State of Infrastructure Development in Asia/ASEAN: Is the Cup Half Full or Half Empty?

The cyclical slowdown in economic growth since 2014 had been fueling concerns of secular stagnation on a global scale. Moreover, rising trade protectionism and political isolation trends had caught many by surprise, prompting investors and common folks to worry about where the future economy could be headed if countries start to look inward and become trade-hostile.

Indeed, medium-term global outlook appears challenging as the inward-looking and protectionist policies of the developed world continue to unravel. As one struggles to find the catalysts of future economic growth, we may have one of the answers. We believe that the spotlight will remain in Asia where countries are embarking on large scale infrastructure programs to boost long-term competitiveness and drive sustainable growth.

As more countries in Asia move to fill up the gap in manufacturing (as production moves out from China), the urban population will balloon in size as more rural residents migrate into cities in search of better-paying, production jobs. The middle income class will grow quickly, and translating into a surge in consumption demand.

Rising Asian affluence will be a net positive for consumption-related sectors such as the transport, logistics, utilities, ICT, healthcare and education sectors. To cater for such massive demand in the future, Asia is doubling-up its efforts to reform their domestic economies, boost productivity, attracting investments and driving up economic growth. Within Asia, much of the growth will be coming from developing ASEAN economies such as Indonesia, Vietnam, Malaysia, Thailand, the Philippines, Myanmar, Cambodia, and Laos.

The implementation of the ASEAN Economic Community (AEC) at the start of 2016 is an important milestone in the closer collaboration between ASEAN economies where the synergies from the differing comparative advantages can provide immense opportunities for both the domestic sectors as well as foreign investors.

Concerns over ASEAN’s future have often stemmed from the severe lack of infrastructure development as the key bug-bear for economic development amongst ASEAN’s poorer countries. Indeed, infrastructure stock is much lower than their developed counterparts, and the Asian Development Bank (ADB) predicts that more than US$8tn worth of infrastructure investment will be required in Asia between 2010 and 2020, with over US$800bn of that in ASEAN.

Exhibit 1 shows the state of infrastructure development in ASEAN compared with other developing regions of the world. The various metrics show the physical constraints that limit the developmental potential of ASEAN members.

Further, Exhibit 2 shows the under-investment and lack of basic infrastructure across selected ASEAN economies (except Singapore) as well as the poorer quality of the existing infrastructure.
Using the investment in high-speed rail as a case study to compare the current situation in ASEAN vs China, we note that by 2020, investment in high speed rail in China is projected to reach US$300bn (the equivalent of Malaysia’s nominal GDP in 2013), with total track length of 25,000km. In contrast, ASEAN’s high speed rail ambitions are still very much in its infancy as the Bandung-Jakarta High Speed Rail had just broken ground, while Malaysia and Singapore are still in the finalizing phase of talks on the 350km Kuala Lumpur-Singapore line (of which 15km will be in Singapore). This project has an estimated cost of US$16bn and is expected to begin construction in 2018 and will be in operation in 2026.

Meanwhile, Thailand is also reportedly going ahead with its high speed rail project, where Prime Minister Prayut Chan-o-cha is likely to propose that both Thailand and Japan will invest in the 673km1 high speed rail scheme (linking Bangkok and Chiang Mai) when he meets a special adviser to the Japanese prime minister in the middle of December 2016. Under the cooperation agreement, the high-speed rail project, the first of its kind in Thailand, will adopt Japan’s shinkansen system with both countries expected to work on a basic plan next year after the Japan International Cooperation Agency (JICA) releases a final report on the results of the feasibility study tentatively in February 2017.

That was just for rail infrastructure. In terms of overall infrastructure needs, a recent study shows that other than Japan, the value of infrastructure stock (excluding housing) in most developed economies averages around 70% of GDP. If we take this percentage as a rule of thumb, we observe that the average infrastructure stock among ASEAN economies (49% of GDP) falls short of the global benchmark by a large extent (Exhibit 3).

---

1 The Bangkok-Chiang Mai rail is 673km long with estimated investment costs of 546.7 billion baht. The 380km stretch between Bangkok and Phitsanulok is likely to be built first at an estimated cost of 277.4 billion baht, while the remaining stretch covers 293 km from Phitsanulok and Chiang Mai.

---

Exhibit 2: Uneven Infrastructure Development Amongst ASEAN Economies


Note: Split of paved and unpaved road unavailable for Germany, Singapore, Thailand and Myanmar

Exhibit 3: Some Way To Go For ASEAN Economies In Building Up Infrastructure Stock

Source: International Transport Forum, Global Water Intelligence (IHS), McKinsey Global Institute

Note: Global benchmark derived based on a study of Canada, China, Germany, India, Italy, Poland, South Africa, Spain, United Kingdom, and United States. Estimated based on historical expenditure and using the perpetual inventory method. Transport infrastructure stock for Indonesia is understated, as expenditure for rail, ports, and airports is not available.
However, we think that purely pointing out the inadequacy of infrastructure development in Asia/ASEAN and condemning future economic growth because of that is too drastic and unfair. Which country started its development path with all the infrastructure needs fulfilled on Day One? In fact, for a developed country like Singapore, infrastructure investment continues to be a constant affair as the infrastructure needs of the nation keep evolving with the shift in the structure of the economy across time.

In fact, we are of the opinion that the existing lack of infrastructure investment, as well as the opening up of frontier ASEAN economies such as Myanmar, presents huge opportunities for investors. The current predicament has already attracted foreign investors’ attention and ASEAN has been experiencing increased foreign direct investment (FDI) inflows over the past few years. ASEAN has been so successful in its draw of FDI that we estimate that FDI inflows into ASEAN will surpass China for the first time in 2017, after falling behind for more than a decade (Exhibit 4).

We anticipate that the FDI flows into ASEAN will continue to gather momentum. The stock of FDI accumulation in ASEAN has been rising at a steady annualized rate of 15% since 1980. Even with a conservative assumption of about 7.3% in annual growth (i.e. half the growth rate between 2009 and 2013), we expect the stock of investment in ASEAN to nearly triple to US$5.2tn in 2030, from our estimates of US$1.8tn in 2015 (Exhibit 5).

Multilateral Efforts To Plug US$8Trillion Infrastructure Gap In The Region
Of the US$8tn infrastructure gap in Asia estimated by ADB, half of it is needed for energy infrastructure, a third for transport, 13% for ITC, and 3% for water and sanitation. World Bank statistics parks the spending on infrastructure investment in ASEAN at US$165bn since 2010, of which investments in telecommunications and energy take up the lions’ share.

Of the US$800bn of infrastructure needs in ASEAN, Indonesia, Thailand, Vietnam, and Myanmar will take up the largest portion. However, fiscal constraints coupled with bureaucratic issues may cause delays and hiccups. Exhibit 6 shows that India, Vietnam and Malaysia stand out with their high government debt, while Myanmar has the highest fiscal deficit amongst the ASEAN countries after Vietnam.

Moreover, domestic issues such as project planning, environmental analysis, and land acquisition may also slow project implementation. Nevertheless, investments from China will be positive. China’s strong strategic interest in the region will show up in the form of multilateral G2G initiatives, while Chinese companies looks set to partner with local institutions. In fact, ADB estimated that China has contributed US$18.3bn or 18% of ASEAN’s infrastructure spending since 2007, and the percentage is likely to go higher with the One-Belt, One-Road (OBOR) plans set in place.

Although a large part of China’s investments in the region will remain focused on infrastructure, based on outward FDI investment data, we observe that Chinese companies are also focused on sectors like manufacturing, real estate, leasing and commercial services, wholesale and retail, finance, transportation and logistics, and technology.

China’s OBOR initiative and Asian Infrastructure Investment Bank (AIIB) are seen as catalysts for further development, trade and investment in the region. The OBOR is expected to be armed with a total investment value of US$14tn, reaching 65 countries (40% of global GDP).

Indeed, China targets to achieve additional US$2.5bn in annual trade with OBOR countries, and has committed US$1tn financing to kick-start OBOR consisting of New Silk Road Fund (US$40bn), China Development Bank (US$890bn), Asian Infrastructure Investment Fund (US$50bn) and New Development Bank (US$20bn).

The World Bank will take the lead on initial projects jointly financed with China’s AIIB. The two institutions said they had discussed nearly a dozen projects in sectors that include transport, water and
energy in Central Asia, South Asia and East Asia. The ADB was formally launched in January 2016 with an approved US$1.2bn in financing.

The **ASEAN Infrastructure Fund** (AIF) was set up to plug the region’s infrastructure gaps with Malaysia, Indonesia and the Asian Development Bank (ADB) as the major shareholders. As of June 2016, AIF has processed seven projects in Indonesia, Vietnam, Myanmar and Laos with a combined amount of over $300mn on co-financing with ADB.

**Initiatives In The Individual ASEAN Countries**

While it is a well-known fact that China has invested heavily in its production capacity, infrastructure and technology, it may be a surprise that developing ASEAN economies such as Myanmar and Indonesia are also doing the same (Exhibit 7), realizing its importance as the bedrock of sustainable growth. In 2015, China’s fixed asset investment stood at 44.0% of GDP while Myanmar and Indonesia were not far behind at 35.1% and 33.2% respectively. As China trims excess capacity after years of heavy investment, we expect the focus to shift to the developing ASEAN economies and this should drive their infrastructure investment in the years ahead.

**Malaysia.** Since the launch of the Economic Transformation Program (ETP) in 2010, Malaysia has attracted over MYR219bn worth of investments with committed investments of MYR144bn under the ETP. Infrastructure projects under the Eleventh Malaysia Plan (11MP) is expected to support growth in fixed investments. Transportation projects are at the forefront of Malaysia’s mega projects with the urban Mass Rapid Transit (MRT1) which cost MYR32bn (US$8bn) while other transport projects in the pipeline include MRT2 with an estimated cost of MYR28bn (US$7bn), Light Rail Transit (LRT) at MYR20bn (US$5bn), Sarawak’s Pan Borneo Highway at MYR16.1bn (US$4bn), East Coast Rail Link at MYR55bn (US$13bn) and the KL-Singapore High Speed Rail (HSR) at an estimated MYR70bn (US$16bn). Meanwhile Malaysia and Thailand have initiated talks on the Bangkok–KL high speed rail with initial cost estimates of US$16bn. Other key mega projects include the Refinery and Petrochemical Integrated Development (RAPID) project, Petronas LNG Complex in Sarawak, Kuantan port, and Kuala Linggi port in Malacca.

The MYR29.7bn of infrastructure job awards in the first half of the year has exceeded the full-year total for 2015, with another MYR30bn more in the pipeline. Government estimates indicate every MYR1 spent in the construction sector will induce an additional MYR0.80 spent along the supply chain. As such the positive spin-off effects could be as large as MYR40bn...
across the entire supply chain over the next few years.

**Indonesia.** Indonesia targets IDR 5,519tn (US$409bn) of strategic infrastructure investment in 2015-2019 which include 15 new airports, 24 seaports, 2,650 km of road, 3,258 km of railway track, and bus rapid transit (BRT) development in 29 cities. The target translates to around US$82 bn of requirements for infrastructure investment per annum (9-10 % of nominal GDP) over the five years. The SOEs and private sector are expected to fund 59% of the infrastructure investments.

Infrastructure spending continues to be prioritized following the removal of the country’s petroleum subsidy in January 2015 (Exhibit 8). However, there remains significant funding gap which calls for the heavy involvement of the private sector. Despite the doubling of the infrastructure budget from 2014 to 2016, the allocation in the state budget was only US$23.5 bn and US$28.0 bn in 2016 and 2017 respectively.

To facilitate stronger participation by the private sector investors, the government has relaxed the negative investment list (NIL) as part of the 10th stimulus package in February 2016, opening up business categories in infrastructure-related sectors to foreign investment including toll road concessions, land passenger transportation (up to 49%) and high voltage power utility installations (up to 49%). We believe the government’s strong support for infrastructure investment will improve confidence and translate into stronger growth in the coming years.

The key concern for investors is still in the area of land acquisition despite measures to provide certainty which include the Land Acquisition Law in 2012 setting a maximum time frame to complete the land acquisition.

**Thailand.** To drive sustained economic growth, the Thai government is emphasizing development of transport infrastructure, moving ahead on megaproject investments that will total around 3 trillion baht. The launch of the AEC, with its emphasis on speeding up trade, has prompted the government to prioritize investment in connecting domestic transport network with those in bordering countries. The planned megaprojects integrate various modes of transportation including land (road and rail), air (airports), and water (seaports and river ports). Moreover, the government is committed to speeding up construction of the planned development projects under the Eastern Economic Corridor (EEC) during 2017-2018, which will form a high-tech industry cluster for ten targeted industries such as biotechnology, robotics for industry, biofuels and biochemical, and medical services.

Better transport infrastructure will also improve Thailand’s competitiveness, and benefit important sectors like energy, technology and logistics. Public investment projects, as well as the private investment that will follow, will drive the economy further and have long-lasting effects. The Bangkok rapid mass transit systems will increase demand for electricity, while air and water transport projects will boost demand for fuel. As rail systems increase urbanization, workers would move out of agricultural sector and into service businesses to earn higher income, but farm labor shortages may worsen. More sophisticated transport systems will provide opportunities in information technology enhancing connectivity in transportation and logistics systems. Ultimately, the infrastructure projects will propel Thailand to become the logistics hub of the Greater Mekong Sub-region (GMS).

**Vietnam.** For Vietnam to maintain its status as “the Factories of Asia”, the government is emphasizing transport and power projects in industrial zones. There is to be an emphasis on developing transportation systems through connecting economic centres and large-scale production areas, by means of investments in public transportation infrastructure using modern technologies. Looking to the future, Vietnam will require USD25bn a year to invest in new roads, bridges, ports, water sanitation, power, and other infrastructure to sustain growth between now and 2020.

However, the Vietnamese government cannot fully finance this investment through its state budget or official development assistance loans, and that public-private partnerships (PPPs) offer a new alternative. Not only can the private sector offer financial resource, but also they can bring know-how and expertise to develop infrastructure projects led by the government. Although the government enacted a PPP office and inter-ministerial steering committee, PPPs are still at a very early stage of development in Vietnam.

Korea and Singapore could provide learning points to Vietnam in using PPP to connect to international expertise.

**Philippines.** Budget allocations for infrastructure to the tune of 5% of GDP concentrated on roads, agriculture infrastructure, and schools. Several of the twelve public-private partnerships awarded since 2010 involving investments of US$4bn are underway. They include highways, railways, an airport terminal, and water supply facilities. Another 14 projects worth an estimated US$12bn are being prepared for bidding.

**Myanmar.** Demand for proper infrastructure is growing massively with number of vehicles on the roads doubling to 5 million from 2012 to 2015, and international air passengers more than doubled to 3.2 million from 2011 to 2014. Investments estimated at US$60bn are needed through 2030 to upgrade the transport systems.

**Laos.** Planned US$6.8bn railway from Vientiane to Yunnan Province in the PRC, funded entirely by China and to be completed in four to five years.

**Cambodia.** Japan is assisting to design, build and operate water infrastructure projects in 10 of its largest cities. South Korea has committed US$600m across 18 projects. Nine of the projects are related to road construction and improving rural road networks. New international terminals were officially opened in Phnom Penh and Siem Reap this year, built at a combined cost of US$100m. A US$23m contract has been awarded to build a new domestic terminal at the Phnom Penh Airport.

**How US$50 Spent On Infrastructure Creates Additional US$5 In Demand** World Bank research shows that every 10% increase in infrastructure provision lifts output by around 1%. The final impact can vary between countries depending on degree of bottlenecks, leakages from graft and corruption, and growth negotiations from high imported services.

However in a nutshell the benefits generated extend far beyond just a cyclical cushion for growth. It can address structural issues including increasing productivity simply by reducing congestion costs that lead to savings of US$3bn-6bn (1.1%-2.2% of GDP) for Malaysia. It was estimated that Malaysia loses up to US$10bn (1.8% of GDP) from delays in
traffic, US$0.6bn (0.2% of GDP) from fuel expenses, and US$0.7bn (0.2% of GDP) from environmental pollution of CO2 and other emissions. For net oil importing countries, reduced fuel consumption will also generate resources to finance other efficient projects and reduce the strain on fiscal and current account balances.

It also improves connectivity that expands the common boundaries of living and commuting. This allows ease of labor relocation that can enhance resource productivity and growth. This helps to manage the costs of urban living where house prices in prime cities rose by more than 30% over the last three years. This also provides a solution for the problem of affordable housing and in countries where household debt is elevated due to housing-related liabilities. This frees up the availability of funds for other types of spending.

Higher internet penetration and faster connectivity also allows greater multiplier of technology to sales, capitalizing on the Internet of Things (IoT) and the growing presence of technology across every sector and our everyday lives. It will have positive spillovers to other areas in manufacturing, services, and agriculture. Foreigners will also be more willing to invest in areas that were previously unattractive due to poor infrastructure. This will have positive welfare effects and over time reduce economic disparities within the ASEAN region.