13.
PROMOTING INTERNATIONAL TRANSPORT CONNECTIVITY BETWEEN INDIA AND THE SOUTH AND SOUTH EAST ASIA REGIONS

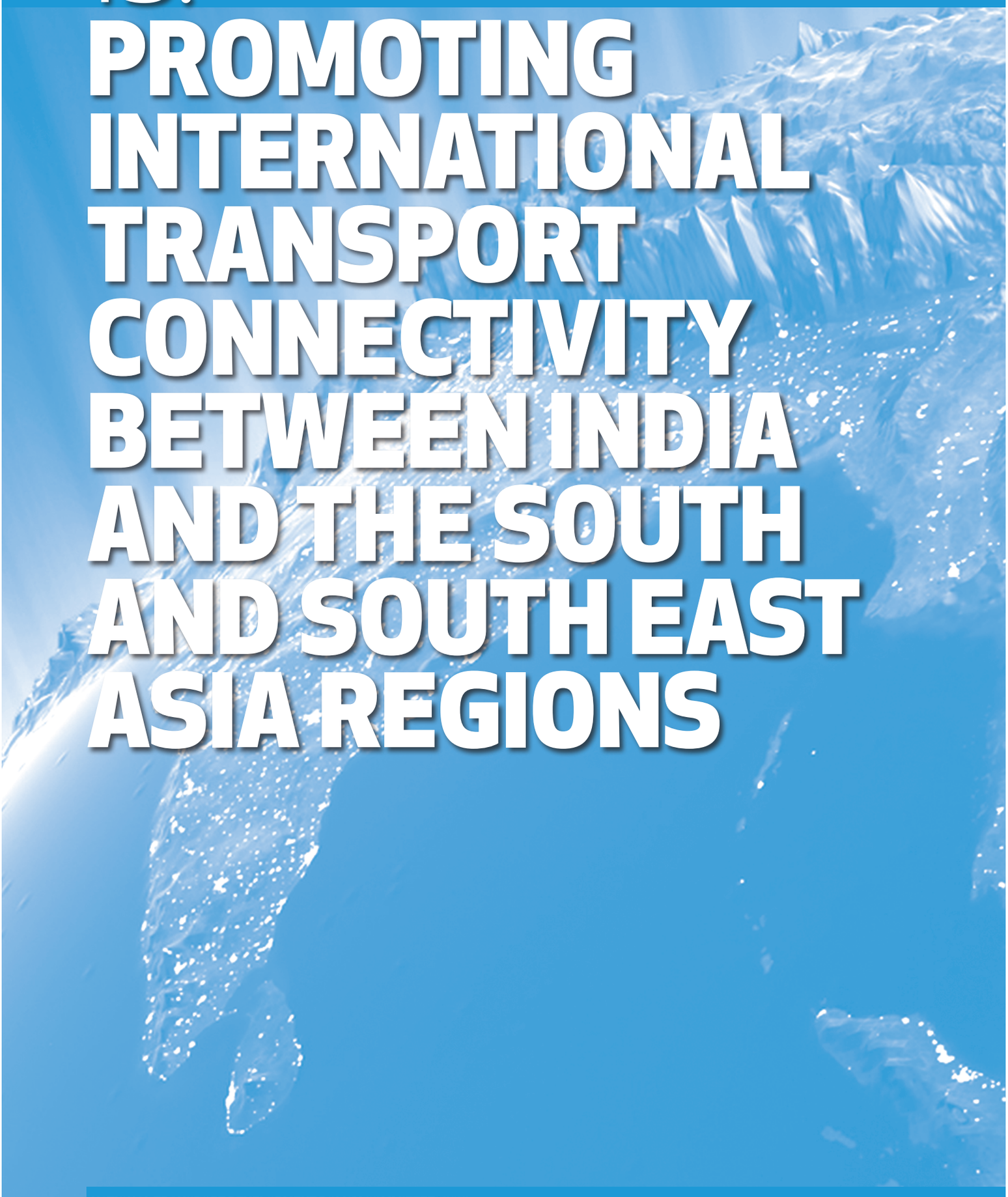


TABLE OF CONTENTS

13. PROMOTING INTERNATIONAL TRANSPORT CONNECTIVITY BETWEEN INDIA AND THE SOUTH AND SOUTH EAST ASIA REGIONS

It has become increasingly clear that among sub-regions of the world, South Asia stands out as having the least developed transport connectivity between its constituent countries. Consequently, it is also among the least interconnected regions in economic terms.

All the countries in the region have therefore suffered from an economic point of view from the lack of transport links. The irony is that, prior to Independence and partition in 1947, the whole region was much better connected since there were no such international borders. Despite the long passage of time, political developments in the region have not been conducive to the development of transport and trades linkages across borders in the region.

The situation has now begun to change for the better with a number of diplomatic and other initiatives for the expansion of trade within the region, which would augur well for the future (Box 13.1).

It is with this in mind that the NTDPC is proposing a bolder effort towards the opening of international borders for trade and commerce, and for personal movement for tourism and other purposes. We feel that, if the current momentum continues, the kind of recommendations given in this chapter would be well within the realm of reality. As such, while being aware of them, we have abstracted from the political and diplomatic impediments that would restrain

Box 13.1
ASEAN-India Connectivity: The Government of India's Approach

At the 11th ASEAN-India Summit in Brunei Darussalam on 10 October 2013, the Prime Minister of India announced that connectivity with the ASEAN region is a strategic priority for India and that the ASEAN-India Transport Agreement should be completed by 2015.

The flagship project under the ASEAN-India Connectivity initiative is the India-Myanmar-Thailand Trilateral Highway, which also constitutes part of the proposed Asian Highway network AH 1 within Myanmar. The length of the Trilateral Highway is approximately 1360 km, which will pass through Mandalay (Chaungma-Mandalay-Meitkila). India has undertaken to build the section between Tamu-Kalewa-Kalemyo (TKK) (Friendship Road), about 160 km in length. There is also a proposal for a bus service between Imphal and Mandalay.

India has set up an internal Inter-Ministerial Group on ASEAN Transport Connectivity to strengthen ASEAN-India connectivity. On 10 June 2013, India initiated an annual meeting with the ASEAN Connectivity Coordinating Committee (ACCC) as the primary policy level forum to take ASEAN-India connectivity agenda forward. At the ACCC-India Meeting, India suggested setting up of a Joint Working Group (JWG) on Maritime Connectivity between India, Myanmar, Thailand, Cambodia and Vietnam and also that work begin on creation of soft infrastructure in order to permit seamless movement of goods and passenger traffic along the ASEAN-India connectivity corridors. The Commerce and Industry Minister also reiterated that soft infrastructure requirements for movement of goods and services across geographic connectivity corridors be discussed at a Working Group level.

In addition to the above, there is a study on a Mekong-India Economic Corridor conducted by the Economic Research Institute for ASEAN and East Asia (ERIA), which suggests connecting the production networks in the Mekong region along the GMS Southern Economic Corridor (Ho Chi Minh City-Phnom Penh-Bangkok) to the corridors in India (Delhi-Mumbai-Industrial Corridor and Mumbai-Bangalore-Chennai Industrial corridor) through the Chennai-Dawei Sea link. There is even broader potential to link trade routes from sea ports in Myanmar, Thailand, Cambodia and Vietnam and even Japan to ports along India's eastern seaboard.

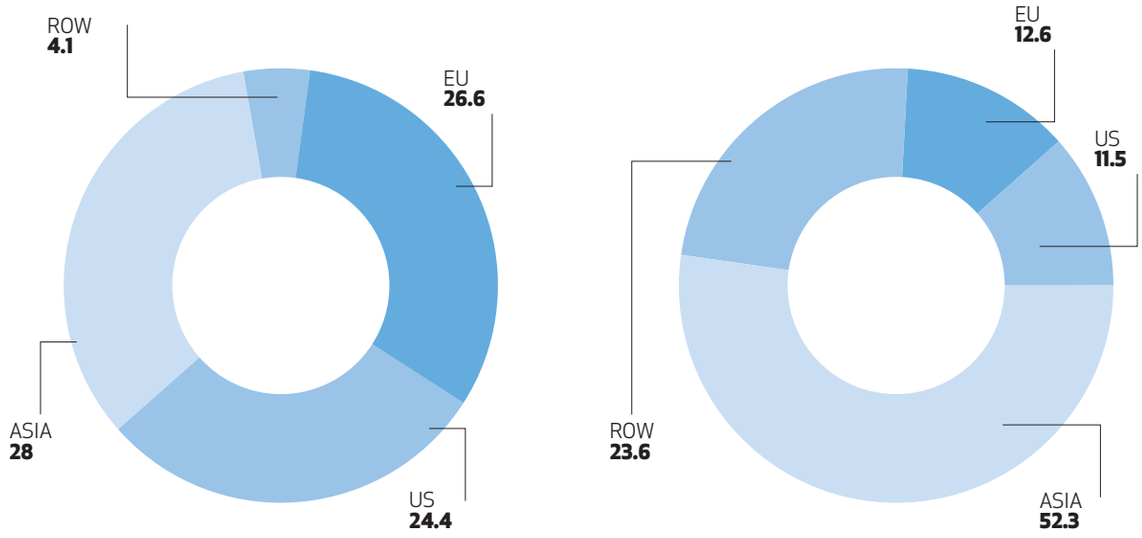
Subject to reciprocal rights to the Indian carriers, at present designated airlines of all ASEAN countries (except Lao PDR) are offered the facility to operate a daily service to 4-metro destinations besides unlimited access to another 18 tourist destinations (Patna, Lucknow, Guwahati, Gaya, Varanasi, Bhubaneswar, Khajuraho, Aurangabad, Goa, Jaipur, Port Blair, Cochin, Thiruvananthapuram, Calicut, Amritsar, Vishakapatnam, Ahmedabad and Tiruchirapally). As of February 2013, India has offered to conduct negotiations on an open sky policy on cargo on a quid pro quo basis.

Looking ahead, the main thrust areas in ASEAN-India connectivity are as follows:

- Completion of the India-Myanmar-Thailand Trilateral Highway by 2016 and its further extension;
- Creation of soft infrastructure for utilising the Trilateral Highway and improving the surface connectivity with ASEAN through mechanisms to allow seamless movement of goods and traffic, in particular through an ASEAN India Transit Transport Agreement to be negotiated under an ASEAN-India Joint Working Group on Soft Infrastructure;
- A multimodal link-up with maritime ports in the region by working out necessary arrangements under the aegis of a Working Group on Maritime Connectivity;
- Leveraging geographic connectivity into corridors for economic cooperation to bring economic viability to the geographic corridors and make the connectivity between ASEAN and India more sustainable;
- Strengthening air services arrangements between ASEAN and India especially for air cargo and better utilisation of the open skies arrangements to the 18 tourist destinations in India, extended to the ASEAN in 2003;
- Strengthening the backend linkages into India, particularly in the North East and along the eastern seaboard

Source: Ministry of External Affairs, Government of India.

Figure 13.1
Share of Major Regions in World GDP
[Per cent]



BASELINE, 2009

ASIAN CENTURY SCENARIO, 2050

Source: ADB (2010b).
Note: ROW - Rest of World.

the implementation of the kind of recommendations made in this chapter.

Fortunately, there is a significant body of technical work that exists for the development of transport and transport linkages in South Asia. Agencies such as UNESCAP, SAARC, ADB and BIMSTEC have conducted extensive technical work over the years in this area. The NTDPC has drawn liberally from these sources to make the recommendations that have been put forward in this chapter.

It is our hope that, just as Europe has integrated economically in the six to seven decades since World War II, it should be possible for the South Asia region to get similarly integrated over the next two decades. This would require extensive investment in transport linkages across borders along with technical agreements that will be necessary to make cross-border transport feasible.

ESTABLISHING THE CONTEXT

THE RISE OF THE DEVELOPING WORLD AND ASIA

Until the 1980s, an area that geographically covered 60 per cent of the world, comprising Africa, developing Asia, Latin America, and the Middle East, collectively known as the 'South', contributed to less than 30 per cent of world GDP. Growing at an average annual rate of 4.8 per cent since then, the combined economic output of the South accounted for 45 per cent of world GDP by 2010. In recent years, there has been further decline in the share of developed economies in world GDP and trade, and a concurrent rise in the share of the South, and it is evident that these economies will be the potential drivers of growth in the coming decades.

In the aftermath of the global slowdown which particularly hit the industrialised economies the most, the southern economies realised the need to deepen intra-regional trade. Also, given the high population growth rates and rising average incomes, the South offers tremendous potential markets for capital investment as well. However, till date, barriers to South-South trade and investments are still higher than those with the industrial world, broadly owing to high tariff and non-tariff barriers within South. Thus, addressing this issue by promoting global and regional integration and reducing internal trade and investment barriers has become increasingly important[1].

Further, the developing economies of Asia, which constitute a large share of the South, have not only demonstrated resilience through the global recession, but also succeeded in maintaining a robust growth rate. Per capita income in developing Asia grew at 9.4 per cent annually during the period 2000 to 2010 and investment rates averaged 35 per cent of GDP over the decade. These aggregate numbers are strongly influenced by the two Asian giants—the People's Republic of China (PRC) and India. Backed by prudent macro-economic policies, it is predicted

1. This section draws on the arguments in ADB (2010a).

Table 13.1
Structure of Global GDP
[In current US$ trillion]

	2000	2011	2016	2020	2025
World GDP	32.2	68.7	90.5	110.5	140.5
Advanced Economies	25.7 (79.7)	44.4 (64.6)	53.3 (58.9)	61.1 (55.3)	71.7 (51.1)
Developing and Emerging Economies	6.5 (20.3)	24.3 (35.4)	37.2 (41.1)	49.4 (44.7)	68.8 (48.9)
of which					
Developing Asia	2.3 (7.3)	10.5 (15.2)	17.4 (19.3)	26.6 (24.1)	40.7 (28.9)
of which India	0.5 (1.5)	1.9 (2.8)	3.6 (4.0)	5.8 (5.2)	10.0 (7.1)
Sub-Saharan Africa	0.3 (1.0)	1.2 (1.8)	1.7 (1.9)	2.5 (2.2)	3.9 (2.8)
West Asia and North Africa	0.8 (2.5)	2.8 (4.0)	3.8 (4.2)	5.0 (4.5)	7.1 (5.0)
Latin America and Caribbean	2.1 (6.6)	5.5 (8.0)	7.4 (8.2)	9.7 (8.8)	13.3 (9.5)

Source: 12th Plan Approach Paper, Planning Commission.
Note: Numbers in parentheses are percentages.

Table 13.2
India's Merchandise Trade, Region-wise
[Trade data-dated]

REGION	1997-98 PER CENT EXPORTS	2010-11 PER CENT EXPORTS	1997-98 PER CENT IMPORTS	2010-11 PER CENT IMPORTS
EU Countries (27)	26.50	18.33	27.16	12.05
Other West and East European Countries	1.77	1.51	3.20	7.20
North America	20.64	10.61	10.04	5.97
Latin America	1.42	4.08	1.46	3.84
Africa	4.03	6.27	5.85	7.05
Asia	41.48	52.05	39.35	61.16
East Asia	1.36	0.78	3.58	3.15
ASEAN	8.67	10.20	7.50	8.28
WANA	9.99	21.59	15.89	28.56
North East Asia	16.31	14.84	11.76	20.58
South Asia	5.15	4.64	0.62	0.59
Others	4.28	7.13	12.92	2.62

Source: Ministry of Commerce and Industry, Government of India.

that Asia could host some of the largest global equity, debt and banking markets and the region could become increasingly crucial in shaping the global financial architecture, monetary system and financial intermediation[2].

INTEGRATING INDIA WITH ASIA

India is expected to contribute close to 16 per cent of global GDP by 2050, and achieve per capita incomes of $22,000 by 2039[3]. Table 13.1 is a comparison of the structure of global GDP and India's share. However, the high growth rates that underpin these expectations are not pre-ordained. Given the new global rebalancing, India has to look to the South, to developing Asia, eastward, and within the South Asia region in order to grow (Figure 13.1). Tables 13.2 and 13.3 establish the declining share of Europe and North America as a market for South Asian countries and the rising share of Asia.

INDO-ASEAN TRADE

As global growth gravity shifts towards Asia, the Association of Southeast Asian Nations (ASEAN), with a population of over 615 million and strong domestic consumption, is becoming one of the most promising markets for now and the future. In absolute terms, the total trade within this area is about $1.7 trillion and gross domestic product is $2.3 trillion. For many ASEAN countries, an increasing

2. See ADB (2010b).
3. Ibid.

Table 13.3
Direction of Trade for Countries of South Asia

TO	ASIA		EUROPE		NORTH AND CENTRAL AMERICA		REST OF THE WORLD	
FROM	**1990**	**2011**	**1990**	**2011**	**1990**	**2011**	**1990**	**2011**
Percentage of total merchandise exports								
Afghanistan	17.6	75.6	73.7	13.1	4.4	4.3	4.3	7
Bangladesh	14.8	13.2	41.8	57.2	32.3	24.2	11.2	5.4
Bhutan	99.3	97.7	0.6	1.9	0.0	0.2	0.1	0.1
India	**21.0**	**32.4**	**47.2**	**19.4**	**16.3**	**13.6**	**15.4**	**34.5**
Maldives	47.0	51.4	26.5	43.0	26.3	1.5	0.2	4.1
Nepal	14.7	68.5	60.0	14.9	24.1	11.1	1.2	5.5
Pakistan	28.2	32.0	40.7	24.5	14.3	16.4	16.9	27.2
Sri Lanka	14.8	19.3	30.9	35.6	28.8	23.0	25.7	22.1
Percentage of total merchandise imports								
Afghanistan	79.1	44.4	17.1	21.4	1.3	32.1	2.3	2.2
Bangladesh	47.7	62.5	22.0	8.7	8.4	3.7	21.8	25.1
Bhutan	11.2	83.6	72.1	14.8	11.3	1.4	5.3	0.2
India	**17.4**	**30.3**	**41.3**	**18.4**	**12.9**	**6.1**	**28.5**	**45.2**
Maldives	85.2	61.3	13.3	8.3	0.5	3.9	0.9	26.5
Nepal	69.4	90.5	20.1	2.6	2.8	1.1	7.7	5.8
Pakistan	30.3	43.9	29.3	11.5	14.2	5.9	26.3	38.9
Sri Lanka	47.5	67.9	17.8	11.2	8.9	3.4	25.8	17.5

Source: ADB (2011).

trade deficit with, and dependence on, the Chinese economy have compelled them to forge stronger economic ties with India as an alternative balancing source for growth. India's overall merchandise trade increased from $93 billion in 2000 to $792 billion in 2012-13, with a high compound average growth rate of 19.5 per cent. During the same period, merchandise trade between ASEAN and India also recorded a significant increase from $7.1 billion in 2000 to $77 billion in 2012-13, with a compound average growth rate of 22 per cent.

However, despite the good growth performance and the geographical proximity, the trade relationship between ASEAN and India is still limited. One of the major obstacles to the expansion of trade is the high cost of moving goods across the borders reflecting insufficient infrastructure for physical connectivity[4]. Greater connectivity will provide more development opportunities for less developed areas in India such as the North East, and less developed ASEAN member countries, particularly Myanmar, which are surrounded by the three of the most vigorous economies in the world—China, India and ASEAN. These regions are also expected to play a very important role as the physical connecting nodes. Consequently, development policies for Myanmar and North East India will be at the core of the regional approach to enhance ASEAN-India connectivity.

INDIA-SOUTH ASIA TRADE

In the past three decades, although South Asia has been second to East Asia as the fastest growing region of the world, intra-regional trade as a share of world trade has gone up only marginally. Despite favourable conditions for establishing a successful trading agreement in South Asia and the geographic proximity of countries, factors like high tariff rates and protection measures have resulted in intra-regional trade in South Asia being amongst the lowest in the world: only 4.3 per cent of its total merchandise trade in 2010 as compared to 5.5 per cent for Central Asia (including Georgia and Armenia), 26.4 per cent of ASEAN, 50 per cent for NAFTA, and 71 per cent for the EU[5].

Besides tariffs, trade costs also rise due to weak trade-related infrastructure and logistics, institutional barriers, and insufficient infrastructure for physical connectivity. For example, in 2010, it took 11 days and fewer than five documents, on average, to export or import a standardised unit of cargo among OECD economies, but it took more than twice as many days

4. RIS (2012).
5. Figures for Central Asia and ASEAN are obtained from the ARIC website, ADB. Central Asia is composed of the following ADB countries members: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. NAFTA and EU figures computed from WTO International Trade Statistics, 2011.

Geographically, India is strategically positioned to connect East and West Asia. It is also centrally placed within South Asia, connecting most of the countries to one another. India can provide key support for establishing an effective Asian institutional architecture as an important member of various regional cooperation arrangements.

for countries in East Asia and almost three times as long for those in South Asia, with many more documents involved[6]. Studies based on primary surveys show high level of informal trade between countries of the region[7] which are attributable to such institutional barriers.

Transport and communication linkages that increase current physical connectivity will also help expand future transfer of technology and investments. Closer trade links, intra-regional supply chains, and stronger financial links help bridge development gaps within a country as well between countries, promoting stable and inclusive growth. Cross-border investment, a key driver of international trade in recent years is almost completely absent in the South Asia region. While India has bilateral promotion and protection agreements (BIPAs) with 82 countries (10 in the process of ratification), there are only three with South Asian countries: Sri Lanka, Bangladesh and Nepal (up for ratification). But even with these countries, surveys repeatedly point to the lack of physical infrastructure. Without actual physical connectivity, there is little that can move, literally. Infrastructure, particularly power and transportation, are the major constraints

PROMOTING REGIONAL TRANSPORT CONNECTIVITY

Post-1947, when India gained independence, the subcontinent was divided into the territories known today as the countries of South Asia. Land borders of almost 7,400 km were created. Initially, the transport links between countries continued to operate, but subsequently were discontinued due to political issues. For example, rail and inland waterways transport (IWT) across the then East Pakistan (now Bangladesh) were suspended in 1965 during the Indo-Pak war and only IWT was restored in 1972, after East Pakistan became the sovereign nation of Bangladesh. Transit through Pakistan from India to Afghanistan remains suspended.

Border management led to closure of historical land routes at several points. North East India became a landlocked territory with its only connection to the mainland being the narrow 'chicken's neck' area through Siliguri. In subsequent years, incompatible transport technology platforms also emerged, impairing interoperability of cross-border services. This is particularly in the case of rail transport with differences in gauge. Even for road transport, the axle load for Indian trucks at 12.8 tonnes is higher than in Bangladesh at 8.14 tonnes. Intra-South Asia trade, which was 18 per cent of the total trade in 1948, dropped to 4.3 per cent by 2010.

National highway and railway networks are dense in most of India but sparse in the border areas where there are substantial missing links across national boundaries. Today's border areas, which were relatively wealthy before Partition in 1947, have become hinterlands. All this has resulted in high transaction costs, ranging between 13-14 per cent of the commodity value compared to 7-8 per cent in developed countries. Investments towards regional connectivity and especially in promoting 'last mile' efforts will have a major positive impact on India's trade potential.

THE CENTRAL ROLE OF CONNECTIVITY

National connectivity needs to be upgraded and dovetailed into a regional roadmap. For regional connectivity, border areas and gateways need hard and soft infrastructure. Hard aspects cover physical infrastructure including improvement of roads and trade and transit facilities. The softer aspects of connectivity include measures that facilitate smooth movement of goods and people such as free trade agreements (FTAs) and transport agreements. However, soft aspects will not see benefits without the hard infrastructure being in place.

However, soft aspects will work only with the hard infrastructure in place.

Geographically, India is strategically positioned to connect East and West Asia. It is also centrally placed within South Asia, connecting most of the countries to one another. India is in a position to provide key support for establishing an effective Asian institutional architecture as an important member of various regional cooperation arrangements and sub-regional initiatives including the South Asian Association for Regional Cooperation (SAARC), South Asia Sub-regional Economic Cooperation (SASEC), Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation (BIMSTEC), ASEAN+1, and the Bangladesh-China-India-Myanmar (BCIM) initiative. Figure 13.2 shows the centrality of India in these regional and sub-regional projects.

India is also at a centre of a web of dynamic bilateral and regional FTAs within South Asia and between South and East Asia and South East Asia. It is thus essential that transport, communication and energy linkages that increase connectivity and expand

6. World Bank (2010).
7. Taneja (2005).

Figure 13. 2
Regional and Sub-regional Initiatives in Asia

Source: Asian Development Bank.

logistical networks through transfer of technology, managerial knowhow, and investments are strengthened. This will result in widespread economic benefits, and as the largest country in South Asia, India has to take the lead. The critical step is connectivity. The time for South Asian integration has indeed arrived[8].

It is important to project India as the most convenient and economical transit country for all our neighbours, who should be encouraged to use the Indian transport network, its ports and airports for both import and export of goods worldwide.

Cross-border infrastructure, in the form of immigration, customs and phyto-sanitary facilities need to be developed and upgraded virtually all along India's borders. Most of the border areas have been left deliberately underdeveloped due to security concerns; borders have been looked at as separating walls rather than as connectors bringing peoples and economies together. There is also a need to plan cross-border linkages not just for border trade but as entry and exit points through which normal trade, including third country trade, can take place on most favoured nation (MFN) terms. While trade through most border trade points is currently limited to mutually agreed lists of commodities, in reality a large volume of contraband trade takes place, encouraging criminalisation, loss of revenue and threats to national security. Cross-border transport linkages must factor in this aspect.

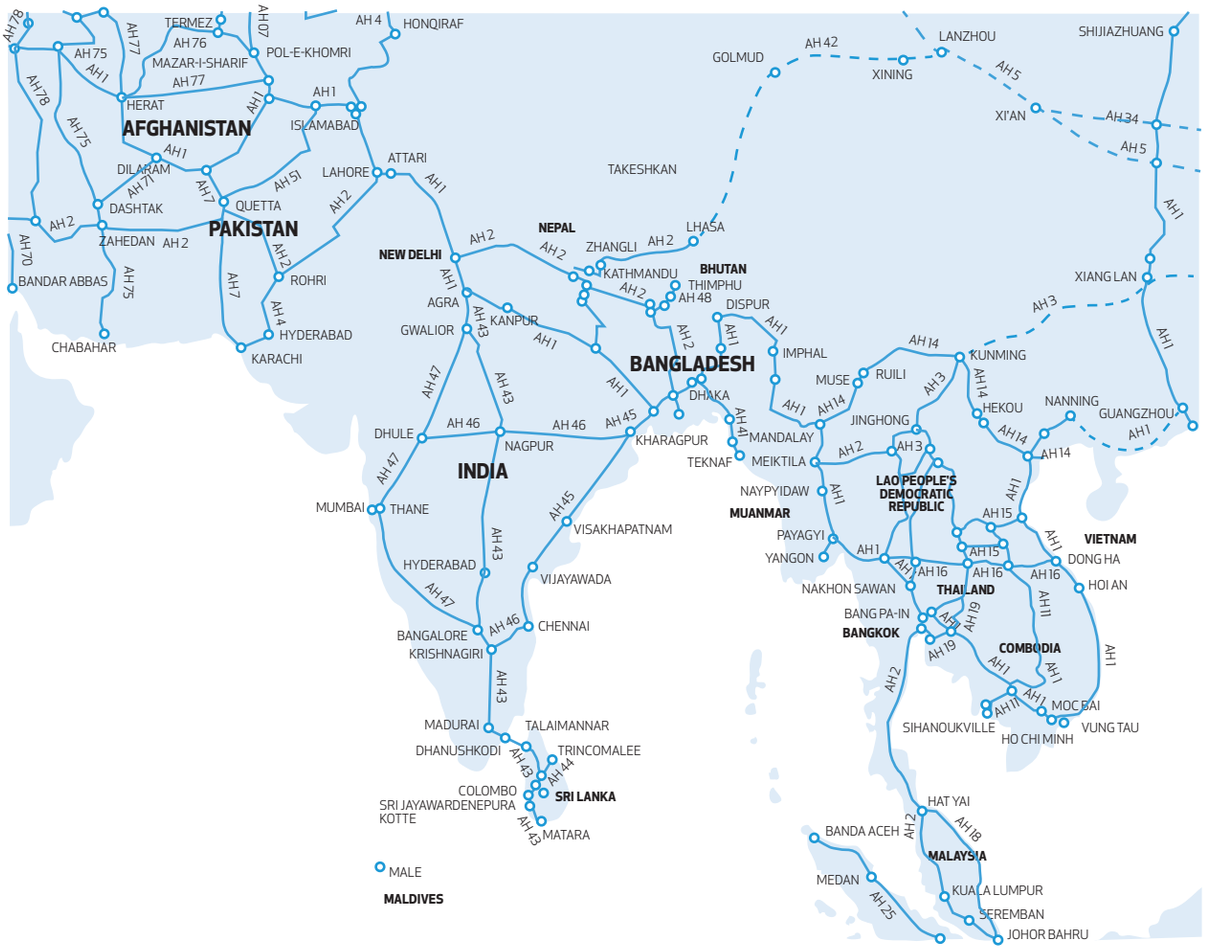
For India to emerge as an economic powerhouse in South Asia and South East Asia, the development of a dense network of transport linkages throughout this larger neighbourhood is absolutely vital.

ASEAN'S COMPREHENSIVE ASIA DEVELOPMENT PLAN

Connectivity is a central theme of the ASEAN. Its connectivity priorities include enhancing multimodal transportation links, connecting archipelagic member states to the mainland, narrowing the digital divide, facilitating energy

8. Roy (2012).

Figure 13. 3
Asian Highway Network



Source: Reworked from UNESCAP Asian Highway Network Map.

trade, and strengthening institutional connectivity. ASEAN has drafted strategies to upgrade existing road links, construct missing rail links, enhance infrastructure of key ports, and promote greater use of roll-on roll-off activities to integrate its economies despite physical and financial challenges. Connectivity through air is the most developed in the region.

ASEAN-India connectivity is the main theme of the Comprehensive Asia Development Plan (CADP) Phase II report. CADP recommends a strategy based on a multi-modal, multi-functional and multi-tier approach. As already mentioned, greater ASEAN-India connectivity will provide significantly more development opportunities for less developed areas in India such as the North East, and less developed ASEAN member countries, particularly Myanmar.

Reducing transport costs will do more than just increase trade. It will also help change the location of economic activities[9]. Trade between India and ASEAN is expected to reach about US$100 billion in the next two years. India-Myanmar border trade contributed an insignificant 2.08 per cent and 0.49 per cent in India's total export to and import from Myanmar respectively in the last decade which shows that the border trade potential between the two nations is far from being realised.

SAARC REGIONAL MULTIMODAL TRANSPORT STUDY (SRMTS)

Following the partition of British India, the transport systems of South Asia have developed only in the national context and little consideration has been given to cross-border issues of compatibility, uniformity of standards in infrastructure and equipment design. In general, the key issues for international road transport are the types of vehicles used, the size of operators and poor vehicle utilisation. The SAARC Regional Multimodal Transport Study (SRMTS) endorsed by SAARC countries at the 2007 New Delhi Summit, charts out an integrated plan for individual countries of the South Asia region. It recognises that regional connectivity in transport is essential and capacity augmentation is required to cater to the anticipated increased traffic along intra-regional corridors. It has been estimated for South

9. Myo (2004).

Figure 13. 4
Asian Railway Network

Source: Reworked from UNESCAP Asian Highway Network Map.

Asia that for every 1 per cent reduction in transport cost, there is a 5 per cent stimulus to trade. This reduced transportation cost then gets translated into a 1.5 per cent reduction in costs to end-users of goods moved along that corridor, which eventually leads to an estimated 1 per cent addition to regional GDP.

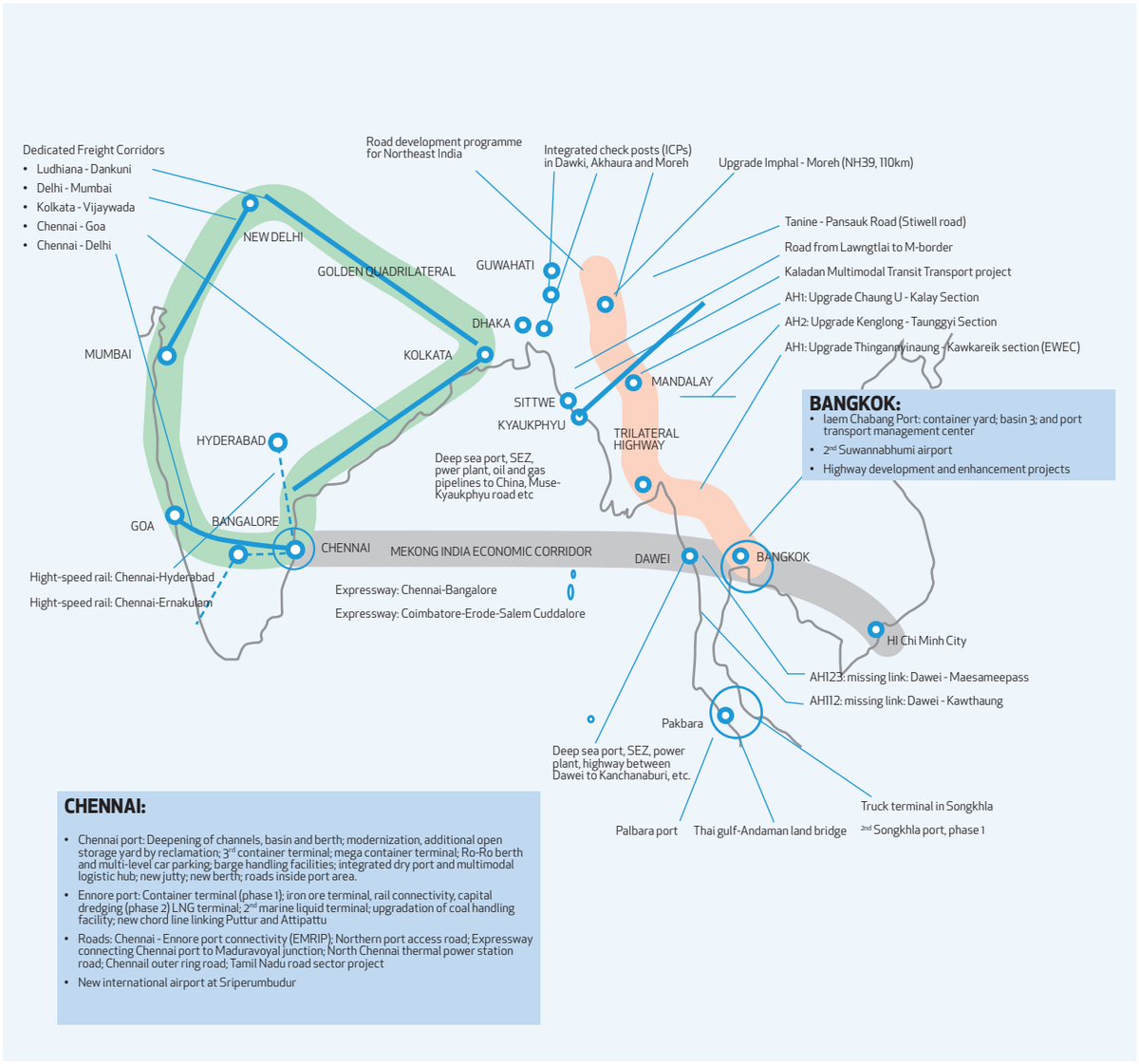
In 2003, under the auspices of the United Nation Economic and Social Commission for Asia and the Pacific (UNESCAP), the Intergovernmental Agreement on Asian Highway Network was signed, which specified the technical specifications for the regional road network. The Asian Highway Network (Figure 13.3) extends through 32 member countries and comprises 142,000 km of highways with very few missing links, but only 32 per cent of which is currently classified as Primary and Class I. The project aims to upgrade all designated national routes to Class I standards by 2020, although Class II standards would be acceptable for low-traffic, non-arterial routes. The Asian Rail Network (Figure 13.4) faces the problem of missing links.

The next sections list the important corridors for India and the measures needed to establish connectivity with its regional trading partners in a 20-year timeframe. There is need to restore the transport infrastructure which was integrated prior to independence. Assuming political and diplomatic cooperation over the near, medium and long term, this chapter proposes all the links that need to be put in place, to achieve the potential of regional economic integration.

THE MAJOR CORRIDORS: INDIA AND ASEAN

Connectivity with ASEAN in all its dimensions—physical, institutional and people-to-people—continues to be a strategic priority for India. Two major Commemorative events this year—the India-ASEAN Car Rally and the ASEAN sailing expedition of the Indian Naval Ship Sudarshini—highlight the importance and the potential for connecting India and ASEAN by sea, surface and air links. These are

Figure 13.5
India-ASEAN Multimodal Connectivity Projects



Source: Economic Research Institute for ASEAN and East Asia.

welcome steps in implementing the vision of India-ASEAN connectivity.

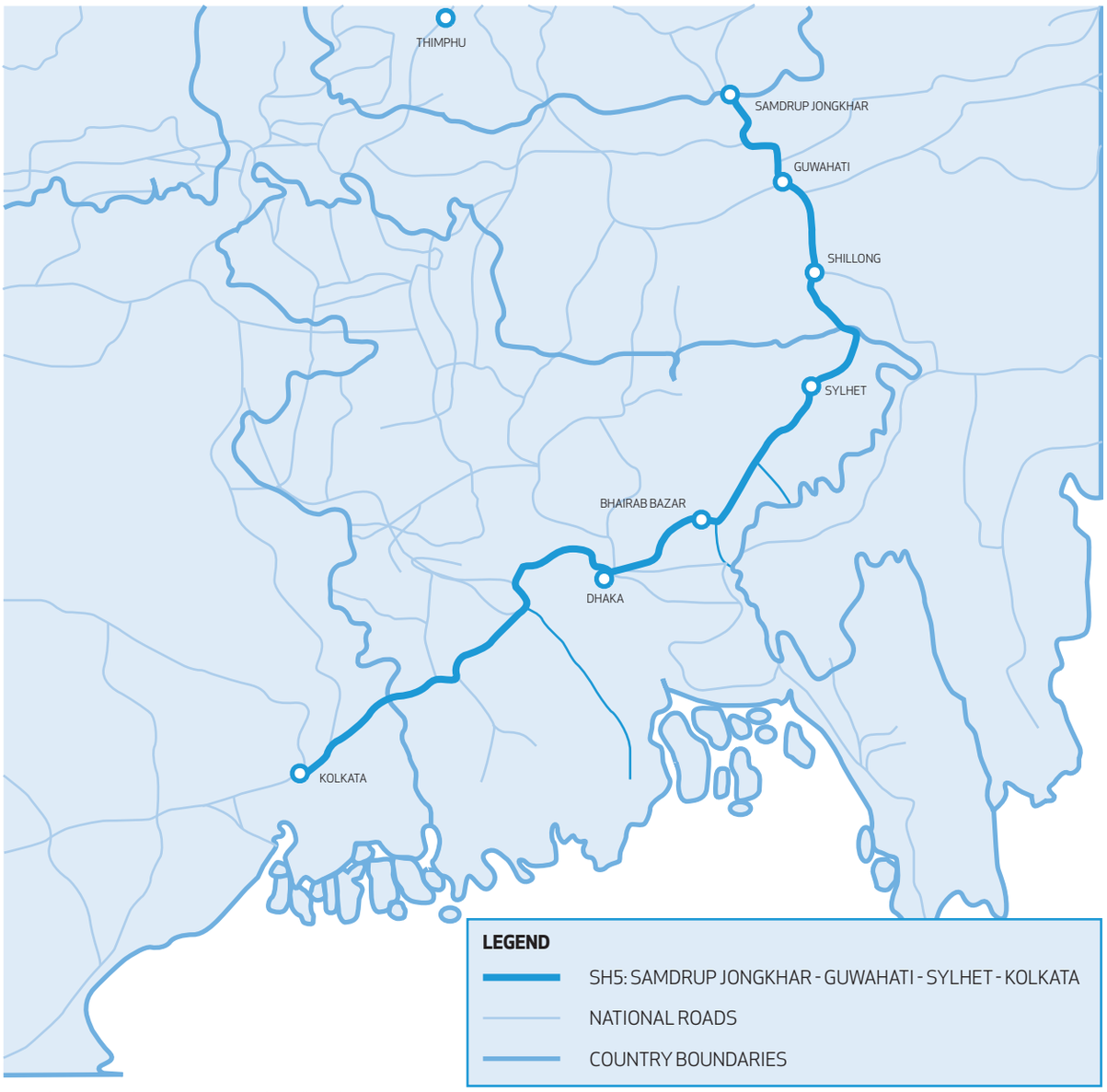
Prime Minister Manmohan Singh at the
10th India-ASEAN Summit, November 2012

ASEAN-India relations have grown rapidly from a sectoral dialogue partnership in 1992 to the signing of the ASEAN-India Trade in Goods (TIG) Agreement in Bangkok on 13 August 2009. The agreement paves the way for the creation of one of the world's largest free trade areas—a market of almost 1.8 billion people with a combined GDP of $4.1 trillion. ASEAN and India have concluded negotiation on the ASEAN-India Trade in Services and Investment Agreements and look forward to an its signature soon. However transport connectivity is essential to realise the potential of these agreements. The two principal proposed modes to enhance ASEAN-India connectivity are:

- Sea route along the Mekong-India Economic Corridor (MIEC), the most important need here being the development of the deep sea port at Dawei, Myanmar and port along the eastern seaboard of India including Chennai;
- Land routes along the Trilateral Highway (TH)/Asian Highway (AH)1 connecting Thailand, Myanmar and India.

ASEAN Plan of Action in Transport (1996-98) explored various areas of transport infrastructure and facilities to enable free flow of goods, peoples and ideas across the region, similar to the European Union. The transport links established within Greater Mekong Sub-region (GMS), for example, the

Figure 13. 6A
Kaladan Multimodal Transport Project



Source: http://www.arakanrivers.net (accessed 4 April 2013).

North-South Corridor, Southern Economic Corridor and the 1,500 km long East-West Corridor financed by the ADB, link different parts of Vietnam to Laos, Cambodia, Thailand and Myanmar. The ASEAN Highway Network (AHN) is a flagship land transport infrastructure project which forms the major road (interstate highway) component of the overall trans-ASEAN transportation network ans is one of the 15 priority projects under the Master Plan of ASEAN Connectivity (MPAC). The ASEAN-India projects can be seen in Figure 13.5.

MEKONG-INDIA ECONOMIC CORRIDOR (MIEC)

The concept of the Mekong-India Economic Corridor (MIEC) has been under consideration for several years as a major India-ASEAN connectivity initiative. Integrating the four Greater Mekong Countries, namely Myanmar, Thailand, Cambodia and Vietnam with India through its east coast and North East region, it will link vibrant emerging economies through a network of land and sea infrastructure. The Corridor is envisaged as a dynamic industrial region comprising large investment zones, rapid port and rail connectivity, and smart cities.

The three major areas of cooperation to enhance the connectivity between India and ASEAN is physical, institutional and people-to-people ties and this is conceptualised to come up around the main highway connecting Vung Tau in Vietnam to Dawei in Myanmar, passing through Ho Chi Minh City, Phnom Penh and Bangkok. The highway passes through three borders: (i) Moc Bai-Bavet (Cambodia-Vietnam); (ii) Poipet-Aranyaprathet border (Cambodia-Thailand); and (iii) Sai Yok-Bong Tee (Thailand--Myanmar). On

Figure 13. 6B
Kaladan Multimodal Transport Project

Source: http://www.arakanrivers.net (accessed 4 April 2013).

the land route, the MIEC is proposed to connect Ho Chi Minh City (Vietnam) with Dawei (Myanmar) via Bangkok (Thailand) and Phnom Penh (Cambodia) with India's North East region. On the sea route, Chennai on the eastern coast of India would connect to Bangkok, and hinterland to Vietnam and Cambodia in the eastern direction and Myanmar to the west. The road alignment connecting major economic centers will serve as the main transport spine of the corridor. It is estimated that the influence zone of the corridor extends to 80-100 km on both sides of the alignment.

ASIAN AND ASEAN HIGHWAY NETWORKS

The vital projects to enhance stronger and deeper economic cooperation and regional integration are Asian Highway Network 4 linking the five neighboring countries, the ASEAN highways to improve within-ASEAN linkages, the GMS economic corridors, the BIMSTEC highway, the India-Myanmar-Thailand TH, the India-Myanmar Highways, the Paletwa border road, the Kaladan River Project, and the Kyautphyu and Dawei Deep Seaport Projects.

The three important land customs stations (LCSs) between India and Myanmar are Moreh in Manipur/Tamu in Sagaing, Zolkawtar in Mizoram/Rihkhawdar (Chin), and Avakhung in Nagaland/Layshi in Sagaing. Out of these, the Moreh LCS has been the busiest, handling almost 99 per cent of the region's trade with Myanmar, although North East India's trade with Myanmar has always remained less than a per cent of India's total trade with that country. The road from Imphal to Palel (49 km) is largely two-lane, flat terrain, and the surface is fairly paved and maintained. In contrast, the road from Palel to Moreh (60 km) is single-lane and mostly mountainous. The surface is paved but not maintained well, and a number of sections need to be repaired.

THAILAND TRILATERAL HIGHWAY

The India-Myanmar-Thailand Trilateral Highway (TH) project which was initiated at the meeting of the Foreigh Ministers of India, Myanmar and Thailand in December 2003 is a major Initiative to enhance connectivity, trade, investment and tourism by linking the countries. The plan is to build a 1,360 km long MorehMae Sot highway the original alignment of which was to pass through Bagan, but on the suggestion of Myanmar, has been modified to pass through Mandalay now. The objective is to create a link between North East India and South East Asia.

INDIA-MYANMAR FRIENDSHIP ROAD

On the Myanmar side, a 150 km road from Tamu to Kalemyo and a 10 km road from Kyigone to Kalemyo have been constructed by the Border Road Organisation (BRO) of India, and named as a Friendship Road. Completion of the project on Myanmar territory was an imperative sub-regional initiative. With the grant-aid of the government of India, the Kaly-Tamu road was completely upgraded and opened in February 2001. Of the 160 kms Tamu-Kyigone-Kalemyo section, work on 132 kms has been completed, resurfaced and handed over to Myanmar in September 2009. Of the remaining 28 kms, work has been

Box 13. 2
ASEAN Infrastructure Financing

The setting up of the ASEAN Infrastructure Fund (AIF) was announced in 2012. The AIF aims to finance the development of the region's road, rail, power, water and other critical infrastructure. It is estimated that ASEAN nations will require about $60 billion annually to fully address their infrastructure needs. AIF's total lending commitment through 2020 is expected to be approximately $4 billion. With a projected 70 per cent co-financing by ADB, AIF plans to leverage more than $13 billion in infrastructure financing by 2020. The AIF will be established with an initial equity contribution expected to be $485 million, of which $335 million is being provided by nine ASEAN members. The remaining $ 150 million is being provided by ADB. It is the largest initiative in ASEAN's history. A unique feature of AIF is that it will issue debt, which is targeted to be purchased through the Central Banks' foreign exchange reserves. With ASEAN countries holding over $700 billion in reserves, AIF offers an avenue for recycling the region's resources for its growing infrastructure requirements.

Private sector funding is essential for large scale infrastructure financing in ASEAN, but historically, the high degree of perceived risk on long-tenor infrastructure transactions has been a barrier for private investment. AIF is expected to help mitigate these risks, providing financing for a portion of public-private partnerships. The Fund is expected to finance approximately six infrastructure projects each year. Projects will be selected based on sound economic and financial rates of return, and the potential impact on poverty reduction. AIF will be based in Malaysia as a limited liability company. ADB has been requested by the ASEAN shareholders to administer the Fund.

Source: Asian Development Bank.

completed except 8 kms of resurfacing. This Friendship Road is a major part of the TH project.

TIDDIM-RHI-FALAM ROAD

Zolkawtar (Mizoram) and Rihkhawdar (Rhee, Chin) have been the secondary gates for border trade between India and Myanmar. Zolkawtar is 225 km from Aizawl, capital of Mizoram. The Aizawl-Zolkawtar stretch is largely double-lane through highly mountainous terrain, although the surface is paved and better maintained compared with the Palel-Moreh section in Manipur. If the route from Aizawl to Agartala is improved, and the transit trade through Bangladesh is realised, this will become the shortest land route connecting Myanmar and Kolkata. Engineers and surveyors from the BRO and Public Works of Myanmar have prepared a Detailed Project Report (DPR) for upgrading the Tiddim-Rhi-Falam road. India has allocated $60 million for the project. India signed a MoU for construction of Rhi-Tiddim road in December 2012, which would provide connectivity from Zowkhathar in Mizoram to Tedim in Myanmar.

BANGLADESH TRANSIT ROUTE

The Asian Highway (AH) routes provide road links between Bangladesh, China, India and Myanmar. It directly links New Delhi and Kunming in China through Bangladesh and Myanmar. If transit trade through Bangladesh were allowed with a reasonable level of efficiency, the scenario would change dramatically. Indeed, India and Bangladesh have already reached to an agreement on transit trade through inland waterways. Among the four states of the North East sharing national borders with Bangladesh—Assam, Meghalaya, Tripura and Mizoram, Meghalaya is the largest gateway. The enhanced connectivity between India and Bangladesh, both in physical and institutional terms, could boost border trade and open new opportunities for North East India.

MARITIME GATEWAYS

ASEAN countries are naturally endowed with some 51,000 km of navigable inland waterways. However, this is underutilised due to poor network, poor river ports and facilities, and poor intermodal connectivity. There is urgent need to develop IWT connectivity to reduce freight transport cost and time lag. The Kaladan Multimodal Transport Project will be a significant step forward, utilising Kaladan river transport and land transport for better connectivity.

The construction of new ports in Dawei, Kyaukphyu, and Pakbara are in the pipeline, and the expansion or upgrading of existing ports, such as Yangon, Sittwe, and Chennai, has been identified. Inland waterways along the Kaladan River and Ganga will significantly enhance connectivity between the mainland and Northeast India via Myanmar

RAIL CORRIDORS

Myanmar has made tremendous progress in railway construction in the last two decades. However,

Table 13. 4
Paved Roads in South Asia
[Percentage of Total Roads]

	2003	2004	2005	2006	2007	2008	2009
South Asia	57.0	55.7					53.9
Afghanistan		23.7	27.5	29.3			
Bangladesh	9.5						
Bhutan	62.0						
India		48.6	47.0	47.7	48.2	49.5	
Maldives			100.0				
Nepal	53.9	55.7	56.1	55.9	55.1	53.9	
Pakistan	60.0	64.7		65.4			
Sri Lanka	81.0						
World	49.4	45.0					64.9

Source: World Development Indicators, World Bank (2012).
Note: Paved roads are those surfaced with crushed stone (macadam) and hydrocarbon binder or bituminised agents, with concrete, or with cobblestones, as a percentage of all roads in the country, in length terms.

Table 13. 5
Selected Road Corridors

	CORRIDOR	COUNTRIES	BASIS OF SELECTION
SHC 1	Lahore-New Delhi-Kolkata-Petrapole/Benapole-Dhaka-Akhaura/Agartala	Pakistan, India and Bangladesh	Potential to carry major intraregional traffic; potential to providing shorter route leading to transport cost savings
SHC 2	Kathmandu-Birgunj/Raxaul-Kolkata/Haldia	Nepal and India	Access to landlocked Nepal to Indian ports
SHC 3	Thimphu-Phuentsholing-Jaigon-Kolkata/Haldia	Bhutan and India	Access to landlocked Bhutan to Indian ports
SHC 4	Kathmandu-Kakarvitta-Phulbari-Banglabandha-Mongla /Chittagong	Nepal, India and Bangladesh	Access to landlocked Nepal to Bangladeshi ports
SHC 5	Sandrop Jongkhar-Guwahati-Shillong-Sylhet-Dhaka-Kolkata	Bhutan, India and Bangladesh	Potential to providing shorter route leading to transport cost savings
SHC 6	Agartala-Akhaura-Chittagong	India and Bangladesh	Shorter access to Chittagong port for Indian North Eastern States
SHC 7	Kathmandu-Nepalganj-New Delhi-Lahore-Karachi	Nepal, India and Pakistan	Potential of the corridor to carry future traffic
SHC 8	Thimphu-Phuentsholing–Jaigaon-Burimari-Mongla/Chittagong	Bhutan, India and Bangladesh	Access to landlocked Bhutan to Bangladeshi ports
SHC 9	Maldha-Shibganj-Jamuna Bridge (Bangladesh)	India and Bangladesh	Potential to provide direct connectivity to carry future traffic
SHC10	Kathmandu-Bhairahawa–Sunauli-Lucknow	Nepal and India	Potential of the corridor to carry future traffic

Source: SAARC Secretariat (2006)..

missing links still exist in the Trans-Asian Railway (TAR), which need to be tackled for India—and South Asia—to derive maximum benefit from SKRL.

Designing of the UNESCAP's TAR began in the 1960s with the objective of providing a continuous 14,000-km rail link between Singapore and Istanbul. The TAR programme promotes railways as an energy-efficient mode of transport. But there is a missing link between North East India and Bangladesh. The railroad connecting Kulaura-Shahbajpur in Bangladesh to Mahisason in India has been defunct since 2002 due to lack of traffic as well as facilitation measures.

AIR TRANSPORT

The ASEAN Multilateral Agreement on Air Services and the ASEAN Multilateral Agreement on the Full Liberalisation of air freight services were simultaneously approved in May 2009. They call for a calibrated and gradual implementation in each contracting state, to allow countries with less developed airline industry to cope up with more developed ones. It is part of the broader ASEAN Air Transport Integration and Liberalisation Plan.

INDIA-SOUTH ASIA CONNECTIVITY

I dream of a day, while retaining our respective national identities, one can have breakfast in Amritsar, lunch in Lahore and dinner in Kabul.

Prime Minister Manmohan Singh, January 2009

In South Asia, political histories, poor physical connectivity, trade barriers, and impediments to cross-border investment are the main factors for weak economic integration. Although there have been reports identifying important connectivity corridors[10] and investment options, there has been little progress in opening connectivity.

PRIORITY ROAD CORRIDORS

Road transport has been the dominant mode in the region and has been catering to 65-70 per cent or more of the movement in the mainland countries. SAARC countries had 3.82 million km of roads in 2002, 10 per cent of the world's road network. However, the percentage of paved roads varied greatly among countries: 47.7 per cent in India and 53.9 per cent in Nepal in 2008; 65.4 per cent in Pakistan in 2006 and 81 per cent in Sri Lanka in 2003. A physical assessment of the road corridors reveals that the quality of the road network is good, and 90 per cent of the corridors, totalling around 8,800 km, have two or more lanes; a large chunk of regional road corridors in India and Pakistan are, in fact, four-lane divided highways. Less than 5 per cent of the corridors need physical improvement and another less than 5 per cent, mostly near the border areas, need widening up to two lanes. In the context of regional road corridors, one of the most crucial non-physical barriers is the lack of a bilateral transport agreement to facilitate uninterrupted movement of goods and vehicles between India and Bangladesh, and between India and Pakistan. As a result, goods are required to be trans-shipped at the border between the trucks of neighbouring countries.

In the country reports prepared under Phase I of the SAARC Regional Multimodal Transport Study (SRMTS), a total of 18 regional road corridors (both existing and potential) were identified in view of their importance in carrying both goods and passenger bilateral traffic. The corridors were selected on the basis of:

- Trends of existing traffic and the potential to carry future traffic
- Potential to provide direct connectivity by enabling movement across the region
- Ability to provide access for landlocked countries to ports or to other major transport networks
- Potential to provide shortcuts that would bring major transport cost savings, and
- Need to revitalise historical links or provide linkages for meeting socio-political requirements.

Of these, 10 were selected as priority[11]. The corridors are listed in Table 13.5 and depicted visually in Figure 13.7.

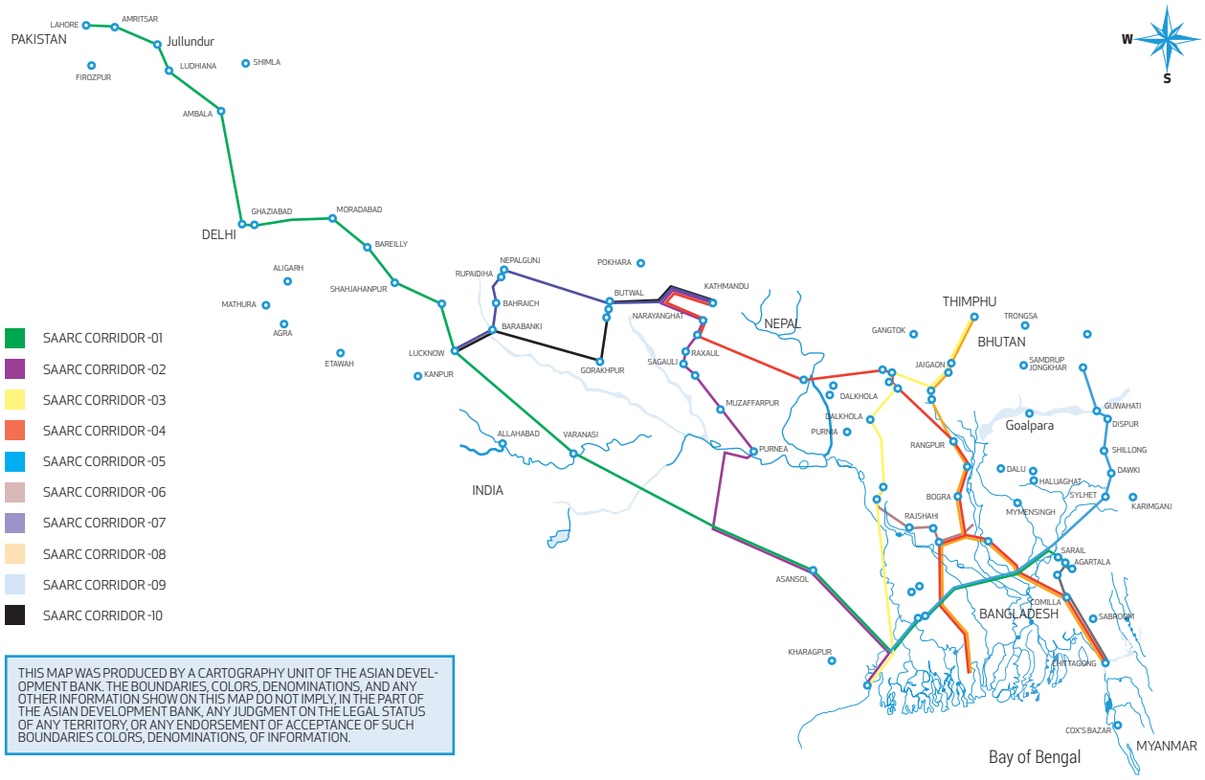
In South Asia, political histories, poor physical connectivity, trade barriers and impediments to cross-border investments are the main factors for weak economic integration. There has been little progress in opening connectivity.

PRIORITY RAIL CORRIDORS

Railways have the potential of becoming one of the most important transport modes in South Asia, particularly for intra-regional movement between India, Bangladesh, Pakistan and Nepal (Sri Lanka does not have any rail link with India, and Bhutan and the Maldives do not have rail networks). South Asia also has one of the largest railway networks in the world, spreading over 77,000 route-kilometres of which 70 per cent is with three countries—India, Pakistan and Sri Lanka[12].

10. ADB (2002, 2006).
11. The SAARC Regional Multimodal Transport Study (SRMTS) was undertaken in two phases and the report was submitted to the SAARC Secretariat in June 2006. Subsequently, the 16th SAARC Thimphu Summit in 2010 recognised the importance of developing transport infrastructure and transit facilities, especially for the landlocked countries to promote intra-SAARC trade and declared 2010–2020 as the 'Decade of Intra-regional Connectivity in SAARC'. The countries agreed on the need to expedite negotiations with a view to finalising the two agreements on motor vehicles and railways. Sustaining the momentum of the 16th Summit, the 17th SAARC Summit in November 2011 at Addu.
12. The Imperial Gazetteer of India Atlas maintained by University of Chicago. http://dsal.uchicago.edu/reference/gaz_atlas_1909/pager.html?object=28 (accessed 5 April 2013).

Figure 13. 7
SAARC Road Corridors, Inland Customs Stations and Ports



Source: Asian Development Bank.

Of the 15 rail corridors, seven already exist. Three of them are broad gauge rail connections between India and Bangladesh through which there is regular movement of freight. The broad gauge connectivity between Nepal and India primarily caters to the transit traffic meant for Nepal that passes through Kolkata/Haldia ports. There is no passenger movement by rail between Nepal and India. The rail connectivity between India and Pakistan through Wagha handles both passenger and small quantities of freight traffic, and the link between Munabao in India and Khokhrapar in Pakistan, passenger traffic. The other eight corridors identified existed historically and/or have the potential to be developed as future rail corridors.

The five prioritised rail corridors are listed in Table 13.6 and depicted in Figure 13.8.

INLAND WATERWAYS

Water transport is still considered to be the cheapest mode of transport in terms of costs/km for freight, as well as passenger movements. The largest inland waterways exist in India and Bangladesh. The Palk Strait, the narrow channel between India and Northern Sri Lanka, is considered to be the part of South Asia's inland waterways.

Four inland waterway corridors have been identified between India and Bangladesh. These include both existing and potential corridors of regional significance. The corridors primarily use five major rivers—Brahmaputra/Jamuna, Padma/Ganga, Meghna, Hooghly and Bhagirathi. The existing corridors are currently used for transportation of transit traffic between India and Bangladesh, as well as intercountry traffic, for which there is a number of ports of call designated under the bilateral transit agreement. The two prioritised corridors are based on traffic volume and ability to provide direct waterway connectivity for North Eastern India to seaports at Kolkata/Haldia.

MARITIME PORTS

Maritime gateways that contributed a great deal in establishing connectivity in South Asia before Partition included Chennai, Chittagong, Colombo, Karachi, Kolkata and Mumbai. However, other gateways have been making substantial contribution in

Box 13. 3
Railways, 1947

In 1947, the single Indian railway system was divided overnight into two entirely separate systems. The North Western Railway and the Bengal Assam Railway were the most profoundly affected in that they straddled the new international boundary between India and Pakistan. The railway lines within the state of India, including 1855 miles of the North Western Railway and 1942 miles of the Bengal Assam Railway, formed the Indian Railway network. The railway lines within the state of Pakistan, including the remaining 5026 of the North Western Railway and 1613 miles of the Bengal Assam Railway, formed the Pakistan Railway networkt[13].

1947

- 1 April: Mandra-Bhaun line taken over by state (now in Pakistan).
- Independence/Partition. Two big systems, Bengal Assam Railway and North Western Railway, are no longer in India (these included the workshops of Saidpur and Mogulpura, respectively). Some 2955 route-km of NWR became the East Punjab Railway in India, leaving 8070 km in the then West Pakistan. Part of the Jodhpur Railway also went to West Pakistan. Much of the Bengal Assam Railway went to the then East Pakistan (now Bangladesh). Exchanging assets and staff dislocates all normal work, as does the large-scale movement of people between India and Pakistan.
- Assam Railway is cut off from the rest of the Indian system.
- Traffic patterns change drastically. Instead of Karachi to northern India, now all traffic is from Bombay.
- Traffic from and to Jammu and Kashmir which used to be through Lahore (via Rawalpindi and Jammu) now had to go directly to Delhi.
- There are 42 separate railway systems, including 32 lines owned by the former Indian princely states.
- Baldwin supplies the first batch of prototypes of the WP class locos (classified WP/P).
- TELCO starts production of boilers.
- 19 December: 56 EMU coaches ordered for Bombay suburban system from Metropolitan Cammell

Source: Chronology of Railways in India, Part 4 (1947-1970) http://www.irfca.org/faq/faq-history4.html (accessed 15 May 2013).

handling regional trade in recent years, due to the growth in containerisation. Several more have the potential to do so, including Kochi, Haldia, Tuticorin, JNPT (Nhava Sheva, south of Mumbai) in India, Mongla in Bangladesh and Bin Qasim in Pakistan. In addition, given its island status, the port of Male is critical for connectivity between the Maldives and other SAARC countries. Table 13.8 lists the prioritised corridors for India.

AIR TRANSPORT

Even though air transport has seen phenomenal growth over the last two decades, South Asia lags behind many other regions. Historically, the region developed its air travel links with Europe and more lately with East Asia and the Middle East. But it has not developed the intra-regional corridors or a regional network in the same manner. However, given the lowering of trade barriers and the anticipated relaxation in personal travel restrictions, growth potential for regional travel is high. There is evidence to this already in some corridors such as between Sri Lanka and India, which have adopted liberal aviation policies. Freight transport also stands on the threshold of rapid growth.

However, connectivity between the regional centres, especially the capital cities in terms of direct flights is still very low. Cost of travel is relatively high when compared to other regions.

Investment has failed to keep pace with the demand for airport capacity, particularly in relation to the provision of modern terminals and additional runway capacity. There are still many regulatory barriers in some countries in the region that prevents

13. Source: ' Statute Law Revision- Indian Railway Repeal Proposals, August 2007, published by the Law Commission of the United Kingdom (http://www.irfca.org/docs/history/ir-uklaw-intro.html (accessed 15 May 2013).

Table 13. 6
Selected Rail Corridors

	CORRIDOR	COUNTRIES SERVED	BASIS FOR SELECTION
SRC 1	Lahore (Pakistan)-Delhi/ Kolkata (India)-Dhaka (Bangladesh)-Mahishasan-Imphal (India)	Pakistan, India and Bangladesh	Potential growth of intraregional traffic. Reduced distance and shorter transit time.
SRC 2	Karachi (Pakistan)-Hyderabad-Khokrapar-Munabao-Barmer-Jodhpur (India).	Pakistan and India	Shorter route for intra-regional traffic. Access to Karachi Port and potential third country traffic.
SRC 3	Birgunj (Nepal)-Raxaul-Haldia/Kolkata (India)	Nepal and India	Access to the landlocked Nepal. Potential corridor for third country and bilateral traffic.
SRC 4	Birgunj (Nepal)-Raxaul-Katihar (India)-Rohanpur-Chittagong (Bangladesh) with links to Jogbani (Nepal) and Agartala (India)	Nepal, India and Bangladesh	Access to Chittagong Port for Indian & Nepalese traffic. Shorter route for North Eastern States of India through Bangladesh
SRC 5	Colombo (Sri Lanka)-Chennai (India)	Sri Lanka and India	Restoration of old rail ferry link to provide passenger and goods access from the island Sri Lanka to mainland South Asia

Source: SAARC Secretariat (2006).

Table 13. 7
Selected Inland Water Transport Corridors

	CORRIDOR	COUNTRIES SERVED
SIWC 1	Kolkata-Haldia-Raimongal-Mongla-Kaukhali-Barisal-Hizla-Chandpur-Narayanganj-Aricha-Sirajganj-Bahadurabad-Chilmari-Pandu	India and Bangladesh
SIWC 2	Kolkata-Haldia-Raimongal-Mongla-Kaukhali-Barisal-Hizla-Chandpur-Narayanganj-Bhairabbazar-Ajmiriganj-Markuli-Sherpur-Fenchuganj-Zakiganj-Karimganj	India and Bangladesh

Source: SAARC Secretariat (2006).

Table 13. 8
Selected Maritime Gateways

	PRINCIPAL PORTS	BASIS OF SELECTION
India	JNPT	Potential to handle intra-SAARC traffic
	Kolkata / Haldia	Ability to provide access for landlocked countries to sea ports
	Kochi	Potential to handle intra-SAARC traffic
	Tuticorin	Potential to handle intra-SAARC traffic

Source: SAARC Secretariat (2006).

Table 13. 9
Selected Aviation Gateways

AIRPORT	RANK FOR CONSIDERATION
Delhi	2
Mumbai	6
Chennai	3
Kolkata	10
Thiruvananthapuram	9
Bengaluru	11
Tiruchirapalli	15
Cochin	12
Hyderabad	14

Source: SAARC Secretariat (2006).
Note: Colombo is 1. There is no rank 7 (Karachi and Mumbai both ranked 6) and there is no rank 13 (Lahore and Cochin both ranked 12).

Figure 13. 8
SAARC Rail Corridors

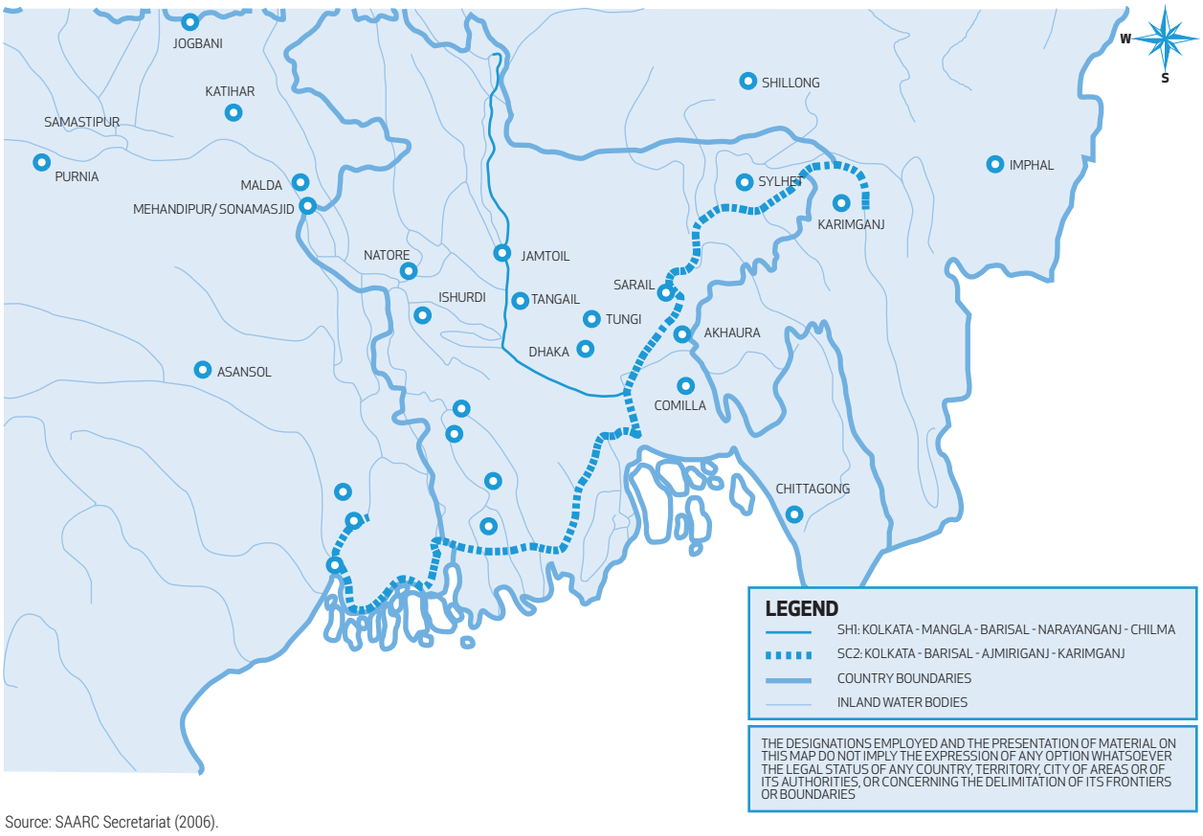
Source: SAARC Secretariat (2006).

greater competition in service provision. Moreover, the region has not developed strong hub operations for efficient regional transfers. There is a clear need to adopt more liberal aviation policies and reduce regulatory barriers for seamless regional transfers.

Twenty airports within the SAARC region have flights to other regional destinations. These are considered as regional aviation gateways. In addition, five airports were considered as they could develop as gateways in the near future. Prioritisation criteria included:

- Weightage to current regional freight tonnage movements
- International passenger movements processed.
- Potential for regional tourism, and
- Fast development as industrial or commercial centres.

Figure 13. 9
SAARC Inland Waterways



Source: SAARC Secretariat (2006).

Of the 16 aviation gateways that were prioritised, nine are in India.

TACKLING THE CONNECTIVITY CHALLENGES WITH SOUTH ASIA

An analysis of the major South Asia corridors, the current infrastructure, and actions required is detailed in Annex 13.2. A brief discussion is provided in this section.

ROAD

Road transport is the dominant mode and its importance keeps growing. Most of the trade between India and its neighbours takes place along the land routes.

FREIGHT

Freight in the SASEC region, India allows trucks from Nepal and Bhutan to operate on designated transit routes within India. Indian trucks are allowed anywhere into Nepal, but are given a limit of 72 hours to return. Nepalese trucks need permits for every trip to India with a validity of three months, but they are allowed to the nearest market towns and rail-heads in India. India allows Bhutan to use Phuntsholing (Bhutan)-Changrabandha (India)-Burimari (Bangladesh) for trade with Bangladesh, but this corridor is not allowed for third country trade.

The border between India and Bangladesh has 10 important road-based check posts. The facilities at Banglabandha (Bangladesh)/Fulbari (India)-Panitanki (India)/Kakarvita (Nepal) are exclusively for Bangladesh-Nepal bilateral trading. The Benapole (Bangladesh)/Petrapole (India) route carries the heaviest traffic by road, accounting for about 80 per cent in terms of value and 50 per cent by volume of India's exports to Bangladesh.

Between India and Pakistan, the commencement of the integrated check post (ICP) at the Attari (India) border in April 2012 will facilitate trade. Till now, 100-150 trucks could conveniently cross the border every day. The new ICP infrastructure can handle 10 times that number. Also, cargo movement between the two countries can take place for 12 hours daily against the eight hours earlier. This has started showing outstanding results. In the first quarter of the financial year 2012, imports grew by 106 per cent, while exports witnessed an increase of 39 per cent over the corresponding period in the previous year. According to a study released by the Associated Chambers

of Commerce and Industry of India (ASSOCHAM), the ICP at the Attari-Wagah border and Pakistan's granting MFN status to India could increase bilateral trade to $8 billion a year in the next two years from the current level of $2.6 billion.

In another landmark development, truck services between Srinagar and Muzaffarabad and between Poonch and Rawalakote across the Line of Control between India and Pakistan-administrated Kashmir have been allowed. Trade is currently restricted to four days in a week.

The bilateral agreement between Myanmar and India limits the number of tradable items for the border trade to 40, and only in terms of barter. Trade imbalance needs to be settled by reverse trade within six months, instead of financial settlement, and there's no 'formal' foreign exchange facility in the border area. Consequently, official border trade has not been growing. According to the statistics of Moreh LCS, in FY 2010-11, India's export to Myanmar was Rs 2.6 million of cumin seed, and import was Rs 32 million of betel nuts and Rs 4 million of dry ginger. Meanwhile, informal border trade has been growing. As referred in De, the total trade at Moreh is estimated at Rs 2,800 million, which is far higher than the official trade statistics[14]. This obviously indicates a strong demand in the market.

PASSENGER

There are two established routes between Bangladesh and India for passenger movement. The Dhaka-Kolkata direct bus operation started in 1999 and Dhaka-Agartala in 2003. As for movement between Nepal, Bhutan and India, citizens are allowed to move freely by road without any visa and there are frequent bus services between the countries and between border points and key cities. Between Delhi and Lahore, a cross-border bus service began in 1999, got suspended in January 2002 and resumed operations from July 2003. Other bus services between Lahore and Amritsar, and between Nankana Shahib and Amritsar, have now commenced. All these go through the Wagah-Attari border crossing. Prior to opening truck services between India and Pakistan-administered Kashmir, two bus services between Srinagar and Muzaffarabad, and between Poonch and Rawalakote were launched in 2005 and 2006 respectively.

MAJOR BARRIERS AND REQUIRED ACTION

The physical and non-physical barriers across the identified priority corridors are similar in their lack of adequate infrastructure and facilities at the border areas which result in congestion and time delays. Specific problems vary in terms of narrow roads, lack of parking facilities and cumbersome procedures.

The complicated and cumbersome customs procedures at the India-Bangladesh border involve 22 documentations, over 55 signatures, and minimum 116 copies of paper for the final approval.

Physical barriers include narrow roads in India at Barasat-Petrapole (75 km 5.5m), Baharaich-Rupaidiha (25 km 3.5m), and Malda-Mohaddipur (13.5 km 5.5m) in India. Roads in poor condition are Barakar-Jharkhand and beyond in Bihar (180 km), Nanpara-Rupaidiha (15 km) and Maldah–Mohaddipur (13.5 km). Lack of facilities at the border include parking space at Dawki, Raxaul, Jaigon and Sunauli, and the immigration/customs at Phulbari. The check post and immigration offices at Agartala and Sunauli need to be shifting and the Central Warehousing Corporation at Petrapole needs protection from rain. Other issues include congestion along towns on the Petrapole-Kolkata road and weight restriction on the 80 year-old suspension bridge at Dawki. The ADB is financing a project to upgrade the road between Jaigaon and Chagrabandha, and Panitanki and Phulbari.

The non-physical barriers include lack of

- Bilateral and/or regional agreements for movement of vehicles across borders between Bangladesh, India and Pakistan
- EDI/IT system, and
- Through Bills of Lading

The cumbersome and complicated customs procedures at the India-Bangladesh border involve 22 documentations, over 55 signatures, and minimum 116 copies of papers for the final approval. There are also different documentation requirements at different border points. Working hours and weekly holidays need to be harmonised across the borders, restrictions on overloading of vehicles need to be enforced, security in some areas along the corridors has to be strengthened, and there needs to be greater transparency in inspection procedures.

RAIL

FREIGHT

Among mainland countries, India has no rail link with Bhutan and just a single link with Nepal. Bangladesh, India and Pakistan have extensive rail networks and before the partition of India in 1947, intra-sub-continental movements were mainly through the railways. Although these physical links are still there, only limited cross-border movement of freight by rail takes place between Bangladesh and India, Pakistan and India, and Nepal and India. The volumes are far less than the potential and projected growth of inter-country traffic.

14. De (2011).

Since no South Asian port other than Colombo is able to accommodate fourth-generation container vessels, much of the intra-regional traffic is routed through this one port. This significantly increases transit times. In addition, all ports have capacity problems.

Currently, three broad gauge (BG) rail corridors are active between India and Bangladesh. Indian Railway (IR) wagons are pulled by Bangladesh Railway (BR) locomotives only over a short distance inside the country to a point where trans-shipment takes place. BR wagons do not cross the Indian border as the rolling stock is incompatible with the stock of IR.

Between Pakistan and India, there are currently two BG corridors, though one crossing is restricted to passengers only. There is limited freight movement by rail between India and Pakistan, partly due to lack of standardisation of infrastructure and rolling stock.

Between India and Nepal, rail movement is entirely via the broad gauge railway link connecting Kolkata port and other destinations in India through Birgunj Inland Container Depot (ICD).

It is important to note that the current railable traffic is almost entirely one-sided—from India to Bangladesh, Nepal and Pakistan. Wagons return to India empty. This is resulting in considerable under-utilisation of the existing transport capacity.

PASSENGER

The India-Pakistan Samjhauta Express resumed operations in January 2004, after more than two years of suspension of services. The twice-weekly train operates between Lahore and Delhi. Another train connection, Thar Express, was inaugurated in February 2006 to link Karachi via Khokhrapar and Munabao to Jodhpur.

The Maitree Express or Dhaka-Kolkata Express, a bi-weekly train, is the only passenger railway link between the two countries, and was started on 14 April 2008 after being closed for 43 years.

MAJOR BARRIERS AND REQUIRED ACTION

Physical barriers include missing links and the non-availability of air-braked fleet of rolling stock in Pakistan and Bangladesh. There is a missing 11.5 km link from Akaura (Bangladesh) to Agartala (India). Indian Railways has completed the final survey in August 2012 and the DPR is under preparation.

The main non-physical barrier is the absence of a Multilateral Rail Transport Agreement for intra-regional traffic. There are also restrictions on the movement of open wagons and oil tankers between India, Pakistan and Bangladesh. The turnaround time is too long, which affects trade requirements and causes problems like one-sided traffic and non-utilisation of wagon capacity. It is vital that issues such as manual documentation procedures, duplication of customs checks and restricted working hours are examined thoroughly.

INLAND WATERWAYS

Among South Asian countries, inland water transport links are available only between India and Bangladesh. Indian transit traffic and Indo-Bangladesh bilateral traffic move along these IWT routes under a protocol. This is the only transit facility for India through Bangladesh for serving the requirements of the North East. There is no inter-country passenger movement by IWT.

MAJOR BARRIERS AND REQUIRED ACTION

Physical barriers on the India side include navigational hazards such as shallow waters, narrow widths of channels in the rivers, siltation, bank erosions, shrinking of rivers in dry seasons; inadequate navigational aids; poor condition of wharves, jetties, platforms at the inland ports; lack of cargo handling equipment; insufficient spaces or sheds to store the cargo at almost all the inland ports and landing stations; poor hinterland connectivity; shortages of adequate vessels, and an old and obsolete fleet.

Non-physical barriers between Bangladesh and India include the lack of sufficient ports of call, shortage of skilled manpower, and labour unrest.

MARITIME TRANSPORT

FREIGHT

Since no South Asian port other than Colombo is able to accommodate fourth generation container vessels, much of the intra-regional traffic is routed through this one port. This significantly increases transit times. In addition, almost all ports have capacity problems in handling container traffic and require significant investment to handle projected demand.

It must be remembered that seaports being the gateways of a country play a significant role in its socio-economic development. Even after major development of roads and rail transport in recent decades, maritime transport continues to play a dominant role in carrying the external trade of most countries. Many great cities of the world grew around their ports. The Indian examples would be Chennai, Kolkata and Mumbai.

PASSENGER

There are currently no ferry services operating between South Asian countries. However, in SRMTS

Phase 1, India and Sri Lanka agreed that the possibility of establishing regular ferry services between Colombo and either Kochi or Tuticorin had to be evaluated, as an alternative to Rail Corridor 5, which would have problems of restricted draft and adverse weather conditions during the monsoons.

The 17th SAARC Summit held in 2012 at Addu in the Maldives declared the implementation of the Indian Ocean Cargo and Passenger Ferry Services as a priority. A feasibility study has been completed. The study has recommended ferry routings between the Maldives, Sri Lanka and India, scheduling, and investments required in terminals and berths. A public-private partnership model has been suggested, and procedural changes in customs and immigration clearance. It is expected that this project will get completed faster than some of the other regional connectivity initiatives in the pipeline, and has the potential to significantly facilitate passenger movement and trade between the Maldives, Sri Lanka and India.

MAJOR BARRIERS AND REQUIRED ACTION

The main constraint for the identified Indian ports is that their capacities have almost reached their maximum limits and congestion is routine. Adequate channel depth is not available and it fluctuates considerably with tides and over seasons at Haldia and Kolkata. Cargo and ship handling equipment, and floating craft are old and insufficient at Kolkata, Haldia and Tuticorin. Haldia has very poor rail connectivity with the hinterland. Road connectivity is also poor at Haldia and Tuticorin for container carrying. Every port suffers from insufficient harbour area and channel depths to accommodate new generation larger vessels.

Non-physical barriers include poor port administration and management; limited implementation of EDI/IT systems to link up customs, ports and stakeholders, and no computerisation for port operations at Kolkata and Haldia. Customs procedures are complicated and time consuming at all ports. Labour unrest is a problem at Kolkata and Haldia, and there is no bilateral agreement between Colombo and Tuticorin/Kochi.

Ports need to be constructed on the basis of trends of existing traffic and the potential to carry future traffic; as also the ability to provide direct connectivity by enabling through movement across the region. The maritime gateways in India are mostly located on the west coast. Construction of new ports need to facilitate uninterrupted movement and bring major transport cost savings.

AIR TRANSPORT

As passenger and freight travel by air is expected to increase rapidly, there will be a capacity problem at airports for both passengers and cargo. There is low use of air travel when compared to population and economic conditions in the region. Presently, travel within the region, due to the paucity of direct links, often requires many transfers, sometimes having to go outside the region. These are the physical barriers.

The current non-physical barriers include air fares and airport charges, which are high when compared with other regions. Visa restrictions also discourage travel.

Physical barriers to air travel within the region include paucity of direct links, often requiring many transfers and having to go outside the region. Non-physical barriers include high air fares and airport charges, and visa restrictions.

BORDER CROSSINGS

As detailed previously, besides physical links, considerable difficulties exist at the land border crossings between South Asian countries, from documentation and bureaucratic procedures, to parking space and lack of IT connectivity.

Good measures have been taken up under Government of India's ICP project, under the Land Port Authority of India identified 13 border check posts and the Ministry of Commerce has further identified several Land Customs Stations[15]. However, some are still far from adequate and the lack of transport agreements allowing the direct movement of freight vehicle across the borders results in border congestion due to the need for transhipment. This process not only increases transport costs considerably, but results in increased damage to products, pilferage and incidences of unauthorised payments.

THE WAY FORWARD

Due to its strategic geographic location and size, India needs to play a central role in taking forward regional cooperation initiatives. It is in a position to provide key support for establishing an effective Asian institutional architecture. India is also at a center of a web of dynamic bilateral and regional FTAs within South Asia and between South Asia and East Asia and Southeast Asia. India will reap large benefits from Asian integration. The overall forward strategy needs to link the soft and hard aspects of transport infrastructure development. This is only possible through a combination of initiatives are all levels. The various actions and measures indicated need to be elaborated and appropriate legislative procedures need to be adopted and an impact assessment of each of the proposals will need to be undertaken. A summary of action points along the key identified corridors to be taken up are in Annex 13.2.

15. http://mha.nic.in/pdfs/BM_IntCheck(E).pdf (accessed 19 August 2013).

Box 13. 4

Transport Agreements and Lessons from International Experiences

Some of the key issues with respect to trade and transport infrastructure include the harmonisation of technical and operational standards and requirements of international routes under various modes, as well as user charges for such infrastructure.

For vehicles, the key issues include commercial operating rights, vehicle registration, vehicle technical standards, traffic rules and signage, driving licenses, third party liability, and temporary importation of vehicles for the purpose of carrying goods and people across national frontiers. While adjustment in and development of transport infrastructure in a coordinated manner is critical to ensure technical compatibility and inter-operability of national transport systems, coordination in the management and control of traffic and user information is key to optimising the use of such infrastructure. The gains in efficiency from technical measures can however be offset in the absence of streamlined legal and administrative systems for international border-crossings. Discriminatory road charging, restrictive traffic quotas, restrictions on the use of foreign trucks on territory of particular countries and, last but not the least, the amount of time needed for police, customs and security clearance of vehicles and drivers are some of the factors that influence directly the transport operator's choice of the traffic route. When these and other factors are not adequately dealt with, traffic will be lost to alternative routes, involving waste on the side of the transit country which loses potential income from transit traffic and the shipper who takes a less efficient or more expensive route (UNESCAP report).

Agreements aimed at developing and operationalising a transport routes and corridors need to be developed directly or by invoking other related agreements. South Asia is the least legalised region in Asia in transport and trade facilitation agreements, which are two priority areas of ADB's support. EU is the most legalised region with more than 30 regional transport and trade facilitation agreements. ASEAN ranks at second with five regional agreements and strategic frameworks to handle trade facilitation and transport.

There are a number of international conventions that govern transport. UNESCAP issued Resolution 48/11 in 1992, which recommended seven key international conventions—and later three more—related to transport for countries in Asia and the Pacific. These conventions include Convention and Statute on Freedom of Transit; Convention on Transit Trade of Landlocked States, Convention on the Law of the Sea, WTO GATT (Article V, Transit); and various conventions on road traffic, road signs and signals The international conventions set standards to facilitate the harmonisation of transport laws and regulations and the adaptation of unified transport documents for regional transit and/or inter-state transport. More importantly, these international conventions help the streamlining of border-crossing formalities and procedures, including visa procedures for professional drivers, in order to reduce delivery time and transport costs. However, the conventions are difficult to implement at the country level for several reasons, including high cost of adjustment to meet the requirements; and lack of institutional structures at the country level.

Given these issues, except for India that acceded to Convention on Road Signs and Signals, none of countries in South Asia have acceded or signed any of the 10 important international conventions on transport.

Subregional Transport Agreements: Given the difficulties in implementing the international conventions, some subregional transport facilitation agreements have been or are being formulated.

The advantages of these subregional transport agreements are threefold. One, they play an important role in opening up regional road traffic, promoting international conventions, harmonising and simplifying formalities and procedures of bilateral transport agreements, and establishing standards not covered by international conventions. Two, the subregional transport agreements also can greatly facilitate trade as most of them have built-in trade facilitation measures. And three, subregional transport agreements can be a powerful showcase politically for regional cooperation and integration.

The disadvantage of subregional transport agreements is that they often take years to conclude the negotiations and particularly to complete the legal process domestically for entry into force. The ASEAN Agreement on transit transport was signed in 1998 and its protocols have not been fully finalised till now. The ECO agreement on transit transport was signed in 1998 and took 9 years to enter into force. The implementation of these agreements at the country level is also facing complicated coordination issues as it involves many government ministries and authorities. Most of these agreements are under the purview of transport and thus customs authorities are not always active in implementing these agreements. Most importantly as these agreements often require reforms and adjustment of domestic legislations, many of them were signed and but never been fully ratified and/or implemented.

Bilateral Transport Agreements: Currently, Asian countries primarily rely on bilateral agreements for international road transport. However, there is no unified database for the bilateral transport agreements in Asia and the Pacific. According to UNESCAP, during 2006-07 there are more than 30 bilateral transport agreements signed. These often define specific routes rather than focusing on the transport network as a whole and provide designated designations and ports for transport carriers. They focus on issues such as traffic rights, conditions for transport, technical requirements for vehicles, compulsory issuance of vehicles, driving permits, safety and security, temporary importation duties, taxes and transit charges. Some bilateral agreements also bring in trade facilitation measures such as transit custom and other custom controls

The biggest benefit of bilateral transport agreements is that they provide direct access for the landlocked countries to the sea and immediate connectivity with neighbouring countries. This explains why a large number of bilateral transport agreements have been signed over the last two decades.

But these agreements also have limitations. Often they are not consistent with international standards. Hence it is difficult to harmonise the bilateral transport agreements. Freight forwarders and transport carriers find it difficult to comply to different transport requirements, especially if they have to bring goods across several countries with different transport agreements. Second, managing a growing number bilateral transport agreements will be a major burden for a developing country. Third, due to restrictions of routes in these agreements, carriers are often permitted to deliver goods only to pre-determined destinations, and as a result economic efficiency is significantly reduced because of empty return of trucks.

Other Legal Instruments There are also other types of legal instruments which are frequently used such as memorandum of understanding, strategic framework, and action plan for transport cooperation. Although these documents do not have strong binding effect as international conventions or bilateral and subregional transport agreements, they serve as important means to implement, monitor and coordinate collective efforts of a group of countries in facilitating regional transport cooperation.

Source: NTDPC Research.

LOWERING THE PHYSICAL BARRIERS

India's connectivity with its neighbours needs to involve all modes of transportation, namely, land (including road and railways), maritime (including inland waterway transport), and air. Cross-border multimodal transport has been identified as an efficient way of transporting international cargo. In this system of transportation with one transport document, one tariff rate and a single through-liability are applied.

ROADS

The reclassification of the last few km of all road corridors up to international borders along identified corridors is needed so they are treated as part of National Highways. This will promote upgrades to these often minor roads and thereby improve access to the border posts, as well as reduce transport costs. The development of modern border crossing facilities (on both sides), including immigration, parking and cargo handling facilities, will facilitate the smooth movement of both passengers and freight.

A major impediment to smooth flow of international transport is the existence of conflicting national laws and regulations. The modification of these domestic laws and regulations to the needs of international traffic is a challenging task, particularly since international traffic in general constitutes a small proportion of the total traffic within a country.

Table 13.10
Summary of the Key Road Corridors

ROAD	STRETCH	BORDERS	SECTION OF INDIAN ROADS
AH1 and AH2	Asian Highways 1 and 2 through Northeastern states Moreh-Imphal-Kohima-Dimapur-Nagaon-Jorabat-Guwahati-Shillong-Dawki Land link Mekong-India Economic Corridor (MIEC) Kaladan Multimodal Transport Project Thailand Trilateral Highway project India-Myanmar Friendship Road	India-Myanmar (and ASEAN)	Moreh in Manipur/ Tamu in Sagaing (NH 39) including Imphal–Moreh (NH 39)
	Tiddim-Rhi-Falam Road	India-Myanmar (and ASEAN)	Zolkawtar in Mizoram (NH 54)/ Rihkhawdar (Chin)
		Bangladesh-India-Myanmar	Avakhung in Nagaland/ Layshi in Sagaing
SHC 1	Lahore-New Delhi-Kolkata-Petrapole/ Benapole-Dhaka-Akhaura/ Agartala	Pakistan, India, and Bangladesh	Wagah/ Attari in Punjab (NH 1) Petrapole/ Benapole in West Bengal (NH 35) Akaura/ Agartala in Tripura (SH connection NH 44)
SHC 2	Kathmandu-Birgunj/ Raxaul-Kolkata/Haldia	Nepal and India	Birgunj/ Raxaul in Bihar (NH 28A)
SHC 3	Thimphu-Phuentsholing-Jaigon-Kolkata/ Haldia	Bhutan and India	Phuentsholing/ Jaigon in West Bengal (state highways near NH 31 C and D)
SHC 4	Kathmandu-Kakarvitta-Panitanki-Phulbari-Banglabandha-Mongla/ Chittagong	Nepal, India, and Bangladesh	Kakarvitta/ Panitanki in West Bengal Phulbari/ Banglabandha in West Bengal (state highways near NH 31 C and D)
SHC 5	Samdrup Jongkhar-Guwahati-Shillong-Sylhet-Dhaka-Kolkata	Bhutan, India and Bangladesh	Dadgiri in Assam/ Gelephu Dawki in Assam (NH 40, 44)/ Tamabil
SHC 6	Agartala-Akhaura-Chittagong	India and Bangladesh	Agartala in Tripura/ Akahura
SHC 7	Kathmandu-Nepalganj-New Delhi-Lahore-Karachi	Nepal, India and Pakistan	Wagah/ Attari in Punjab
SHC 8	Thimphu-Phuentsholing-Jaigaon-Burimari-Mongla/ Chittagong	Bhutan, India and Bangladesh	Phuentsholing/ Jaigon in West Bengal Chagrabandha in West Bengal / Burimari (state highways near NH 31 C and D)
SHC 9	Maldha-Shibganj-Jamuna Bridge (Bangladesh)	India and Bangladesh	Malda in West Benal / Shibganj
SHC10	Kathmandu-Bhairahawa-Sunauli-Lucknow	Nepal and India	Bhairawa-Sunauli in Uttar Pradesh

Source: http://www.unescap.org/ttdw/common/Meetings/TFS/2011Regional-Road-Tx/Countries/India.pdf (accessed 17 May 2013).

Table 13.11
Priority Rail Corridors

ROAD	STRETCH	BORDERS
SRC 1	Lahore (Pakistan)-Delhi/ Kolkata (India)-Dhaka (Bangladesh)-Mahishasan-Imphal (India)	Pakistan, India and Bangladesh
SRC 2	Karachi (Pakistan)-Hyderabad-Khokrapar-Munabao-Barmer-Jodhpur (India).	Pakistan and India
SRC 3	Birgunj (Nepal)-Raxaul-Haldia/ Kolkata (India)	Nepal and India
SRC 4	Birgunj (Nepal)-Raxaul-Katihar (India)-Rohanpur-Chittagong (Bangladesh) with links to Jogbani (Nepal) and Agartala (India)	Nepal, India and Bangladesh
SRC 5	Colombo (Sri Lanka)-Chennai (India)	Sri Lanka and India

Source: SAARC Secretariat (2006).

A greater understanding of the domestic regulatory regimes affecting international transport is essential to create a harmonised regulatory regime at the regional level. Formalisation of AH and TAR Agreements can set the stage for more collaborative efforts in bringing greater uniformity in national transport laws, regulations and practices. Internationally agreed technical standards have a strong symbolic value, and can potentially exert a strong influence on national transport planning, particularly when these standards are an integral part of formal, legally binding international agreements. A coordinated effort in the medium term to develop agreements along important identified corridors is required as a next step. For roads, the development and adoption of bilateral transport agreements between Bangladesh and India, as well as India and Pakistan, will enable through transport to travel directly between the countries, thus eliminating the costly and time-consuming process of transshipment at the borders on all of the SAARC road corridors.

RAILWAYS

A standardisation of technologies, including track, signaling and rolling stock, in order to introduce commodity specific freight wagons capable of hauling longer and heavier axle load freight trains will eliminate avoidable marshaling, lower speeds and longer transit times is required. The development of additional container terminals connecting major commercial centres and ports along the corridors will enable movement of containerised cargo via the shorter routes in the region compared to the much longer road/rail/sea routes at present and thereby bringing down the unit transport costs. Stress should also be laid on development of the railway network of India with Bangladesh and Nepal. Coordination of the standardisation/rationalisation of the gauge conversion programmes of Indian and Bangladesh Railways will achieve seamless operations of intra-regional freight and passenger trains without the need for transshipment due to gauge differences. The uniformity of prevailing systems and procedures at interchange points, simplification of documentation, elimination of double customs checks, introduction of IT enabled data transfer facilities and introduction of round-the-clock working for trade facilitation will enhance the performance of the international rail freight services throughout the SAARC region.

IWT

A joint assessment needs to be undertaken by Bangladesh and India of the future role that inland waterways can play in regional connectivity and whether this would justify investment in dredging and vessels replacement. To make inter-country traffic movement by IWT attractive, more ports of call in Bangladesh should be allowed under the bilateral agreement. Further, installation and maintaining navigational aids to provide 24 hour travel to enhance transit times and attract new traffic; and upgrading jetties and replace old cargo handling equipment and craft needs to be undertaken.

MARITIME GATEWAYS

Improvement of port and trade facilitation measures though simplification of procedures and introduction more EDI/IT to reduce dwell times at all ports has to be surveyed and undertaken.

AVIATION

For enhanced aviation connectivity, bilateral agreements with emphasis on direct capital-to-capital air connections; and development of low cost carrier operations to actually reduce the cost of air transport for those unable to afford the benefits of schedules services will encourage regional traffic.

Before entering into any regional transport agreement, countries in South Asia have to consider the required reform and adjustment of domestic legislations that are enforced by the signed regional agreements. This domestic legal process can be very lengthy.

NORTH EAST INDIA

The development strategies for Myanmar and Northeast India can be the core of the regional strategy to enhance ASEAN-India connectivity.

EFFICIENT LOGISTICS SYSTEMS

Among others, an efficient logistic system includes a network of inland container depot (ICDs) and container freight stations (CFSs). First, the development of ICDs is of critical for India. ICDs/CFSs are interfaces between connecting different modes of cross border transports and offer a total package of activities to handle export and import containers and general cargo flows between road, rail and waterways in a cost effective manner with logistic services such as storage, grading, sorting, packaging, repair, and clearing activities, including custom clearance.

Benefits of connectivity are limited if India does not have a functional ICD network. This is largely because a major amount of India's exports is generated in the northern states which are located far away from sea port gateways. Second, these ICDs and CFSs have to be connected by rail and road networks to the sea ports to enable smooth and seamless movement of containers. India's Container Corporation (CONCOR) has developed a number of ICDs and CFSs, which are connected with the broad rail network. However, there is still a need for development and strengthening of more ICDs, and CFSs, especially in the Northeast region to connect with ASEAN.

Second, freight forwarders and shipping lines play important roles as multimodal transport operators. Indian shipping companies are, however, relatively small both in terms of vessels and in terms of cargo transported with the sole exception of the state owned. Despite support from India's government, Indian shipping companies carry less than 10 per cent of total Indian container trade (Indian Port Association).

DEVELOPMENT OF INDUSTRIAL CLUSTERS

ASEAN economies show a high level of integration with the global supply chain, and this has significantly driven the development of physical connectivity, particularly maritime trade with East Asian countries. For ASEAN India connectivity becomes more commercially and economically viable, it is important to development industrial clusters/production networks along the main road, rail, maritime, and inland water ways of ASEAN and India. For example Bangkok-Chennai can develop industrial agglomerations to lead the regional economy by providing large markets of final and intermediate goods and raw materials. Other potential regional production networks such as Chiang Mai-Kolkata-Dhaka-Kunming; Yangon-Mandalay; and Dawei-Kyaukphyu-Guwahati can be developed.

SUB-REGIONAL APPROACH

A three-level approach is proposed, where, at the national level, it is led by individual countries; at the bilateral/sub-regional level, by two or more countries, and regionally by the entire group of countries. In the longer run, smooth flows between countries will come with development and adoption of regional transport and transit agreements to allow through movement of vehicles, goods and passengers across the region on a door-to-door basis; widening the existing visa exemption schemes to promote regional travel by citizens; undertaking a study to identify gateways that have potential to become regional aviation hubs and finally move towards a regional aviation agreement for open skies for passengers and freight transport to promote more air services.

LOWERING NON-PHYSICAL BARRIERS

Institutional connectivity refers to linking various international or regional agreements and protocols to facilitate international transactions of goods and services as well as the movement of natural persons across borders. Most of the costs and delays along India's main economic corridors with South Asia and ASAEN are due to complex trade documents and procedures. Complicated documents and procedures in custom clearance, quarantine certification, import and export licenses, transshipment, physical inspection, terminal handling and transit causes trade delays and increase costs. Trade and transport facilitation measures therefore play a crucial role for cost and time reduction for trade.

POLITICAL COMMITMENT FOR REFORM AND ADJUSTMENT OF DOMESTIC LEGISLATIONS

Before entering into any regional transport agreement, countries in South Asia have to consider the required reform and adjustment of domestic legislations that are enforced by the signed regional agreements. The lessons from ASEAN and CAREC have clearly demonstrated that the negotiation and the domestic legal process to bring a regional transport agreement into force can be very lengthy. This can be counterproductive as it may trigger a retreat to bilateral agreements if countries are frustrated with the regional process. The SAFTA is a good example. Exhausted by the sluggish process of

Box 13. 5

A Comprehensive Approach: The European Union

I. CHALLENGES TO EU TRANSPORT

- **Unequal growth** in the different modes of transport. While this reflects the fact that some modes have adapted better to the needs of a modern economy, it is also a sign that not all external costs have been included in the price of transport and certain social and safety regulations have not been respected, notably in road transport. Consequently, road now makes up 44 per cent of the goods transport market compared with 41 per cent for short sea shipping, 8 per cent for rail and 4 per cent for inland waterways. The predominance of road is even more marked in passenger transport, road accounting for 79 per cent of the market, while air with 5 per cent is about to overtake railways, which have reached a ceiling of 6 per cent.

- **Congestion** on the main road and rail routes, in towns, and at airports; if most of the congestion affects urban areas, the trans-European transport network itself suffers increasingly from chronic congestion: some 7 500 km, i.e., 10 per cent of the road network, is affected daily by traffic jams. And 16,000 km of railways, 20 per cent of the network, are classed as bottlenecks. Sixteen of the Union's main airports recorded delays of more than a quarter of an hour on more than 30 per cent of their flights. Altogether these delays result in consumption of an extra 1.9 billion litres of fuel, which is some 6 per cent of annual consumption.

- **Increasing labour mobility** due to economic growth was also putting heavy load on the EU transport network. As far as goods transport is concerned, growth is due to a large extent to changes in the European economy and its system of production. In the last 30 years, EU moved from a 'stock' economy to a 'flow' economy. This phenomenon has been emphasised by the relocation of some industries—particularly for goods with a high labour input—which are trying to reduce production costs, even though the production site is hundreds or even thousands of kilometres away from the final assembly plant or away from users. The abolition of frontiers within the Community has resulted in the establishment of a 'just-in-time' or 'revolving stock' production system which required a more seamless EU transport network than ever before.

- **Mobilising capital** remains a key challenge EU transport development, apart from technical or environmental considerations. Traditionally, transport infrastructure has been built on the basis of public funding, whether regional, national or Community. Most of the road or rail projects currently underway follow this pattern. However, due to limited public funding, a number of EU transport projects were delayed. For example, the funds needed to develop the trans-European transport network exceed 110 billion euros for the major priority projects alone, which meant that some projects had to be delayed.

II. EU TRANSPORT POLICY TO ADDRESS THE CHALLENGES

- **Shifting the Balance between Modes of Transport:** There was a growing imbalance between modes of transport in EU. The increasing success of road and air transport is resulting in ever worsening congestion as explained above, while, paradoxically, failure to exploit the full potential of rail and short sea shipping is impeding the development of real alternatives to road haulage. To solve this problem, the EU adopted five priority policies need to be attained, which include: (i) revitalising the railways; (ii) improving quality of road sector; (iii) controlling growth in air transport; (iv) developing maritime and inland waterway transport system; and (iv) liking up the modes of transport.

- **Eliminating Bottlenecks:** The EU revised the trans-European network guidelines to eliminate bottlenecks by encouraging corridors with priority to freight, a rapid passenger network rail and traffic management plans for major roads with flagship transport projects such as a high capacity railway route through the Pyrenees for freight, East European high-speed train/combined transport Paris-Stuttgart-Vienna, Fehmarn bridge/tunnel between Germany and Denmark, and the Galileo satellite navigation project.

- **Innovative Approach for Infrastructure Financing:** The EU launched a consultation process in 1995-97 aimed at encouraging the development of public/private partnerships. Some major projects—the Øresund bridge/tunnel for example—have been funded by this partnership mechanism. The guarantees are such that almost the entire risk is borne by the State. One important lesson for any innovative approach for infrastructure financing is that new infrastructure projects should benefit from an 'income' even before the first operating revenue is generated. The income from charges on competing routes—once these have been amortised—could provide a reserve of surplus financial resources. Some of this income could therefore be used to make up the shortfall in funds needed to complete other infrastructure projects, particularly rail, in the region in question. In other words, the toll or charge is applied to the area as a whole to finance any future infrastructure. The EU can no longer expect, as with the Channel Tunnel, to repay investment by charging users once the infrastructure has been opened to traffic. When this approach were applied to the Alpine crossings, the Alpine motorways and tunnels contributed to the funding of construction work on new crossings before they opened. Switzerland has adopted the radical solution of funding this type of major work almost entirely through charges on heavy goods vehicles, starting with EU lorries.

- **A Comprehensive Approach beyond European Transport Policy:** Transport policy cannot stand isolated and has to be integrated with a broad range of other policies. The EU adopted an integrated approach beyond transport policy to ensure a sustainable transport development. These include, among others, (i) economic policy to be formulated to take account of certain factors which contribute to increasing demand for transport services, particularly factors connected with the just-in time production model and stock rotation; (ii) urban and land-use planning policy to avoid unnecessary increases in the need for mobility caused by unbalanced planning of the distances between home and work; (iii) social and education policy, with better organisation of working patterns and school hours to avoid overcrowding roads, particularly by traffic departing and returning at weekends, when the greatest number of road accidents occur; (iii) urban transport policy in major conurbations, to strike a balance between modernisation of public services and more rational use of the car, since compliance with international commitments to curb CO_2 emissions will be decided in the cities and on the roads; (iv) budget and fiscal policy to achieve full internalisation of external-in particular environmental-costs and completion of a trans-European network worthy of the name; (v) competition policy to ensure that opening-up of the transport market, especially in the rail sector, is not held back by dominant companies already operating on the market and does not translate into poorer quality public services; (vi) transport research policy to make the various efforts made at Community, national and private level more consistent, along the lines of the European research area.

Source: NTDPC Research.

the SAFTA, South Asian countries have entered into various bilateral trade agreements.

WELL-DEFINED RELATION BETWEEN TRANSPORT AND TRADE FACILITATION

It is important to define the scope of a transport agreement if it should also cover trade facilitation measures or it will only be confined to transport facilitation. The CBTAs of GMS and CAREC have built-in trade facilitation measures such as transit custom, temporary admission regime for containers, custom insurance, transshipment, joint sections and quarantine. The advantage of this is that the CBTAs are comprehensive. However, problems arise at the implementation level due to a lack of a national body that can bring together national transport, custom, and quarantine authorities. Because of this, custom cooperation in the GMS is moving slowly. Therefore, it is crucial to define at the design stage of any bilateral or regional transport agreement how trade facilitation measures will be covered; and if trade facilitation measures have to be addressed, these should be directly related to supporting transport facilitation rather than applying across-the-board trade facilitation measures.

CONSISTENCY WITH INTERNATIONAL CONVENTIONS

Regardless of what form that a legal instrument for transport cooperation may take in South Asia, it is important to ensure the consistency of the legal

Box 13. 6

The ASEAN Experience

ASEAN endorsed the Master Plan on ASEAN Connectivity (MPAC) at the 17th ASEAN Summit held on 28 October 2010 in Ha Noi, Vietnam. In 2010, ASEAN endorsed a Work Plan of the Transit Transport Coordinating Board (TTCB) for implementation of the ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT), ASEAN Framework Agreement on Multimodal Transport (AFAMT), and ASEAN Framework Agreement on the Facilitation of Inter-State Transport (AFAFIST). In completing all Protocols to support the implementation of the ASEAN transport facilitation agreements, ASEAN encouraged the ASEAN Customs Directors-General to conclude the Protocol 2 (Designation of Frontier Posts) and Protocol 7 (Customs Transit System) of the AFAFGIT as soon as possible. ASEAN restarted the discussion on the draft Protocol 6-Railway borders and interchange stations under AFAFGIT for eventual signing. A stock-taking of road inventory of all national route sections/components of the ASEAN Highway Network (AHN) was completed and the upgrading of the ASEAN Transit Transport Routes (TTR) below Class III as a high priority of implementation was prioritised. In upgrading AHN, ASEAN agreed to install common road signs in all designated routes, with a specific priority on the TTR. ASEAN is now preparing ASEAN Regional Road Safety Strategy Plan 2011-20 covering the strategic framework for cooperation among ASEAN Member States in this area and its policy guidelines. The Strategy Plan will be aligned with the UN Resolution on the Decade of Action on Road Safety and the Moscow Declaration of the first Global Ministerial Conference on Road Safety, Enhancing transport connectivity with Dialogue Partners. A summary of the ASEAN agreements is in Annex 13.1.

ASEAN Open Skies: To facilitate and enhance air services as well as complement the transport facilitation and liberalisation efforts in ASEAN, the Ministers signed the ASEAN Multilateral Agreement in 2010 on the Full Liberalisation of Passenger Air Services (MAFLPAS) and its two Protocols, which would further expand the scope of the ASEAN Multilateral Agreement on Air Services (MAAS) to include other ASEAN cities. This Agreement and its Protocols would allow designated airlines of a Member State to provide air services from any city with international airport in its territory to any city with international airport in the territory of the other Member States and vice versa with full third, fourth and fifth freedom traffic rights. ASEAN signed Multilateral Agreement on the Full Liberalisation of Air Freight Services, which aims to ensure an efficient and competitive international air freight service in a move to promote economic growth; the ASEAN Multilateral Agreement on Air Services which will lead to the gradual removal of restrictions for greater flexibility and capacity in air freight services in the region; and the ASEAN Framework Agreement on the Facilitation of Inter-State Transport, which will pave the way for the implementation of integrated air transport services.

ASEAN Maritime Integration: The Roadmap Towards an Integrated and Competitive Maritime Transport in ASEAN (RICMT) aims to further the goals enunciated in the Vientiane Action Programme (VAP) 2004-10 and ASEAN Transport Action Plan (ATAP) 2005-10, and the ASEAN Leaders' call to institute new mechanisms and measures to strengthen the implementation of its existing economic initiatives.

ASEAN Trade Facilitation: ASEAN Single Window (ASW) is another trade facilitating platform, which is designed to expedite customs clearance and release of shipments coming to and departing from ASEAN. The Roadmap for Integration of Logistics Services (RILS) was endorsed in August 2008 to strengthen ASEAN as a single market and production base, and enhance its competitiveness through trade and transport facilitation. Under the liberalisation of logistics services which is an important element in achieving connectivity, the RILS calls for liberalisation of cargo handling services, storage and warehousing services, freight transport agency services, courier services, packaging services, custom clearance services, international freight transportation excluding cabotage, international rail freight transport services, and international road freight transport services, as stipulated in the RILS.

The Institutional mechanisms to work at and later endorse each of the agreements included holding: (i) ASEAN Transport Ministers Meeting annually; (ii) ASEAN Transport Working Group meetings, i.e., Secretary-level meeting that reports to the Transport Ministers; and (iii) ASEAN Sub-Committees, one for Land Transport, one for Maritime and one for Civil Aviation at Joint Secretary level, meeting every year reporting to the second rung.

Source: NTDPC Research.

Box 13. 7
Institutional Arrangements in the Trans-European Networks

Due to the early identification of needs for transport facilitation in Europe, the United Nations Economic Commission for Europe (UNECE) became a focal point for regulatory and technical intergovernmental development in the transport facilitation for inland transport modes. In particular, UNECE has developed and administers many international legal instruments in this area, including the TIR Convention (1975) and Harmonisation Convention (1982) and many of them have become truly global. The Inland Transport Committee (ITC) is the highest policy-making body of the UNECE in the field of transport. In the course of the last 60 years, together with its subsidiary bodies, the ITC has provided a pan-European intergovernmental forum, where UNECE member countries come together to forge tools for economic cooperation and negotiate and adopt international legal instruments on inland transport. These legal instruments are considered indispensable for developing efficient, harmonised and integrated, safe and sustainable pan-European transport systems.

The Trans-European Networks (TEN) were created by the European Union by Articles 154-156 of the Treaty of Rome (1957), with the stated goals of the creation of an internal market and the reinforcement of economic and social cohesion. The Treaty establishing the European Union provides a sound legal basis for the TENs. According to these objectives, the European Commission developed guidelines covering the objectives, priorities, identification of projects of common interest and broad lines of measures for the three sectors concerned (Transports, Energy and Telecommunications). The European Parliament and the Council approved these guidelines after consultation with the Economic and Social Committee and the Committee of the Regions.

The Trans-European Transport Networks (TEN-T) are a planned set of road, rail, air and water transport networks in Europe. In the case of transport, decisions covering combined transport, road and inland waterways were adopted on 29 October 1993. The original aim of TEN-T was to establish a series of interconnected and interoperable European transport networks that would remove bottlenecks and fill in missing links. The scope of the TEN-T network is defined in terms of the individual transport modes. TEN-T guidelines were initially adopted on 23 July 1996.

The Trans-European Transport Network Executive Agency (TEN-T EA) was established by the European Commission for managing the technical and financial implementation of the Trans-European Transport Network (TEN-T) Programme. Its mission is to support the European Commission and TEN-T project managers and promoters, by ensuring the technical and financial management of the projects and the successful implementation of the TEN-T Programme.

The TEN-T timeline

1990: Commission adopts first action plan on trans-European networks (transport, energy and telecommunications)
1993: TENs given legal base in Maastricht Treaty.
1994: Essen European Council endorses list of 14 TEN-T 'specific' projects, drawn up by a group chaired by then Commission Vice-President Henning Christophersen.
1995: Financial regulation for TEN-T support adopted.
1996: Adoption of TEN-T guidelines.
2001: Extension of TEN-T guidelines to port infrastructure (seaports, inland ports and intermodal terminals) adopted.
2003: A group chaired by former Commission Vice-President Karel Van Miert proposes new priority projects and calls for new means of funding.
2004: Revised guidelines and financial regulation adopted, with a list of 30 priority projects (including the original 14) and a higher maximum funding rate of 20 per cent in certain cases.
2005: Nomination of the first six European coordinators
2005: A group chaired by former Commission Vice-President Loyola de Palacio due to propose axes linking TEN-T to neighbouring countries outside the EU.

TEN-T EA

The TEN-T Executive Agency is a relatively new member in the EU family of institutions and agencies:

December 2002: Executive agencies are officially born; the legal basis for executive agencies entrusted with certain tasks in the management of European Community programmes is formalised in Council Regulation (EC) No 58/2003
October 2006: The Trans-European Transport Network Executive Agency (TEN-T EA) is established for the management of Community Action in the field of TEN-T. Its mandate covers projects which have been financed from the 2000-06 Financial Perspective and its lifetime till 31 December 2008
July 2007: The TEN-T EA Director is nominated by the Commission
August 2007: The TEN-T EA Steering Committee is nominated by the Commission
November 2007: The Commission approves the delegation of powers to TEN-T EA to efficiently and effectively implement the TEN-T Programme within the boundaries of its mandate
April 2008: TEN-T EA becomes financially, legally and operationally autonomous
July 2008: TEN-T EA's mandate is extended until 31 December 2015 and its objectives and tasks redefined to take responsibility for the TEN-T budget linked to the 2007-13 Financial Perspective
October 2008: The Commission modifies and extends the act of delegation to TEN-T EA to take account of its new tasks
January 2009: TEN-T EA becomes fully responsible for the management of all open TEN-T projects from both the 2000-06 and 2007-13 Financial Perspectives
March 2009: TEN-T EA website officially launched
November 2010: TEN-T EA moves into its permanent headquarters at Chaussée de Wavre 910 (W910) in Brussels

Source: NTDPC Research.

instrument with the standards set forth in international conventions. It is particularly important for bilateral agreements to be consistent with international standards as it can facilitate a greater harmonization of bilateral transport agreements. The Annex 13.1 to this chapter details the various multilateral transport-related agreements and initiatives that ASEAN members have agreed on over the years.

THE ROUTE

India has played a central role in regional cooperation and integration in South Asia. It is also at the center of all regional trade facilitation and transit issues. In the past, India has strengthened bilateral links with its immediate neighbors through successful FTAs and through a preferential trade agreement with Afghanistan. A fresh impetus was given to the SAFTA process with the India-Pakistan trade talks. However, the current state of surface transport networks in South Asia imposes significant barriers to trade. The problems are accentuated by poor sea connectivity for intra-SAARC trade. In such a scenario, transport facilitation efforts by India would bring vast benefits to regional trade. Removing rigidities, which have existed for decades at the borders, to enable the movement of goods across at lower cost is part of the unfinished South Asia trade facilitation agenda. India has taken a series of trade integration measures since 2007 and it is important to keep up the momentum.

Road transport is the most dominant mode of transport for India's trade with its neighbours. Yet, it continues to be underdeveloped due to poor infrastructure and ineffective protocols. Multiple agencies are involved with no single agency responsible to ensure coordinated functioning. A limited number of road routes are open for trade and a limited number of goods are allowed to be traded. The customs procedures at land ports remain far less efficient than at seaports. Rail movement is constrained by technical problems and the absence of a regional agreement.

Operational efficiency and intermodal connectivity needs to be improved. South Asian countries need to collectively strive to make land ports as efficient as seaports and charge commensurately for the facilities. The modernisation of land ports should be completed within a targeted period of three to five years. Trade through all modes should be opened up so that there are enough options available to traders. Multimodal routes need to be identified and developed and institutional reform undertaken at the borders. Trading goods across borders is also currently severely restricted by the lack of transit agreements that would allow seamless movement of goods across the region. India actively engaged in capacity building with Nepal and Bangladesh to address technical barriers to trade (TBT) and sanitary and phyto-sanitary (SPS) measures. In order to address the issue of non-acceptance of testing and certification, India needs to enter into Equivalence Arrangements and Mutual Recognition Agreements with its trading partners. Further, testing facilities need to be made available at land borders so that consignments do not have to be sent across to other places for testing.

Providing transit to landlocked countries has remained a major concern for the region, although several steps have been initiated to address the issue since 2010. The revised Afghanistan-Pakistan tran-

sit treaty will open up new transit corridors that will link Pakistan to the Central Asian countries. If Bhutan, India and Nepal are able to formulate and implement transit arrangements equally effectively, Bhutan and Nepal's dependence on India alone would be greatly reduced and the ground would be laid for a transit arrangement at a regional level. The regional agreement will eventually connect Nepal and Bhutan to Pakistan through India; and Afghanistan to Nepal and Bhutan through Pakistan and India.

The experience of EU and ASEAN will help India in moving forward transport and trade facilitation in the South Asia region and beyond.

Coordinated and focused commitment of countries is needed to resolve the various physical and non-physical barriers in order to put in place a regional multimodal transport system for South Asia and beyond. The investments requirements are nominal to achieve substantial improvements in regional transport connectivity are nominal. Many of the building blocks are in place and India needs to play a leading role in the process of promoting an environment where there blocks can be combined.

The implementation of recommendations made in this chapter will be difficult to achieve in a business-as-usual context. If there is general agreement with the kind of transport investments and agreements that have been proposed as desirable to be achieved over the next couple of decades, it will be necessary for the government to take up this task in a focused manner. The NTDPC therefore recommends that the Government of India initiate this process by forming a dedicated Joint Task Force to Promote International Transport Connectivity within the South Asia Region. Such a Task Force should have technical participation from all the neighboring countries, along with representation from agencies such as UN-ESCAP, ADB and SAARC which have already done extensive work in this area.

Annex 13.1

ASEAN Agreements

NO.	AGREEMENT	YEAR SIGNED	MAIN FEATURES
1	AFAFGIT	Dec 1998	ASEAN Framework Agreement on the Facilitation of Goods in Transit
2	AFAMT	Nov 2005	ASEAN Framework Agreement on Multimodal Transport
3	AFAFIST	Dec 2009	ASEAN Framework Agreement on the Facilitation of Inter-State Transport To simplify and harmonise transport, trade and customs regulations and requirements for the purpose of facilitation of inter-state transport of goods
4	RIATS	2004	Roadmap for Integration of Air Travel Sector Guides multilateral air services liberalisation in ASEAN by way of a series of milestones, in particular unlimited 3rd, 4th and 5th freedom of traffic rights for air freight among all ASEAN cities, and unlimited 3rd, 4th and 5th freedom of traffic rights for passenger services between all ASEAN capitals, by December 2008 and December 2010 respectively Aims to achieve the ASEAN Leaders' vision of Open Sky in the ASEAN region.
5	RICMT		Roadmap Towards an Integrated and Competitive Maritime Transport in ASEAN A time-bound action plan for concrete actions that ASEAN Member States need to take in order to achieve a more open, efficient, and competitive ASEAN maritime transport system Covers both passengers and freight services. Implementation of the specific measures is subject to conformity with international conventions and/or the relevant national laws and regulations There is a critical element in the Roadmap calling for the implementation of an ASEAN Single Shipping Market. There are a number of issues that need to be addressed prior to the implementation stage
6	MAAS		ASEAN Multilateral Agreement on Air Services
7	MAFLAFS		ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services
8	MAFLPAS		ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services
9	ATAP, 2005-2010		ASEAN Transport Action Plan
10	ASW		ASEAN Single Window The National Single Window is a prerequisite of the ASEAN Single Window ASEAN-6 countries are at various stages of implementation of their respective National Single Windows
11	RILS	Aug 2008	The Roadmap for Integration of Logistics Services

Source: Asian Development Bank.

Annex 13. 2

Status of the SRMTS Roadmap for Developing Regional Corridors/Gateways as of July 2013

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
SHC 1	Road Corridor No 1: Lahore – Delhi – Kolkata – Dhaka – Agartala (2,453 kms)	(i) Absence of an agreement for transport movement across Benapole/Petrapole makes the border crossing extremely costly requiring transshipment of goods;	(i) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed for allowing reciprocal movement of vehicles and goods across the border;	(i) India Bangladesh bilateral Trade Agreement yet to be finalized. (ii) customs standard operating procedures (SOP) implemented at 8 land customs stations including Benapole-Petrapole, Akhaura-Agartala in 2012
		(ii) Border post at Benapole/ Petrapole works for limited hours in a day and does not work over week-ends. This causes delay in cargo clearance and leads to congestion. Again, only 300 trucks are cleared per day while several hundreds continue waiting to deliver goods. Such a working system has adverse impacts on transport costs;	(ii) Provision of 24 hours and 7 days customs service, with built in transparent inspection procedures; and strengthened security measures at the border crossing needed;	(ii) SOP includes rescheduling of working hours of the customs and simplified documentation (ii) A car pass system has been introduced at Petrapole in Jan 2012. (ii) From field study inputs, it is assessed that further improvement is required
		(iii) Slow clearance of goods at border crossing points (Wagha, Petrapole/Benapole, Akhaura/ Agartala) increases transport costs;	(iii) Introduction of EDI/IT system; simplification and harmonization of customs procedures, adoption of similar documentations at all border crossings, standardization of Indian Customs Declaration (CTD) and implementation of Automated Customs Clearance system essential;	Integrated Check Post commissioned at Wagah – Attari in April 2012 and ICPs are being constructed atBenapole-Petrapole and Akhaura-Agartala
		(iv) Acute traffic congestion along Barasat – Petrapole section leads to slow down of vehicles and increases transport costs;	(iv) Infrastructure investment is needed to widen Barasat – Petrapole road to 2-4 lanes, and build by-passes around a number of towns located along Petrapole-Kolkata portion of the corridor;	Delays over land acquisition; process to acquire land has started.
		(v) Poor road condition and narrow road along Brahmanbaria-Akhaura section, increase travel time and costs;	(v) Investment is needed to improve and widen to 2-lanes, the road section Brahmanbaria-Akhaura (Bangladesh);	Poor road condition; widening yet to start.
		(vi) Absence of facilities at Wagha (Pakistan) in terms of warehousing, loading/ unloading, and at Attari border (India), in terms of parking and space for unloading of goods;	(vi) Physical facilities at border crossing on both sides of Wagha, in terms of warehousing, parking and space for loading/unloading to be built;	Wagha and Attari ICP commissioned by Pakistan and India in April 2012. Containerized cargo is to be started to avoid examination. Joint examination and EDI is also under consideration.
		(vii) Roads in Bangladesh portion of the corridor have axle load limit of 8.2 tonnes;	(vii) Strict enforcement of restriction on overloading to be imposed when Bangladesh roads are opened to international traffic;	Administrative monitoring of implementation
SHC 2	Road Corridor No 2: Kathmandu – Birgunj - Kolkata/ Haldia (1,323 kms)	(i) About 180 km road in Bihar (India) is in poor condition, which reduces vehicles speed to 20 km/ hours and increases transport costs;	(i) About 180 km of road section in Bihar (India) to be improved immediately to reduce operating costs of vehicles and travel time;	This corridor still requires improvement, especially Motihari- Sagauli-Ramgarhwa-Raxaul section (50 km), a level crossing close to the check-post and the narrow 2-lane bridge over the River Sirsiya near the border are challenges. There is significant congestion at the border point at Raxaul.

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
		(ii) Kathmandu - Birgunj section is a long detour road (276 kms) that adversely impacts on transportation costs;	(ii) A 'Fast Track Road' (about 120 km) between Kathmandu and Birgunj should be built to reduce travel distance and transport costs;	Kathmandu Terai Fast Track Road Project is yet to be implemented
		(iii) Over 36 km of length along Pathalaiya-Hetauda road (Nepal), there are a number of single lane bridges, which are hazardous and adversely impact vehicle speeds;	(iii) Narrow bridges to be replaced by 2-lane wide bridges along Pathalaiya-Hetaudo Road (Nepal);	Feasibility study in progress
		(iv) Customs yard at Birgunj is very small, as a result trucks are parked along main roads causing congestion;	(iv) A freight station at Birgunj (Nepal) to be build urgently under Indian Economic Cooperation Programme;	Birgunj ICD has Rail connectivity to Kolkata/Haldia port. Birgunj ICP project is underway but delayed.
		(v) Immigration office at Raxaul lacks in basic facilities and parking space for unloading, causing inconvenience to users;	(v) Infrastructure investment is needed to provide parking and other basic facilities at immigration office at Raxaul (India);	Raxaul ICP is under construction.
		(vi) Slow clearance of goods at Raxaul border crossing increase costs;	(vi) Introduction of EDI/IT system, simplification and harmonization of customs procedures, adoption of similar documentations at all border crossing, standardization of Indian Customs Declaration (CTD) and implementation of Automated Customs Clearance system;	Indian side ICES system is implemented; Nepal side ASYCUDA is to be upgraded.
		(vii) Lack of formal agreement for vehicular movement across Nepal/India border, which may create problems in the future;	(vii) Nepal and India should consider signing a formal agreement under which vehicles could move across the border and within each others' territory;	SAARC Motor Vehicles Agreement is being discussed; shown as a priority item in 17th SAARC Summit declaration
SHC 3	Road Corridor No 3: Thimphu - Phuentsholing / Jaigon – Kolkata / Haldia (1,039 km)	(i) Physical facilities in terms of parking, cranes, and fork lift trucks are insufficient at Phuentsholing (Bhutan) and there is lack of adequate parking at Jaigon (India). These cause inconvenience to road users and increase congestion on roads;	(i) Physical facilities in term of cranes and forklifts at Phuentsholing and parking on both sides of the border need to be provided urgently;	Physical facilities need to be improved Congestion at Phuentsholing due to industrial estate traffic of Pasakha - the route from Bulan will cut short the distance from Pasakha by 9 km and emerge at Manglabari on the Indian side, 6 kilometres from Phuentsholing Gate
		(ii) Slow clearance of goods at border crossing in Bhutan increase transport costs;	(ii) Introduction of EDI/IT system, simplification and harmonization of customs procedures, adoption of similar documentations at all border crossing, standardization of Indian Customs Declaration (CTD) and implementation of Automated Customs Clearance system;	Indian side ICES system is implemented; Bhutan side BCAS is implemented.
		(iii) About 172 km road from Thimphu to Phuentsholing is a single lane, which results in slow down of vehicles and increases transport costs;	(iii) Infrastructure investment for widening 172 km of road from Thimphu to Phuentsholing to 2-lane is needed;	Double laning completed in 2010
SHC 4	Road Corridor No 4: KTM – Kakarvita – Phulbari – Banglabandha - Mongla/ Chittagong (1,362 kms)	(i) Absence of an agreement for cross border movement of vehicles makes the border crossing extremely costly requiring transhipment of goods;	(i) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed for allowing reciprocal movement of vehicles and goods across the border;	(i) India Bangladesh bilateral Trade Agreeement yet to be finalized.
		(ii) Over 36 kms of length along Pathalaiya – Hetauda roads, there are a number of single lane bridges that are hazardous and adversely impact vehicle speed;	(ii) Narrow bridges to be replaced by 2-lane wide bridges along Pathalaiya-Hetauda Road (Nepal);	(ii) customs standard operating procedures (SOP) implemented at 8 land customs stations which includes Phulbari – Banglabandha Feasibility study in progress

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
		(iii) No permanent immigration and custom office at Phulbari and at Banglabadha, where telephone and postal facilities are also missing;	(iii) Permanent immigration and Customs offices need to be built at Phulbari (India) and Banglabandh (Bangladesh) together with support facilities;	Improving Phulbari land customs station being explored with ADB assistance Work of private operator developing Banglabandha land port to be expedited
		(iv) 2.5 km road in India, close to Phulbari border point is in poor condition, and could be a bottleneck when traffic increases;	(iv) Infrastructure investment needed to improve 2.5 kms road near Phulbari, when traffic increases;	Improvement being considered with ADB assistance; 1 alternate road section between Phulbari and Medical Road intersection (15 km) being considered
		(v) Roads in Bangladesh portion of the corridor have axle load limit of 8.2 tonnes;	(v) Overloading restriction should be strictly enforced, when Bangladesh roads are opened to international/ regional traffic;	Administrative monitoring of this implementation is required
SHC 5	Road Corridor No 5: Samdrup Jongkhar - Guwahati - Shillong – Sylhet – Dhaka - Kolkata (906 kms)	(i) Absence of an agreement for cross-border movement of vehicles at Dawki/Tamabil makes the border crossing extremely costly requiring transhipment of goods;	(i) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed for allowing reciprocal movement of vehicles and goods across the border;	(i) load restriction on 80 year old Dawki suspension bridge, coal carrying vehicles permitted up to distance of 3 km from the border after which it moves in smaller vehicles
		(ii) 74 years old bridge at Dawki has a load restriction of 6 tonnes, which adversely impacts transport cost;	(ii) Infrastructure investment is needed to build a new bridge at Dawki (India) to facilitate movement of intra-country traffic;	(ii) New 165-m RRC bridge construction project approved but execution delayed, increased investment required, bidding process is likely to be started afresh
		(iii) Lack of parking space at the Dawki border crossing point, causes inconvenience to users and create congestion on the road;	(iii) Investment is needed to provide parking space at Dawki (India) border post;	(iii) Land acquisition issues have delayed Dawki ICP project, DPR is now approved and detailed engineering is in progress
SHC 6	Road Corridor No 6: Agartalla – Akhaura – Chittagong (227 kms)	(i) Absence of an agreement for cross-border movement of vehicles makes border crossing costly requiring transhipment of goods;	(i) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed for allowing reciprocal movement of vehicles and goods across Akhaura border;	(i) India Bangladesh bilateral Trade Agreeement yet to be finalized. (ii) customs standard operating procedures (SOP) implemented at 8 land customs stations including Akhaura-Agartala
		(ii) Narrow road along Akhaura - Dharkhar (15 kms) and poor road condition along Dharkhar-Comilla (56 km) both in Bangladesh lead to slow down of vehicles and increase travel time and costs;	(ii) Infrastructure investment is needed for widening and improvement of two road sections, Akhaura-Dharkhar (15 km) and Dharkhar-Comilla (56 km) both in Bangladesh;	Poor road condition and widening to start within next 5 years
		(iii) Lack of proper physical facilities at Akhaura border crossing causes inconvenience to road users;	(iii) Proper physical facilities at border crossing to be established at Akhaura;	Agartala ICP project construction works is in progress
SHC 7	Road Corridor No 7: Kathmandu – Nepalganj – New Delhi – Lahore – Karachi (2,643 kms)	(i) 2-road sections, Nepalganj – Baharaich and Bahraich – Rupaidiha are one-lane and in poor condition. These adversely impact vehicle speed and increase travel time and costs;	(i) Infrastructure investment is needed for widening and improving two road sections namely, Nepalganj - Baharaich and Baharaich - Rupaidiha, both in India;	Baharaich – Rupaidiha road section improvement works to start . Rupaidiha ICP DPR approved. Detailed Engineering in progress.
		(ii) Lack of a formal agreement between Nepal and India for vehicle movement across the border, may create problems in the future;	(ii) It is desirable to get a formal agreement signed between Nepal and India for smooth vehicles movement across the border and within each others territories;	Trucks allowed upto nearest market and have to return on same day

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
SHC 8	Road Corridor No 8: Thimphu – Phuentsholing – Jaigon – Burimari - Chittagong (966 kms) or (ii) Mongla (880 kms)	(i) Lack of physical facilities at Phuentsholing and Jaigon, border crossing, in terms of parking, cranes, forklift trucks, etc cause inconvenience to road users and truckers leading to congestion on the road;	(i) Infrastructure investment is needed to provide vehicle parking at Jaigon (India) and both parking and goods handling equipments like cranes, forklift trucks, etc, at Phuentsholing (Bhutan);	Phuentsholing physical facilities need to be improved. ADB is working on a plan. Congestion at Phuentsholing due to Pasakha industrial estate traffic. Alternate route from Bulan will cut short the distance from Pasakha by 9 km and emerge at Manglabari on the Indian side, 6 kilometres from Phuentsholing Gate. Possible to connect this to Jaigaon-Hasimara Road (India) through a road firstly along the river bank and then through a single surfaced lane of approximately 5 km once it leaves the river bank.
		(ii) Lack of warehousing, parking, open yard at Burimari (Bangladesh), causes damage to goods and inconvenience to users;	(ii) Infrastructure investment is needed to provide warehousing, parking and open yard at Burimari (Bangladesh);	Pre-feasibility study of Burimari Land Custom Station completed.
		(iii) Absence of an agreement for cross-border movement of vehicles, necessity for transhipment of goods at the border, which adversely impacts transport costs;	(iii) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed to facilitate smooth reciprocal movement of transport across Burimari border post;	This would be mainly Bhutan-Bangaldesh trade though India; agreement yet to be completed.
		(iv) About 172 kms road between Thimphu and Phuentsholing is one-lane, which results is slow-down of vehicles and increases transport cost;	(iv) Infrastructure investment needed to widen 172 kms of road between Thimphu - Phuentsholing (Bhutan) to 2-lanes;	Double laning completed in 2010
		(v) Roads in Bangladesh portion of the corridor have axle load limit of 8.2 tonnes;	(v) Strict enforcement of restriction on overloading to be imposed when Bangladesh roads are opened to international traffic;	Administrative monitoring of implementation
SHC 9	Road Corridor No 9: Maldha - Shibganj – Jamuna Bridge (252 kms)	(i) About 13.5 kms road from Maldah-Mehdipur (India) and another 82 kms from Sonamasjid to Rajshahi (B'desh) are narrow and in poor condition which cause slow down of vehicle speed and increase transport costs;	(i) Infrastructure investment is needed to widen to 2-lanes and improve riding condition of two road sections (a) Maldah-Mehdipur (13.5 kms) in India and (b) Sonamasjid-Rajshahi (82 kms) in Bangladesh;	Roads are yet to be widened & condition improved
		(ii) Lack of an agreement for cross-border movement of vehicles between India and B'desh necessities transhipment of goods at border, which adversely impacts transport cost;	(ii) Within a Regional Framework, a bilateral agreement between India and Bangladesh is needed to facilitate smooth reciprocal movement of transport across Sonamasjid border post;	(i) India Bangladesh bilateral Trade Agreeement yet to be finalized. (ii) customs standard operating procedures (SOP) implemented at 8 land customs stations including Sonamasjid-Mohaddipur border crossing in 2012
		(iii) Roads in Bangladesh have axle load limit of 8.2 tonnes;	(iii) Strict enforcement of restriction on overloading to be imposed when Bangladesh roads are opened to international traffic;	Administrative monitoring of implementation

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
SHC 10	Road Corridor No10: Kathmandu – Bhairahawa – Sunauli - Lucknow (663 kms)	(i) Lack of adequate physical facilities on Indian side at Sunauli border post in terms of parking, space for unloading of goods for checking and lack of baggage scanning and rest rooms at immigration office cause inconvenience to traders and passengers;	(i) Infrastructure investment is needed to provide parking, space for unloading of goods for inspection at Sunauli border post, and also the scanning facility and rest rooms at the immigration office;	
		(ii) The Indian immigration office at Sunauli is located in a busy market place, which causes traffic congestion and inconvenience to travellers;	(ii) Immigration office at Sunauli (India) to be shifted to a convenient place;	ICP at Sunauli planned in Phase 2; DPR approved; proposal under preparation
		(iii) On Nepalese side, lack of banking facility at Sunauli border point compels the traders to take their customs payments to City Bank office at Bhairahawa, causing delays;	(iii) HMGN needs to ensure that a banking facility is established at Sunauli border post;	
SRC 1	Rail Corridor No 1: Lahore – Delhi – Kolkata – Dhaka - Imphal (2,830 kms)	(i) Non-utilization of the available capacity of Indian Railway freight wagons by Pakistan and Bangladesh - trade being largely one sided;	(i) Promotion and development of intra-regional railable traffic to utilize the existing capacity of Indian Railway wagons which are being returned in empty condition from Bangladesh, Nepal and Pakistan resulting in wastage of transport capacity;	
		(ii) Restriction on movement of commodity specific rolling stock including open freight wagons, oil tanks and containers between India and Pakistan and India and Bangladesh;	(ii) Existing bilateral agreements to be suitably modified; (ii) A multilateral agreement permitting movement of commodity specific freight wagons between the SAARC member states is needed in order to meet the requirement of trade and industry be put in place	Regional Railway Services Agreement expected to be concluded soon
		(iii) Sectional capacity constraints for increasing the throughput on the corridor in view of the growth potential;	(iii) Investments are required on priority to augment the sectional capacity in the saturated sections on the corridor, including improvement of the permanent way, signalling, additional lines and by-passes etc; (iii) Identified major capacity augmentation /gauge conversion works to be completed;	Indian Dedicated Freight Corridor project is in progress; expected completion 2017
		(iv) Inadequate capacity of the holding, yard and terminals causing marshalling of rakes and consequent detention to the rolling stock;	(iv) Inadequate capacity of holding lines, loops and terminals for Indian Railway rakes results in marshalling and consequent detentions to the rolling stock. Capacity augmentation is required on an urgent basis on Bangladesh Railway network;	Capacity may be improved
		(v) Axle load restriction on Jamuna bridge prohibiting any through movement of BG freight trains across Jamuna bridge (Bangladesh);	(v) Strengthening of the existing bridge to facilitate movement of through BG freight and container trains or provision of a transhipment hub at Ishurdi, purely as an interim measure; (v) Reconstruction of Jamuna bridge to facilitate movement of broad gauge loaded freight and container trains;	Recent study says fully loaded ISO containers on low platform flat cars of Container Corporation of India can move over Jamuna Bridge, without any load restrictions.

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		(vi) Different gauges on the corridor requiring transhipment of goods;	(vi) Dual gauging between Joydebpur – Dhaka to be provided on priority;	Completed; Maitree Express runs directly between Dhaka and Kolkata
		(vii) Kulaura – Shahbazpur rail section is out of commission (Bangladesh);	(vii) The section should be restored and opened for traffic with dual gauge/broad gauge to facilitate intra-regional movement of freight and passenger trains; (vii) Metre gauge sections between Joydebpur – Akhaura – Shahbazpur (Bangladesh) and Mahishasan – Jiribam (India) to be undertaken and completed on priority;	(vii) Detailed Project Plan preparation of rehabilitation of Kulaura- Shahbazpur section of Bangaldesh Railways to start shortly; works to be taken up under line of credit from India (vii) Karimganj – Mahisasanguage conversion has been approved by India in 2011; work to commence (vii) Mahisasan-Shahbazpur MG route has not been operational since December 1996 due to lack of traffic
		viii) Missing rail link between Jiribam – Tupul (Imphal);	(viii) The ongoing work of a new broad gauge line connecting Jiribam with Tupul (Imphal) in India to be completed;	Jiribam-Tupul (98 km), work in progress, expected commissioning March 2014 Jiribam-Imphal (125 km), work started, expected commissioning March 2016
		(ix) Restricted working hours, multiple customs clearances at inter-change points;	ix) Round the clock working hours at Wagha and Gede-Darshana interchange points with simplified single custom checks should be ensured;	This is yet to be achieved.
SRC 2	Rail Corridor No 2: Karachi – Khokhrapar – Munabao – Jodhpur (707 kms)	(i) Restriction on movement of freight trains on this corridor;	(i) This being shorter route for bilateral traffic between central India and Pakistan, (currently opened only for passenger trains), should be opened for freight traffic also;	Restriction in Bilateral Trade Agreement
		(ii) Absence of infrastructure for handling freight traffic at Munabao (India) and Khokhrapar/ Zero Station (Pakistan);	(ii) Development of infrastructure for handling freight traffic including holding lines, yard lines with provisions of customs and rolling stock inspections should be taken up at Munabao and Khokhrapar/Zero Point station;	Can be commissioned in Trade Agreement removes restriction
		(iii) Single line sections and change of gauges	(iii) Gauge conversion work of Bhildi - Samdarimetre gauge line connecting ports of Gujarat from this corridor should be expedited; (iii) Hyderabad – Khokhrapar and Munabao – Jodhpur is a BG, single line section and may require doubling in view of the projected growth of traffic from ports;	Bhildi - Samdari (223 km) metre gauge conversion project completed. Expert Group meeting in July 2012 discussed the possibility of a dedicated rail route between Sindh (PAK) – Rajasthan (IND) through the Khokhrapar – Munabao border crossing point.
		(iv) Absence of bilateral agreement between India and Pakistan for running of freight trains;	(iv) Existing bilateral agreement should be expanded to incorporate movement of freight traffic via this corridor;	Restricted in Bilateral Trade Agreement
SRC 3	Rail Corridor No 3: Birgunj – Raxaul – Kolkata Port/ Haldia port (704/832 kms)	(i) Inadequate sectional capacity in different sections on this corridor affecting movement of traffic;	(i) Birgunj – Barauni section is oversaturated requiring augmentation of the capacity to handle the projected growth of traffic;	Congestion exists in this section
		(ii) Excessive transit time between Birgunj and Kolkata port;	(ii) The current transit time of over 72 hours should be brought down by minimizing en route detentions on account of change of traction and other capacity constraints in single line sections;	No significant reduction in transit time

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		(iii) Lack of usage of through Bills of Lading and acceptance of a combined transport document cumbersome procedures and manual documentation at Kolkata port and Birgunj;	(iii) IT enabled customer facilitation services, streamlining of procedures and adoption of appropriate usage of through Bills of Lading should be undertaken on priority;	Documentation procedures can be considered for simplification.
SRC 4	Rail Corridor No 4: Birgunj – Katihar – Singhabad – Rohanpur – Chittagong with links to Jogbani (Nepal) and Agartala (India) (1,146 kms)	(i) Capacity constraints due to single line sections and poor condition of track and signalling;	(i) The corridor is largely on single line broad gauge/ metre gauge network with severe capacity constraints in Mansi – Katihar (India), Tungi - Akhaura (Bangladesh) and poor condition of track between Rohanpur – Rajshahi and Azimnagar – Ishurdi (Bangladesh). Immediate steps are required towards augmenting the sectional capacity which adversely affects the freight traffic on this corridor;	Track doubling work between Barauni – Mansi – Katihar (India) is expected to be completed soon. Work to remove constraints on Bangladesh side yet to pick up momentum.
		(ii) Inadequate infrastructure including loops holding lines causing avoidable marshalling and detention to the rolling stock;	(ii) Inadequate holding capacity of lines in Rohanpur yard (Bangladesh) necessitates load shedding and detention of wagons at Singhabad (India). Holding capacity of lines should be increased as a priority	Work to remove constraints on Bangladesh side yet to pick up momentum.
		(iii) Axle load restriction on Jamuna bridge prohibiting movement of loaded BG freight trains;	(iii) Strengthening of Jamuna Bridge to facilitate movement of broad gauge freight trains with higher axle loads; (iii) Reconstruction of Jamuna Bridge;	Recent study says fully loaded ISO containers on low platform flat cars of Container Corporation of India can move over Jamuna Bridge, without any load restrictions.
		(iv) Metre gauge sections - Joydebpur – Chittagong (Bangladesh) and Katihar – Jogbani (India);	(iv) Dual gauging of Joydebpur – Dhaka to be completed on priority. Ongoing gauge conversion work on Katihar – Jogbani section be expedited; (iv) Dual gauging of Joydebpur – Chittagong section or provision of broad gauge alongside metre gauge should be undertaken to enable running of trains without transhipment on this corridor;	(iv) Joydebpur – Dhaka (Bangladesh) dual guage completed; Katihar – Jogbani (India) broad guage completed (iv) Works for dual gauging of Joydebpur – Chittagong section or provision of broad gauge alongside metre gauge is to be undertaken to enable running of trains without transhipment.
		v) Missing link between Akhaura and Agartala;	(v) India and Bangladesh to undertake survey/feasibility study for construction of this short missing link connecting Akhaura with Agartala; (v) Provision of broad gauge line connecting Akhaura with Agartala to facilitate through movement of intra-regional traffic;	Final survey completed in 2012 and DPR is under preparation.
		(vi) Capacity constraints at Chittagong port;	(vi) Dredging, remodelling of railway yard and adequate supply of freight wagons should be ensured;	Work yet to be completed. Track and bridges between Dhaka ICD and Chittgong Port to be strengthened and wagon availabity increased.
		(vii) Missing link between Jogbani(India) and Biratnagar (Nepal);	(vii) Jogbani – Biratnagar BG link be constructed to operationalise the corridor link from Katihar;	DPR has been completed for Jogbani– Biratnagar 18 km BG link.
		(viii) Restriction on movement of air-braked rolling stock and commodity specific freight wagons;	(viii) Bilateral agreement should be expanded to permit movement of commodity specific open, air-braked and oil tanks wagons between India and Bangladesh;	This is yet to be done.

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		(ix) Restrictive bilateral rail transport agreement and absence of a multilateral transport agreement for third country and transit traffic;	(ix) To operationalise through movement of freight and passenger trains on this corridor with third country, transit and bilateral traffic, a multilateral transport agreement between the concerned SAARC member states needs to be put in place;	Regional Rail Service Agreement is being discussed for finalization
SRC 5	Rail Corridor No 5: Colombo – Talaimannar – Rameshwaram – Chennai (1,025 kms)	(i) Medawachchiya – Talaimannar pier railway line is currently non operational;	(i) Restoration of Medawachchiya to Talaimannar pier is required to provide connectivity between Colombo and Talaimannar pier;	Track will be constructed in two phases from Medawachchiya to Madhu and Madhu to Talaimannar Pier including pier construction. Contract has been awarded.
		(ii) Ferry link between Talaimannar and Rameshwaram is suspended for last more than 15 years;	(ii) Restoration of ferry link for transhipment of goods and passengers across the channel should be expedited;	Ferry link to be discussed between India – Sri Lanka; feasibility study being done by India for resumption of services.
		(iii) Metre gauge sections on Indian railways involving transhipment;	(iii) Rameshwaram – Madurai gauge conversion work should be completed on priority to enable through broad gauge connectivity on the corridor;	Rameshwaram – Madurai gauge conversion completed.
		(iv) Capacity constraints on Madurai – Dindigul section on Indian Railways;	(iv) Madurai – Dindigul section should be taken up for doubling to minimize the capacity constraints;	Madurai-Dindigul section has been doubled.
		v) Poor condition of permanent way and signalling in Medawachchiya – Polgahawela sections;	(v) Upgradation of permanent way and signalling should be taken up on priority on this section by Sri Lankan Railways;	Rehabilitation project of Signalling and Telecommunication System in the Northern and Talaimannar Lines of Sri Lanka Railway is in progress
		(vi) Old bilateral agreement;	(vi) Old bilateral agreement for rail-cum-ferry link connecting the island country of Sri Lanka with India should be expanded to include other ferry links and movement of containerized cargo;	Rail-cum-ferry link agreement under consideration between governments of two countries.
SIWC 1	Inland Waterways Corridor No 1: Kolkata – Haldia – Raimongal – Mongla – Kaukhali – Barisal – Hizla – Chandpur – Narayanganj – Aricha – Sirajganj – Bahadurabad – Chilmari - Pandu (1,439 kms)	(i) Existing protocol between India and Bangladesh is currently being renewed only in amonthly basis;	(i) Existing protocol to be renewed for a longer period, say for a few years;	Protocol has been extended for longer period and is now valid till 2013.
		(ii) Lack of sufficient ports of call in Bangladesh for movement of inter-country trade;	(ii) Allow more ports of call within Bangladesh;	Silghat (India) and Ashuganj (Bangladesh under SIWC 2) included as a port of call.
		(iii) High rate of siltation in both Bangladesh and India;	(iii) Extensive and regular dredging needed to maintain safe navigability of the rivers;	Indian side dredging has improved draft to 3 m. Bangladesh side
		(iv) Navigational hazards like shallow waters, narrow width of channels and inadequate navigational aids;	(iv) Investment would be needed to install more navigational aids;	Improvements can be made; investment requirement based on business case
		(v) The vessels presently plying are old and unable to carry containers;	(v) Inland water transport operators to be encouraged to replace their vessels;	90 per cent of the vessels plying are from Bangladesh; adoption and degree of compliance to vessel building standards differ between Bangladesh and India

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		(vi) Poor condition of piers, jetties and other infrastructures;	(vi) Improvement of the condition of piers, as well as jetties and replacement of the old and obsolete cargo handling gear, support craft and cargo carrying vessels are needed;	New RCC Jetty to be readied at Kolkata in 2013
		(vii) Lack of storage facilities, cargo handling equipment, pilot boats, etc.	(vii) New storage facilities to be built at inland ports and cargo handling facilities to be enhanced	New Transit Shed to be readied at Kolkata in 2013 Transhipment facility for container handling at Ashuganj not in place; inland water-cum-road transport connectivity with the north-eastern Indian States through Ashuganj is not possible
		viii) Shortage of skilled manpower;	(viii) Measures for human resource development to be undertaken;	Skills / vocation education standards and certification requirements differ between Bangladesh and India
SIWC 2	Inland Waterways Corridor No 2: Kolkata – Haldia – Raimongal – Mongla – Kaukhali – Barisal – Hizla – Chandpur – Nerayangang – Bhairabbazar – Anmirigang – Markulo – Sherpur – Fenchunganj – Zakiginj – Karimgang (1318 kms)	Same as above for Corridor No 1;	Same as above for Corridor No 1;	Silghat (India under SIWC 1) and Ashuganj (Bangladesh) included as a port of call.
SMG 1	Maritime Gateway No 1 Karachi (Pakistan)	(i) No room for expansion of existing container terminals after doubling the capacity;	(i) In order to meet the container growth rate, other sites for the container terminals need to be planned; (i) Development of 3rd container terminal at KeamariGroyne to handle 4th generation container vessels, redevelopment of existing berths and increasing the depths alongside and increase the capacities of existing container terminals by raising performance per sqmetre;	Pakistan Deep Water Container Terminal project at KeamariGroyne started from April 2009. It can handle 4th generation container vessels. Dredging, reclaimation, breakwater, sand dykes, basin, quay wall and other key contracts awards. Road and rail links have been worked out. Land planned to be reclaimed for containerized general & bulk cargo, EPZ, customs. Land for cargo village has been identified. Targeted to be commissioned by 2013.
		(ii) Dock labour problems of inefficiency and levies/ charges on each tonnage handled at the port;	(ii) Dock Labour Board needs to be dissolved and unions to be brought under Essential Services net;	KDLB cess still in place; labour productivity is an issue; training needed to handle containerized cargo
		(iii) Draft limitations that restricts size of the vessels;	(iii) High capacity dredgers to be procured to clear the arrears and maintain designed depths. There is a need for capital dredging to increase drafts for accommodating larger vessels. City refuse should be treated before it is discharged into adjacent creeks and back waters. The dredged material should be used for reclaiming land;	KPT has increased capability to accommodate and provide safe berthing to 12.5 m draught container vessels on 2 of its container terminals.
		(iv) Non-responsive attitude of railway for clearing port cargo and slow delivery of goods at the destinations;	(iv) Railway tracks to be strengthened, more wagons to be procured and fast track system for goods trains to be programmed;	1.87 km newly laid rail track to transport bulk coal inaugurated in 2010. More collaborative working required between Karachi Port Trust and Pakistan Railways.

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		(v) Congestion in port area and high dwell time due to lack of coordination and facilitation	v) In order to reduced dwell time and congestion of the port, port and custom clearance procedures to be simplified. Awareness of the customers for use of IT/EDI system is needed. Free storage for containers be reduced and customs should enlarge their CARE system to cover whole range of cargo not only containers;	Free period for cargo clearance reduced from 10 to 5 days, average dwell time is less than 7 days. Customs Administration Reform (CARE) and Pakistan Customs Computerized System (PACCS) have simplified container clearance procedures but Agility software has issues. New WEBOC system yet to stabilize.
		(iv)Access roads are congested which has created bottleneck for the port performance;	(iv) Access roads needs to be widened, strengthened. Construct bypasses and overhead corridors for smooth and fast exit of the port traffic;	Congestion yet to ease out; plans being put in place
SMG 2	Maritime Gateway No 2 Port Bin Qasim (Pakistan	(i) The leading channel and harbour basin are subjected to heavy siltation, especially during monsoon season. Accumulation of siltation compels the authority to reduce draft during monsoon period and carry on dredging rest of the period annually. The Port does not have its own dredging fleet; therefore, dredging is contracted out. The cost of dredging also very high, therefore, committed depths are difficult to maintain during non-monsoon period;	(i) The port should develop its own fleet to maintain committed depth and get away from annual decrease and increase of drafts. The trade feels that port must increase the draft so that large bulk carriers could be accommodated from economic operations perspective;	Port is spending around Rs 3.0 billion annually to clean its channel from 5 million cubic meters silt in order to maintain its 11 meter draught. The project to deepen navigation channel for all weather 14 meter draught vessels at a cost of US$ 200 million on Design, Construct and Finance basis has been approved by Government and is under implementation.
		(ii) There is restriction on night navigation through the channel. Vessels waiting time is increased;	(ii) The channel should be properly marked. Instead of buoys, fixed beacons may be installed to prevent thefts and drafting. Night navigation must be started to save waiting time;	Night berthing has started in November 2011 with a vessel of length of 292 meters and draft of 11.7 meters made possible by the induction of three ASD tugs and one fast pilot boat.
		(iii) Dwell time are high. Clearing system still tedious and time consuming;	(iii) EDI/IT system are needed to be installed and customs CARE system to be introduced for reducing dwell time. Container free storage period to be reduced;	PACCS system has issues. New WEBOC system at QICT is stabilizing. Dwell time can be reduced.
		(iv) Shortage of railway wagons. Traders suffer and storage time is increased;	(iv) Railway wagons to be increased for carriage of container and specialized cargo up country. The railway tracks to be replaced and strengthened to increase speed;	More collaborative working required between PQA and Pakistan Railways. Pakistan Int'l Bulk Terminal (PIBT) will be connected to the railway network at Port Qasim.
		(v) Port needs further expansion as the estimated growth rate is higher in Pakistan;	v) New berths and terminals to be added to increase the capacity of the port to meet the anticipated growth;	(v) Construction of LPG, crude oil and products terminal, development of rice and other bulk cargo berths and later on development of more container terminals and a dedicated fertilizer berth;

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SMG 3	Maritime Gateway No 3 JNPT (India)	(i) The port is working at its designed capacity, whereas anticipated growth of containers by the year 2014 is 5.5 million TEUs. Port is also expected with existing space;	(i) There is need for enhancement of port capacity by developing new terminals to alleviate current problem and meet the future developments; (i) Area behind the service berth to be developed, reclamation of land for port expansion acquisition of super post Panamax RMQC and development of a tank farm;	Extension of berth by 330 mtrstowards North by DBFOT basis; 4th Container Terminal work progressing in 2 sequential phases: Phase I capacity 2.4 million TEUs, 12 RMQCs, 36 RTGCs, 4 RMGCs, 120 Tractors cum Trailors; Phase II capacity 2.4 million TEUs, 12 RMQCs, 36 RTGCs, 4 RMGCs, 120 Tractors cum Trailors; Other planned projects: Modernization and capacity addition for JNPT's self operated terminal JNPCT; Development of 5th Mega Container Terminal and other projects like ship repair yard at Nhava island; Port Based SEZ; Development of Marine Terminal for liquid cargo, tripling current capacity; Project for augmenting bulk handling.
		(ii) The road connectivity needs to be improved and there is congestion at Jawahar Customs point, waiting for export clearances;	(ii) Access roads need to be widened and repaired. There is a program underway to improve the connecting road network and this needs to be completed. A review should be undertaken of the export customs procedures to expedite their delivery into the port;	(ii) SPV created with CIDCO and NHAI with NHAI in the lead, 6-8 laning work in progress, construction of grade separators to improve connectivity
		(iii) Railway has capacity problem on Mumbai - Delhi link which slows the speed of container trains;	(iii) Additional train paths need to be provided between Mumbai and Delhi. Existing developments by IR need to be completed urgently;	(iii) Dedicated Freight Corridor (DFCC) project already taken up in 2 phases Delhi – Baroda and Mumbai – Baroda; project expected to be commissioned by 2017; will enable multi-modal high axle load freight movement
		(iv) The port lacks the modern and high performance container handling equipment;	(iv) Container handling equipment to be replaced gradually with high performance equipments and also the port should adopt modern maintenance practices that would lead to reduced equipment down time;	(iv) Orders placed for acquisition of 4 super-post Panamax RMQCs and 1 RMGC; to be commissioned by 2013
		(v) The approach channel and harbour basin is considered to be shallow and narrow for the latest large size vessels, thus effects the economic scale in the maritime transport;	(v) Plan the deepening the JNP Channel to 14 metres depth;	(v) JNPT and Mumbai harbour channel to be deepened to 14 mtr draft in 1st phase. (v) In 2nd phase, the channel is to be deepened to 17mtr; expected completion by Sept 2014
		(vi) High reliance on traditional paper work increases the dwell time and cost of the goods. There is lack of port facilitation, ICES automated clearance system at Jawaharlal Customs has not been reliable;	(vi) Efforts are needed to improve the trade facilitation by development of paperless system and adoption of revised Kyoto Convention;	(vi) ICES automated system implemented by Indian Customs; Cargo scanners and Risk Based cargo clearance system commissioned by Indian Customs, dwell time reduced by about 60 per cent

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SMG 4	Maritime Gateway No 4 Cochin (India)	(i) Cochin port is operating close to its designed capacity. This needs further capacity enhancement in line with projected traffic;	(i) Plans to be made to improve the existing infrastructure and related facilities and to expand the port by means of reclamation and development of South end Willington Island and further development at Vallarpadam The port may adopt 'Landlord' Concept to attract the investment; (i) Develop exclusive economic zone, construct bunkering terminals and further develop port area land;	Master Plan for development of Willingdon Island finalized in 2011; Vallarpadam Port Based SEZ notified and International Container Transhipment Terminal (ICTT) commissioned; Puthuvypeen PBSEZ Single Buoy Mooring facility commissioned by Bharat Petroleum; 5MMTPA LNG Terminal to be commissioned by PLL in 2013; Multi-user liquid terminal bidding in progress; Indian Oil storage tank farm development for LPG is in progress.
		(ii) The channel and basin are subject to heavy siltation due to long distance flow of river Periyar coupled with bank erosions. Round the clock dredging is needed to maintain committed depths;	(ii) Channels and harbour basins required continuous dredging. In order to reduce dredging expenditures, dredging should be contracted out on depth basis and not on dredged material basis; (ii) Dredging for ICTT project at Vallarpadam;	(ii) Channels deepened from 12.5 mtr draft to 14.5 mtr draft (ii) Berth basin dredging for ICTT undertaken (maintenance dredging)
		(iii) Progress made in computerisation in relations to customs, has not been matched by all other authorities, therefore, productivity is reduced and operational cost is increased;	(iii) Capacity building programme are required to be undertaken to improve the efficiency, operational profits and productivity as well;	Progress has been made in this direction.
SMG 5	Maritime Gateway No 5 Tuticorin Port (India)	(i) Due to draft constraints only feeder vessels are calling this port. Containers are therefore transhipped through Colombo or Singapore;	(i) There is need to increase the depths of channel and harbour basin up to 14.6 metres so that main line vessels could call directly;	In 2011, basin was deepened to 14.1 m and channel to 14.6 m.
		(ii) There is also need to expand the port capacity as its present designed capacity is 15.5 million whereas it handled 13.68 million tonnes in 2003-2004;	(ii) Berth No 9 to be constructed, the outer harbour and breakwater developed and an island breakwater constructed. With the projected traffic there is need for development of 2nd container terminal. Later there will be a need for construction of Berth No 10 and further expansion of container terminal and further studies should be undertaken for expansion of the port and enhancing the facilities;	Berth 9 constructed; Development of 2nd container terminal awarded on PPP scheme in August 2012; Feasibility Study for Outer Harbour is being processed and expected to be part of 13th Five Year Plan (2017 – 2022). Berth 10 will be part of this expansion.
		(iii) Access road and service roads are weak and narrow, therefore, remain highly congested, it is effecting efficiency of the port and difficulty to the traffic;	(iii) Condition of the access road and service roads needs to be improved through repairs. In addition the programme for widening and strengthening is also required to be expedited, preferably to provide 4-lanes for existing traffic;	Main roads have been made 4 lane to match with port connectivity with NH 7 and NH 45B. Interrior roads widened and strengthened; Plan for 6 laning during 12th Five Year Plan (2012 – 2017) with own funds and construction of 2 bridges.
		(iv) Ships handling craft are insufficient and existing are old, therefore, berthing problems are encountered;	(iv) Replace two tugs;	Proposal approved for hiring 1 tug (new) as replacement for the exisiting hired tug; Proposal for 1 new tag purchase is prepared and discussed, likely to be approved soon.
		(v) More berths are required;	(v) Construction of North Cargo Berth;	(v) The work is in progress.

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SMG 6	Maritime Gateway No 6 Kolkata/ Haldia (India)	(i) The port has handled 9.95 million tones in the year 2004-2005 which is 14.4 per cent growth. Whereas, rated capacity of the port is 9.8 million tones, this necessitates for further enhancement of the capacity of KDS. On the HDC side its rated capacity is 34.10 million tones whereas it handled 32.57 million tones in the year 2003-2004;	(i) There is need to enhance the port capacity by developing more berths which seems to be not possible due to limitation of space and drafts of approaching channel, therefore, HDS to be developed for meeting the projected traffic of 7.43 per cent annually. There is also need to develop more infrastructure to facilitate the traffic and increase the throughput;	At HDC, 2 Berths commissioned in June and December 2007; 2 RMQC for improved container handling commissioned; Construction of 2 riverine jetties outside the impounded lock being taken up; At KDS 3 Mobile Harbour Cranes, 10 Reach Stackers, 5 RTG inducted; additional RTG cranes, Reach Stackers, Hydraulic Cranes, Tractor-Trailer combination etc. are being procured / hired; IT systems to improve efficiency being implemented
		(ii) The container handling equipments are inadequate and old, that effects the performance of the port;	(ii) Both ports are required to replace certain amount of cargo handling equipment especially container handling cranes (RTGS);	
		(iii)Access road and service roads are congested which effects the flow of port traffic;	(iii) There is a need to develop road infrastructure inside and outside the docks and back up area;	4 laning of Kolaghat - Haldia section (53 km) in progress; 14 km Kona Junction on NH-6 to NS Dock (in KDS) to be taken up
		(iv) Too much siltation is accumulated which creates difficulties of the traffic, navigating through Hooghly River. Draft limitations restrict the entry of main line vessels into the ports. Therefore, the port is confined to serve only feeder vessels;	(iv) Although it is near to impossible to dredge the whole length of 226 kms the channel used for navigation needs to be maintained at least for the committed depths. The accumulation of siltation is natural phenomena, but minimum dredging required keeping the ports operational needs to be ensured;	Kolkata/Haldia Port draught is reducing further due to silting; KDS is planning to construct cargo handling jetties at Diamond Harbour, 70 km downstream from Kolkata; Plan for floating storage dock being developed in common port zone with Orissa
SMG 7	Maritime Gateway No 7 Chittagong Port (Bangladesh)	(i) The river Karnaphuli suffers from heavy siltation, which often change depths of navigation channel considerably, so at times it becomes difficult for the management to control the depths;	(i) The authorities are required to acquire high capacity dredgers to maintain committed depths;	6th FYP states capital and maintenance dredging as objective of CPA Measures to salvage sunken vessels need to be initiated.
		(ii) No night navigation due to lack of pilotage services and marking of navigable channel. Vessels have to wait for day break;	(ii) Proper marking of the navigable channel is needed to commence night navigation and save time;	Night navigation is still not permitted; measures have to be initiated
		(iii) The port is working beyond its rated capacity and remains highly congested;	(iii) Port expansion programmes needs to be undertaken to increase the capacity to cater for present and future projected traffic;	(iii) Construct another container terminal with storage area and high performance equipment, build CFS at Pangaon with capacity of 30,000 TEUs, construct LNG handling facilities in the port, enhance oil products and chemicals handling facilities;
		(iv) Cargo equipment is insufficient for both conventional and specialised cargo handling;	(iv) The port must acquire modern cargo handling equipments to improve its productivity. More container freight stations to be built to relieve congestion for the port area;	Improvements need to be done.
		(v) Dwell time is too high due to poor trade and facilitation. Port and Customs procedures are manual with significant amounts of paper work;	(v) Customs reforms are essentially needed for better service, removal of congestion and reduction in dwell time. IT/ EDI system to be installed to facilitate the port users and improve clearing system;	Dwell time can be reduced.

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
		(vi) Hinterland connectively is poor. Container movements are not properly developed by road. Railway is not fully equipped to handle the port traffic. Inland Water Transport is also not equipped for container transport;	(vi) Roads need to be improved. Access road to be strengthened widened and low load bridges to be redesigned Railway tracks to be strengthened and container carrier wagons and other specialized cargo wagons to be added in the fleet;	Railway link between Pubail and Dhrasram Railway Stations; only 10 per cent of containerized cargo can be sent by rail to Dhaka ICD.
		(vii) Labour unrest, restrictive practices has resulted in poor productivity, congestion and high operational costs. Therefore, charges are high as compared to services provided;	(vii). Labour reforms are required by addressing their social and economic problems, developing human resources and capacity building programmes;	(vii) Deregularise the dock labour and create incentives to improve labour efficiency;
		(viii) Management also lacks the knowledge of modern port practices therefore it adds to problems, quality of services and port performance;	(viii) The port needs its operational efficiency for which experienced professional at top tiers to be appointed Port is needed to adopt privatization policy and landlord concept so that investments are attracted and operational efficiency is achieved;	Operational efficiency of Port can be increased; people related matters kept out side the purview of this study.
SMG 8	Maritime Gateway No 8 Mongla Port (Bangladesh)	(i) The port is working under capacity about 50 per cent. The port has high potential for growth, but due to many deficient constraints, it has not yet attracted the traffic, particularly the container traffic It is due to non-connectivity of railway and improper road net work and many more reasons;	(i) The Mongla Port Authority should launch marketing campaign together with improving and facilities and offer incentives to the trade; (i) Link the railway system with the port;	Khulna – Mongla rail link (53 km) to be established as part of 6th FYP ending 2015
		(ii) The river Paussur and Mongla Canal are subject to heavily siltation therefore, depths are always unpredictable as such vessel are always put on risk while approaching this port;	(ii) River channel and Mongla channel require extensive dredging for which either acquire high capacity dredger or contract out dredging on depth basis to achieve better result with proper monitoring;	Removal of wrecks from Pussur channel planned;
		(iii) The port lacks proper infrastructure, including container handling facilities despite having ports of Kolkata/ Haldia and Chittagong in the vicinity;	(iii) Administrative and operational plans to be made for the port to compete with regional ports;	Included as part of 6th FYP of Bangaldesh; Improved navigational aids and procurement of harbor crafts planned
		(iv) Lighters and tug-boats used for midstream cargo operations are inadequate, old and uneconomical therefore, port becomes expensive and inefficient;	(iv) This is the era of container cargo, therefore, emphasis to be given to improve container handling facilities on the shore as well as midstream operations. Adequate equipments and container lightering barges to be acquired. The best approach should be to invite private investments if paucity of funds is felt. The port must gear up its resources to install modern facilities;	Tugs, lighters and vessel for carriage of container to inland water destinations; Crane, straddle carrier; forklifts and other handling equipment planned; equipment for handling general cargo and containers will be procured for smooth operation.
		(v) Too much paperwork, exhaustive rules and regulations create difficulties for port users;	(v) Customs reforms are essential in this port. Installation of IT system would reduce paper work. The port needs to adopt trade and transport facilitation standards so that it attracts the traffic;	Improvements need to be done.
		(vi) Labour unrest and poor management of port operation affects the productivity performance;	(vi) Labour reforms are necessary for bringing improvements in the port. Experienced professionals to be appointed to manage the port on modern lines with market oriented methodology;	(vi) Deregularise the labour and offer incentives to improve efficiency;

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SMG 9	Maritime Gateway No 9 Male Commercial Harbour	(i) The port is handling traffic well in excess of its rated capacity whereas; projected growth rate is 9.8 per cent annual. It is impossible for the port in the existing conditions to match with the growth, due to limitation of land;	(i) There is great need to expand the capacity on a priority basis for which additional land will be required by reclaiming land from the inner harbour of the west side of the terminal to cater for growing traffic. Until port expansion is undertaken under a Masterplan, in the meantime interim actions are necessary to improve the current situation;	Major expansion work yet to be taken up
		(ii) Limitations of water depths, which restricts accommodating only small size vessels;	(ii) Extend the existing 101 m berth to accommodate larger and more vessels calling at the port;	Yet to be extended.
		(iii) Storage area is limited, therefore, port remains congested. Delays in berthing, high turn-around time and high berth occupancy are major factors affecting port users and with high operational cost;	(iii) Reducing free storage time on container cargo	No Ro-Ro berths. Containers and conventional cargo are being handled at Berth and at Anchorage.
		(iv) Custom and port have all manual system of documentation and examination which results in port congestion and very high clearance time. Customs also examine the containers in the port open storage/stacking areas, which further adds to the congestion; Lack of adequately trained staff in all the areas of port operation further reduces the port efficiency;	iv) Modernise customs and port procedures so that congestion is reduced and dwell time is controlled. This should include installation of IT/EDI systems and a dedicated cargo clearance area, supplemented by implementation of a needs-based human resource plan;	Improvements need to be done.
		(v) No container crane and inadequate handling equipment. Empties are returned, because there is no sufficient export. Therefore, Male is not ideal for containerisation;	(v) Acquire additional equipment to be able to introduce high density staking methods including a high capacity RTG for the container yard be procured and replace the old equipment;	Yet to be done.
		(vi) Lack of coordination between port management and port users. Lack of proper laws to regulate, develop and operate the port. Lack of autonomy for the port management to run the port efficiently;	(iv) Port authority also addresses the issues of management deficiencies and non-cooperative status of the shipping lines and other agencies working in the port. Restructuring the port management so that it has more autonomy by further commercialization or privatization of the port operations;	The regulatory functions of the port were transfered to the Ministry of Transport and Communication and the commercial functions was corporatized as Maldives Ports Limited on 31st July 2008. Maldives Port Limited is a State Owned Enterprise.
SMG 10	Maritime Gateway No 10 Colombo Port (Sri Lanka)	(i) The port is nearing to its rated capacity, occupancy has reached to 75-80 per cent level therefore, at times berthing delays are encountered;	(i) There is immediate need for expansion of JCT and UCT to reduce congestion; (i) Enhance capacity of JCT from 2 to 2.4 million TEUs;	(i) Detailed design has been completed and implementation of this projects will make it possible to berth two 8000 TEU Container ships simultaneously at JCT III and JCT IV.
		(ii) Area of harbour basin is limited, as such its is difficult to manoeuvre large size vessels;	(ii) Engineering solution to be sorted out for removing the limitations of harbour basin. Dredging is also essential for accommodating the new 5th generation vessels coming up on the high seas; (ii) Harbour Basin to be dredged up to 15 metres;	Current capacity at Colombo Port 4.1 million TEUs with dredged depth of 15 m. Hambantota Port minimum basin depth of 17 metres will ease congestion at Colombo Port. SLPA has already diverted trans-shipment traffic (automobiles) from Colombo to Hambantota.

SL NO.	CORRIDORS/ GATEWAYS	BARRIERS AND REASONS FOR ACTION (TAKEN FROM SRMTS 2006 REPORT)	SRMTS 2006 RECOMMENDATIONS	PRESENT STATUS AND FORWARD PLANS
		(iii) Having high throughput and limited yard area, there is significant congestion within the container terminals;	(iii) To meet the future demand of the trade and traffic plans to be made to develop south harbour; (iii) Enhance yard capacity and create incentive schemes to improve port labour. Attract private sector to invest in port capacity and other facilities;	(iii) Capacity will be increased up to 13 million TEUs with the completion of three new terminals in the South Port by 2016
		(iv) Access roads are congested for inland transportation of domestic trade i.e. 30 per cent of the total traffic handled;	(iv) Though the port is mainly used for transhipment cargo but still about 30 per cent of the total handling is for the domestic consumption, therefore, the roads and railway need to be efficient to carry the cargo in and out of the port to reduce congestions. The port area should not be used by the trader as godowns are direct sell of cargo to other parties;	At present A2 Highway connects Colombo – Galle – Hambantota. The six-lane Expressway between Colombo and Matara scheduled for completion in 2013 is proposed to be extended to Hambantota.
		(v) Frequent changes in the management has an adverse effect on overall efficiency and continuity of policies;	(v) Consistency should be developed in decision making;	Studying this has been kept outside purview of this update
		(vi) The port suffers the same port and trade facilitation problem common in the region. It has significant effect on port traffic which leads to higher dwell times especially in relation to CFS activities;	(vi) There is major demand for development and implementation of trade and transport programme. This may be introduced based on automated customs clearance system with DTI capability. Linkage between port, custom and agents on the basis of community-type IT system to eliminate paper work and manual work;	ASYCUDA World with Direct Trader Input (DTI) implemented.
SAG 1	Aviation Gateway No 1: Dhaka (Bangladesh)	(i) There is scope for expansion by means of another runway at Dhaka;	(i) Need to construct a 2nd runway at Dhaka;	The renovation work of HazratShahjalal International Airport which includes building the second runway will need 21 months to be completed.
		(ii) The fleet of F-28 aircraft is old and spares are not available. Major complaints on flight delays and cancellations of intra-regional routes is due to this;	(ii) Need to upgrade the aircraft fleet, possibly by private sector investments;	Fleet modernization of BimanBangladesh remains a challenge. Private operators have increased their operations.
		(iii) No green channel for cargo inspection;	(iii) Investment in improved cargo facilities with improved facilitation measures.	May not be covered in renovation work of HazratShahjalal International Airport
SAG 2	Aviation Gateway No 2:Paro (Bhutan)	(i) Since Paro Airport is located in a narrow valley surrounded by mountains, it can handle only smaller aircraft;	(i) To build an alternative airport with ILS facilities and provisions for landing during the hours of darkness and to explore such locations in south central part of Bhutan	(i) Construction at the Gelephudomestic airport completed in 2012 and maybe capable of receiving international traffic in the future (i) Yongphula and Bapalathang domestic airports would also receive ADB funding.
		(ii) Due to the absence of ILS airport operates only in daylight hours and during favourable weather conditions;	(ii) To improve technical capabilities for the short term at Paro airport;	(ii) Work on modernization of the Voice communication system completed and improvement of power supply system through the procurement of UPS.
		(iii) Terminal passenger handling and baggage services capacity needs enhancement;	(iii) To Improve passenger handling capacities in the short term;	Construction of a second terminal building that would be used only for arrivals and domestic flights is expected to commence shortly and completed by 2015.
		(iv) Difficulties for passengers to purchase Druk Air tickets in other SAARC countries, except in India and Nepal;	(iv) Need to enhance ticketing arrangements;	ASA signed with Maldives; updated ASA signed with India, Bangladesh; flights to and from Nepal

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SAG 3-11	Aviation Gateways No 3 - 11: (India)	(i) Shortage of pilots and flight engineers to keep pace with the anticipated growth;	(i) Additional training capacity required and approaches to ensure that pilots and engineers stay in India;	Increasing pilots retirement age to 65 years - setting up of training institute in Maharashtra - upgradation and modernization of infrastructure at the India Gandhi RashtriyaUdaanAkademi to enhance its training capacity from 40 to 100 pilots and reduce the training period.
		(ii) The airport charges are high compared to nearby regions, especially for low-cost airlines;	(ii) Consider review of charges to promote sector and attract low cost carriers;	Kept outside purview of this study
		(iii) High import dwell time on international traffic with no green channel;	(iii) Improve trade facilitation measures with green channelling of known shippers;	Measures under consideration
		(iv) Shortage of capacity terminals, runways etc to handle future demand;	Delhi (i) New International Terminal Complex Phase II needs to be completed; (ii) Installation of automatic storage and retrieval systems for import handling required; (iii) New conveyor belt for cargo handling; Mumbai (i) International courier terminal required; (ii) New automatic storage and retrieval system for import handling required; (iii) Completion of 7 new parking stands; Chennai (i) New International Terminal Complex Phase II to be completed; (ii) Integrated Cargo terminal Phase III for imports required; (iii) Construction of a common user cargo terminal for domestic required; (iv) Completion of 3 parking stands; Kolkota (i) New International Departure building is required; (ii) Apron extension; (iii) Metro link over head corridor is to be constructed; (iv) New Integrated Cargo Terminal - Phase I under construction to be completed; (v) Perishable cargo centre to be constructed; (vi) New automatic storage and retrieval system for import handling; Trivandrum (i) New International building is required; Bangalore (i) Completion of expansion and modification of terminal building; Hyderabad (i) Extension of apron required; (ii) Extension of arrival terminal required; Cochin (i) New airport to be built by private sector;	Delhi and Mumbai: modernization done through PPP projects; both have been completed with new terminals and state of the art facilities. Chennai and Kolkata: the airports are being modernized and expanded by the Airport Authority of India (AAI). Trivandrum: new terminal constructed Bangalore: new airport commissioned Hyderabad: new airport commissioned Cochin: new international terminal to be constructed and the existing one would be converted to domestic terminal

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SAG 12	Aviation Gateway No 12: Male (Maldives)	(i) Passenger processing facilities at the present airport need to be expanded and the staff need to be trained in all the areas;	(i) Addition passenger processing facilities required and an effective human resource development programne needs to be implemented;	Male International Airport has been privatized. Maldives Airport Company (MACL) will only be responsible for Air Traffic Control, Aviation Security Command and some smaller offices. The agreement signed between the Maldives government and private operator included the upgrading and renovation of the airport up to the standard of a global airport by the year 2014. More than 1200 employees of MACL transferred to private operator as part of this agreement.
		(ii) Cargo handling area needs to be expanded with additional infrastructure as insufficient processing areas and cold store needed;	(ii) Addition cargo processing facilities required;	Private operator announced development plans including reclaiming more land at the northern end of the runway; where a new terminal is to be built. This terminal will consist of 3 separate bridged buildings and will consist of elements that reflect the traditional Maldivian resort. Plans for a separate cargo terminal have been announced.
		(iii) Service between Trivandrum and Male' needs an increase in the capacity flights;	(iii) ASA to be expanded to cover requirements for higher frequencies;	ASA with Bhutan signed in 2012 Revised ASA with India signed in 2008
SAG 13	Aviation Gateway No 13: Kathmandu (Nepal)	(i) Constraints in handling passengers and baggage;	(i) Improvements to baggage handling and passenger processing required;	is in the final stage of installing common user terminal equipment (CUTE) that will enable integrated passenger check-in and e-ticketing for all online airlines
		(ii) Inadequate passenger facilities;	(ii) Improved layout and facilities in passenger departures area;	Improvements need to be done.
SAG 14 -15	Aviation Gateways Nos 14 & 15: (Pakistan)	(i) Air terminal complex at both Karachi and Lahore lack cargo centres and modern cargo handling equipment;	(i) Cargo facilities should be upgraded as required;	Karachi has import, AFU, ICG and export terminals; a chiller facility; Dangerous Goods Storage; 2 cargo scanning machines; transactions are fully automated Lahore is first ever purpose built Air Cargo Complex, capable of handling almost 150,000 tons of cargo; latest cargo scanning machine, CCTV, Strong Rooms, and Cold Room, fitted with the latest fire fighting facilities. A separate room for DGR has been built and an exclusive area has been marked for explosives; has large number of docks for trucks/ transporters with wide open parking area.
		(ii) Modernization of security systems all airports with the state of the art equipment to ensure safety and security;	(ii) Improvements made in security systems;	SAPS Cargo maintains the international security standard.
		(iii) The Civil Aviation Authority of Pakistan has assumed a dual role being both service provider as well as regulator;	(iii) Regulator roles should be separated from operations;	Not done so far.

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SAG 16	Aviation Gateway No 16: Colombo (Sri Lanka)	(i) The facilities that will be inadequate by around 2010 especially the passenger terminal (building and apron), car parks, air navigation systems and utilities;	(i) Supporting infrastructure facilities required especially to promote BIA as a transit hub;	BIA 2nd Phase expansion will include the widening of the existing runway and taxiways, a new state-of-the-art passenger terminal is also being built with separate sections for arrivals and departures.
		(ii) Sri Lanka requires a 2nd international airport. Locations have been identified, but studies have not been finalized. BIA is 32 kms from Colombo and not in close proximity to any centre of tourist attraction limits transit potential;	(ii) Selection of second international airport required;	Construction of 2nd International Airport at Mattala, Hambantota started in November 2009.
		(iii) Problems in attracting major airlines due to lack of infrastructure and inadequate ancillary services, such as high cost bunkering services, poor road transportation and insufficient accommodation;	(iii) Passenger facilities need enhancement;	BIA expansion will double the airport's passenger handling capacity to 12 million, while also expanding cargo handling capacity to 500.000 m from existing 250.000 m

Source: ADB (2012).

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