%)
Year	2006–2010	2006–2010	2006–2010	2006–2010	2006v2010
Singapore	1	54	1	2	87
Malaysia	24	55	23	29	128
Thailand	74	81	12	35	68
Indonesia	56	80	122	75	35
Viet Nam	NA	NA	93	53	11
Philippines	21	56	144	44	138
Cambodia	108	25	37	72	86
Lao PDR	NA	NA	167	118	48
Myanmar	NA	NA	NA	133	n/a
Brunei Darussalam	23	21	96	NA	NA
PRC	63	75	89	27	72
India	102	70	133	47	14
Korea, Rep. of	83	109	19	23	91
Japan	57	79	15	7	130

g+s = goods and services; Lao PDR = Lao People's Democratic Republic; LPI = logistics performance index; NA = not available; MA = market access; MFN = most favored nation; PRC = People's Republic of China; TTRI = tariff trade restrictiveness index.

Source: World Bank. World Trade Indicators (2011).

Also, according to the National Economic and Social Development Board (NESDB), logistics cost per GDP in Thailand was 15.2% in 2010, composed of administrative costs of 1.3%, inventory and warehouse costs of 6.7%, and transport costs of 7.2%. Logistics costs in Thailand are high compared with developed countries such as the United States (8.3% of GDP).

The major problems concerning Thailand's logistics system come from the concentration of physical distribution, the reliance on land transportation, the lack of advanced IT systems in logistics, the lack of connection between transport modes, and a lack of logistics personnel (Suthiwartnarueput 2007).

As high logistics costs hinder Thailand's competitiveness, the NESDB is reforming the logistics and trade facilitation system via Thailand's logistics development plan. Thailand's 2013–2017 logistics development plan aims to enhance trade facilitation and logistics systems through policies to improve connectivity to neighboring countries and gateways and to develop transport services and logistics networks. The detailed plan will be discussed in Section 3.

2.1.1 Change in Regional Policies

Apart from a change in the domestic economic structure, changes in regional policies are an important driving force for promoting connectivity. The crucial regional policies are trade liberalization and economic reforms in the Greater Mekong Subregion (GMS), trade agreements, and economic cooperation programs in the region, and the transition of Myanmar.

The end of the Cold War in Southeast Asia has brought about economic reform in Cambodia, the Lao PDR, and Viet Nam. These three countries have introduced economic reforms to be more open and export-oriented; the Socio-Economic Development Plan for Cambodia, the Doi Moi for Viet Nam and the Five Year Plan for the Lao PDR. Also, they promote freer trade as they have joined the World Trade Organization (WTO)—Cambodia in 2004, Viet Nam in 2006, and the Lao PDR in 2013. As a result, there is a large increase in formal and border trade between Thailand and Cambodia, the Lao PDR, and Viet Nam.

Cambodia, the Lao PDR, and Viet Nam also aim to attract FDI from other countries. To promote their countries they have issued investment promotion schemes, resulting in a sharp rise in FDI, including FDI from Thailand (Table 6). Increasing trade and investment with Cambodia, the Lao PDR, and Viet Nam brings about the need for Thailand to enhance connectivity. Second, as the economies in ASEAN and in South Asia have become more open, there are several bilateral economic integration and multilateral economic integration programs related to ASEAN, the GMS, and the South Asian countries: ASEAN Economic Community, the Indonesia–Malaysia–Thailand Growth Triangle, Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS), GMS, ASEAN–India Free Trade Agreement, Thailand–India Free Trade Agreement, BIMSTEC, and the Mekong–Ganga Cooperation.

There are many related trade and economic agreements and most of them contain connectivity initiatives. These agreements have overlapping memberships with different coordinating and governance structures. As a result, the initiatives in several agreements might cause conflicts in the long term. Also, many of the agreements have slow progress or a lack of implementation due to such conflicts and other reasons like a lack of funding. Nevertheless, trade and economic agreements in the region promote trade among member countries and lead to a need for greater connectivity.

Finally, Myanmar's economic and political reforms that began in 2011, open more opportunities to economic cooperation and connectivity enhancement between ASEAN and South Asia. The reforms include the release of the pro-democracy leader, Aung San Suu Kyi from house arrest. Myanmar also has policy reforms on taxation, foreign direct investment laws, anti-corruption laws, and the exchange rate system. Myanmar's reforms attract FDI from all over the world, including from neighboring countries. As a result, Thailand has several connectivity projects to link with Myanmar that will be discussed in Section 3. Such connectivity opens opportunities for ASEAN countries and Thailand to connect with South Asia.

2.1.2 2008–2009 Global Financial Crisis and the Need for Trade Diversification

The 2008–2009 global financial crisis that originated from the US subprime crisis led to a sharp contraction in global trade and caused a worldwide recession. Even though Thailand has weak financial links with the US, the country was affected heavily by the crisis. Cheewatrakoolpong and Manprasert (2012) point out that trade links were the most important crisis transmission channel of the subprime crisis to Thailand when indirect trade links were taken into account. Also, when indirect trade is included, Thailand still depends heavily on the markets in the US, the EU, and Japan. The global

financial crisis emphasizes the importance of export-destination diversification for Thailand, especially in emerging markets. Better connectivity is one of the important instruments to promote destination diversification. For example, Thailand's trade with northeast India is small due to geographical obstacles even though the distance through Myanmar is only 1,400 kilometers from Thailand, shorter than the route from New Delhi to Thailand. The ASEAN–India connectivity initiatives could open up trade between Thailand and northeast India and help stimulate Thailand's trade diversification.

2.2 Thailand's Policy Changes toward Connectivity

The driving forces from Thailand's structural reforms and the change in regional policies have provided a change in Thailand's strategies including outward FDI promotion, becoming a logistics hub, the creation of regional production networks and co-production bases, and creating links with Myanmar.

2.2.1 Outward FDI Promotion

Due to driving forces mentioned in Section 2.1, some industries in Thailand are relocating to neighboring countries. As a result, Thailand has reformed several policies to facilitate these needs. The relaxation of the Bank of Thailand's rules for investing abroad is one of the major policy revisions to facilitate outward FDI of Thailand. Also, the new Board of Investment's (BOI) five-year plan includes both inbound and outbound investment, instead of only inbound investment. The 2013 Acts and Decrees enforced by BOI have been revised to include the scope of outward FDI to the mission of the BOI. As a result, the Thailand Outward Investment Support Centre was established and is governed by the BOI.

According to the BOI's master plan, the important recipients of Thailand's direct investment are:

- First priority: Indonesia, Myanmar, Viet Nam, Cambodia
- Second priority: People's Republic of China, India, other ASEAN countries
- Third priority: Middle East, South Asia, and Africa

The promotion of outward FDI brings about the need for connectivity enhancement of Thailand with neighboring countries and will be further discussed in Section 3.

2.2.2 Logistics Hub

The Eleventh National Economic and Social Development Plan and National Industrial Plan includes the development of Thailand as a logistics hub and a knowledge-based economy. Due to geographical advantages, located at the center of the ASEAN community and as an important link to the PRC and South Asia, the government sets the goal for Thailand to be the regional logistics hub after the realization of the ASEAN Economic Community (AEC) in 2015. To accomplish this goal, it is important for Thailand to improve its connectivity, both in physical infrastructure and trade facilitation. The initiatives of Thailand to achieve such a goal will be further discussed in Sections 3 and 4.

2.2.3 Regional Production Networks and Co-production Bases

Due to driving forces mentioned in Section 2.1, several multinational enterprises have relocated their production of labor-intensive parts and components to the CLMV countries while maintaining high skilled-labor or the production of complicated parts

and components in Thailand. As a result, connectivity between Thailand and neighboring countries is crucial to facilitate the operation of such production networks.

Also, the movement of labor-intensive industries (such as textile and garments) of Thai firms to CLMV countries brings about the need for enhanced connectivity as the firms need better road and/or rail freight networks with neighboring countries to ship materials from Thailand and ship back finished products to seaports in Thailand.

Trade statistics confirm the creation of regional production networks and co-production bases as they show an increase in trade of parts and components or materials among production bases in Thailand and other ASEAN countries, including CLMV countries (Tables 3 and 4).

2.2.4 Linking with Myanmar

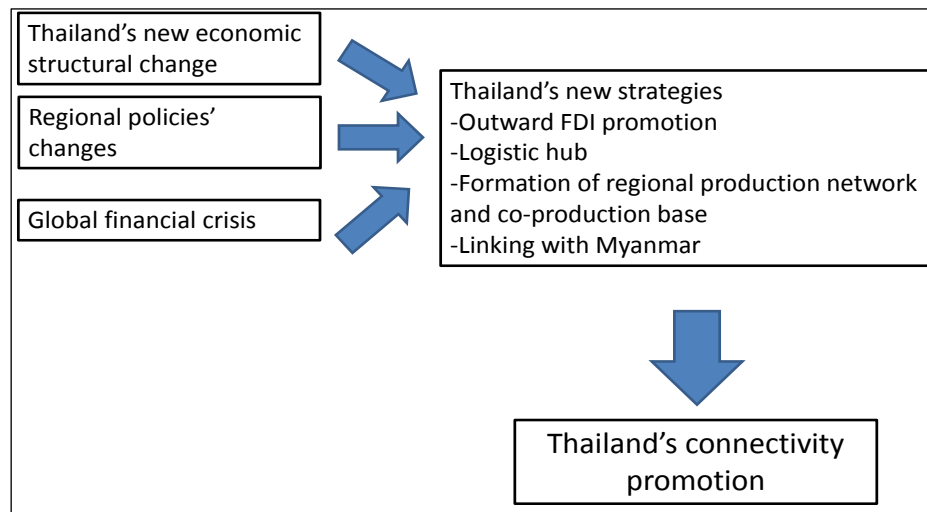
Thailand's current policies prioritize links with Myanmar, as can be seen from the 2 trillion baht infrastructure projects and the 2013–2015 ACMECS action plan to create a single production base and connectivity. At the ACMECS summit in 2013, Prime Minister Yingluck announced that the government had allocated a budget of B15 billion for the development of Myanmar's Dawei deep-sea port, a construction of a land bridge to link Laem Chabang and Myanmar's Dawei Special Economic Zone, and the establishment of infrastructure development to link neighboring countries. The projects include permanent border crossings between Thailand and Myanmar, including the Kio Pha Wok checkpoint in Chiang Mai province, the Ban Huai Ton Nun checkpoint in Mae Hong Son province, and the Ban Phu Nam Ron checkpoint in Kanchanaburi province. Thailand and Myanmar have signed a memorandum of understanding (MOU) on the Comprehensive Development in the Dawei Special Economic Zone and its Related Project Areas,³ an MOU on Development Cooperation in Myanmar, and a Joint Statement for the Establishment of an Energy Forum in 2012.⁴ More detailed projects will be discussed in Section 3.

2.3 Summary of Thailand's Strategies toward Connectivity

With the major driving forces from both domestic structural changes in Thailand's economy and changes in regional policies mentioned in Section 2.1, Thailand promotes several strategies including outward FDI promotion, becoming a logistics hub, formation of a regional production network and co-production bases, and creating links with Myanmar (Figure 12). These strategies lead to the need for Thailand to enhance its connectivity. As a result, Thailand has implemented initiatives to promote physical infrastructure and trade facilitation that link Thailand with neighboring countries. The details of such initiatives will be discussed in Sections 3 and 4.

³ The MOU was signed on 19 May 2008.

⁴ The MOU was signed on 23 July 2012.

Figure 12: Summary of Thailand's Strategies toward Connectivity

FDI = foreign direct investment.

Source: Authors' illustration.

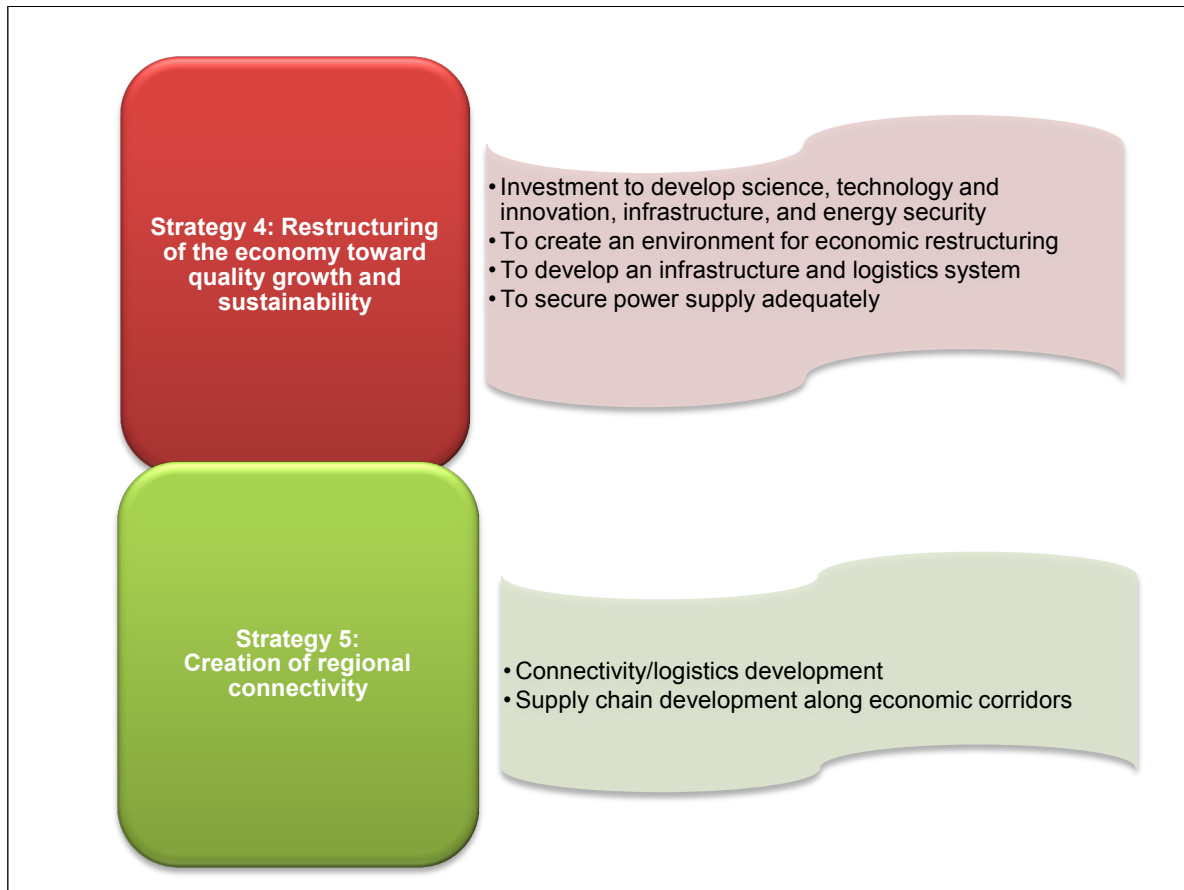
3. CURRENT STATE OF PHYSICAL TRANSPORT INFRASTRUCTURE

This section discusses Thailand's physical transport infrastructure initiatives and projects, both the domestic ones and those linking Myanmar and India.

3.1 Thailand's Domestic Physical Transport Infrastructure Initiatives

The development and improvement of Thailand's physical transport infrastructure is one of the crucial factors to increase the country's competitiveness. According to Thailand's Eleventh National Economic and Social Development Plan, two main strategies are dedicated to physical transport infrastructure initiatives (Figure 13).

Figure 13: Strategies under Thailand's Eleventh National Economic and Social Development Plan



Source: NESDB, Summary of the Eleventh National Economic and Social Development Plan (2012–2016).

<http://www.nesdb.go.th/Portals/0/news/academic/Executive%20Summary%20of%2011th%20Plan.pdf> (accessed 14 October 2014).

Also, the country's new growth model proposed by the NESDB suggests that infrastructure is one of the instruments for growth of income and competitiveness. The NESDB launched an infrastructure development plan (2012–2020) in 2012 to enhance the current transport networks on land, air, and water, to enhance energy security, to further develop telecommunications infrastructure, and to upgrade public utilities infrastructure for industry and people.

The previous government also created the 2014–2015 plan to promote Thailand's readiness for the AEC in 2015. The plan includes the development of border checkpoints and border provinces and the promotion of road links, ICT, and energy connectivity with other ASEAN member countries. Under the plan, in March 2013, the previous government launched the 2-trillion baht infrastructure project. The plan is at present the biggest infrastructure reform in Thailand. Three main goals under this plan are:

- i. Modal shift of road transportation to a cheaper mode or to multimodal in order to decrease logistics costs (B354,560.73 million)
- ii. Development of infrastructure and facilitation to improve connectivity between core-periphery and between Thailand and neighboring countries (B1,042,376.74 million)

iii. Improvement of transportation system in big cities (B593,801.52 million)

The plan includes the following subprojects:

- Ten public railway lines in Bangkok and surrounding areas
- High-speed trains linking Bangkok and provincial cities such as Chiang Mai, Nong Khai, and Padang Besar
- Airport link to connect Chonburi, Pattaya, and Chachoengsao
- Double rail track system in Bangkok and provincial areas for good transits and transportation
- Road links for AEC connectivity (North-South Economic Corridor (NSEC), East-West Economic Corridor (EWEC), and Southern Economic Corridor (SEC) and core-periphery connectivity
- Improvement of air transportation such as more airports in provincial areas
- Development of seaports and fresh water ports such as Songkhla, Chumphon, and Pakbara
- Construction of distribution centers

Most of the spending under the project will support Thailand's strategy toward connectivity.

The Department of Highways has initiated five motorway projects planned for completion by 2017 that will support the strategy toward ASEAN connectivity. The projects include Motorway No. 6 (Bang Pa In–Saraburi–Nakhon Ratchasima), Chonburi–Pattaya–Mabtaput, Nakhon Pathom–Samut Songkram–Chaam, Ban Yai–Ban Pong–Kanchanaburi, and Bang Pa In–Nakonsawan. The Ban Yai–Ban Pong–Kanchanaburi motorway promotes road connectivity with Myanmar.

However, on March 2014, the Constitutional Court ruled that the 2-trillion baht project's borrowing bill was unconstitutional. Also, the legislative procedures had violated the charter's provisions. As a result, the 2-trillion baht project is currently on hold.

According to the National Council for Peace and Order's current roadmap, infrastructure investment projects will be implemented according to their necessity. The infrastructure projects mentioned are subway lines in Bangkok and dual track train lines nationwide. The investment budget proposed includes 14 dual-track train lines worth B403 billion. The high-speed train is not covered in the current proposed budget.

To conclude, the 2-trillion baht projects as a total part of Thailand's major physical infrastructure development projects fit the future development of Thailand's connectivity to its neighbors, but these are politically-driven projects. As a result, political instability will remain the most important challenge as how these projects will transform. Also, it is crucial to find ways to implement the projects without relying on politicians, but rather with a credible governance structure that will assume the viability of these projects.

The next section highlights physical infrastructure projects that aim to link Thailand to Myanmar and South Asia.

3.2 Thailand's Physical Transport Infrastructure Initiatives Linking Thailand to Myanmar and India

Realizing the importance of transport links with Myanmar, Thailand dedicates several physical infrastructure projects to promote links with Myanmar. The projects include the Dawei Development Project, Dawei road links, and highways and bridges along the EWECE.

3.2.1 Dawei Development Project

The notable project linking Thailand to Myanmar is the Dawei Development Project. The project aims to promote regional connectivity and establish the Dawei Special Economic Zone (DSEZ) that will be a new production base with co-manufacturing links with Thailand, Cambodia, and Viet Nam along the southern economic corridor. Thailand and Myanmar signed an MOU on the support of the Dawei project in 2008. In November 2011, the Myanmar Port Authority and Italian–Thai Development PLC (ITD) signed a framework agreement on the Dawei project. In 2012, the governments of Myanmar and Thailand renewed an MOU on the comprehensive development of the DSEZ and its related projects. Hence, the Myanmar–Thailand Joint Working Mechanism comprising the Joint High-level Committee (JHC), the Joint Coordinating Committee (JCC), and the Joint Sub Committees (JSC) was established in 2012.

The eight priority projects agreed for development under the joint working mechanism are a toll road, deep-sea port, industrial estate, power plant, water supply and waste water system, telecommunications, community development and relocation, and railway.

In 2013, Myanmar and Thailand jointly established a “special purpose vehicle” (SPV) to develop and manage the DSEZ and take over the development rights from ITD. Also, the concept of public–private partnership (PPP) is proposed to finance infrastructure projects in the DSEZ. In June 2012, a trilateral dialogue mechanism between Myanmar, Thailand, and Japan was established, and in March 2013, Myanmar and Thailand invited the Japanese government to become the strategic country partner for the DSEZ development.

Nevertheless, implementation of the project has been delayed. This is due to the delay in the operation of ITD that made the Thai government take over the project in 2012 and the delay in agreeing on the structure of the SPV to manage the DSEZ between Thailand and Myanmar. Also, finding SPV partners and foreign investors for the DSEZ has encountered obstacles. The Japanese government and investors, namely Hutchison Port Holdings, have agreed to establish Thilawa deep-sea port, 25 kilometers (km) south of Yangon. The area is also planned to develop into a special economic zone in the Thanlyin–Kyauktan area. The PRC government has developed the Kyaukpyu special economic zone and deep-sea port and the first stage is planned to open in 2016. With rivals to the SEZ projects in Myanmar and its own delay, the success of the Dawei project is questionable.

On 21 November 2013, the JCC revoked ITD's Dawei concession. The concession right is transferred to SPV, held 50% by the Thai government and 50% by the Myanmar government. The SPV will have the right to manage the Dawei project for 75 years and may extend for another 25 years. The JCC is under study about the amount of money ITD has invested in the Dawei project. Both governments hope the Japanese government will become a partner for the DSEZ development. At the ASEAN–Japan summit of 2013, Japanese Prime Minister Shinzo Abe said that Japan would make an

effort to cooperate with Myanmar and Thailand to develop the DSEZ. The details of cooperation are lacking but it is the strongest sign of support from Japan.

However, the future of the DSEZ is uncertain. It is unclear whether Japanese investors will join the construction of the seaport and road projects or they will wait until the projects are completed before Japanese multinational enterprises start to invest in the DSEZ. Also, the DSEZ faces obstacles from nongovernment organizations such as the Dawei Development Association (DDA) which is concerned about human rights and the social and environmental impacts of the project on local communities. DDA attests that about half a million people have been adversely affected by DSEZ without fair compensation. The group is lobbying the Japanese government not to be involved in the project until international best practices for compensation and environmental protection are established.

According to the NESDB, Japan has not decided whether to join the SPV. Also, there has been no investor placing a bid to invest in DSEZ infrastructure. As a result, the SPV is in the process of revising the projects to attract more investors. The NESDB indicated that the Japanese government is against the involvement of private sector in infrastructure construction as the infrastructure should be provided by the public sector. As a result, DSEZ may fail.

3.2.2 Dawei Road Links to Thailand

To support the DSEZ project, the Thai government plans to build a road from Dawei to Bangkok, approximately 370 km in Myanmar and 160 km in Thailand. The road in Myanmar is from the Dawei port to Ban Phu Nam Ron in Kanchanaburi province. The project used to include the expansion of Thailand's 4-lane road to a 8-lane road but the project was nullified since the current road should have enough capacity for the current trade volumes along the Southern Economic Corridor. The road project will be completed by 2015.

3.2.3 Financial Assistance from the Neighboring Countries Economic Development Cooperation Agency for Road Construction Projects in Myanmar

To promote connectivity, the Neighboring Countries Economic Development Cooperation Agency (NEDA), Thailand's international development aid agency, provides financial assistance to Cambodia, the Lao PDR, and Myanmar for road construction projects. In 2013, NEDA provided financial assistance for the road construction project along the Mae Sod–Myawaddy–Mt. Tanao Sri route. In the 2014–2016 fiscal plan, NEDA aims to give further financial support for road improvements along the Three Pagodas Pass–Payathonsu–Thanbyuzayat route. Also, NEDA has a feasibility study for the development of road links between Kawkaeik and Mawlamyine.

3.2.4 Highways and Bridges along the East-West Economic Corridor

The Thai government, through NEDA, helps to finance road projects along the western part of the East-West Economic Corridor (EWEC) in Myanmar. The projects include the maintenance (18 km) and construction (28.6 km) of a road between Myawaddy and Kokariek. The route will connect Mae Sot, Thailand, to Yangon, Myanmar. It will also allow Thailand to connect to northeastern India via this route. Thailand also completed the maintenance of the first Thailand–Myanmar Friendship Bridge over the Mae Sai River (NESDB 2010). The second Moei River Crossing Bridge at Mae Sod (Tak province) is also under feasibility study.

3.2.5 India–Myanmar–Thailand Highway

The idea of the India–Myanmar–Thailand highway or trilateral highway was proposed at the trilateral ministerial meeting on transport links in Yangon in April 2002 with support from ADB and the World Bank. However, the project has been delayed for years. During an official visit to Thailand in May 2013 by Manmohan Singh, the prime minister of India, the two countries reaffirmed the importance of the trilateral highway project. They welcomed the setting up of the Thailand–India Joint Working Group on Connectivity and Infrastructure in 2013 to help expedite cooperation on connectivity initiatives in both countries as well as in third countries and agreed to complete the project by 2016.⁵ India has also granted \$500 million to Myanmar as a part of the project completion. Out of 3,200 km, 1,600 km need to be built or improved. Other possible sources of funds are ADB and the World Bank. The road project will connect Mae Sot, Thailand, to Yangon and Mandalay in Myanmar and Moreh in India. The trilateral highway project will be the expansion of the ASEAN Highway Network (AH1) that covers Tamu–Mandalay–Meiktila–Bago–Payagyi–Thaton–Myawadi in Myanmar. AH1 is part of the total 1,656 km and 1,208 km have been upgraded to Class III as of May 2013. The remaining 781 km are planned to be upgraded to at least Class III by 2015.

Under the India–Myanmar–Thailand highway project, the development of 78 km of new roads and upgrades and/or rehabilitation of approximately 400 km of roads are needed. Also, weak or distressed bridges along the highway need to be rehabilitated or reconstructed. In Phase I of the project, India assumes responsibility of 78 km of missing links and 58 km of road upgrades while Thailand is responsible for rehabilitating 136 km of missing links and upgrading 62 km of road (De 2012).

4. CURRENT STATE OF TRANSPORT AND TRADE FACILITATION

This section discusses the current state of transport and trade facilitation initiatives and implementation in Thailand.

Since logistics is one of the key elements for enhancing Thailand's competitiveness, Thailand established a logistics development plan and the National Logistics Committee in 2007. Trade facilitation is one of the strategic agenda items in the logistics development master plan 2007–2011. The major strategies of the agenda to enhance trade facilitation are to:

- i. develop e-logistics and Single Window Entry into a central system in order to provide import/export and logistics services; to link information on government-to-government, government-to-business, and business-to-business bases;
- ii. improve the taxation system and customs clearance procedures related to import and export transportation and shipping businesses with the aim of facilitating the import/export process;
- iii. promote the setting up of distribution and logistics centers in priority markets to increase Thai business competitiveness in foreign markets;

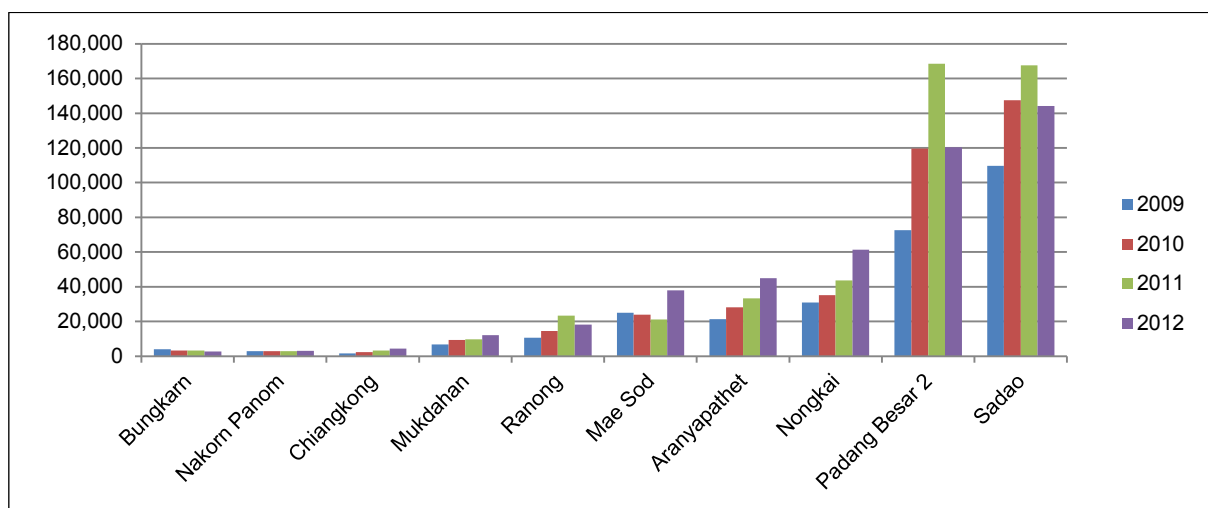
⁵ Joint Statement on the Occasion of the Official Visit to Thailand of His Excellency Dr. Manmohan Singh, Prime Minister of India in 2013.

- iv. promote e-commerce business with the aim of reducing documentation and information of delivery costs by expediting the enactment of the Royal Decree; and
- v. increase the efficiency and service quality with regard to the inspection of pesticides, toxic substances, and contaminants in farm imports and exports with the aim of standardizing the inspection procedures so that they are acceptable to our trading partners, to speed up the process of moving goods from manufacturers to customers and to reduce exporters' reverse-logistics costs (NESDB 2009).

One of the crucial initiatives from the strategies listed above is the establishment of Thailand's National Single Window (NSW) in 2008. The NSW enables the secure exchange of trade and transport e-documents among relating government agencies (35 departments from 12 ministries) and businesses. Its ultimate goal is to link with the ASEAN Single Window by 2015. The NSW helps eliminate redundant transaction costs related to export and import activities.

Figure 14: Thailand's Export Values at Border Checkpoints, 2009–2012

(B million)



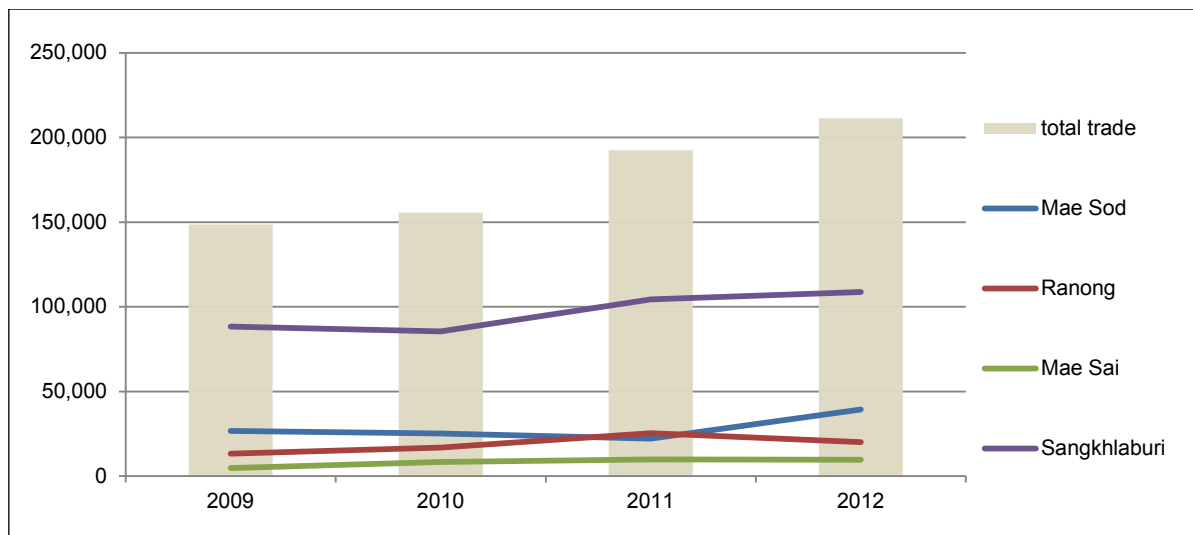
Source: Ministry of Finance (2014).

With the importance of cross-border trade for Thailand, the country has continuously improved trade and transport facilitation at the border checkpoints (Figure 14). The notable improvement is a change of custom procedures from manual operation to electronic data interchange (EDI) customs services and ultimately to electronic customs systems.

Also, cross-border trade with Myanmar is particularly important. Figure 15 illustrates cross-border trade with Myanmar at each border checkpoint compared with total trade.

Figure 15: Thailand's Cross-border Trade Values with Myanmar at Border Checkpoints Compared to Total Trade, 2009–2012

(B million)



Source: Ministry of Finance (2014).

Moreover, to support the GMS program, Thailand and Myanmar have a plan to develop Mae Sod (Thailand) and Myawaddy (Myanmar) along the EWEC and Mae Sai (Thailand) and Thachileik (Myanmar) into a special economic zone. Apart from physical infrastructure projects mentioned in Section 3, the special economic zone will contain industrial estates, warehouses, and customs one-stop services to facilitate export and import activities between Myanmar and Thailand. According to the meeting for the development of the Mae Sod special economic zone in February 2013, the Thai Minister of Interior appointed Tak province's governor to improve the facility and capacity of the Mae Sod border crossing and customs checkpoint and to create a one-stop service by 2015.

Also, Thailand has decided to establish three permanent border crossings between Thailand and Myanmar. The border crossings include the Kio Pha Wok checkpoint in Chiang Mai province, the Ban Huai Ton Nun checkpoint in Mae Hong Son province, and the Ban Phu Nam Ron checkpoint in Kanchanaburi province.

Thailand also has initiatives and projects to improve customs infrastructure. The projects are under the B2.2 trillion infrastructure project mentioned in Section 3. The projects include renovation and/or reconstruction of customs, inspection, and quarantine (CIQ) unit buildings, warehouses, goods control buildings, dormitories for customs officers, installation of a CCTV system (Mae Sai border crossing), installation of licensed plated recognition system (Mae Sai border crossing), and installation of a container inspection system (Mae Sod border crossing). The objectives of these projects are to facilitate cross-border trade and reduce transaction costs and time. The projects will be completed by 2015.

Apart from trade related issues, security is another major concern for CIQ units at Thailand's border crossings. Especially, the Mae Sod border checkpoint at Tak province is one of the important border crossings that Myanmar migrants use to travel to Thailand. According to the Immigration Bureau, there were 249,483 foreign people that visited Thailand using the Tak border crossing during January to August 2013. The

major concerns regarding security at the Mae Sod border checkpoint include drug trade, people trafficking, and contagion.⁶

According to Thailand's Office of the Permanent Secretary for Interior, the strategies for border security are to enhance cooperation with neighboring countries via both country-to-country cooperation and subregional cooperation. Also, the involvement of local residents to promote security is encouraged.

5. STATE OF ENERGY TRADING AND INFRASTRUCTURE

As of July 2013, Thailand had a capacity of 33,141 megawatts (MW) installed (EGAT 2013). This compares to less than 3,000MW installed in 2010 in Myanmar (San 2011). However, Myanmar has a huge future electricity production potential, especially in hydropower and natural gas; the potential for hydropower alone is estimated at 100,000MW (ADB 2012a). Another existing energy trading partner is the Lao PDR with an installed 2,550MW (Kouphokham 2012) and an estimated hydropower potential of 23,000MW (Vongsay 2013) (Table 8).

Table 8: Total Installed Capacity and Hydropower Producing Potential

	Total installed capacity in MW	Hydropower potential in MW
Thailand	33,141	15,155 ^a
Lao PDR	2,549	23,000
Myanmar	2,947	100,000

^a As of 2003.

Lao PDR = Lao People's Democratic Republic; MW = megawatt.

Source: ADB (2012a); EGAT (2013); EPPO (2003); San (2011); Kouphakham (2012); Vongsay (2013).

Thailand's main energy sources are gas, petroleum, coal, and hydropower. In 2011 the gas share was 44% and petroleum share was 36%. Currently, natural gas and petroleum provide 80% of Thailand's energy. The other sources are almost negligible at 11% for lignite and 6% from hydropower. Natural gas is mostly used in electricity production, while petroleum is the main source for mobility, personal mobility, and for transportation. Industrial production uses 37% of the energy and transportation uses 36%. Business and households consume just over one-fifth of the energy provided, while the agricultural sector only uses around 5% (Polachan 2012).

The Electricity Generating Authority of Thailand (EGAT) provides around 15,000MW, private producers add almost 16,000MW while 2,400MW is imported; 2,100MW from the Lao PDR and 300MW from Malaysia. Thailand's energy trade with neighboring countries is low, standing at only 8% of total production

⁶ Cheewatrakoolpong (2009).

Table 9: Installed Electricity Generating Capacity, July 2013

EGAT's Power Plants	MW	% of total
Thermal	4,699.00	14.18%
Combined cycle	6,866.00	20.72%
Hydropower	3,436.18	10.37%
Diesel	4.40	0.01%
Renewable energy	4.54	0.01%
Subtotal	15,010.12	45.29%
Purchase from		
Domestic Private Power Plants	15,726.30	47.45%
Neighboring Countries	2,404.60	7.26%
Subtotal	18,130.90	54.71%
Grand Total	33,141.02	100.00%

EGAT = Electricity Generating Authority of Thailand, MW = megawatt.

Source: EGAT (2013).

5.1 Potential for Cross-border Energy Trading and Constraints

Thailand is reaching its limit in providing cheap and reliable energy domestically. In order to improve energy security, reliability, and diversification, Thailand needs to look over the border to provide the energy demanded. Fortunately, its neighbors, in particular Myanmar and the Lao PDR, are well endowed with untapped natural resources and currently, their energy supply exceeds demand. Additionally, the lack of any considerable trade in energy between Thailand and its two energy-rich neighbors leaves a large potential for cross-border energy trade. Presently, the main trading partner is the Lao PDR, which provides more than 90% of Thailand's electricity imports (EGAT 2013). The Lao PDR has a large potential in hydropower. Currently, 11 power plants are in operation, producing 2,549MW. Plants currently under construction will add another 4,893MW and bids for an additional 5,931MW are open (Global Times 2012). Energy demand on the other hand will not increase as much, from less than 1,000MW in 2013 to around 2,500MW by 2020. Large parts of the overproduction could be sold to Thailand under the GMS contracts for energy trading. Myanmar also has a large potential in hydropower.

However, there are constraints for trading large amounts of electricity. The GMS countries are in different development stages and the energy links are weak. Thus, richer countries have to help less developed ones through investment in infrastructure and knowledge transfer. For the ASEAN region as a whole, an estimated \$100 billion of investment into infrastructure (for example, electrical transmission lines, gas liquefaction and regasification plants, pipelines, and power plants) is needed to meet expected energy demand in 2020. In this time horizon, the largest amount will be spent on electricity infrastructure, over \$20 billion annually, while infrastructure investments into the other primary energy sources are negligible. In the longer term, up to 2050, electricity and gas transportation infrastructure will make up the largest area of investment, around \$30 billion annually for electricity and \$20 billion for gas (Bhattacharya 2013).

Because of the constraints for Thailand's future domestic energy production, Thailand may need to import energy from its energy rich neighboring countries. Thailand and Myanmar, for example, are discussing energy trade and energy security that will include building hydropower plants, like the Tasang Dam on the Salween River and further construction of the trans-ASEAN gas pipeline project. The amount of future

investment in electricity capacity will depend on the parties' willingness to participate. The willingness of the local people to allow large-scale plants to be built depends on the costs and benefits for them. The power plants could reduce the local people's income and could harm the environment; therefore environmental and social issues need to be addressed. Also, strong interest groups that receive subsidies in the form of lower energy prices may not be willing to allow a large-scale export of natural resources and energy because they may have to pay a higher price for their consumption.

Thailand's contracts for the operation of a power plant and importing its production last around 20 to 30 years. This may not be long enough for the government or an investment consortium, as the features of the contracts could change drastically after the contracts run out. In 30 years, the exporting country may need the output that has been previously exported and a source of electricity for Thailand could stop flowing. Hence, building capacity abroad adds risk that the investing country may not be willing to take.

5.2 Identify Projects to Improve Energy Connectivity

Thailand's neighbors are opening up for foreign investment and increased trade in electricity and energy. Better infrastructure for mobile energy sources like natural gas are needed, this means roads and pipelines, mainly connecting Myanmar to Thailand. Also, investment in infrastructure for hydropower in the respective countries needs to be improved, such as hydropower plants and high-voltage transmission lines. Apart from the government, the private sector is keen to take an important role in these energy infrastructure projects.

These infrastructure projects focus on the link between the GMS countries, especially the Lao PDR, Myanmar, and Thailand. Improving the energy connectivity has several benefits that can be assigned to three different areas: economic, energy, and environment.

On the economic side, a closer integration of the GMS member countries would help to stabilize prices and make demand more elastic so that the economy can react promptly to external shocks. Chang et al. (2013) argue that an integrated ASEAN energy market would increase real gross domestic product and foreign direct investment, especially through tariff cuts, subsidy reductions, and increased infrastructure investment. Also, income disparities across countries could be reduced and poorer countries could catch up in the economic development level through the investment and knowledge transfer of an integrated market, meaning countries are more likely to achieve economic convergence through energy market integration (Sheng and Shi 2011).

On the energy sphere, energy market integration (EMI) will lead to more choices of energy supply. Accordingly, energy efficiency and the share of renewable energy production could be increased by using economies of scale, knowledge of more efficient technologies, and more choices for hydropower plant locations. Better technology will also reduce distribution losses, freeing up additional capacity. An EMI would also attract more investment due to bigger markets and relieve pressure on peak demand as power production can be shared across time zones. Sharing the energy sources will drive down the price of electricity and participating countries will be able to buy the least-cost energy source. These aspects would increase energy security and decrease power production costs.

The third scope, the environment, would be less harmed as well, as better technology for all participant countries would decrease greenhouse gas emissions. Further, a

reduction of subsidies in energy commodities will affect greenhouse gas emissions positively, meaning less harm to the environment. Socially, an integrated market could also positively affect the poor and tackle energy poverty issues on the micro-level (Navarro, Sambodo, and Todoc 2013). Lower prices make electricity more affordable for low-income households and electrification rates could increase due to more infrastructure investment in poorer areas. This will consequently replace traditional biomass for cooking with newer methods that are cleaner, more hygienic, and more efficient.

An integrated energy market may also have costs, like increasing use or waste of energy due to lower prices, however, conclusions of the integrated European energy market show that benefits outweigh costs (Economist 2007).

There are several projects between the three countries, like the Tasang Hydropower Plant (HPP) in Myanmar's Shan State close to the Thai border. The estimated cost is \$8.2 billion (ADB and ADBI 2009) and the power plant is expected to provide 7,000MW of electricity to Thailand, reaching 70% of the total future amount of electricity imports from Myanmar (Praiwan 2013). At the eastern border of Thailand in the Lao PDR, Thailand is interested in projects such as the GMS Nam Theun 2 Hydroelectric Project (ADB 2013a) and the Nam Ngum 3 HPP (ADB 2012b). The GMS Nam Theun 2 dam has a capacity of 1,070MW. It exports 5,354 gigawatt-hours (GWh) to Thailand and about 5% of its electricity production is serving the Lao PDR electricity consumers. The latter project will have a smaller capacity of 440MW. These are large-scale projects to satisfy some of Thailand's energy demand. Additionally, these projects help to diversify Thailand's energy mix, geographically and source wise, and they do not increase greenhouse gas emissions as much as other power plants. The Nam Ngum 3 HPP will displace 1 million tons of carbon dioxide annually (ADB 2013c). Another project is the Nabong 500kV Substation and Transmission Facility Project (ADB 2013b). The new infrastructure will link Thailand's northeast region to the Lao PDR and improve energy connectivity between the two countries. After completion, the project will contribute to sustainable development in the northeast region of Thailand, boost energy security, and reduce greenhouse gas emissions. Myanmar, the Lao PDR, and Thailand will also install power transmission lines to stabilize the grid and secure transmission, these links will help to foster trade and improve energy connectivity. The infrastructure investment is expected to cost \$216 million, \$125 million between Thailand and the Lao PDR, and \$91 million between Thailand and Myanmar.

6. STATE OF THE FINANCIAL SECTOR RELEVANT FOR INFRASTRUCTURE FINANCING

Thailand is able to finance small infrastructure construction and maintenance projects (Economics Research 2013). For larger projects, Thailand could turn to other partners such as ADB, the Japanese Bank for International Cooperation (JBIC), and the Japan International Cooperation Agency (JICA). These institutions help to select, prepare, and support bankable projects in less developed countries. For promising and approved projects, they may provide grants or give concessional financing. For some infrastructure development projects, agencies might include funds from the private sector and form a public-private partnership (PPP). The private sector may be included to increase the funding or get access to technical knowledge (Bhattacharyay, Kawai, and Nag 2012).

Large-scale cross-border projects on Thailand's border have largely been conducted through the GMS program assisted by ADB. Since its launch in 1992, the GMS

program has facilitated the regional flow of goods and people. The program has linked the countries mainly through sustainable infrastructure investment that are divided into three economic corridors, the North–South, the East–West and the Southern Economic Corridors. In a recent project called the Greater Mekong Subregion Highway expansion, Thailand was able to get a loan from ADB of \$77.1 million (Tanaka 2013). This project will be undertaken by the Department of Highways under the Ministry of Transport and will widen two sections, 105 km and 73 km in length, of two highways in Thailand. The highways are on the GMS East–West Economic Corridor and the GMS Southern Economic Corridor. The GMS program has been successful because it includes many different stakeholders. The main body consists of government agencies and the private sector that can contribute through the GMS Business Forum; civil society organizations, major foreign aid and funding agencies provide advice and fund projects as well. The member countries have not yet been very successful to include the private sector. From 2009 to 2011, there has been a total of 58 projects and more than two-thirds have been fully paid for by the public sector. Only 3% of all projects included the private sector for a source of additional finance. However, almost 30% of the financial resources came from a mixture of different stakeholders. The low private sector participation rate may reflect that in some countries the private sector is not yet sufficiently developed to ensure competition for contracts (Bhattacharyay, Kawai, and Nag 2012).

The First Thai–Lao Friendship Bridge is a bridge across the Mekong River from Nong Khai in Thailand to Vientiane in the Lao PDR. The bridge is 1,170 meters in length, with two 3.5 meters wide road lanes and a single 1,000 millimeter gauge railway line in the middle. The cost of the bridge amounted to around \$30 million and was fully funded by the Australian government as development assistance to the Lao PDR and opened in 1994 (ASEAN 2013).

A current large scale project is the Fourth Friendship Bridge, a 480m bridge connecting Chiang Khong in Thailand's Chiang Rai province and Houayxay in the Lao PDR's Bokeo province. The cost of the bridge amounted to around \$50 million and the government of Thailand and the People's Republic of China jointly financed the project on a shared 50–50 basis. Construction for the bridge began in March 2010 and was opened in December 2013.

Other large scale projects include the Trilateral Highway and the Dawei Deep-sea Port. The Trilateral Highway is a road project that will connect Thailand and the northeast of India via Myanmar. All three countries involved are committed to this road link and the project has almost no public opposition; mainly because the benefits hugely exceed the cost and the expansion mostly consists of existing roads being upgraded (Chalermphanupap et al. 2013). It is estimated to be completed in 2016 (Government of India 2012). The rationale of the project is to provide a good, safe, and uninterrupted road connection between Thailand, Myanmar, and India, with the benefits of reduced travel time and costs (UNESCAP 2013). The project will be part of the Asian Highway 1 and start in the Thai border town of Mae Sot. It will cross to Myawaddy in Myanmar and cross the country; in the northwest it will finally cross the border from Tamu to Moreh in India. The whole stretch (Tamu–Mandalay–Meiktila–Yangon–Bago–Phayagyi–Thaton–Myawaddy) will be 1650 km long (Government of Union of Myanmar 2013). Some of the project will be financed by the Thai and Indian governments. For example, the 18 km long roadway from Myawaddy to Thingan–Nyinaung has already been upgraded through development assistance from the Thai government, while the 28 km stretch between Thingan–Nyinaung and Kawkaeik is under construction by the Thai government. On the other side of Myanmar's border, the 144 km section between Tamu and Kalaymyo has also already been upgraded, with development assistance

from the Indian government. Additionally, upgrading of 71 existing bridges to reinforced concrete standard bridges will be implemented with the assistance of India. Along with grant assistance and funds from ADB and the World Bank, India has given a loan of \$500 million to Myanmar, part of this loan will be used to build the Asian Highway in Myanmar (Limsamarnphun 2012). Other parts of the road are financed under the build–operate–transfer (BOT) scheme. There are four Asian Highway sections in Myanmar, AH1–3 and AH14, a total of 3003 km of roads. Most sections are managed with BOT schemes by local companies under the authorization of Myanmar's Public Works (Government of Myanmar 2013).

Another project that will improve connectivity between India and ASEAN is the Dawei Deep-sea Port. The financing of some parts of the project is not secured yet, but the financing for the important road link to Thailand stands.

In the initial stage from 2013 to 2017, a 2-lane toll road will be built; from 2018 onwards the 132 km link will be upgraded to a 4-lane motorway. The connection will feature a motorway of international standard and facilities for seamless border crossing. The road will consist of viaducts and tunnels for reduced operating costs and more comfort for the driver, toll plaza facilities, immigration and customs offices, rest areas and vista points (Boonsongpaisan 2013). The NESDB estimates that the total cost of the infrastructure, that is, the deep-sea port, reservoirs, telecommunications, rail tracks, and roads (Theparat 2013) will be around \$10,750 million. However, the NESDB also warns that the price tag may have to be adjusted upward. Nevertheless, the current estimate assigns almost \$8,227 million to Myanmar, for both stages; Thailand will foot the rest of the bill of \$2,523 million. The cost can be further divided; for both the governments of Myanmar and Thailand, the first stage will cost around 60%, the other 40% is assigned for the second stage. The largest costs for Myanmar will be the port construction, in the first and second stages, the power plant construction and the road link to Thailand, in the first stage, and the double-track railway that will be constructed in the second stage. On the other side of the border, the motorway from Bang Yai to Kanchanaburi will be the largest project in the first phase; in the latter phase, the double-track railway from Phu Nam Ron to Gao Nhong Pla Dook will cost the most.

Complementarily, the Thai government helps to finance smaller border projects or projects in neighboring countries through the NEDA. The NEDA has granted financial assistance for nine projects in Cambodia, the Lao PDR, and Myanmar worth B5,512.42 million (NEDAa). The projects are mainly in infrastructure, for example a 17 km road construction project from Tanaosri Mountain in Thailand to Myawaddy just over the border in Myanmar. A grant of B122.62 million has been agreed. The Mae Sot–Myawaddy road construction is part of a highway that will connect Thailand, Myanmar, and India. In the north of Thailand, the NEDA has supported another highway improvement project linking Chiang Rai in Thailand to Kunming in the PRC via the Lao PDR. The road covers a distance of 84 kilometers and financed under a loan of B1,385 million. The road improvements are part of the North–South Economic Corridor under the GMS program and will help to improve connections between Thailand and southern PRC (NEDAb). The project was completed in February 2008. These two projects will foster and enhance opportunities in trade, investment, and tourism in the region.

6.1 Environment for Public–Private Partnerships and Regulatory Restrictions for Cross-border Infrastructure Projects

Traditionally, Thailand pays for its infrastructure projects through conventional methods. However, starting in the 1990s, the government invited the private sector to form public–private partnerships (PPP) in sectors including ports, power and electricity, telecommunications, water and sanitation, and transportation (Sussangkarn 2007). Public–private partnerships have various benefits and could have a positive effect on the whole economy, if effectively applied. Both partners have learned from previous projects, risks can be managed and evaluated more precisely (Shubhomoy 2013), hence private firms may take on more sophisticated projects. PPP infrastructure projects could be provisioned faster due to smaller overall funding constraints and the overall construction time would decrease as well because of the incentives for a private firm to deliver on time. Overall, the risk for the government decreases and the quality of service may increase. Also, private firms tend to have better management and technical skills, therefore a PPP project may have lower overhead costs. In the near future, Thailand is about to invest heavily in its domestic and cross-border infrastructure. However, major concerns about future public debt constrain the government; currently the debt level is still low, standing at 43% of GDP (Thailand Government Public Relations Department 2013). In order to complete all the projects and decrease financial pressure, the government may introduce more public–private partnerships.

Out of several smaller and larger infrastructure projects, the expansion of the Laem Chabang port, two toll roads/expressways in Bangkok and the main mass transit lines stand out. The model used for these PPPs are BOT schemes. This means that the private sector first builds the facility, then operates it for a predetermined time and at the end of the concession transfers the operations to the government (Valentine 2009). This model was the preferred one so far. The Act on Private Participation in State Undertaking B.E. 2535 (1992 in the Gregorian calendar) is the main reason for the dominance of this model as the law does not clearly state the rights of private companies owning state property. Build–own–operate (BOO) models were deemed outside the law. The new act that came into force on 4 April 2013, the Private Joint Investment in State Undertaking Act B.E. 2556 (2013), clarifies many of the constraints of the old law (Souche 2013). Hence, different types of models of PPPs to the above mentioned may now be possible, like the design–build–finance–operate scheme widely used in the EU. This model may be applied for transportation projects in road, rail, and energy transportation like pipelines. In this model, basically all steps are outsourced to the private sector, the company or consortium designing, building, financing, and operating the public facility would earn user fees or shadow tolls, which are user fees paid by the government depending on its usage. Other shortcomings of the old law that have been addressed are the reduction of the time consuming procedure, from a minimum of 2 years to less than 1. Different authorities were in charge of different projects and their institutional support was restricted. The newly created agency solely in charge of PPPs, the Committee of Private Investment in State Undertaking, can give more professional support. Also, a more reasonable risk allocation has been implemented, more clearly stating the rules and transferring some of the risks to the private sector. The risk reallocation should address projects that are economically viable but not financially, hence preventing a project to remain unfinished, such as the Hopewell Project, which accumulated large debt on the Bangkok Mass Transit System Skytrain project. Regrettably, cross-border PPPs have not been clarified in the law.

Presumably, the degree of involvement of the private sector in a cross-border PPP will have to be negotiated each time. How much the consortium can participate will therefore vary, which may hinder participation of smaller private firms, especially from less developed economies.

It is not yet possible to evaluate the new law as it was only introduced in April 2013. The framework changes it introduces to Thailand's PPP environment have to be observed first. The new law has clearly addressed constraints of the former law and will probably foster more PPP projects.

6.2 Options for Improving Financial Environment

The predominant way to finance physical infrastructure, especially cross-border infrastructure, is still through the public sector (Bhattacharyay, Kawai, and Nag 2012). Hence, if governments could borrow more easily and with lower costs and risks, it would immediately improve the financial environment. Development of a strong local currency bond market is a key method. It would reduce the mismatch of currencies and maturities. Since 2000, Asian economies have strengthened institutions to foster growth in their local currency bond market. Bond markets denominated in their respective local currencies in the ASEAN economies plus the PRC, Japan, and Republic of Korea (ASEAN+3) grew rapidly. From 1997 to 2008, the markets grew on average by 30% annually, on a dollar base (Asian Bonds Online 2008). Additionally, introducing the Asian Bond Markets Initiative (ABMI) in 2003 implemented some policies to develop a viable bond market, however, the Asia Bond Monitor (2008) added a five-point list to further deepen and stabilize local currency markets. These points (also applicable to the Thai bond market) are:

- Bolster investor confidence by strengthening legal protection and thus certainty, improve standards of corporate governance and transparency, and adhere to international accounting standards.
- Reduce constraints to market entry, investment, and encourage investor diversity to promote greater demand for local currency bonds.
- Develop derivative and swap markets to broaden the investor base, increase market liquidity, and allow a wider dispersal of risk.
- Improve relevant data compilation and comparison.
- Strengthen broader arrangements for regulatory oversight and regional cooperation in the areas of information sharing and in coordinated actions to maintain financial stability (Asia Bond Monitor 2008: 1–2).

6.3 Two-trillion Baht Infrastructure Project

The Thai government has an infrastructure connectivity plan for 2013–2019. It is supposed to connect Thailand with its neighbors. These projects are estimated at B2 trillion which is almost a fifth of the Thai gross domestic product (Economics Research 2013). Over 80% of the government's extra spending is in rail, of which around 60% is reserved for high-speed trains and 25% for new lines for the Bangkok mass transit system. Investment in road infrastructure projects will be about 10% of the total 2-trillion baht project. However, since Thailand's latest change under the military regime, these plans had changed, with medium speed trains likely to replace the high speed rail project, due to lower costs and that the tracks will also be usable for product shipments.

The main goal of these projects is to reduce Thailand's transportation cost by 2%, from 15.2% down to 13.2%, within the next 7 years (Government of Thailand n.d.). Additionally, 500,000 jobs will be created, due to the investment in infrastructure and a subsequent additional estimated economic growth of 1%. Other concepts are to enhance competitiveness and to create opportunities for growth while upholding Thailand as an ASEAN logistic, transportation and investment hub. The government also wants to increase the availability of different transportation modes, that is, a high-speed railway system, and to connect the different tourist attractions in the provinces to spread prosperity to the more rural areas.

Table 10: Two-trillion Baht Connectivity Project

Mode	Projects	Amount (B billion)	% of GDP	Share (%)
Rail	37	1650	14.50	82.60
- High speed trains		970	8.50	
- Mass transit		445	3.90	
- Double tracking railroad		139	1.20	
Road	14	243	2.10	12.20
Water	5	33	0.30	1.50
Border facilities	40	12	0.10	0.60
Contingency		62	0.60	3.00
Total	96	2000	17.60	100.00

GDP = gross domestic product.

Source: Economics Research (2013).

7. CONCLUSION AND POLICY RECOMMENDATIONS

7.1 Conclusion

Despite the recent economic slowdown, Thailand has been able to cope with shocks emanating from within and outside, with the latest growth rate of 6.4% and per capita income of \$5,474 in 2012. However, with an uncertain global environment still putting pressure on Thai exports, this figure has slowed down again to zero growth in 2013. Indeed, Thailand's overall economic growth in 2013 was less than 3% given the internal pressure from the political impasse with the government obliged to dissolve the parliament in December 2013.

Due to internal and external factors contributing to uncertainties for the Thai economy, the country is still looking forward to moving ahead with a strong middle-class demand, a large industrial base and strong supply chains, and a new path of greater connectivity to the regional economies. While examining changes in economic structure, it is evident to see the extension of manufacturing activities and the emergence of regional economies beyond Bangkok, whether it is northeastern, southern, northern, and eastern, which serve well Thailand's new foundation for growth. For this, improving connectivity, both soft and hard infrastructure, inside Thailand, within ASEAN, and between South Asia and mainland Southeast Asia, could become the key for Thailand's future development.

Recent trade trends with its mainland Southeast Asian neighbors support a trend of new connectivity, particularly for import and export border trade with its four main neighboring countries of Cambodia, the Lao PDR, Malaysia, and Myanmar. Border trade with these four countries expanded more than the average of other ASEAN countries and Thailand's total trade. Private sector communities along the border areas seem to take well advantages of trade facilitation improvement and the relaxation of

border controls. It is also evident that countries like the PRC and Viet Nam, although not having an immediate border with Thailand, have still been able to have a substantial increase in border trade with Thailand, particularly with Thai exports to these two countries.

For these reasons, it is important to observe the trends of Thailand's trade with Myanmar that could have strong implications for connecting trade with South Asia, through land connectivity with this country. At present, a new path to Thailand's border trade with Myanmar has happened with various kinds of goods and services exchanged between both countries, also helping Myanmar to integrate its own economy with the rest of ASEAN. It remains to be seen how much improving connectivity inside Myanmar could serve for Thailand's future trade and development with Myanmar and possibly serving as land connectivity to South Asia, through northeast India.

Thailand's outward FDI has surpassed inward FDI for the first time since 2011. This net outflow of FDI is not small in comparison to the structure of the economy. This new trend gives the attention to policymakers to ask whether Thailand's outward FDI is a temporary phenomenon linking to the cyclical changes of Thailand's economic development or a sustainable one reflecting the changing structure of the Thai economy in the long run. It is observed, as well, that a good part of Thailand's outward FDI goes to neighboring countries, whether this concerns big or small firms, looking for new business opportunities.

The structural changes of Thailand's economy together with changes in regional policies drive the need for connectivity development. Changes in the economic structure of Thailand, the shortage of operational workers, a sharp rise in minimum wages, a transition to an aging society, a shift to an outbound investor country, and formation of regional production networks with neighboring countries are important factors that drive Thailand to improve connectivity with regional countries. Also, several changes in regional policies, such as liberalization and economic reforms in the GMS countries, trade agreements, and economic cooperation programs in the region, and the transition of Myanmar, are important driving forces for Thailand to enhance connectivity in order to become a logistics hub, to create regional production networks, and to develop links with Myanmar.

The development and improvement of Thailand's physical infrastructure are one of the crucial factors to increase competitiveness according to the newest National Economic and Social Development Plan. As a result, the 2-trillion baht project was launched. The project includes improvement in rail and road links inside the country and among neighboring countries. However, due to an unconstitutional law and political instability, the project was delayed.

Thailand has several physical transport infrastructure projects linking with Myanmar and India. The notable one is the Dawei Special Economic Zone. However, the project is delayed due to financing issues. The Thai government also provides low interest loans and development assistance from NEDA for road construction projects in Myanmar and bridge construction linking Thailand and Myanmar. The India–Myanmar–Thailand highway has been initiated to improve connectivity among the three countries.

As for transport and trade facilitation, Thailand has established a logistics development plan in order to improve the country's trade facilitation. The crucial initiatives are to develop the National Single Window (NSW) and e-logistics. Also, Thailand promotes cross-border transport and trade facilitation, and cross-border and trans-border trade are becoming increasingly important to Thailand. Such initiatives include the development of special economic zones at borders connecting to Myanmar, the

creation of warehouses and customs one-stop services, and the establishment of more permanent border crossings.

Thailand is deficient in energy supply. To secure increasing demands, the country looks to neighboring countries like the Lao PDR and Myanmar to trade and develop energy infrastructure. Potential contracts to meet such demand are a full part of the energy policy to deal with the energy surplus countries. As Thailand's neighbors are also developing and opening up for foreign investment and increasing trade in electricity and energy, Thailand must have clear perspectives on how these infrastructure projects will be a full part of future improvement in energy connectivity and energy market integration.

With regard to infrastructure financing, Thailand has often turned to other partners for larger projects, leaving smaller infrastructure and maintenance to the domestic producers. More recently, Thailand has become more active on cross-border projects in the GMS framework to facilitate the regional flows of goods, services, and people. For the economic corridors, Thailand's GMS program includes different stakeholders, but the public sector is still the main source of finance. This includes the important part of Thailand's trilateral highway and other smaller projects connecting to neighboring countries. But the Dawei development project will involve the public sectors of Myanmar and Thailand, with the involvement of the private sector, once the overall design is clear. With Thailand's recent change under the military regime, the project is still on hold.

7.2 Policy Recommendations

From the review of the current state of physical connectivity, transport and trade facilitation, energy connectivity and infrastructure financing, below are several recommendations to improve those initiatives.

7.2.1 Strategies toward Connectivity

There are many agreements containing connectivity initiatives such as ASEAN, GMS, ACMECS, MIEC, ASEAN–India FTA, and Thailand–India FTA. These agreements, however, have overlapping memberships with different coordinating and governance structures. As a result, the initiatives in several agreements might cause conflicts in the medium and long term. In the case of physical infrastructure such as road links, it might be easier to start with the smaller framework such as bilateral agreements or subregional agreements as the member countries usually share a border. The bigger framework agreements such as ASEAN–India might support the smaller framework to fill in the gap to connect several isolated blocs of member countries. The ASEAN–India cooperation framework should also play a role in institutional connectivity to harmonize the legal and regulatory frameworks so that the physical connectivity initiatives in several agreements can complement one another.

Thailand's policies usually come too late or after the occurrence of problems. For example, Thailand's outward FDI promotion policy and the formal body to regulate and govern outward FDI were established in 2013, after a huge increase in outward FDI had occurred since 2011. Also, the infrastructure projects and initiatives are only now in the pipeline after prolonged competitiveness of the country due to high logistics costs. As a result, it is important for Thailand to anticipate upcoming trends and problems and issue up-to-date policies.

7.2.2 Physical Infrastructure

- i. The major obstacle of Thailand's physical infrastructure projects come from the fact that almost all of the projects are included in the 2-trillion baht project. The project was politically driven by the Phue Thai Party under the Yingluck leadership. As a result, the projects became victims of political chaos in Thailand and the implementation process is now subject to delay. As of this writing, the 2-trillion baht loan bill has been put on trial in the Constitutional Court whether it is against the constitution. In order to guarantee the implementation of the project, any future government needs to make sure the projects and their funding mechanism are transparent and credible with a proper governance structure. One possible way to reduce the burden of the public infrastructure financing is to increase the involvement of the private sector through the creation of public-private partnerships, and to award concession contracts to procure projects to the private sector. Also, instead of granting a big 2-trillion baht project, the government may set up medium term master plan (such as a 5-year plan) and prioritize the projects in each budget year instead. In such a way, it will allow these projects to move on, on a yearly basis, while keeping to the master plan in the following year of project implementation.
- ii. It is important to have relevant stakeholder consultation, especially with private sectors and local communities, in the process of initiative formation as stakeholder consultation is one of the key success factors for any project initiative implementation.
- iii. Thailand needs to ensure good governance in connectivity initiatives, especially for the financing mechanism.
- iv. Thailand's physical infrastructure initiatives are sometimes established without proper feasibility studies or cost/benefit analysis. As a result, the success and worthiness of the initiatives are questionable. The Dawei development project is one initiative that the private sector is uncertain about its success. As the area for the project development has just started and is still not agglomerated, most firms are reluctant to invest there since they doubt whether the project will be constructed for manufacturing activities.

7.2.3 Trade and Transport Facilitation

- i) Harmonization of legal and regulatory framework is one of the key success factors of the current connectivity initiatives.
- ii) Since one of the key problems mentioned by shipping companies in Thailand is slow custom procedures in neighboring countries, it is important for Thailand to help the neighboring countries to install EDI systems or paperless customs systems. Offering training or capacity building to customs officers in neighboring countries is also highly recommended to ensure that the countries will have enough customs officers with systems and computer skills.
- iii) It is important to speed up the ratification of the annexes and protocols under cross-border transit agreements (CBTA) so that the single-stop inspection (SSI) can be fully implemented. The Thai government should concentrate more on this issue since CBTA will help promote trade facilitation at border checkpoints.
- iv) Many of Thailand's border checkpoints do not separate commercial areas from CIQ areas. As a result, the checkpoints are crowded. Proper management of areas will reduce congestion and facilitate the movement of goods across the border.

7.2.4 Energy Trading and Infrastructure

Thailand is reaching its limit to provide its own energy needs domestically. The only way forward is to manage the energy supply between the sources from within and imports. As a result, Thailand's energy dependency will remain, in terms of energy imports, for what the country's demand will represent. Therefore, the potential for cross-border energy trading is great, already with the Lao PDR, and more for Myanmar. These two countries are considered as key to Thailand's energy supply in the future.

However, there are a number of constraints that need to improve if Thailand is to meet that demand. These are money to invest in infrastructure, technological know-how, willingness to participate, environmental concerns, and adverse effects on local people. For the moment, there are a number of projects that are already running and in the pipeline that will help to improve Thailand's energy supply. However, there are also risks and uncertainties that could arise from changing conditions related to the development of these countries, such as Myanmar's own needs of energy or competition with other trading partners like the PRC, India, and Viet Nam.

7.2.5 Financial Sector for Infrastructure Financing

Thailand has developed its own way of financing national infrastructure. For larger projects, it has turned to other partners, which are often multilateral development banks such as ADB, or bilateral development banks like the JBIC and JICA. In working with these institutions, it has helped the whole set of transferable support to make these projects become a reality. This includes funds from the private sector and formation of public-private partnerships (PPP).

These projects can be separated into three categories:

- i) For small domestic projects, the Thai government will take care of its own. Otherwise, it will form PPPs.
- ii) For small cross-border projects, the Neighboring Countries Economic Development (NEDA), takes care of them. However, these projects could also be jointly provided by overseas development assistance.
- iii) For large-scale projects, particularly in the context of GMS and ASEAN, the Thai government often relies on help from major multilateral agencies like ADB, JBIC, and JICA. Otherwise, it could also be in the form of PPP.

In April 2013, the Thai government relaxed the PPP regulatory environment and restrictions from a BOT method to a new PPP law. There are other options with regard to the improvement of the financial environment, particularly, for the development of a deeper and more stable bond market to support future financing for infrastructure, in particular, the 2-trillion baht for major infrastructure projects, and planning for 2013–2019. However, with the dissolution of the Thai parliament in December 2013, the 2-trillion baht master plan is subject to delay and the future government will decide whether to transform or move ahead with such a plan.

REFERENCES

- Asia Bond Monitor. 2008. Emerging East Asian Local Currency Bond Markets: A Regional Update. April.
http://asianbondsonline.adb.org/documents/abm_apr2008.pdf
- Asian Bonds Online. 2008. ASEAN+3 New ABMI Roadmap.
http://asianbondsonline.adb.org/features/abmi_roadmap/080731_ABMI_Roadmap_Publication_Final.pdf
- Asian Development Bank (ADB). 2012a. *Myanmar Energy Sector Initial Assessment*. October. Manila: Asian Development Bank.
<http://www.adb.org/sites/default/files/myanmar-energy-sector-assessment.pdf>
- Asian Development Bank (ADB). 2012b. Nam Ngum 3 Hydropower Project.
<http://www.adb.org/projects/40906-014/details> (accessed 13 October 2013).
- Asian Development Bank (ADB). 2013a. GMS Nam Theun 2 Hydroelectric Project.
<http://www.adb.org/projects/37910-014/details> (accessed 13 October 2103).
- Asian Development Bank (ADB). 2013b. Nabong 500 kV Substation and Transmission Facility Project. <http://www.adb.org/projects/documents/nabong-500kv-substation-and-transmission-facility-project> (accessed 8 Feb 2015).
- Asian Development Bank (ADB). 2013c. Greater Mekong Subregion Nam Ngum 3 Hydropower Project. <http://www.adb.org/projects/41385-013/details> (accessed 26 September 2013).
- Asian Development Bank and Asian Development Bank Institute (ADB and ADBI). 2009. *Infrastructure for a Seamless Asia*. Tokyo: ADBI.
<http://www.adbi.org/files/2009.08.31.book.infrastructure.seamless.asia.pdf>
- Association of Southeast Asian Nations. (ASEAN). 2013. June 29. Friendship Bridge.
<http://www.uasean.com/kerobow01/500#> (in Thai only) (accessed 14 October 2103).
- Bhattacharya, A. 2013. Connecting South Asia and Southeast Asia: Regional Energy Trading. Presented at ADBI Conference on Connecting South Asia and Southeast Asia. Manila. Draft Version. 6-7 November.
- Bhattacharyay, B. N., M. Kawai, and R. M. Nag. 2012. *Infrastructure for Asian Connectivity*. Cheltenham, UK: Edward Elgar.
- Boonsongpaisan, N. 2013. Dawei Project The New Asian Gateway. Presented at Ministry of Finance Tokyo Road Show. 22 May.
http://www.mof.go.th/home/Pr/fpo_roadmap.pdf
- Chalermpananupap, T., F. Hutchinson, R. Mishra, T. M. Than, and M. Thuzar. 2013. Costs of Connectivity and Institutional Arrangements. Presented at ADBI Conference on Connecting South Asia and Southeast Asia. Manila. Draft Version, 6-7 November.
- Chang, Y., T. Widodo, T. M. Nguyen, and P. Kyophilavong. 2013. AEMI Benefits. *ASEAN Energy Market Integration*. 27 August. 44–64.
- Cheewatrakoolpong, K. 2009. Towards a Better Understanding of the Political Economy of Regional Integration in the GMS: Stakeholder Coordination and Consultation for Subregional Trade Facilitation in Thailand. Working Paper No. 7209, Asia-Pacific Research and Training Network on Trade (ARTNeT).

- Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.
- Cheewatrakoolpong, K. and Manprasert, S. 2012. Trade Concentration and Crisis Spillover: Case Study of Transmission of the Subprime Crisis to Thailand. ARTNeT Working Paper Series No. 112. March, Bangkok: ESCAP.
- Chen, L. and P. De Lombaerde. 2011. Regional Production Sharing Networks and Hubness in Latin America and East Asia: a Long-term Perspective. *Integration and Trade* 15 (32). 17–34.
- De, P. 2012. ASEAN-India Connectivity Report—India Country Study. Research and Information System for Developing Countries.
- Economics Research. 2013. Thailand Infrastructure Investment. Don't Wait for the Speed Trains. 26 April. https://doc.research-and-analytics.csfb.com/docView?language=ENG&format=PDF&document_id=1015195531&source_id=emcmt&serialid=wZor2otG%2b3aTLz1PF9KNYcw8RvZBItPtN%2fcPHveBgIY%3d
- Economist*. 2007. Fit at 50? A Special Report on the European Union. 17 March.
- Electricity Generating Authority of Thailand (EGAT). 2013. EGAT Statistical Data. http://www.egat.co.th/en/index.php?option=com_content&view=article&id=80&Itemid=116 (accessed 11 October 2013).
- Energy Policy and Planning Office (EPPO). 2003. Thailand Energy and Natural Resources. <http://www.eppo.go.th/doc/NIO-EnergyAndNaturalResource2003.html>
- Energy Policy and Planning Office (EPPO). 2013. Energy Statistics. http://www.eppo.go.th/info/1summary_stat.htm
- Global Times*. 2012. [Lao PDR] to Build More Hydropower Projects but Environmentalists are Wary. 21 June. <http://www.globaltimes.cn/content/716396.shtml>
- Government of Thailand. (2013), “Government insists 2-trillion-Baht investment truly benefits infrastructure project development at a regional level” <http://www.thaigov.go.th/en/news-room/item/76280-government-insists-2-trillion-baht-investment-truly-benefits-infrastructure-project-development-at-a-regional-level.html> (accessed 26 October 2013).
- Government of Myanmar. Ministry of Construction. 2013. Status Paper on Development of Asian Highways in Myanmar. From 5th AH Working Group Meeting, UNESCAP. 7–8 October. <http://www.unescap.org/sites/default/files/Mynamar.pdf>
- Government Public Relations Department. 2013. Two-Trillion-Baht Infrastructure Development Projects to Be Carried Out with Fiscal Discipline. 3 March. http://thailand.prd.go.th/view_news.php?id=6667&a=2 (accessed 15 October 2013).
- Jansen, K. 1995. The Macroeconomic Effects of Direct Foreign Investment: The Case of Thailand. *World Development* 23 (2). 193–210.
- Kimura, F. and S. Umezaki, eds. 2011. *ASEAN–India Connectivity: Connectivity: The Comprehensive Asia Development Plan, Phase II*. ERIA Research Project Report 2010-7.

- Kojima, K. 1973. A Macroeconomic Approach to Foreign Direct Investment. *Hitotsubashi Journal of Economics*. 14 (1). 1–21.
- Kouphokham, K. 2012. Overview of the Lao Power Development Program. Presented at the 2nd EAS Energy Efficiency Conference. Phnom Penh. 31 July–1 August. <http://www.eria.org/events/2.%20Mr.Khamso%20Kouphokham%20-%20Overview%20of%20the%20Lao%20Power%20Development%20Program.pdf>
- Limsamarnphun, N. 2012. India Funds Three-Nation Road. *The Nation*. <http://www.nationmultimedia.com/business/India-funds-three-nation-road-30188145.html>
- Ministry of Finance. 2014. Statistics border trade and transit trade of the country 2553-2556. Bangkok: Ministry of Finance (in Thai). http://bts.dft.go.th/btsc/files/Border%20Trade%20Service%20Center/1.Reported%20%20trade%20%20statistics/2556/12_Jan-December.pdf
- National Statistical Office of Thailand (NSO). 2013. *Statistical Yearbook Thailand 2013*. Bangkok: National Statistical Office of Thailand
- Navarro, A., M. T. Sambodo, and J. L. Todoc. 2013. AEMI and ASEAN Energy Poverty. *ASEAN Energy Market Integration*. 65–85.
- Neighboring Countries Economic Development Cooperation Agency (NEDAa). The Road Construction Project from Chiang Rai Province–Kunming, through Lao PDR (R3). <http://www.neda.or.th/eng/contentviewfullpage.aspx?folder=88&subfolder=&contents=1167> (accessed 14 October 2013).
- Neighboring Countries Economic Development Cooperation Agency (NEDAb). Frequently Asked Questions. <http://www.neda.or.th/eng/contentviewfullpage.aspx?folder=87&subfolder=&contents=1037> (accessed 14 October 2013).
- National Economic and Social Development Board (NESDB). 2009. Thailand's Logistics Development Master Plan 2007–2011.
- National Economic and Social Development Board (NESDB). 2010, "Thailand's Logistics Development and Supply Chain: Management toward ASEAN Economic Community", ASEAN Logistics Network Symposium, Thailand International Logistics Fair 2010, 8-9 September 2010.
- National Economic and Social Development Board (NESDB). 2012, Summary of the Eleventh National and Social Development Plan (2012-2016).
- National Economic and Social Development Board (NESDB). 2013. Logistics in Thailand and Strategy for Creating Regional Connectivity. September.
- Polachan, S. 2012. The Sustainable Security of Thailand Energy Sector. Presented at the International Geoscience Conference. Bangkok. 7–8 March. http://www.dmr.go.th/download/lao_thai56/pdf_dat/The%20Sustainable%20Security%20of%20Thailand.pdf
- Praiwan, Y. 2013. Myanmar Dam Progress Urged. *Bangkok Post*. 9 October. <http://www.bangkokpost.com/breakingnews/373737/myanmar-dam-progress-urged>

- San, H. T. 2011. The Republic of Union of Myanmar Country Report.
<http://nrec.mn/data/uploads/Nom%20setguul%20xicheel/Water/badrakh%20chi na/Myanmar.pdf>
- Sheng, Y., and X. Shi. 2011. Energy Market Integration and Economic Convergence: Implication for East Asia. ERIA Discussion Paper Series. ERIA-DP-2011-05.
- Shubhomony, R. 2013. Connecting Asia & Southeast Asia Workshop: Financing Infrastructure. ADBI Conference on Connecting South Asia and Southeast Asia. Manila. Draft Version.
- Souche, A. 2013. Thailand's new Public-Private Partnership Law. Redesign or Reincarnation. *Swiss-Thai Chamber of Commerce Newsletter* No. 35. July.
http://www.dfdl.com/images/stories/Articles/News/SwissThai/STCC_Jul_2013_DFDL_article.pdf
- Sussangkarn, C. 2007. United Nations Economic and Social Commission for Asia and the Pacific. 4 October.
http://www.unescap.org/ttdw/ppp/PPP2007/bf_thailand.pdf
- Suthiwartnarueput, Kamonchanok .2007. The Current Situation of Thailand's Logistics, 2007, International Conference on Logistics, *Shipping and Port Management* 3 269–280.
- Theparat, C. 2013. *Bangkok Post*. Dawei Cost Estimate up to B325bn. 10 January.
<http://www.bangkokpost.com/business/economics/330084/dawei-cost-estimate-up-to-b325bn>
- United Nations Conference on Trade and Development (UNCTAD). 2013. *World Investment Report*. New York: United Nations.
- United Nations Economic and Social Commission for Asia and the Pacific. 2013.
http://www.unescap.org/sites/default/files/pub_2424_annex_0.pdf (accessed 26 October 2013).
- Valentine, J. 2009. Public-Private Partnerships in Infrastructure: Best Practices from the International. Bangkok: National Economic and Social Development Board.
- Vongsay, A. 2013. Energy Sector Development in Lao PDR. Presented to Energy Policy Training Course. Tokyo. 24 June–12 July.
<http://eneken.iej.or.jp/data/5050.pdf>
- World Bank. 2012. *Thailand Economic Monitor*. December. Washington, DC: World Bank.