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India's Emerging Connectivity with Southeast Asia: Progress and Prospects

Prabir De

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Prabir De is a professor at the Research and Information System for Developing Countries, New Delhi, and coordinator at the ASEAN-India Centre.

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Please contact the author for information about this paper:

Email: prabirde@hotmail.com

Asian Development Bank Institute
Kasumigaseki Building 8F
3-2-5 Kasumigaseki, Chiyoda-ku
Tokyo 100-6008, Japan

Tel: +81-3-3593-5500
Fax: +81-3-3593-5571
URL: www.adbi.org
E-mail: info@adbi.org

Abstract

Connectivity is the key building block of convergence and cohesion in any regional integration initiative. Development of connectivity across any region—especially of transportation linkages, energy pipelines, and information and communication technology—contributes to integration by reducing transaction costs and facilitating intraregional trade and investment. The potential gains from closer connectivity between South Asia and Southeast Asia are no doubt large. India's regional integration with Southeast Asia has been advancing well and several projects are being implemented at present. India's regional connectivity with Southeast Asia has been evolving on two pillars: northeast India for multimodal and intermodal operations, and southern India for multimodal operations. This paper presents India's broad proposals on connectivity projects with Southeast Asia and policy recommendations to strengthen connectivity throughout Asia, in particular between India and the Association of Southeast Asian Nations. Enhancing connectivity between South and Southeast Asia is a multifaceted task that will require the implementation of strong policy initiatives. Development of connectivity in Southeast Asia and South Asia will bring significant opportunities for industrial development in India and trade potential with South and East Asian countries.

JEL Classification: F15, O24

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Contents

1. INTRODUCTION

Connectivity is the key building block of convergence and cohesion in any regional integration initiative. Development of connectivity, especially of transportation linkages, energy pipelines, and information and communication technology (ICT) across any region, contributes to regional integration by reducing transaction costs and facilitating intraregional trade and investment. Cooperation on connectivity may lead to a reduction in trade costs and result in welfare gains well in excess of the gains from mere tariff liberalization.

The potential benefits from closer connectivity between South Asia and Southeast Asia are no doubt large. A study by the Economic Research Institute for ASEAN and East Asia (ERIA) found cumulative gains of over 5% of gross domestic product (GDP) for Cambodia, Myanmar, Thailand, and Viet Nam, and over 2.5% of GDP for India.[1] In an earlier study, the Asian Development Bank (ADB) estimated large gains of around $260 billion, or 2% of GDP, from an East and South Asian free trade area, under conservative assumptions.[2] While regional infrastructure development may generate higher growth in the region, the process of regional economic integration may produce costs alongside the benefits, which will need serious review and mitigation measures.

India's current relations with Southeast and East Asia began in the early 1990s, when the country undertook the Look East Policy (LEP) as an effort to strengthen economic and strategic relations with Southeast and East Asian countries. Combined, India and Southeast Asia are home to 1.8 billion people and have an economic size of $3.8 trillion, sharing substantial world resources, economic and otherwise.[3] With a free trade agreement (FTA) in goods in 2010, ASEAN and India have created a versatile economic space, which has been the first major step toward creating an ASEAN–India regional trade and investment area. Building a common market may be achieved provided trade liberalization is adequately complemented by effective trade facilitation and connectivity.

India's regional connectivity with Southeast Asia has been following two major paths: soft connectivity such as the Trilateral Transit Transport Agreement, and hard connectivity such as the Trilateral Highway, Mekong–India Economic Corridor (MIEC), etc. While the first may lead to paperless trade, the second may help facilitate seamless trade.[4] India's connectivity with Southeast Asia has been evolving primarily in two ways: through national connectivity, such as the Golden Quadrilateral (GQ) projects, the Delhi–Mumbai Industrial Corridor (DMIC), and the Dedicated Freight Corridor (DFC); and through regional connectivity, such as the Trilateral Highway and MIEC. India's regional connectivity with Southeast Asia has been evolving on two pillars: northeast India for multimodal and intermodal operations and southern India for multimodal operations. India's connectivity with Southeast Asia, although at present at an initial stage of development, may appear as a great facilitator of pan-Asian integration in coming years (Bhattacharyay et al. 2012).

In view of the above, this paper presents India's broad proposals on connectivity projects with Southeast Asia, and policy recommendations to strengthen connectivity in Asia in general, and more specifically between India and ASEAN. Section 2 presents India's trade

[1] Kumagai and Isono (2011) used the Institute of Developing Economies (IDE)/ERIA Geographical Simulation Model to estimate the impacts on the cumulative increase of GDP of countries in the two subregions from 2010 to 2030, relative to the base case for a number of connectivity projects, including the Mekong–India Economic Corridor (MIEC), the Kyaukphyu deep sea port in Myanmar, and the India–Myanmar–Thailand Trilateral Highway (IMTTH).

[2] Using a slightly different regional unit of analysis (ASEAN+3 and South Asia) estimates large gains (about $260 billion, or 2% of GDP) from an East and South Asian free trade area, under conservative assumptions. Refer, for example, to Table 1.6 in François, Rana, and Wignaraja (2009: 28).

[3] Based on the World Bank's World Development Indicators (WDI), 2013.

[4] See, for example, ASEAN–India Eminent Persons Group Report 2012 (Government of India 2012), available at http://www.aseanindia.com.

relations with Southeast Asia, with special emphasis on trade in parts and components. The emerging production networks between India's Northeastern Region and Southeast Asia as a result of improved connectivity is discussed in Section 3. Section 4 deals with India's ongoing physical connectivity projects with Southeast Asia, whereas Section 5 presents India's future connectivity projects with the region. Selected national connectivity projects are then discussed in Section 6. Finally, Section 7 presents policy implications, recommendations, and conclusions.

2. INDIA'S LOOK EAST POLICY AND TRADE AND INVESTMENT WITH SOUTHEAST ASIA

The objective of India's Look East Policy (LEP) is to expand India's economic engagement with Southeast and East Asian countries. Since its inception in the mid-1990s, the LEP has been pursued in a multi-faceted manner in wide-ranging areas such as connectivity, trade, and investment. Some of the important developments of the LEP relate to improving economic relations with ASEAN countries, the People's Republic of China (PRC), Japan, and the Republic of Korea. The LEP has also been pursued through constructive engagement with ASEAN, the East Asia Summit (EAS), the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), and the Mekong–Ganga Cooperation (MGC). India has moved into Look East Policy Phase 2, which is popularly termed as Act East Policy.[5] The Northeast Region (NER) of India is central to India's growing economic and strategic partnership with East and Southeast Asia. The region acts as a land bridge between South and Southeast Asia. Following the LEP, India has signed several bilateral and regional trade agreements in the form of FTAs, comprehensive economic cooperation agreements (CECAs), and comprehensive economic partnership agreements (CEPAs), of which, the FTA with ASEAN has been the most important in strengthening economic relations with Southeast Asia.[6] All the ASEAN countries have implemented the above agreement. Although negotiations for trade in services and investment agreements have been completed, they have yet to be implemented. At the same time, India is a partner of the Regional Comprehensive Economic Partnership (RCEP), which is a comprehensive free trade agreement being negotiated between the 10 ASEAN members and ASEAN's FTA partners, namely Australia, the PRC, India, Japan, the Republic of Korea, and New Zealand.[7] The India–ASEAN relationship has entered its third decade. India became a sectoral partner of ASEAN in 1992, a dialogue partner in 1996, and a summit-level partner at Phnom Penh in 2002. The ASEAN–India strategic partnership—the elevated relationship that began at the 2012 Commemorative Summit—gives a greater hope in delivering stronger bilateral relations.

ASEAN has become one of India's largest trading partners in recent years, and trade with ASEAN increased from $7.13 billion in 2000 to $76.26 billion in 2012 (Table 1). India's trade with ASEAN presently comprises around 10% of India's global trade, compared to 8% in 2000. India's trade with Indonesia, Malaysia, Singapore, Japan, and the Republic of Korea has grown rapidly. Today, ASEAN accounts for around 11% of India's global exports (increased from 6% in 2000), and 9% of India's global imports (9% in 2000). However, growth in trade varies widely across countries within ASEAN. India's trade with Singapore

[5] See the speech of Indian Prime Minister at the 12th AEAN-India Summit, held at Nay Pyi Thaw, Myanmar on 12 November 2014, available at http://www.mea.gov.in/Speeches-statements.htm?dtl/24236/Remarks_by_the_Prime_Minister_at_12th_IndiaASEAN_Summit_Nay_Pyi_Taw_Myanmar

[6] India's FTA with ASEAN was signed on 13 August 2009 and came into effect in January 2010.

[7] Some of the key subjects that have been discussed in the working groups are tariff modalities in goods, listing of services and investment, elements of the RCEP chapters and possible texts, intellectual property, competition, economic and technical cooperation, legal and institutional issues, customs procedures and trade facilitation, and rules of origin. The 6th RCEP meeting is to be held 1–5 December 2014 in India.

reached $22.49 billion in 2012, while trade with Cambodia and the Lao PDR has only just exceeded $100 million (Table 1). India's trade with ASEAN+3 countries, driven mainly by India's trade with the PRC, increased from less than $14.57 billion in 2000 to $182.23 billion in 2012, growing at a compound annual growth rate of around 21% since the beginning of the last decade—perhaps the fastest trade growth ever witnessed by India with any economic bloc in the world.

Table 1: India's Total Trade with ASEAN and ASEAN+3

Partner	2000	2009	2012	CAGR
	($ billion)			(%)
Brunei Darussalam	0.00	0.51	1.00	22.86
Cambodia	0.01	0.05	0.12	24.59
Indonesia	1.31	10.74	20.26	25.82
Lao PDR	0.01	0.02	0.17	15.24
Malaysia	1.96	8.39	14.17	17.13
Myanmar	0.23	1.41	1.88	22.21
Philippines	0.25	1.02	1.61	16.01
Singapore	2.31	12.77	22.49	27.11
Thailand	0.85	4.28	8.97	17.29
Viet Nam	0.22	2.15	5.60	27.03
ASEAN	7.13	41.32	76.26	23.16
PRC	2.21	38.99	68.88	28.15
Japan	3.78	9.57	19.20	11.74
Republic of Korea	1.45	11.59	17.89	20.16
ASEAN+3	14.57	101.47	182.23	21.48
World	92.96	422.85	787.68	17.57
ASEAN share[a] (%)	7.67	9.77	9.68	
ASEAN+3 share[a] (%)	15.67	24.00	23.14	

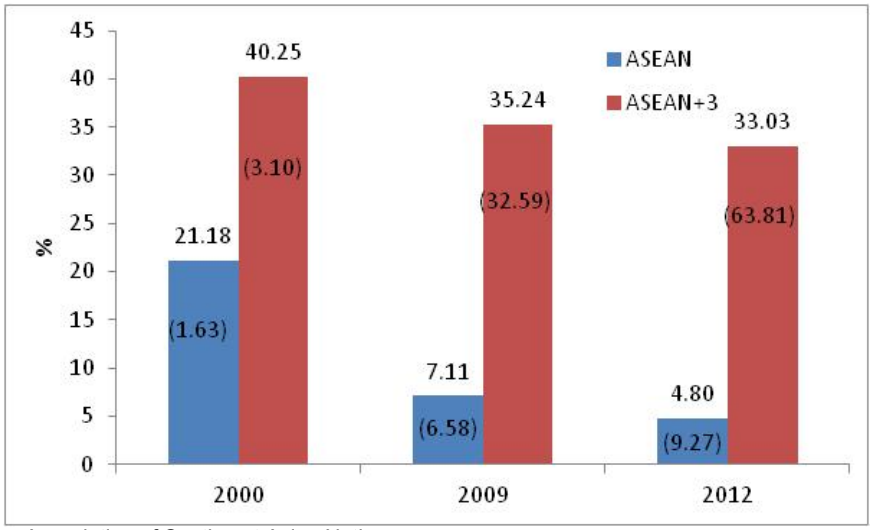
ASEAN = Association of Southeast Asian Nations, CAGR = compound annual growth rate, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

[a] Share in country's total trade.

Source: Calculated based on Direction of Trade Statistics (DOTS), IMF.

India has been witnessing a declining trend in trade deficit share with both ASEAN and ASEAN+3. As illustrated in Figure 1, India's trade deficit with ASEAN as a percentage share of the country's overall trade deficit has declined from 21.18% in 2000 to 4.80% in 2012. The same trend also continued in the case of ASEAN+3.The encouraging development is that India's exports to ASEAN have been growing faster than its imports from ASEAN. In 2012, India's imports from ASEAN were $43 billion and exports to the region were $34 billion (Tables 2 and 3). During 2000–2012, India's exports to ASEAN increased by 23%, whereas India's imports from ASEAN increased by 21%, showing a tendency toward narrowing the deficit. However, India has witnessed an opposite trend in ASEAN+3.

Figure 1: India's Trade Deficit with ASEAN



ASEAN = Association of Southeast Asian Nations.

Note: Values are percentage shares in India's total trade deficit. Figures in parentheses are the absolute volume of the trade deficit in $ billion.

Source: Calculated based on Direction of Trade Statistics (DOTS), IMF.

Table 2: India's Exports to ASEAN and ASEAN+3

Partner	2000	2009	2012	CAGR
	($ billion)			(%)
Brunei Darussalam	0.00	0.02	0.03	22.86
Cambodia	0.01	0.04	0.11	24.59
Indonesia	0.39	2.87	6.07	25.82
Lao PDR	0.01	0.02	0.03	15.24
Malaysia	0.57	3.46	3.79	17.13
Myanmar	0.05	0.21	0.53	22.21
Philippines	0.19	0.70	1.12	16.01
Singapore	0.83	6.72	14.69	27.11
Thailand	0.51	1.59	3.46	17.29
Viet Nam	0.21	1.72	3.67	27.03
ASEAN	2.75	17.37	33.50	23.16
PRC	0.76	10.16	14.87	28.15
Japan	1.77	3.19	6.70	11.74
Republic of Korea	0.46	3.73	4.14	20.16
ASEAN+3	5.73	34.44	59.21	21.48
World	42.63	165.19	297.23	17.57
ASEAN share[a] (%)	6.45	10.51	11.27	
ASEAN+3 share[a] (%)	13.45	20.85	19.92	

ASEAN = Association of Southeast Asian Nations, CAGR =, Compound annual growth rate, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

[a] Share in country's total exports to world.

Source: Calculated based on Direction of Trade Statistics (DOTS), IMF.

Table 3: India's Imports from ASEAN and ASEAN+3

Partner	2000	2009	2012	CAGR
	($ billion)			(%)
Brunei Darussalam	0.00	0.49	0.97	105.09
Cambodia	0.00	0.00	0.01	20.99
Indonesia	0.92	7.86	14.19	25.58
Lao PDR		0.00	0.14	
Malaysia	1.39	4.92	10.38	18.25
Myanmar	0.18	1.20	1.34	18.27
Philippines	0.06	0.32	0.49	18.98
Singapore	1.48	6.05	7.80	14.84
Thailand	0.34	2.68	5.51	26.27
Viet Nam	0.01	0.43	1.93	52.51
ASEAN	4.38	23.95	42.76	20.91
PRC	1.45	28.84	54.00	35.19
Japan	2.02	6.39	12.50	16.43
Republic of Korea	0.99	7.86	13.75	24.53
ASEAN+3	8.83	67.03	123.02	24.54
World	50.34	257.67	490.45	20.89
ASEAN share[a] (%)	8.70	9.29	8.72	
ASEAN+3 share[a] (%)	17.55	26.01	25.08	

ASEAN = Association of Southeast Asian Nations, CAGR = Compound annual growth rate, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

[a] Share in country's total imports from world.

Source: Calculated based on Direction of Trade Statistics (DOTS), IMF.

India's trade with the Cambodia, the Lao PDR, Myanmar, and Viet Nam (CLMV) has not yet increased in momentum. This suggests further scope for trade expansion with CLMV countries in coming years. The structure of exports may change if the countries witness a favorable trading environment, such as improved and enabling trade costs. The current trends of ASEAN–India trade suggest that India could become an increasingly important market for ASEAN's exports and vice versa.

To a great extent, intermediate and capital goods are emerging as the prime commodity groups of bilateral trade between India and ASEAN. Commodities such as electrical machinery, transmission apparatus, and motor vehicles have emerged as important Indian exports to ASEAN (Table 4). India's imports from ASEAN are primarily driven by electronics, electrical machinery, palm oil, mineral fuels, gems, and jewelry (Table 5). India's imports from ASEAN are relatively more diversified than its exports to ASEAN or ASEAN+3 countries. Over time, ASEAN+3 countries have appeared as a major supplier of capital goods to India, and we have witnessed a rising trend in trade in parts and components for capital goods.[8]

[8] This is based on BEC data, which are recalculated from SITC as available in UNCOMTRADE. Trade goods by production stage include the following items: primary goods—items under BEC codes 111, 21, 31; processed goods—BEC codes 121, 22, 32; parts and components—BEC codes 42, 53; capital goods—BEC codes 41, 521; and consumption goods—BEC codes 112, 122, 51, 522, 61, 62, 63.

Table 4: Trends in India's Exports—Top 15 Major Commodities to ASEAN

2012–2013				2000–2001			
HS Code	**Commodity**	**Exports** ($ million)	**Share*** (%)	**HS Code**	**Commodity**	**Exports** ($ million)	**Share*** (%)
2710	Petroleum oils and oils obtained from bituminous minerals other than crude preparations; containing 70% or more by weight of these oils	10,025.76	30.37	7102	Diamonds, whether or not worked, but not mounted or set	280.89	9.64
202	Meat of bovine animals, frozen	1,617.39	4.90	2304	Oil-cake and other solid residues whether or not ground or in the form of pellets, resulting from the extraction of soy	227.65	7.81
1005	Maize (corn)	1,042.64	3.16	8473	Parts and accessories (excluding covers, carrying cases, etc.) used with machines of heading No. 8469 to 8472	132.11	4.53
7102	Diamonds, whether or not worked, but not mounted or set	937.37	2.84	7601	Unwrought aluminum	124.06	4.26
2902	Cyclic hydrocarbons	863.62	2.62	202	Meat of bovine animals, frozen	87.11	2.99
8904	Tugs and pusher craft	850.02	2.58	8524	[a]Records, tapes, and other recorded media for sound/other similarly recorded phenomena but excluding products of Chapter 37	82.68	2.84
8905	Light-vessels, fire-floats, dredgers, floating and other smaller vessels where navigability is subsidiary to their main function; floating docks; floating platforms	776.2	2.35	3004	Medicaments (excluding items of 3002, 3005/3006) for therapeutic/prophylactic uses in measured doses or in packing for retail sale	68.47	2.35
2304	Oil-cake and other solid residues whether or not ground or in the form of pellets, resulting from the extraction of soy	693.79	2.10	306	Crustaceans in shell, live ,fresh, chilled, frozen, in brine; crustaceans, in shell, cooked by steaming or boiling chilled, frozen, dried, salted	51.84	1.78
1202	Ground-nuts, not roasted or otherwise cooked, whether or not shelled or broken	649.43	1.97	1202	Ground-nuts, not roasted or otherwise cooked, whether or not shelled or broken	50.41	1.73
3004	Medicaments (excluding items of 3002, 3005/3006) for therapeutic/prophylactic uses in measured doses or in packing for retail sale	482.89	1.46	5205	Cotton yarn (other than sewing thread) containing 85% or more by weight of cotton not put up for retail sale	49.97	1.71
8704	Motor vehicles for the transport of goods	435.21	1.32	3204	Synthetic organic coloring chemically defined	40.63	1.39
8708	Parts and accessories of the motor vehicles of headings 8701 to 8705	400.81	1.21	201	Meat of bovine animals, fresh and chilled	37.39	1.28
7113	Articles of jewelry and parts thereof; of precious metal/of metal clad with precious metal	366.47	1.11	3902	Polymers of propylene or of other olefins, in primary forms	35.6	1.22
7208	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated	351.81	1.07	3808	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant growth regulators, disinfectants etc. in packing/as articles (sulfur-treated bonds)	34.09	1.17
303	Fish frozen excluding fish fillets and other fish meat of heading No. 0304	329.02	1.00	5207	Cotton yarn (other than sewing thread) put up for retail sale	32.75	1.12
	Total	**33,008.21**			**Total**	**2,913.78**	

ASEAN = Association of Southeast Asian Nations, HS code = harmonized system code.

[a] Share in total exports to ASEAN.

Source: Export–Import Databank, Department of Commerce, Government of India.

Table 5: Trends in India's Imports—Top 15 Major Commodities from ASEAN

2012–2013				2000–2001			
HS Code	**Commodity**	**Imports** ($ million)	**Share**[a] (%)	**HS Code**	**Commodity**	**Imports** ($ million)	**Share**[a] (%)
1511	Palm oil and its fractions, whether or not refined, but not chemically modified	8,061.67	18.81	1511	Palm oil and its fractions, whether or not refined, but not chemically modified	884.21	21.32
2701	Coal, briquettes, ovoids, and similar solid fuels manufactured from coal	6,095.98	14.22	8471	Automatic data processing machines and units	383.49	9.25
2709	Petroleum oils and oils obtained from bituminous minerals, crude	2,591.9	6.05	8473	Parts and accessories (excluding covers, carrying cases, etc.) used with machines of heading No. 8469 to 8472	339.91	8.20
8517	Electrical apparatus for line telephony/telegraphy, including telephone sets with cordless handset carrier-current line systems; videophone	1,388.9	3.24	4403	Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared	280.62	6.77
4403	Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared	1,358.51	3.17	2902	Cyclic hydrocarbons	120.05	2.89
2710	Petroleum oils and oils obtained from bituminous materials other than crude preparations not elsewhere specified; containing 70% or more by weight of these oils	1,163.29	2.71	8542	Electronic integrated circuits and micro-assemblies	107.82	2.60
8471	Automatic data processing machines and units	927.67	2.16	2701	Coal, briquettes, ovoids, and similar solid fuels manufactured from coal	82.16	1.98
2902	Cyclic hydrocarbons	851.8	1.99	8524	[a] Records, tapes, and other recorded media for sound/other similarly recorded phenomena but excluding products of Chapter 37	67.72	1.63
2603	Copper ores and concentrates	821.6	1.92	3823	Industrial monocarboxylic fatty acids and acid oils from refining industrial fatty alcohol	61.09	1.47
8905	Light-vessels, fire-floats, dredgers, floating other similar vessels where navigability is subsidiary to their main function; floating docks; floating platforms	792.7	1.85	5402	Synthetic filament yarn (other than sewing thread) not put up for retail sale including synthetic monofilament of less than 67 decitex	56.32	1.36
4001	Natural rubber, balata, gutta-percha, etc. and similar natural gums in primary forms or in plates, sheets, or strips	773.19	1.80	4907	Unused postage revenue or similar stamps of current/new issue, stamp-impressed paper, cheque forms, banknotes, stock share certificates, and similar titled documents	53.28	1.28
8542	Electronic integrated circuits and micro-assemblies	706.68	1.65	713	Dried leguminous vegetables, shelled, skinned/split	47.24	1.14
7108	Gold (including gold plated with platinum) unwrought or in semi-manufactured forms/in powder form	694.42	1.62	2814	Ammonia, anhydrous or in aqueous solution	37.58	0.91
8528	Reception apparatus, not incorporating radio broadcast receivers/sound/video recording/ reproducing apparatus, video monitors	688.17	1.61	8540	Thermionic, cold cathode, or photo-cathode valves and tubes (e.g., vacuum/vapor/gas-filled valves, tubes, etc.)	34.53	0.83
713	Dried leguminous vegetables shelled, skinned/split	662.45	1.55	8529	Parts suitable for use solely/principally with apparatus of holding No. 8525 to 8528	30.45	0.73
	Total	**42,866.36**			**Total**	**4,147.48**	

ASEAN = Association of Southeast Asian Nations, HS code = harmonized system code.

[a] Share in total imports from ASEAN.

Source: Export–Import Databank, Department of Commerce, Government of India.

2.1 Trade in Parts and Components

Tables 6 and 7 present country-wise trade in parts and components for capital goods and transport equipment for exports and imports, respectively, for the years 2002 and 2012. Different parts and components are homogenous across potential suppliers from potentially different source countries, and some parts and components may be exported by more than one country. India's exports and imports of parts and components have greatly increased in the last decade. India's imports of parts and components account for over half of total bilateral imports, from countries like Japan, the Philippines, and Viet Nam, and they have also been growing faster than total bilateral imports. India's imports of parts and components from Southeast Asian countries have gone up substantially. Volume-wise, exports of parts and components also show this. The trend indicates emerging production networks, sharing, and fragmentation.

Table 6: Trends in India's Exports of Parts and Components to Southeast Asian Countries

Partner	**Share in Bilateral Exports** (%)		**CAGR, 2002–2011** (%)	
	2011	**2002**	**Parts and Components**	**Total Exports**
Brunei Darussalam	94.97	51.27	91.53	78.85
Cambodia	37.33	47.18	17.21	20.30
Indonesia	17.42	24.21	21.99	26.54
Lao PDR	65.28	58.90	25.37	23.95
Malaysia	22.01	31.58	15.17	19.88
Myanmar	35.32	53.00	17.00	22.40
Philippines	38.14	33.04	10.65	8.90
Singapore	25.12	28.17	29.29	30.95
Thailand	26.33	10.86	27.74	15.77
Viet Nam	21.65	31.09	25.87	31.03
ASEAN	38.36	36.93	28.18	27.86
PRC	6.85	8.16	27.90	30.42
Japan	15.55	16.94	12.44	13.52
Republic of Korea	7.90	20.93	11.92	24.72
ASEAN+3	17.16	20.74	20.11	24.13

ASEAN = Association of Southeast Asian Nations, CAGR = compound annual growth rate, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Source: Calculated based on UNCOMTRADE data.

Table 7: Trends in India's Imports of Parts and Components from Southeast Asian Countries

Partner	Share in Bilateral Imports (%)		CAGR, 2002–2011 (%)	
	2011	2002	Parts and Components	Total Imports
Brunei Darussalam	0.03	5.47	30.90	135.66
Cambodia	16.90	12.30	36.90	32.16
Indonesia	9.19	11.84	26.99	30.60
Malaysia	30.53	33.62	22.50	23.83
Myanmar	1.09	0.05	63.32	15.21
Philippines	64.57	59.56	15.56	14.53
Singapore	36.48	65.58	14.57	22.29
Thailand	41.33	46.69	32.11	33.91
Viet Nam	52.41	19.36	74.49	56.22
ASEAN	28.06	28.27	35.26	40.49
PRC	49.59	37.88	44.65	40.38
Japan	54.63	43.53	23.29	20.21
Republic of Korea	41.19	55.66	24.68	28.92
ASEAN+3	43.37	41.34	31.97	32.50

ASEAN = Association of Southeast Asian Nations, CAGR = Compound annual growth rate, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Source: Calculated based on UNCOMTRADE data.

India's imports of parts and components from the PRC experienced a large increase from 2000, whereas the opposite was observed in the case of India's trade with Singapore. This trend has been witnessed barring India's exports to Malaysia and India's imports from Thailand. This is indicative of the rise in air freight between India and ASEAN as opposed to ocean freight, but it also calls for appropriate transportation planning and connectivity to deal with the trade in high-value products.

Rising trade in parts and components also calls for stronger transport connectivity between India and some ASEAN countries. For countries such as Singapore, air transportation would be more effective than transportation over land. Therefore, multimodal use of transportation would be economically advantageous.

2.2 India's Trade Potential with ASEAN

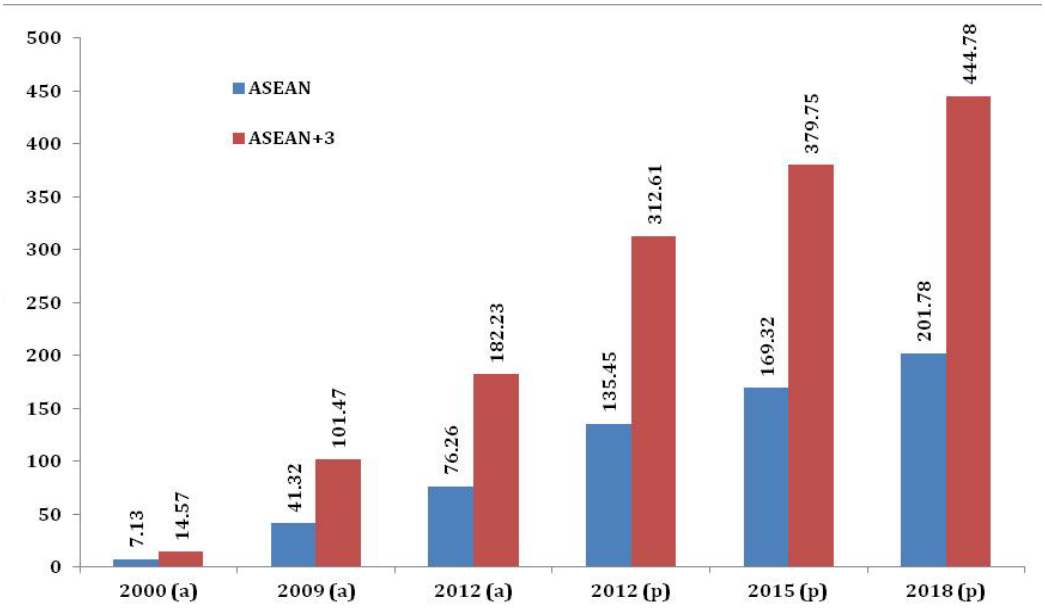
In 2012, trade between ASEAN and India reached $76 billion, with India contributing $33 billion, and ASEAN $43 billion. Continuing economic uncertainties in the global economy have affected bilateral trade as well: in 2012, trade between ASEAN and India declined by more than 4%. ASEAN and India aim to achieve a target of $100 billion for ASEAN–India trade by 2015, and also expect tariff-free lines to increase beyond the existing level in subsequent years.[9] The immediate question is what would be the likely trade flow scenario between ASEAN and India. Drawing upon the *World Economic Outlook 2013* data of the IMF, we have estimated future trade potential between ASEAN and India with the use of an augmented gravity model.[10] Table 8

[9] See Vision Statement, ASEAN-India Commemorative Summit 2012, available at http://www.aseanindia.com

[10] Refer to the appendix for further technical details of the estimated gravity model.

presents the current and future scenario of trade between India, and ASEAN and ASEAN+3, while Figure 2 illustrates India's trade with ASEAN and ASEAN+3 more prominently.

Figure 2: India's Trade Potential with ASEAN and ASEAN+3
($ billion)



ASEAN = Association of Southeast Asian Nations.

Note: Estimated potentials are based on an augmented gravity model. For technical details of the gravity estimates, see Appendix.

(a) indicates actual trade; (p) indicates potential trade.

Source: Author's calculations.

Table 8: India's Trade Potential with ASEAN and ASEAN+3 Countries

Partner	2000	2009	2012	2012	2015	2018
	Actual	Actual	Actual	Potential	Potential	Potential
	($ billion)					
Brunei Darussalam	0.003	0.511	1.002	2.143	2.897	4.022
Cambodia	0.009	0.045	0.121	1.028	1.983	3.875
Indonesia	1.308	10.736	20.261	33.443	43.439	50.328
Lao PDR	0.005	0.021	0.168	0.845	1.439	3.023
Malaysia	1.957	8.387	14.171	27.663	34.435	38.825
Myanmar	0.227	1.405	1.875	6.308	8.983	11.559
Philippines	0.249	1.017	1.610	8.852	11.032	13.011
Singapore	2.308	12.769	22.487	26.909	31.122	35.276
Thailand	0.845	4.276	8.966	18.338	21.002	25.635
Viet Nam	0.220	2.149	5.599	9.918	12.983	16.230
ASEAN	**7.131**	**41.316**	**76.261**	**135.447**	**169.315**	**201.784**
PRC	2.207	38.995	68.878	103.328	125.902	148.232
Japan	3.783	9.572	19.202	35.654	40.542	45.111
Republic of Korea	1.446	11.589	17.894	38.181	43.992	49.652
ASEAN+3	**14.567**	**101.471**	**182.234**	**312.610**	**379.751**	**444.779**

ASEAN = Association of Southeast Asian Nations, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Note: Estimated potential is based on an augmented gravity model. For further details of gravity estimates, see Appendix.

Source: Author's calculations.

In 2012, India achieved trade with ASEAN of $76 billion, against a potential value of $135 billion. For ASEAN+3, India achieved $182 billion of trade, of an estimated potential of $313 billion. Quite clearly, a large amount of India's trade with ASEAN and ASEAN+3 has remained unrealized. The largest gap between actual and potential trade is for India's trade with the PRC ($34 billion in 2012). Trade between ASEAN and India may potentially reach $169 billion in 2015 and $202 billion in 2018, and in the case of ASEAN+3 may surpass $445 billion in 2018.

To unlock the huge trade potential between India and ASEAN, what is needed for India and ASEAN is to remove the impediments to trade and investment such as the high non-tariff barriers of lack of connectivity, and physical, digital, social, and regulatory barriers. India and ASEAN have to continue to strengthen regional connectivity and integration, particularly through cross-border infrastructure. A true deepening of the partnership between ASEAN and India will only happen when we strengthen regional connectivity.

At the same time, development of connectivity must lead to the generation of new economic activities. Building connectivity may help India to strengthen its manufacturing sector. India needs to expand its manufacturing sector to boost exports and ensure sustainability. The decline in the manufacturing sector growth rate has cast its shadow on the country's exports, causing them to slow down in recent years, particularly after 2011. India aims to raise the manufacturing sector's share of GDP

from 16% to 25% in the next decade and create 100 million skilled jobs by 2022.[11] The need is to upgrade India's physical infrastructure, which would then attract investment, both domestic and FDI, to the manufacturing sector.

2.3 India's FDI Policy and FDI Inflows

The major benefits of FDI in India have been identified as filling the gap between investment funds required and domestic sources of funds. Technology transfer also leads to knowledge diffusion and has spillover effects on domestic firms. The Government of India has been promoting FDI in order to supplement domestic capital, technology, and skills. FDI, as distinguished from portfolio investment, has the connotation of establishing a "lasting interest" in an enterprise that is resident in an economy other than that of the investor. The government has put in place a policy framework on FDI, updated every year, to capture and keep pace with the regulatory changes, effected in the interregnum. FDI policy in India has become increasingly liberal over the past 50 years. In the first phase, between 1969 and 1991, the Monopolies and Restrictive Trade Practice (MRTP) and Foreign Exchange and Regulation Act (FERA) restricted the operation of foreign firms in terms of size, type of products, and equity participation, etc. In the second phase, during 1991–2000, FDI policy was substantially liberalized by allowing 51% foreign participation through automatic routes in 35 high priority industries. During this period, the Foreign Investment Promotion Board (FIPB) was constituted to consider FDI under the government route. In the third phase, 2001 until present, the FDI policy has been substantially liberalized with a negative list approach with all other activities permitted through the automatic route and substantial relaxation in terms of equity caps. In a recent move, India in its Railway Budget 2014–2015, has allowed FDI in rail infrastructure with a public–private partnership (PPP) model in high speed rail corridors. During 2013–2014, total FDI inflows (including equity inflows, reinvested earnings, and other capital) were $36.4 billion. Noted in the Economic Survey 2013–2014 (Government of India 2014), FDI equity inflows were $24.30 billion, showing an increase of 8% compared to the previous year. In recent years, services, construction, telecommunications, computer software and hardware, drugs and pharmaceuticals, automobile industries, power, metallurgical industries, and hotels and tourism are sectors that have attracted the most FDI inflows.

India received cumulative FDI of $218.38 billion during 2000–2014 (Table 9), of which a little over one-fifth came from Southeast and East Asian economies (Table 10). The services sector is the major recipient of FDI in India (attracting around 18% of total FDI), followed by the construction and telecommunication sectors (Table 9). The major sectors of importance for FDI are electrical machinery, drugs and pharmaceuticals, automobiles, automobile spare parts, hotel and tourism, software and business services. During 2000–2014, India attracted $48.35 billion from Southeast and East Asian economies, of which $26.42 billion came from Singapore and $16.59 billion from Japan. FDI inflows from other Southeast and East Asian economies was negligible. FDI policy in India will benefit from higher trade with ASEAN.

[11] The government announced a National Manufacturing Policy in 2011. See Government of India Press Note 2 (2011 Series).

Table 9: Sector-wise Cumulative FDI Inflows in India, 2000–2014

Sr. No.	Sector	FDI ($ million)	Share in Total (%)
1	Services sector (finance, banking, insurance, business, outsourcing, research and development, courier, technology testing and analysis, other)	39,480.85	18.08
2	Construction development: townships, housing, built-up infrastructure, and construction-development projects	23,306.25	10.67
3	Telecommunications	14,165.44	6.49
4	Computer software and hardware	12,841.78	5.88
5	Drugs and pharmaceuticals	11,638.80	5.33
6	Automobile industry	9,969.10	4.56
7	Chemicals (other than fertilizers)	9,678.63	4.43
8	Power	8,943.20	4.10
9	Metallurgical industries	8,086.11	3.70
10	Hotel and tourism	7,117.63	3.26
Grand Total		**218,382.30**	**100.00**

FDI = foreign direct investment.

Note: The period examined is April 2000–May 2014.

Source: Department of Industrial Policy and Promotion (DIPP), Government of India.

Table 10: FDI Inflows from Southeast and East Asia, 2000–2014

Sr. No	Economy	FDI inflow ($ million)	Share in Total[a] (%)
1	Singapore	26,417.34	11.85
2	Japan	16,587.26	7.44
3	Republic of Korea	1,453.30	0.65
4	Hong Kong, China	1,231.82	0.55
5	Malaysia	719.25	0.32
6	Indonesia	621.31	0.28
7	Australia	600.67	0.27
8	PRC	410.14	0.18
9	Thailand	173.48	0.08
10	Taipei,China	88.17	0.04
11	Philippines	32.67	0.01
12	Myanmar	8.96	0.00
13	Viet Nam	0.24	0.00
	Total Southeast and East Asia	48,344.61	21.69
	Total FDI inflow	2,22,890.05	

FDI = foreign direct investment, PRC = People's Republic of China.

Note: The period examined is April 2000–May 2014.

[a]Share in total FDI inflow in India

Source: Department of Industrial Policy and Promotion (DIPP), Government of India.

3. CONNECTIVITY-INDUCED PRODUCTION NETWORKS BETWEEN INDIA'S NORTHEAST REGION AND ASEAN

Production networks in the manufacturing sector are the most advanced in the world, particularly in the developed countries. Production blocks can move to developing countries or regions and accelerate industrialization, resulting in the narrowing of development gaps. Connectivity is the key to production networks. Rapid advances and innovations in communication and transportation have facilitated the establishment of service links that are needed for the fragmentation of production across borders. The process of fragmentation in production enables countries to specialize according to their comparative advantages. Thus, to utilize the mechanics of fragmentation, we need to reduce three kinds of costs: (i) network setup costs, (ii) service link costs (connectivity costs), and (iii) production costs. Institutional arrangements for hosting FDI would be needed to reduce network setup costs, whereas the development of logistics infrastructure and services (cost, time, reliability) and the promotion of trade liberalization and facilitation are essential for reducing service link costs. Finally, starting with a special economic zone (SEZ), an improved investment climate with proper economic infrastructure, such as electricity, is needed to reduce production costs.

Various externalities arising from agglomeration (supply of industry-specific labor, parts and knowledge, etc.) boost economic growth. Agglomeration also makes the supply of public goods (infrastructure, financial market, etc.) easier especially in low-income countries or regions.[12] At present, we do not find agglomeration that is emerging from the present level of trade between India's Northeast region and Myanmar. The Northeast and Myanmar are yet to have a full-scale exchange of goods and services through the land border. Today's production networks between India and Bangladesh are outcomes of a relatively open trade arrangement between the two countries that has been continuing for decades. In sharp contrast, formal trade at the land border between the Northeast and Myanmar has been conducted for limited items on a positive list basis, which are purely limited trade items at both sides of the border. It might be possible to build cross-border networks in the industries in which the Northeast has manufacturing capacities and competitiveness that match with the demand or supply capacity of Myanmar and vice versa (De and Majumdar 2014).

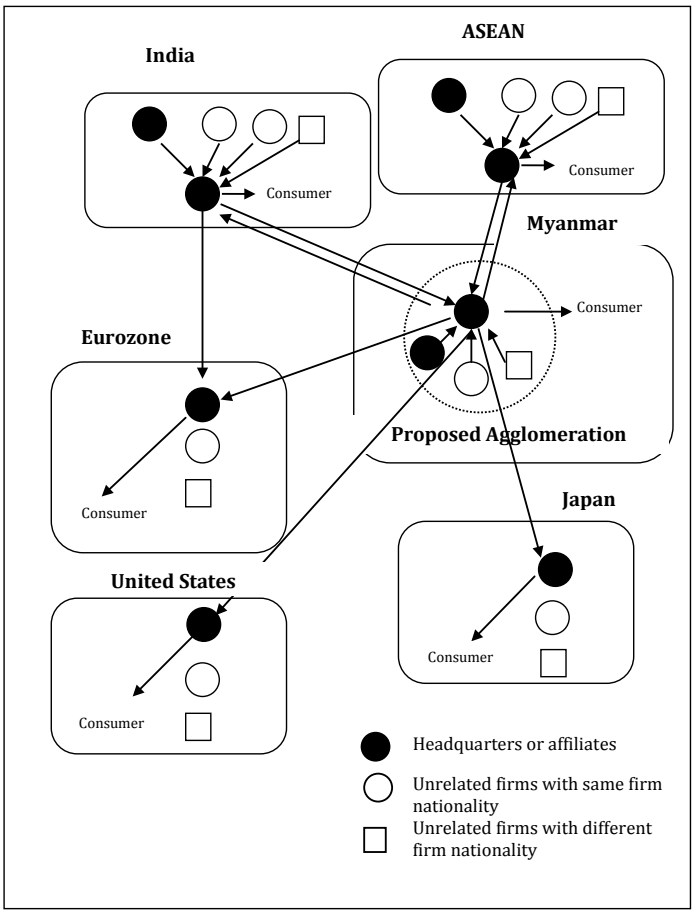
As discussed in De (2003), there is potential in building production networks between the Northeast region and Myanmar in (i) bamboo and wood products, (ii) pharmaceuticals and preparations, (iii) rubber products, (iv) food products, (v) refined petroleum products, (vi) other non-metallic mineral products, (vii) cement, and (viii) textiles and textile articles. Networks in service industries between the Northeast and Myanmar may also take a formal shape (presently conducted informally at a lower scale) in (i) health, (ii) tourism, (iii) education, and (iv) transport and communication.

Ongoing restructuring of the global textile and apparel industry following the multi-fibre agreement (MFA) abolition has appeared to be advantageous for Myanmar. Myanmar has a relative labor cost advantage arising from labor market tightening in the PRC and poor security and labor standards in existing players, such as Bangladesh. Myanmar has recently received global system of preference (GSP) benefits from the eurozone in ready-made garments, over and above the trade preferences the country gets as an

[12] However, there is a trade-off between rapid economic growth and regional income equality for low-income countries or regions.

LDC. In coming years, Myanmar will get more such trade benefits from developed and developing countries. Being a member of ASEAN, Myanmar will also enjoy a more integrated ASEAN common market (AEC) from 2015 onward. Therefore, the opportunity for building production networks between India and Myanmar is not remote, particularly in the textile and clothing industries. India has the advantage of a strong textile base and proximity in supplying textiles for apparel production in Myanmar. India can also provide the apparel technology and design center, train workers in textile and clothing industry, and supply machinery to Myanmar. Sourcing cotton yarn from India, Myanmar may replicate the Bangladesh model in ready-made garments. Future production networks between India and Myanmar in ready-made garments are illustrated in Figure 3. The private sector has an essential role in reviving and building joint ventures of apparel factories in Myanmar. Box 1 presents India's recent assistance to Myanmar in the textile and clothing industry.

Figure 3: Illustration of Future Production Networks between India and Myanmar in Ready-made Garments



ASEAN = Association of Southeast Asian Nations.

Source: De and Majumdar (2014).

Box 1. India's Recent Assistance to Myanmar in the Textile and Clothing Industry

- The Indian government has offered to help in the revival of 300 apparel factories in Myanmar.
- The Indian government has also offered a $5 million line of credit for revival of apparel factories in Myanmar. The South India Textile Research Association (SITRA) will provide technical assistance in the formulation of revival plans for these factories.
- The Government of India will also cooperate with the Government of Myanmar in formulating a common compliance code for standards and also best practices in the factories. Disha is an initiative to drive industry toward sustainable human capital advancement, sponsored by the Ministry of Textiles and helmed by the Apparel Export Promotion Council (AEPC). Disha will help Myanmar with technical assistance to enhance compliance standards for exports to developed countries. Disha attempts to educate apparel exporting members on a code of ethics that covers all critical social and environmental concerns such as child labor, health, and industrial safety, etc.
- For capacity building in Myanmar's textiles sector, the Indian government has offered two scholarships at the National Institute of Design (NID) and 250 scholarships for textile workers under the Integrated Skill Development Scheme. Scholarships have also been offered at the National Institute of Fashion Technology and Institute of Foreign Trade.
- India will be setting up India–Myanmar Apparel Sector joint ventures in the Thilawa special economic zone, in collaboration with other international brands.
- The Indian government will set up a textiles trade show, the Textiles Expo, in Yangon for traditional textiles with the Handloom Export Promotion Council (HEPC) as the lead council.
- The Indian government will also help the Government of Myanmar to establish supply chain linkages in handlooms and silk.

Source: Press Release dated 9 June 2013, Department of Commerce, Government of India, available at http://commerce.nic.in/MOC/press_release.asp?id=3138

Similarly, production networks could also be developed in the cement industry since Myanmar (Sagaing state in particular) has limestone reserves. Per capita consumption of cement in Myanmar and India's Northeast region are low at present, but may eventually rise due to construction activities in both Myanmar and the Northeast in coming years. Production networks are also possible in handlooms and handicrafts, food processing, etc., between the Northeast and Myanmar. Nevertheless, availability of backend infrastructure, particularly of electricity, and peace and political stability are first and foremost required in order to develop sustainable cross-border production networks between the Northeast region and Myanmar.

4. INDIA'S CONNECTIVITY PROJECTS WITH EASTERN NEIGHBORS AND ASEAN

Cross-border infrastructure services between India and ASEAN have been limited to only ocean and air shipping services. In order to add greater momentum to the growing

trade and investment linkages between ASEAN and India, heads of state and government leaders of ASEAN and India at the ASEAN–India Commemorative Summit 2012 called for completion of the India–Myanmar–Thailand Trilateral Highway (IMTTH) and its extension to Lao PDR and Cambodia. They also called for the completion of the new highway project connecting India–Myanmar–Lao PDR–Viet Nam–Cambodia, as well as developing the Mekong–India Economic Corridor (MIEC) connecting Southeast Asia to South Asia with the best use of all available resources, including financial and technical assistance, and investment and public–private partnerships to achieve physical, institutional, and people-to-people connectivity.

India has been implementing several connectivity projects in Myanmar to strengthen ASEAN–India connectivity. Projects to build physical connectivity between India and ASEAN have been drawn up by several flagship studies.[13] ASEAN–India physical connectivity in its present form comprises two major projects, which are ongoing and have India's direct involvement: (i) the India–Myanmar–Thailand Trilateral Highway (IMTTH), and (ii) the Kaladan Multimodal Transit Transport Project (KMTTP). Besides these, there are three upcoming projects: (i) extending the IMTTH to connect Cambodia and Viet Nam, (ii) the India–Myanmar–Lao PDR–Cambodia–Viet Nam Highway, and (iii) a Delhi–Ha Noi railway link. MIEC, which connects South Asia with Southeast Asia, is another important project in the region. Two important projects also important in strengthening connectivity are: (i) Stillwell Road, and (ii) Tiddim–Rih–Falam Road. The next section discusses these projects.

4.1 India–Myanmar–Thailand Trilateral Highway

The India–Myanmar–Thailand Trilateral Highway (IMTTH) is a cross-border transportation network being financed by the governments of India, Myanmar, and Thailand. This highway links Moreh (in India) with Mae Sot (in Thailand) through Bagan and Mandalay (in Myanmar), and is often termed as the land-bridge between South and Southeast Asia. The alignment of this trilateral highway falls within the Asian Highways 1 and 2. The agreed route of the IMTTH (1,360 km) is identified as follows: Moreh (India), Tamu, Kalewa, Yargi, Monywa, Mandalay, Meiktila, Nay Pyi Taw, Taungoo, Oktwin, Payagyi, Theinzayat, Thaton, Hypaan, Kawkareik, Myawaddy, Mae Sot (Thailand).

The IMTTH is divided into three phases; the first phase includes 78 km of new roads, upgrading of about 400 km of roads, construction of all-weather approach lanes, and rehabilitation and reconstruction of weak or distressed bridges. The entire project is being funded through government resources. Phase I of the IMTTH was taken up in early 2005. India assumes responsibility of 78 km of missing links and 58 km of upgrading as part of Phase I. The Indian government's Border Roads Organisation (BRO) had upgraded the Tamu–Kalewa–Kalemyo (TKK) part of the IMTTH (160 km) in Myanmar from the Indian Northeastern border at a cost of Rs1.20 billion (around $27.28 million). The Government of India is responsible for maintenance of the TKK part of the IMTTH in Myanmar.

As agreed during the Joint Task Force Meeting on IMTTH, held on 10–11 September 2012 in New Delhi, India is constructing the Kalewa to Yargi portion (132 km) of the IMTTH. The Yargi–Monywa portion of the IMTTH will be constructed by the

[13] Refer to, for example, Kimura and Umezaki (2011) and RIS (2012).

Government of Myanmar, while the Hpa-An–Mae Sot (Thailand) portion is already being developed by the Government of Thailand.[14]

The Government of Thailand assisted the Government of Myanmar in the upgrading and repair of the initial 17.4 km of road section, beginning at the Mae Sot–Myawaddy border crossing on the Thai–Myanmar border. The upgrading was completed in 2008 with aid from Thailand of around $4 million.[15] Subsequently, the two governments again agreed to cooperate in further improvements along this corridor and in January 2012 a second Thai grant of around $37 million was extended to Myanmar for the following three components: (i) rehabilitation and repair of the 420m bridge at the Mae Sot–Myawaddy border crossing; (ii) additional upgrading of the initial 17.4 km of existing Myawaddy road, and (iii) building a road along a new route of an additional 28.6 km to reach the town of Kawkareik. The Government of Thailand completed the works in December 2013.

The Tamu and Kalewa Friendship Road (which has since become part of the Trilateral Highway) has been constructed with India's assistance. About 132 km has been completed and handed over to Myanmar. Work on other 28 km is under progress. India has also undertaken the task of repairing and upgrading 71 bridges on the Tamu–Kalewa Friendship Road, and upgrading the 120 km Kalewa–Yargyi road segment to highway standards, while Myanmar has agreed to undertake upgrading of the Yargyi–Monywa stretch to highway standards by 2016. This project would help establish trilateral connectivity from Moreh in India to Mae Sot in Thailand via Myanmar. Separately, the Government of India has taken initiatives to prepare detailed project reports for the construction of the Chaungma–Yinmabin section (30 km); and upgrading from a single lane to a double lane of the Yinmabin–Pale–Lingadaw section (50 km). India has also announced the extension of the Trilateral Highway to Cambodia, the Lao PDR, and Viet Nam.

Lack of essential institutional support and government commitments are some of the reasons for the slow progress of the Trilateral Highway. Deeper regional cooperation among the three countries would speed up the development of the highway. At the ASEAN–India Commemorative Summit 2012, it was decided to extend the Trilateral Highway to the Lao PDR, Viet Nam, and Cambodia in order to add greater momentum to the growing trade and investment linkages between ASEAN and India.[16] The IMTTH is likely to be ready by 2016.

4.2 Delhi–Ha Noi Railway Link

Railways can play a positive role in ASEAN–India economic integration, which promotes bulk trans-national movement of goods and services among the neighboring countries. Needs are five-fold: (i) to link Imphal, the capital of Manipur State of India, with India's main railway corridor; (ii) to link Imphal with Kalay in Myanmar (about 212 km); (iii) to link Thanbyuzayat with the Three Pagoda Pass in Thailand (110 km); (iv) standardization of the railway tracks in Myanmar and also some parts in India's NER; and (v) to re-establish and renovate railway networks in Myanmar. Indian Railways is actively engaged in the harmonization and construction of railway tracks in India's NER. Projects for rail connectivity to the state capitals of Sikkim, Meghalaya, Mizoram, Manipur, and Nagaland have been sanctioned by Indian Railways. On 4 January 2014, the first broad gauge (BG) train from Guwahati to Tezpur via Rangiya started. The

[14] Based on the author's personal communications with a Trilateral Highway Joint Task Force member.

[15] See ADB (2013).

[16] See Government of India (2012).

railway lines between Harmuti–Itanagar and Dudhnai–Mendipathar are expected to be completed by 2015, which will provide rail connectivity to all northeastern states of India, except Sikkim.

Harmonization of railway tracks in the region is essential. Without having a compatible and strong railway system inside Myanmar, closer communication is difficult. The Indian consulting engineering company Rail India Technical and Economic Service (RITES) completed a preliminary study to establish a Delhi–Ha Noi railway link (DHRL) in 2006. The Indian government is planning to develop the DHRL through two possible routes. Both the proposed railway routes will connect Ha Noi through Myanmar with different rail links. Route I will connect Ha Noi via Myanmar, Thailand, and Cambodia. In Route II, the route is diverted to Bangkok via Ye and the newly constructed portion of Ye and Dawei in Myanmar, and then to Ha Noi through Thailand and Lao PDR. In both the routes, the proposed link from Silchar (India) to Thanbyuzayat is common. Although railways are in service in major parts of these routes, about 238 km are missing links, which have to be built in Myanmar in order to have the Delhi–Ha Noi railway in operation.[17]

There is a huge investment requirement for the development of railways in Myanmar. According to the feasibility report of RITES, the Jiribam–Imphal–Moreh rail link is estimated to cost $649 million, the Tamu–Kalay–Segyi link in Myanmar is estimated at $296 million, and the cost of refurbishing the Segyi–Chungu–Myohaung line in Myanmar has been pegged at $62.5 million. Therefore, managing the investment is a big challenge. Tapping the private sector could be a feasible option for swift implementation of the project. The Indian government has extended a $56 million credit line to the Government of Myanmar for the upgrade of the 640 km railway system between Mandalay and Yangon. Similar initiatives should be taken up for renovation of railway network systems in southern (Yangon to Dawei) and northern (Mandalay to Kalay) Myanmar.

At the same time, the Government of India has been constructing railway lines in Manipur State. The Jiribam–Imphal–Moreh rail link (Indian side) is identified for development and will link India with ASEAN. The 180 km stretch in India from the rail junction at Jiribam (Assam) via Imphal to Moreh is currently under construction. Construction of a 98 km railway line connecting Jiribam to Imphal has already been taken up at a cost of Rs31 billion.[18] Although construction work is being carried out on the Jiribum–Tupul section, linking it with Moreh via Imphal (and thereby India with Myanmar and Thailand) depends on how fast the railway system on the Myanmar side is developed simultaneously. The project was initiated in April 2003 and is likely to be completed in 2016 for the Jiribam–Tupul section and 2018 for the Tupul–Imphal section. Considering Imphal to Moreh railway link project could be undertaken on a priority basis. On completion of these projects, there could be possibilities for (i) an India–Myanmar–Thailand–Malaysia–Singapore rail link, and (ii) an India–Myanmar–Thailand–Ha Noi rail link.

4.3 Kaladan Multimodal Transit Transport Project

The Kaladan Multimodal Transit Transport Project (KMTTP) in Myanmar envisages connectivity between Indian ports and the Sittwe port in Myanmar, and road and inland waterway links from Sittwe to India's northeastern region. The KMTTP would provide an alternate route for transportation of goods to northeastern India through Myanmar.

[17] See De and Ray (2013), Appendix 2, for a detailed breakdown of route lengths and missing links.

[18] Based on the author's personal communication with the Ministry of Railways, Government of India.

The agreement and the protocols were signed between India and Myanmar in 2008. The Ministry of External Affairs of the Government of India and the Foreign Affairs Ministry of the Government of Myanmar are the nodal agencies; the Inland Waterways Authority of India (IWAI) is the project development consultant of this project; and the entire project is funded by the Government of India. The approximate cost of the project is expected to be Rs5.45 billion. Essar India and Max Myanmar Construction are the developers of the project. KMTTP has two major components: (i) development of the port and IWT development between Sittwe and Kaletwa in Myanmar along the Kaladan River, and (ii) building a highway (129 km) from Kaletwa to the India–Myanmar border in Mizoram. The components of this project include: (i) construction of an integrated port and an inland water transport (IWT) terminal at Sittwe, including dredging; (ii) development of a navigational channel along the Kaladan River from Sittwe to Paletwa (158 km); (iii) construction of an IWT-highway transshipment terminal at Paletwa; and (iv) construction of six IWT barges, each with a 300-ton capacity, for transportation of cargo between Sittwe and Paletwa. A framework agreement and two protocols (Protocol on Transit Transport and Protocol on Maintenance) were signed by India and Myanmar on 2 April 2008.

Construction work on the project started in December 2010.[19] The timeframe for the project is 5 years from the date of actual commencement of the project. On the Indian side, construction of 100 km of new road from Lawngtlai on the NH 54 to the India–Myanmar border has been taken up under SARDP-NE Phase A. The border to the NH 54 (Lawngtlai) road on the Indian side in Mizoram is in progress under the Ministry of Road Transport and Highways, Government of India. Construction of an integrated port cum IWT jetty at Sittwe has been substantially completed. Construction work of an IWT terminal at Paletwa was also started in April 2013.

4.4 Mekong–India Economic Corridor

The Mekong–India Economic Corridor (MIEC) involves integrating the four Mekong countries, Myanmar, Thailand, Cambodia, and Viet Nam, with India. It connects Ho Chi Minh City (Viet Nam) with Dawei (Myanmar) via Bangkok (Thailand), Phnom Penh (Cambodia), and Chennai (India). The MIEC corridor is conceptualized to be the region around the main highway connecting Vung Tau in Viet Nam to Dawei in Myanmar passing through Ho Chi Minh City, Phnom Penh, and Bangkok. The highway passes through the three borders of: (i) Moc Bai–Bavet (Cambodia–Viet Nam), (ii) Poipet–Aranyaprathet (Cambodia–Thailand), and (3) Sai Yok–Bong Tee (Thailand–Myanmar). There is an existing road from Vung Tau to Bong Tee on the Thailand–Myanmar border, after which there is only an unpaved path to Dawei. In addition to several major cities it covers key towns, such as Bien Hoa (in Viet Nam), Battambang, Sisophon (in Cambodia), and Chachoengsao, Prachinburi, and Kanchanaburi (in Thailand). Major investment will be required for the development of a port at Dawei. This corridor, when completed, is expected to augment trade with India by reducing the travel distances between India and MIEC countries and removing supply-side bottlenecks. The corridor would provide opportunities for Myanmar, Thailand, Cambodia, and Viet Nam to build a strong economic and industrial base and a world class infrastructure. The emphasis of the corridor is on expanding the manufacturing base and trade with the rest of the world, particularly with India. The corridor will enable the economies of ASEAN and India to integrate further and collectively emerge as a globally competitive economic bloc.

[19] Based on author's communications with IWAI. See, also, BIMSTEC Newsletter, January 2011. http://www.bimstec.org

4.5 Stilwell Road

Stilwell Road starts from Ledo in Assam, passes through the Pangsaung Pass (Myanmar–India border) and Myitkyina, and reaches Kunming in the PRC (1,033 km). The road was built during the Second World War, but as much of it is in disuse it has become defunct. It has two lines bifurcating at Myitkyina. The northern line begins at Myitkyina, heads east, and reaches Tengchong, whereas the southern line turns south from Myitkyina, reaching Ruili via Bhamo. There has been some good progress on Stillwell Road. By April 2007, with financial and technical support from the PRC, the Myitkyina–Tengchong road had been reconstructed and upgraded to a Class II road and put into service. The upgraded road is 172 km in total length, of which 105 km lie in Myanmar. In October 2010, the Yunnan Construction Engineering Group signed a memorandum of understanding (MOU) with Myanmar's Yuzana group of companies on the reconstruction of the Myitkyina–Pangsaung section (312 km) of Stilwell Road.[20] However, little progress has been made since then due to funding constraints and political instability in the Kachin state, which are hampering the construction process. With support from the PRC from 2004 to 2006, the road linking the Zhangfeng land port with Bhamo of a length of 92 km was reconstructed into a gravel road according to the Class IV standard. The road is a preparatory project for the proposed land-waterway combined transportation through the Ayeyawady River. The road has to be further upgraded to a higher standard to meet the need of future development of logistics. About 57 km of Stilwell Road from Lekhapani in Assam to the Pangsu Pass on the border of India and Myanmar passes through India. With the assistance of the Government of India, the improvement of the road to two-lane standards has been completed at an estimated cost of Rs1.30 billion. The work in the Assam portion of about 24 km length has been completed already.

4.6 Tiddim–Rih–Falam Road

The Tiddim–Rih–Falam (TRF) road project aims to build connectivity between India's northeastern states and Myanmar, and to enhance bilateral border trade. It starts from the Zokhawthar land customs station (LCS) (also known as Champai LCS) in the Mizoram state in India and reaches Rih in Myanmar. It has two road components: Rih–Tiddim (80 km) and Rih–Falam (151 km). Engineers and surveyors from the Border Roads Organisation (BRO) of India and the Public Works Department (PWD) of Myanmar prepared a detailed project report (DPR) of upgrading the TRF road in 2006. Both the countries again conducted a reconnaissance survey in 2009, based on which India allocated $60 million for this project. At present, the draft MOU for the project is underway to facilitate the upgrade process. India's Ircon International has been asked to develop the Rih–Tiddim 80 km road. The construction of the Rih–Tiddim road is likely to be completed in a few years, but there is no time frame for the completion of the Rih–Falam road.

4.7 India–Bhutan Connectivity

India is Bhutan's largest trading partner, and a free trade regime has existed between the two countries for many years. Exchange of energy through hydropower is one of the main pillars of India–Bhutan cooperation. Three hydroelectric projects (HEPs) totaling 1,416 megawatts (MW), (336 MW from the Chukha HEP, 60 MW from the Kurichu HEP, and 1020 MW from the Tala HEP), are already exporting electricity to

[20] Pangsaung is a town in Myanmar that shares a border with India (near to Pangsau Pass).

India. In 2008, the two governments agreed to further develop a minimum generation capacity of 10,000 MW of hydropower by 2020 and identified 10 more projects. Of these, three projects totaling 2,940 MW (1,200 MW by Punatsangchu-I, 1020 MW by Punatsangchu-II, and 720 MW by Mangdechu) are under construction and are scheduled to be commissioned in 2017–2018. Of the remaining seven HEPs, four, totaling 2,120 MW (600 MW Kholongchhu, 180 MW Bunakha, 570 MW Wangchu and 770 MW Chamkarchu), will be constructed under a joint venture model. A framework information governance agreement was signed between both the governments on 22 April 2014 for these joint venture HEPs. Druk Green Power Corporation (DGPC) and Satluj Jal Vidyut Nigam Limited (SJVNL), joint venture partners for the Kholongchhu HEP signed an MOU for carrying out pre-construction activities; the stakeholders agreement is under active discussion. Two identified hydropower projects of Kuri–Gongri (2640 MW) and Sankosh (2560 MW) will be implemented under the information governance model.

Bhutan has two Asian Highway (AH) routes: (i) Asian Highway 48 and Asian Highway 2. Thimphu–Phuentsholing in Bhutan is Asian Highway 48, of which the work of the Phuentsholing–Chukha (82.5 km) and Damchu–Thimphu (53 km) portions are already completed, whereas the work of the portion of the Chukha–Damchu bypass (24 km) is likely to be completed by 2015.

Being landlocked, Bhutan depends on India for regional and subregional land connectivity and transit. Phuentsholing, near Jaigaon in West Bengal of India, is the main gateway for international trade. Bhutan's transport connectivity with Nepal and Bangladesh is possible through India only. Kolkata and Haldia ports in India are the main ports for international trade with other countries other than Nepal and Bangladesh. India also provides the following two land transit routes to Bhutan for its trade with Bangladesh and Nepal:

- Phuentsholing–Jaigaon–Hashimara–Phulbari–Panitanki–Kakarvita (trade with Nepal)
- Phuentsholing–Jaigaon–Hashimara–Changrabandha–Burimari–Banglabandha (trade with Bangladesh)

In Bhutan, the following corridors and development projects were identified under the South Asia Subregional Economic Cooperation (SASEC) road connectivity project:

- Nganglam–Dewathang highway (75 km)
- Pasakha Access Road (2 km)
- Northern bypass in Phuentsholing (2.7 km)
- Mini dry port at Phuentsholing
- Study for links for regional connectivity from Gomtu/Pugli to Dalmore/Birpara and Motanga (Bhutan)/Bokajuli (India)

Under the South Asia Regional Multimodal Transport Study (SRMTS), Bhutan has four regional corridors:

- Thimpu–Phuentsholing–Jaigaon–Hashimara–Kolkata/Haldia
- Thimpu–Phuentsholing–Jaigaon–Hashimara–Changrabandha–Burimari–Mongla/Chittagong
- Samdrup Jongkhar–Guwahati–Shillong–Shilhet–Dhaka–Kolkata
- Thimpu/Paro–Phuentsholing–Jaigaon–Hashimara–Phulbari–Panitanki–Kakarvita

The Government of Bhutan has plans to upgrade current national trunk roads to carry 30-ton capacity trucks, complete a second transnational highway (Southern East-West

Highway) and construct “dry ports” at Phuentsholing, Gelephu, and Samdrupjongkhar, all of which are border posts with India, and related border infrastructure. About 180 km of the Southern East-West Highway in Bhutan is being upgraded or constructed with ADB funding: (i) Manita–Raidak, (ii) Raidak–Lhamoizingkha, (iii) Pangbang–Amshingwoong (Nganglam), (iv) Tsebar–Mikuri–Durung Ri, and (v) Samdrupcholing–Samrang. These critical road sections provide access to border crossings, which in turn open up opportunities for increased trade.

Air services operate to nine destinations in five countries, namely, Delhi, Kolkata, Gaya, Guwahati, Bagdogra (all in India), and Dhaka, Katmandu, Bangkok, and Singapore. A private airline has been licensed and commenced operation in 2013. ADB is financing airport infrastructure in Bhutan to enhance safety, security, and capacity at three of Bhutan’s domestic airports: Bumthang, Gelephu, and Yonphula.

Bhutan at present does not have railways. However, it has requested the Indian government to introduce a railway line for the Pasakha–Toribari–Hashimara (India) section. A feasibility study is being carried out by the Government of India to connect five border towns in Bhutan with the nearest Indian railheads: Rangia, Bongaigaon, Kokrajhar (Assam, India) and Hashimara, Alipurduar, New Jalpaiguri (West Bengal, India).

4.8 India–Nepal Connectivity

A large geographical area of Nepal is mountainous terrain. Road transport is therefore central to national and international connectivity. Nepal has strategic road network with a total length of about 14,490 km of national and feeder roads. It carries most of the country’s road traffic and provides linkages to major economic centers and neighboring countries. This network consists of three main east–west corridors and several north–south corridors. The east–west corridors include the East-West Highway (EWH) (1,024 km). This is the main artery in the country and the one with the heaviest traffic into the Terai region. The east–west corridors also comprise (i) postal roads running in parallel with the EWH along the Indian border to the south; and (ii) the Mid-Hill East-West Corridor (MHC), a series of feeder roads (1,700 km) that link mid-hill districts and the main centers in the hills, including Kathmandu and Pokhara. A negligible portion of the MHC is paved. The government wants to improve the entire 1,700 km stretch to an all-weather, maintainable standard. This will connect communities and provide access to basic services. There is also a need to improve north–south linkages between the EWH and MHC.

The Government of India has provided assistance of Rs740 million to Nepal for the laying of 904 km of optical fiber cable along the East-West Highway and setting up of 80 stations of Synchronous Digital Hierarchy (SDH) equipment. The government has also constructed 807 km of the total road length of 1,024 km of the East-West Highway from Mahendranagar to Mechi (Mahendra Raj Marg).

Nepal has 4 SAARC corridors: SAARC corridors 2, 4, 7, and 10. It also has two Asian Highways, AH 2 and AH 42. India provides transit to Nepal at the ports of Kolkata and Haldia. The inland clearance depot (ICD) at Birgunj in Nepal is directly connected with Kolkata and Haldia ports by road and rail (Kathmandu–Birgunj–Raxaul–Kolkata/Haldia). India also provides land transit to Nepal for trade with Bangladesh in the following route: Kathmandu–Kakarvitta–Panitanki–Phulbari–Banglabandha–Dhaka.

Nepal has total physical railway lines of 57 km. Nepal Railways Company (NRC), a government agency, owns the 53 km narrow-gauge rail line, which is composed of two sections, namely a 32 km section between Jaynagar in India to Janakpur in Nepal, and

a 21 km portion from Janakpur to Bijalpura. The Janakpur to Bijalpura network is not operational at present. Indian Railways manages a 6 km railway line (of which 4 km are in Nepal) that connects the ICD in Birgunj to Raxaul, India.

India is Nepal's largest trade partner and the countries have a bilateral free trade arrangement. India and Nepal have 27 bilateral trading points at the border for trade. Nepal, being a landlocked country, depends heavily on India for land transportation. India and Nepal have a treaty of transit, which confers transit rights through each other's territory through mutually agreed routes and modalities.[21] The two countries have concluded a rail services agreement (RSA) and a revised air services agreement (ASA) to enhance bilateral connectivity.

India is helping Nepal establish integrated check-posts (ICPs) at four major points along the India–Nepal border, which are: (i) Raxaul (India)–Birgunj (Nepal), (ii) Saunali (India)–Bhairahawa (Nepal), (iii) Jogbani (India)–Biratnagar (Nepal), and (iv) Nepalgunj Road (India)–Nepalgunj(Nepal). Both governments have decided with mutual consent to start work on the Raxaul–Birgunj and Jogbani–Biratnagar ICPs in the first phase, with Indian assistance of Rs2,700 million for the segment falling in Nepal. The ICPs will have state-of-the-art infrastructure, facilitating integrated customs and immigration for smooth cross-border movement of people and goods.

India has accepted the request of Nepal for the establishment of cross-border railway links at five locations on the India–Nepal border, which are: (i) Jaynagar in India to Bardibas in Nepal, (ii) Jogbani in India to Biratnagar in Nepal, (iii) Nautanwa in India to Bhairahawa in Nepal, (iv) Rupaidiha in India to Nepalgunj in Nepal, and (v) New Jalpaiguri in India to Kakarvita in Nepal. Work on the railway connectivity at Jaynagar–Bardibas involving conversion of a 51 km railway line from Jaynagar to Bijalpura into broad gauge and its 17 km extension to Bardibas, and on the 17.65 km Jogbani–Biratnagar rail link, is ongoing in the first phase of the project.

5. FUTURE CONNECTIVITY PROJECTS BETWEEN INDIA AND SOUTHEAST ASIA

Three new developments in the Mekong CLMV region have opened up further opportunities to bring India (and South Asia) closer to Southeast Asia without depending too much on existing routes. Three new bridges on the Mekong are being planned, which would enable road transportation directly to the Lao PDR and Viet Nam from Myanmar.

(i) Mekong bridge between Houysai (Lao PDR) and Xiengkhong (Thailand). This is being constructed with funding assistance from the PRC and Thailand.

(ii) Mekong bridge between Paksan (Lao PDR) and Bueng Kan (Thailand). The Governments of the Lao PDR and Thailand have agreed to construct a bridge on the Mekong River between Paksan (Bolikhamxay Province) and Bueng Kan province.

(iii) Mekong bridge between Xiengkok (Lao PDR) and KaingLap (Myanmar). The Governments of the Lao PDR and Myanmar have agreed to construct a Mekong bridge between Xiengkok and KaingLap.

[21] The transit treaty was renewed on 5 January 2013 for 7 years.

5.1 India–Myanmar–Lao PDR–Viet Nam Corridor and the Sittwe Industrial Zone

A new route has been identified by Viet Nam and Myanmar authorities through Yangon, Meikhtila, Tarlay, Kenglap (Myanmar), Xieng Kok, Loungnamtha, Oudomxay, Deptaechang (Lao PDR), Tay Trang, and Ha Noi (Viet Nam).[22] Following this alignment, a new corridor can be set up between India and Viet Nam through Myanmar and Lao PDR. The route links Moreh and Kolkata with Ha Noi and Da Nang in Viet Nam. A part of this proposed highway, which follows the same route of IMTTH up to Meiktila in Myanmar, Meiktila to Tarlay, and then to Kainglap (Myanmar–Lao PDR border), is a new route of this corridor. However, a section of the route Meiktila–Taunggyi–Kyaing Tong–Traley is part of the Asian Highway 2 and GMS corridor. The Tarley–Kainglap section (about 60 km) has to be rebuilt.[23] At this place, a new bridge on the Mekong River is planned. The other side of Kainglap is Xiengkok (Lao PDR), which is already connected by road with major Lao PDR cities and Viet Nam. Sittwe and Meikhtila are connected by an all-weather road. However, a part of the Sittwe and Meikhtila section (particularly Sittwe to Ann) has to be upgraded to highway standard. The Kolkata–Sittwe section is part of the Kaladan project, where India is developing the Sittwe port and IWT network. Additional capacity and new container berths would be needed at Sittwe port if this corridor becomes a reality. Building a special economic zone or an industrial park at Sittwe would not only benefit Sittwe port and the corridor but also create economic opportunities in Myanmar's Rakhine state. This industrial zone may accommodate industrial projects that can cater to the local and larger Indian market. This industrial zone can host Indian companies who would like to invest in Myanmar. Therefore, future connectivity through Myanmar would then mean intermodal links from the Indian coast in the Bay of Bengal to Viet Nam's coast and beyond.

5.2 Bangladesh–PRC–India–Myanmar Economic Corridor

The Bangladesh–PRC–India–Myanmar Economic Corridor (BCIM-EC) has been identified as one of the flagship projects of the BCIM regional cooperation.[24] At the 10th BCIM Forum meeting held at Kolkata in February 2012, the Kolkata to Kunming Highway plan (K2K Highway) was unveiled. A route survey of 2,490 km was completed jointly by four BCIM countries in February 2012. The route of the K2K Highway is identified as through Kolkata, Dhaka Imphal, Mandalay, Lashio, Muse, and Kunming (2,490 km). It also links Ledo (in Assam) through the old Stilwell Road. A large part of this route overlaps with the Trilateral Highway, and follows Asian Highways 1 (up to Mandalay) and 14 (from Mandalay to Kunming).

5.3 MIEC–SKRL Interlink

ASEAN countries' aim to develop the rail linkages in the potential Trans-Asian Railway (TAR) Route. The Singapore–Kunming Rail Link (SKRL) is one of the ambitious projects of ASEAN countries, covering 3,900 km in Southeast Asia. It links Kunming in Yunnan Province in the PRC, with Singapore, and passes through countries like Myanmar, Thailand, Cambodia, Viet Nam, and Malaysia. However, this project has

[22] One of the flagship projects of the Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS).

[23] Based on the author's personal communications with Myanmar Ministry of Construction officials.

[24] BCIM is a Track II initiative to enhance regional cooperation among the member countries. For further details, see Rana and Uberoi (2012).

quite a few missing links, of which Kunming to Lashio (Myanmar), Nam Tok (Thailand)–Three Pagodas Pass (Thailand–Myanmar border) to Thanbyuzayat (Myanmar), and Ho Chi Minh City (Viet Nam) to Phnom Penh (Cambodia) are the major ones. The PRC is planning to build a high-speed railway in ASEAN. To start with, Kunming will be connected with Vientiane in Lao PDR. The section within Lao PDR from the PRC border to Vientiane is about 421 km. The line will eventually be extended from Vientiane through Thailand and Malaysia to Singapore and reach a total of 3,900 km.[25]

There is also another proposal to link the SKRL with a spur/alternative line to Dawei Port. A link with the port would facilitate bulk movement of goods and passengers by railway between India and Southeast and East Asia. Chennai, at the other end of MIEC, is well connected with the Indian railway system.

6. MAJOR NATIONAL CONNECTIVITY PROJECTS IN INDIA

National connectivity depends on quality of roads and highways. Indian road standards have improved significantly since the country implemented the National Highway Development Project (NHDP) in the mid-1990s.[26] So far, India has successfully completed the Golden Quadrilateral project, which comprises 5,846 km of highway (Table 7). At present, the NHDP is being implemented in all phases except phase VI. The present phases comprise improving more than 49,260 km of arterial routes of the National Highway network to international standards.

6.1 National Highway Development Program Phase VI

Under the National Highway Development Program (NHDP) Phase VI, about 1,000 km of the greenfield expressways are planned to be developed through the PPP route on build, own, and transfer (BOT) mode following a design, build, finance, operate, transfer (DBFOT) pattern with the maximum viability gap funding (VGF) of 40%. The indicative cost is about Rs166.8 billion. These expressways would be constructed on new alignments. Besides the Vadodara (Gujarat)–Mumbai (Maharashtra) section (400 km), expressway corridors linking Chennai with Bangalore (Karnataka) (334 km), Dhanbad (Jharkhand) with Kolkata (West Bengal) (277 km) and Delhi–Meerut (Uttar Pradesh) (66 km) are planned (Table 11).

The Government of India's Ministry of Road Transport and Highways prepared a project report for the formulation of the Master Plan for the expressway network in India. The final report submitted in November 2009 identified a list of 60 projects totaling around 18,637 km. The report recommended a three-phase plan for development of the expressway network. This includes Phase I (up to 2012), Phase II (by 2017) and Phase III (by 2022). The following corridors were recommended for the state of Tamil Nadu: (i) Trichur–Kanyakumari (400 km): Phase 1; (ii) Coimbatore–Erode–Salem (175 km): Phase I; (iii) Salem–Cuddalore (190 km): Phase III; and (iv) Kanyakumari–Tirunelveli–Pondi–Chennai (700 km): Phase III.

[25] On 25 April 2011, construction was due to start on a new high-speed railway between Kunming and Vientiane in Lao PDR, though it was delayed at the last minute. See http://en.wikipedia.org/wiki/Kunming%E2%80%93Singapore_Railway

[26] NHDP is comprised of three components: (i) Golden Quadrilateral, which connects five metropolitan cities (i.e., Delhi, Mumbai, Chennai, Kolkata, and Delhi), (ii) the North–South corridor, which connects Srinagar to Kanniakumari, and (iii) the East–West corridor, which connects Porbandar to Silchar.

Table 11: Status of the National Highway Development Project

Particulars		Total Length (km)	Already 4/6 Laned (km)	Under Implementation (km)	Contracts under Implementation (no.)	Balance Length for Award (km)
NHDP	Golden Quadrilateral	5,846	5,846 (100%)	0	6	-
	North–South-East–West Phases I and II	7,142	6,169	601	53	372
	Port Connectivity	380	374	6	2	0
	NHDP Phase III	12,109	5,692	4,732	89	1,685
	NHDP Phase IV	14,799	304	4,179	34	10,316
	NHDP Phase V	6,500	1,603	2,477	28	2,420
	NHDP Phase VII	700	21	20	2	659
	NHDP total	47,476	20,009	12,015	248	15,452
Others (Phase-I, Phase-II, and misc.)		1,390	1,146	224	4	20
NH(O)		69	16	53	2	-
SARDP-NE		388	69	43	2	276
NH-34		5.5	-	5.5	1	-
Total by NHAI		49,328.50	21,270	12310.5	223	15,748

NH = National Highway, NHAI = National Highways Authority of India, NHDP = National Highway Development Program, SARDP-NE = Special Accelerated Road Development Program in the North Eastern Region.

Note: The status is as of 30 September 2013. A total of 20,000 km was approved under NHDP Phase IV, out of which 14,799 km was assigned to the National Highway Authority of India (NHAI), and the remainder to Ministry of Road Transport and Highways (MORTH).

Source: National Highways Authority of India, New Delhi.

6.2 Chennai–Ennore Port Road Connectivity Project

An efficient road network for dispersal of traffic from the Chennai and Ennore ports is imperative for multimodal connectivity between ASEAN and India. Widening and improvement of NH 4 and NH 46 on the Chennai–Mumbai section and NH 5 on the Chennai–Kolkata section of the Golden Quadrilateral of the NHDP program has been completed. Further, most of the four-laning work related to the North-South Corridor of the NHDP linking Chennai to the south and northern parts of the country has also been completed (balance work on a few sections is expected to be soon completed). Thus, four-lane connectivity for movement of traffic from the Chennai area to the rest of the country is available. However, dispersal of traffic from the seaports of Chennai and Ennore and the rest of the National Highway network is not efficient since freight traffic has to traverse the urban limits of Chennai. Further, the road network in the immediate surrounding areas of the ports is not adequate. Several road connectivity projects are being implemented in Tamil Nadu, of which the Chennai–Ennore Port Road Connectivity Project (formerly EMRIP) needs a special mention.[27] This project (30 km

[27] The important ones are the dedicated elevated expressway connecting Chennai Port to Maduravoyal Junction, the North Chennai Thermal Power Station (NCTPS) road, the Northern Port Access road,

in length) is included under the Port Connectivity Scheme of the NHDP. For project execution, the Government of Tamil Nadu, Chennai Port Trust, Ennore Port, and the National Highways Authority of India (NHAI) have jointly established a special purpose vehicle called the Chennai Ennore Port Road Company. The project was formulated with an objective to provide seamless connectivity from Chennai and Ennore ports and Ennore SEZ to the National Highway system.[28] The estimated cost for the project is Rs6 billion, and the land acquisition process is currently in progress. The project cost is being shared by the Government of Tamil Nadu, Chennai and Ennore Port Trusts, and the NHAI. Shore protection work was completed in January 2014. A contract for road works has been recently awarded. The project is vital for the future development of Chennai and Ennore ports as it would provide smooth connectivity to the hinterland and improve the efficiency of cargo evacuation.

6.3 Delhi–Mumbai Industrial Corridor

The Delhi–Mumbai Industrial Corridor (DMIC) is a mega infrastructure project of $90 billion that has been initiated by the Government of India to leverage the economic benefits arising from the Western Dedicated Freight Corridor (DFC) project. The project, being developed with financial and technical aid from Japan, envisages developing an industrial belt between Delhi and Mumbai, along 150–200 km (influence region) on either side of the alignment of Western DFC. The project influence area of the DMIC comprises 436,486 km^2, constituting about 13.8% of the geographical area of India. The project covers seven states (Delhi, Uttar Pradesh, Haryana, Rajasthan, Gujarat, Madhya Pradesh, and Maharashtra).

An SPV called the Delhi–Mumbai Industrial Corridor Development Corporation (DMICDC) was incorporated in January 2008 as the project development agency. The Government of India holds 49% equity, Infrastructure Leasing and Financial Services (IL&FS) about 41%, and the remainder is held by the Infrastructure Development Finance Company (IDFC). The DMICDC is mainly responsible for facilitating, promoting and establishing industrial investments and allied regions, project development services, and raising financial instruments. In addition, the DMIC would also include development of requisite feeder rail and road connectivity to hinterland and markets, and select ports along the western coast.

The DMIC is conceived to be developed as a model industrial corridor of international standards with emphasis on expanding the manufacturing and services base and developing DMIC as the "global manufacturing and trading hub" supported by world class infrastructure and enabling policy framework. The vision for DMIC is to create a strong economic base with a globally competitive environment and state-of-the-art infrastructure to activate local commerce, enhance foreign investments, and attain sustainable development. The project activities have been delayed considerably and as per the current plan, the Phase I is expected to be completed by 2017. The project incorporates nine mega-industrial zones of about 200–250 km^2, a high-speed freight line, three ports and six airports, a six-lane intersection-free expressway between Delhi and Mumbai, and a 4,000 MW power plant. Several industrial estates and clusters, and industrial hubs with top-of-the-line infrastructure would be developed along this corridor to attract foreign investment.

Chennai Outer Ring Road, Rajiv Gandhi Salai (IT Corridor) Phase II, and the Tamil Nadu Road Sector Project (TNRSP).

[28] A multi-product SEZ at Ennore on 3,185 acres of area is coming up. It is located next to Ennore Port and shores with Chennai Port.

Out of the total project cost, the Government of India may finance 35%, while the rest is expected to be drawn from the private sector. A provision of Rs3.3 billion was made during the Twelfth Five Year Plan toward the Project Development Fund (PDF) of the DMIC. The Japan Bank for International Cooperation (JBIC) has also provided a commercial loan of $75 million for the project.

The MOUs were signed by the DMICDC and the state governments of Haryana, Gujarat, and Maharashtra with Japanese companies for development of smart communities or eco-friendly townships (townships with optimized energy supplies, a 24-hour drinking water supply, bicycle and walking tracks, and a waste and water recycling system). As per the agreement, Japanese consultants will prepare feasibility studies for development of these townships in the Manesar–Bawal region of Haryana, Dahej, and Chandogar in Gujarat and the Shendra Industrial region in Maharashtra. Further, MOUs have been signed with all the states. “Early bird” projects from the Indian side have been finalized for the DMIC states. Also, six early bird projects have been announced by the Japanese side. Master planning consultants for these areas and projects have been appointed. With the aim of achieving double employment potential, triple industrial output, and quadruple exports from the region in 5 years, the DMIC would provide a substantial boost to the economy.

6.4 Chennai–Bangalore Industrial Corridor

On similar lines to the DMIC, an industrial corridor has been proposed from Chennai to Bangalore (Karnataka). The proposal is to develop the project in two phases. The first phase would include a Chennai–Sriperumbudur–Ranipet section, while the second phase would include a Ranipet–Hosur–Bangalore section. Industrial parks, special economic zones, information technology parks, and integrated townships are expected to come to the corridor. The Chennai–Bangalore section of the industrial corridor is also called an Industrial Corridor of Excellence. The Indian Railways have a long-term plan to construct a high-speed railway, while the NHDP VI proposes a six-lane greenfield expressway between Chennai and Bangalore. Further, extension of the metro rail between Chennai and Bangalore is also being discussed. A feasibility study for the Chennai–Bangalore Industrial Corridor project has also been initiated. The Government of India has agreed in principle to extend the industrial corridor beyond Bangalore up to Mumbai, passing through Davangere and the Hubli–Dharward regions of Karnakata.

Developing the Chennai–Bangalore Industrial Corridor and integrating it with the Delhi–Mumbai Industrial Corridor, currently under implementation, would provide a significant boost to industrial and economic growth, not only for these regions, but for the country as a whole. Further, construction of the Chennai–Bangalore–Mumbai Dedicated Freight Corridor and its integration with the Western DFC between Delhi and Mumbai would provide seamless connectivity for movement of cargo between the Chennai and Ennore ports and the Jawaharlal Nehru port through the railway network. Efficient connectivity between manufacturing hubs along the Chennai–Bangalore–Mumbai region, on the one side, and the East Asian countries, on the other, would considerably boost trade potential between India and Southeast Asia. The Regional Perspective Plan is likely to be ready by 2015 and the final report containing the Concept Master Plan and Development Plan for Industrial Nodes around 2016.

6.5 Bangalore–Mumbai Economic Corridor

The Bangalore–Mumbai Economic Corridor (BMEC) links Chennai and Bangalore with the DMIC. India and the United Kingdom's governments have agreed to undertake a joint feasibility study on the project. The Indian government has aimed to generate an investment of over $50 billion from this corridor. This corridor is expected to pass through cities like Pune, Satara, Kolhapur, Belgaum, Dharwad, Davangere, Haveri, Chitradurga, and Tumkur. It has been agreed that the feasibility study will be funded and procured by the Government of India. The DMICDC has initiated the tendering process for the selection of a consultant for undertaking the study.

6.6 East Coast Economic Corridor

ADB has undertaken a feasibility study on the Vishakapatnam–Chennai section of the East Coast Economic Corridor (ECEC) project linking Kolkata, Chennai, and Tuticorin. In view of the commitment made by the Government of India under the Andhra Pradesh Reorganisation Act, 2014, in the first phase of the corridor, ADB will focus on the Vishakapatnam-Chennai section. On completion of the ongoing study, a final view on the Chennai–Vishakapatnam Industrial Corridor may be taken within the timeline prescribed in the act.

6.7 Amritsar–Delhi–Kolkata Industrial Corridor

The Amritsar–Kolkata Industrial Corridor (ADKIC) is planned on the line of the Delhi–Mumbai Industrial Corridor (DMIC). ADKIC will use the Eastern Dedicated Freight Corridor (DFC) as the backbone. The Eastern DFC extends from Ludhiana in Punjab to Dankuni near Kolkata. Therefore, the Amritsar–Delhi–Kolkata Industrial Corridor will be structured around the Eastern DFC and also the highway system that exists on this route with an investment of Rs570 billion. It will also leverage the Inland Waterway System being developed along National Waterway 1, which extends from Allahabad to Haldia. The ADKIC will cover the states of Punjab, Haryana, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, and West Bengal. This is one of the most densely populated regions in the world and houses about 40% of India's population.

6.8 Dedicated Freight Corridors

At present, both passengers and freight trains move on the same tracks. With preference to movement of passenger trains, freight traffic gets delayed. Further, important trunk routes of the Indian railway networks observe serious capacity constraints. The Golden Quadrilateral and the north–south–east–west corridors of the rail system that constitute about 16% of the total railway network, cater to nearly 58% of freight and 52% of passenger traffic, respectively. The western (Delhi–Mumbai) and eastern (Delhi–Howrah) corridors of the Indian railway are highly saturated in terms of line capacity utilization. Accelerated economic growth is further expected to congest these routes. With an objective to meet the burgeoning freight demand, the Government of India has initiated the Dedicated Freight Corridor (DFC) project. This is one of the most ambitious projects in modern times, and once completed will meet the transport requirements of the two busy trunk routes for the next 15–20 years.

A special purpose vehicle (SPV) by the name of Dedicated Freight Corridor Corporation of India Limited (DFCCIL) was set up in October 2006 under the administrative control of the Government of India's Ministry of Railways to undertake

planning and development, mobilization of financial resources and construction, and maintenance and operation of the DFCs. Planning, construction, and maintenance of the freight corridors is the responsibility of the DFCCIL. Development of the feeder routes along with train operations on the DFC are to be handled by Indian Railways. Both Indian Railways and DFCCIL would pay access charges to each other for the traffic carried on each other's tracks. DFCCIL would be responsible for movement of trains on the DFCs.

The Phase I stretch between Rewari and Vadodara of the western corridor is 920 km long. Phase I is expected to be completed by 2016. The Phase II project comprises the stretch between Rewari and Dadri (127 km), with a spur from Pirthala to Tughlakabad (32 km), and Vadodara to Jawaharlal Nehru Port (426 km) section. The Phase II project is expected to be completed by 2017. The eastern corridor (1839 km) would run between Ludhiana in Punjab to Dankuni near Kolkata, to be extended in future to serve the new deep sea port proposed in Southern Bengal, and would cater to the coal and steel traffic. The corridor would run through the six states of Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand, and West Bengal. It will be an electrified single line on the Ludhiana–Khurja section (397 km) and an electrified double line on the balance portion. The eastern corridor is targeted for completion during 2016–2017. Besides western and eastern freight corridors, the Vision 2020 Report for Indian Railways recommended to develop DFCs along four new corridors totaling about 6,163 km. These comprise the North-South Corridor (Delhi to Chennai, 2,173 km), East-West Corridor (Howrah to Mumbai, 2000 km), Southern Corridor (Chennai to Goa, 890 km) and East Coast Corridor (Kharagpur to Vijaywada, 1100 km).[29]

6.9 High Speed Rail Corridor

India has one of the largest rail networks in the world but does not have any high-speed rail lines. High-speed corridors have been proposed but not yet implemented. The Indian Ministry of Railways Vision 2020 Report, envisages the implementation of high-speed rail projects to provide services at 250–350 km/hour, and plans for corridors connecting commercial, tourist, and pilgrimage hubs (Government of India 2009). Six corridors have already been identified for technical studies on setting up of high-speed rail corridors: (i) Delhi–Chandigarh–Amritsar, (ii) Pune–Mumbai–Ahmedabad, (iii) Hyderabad–Dornakal–Vijayawada–Chennai, (iv) Howrah–Haldia, (v) Chennai–Bangalore–Coimbatore–Trivandrum, and (vi) Delhi–Agra–Lucknow–Varanasi–Patna.
The high-speed rail corridors will be built as elevated corridors in keeping with the pattern of habitation and the constraint of land. The Indian Railways Ministry set up a corporation called the High Speed Rail Corporation of India (HSRC) on 25 July 2012, which exclusively deals with the proposed ambitious high-speed rail corridor projects. It handles tendering, pre-feasibility studies, awarding of contracts, and execution of the projects. All high-speed rail lines will be implemented through PPP mode on a design, build, finance, operate, and transfer basis.

6.10 Road Networks in Northeast India

The North Eastern States Roads Investment Program was developed in parallel with the Government of India's Special Accelerated Road Development Program in the North Eastern Region (SARDP-NE), which aims to provide better connectivity to the state capitals and district headquarters in the NER by developing two-lane national highways and improving state roads. ADB's Investment Program was designed to

[29] See Government of India (2009).

complement SARDP-NE, focusing on improvements to intrastate connectivity (mainly to district headquarters and other places of administrative and economic importance in the individual states) and enhancing the capacity of state public works departments (PWDs) to manage their road assets.[30]

On 17 February 2014, the Government of India and ADB signed a $125 million loan for the second tranche of the ADB-financed North Eastern States Road Investment Program, approved in 2013. Reconstruction and rehabilitation of more than 236 km of state roads in Assam, Manipur, Mizoram, and Tripura will contribute to increased transport efficiency in the project area, as well as better mobility and accessibility in the wider NER. The second tranche adds to the 200 km of state roads already being improved under the first tranche of the investment program, approved in 2011.

Better roads in the region will significantly improve the investment climate for the private sector, both domestic and foreign. Increased mobility and accessibility for many of the isolated communities in the project area may help open up new economic opportunities, boost growth, and reduce poverty. In addition to ADB's loan of $125 million, the central and state governments of India have committed counterpart financing of $32 million. The second tranche of the investment program is expected to be completed by March 2020.

Stronger connectivity across the NER will build a stronger network of cross-border production chains, particularly with Southeast Asia and Bangladesh (De 2013). Success of connectivity, however, will depend on how quickly it brings peace and prosperity, particularly to the northeastern states. Once connectivity projects start attracting investment, engaging development of the region, and improving the quality of life of the local people through generation of employment and reduction of poverty, they become true public goods and will culminate in an economic corridor.

7. POLICY RECOMMENDATIONS

While prospects in India–Southeast Asia trade have grown rapidly, challenges too have become more complex, making it an underperformer in realizing trade potential. Non-tariff policy barriers have gained importance as tariff-based barriers to trade have gradually declined. Among others, lack in connectivity undoubtedly plays a critical role for such a below-average performance in regional trade. India and Southeast Asian countries are committed to reaching greater trade volumes through the ASEAN–India FTA (and also proposed RCEP), and realizing the trade and economic potential by expanding trade facilitation initiatives. Both India and ASEAN need a shared strategic vision, political will, and strong commitment among countries, which are the keys for the success of connectivity projects in the region.

7.1 Financing Infrastructure

Demand for improved connectivity between India and Southeast Asia has been rising rapidly. The big challenge is to secure financing for Asia's large infrastructure needs. ADB and ADBI, in the study, *Infrastructure for a Seamless Asia*, estimated that Asia needs to invest approximately $8 trillion in overall national infrastructure between 2010 and 2020. In addition, Asia needs to spend approximately $290 billion on specific regional infrastructure projects in transport and energy that are in the pipeline.[31] This

[30] See http://www.adb.org/sites/default/files/project-document/73252/37143-013-ind-ffa.pdf

[31] ADB and ADBI (2009).

study also shows that ASEAN countries will require infrastructure investments amounting to $596 billion during 2006–2015, with an average investment of $60 billion per year. Public funds may not be adequate to meet this huge investment, so PPPs should be encouraged. There is an important role for cross-border funding, including by multilateral banks and possible new institutions.

7.2 Strengthening Institutional Arrangements

India has been an important partner of ASEAN since 1992 and has attached great importance to its relationship and partnership with ASEAN. In 2012, ASEAN and India celebrated the 20th anniversary of their dialogue partnership with, among others, a symbolic and meaningful Special Commemorative Summit. The ASEAN–India partnership has been elevated to the strategic partnership level recently. Considering the work of the ASEAN–India Eminent Persons Group (AIEPG), and its report (Government of India 2012) with recommendations for forging a closer partnership for peace, progress, and shared prosperity, the heads of state and government of ASEAN and India at the ASEAN–India Commemorative Summit 2012, accepted to enhancing ASEAN connectivity through supporting the implementation of the Master Plan on ASEAN Connectivity and the ASEAN ICT Master Plan 2015. [32] The ASEAN Connectivity Coordinating Committee (ACCC) was requested to work closely with India's Inter-Ministerial Group on ASEAN Transport Connectivity to enhance air, sea, and land connectivity within ASEAN and between ASEAN and India, through ASEAN–India connectivity projects. The present institutional linkages are improving no doubt, but they have to be strengthened further to support the connectivity projects between India and Southeast Asia.

7.3 Completion of Major Cross-border Corridors

There are three major tasks ahead for completion of the Trilateral Highway. We need to complete: (i) the construction and improvement of two sections of the Trilateral Highway—Kalewa to Monywa via Yargyi, and the replacement of all vintage bridges falling on the highway; (ii) the Kaladan Multimodal Transit Transport Project; and (iii) the Mekong–India Economic Corridor.

7.4 Extension of the Trilateral Highway

Three new developments in the Mekong CLMV region have opened up further opportunities to bring India (South Asia) closer to Southeast Asia without depending too much on existing routes. Three new bridges on the Mekong are being planned, which would enable road transportation directly to Lao PDR and Viet Nam from Myanmar.[33] In particular, the proposed Mekong bridge between Xiengkok (Lao PDR) and KaingLap (Myanmar) would reduce the travel distance between India and the Mekong subregion. The governments of the Lao PDR and Myanmar have agreed to construct a Mekong bridge between Xiengkok and Kainglap. The new route for the extension and/or new highway would be through Yangon, Meikhtila, Tarlay, Kenglap (Myanmar), Xieng Kok, Loungnamtha, Oudomxay, Deptaechang (Lao PDR), Tay

[32] See ASEAN-India Eminent Persons Group (AIEPG) Report, co-chaired by Amb. Shyam Saran, available at http://www.asean.org The Summit was held to commemorate the 20th Anniversary of the ASEAN-India Dialogue Relations under the theme of "ASEAN-India Partnership for Peace and Shared Prosperity." See the Vision Statement dated 20 December 2012, available at http://www.aseanindia.com

[33] For example, see Prabir De and Jayanta Kumar Ray (2013).

Trang, and Ha Noi (Viet Nam).[34] Following this alignment, a new corridor can be set up between India and Viet Nam through Myanmar and Lao PDR. A part of this proposed highway follows the same route of the Trilateral Highway up to Meiktila in Myanmar. Meiktila to Tarlay and then to Kainglap (Myanmar–Lao PDR border) is a new portion of this corridor. However, a section of Meiktila to Taunggyi to Kyaing Tong to Traley is part of AH 2 and the GMS corridor. The Tarley to Kainglap section (about 60 km) also has to be rebuilt. At this place, a new bridge on the Mekong River is planned. The other side of Kainglap is Xiengkok (Lao PDR), a large part of which is already connected by road with major Lao PDR cities and Viet Nam. However, the segment between Xiengkok and Muong Sing needs improvement since it is not an all-weather road. While several proposals are underway, there is a need for a consolidated route alignment to bring further clarity on the projects. These corridors, when completed, are expected to augment trade with India by reducing travel distance between India and Mekong countries and removing supply-side bottlenecks. The corridor would provide opportunities to Myanmar, Thailand, Cambodia, and Viet Nam to build a strong economic and industrial base and a world-class infrastructure. The emphasis of the corridor should be on expanding the manufacturing base and trade with the rest of the world, particularly with India. The corridor will enable the economies of ASEAN and India to integrate further and collectively emerge as a globally competitive economic bloc.

7.5 Establishing a Link between SKRL and MIEC

ASEAN countries aim to develop the rail linkage in the potential Trans-Asian Railway (TAR) route. The Singapore–Kunming Rail Link (SKRL) is one of the ambitious projects of the ASEAN countries, covering 3,900 km in Southeast Asia. It links Kunming in Yunnan Province in the PRC with Singapore, and passes through countries like Myanmar, Thailand, Cambodia, Viet Nam, and Malaysia. However, this project has quite a few missing links, of which Kunming (PRC) to Lashio (Myanmar), Nam Tok (Thailand), Three Pagodas Pass (Thailand/Myanmar border) to Thanbyuzayat (Myanmar), and Ho Chi Minh City (Viet Nam) to Phnom Penh (Cambodia) are the major ones. The PRC is planning to bring high-speed railway to ASEAN. To start with, Kunming will be connected with Vientiane in Lao PDR. The section within Lao PDR from the PRC border to Vientiane is about 421 km. The line will eventually be extended from Vientiane through Thailand and Malaysia to Singapore and reach a total of 3,900 km. It is technically possible to link SKRL with a spur or alternative line to Dawei Port. A link with Dawei Port would facilitate bulk movement of goods and passengers by railway between India and Southeast and East Asia. Chennai, at the other end of MIEC, is well connected with the Indian railway network.

7.6 Accepting Transit and Paperless Trade

ASEAN and India should negotiate and finalize a regional transit transport agreement, first between India, Myanmar, and Thailand, and then a back-to-back agreement with the rest of the ASEAN countries and then some dialogue partners. This agreement, the ASEAN–India Transit Transport Agreement (AITTA), has to be ready well before the completion of the Trilateral Highway. Among others, this proposed AITTA will allow vehicles to move seamlessly for regional and international trade transportation purposes. This is the “software” that is needed in order to operate the “hardware,” the

[34] Another presentation of the same route is through Taichang (Lao PDR–Viet Nam border), Muongkhua, Paknamnoy, Oudomxay, Nateuy, Luangnamtha, Muongsing, Xiengkok, Ban Yaa Yee/Xieng lab (Lao PDR–Myanmar Mekong bridge).

Trilateral Highway. Through this agreement, we could identify modalities of transportation, introduce operating procedures for vehicles to travel on the highway, and set up the rule book for public utilities. India may take the lead role in convening a workshop on the AITTA with the help of the ACCC and international and regional organizations such as ADB, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and the World Customs Organization (WCO). In parallel, we should establish the ASEAN–India Customs Transit system to facilitate movement of goods and means of transport. Building a common template for running and maintaining the corridor and signing of mutual recognition agreements (MRA) on logistics and other transportation services between the member countries would be essential for not only removing the barriers to trade but also sharing the benefits and risks. ASEAN and India should try to achieve common standards in customs, trade documentations, etc. This would facilitate the soft aspects of connectivity, such as paperless trade and single window.[35]

7.7 Setting up Single Window

We need to assess the trade facilitation conditions between ASEAN and India. Simple, harmonized, and standardized trade and customs, processes, procedures, and related information flows are expected to reduce transaction costs between ASEAN and India which will enhance trade competitiveness and facilitate regional integration. India (and other ASEAN dialogue partners) needs to align customs procedures and trade services with that of ASEAN through interoperability of customs single windows

7.8 Implementing the ASEAN–India Regional Trade Facilitation Program

ASEAN and India have been implementing national level measures of trade facilitation to support and ensure effective implementation of regional and multilateral initiatives. We suggest that ASEAN and India (and also other dialogue partners including the East Asia Summit group) should develop and implement a comprehensive trade facilitation work program, which aims at simplifying, harmonizing, and standardizing trade and customs, processes, procedures, and related information flows:

- Establish a regional trade facilitation cooperation mechanism with dialogue partners;
- Establish ASEAN+India and/or EAS Trade Facilitation Repository;
- Develop a comprehensive capacity building programs to ensure smooth implementation of the work program.

In light of the acceleration of AEC, the realization of ASEAN Customs Vision 2020 has been brought forward to 2015. ASEAN and India shall aim to: (a) integrate customs structures; (b) modernize tariff classification, customs valuation and origin determination and establish ASEAN e-Customs; (c) smoothen customs clearance; (d) strengthen human resources development; (e) promote partnership with relevant international organizations; (f) narrow the development gaps in customs; (g) adopt risk

[35] The ASEAN single window is an environment where 10 national single windows of individual member countries operate and integrate, being supported by US through USAID. National single window enables a single submission of data and information, a single and synchronous processing of data and information and a single decision-making for customs clearance of cargo, which expedites customs clearance, reduces transaction time and costs, and thus enhances trade efficiency and competitiveness. India is at an advanced stage of implementing single window.

management techniques and audit-based control (PCA) for trade facilitation; (h) develop and implement sectoral mutual recognition arrangements (MRAs) on conformity assessment for specific sectors identified in the ASEAN Framework Agreement on mutual recognition arrangements; and (i) enhance technical infrastructure and competency in laboratory testing, calibration, inspection, certification, and accreditation based on regionally/internationally accepted procedures and guides. Most of these activities have been already undertaken nationally.

7.9 Development of Port Infrastructure and Shipping Networks

There is a clear diversion of trade direction observed in recent years. Trade with eastern neighbours has increased considerably. The rise of the PRC and other countries in the Southeast Asian region is understood to be the reason for this. Cargo produced in India and destined for different locations in Southeast Asia typically moves through the transshipment hub located in Singapore, Tanjung Pelepas, or Port Klang. Therefore, the dependency on the Strait of Malacca is high. This sea channel is very important for the world's shipping movement as this connects the growing regions of South Asia and Africa to the economies on the east.

Being on the main east-west trade lane, Indian ports (especially on the west coast) are directly connected with countries in Southeast Asia through the transshipment hubs mentioned above. However, direct liner connectivity hardly exists between India and its eastern neighbours. Due to inadequate cargo availability and maintaining the time bound movement of cargo, major container shipping lines prefer not to call directly—rather, they prefer to serve the Bay of Bengal market through their feeder alliances connected to the transshipment hubs. Being the private entities, profitability is high on their agenda. Allowing coastal shipping in the Bay of Bengal (short sea shipping) would perhaps help ASEAN LDCs to increase their market access in South Asia and vice versa.[36] The coastal trade agreement signed by Bangladesh and Myanmar in 2012 may be converted into a regional agreement with participation of India and Thailand to start with. Institutional links between ports and the shipping community, regional (and bilateral) short sea shipping, and training and capacity building would pave the way for stronger maritime links in the region. Countries may think about signing of mutual recognition agreements (MRA) in shipping and logistics services. Regional cooperation initiatives can play an important role to strengthen the maritime network (AIC 2014).

7.10 Setting up an ASEAN–India Economic Zone

With the establishment of the integrated check post (ICP) at Moreh, trade transaction costs are likely to come down at the border. This would also result in border trade being fully formalized and contribute to rapid growth. ADB is funding the connectivity projects in the Northeastern region of India, including a new alignment for part of the Imphal-Moreh (NH 39) highway. Moreover, progress in railway connectivity from Jiribam to Imphal is going on full swing, which, even if falling behind schedule, is likely to be completed by 2017 up to Tupul and by 2020 to Imphal. Manipur government has decided to set up a township at Moreh. In view of Myanmar's recent GSP benefits from the EU, it is quite feasible to build an economic zone in and around Moreh (India) and Tamu (Myanmar) border area, the "ASEAN–India Economic Zone (AIEZ)." The Moreh–Tamu area is the junction of most of the land connectivity corridors. With wage

[36] India's Shipping Corporation of India (SCI) started a new direct shipping service between India and Myanmar in October 2014. The port rotation includes Colombo–Chennai–Krishnapatman–Yangon–Colombo. See http://commerce.nic.in/WhatsNew/Direct_Shipping_Service_Myanmar.pdf

arbitrage, connectivity advantage, access to markets, and availability of land, AIEZ may convert one of Asia's laggard regions into a versatile growth centre.

7.11 Building a Stronger Coordination Mechanism

Regional connectivity has made progress within different regional frameworks in recent years and ASEAN's dialogue partners are getting increasingly involved in support of the Master Plan of ASEAN Connectivity (MPAC). MPAC projects require $600 billion worth of financing.[37] The ASEAN Infrastructure Fund (AIF) is a potential source of financing and at the current stage, five infrastructure projects valued at $150 million, have been approved. Additional resources are therefore required to support the connectivity projects, and ASEAN acknowledges the important role of dialogue partners in achieving greater connectivity. The ASEAN Secretariat and ASEAN Connectivity Coordinating Committee (ACCC) hope to achieve concrete outcomes from engagement with a number of dialogue partners, including India. Dialogue partners of ASEAN were requested by the ACCC to share their experiences with connectivity projects and also to present their plans and proposals on involvements and contributions in support of MPAC. A stronger coordination between ASEAN and its dialoguer partners would be helpful in building cross-border connectivity.

7.12 Setting-up a Project Development Fund

Development of cross-border connectivity projects and the corresponding backend infrastructure requires specialized facilities to support project preparation and project development and also to address specific market challenges through innovative financial mechanism. Innovative solutions to facilitate and accelerate cross-border connectivity are of the utmost importance. Establishing a project development facility (PDF) for facilitation of connectivity projects would unlock investment in connectivity projects and also deepen regional integration. Among others, this new PDF vehicle shall aim to mobilize financing to accelerate the speed of cross-border connectivity project delivery. It shall focus on high-impact regional projects in the energy, transport, ICT, SME, SEZ, education, health, and water sectors. Some of its major activities would be (i) advisory services, (ii) identification of projects through technical studies, (iii) mobilization of funding, etc. To start with, PDF may engage only in project development. The primary objective of this segment would be to increase the number of bankable connectivity projects. Depending upon the progress, project finance may also be added as one of the mandates of the PDF. This segment will focus on delivering the financial instruments required to attract additional infrastructure financing. In other words, PDF's primary objective would be to shorten the time between project concept and financial closure. The initial capital of the PDF may be around $100 million.

8. CONCLUDING REMARKS

This study suggests that India and Southeast Asia are becoming more economically integrated, with ample scope for deepening this integration process. Given India's diversity and geographical contrasts, an integrated transport network with Southeast Asia in particular is required to support the integration process. Asia-wide connectivity projects like the Asian Highway and Trans-Asian Railway shall be complemented by

[37] See for example the speech of Adnan Jaafar, Dy. Permanent Secretary, Ministry of Foreign Affairs and Trade of Brunei Darussalam at the workshop on "Enhancing Connectivity through Multi-layered Regional Framework," held in Bangkok on 19 July 2013.

cross-border transport projects linking India with Southeast Asia such as the Trilateral Highway. Intermodality in transportation is essential in many of the transportation chains between India and Southeast Asia. At the same time, it is important to exploit synergies across various types of cross-border infrastructure. The soft side of connectivity, such as transit, single window, etc., shall go hand-in-hand with the development of hard connectivity. Good coordination among countries, national line ministries, regional sector institutions, and other stakeholders is essential. Besides, harmonization of the political, legal, and regulatory regimes between India and ASEAN is needed.

Southeast Asian countries and India have to identify the missing links and investment needs from a region-wide perspective. To a great extent, missing rail and roadways in Myanmar are hindering the overland connectivity between South and Southeast Asia. Therefore, average road conditions and railway systems inside Myanmar need to be rebuilt. Roads leading from Myanmar to India and Thailand require widening and better maintenance to allow efficient movement of larger vehicles. Development of economic corridors for the countries in the region will facilitate investment as well as spur economic growth in India's southern and northeastern regions, as well as Myanmar and CLMV countries.

Enhancing connectivity between South and Southeast Asia is a multifaceted task that will require the implementation of strong policy initiatives. Development of Southeast Asia and South Asia connectivity would raise significant opportunities for industrial development in India and increase trade potential with South and East Asian countries. Chennai has already established itself as a gateway to Southern India. The ASEAN connectivity would link the Chennai region to the rest of the world through its maritime infrastructure. Thus, Chennai has a great potential for becoming the greater gateway for India and functioning as a core node as a center of business activities with industrial clusters, and as an engine for promoting regional economic growth.

Factory Asia syndrome has been moving to South Asia, and therefore connectivity over the Bay of Bengal is important. Since air cargo is growing faster than ocean cargo, ASEAN and India need more airports. Multimodal links between east, northeast and southern parts of India should be the priority for connectivity development.

The success of any regional connectivity projects will depend on how strong the backend integration is. At present, the backend integration of most physical connectivity projects in India is very poor. Backend integration with national connectivity projects is therefore essential to reap the benefits of growing economic linkages between India and Southeast Asia. To sum up, trade liberalization is important, but sometimes it is not adequate enough to enhance a region's trade. Improved connectivity and trade facilitation can complement that effort, and is the way forward for regional trade and economic partnership between Southeast Asia and South Asia.

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APPENDIX

Gravity Regression Results

(Period: 2000–2012)
(Dependent variable: ln_total trade)

	OLS
ln_gdp_reporter	0.823***
	(0.187)
ln_gdp_partner	0.533***
	(0.121)
ln_distance	-1.131***
	(0.118)
Constant	2.761
	(3.092)
Year effect	Yes
Country effect	Yes
Observations	3790
R sq.	0.744

Note: Robust standard errors are reported in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Author's calculations.