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Restoring the Asian Silk Route: Toward an Integrated Asia

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Abstract

Until the 13th century, the ancient Silk Route of Asia was the world's most important cross-border artery, at a time when Asia was a major trade and economic center of the world. The “Silk Road” refers to an extensive pan-Asia interconnected network of trade routes across the Asian continent connecting Eastern, Southern, Central, and Western Asia with the Mediterranean, including North Africa and Europe. Over the past decades of globalization, Asia has re-emerged as one of the major economic power of the world. Many Asian economies have become an integral part of international production networks and have benefited from increased growth, trade, and investment. However, Asia’s huge economic potential remains largely untapped due to lack of region-wide connectivity. This paper argues that lack of full regional connectivity is one of the major constraints hindering regional growth and integration in Asia, as well as with the rest of the world. One of the conclusions of this paper is that Asia must strengthen its physical connectivity to make it a conduit for international trade though restoring Asian Silk Route. This paper deals with current trade and transport integration issues among the countries in Asia as well as challenges that need to be addressed in order to achieve regional connectivity through an Asia-wide transport infrastructure.

JEL Classification: F1, F5, R1, R4

Contents

1. INTRODUCTION[1]

Over the past decades of globalization, Asian economies have been growing rapidly. Most Asian economies have become part of growing international economic networks through exchange of goods, services, and capital. People in Asian countries by and large have benefited from this globalization process. Still, around 900 million people in the region are estimated to live in absolute poverty, living on less than US$1.25 a day (Bauer, Hasan, Magsombol, Wan 2008). This means that two thirds of the world's poor live in Asia and the Pacific (UNESCAP 2008a). On the other hand, with around four billion people in 2006, Asia is the most populous region in the world, accounting for 60% of world population. In production and trade, Asia accounts for about one fourth of world trade and world gross domestic product (GDP), respectively.[2] In spite of their rich resources, Asian countries have not been able to harness their vast potential.[3] There are many reasons for this, but, in particular, infrastructure bottlenecks within countries and lack of regional infrastructure connecting countries, such as transport and energy networks, have been key barriers to Asia's integration.[4]

Regional transport infrastructure is typically seen as one of the major determinants of the economic integration process (Vickerman 2002; Kuroda, Kawai, and Nangia 2008). It enhances international and regional connectivity through the free flow of goods and factors across borders, allowing countries to benefit from a better relocation of resources. For example, transportation networks linking neighboring countries enlarge market size and help national economies to grow further through higher trade and production.

Recent studies in Asia show that the countries with geographical contiguity could potentially benefit substantially from higher trade, provided infrastructure and trade costs are improved (see De 2008a, 2008b; Brooks 2008b; Brooks and Hummels 2009). Another set of studies indicates that while the globalization process results in an increase in the number of international exchanges of products and services in both extensive and intensive margins, the identification and establishment of Asia's transportation networks (cross-border or otherwise) have become increasingly important (see Brooks 2008a, 2008b; Hummels 2009). Nevertheless, all unequivocally call for efficient and integrated transport and logistics networks for enhancing movement of goods and services, particularly when Asia has been witnessing rising fragmented production and economic networks across borders. The need for integrated transport and logistics networks is also quite pressing at a time when ongoing global financial turmoil is making it necessary for Asian countries to strengthen their regional infrastructure networks in order to enhance regional demand.

The ancient Silk Route that stretched from Asia to Europe was, until the 13th century, among the world's most important cross-border arteries. As trade and investment are once again flowing rapidly between Asia and other parts of the world, a modern or restored "Silk Road" is needed to help Asia meet its full potential.

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[1] An earlier version of this paper was presented at the international conference on "Southern Silk Route: Historical Links and Contemporary Convergences" held in Kolkata (Calcutta), India from 2–5 August 2008, and at the international conference on "Building the Southwest Corridor of the Third Asia-Europe Continental Land Bridge" held in Beijing, the People's Republic of China, from 24–25 November 2008. The authors are grateful to conference participants for their useful comments.

[2] As of 2006, calculated based on World Development Indicators CD-ROM 2008 (World Bank, 2006).

[3] A good number of studies have dealt with Asia's trade potential in the contemporary period. Please refer, for example, to Armstrong, Drysdale, and Kalirajan (2008).

[4] A vast literature exists on the impact of infrastructure on trade and regional integration in Asia, (see ADB 2006a, 2006b; De 2005, 2006; Brooks and Menon 2008; Francois, Manchin, and Pelkmans-Balaoing 2009; Arnold 2009; and ADB 2009a). Most of these studies and reports indicate that lack of an integrated regional connectivity is one of the major constraints hindering regional trade, growth, and integration in Asia.

The “Silk Road” or “Silk Routes” refers to an extensive pan-Asia interconnected network of trade routes across the Asian continent connecting Eastern, Southern, Central, and Western Asia to the Mediterranean world, including North Africa and Europe since the first century BCE (Elisseeff 1998). The so-called “Silk Routes” were not only conduits for silk, but for many other products and were also very important paths for cultural and technological transmission by linking traders, merchants, pilgrims, monks, soldiers, nomads, and urban dwellers from Asia to the Mediterranean Sea for thousands of years. Extending over 8,000 kilometers (km), the routes enabled people to transport trade goods, especially luxuries such as silk, satins, musk, rubies, diamonds, pearls, and rhubarb from the People’s Republic of China (PRC), India, and other Asian countries to the Mediterranean and other parts of the world. Trade along the Silk Road was a significant factor in the development of the great civilizations of the PRC, Egypt, Persia, Arabia, India, Rome, and Byzantium and helped to lay the foundations for the modern world in several respects. Although the term “Silk Road” implies a continuous journey, very few travelers traveled the route from end to end. For the most part, goods were transported by a series of agents on varying routes and trade took place in the bustling mercantile markets of the oasis towns. Gradually, it became a confluence of culture, civilization, and trade and commerce.

Asia now faces a new world economy which bears little resemblance to the one that prevailed in the old Silk Route time. In the contemporary world, falling communication and transport costs coupled with technological development has reshaped the comparative advantages of economies (Krugman 1991, 1993). Putting it differently, the benefits of international comparative advantages of Asian economies may be wiped out if they are not complemented by regional advantages such as regional connectivity. Asia is standing at a juncture when regional connectivity has yet to take a true pan-Asian shape.

This paper considers the contemporary version of the Silk Route—namely, pan-Asian land transport networks, such as pan-Asian highways and pan-Asian railways. This paper attempts to understand the current profile of trade and transport integration among Asian countries and to deal with the issues and challenges that need to be addressed in order to establish Asia-wide transport connectivity. The rest of the paper is organized as follows: Section 2 discusses intra-Asian trade flows, their profile and level of integration, and transportation costs. Section 3 presents the intra-Asian transportation networks, particularly cross-border and overland links. Having discussed the profile of trade and transportation integration, Section 4 presents selected barriers to trade and transportation from the broader perspective of regional cooperation that need to be addressed in integrating Asia effectively and beyond. Finally, conclusions are drawn in Section 5.

2. ASIA’S TRADE FLOWS: A RISING TREND

Trade volume in Asia has been rising fast since the early 1970s. Asia today contributes one fourth of world trade in goods, after Europe (Table 1), where about 50% of Asia’s exports are conducted within the region (Table 2). In parallel to growing intra-regional trade, Asia’s inter-regional trade has also grown over time. Europe (18.4%) and North America (21.4%) have become the two largest destinations of Asia’s exports (Table 2). The growth of the PRC’s trade is unparalleled. With a world share of about 7% in 2006, the PRC is driving Asia’s exports, be they intra-regional or otherwise. India’s rise in the late 1990s has further fuelled Asia’s trade. There have been some important and distinct changes in Asia’s trade patterns.

Table 1: World Merchandise Trade by Region and Selected Economy[1]

	1948	1953	1963	1973	1983	1993	2003	2006
	Value (US$ billion)							
World	120.75	168.88	320.60	1173.77	3719.60	7444.70	15021.30	23896.00
	Share (%)							
Europe	40.36	41.57	49.95	52.12	43.82	45.07	45.59	42.64
Germany[2]	1.81	4.87	8.62	10.42	8.67	9.71	9.03	8.46
France	8.60	7.92	6.91	6.40	5.24	5.79	5.27	4.64
UK	8.32	6.92	6.55	5.73	5.31	5.36	4.69	4.11
Italy	2.17	2.33	3.94	4.26	4.11	4.26	3.97	3.55
Asia	13.95	14.24	13.32	14.90	18.77	24.67	24.60	26.38
PRC	0.75	1.40	1.09	0.94	1.17	2.63	5.67	7.37
Japan	0.78	2.18	3.80	6.42	7.35	8.11	5.69	5.15
India	2.25	1.34	1.28	0.52	0.62	0.60	0.88	1.23
Australia and New Zealand	3.28	2.76	2.30	1.85	1.41	1.46	1.30	1.30

Note: The People's Republic of China (PRC)

1. Between 1973 and 1983 and between 1993 and 2003 export shares were significantly influenced by oil price developments.

2. Figures refer to the Federal Republic of Germany from 1948 through 1983.

3. EAS countries consisting Association of Southeast Asian Nations (ASEAN) plus PRC, Japan, India, The Republic of Korea, Australia, and New Zealand.

Source: WTO (2007)

Table 2: Intra- and Inter-regional Merchandise Trade, 2006

Origin	Destination							
	North America	South and Central America	Europe	CIS	Africa	Middle East	Asia	World
	Value (US$ billion)							
World	2355	378	5118	290	283	381	2839	11783
North America	905.3	107.3	279.3	8.3	21.7	42.1	314.1	1678.3
South and Central America	135.0	111.5	86.4	6.1	11.3	7.9	61.8	429.9
Europe	430.3	66.6	3651.5	141.6	120.2	128.9	366.4	4963.0
CIS	24.2	7.6	246.5	80.3	5.7	13.3	45.6	425.6
Africa	79.8	11.3	148.1	1.4	32.8	6.3	72.6	363.3
Middle East	72.3	4.4	102.8	3.0	20.9	71.6	339.6	645.5
Asia	708.3	69.5	603.8	49.7	69.9	111.4	1638.5	3277.8
Share of regional trade flows in each region's total merchandise exports (%)								
World	20.0	3.2	43.4	2.5	2.4	3.2	24.1	100.0
North America	53.9	6.4	16.6	0.5	1.3	2.5	18.7	100.0
South and Central America	31.4	25.9	20.1	1.4	2.6	1.8	14.4	100.0
Europe	8.7	1.3	73.6	2.9	2.4	2.6	7.4	100.0
CIS	5.7	1.8	57.9	18.9	1.3	3.1	10.7	100.0
Africa	22.0	3.1	40.8	0.4	9.0	1.7	20.0	100.0
Middle East	11.2	0.7	15.9	0.5	3.2	11.1	52.6	100.0
Asia	**21.6**	**2.1**	**18.4**	**1.5**	**2.1**	**3.4**	**50.0**	**100.0**
Share of regional trade flows in world merchandise exports (%)								
World	20.0	3.2	43.4	2.5	2.4	3.2	24.1	100.0
North America	7.7	0.9	2.4	0.1	0.2	0.4	2.7	14.2
South and Central America	1.1	0.9	0.7	0.1	0.1	0.1	0.5	3.6
Europe	3.7	0.6	31.0	1.2	1.0	1.1	3.1	42.1
CIS	0.2	0.1	2.1	0.7	0.0	0.1	0.4	3.6
Africa	0.7	0.1	1.3	0.0	0.3	0.1	0.6	3.1
Middle East	0.6	0.0	0.9	0.0	0.2	0.6	2.9	5.5
Asia	6.0	0.6	5.1	0.4	0.6	0.9	13.9	27.8

Note: Commonwealth of Independent States (CIS)

Source: WTO (2007).

Table 3: Merchandise Exports of Asia by Products, 2006

	Exports to World		Share in world exports			Intra-Asia exports		
	2002	2006	2002	2006	Up/ Down	2002	2006	Up / Down
	(US$ billion)		(%)			(%)		
Total merchandise exports	1624.51	3277.79	25.79	27.82	Up	49.05	49.99	Up
Agricultural products	108.64	179.08	18.53	18.96	Up	61.32	57.06	Down
Food	85.75	135.93	18.19	18.01	Down	59.74	54.48	Down
Fish	19.81	30.27	35.78	36.67	Up	62.29	50.64	Down
Other food products	65.94	105.67	15.85	15.72	Down	58.98	55.57	Down
Raw materials	22.90	43.14	19.95	22.74	Up	67.25	65.25	Down
Fuels and mining products	114.26	334.66	14.53	14.70	Up	82.44	79.84	Down
Ores and other minerals	16.68	53.37	25.69	26.61	Up	70.56	79.26	Up
Fuels	76.74	215.30	12.56	12.16	Down	85.90	81.04	Down
Non-ferrous metals	20.84	65.98	18.82	21.56	Up	79.17	76.45	Down
Manufactures	1360.31	2683.21	28.62	32.50	Up	45.36	45.73	Up
Iron and steel	34.12	105.83	23.62	28.30	Up	73.77	57.89	Down
Chemicals	106.46	235.80	15.92	18.90	Up	64.92	64.61	Down
Pharmaceuticals	9.84	21.17	5.88	6.81	Up	34.35	30.00	Down
Other chemicals	96.62	214.63	19.27	22.91	Up	68.03	68.03	No Change
Other semi-manufactures	95.58	188.42	20.53	23.71	Up	45.77	41.78	Down
Machinery and transport equipment	800.00	1565.21	31.27	35.87	Up	44.93	45.71	Up
Office and telecom equipment	423.74	801.40	49.93	55.22	Up	50.18	51.00	Up
EDP and office equipment	166.13	283.10	50.70	54.99	Up	39.50	39.04	Down
Telecommunications equipment	112.26	251.51	41.25	46.22	Up	36.56	35.47	Down
Integrated circuits	145.34	266.78	58.40	68.00	Up	72.90	78.33	Up
Transport equipment	176.85	334.34	19.78	22.83	Up	21.59	23.50	Up
Automotive products	123.69	223.55	19.70	22.00	Up	19.40	21.50	Up
Other transport equipment	53.16	110.80	19.98	24.70	Up	26.71	27.53	Up
Other machinery	199.41	429.47	24.44	29.66	Up	54.49	53.15	Down
Textiles	67.48	104.36	43.73	47.74	Up	56.09	47.16	Down
Clothing	92.84	162.84	45.72	52.29	Up	24.63	22.34	Down
Other manufactures	163.83	320.75	29.36	33.89	Up	35.93	41.62	Up
Personal and household goods	40.81	73.69	32.99	37.51	Up	21.81	20.42	Down
Scientific and controlling instruments	25.64	84.44	20.88	35.12	Up	51.60	61.35	Up
Miscellaneous manufactures	97.39	162.62	31.27	31.92	Up	37.73	40.99	Up

Note: Electronic and Data Processing (EDP)

Source: WTO (2007).

First, serving the growing international demand of goods and services over the last several decades, Asian economies have undergone a structural change from labor-intensive to capital-intensive technology-driven industrial production. Asia's trade is now conducted more in manufactures than services.

Second, Asia's trade in manufactures is quite large and there has been a sharp expansion in trade in most manufactures from Asia. Unlike exports in agriculture and fuels and mining products, exports in manufactures are mostly concentrated in Asia. Countries in Asia are gradually specializing in trade in intermediate and capital goods. Table 3 shows that about 33% of world exports in manufacturers in 2006 (US$2.68 trillion) was contributed by Asia, increased from about 29% (US$1.36 trillion) in 2002. Except for trade in food and fuels (which reduced marginally in last five years), a large part of trade in manufacturers is increasingly sourced from Asia. In some manufactures, Asia is the single major source. For example, about 68% of world trade in integrated circuits (US$267 billion in 2006) originated in Asia, which was about 58% in 2002. Office and telecom equipment and textile and clothing are the two major commodity groups that dominate Asia's exports to the world. Asia's share in world exports in manufactures ranges from lowest 7% in pharmaceuticals to highest 68% in integrated circuits.

Third, the changing composition of Asia's trade has become an important issue. Integrated circuits has the highest share (78.33%) in intra-Asia exports in manufactures, whereas the personal and household goods has the lowest share (20.42%).. Intra-Asia exports in agriculture and fuels and mining products are even less than their exports to the world.

To summarize, a majority of traded products in Asia are intermediate and capital goods, feeding a country's production (import demand) where variations in trade cost elements, could be crucial for the region's competitiveness in manufactures (Kuroiwa 2006). Pan-Asian connectivity would, therefore, play an important role in sustaining Asia's trade growth. Sustaining growth would also require better, faster, and more reliable connectivity for those goods which are transport-intensive, demand-driven, and traded more than others. To evaluate pan-Asian transportation needs, it is useful to evaluate the weight-value ratio and barriers to trade (tariff vs. transport costs). This issue is discussed in the next section.

2.1 Weight-Value Ratio of Trade in Asia

The weight-value ratio of a product is the major determinant of transport cost. Hummels and Skiba (2004) concluded that a 10% increase in product weight-value leads to a 4% increase in ad-valorem shipping cost. Most Asian countries are net importers of weights in merchandise trade (De 2009). The variations in weight-value ratio would help us evaluate the transportation needs in Asian countries more precisely. We report the weight-value ratio (measured in twenty-foot equivalent unit [TEU] per US$10,000) for each country's imports in Table 4.

Table 4: Estimated Weight-Value Ratio (TEU per US$10000), 2005

Commodity groups	PRC	India	Indonesia	Japan	Malaysia	Republic of Korea	Thailand
Transport equipment	417.436	12.086	192.917	1301.104	246.684	148.328	130.887
Automobiles and components	1.957	2.330	1.443	2.330	19.922	11.318	2.266
Chemicals	0.815	0.557	1.066	0.693	18.682	0.611	0.882
Electrical and Electronics	2.216	0.458	7.098	3.202	4.164	4.244	1.848
Electronic integrated circuits	0.092	1.732	9.523	0.508	4.636	0.592	0.195
Food Products	20.728	8.964	0.975	0.349	5.676	0.916	1.957
Fuels, mining and forest products	0.049	0.052	0.435	0.143	1.926	0.190	0.156
Iron and steel	0.365	0.206	0.055	0.142	0.523	0.090	0.072
Leather	2.217	3.799	13.233	0.541	7.087	1.433	4.656
Machinery and mechanical appliances	0.031	0.967	0.039	0.081	0.136	0.035	0.046
Metal	0.118	1.063	0.444	0.207	0.158	0.082	0.112
Office and telecom equipment	0.020	0.010	0.428	0.017	0.039	0.009	0.047
Paper and pulp	0.406	1.419	0.770	1.097	0.261	0.674	0.482
Pharmaceuticals	0.449	0.375	0.033	0.051	0.476	0.031	0.097
Rubber and plastics	0.019	0.003	0.057	0.006	0.009	0.120	0.052
Textile and clothing	0.000	0.000	0.008	0.001	0.022	0.002	0.008

Note: Twenty-foot equivalent unit (TEU), The People's Republic of China (PRC)

Source: De (2009).

First, it appears that the heavier the goods, the larger the transportation cost is, except in Japan. As Japan is a developed economy, it imports much less weight, implying less transport congestion and subsequently less transportation costs due to its relatively superior quality of infrastructure.

Second, Asian countries have higher trade in automobiles and transport equipment. As a result, transport equipment across all Asian countries has a high weight-value ratio. Japan shows the highest weight-value ratio (1301.10) in automobiles and transport equipment.

Third, the PRC's imports are comparatively heavy in transport equipment, electrical and electronics, automobiles and components, food products, and leather, which are basically heavier raw materials and intermediate products used as inputs for high value production and exports by the PRC. In contrast, except for transport equipment, automobiles and components, and electrical and electronics, Japan's imports are mostly low weight finished products.

Fourth, all the Asian countries considered here (except Japan) are importers of weight of semi-finished capital goods and raw materials.

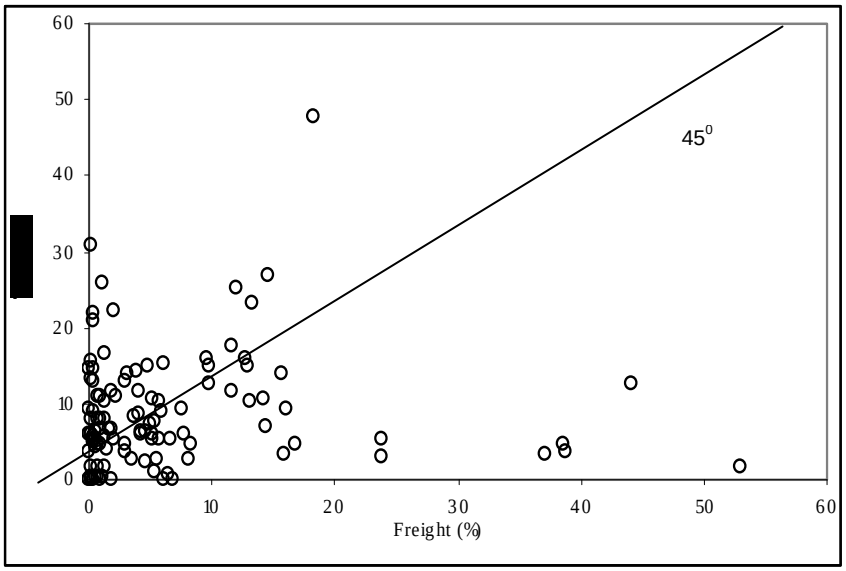
2.2 Tariffs vs. Transport Costs in Asia's Trade

The significance of studying a pan-Asian transportation network is that prices of the vast majority of traded goods are exogenous (uncontrollable). On one hand, Asia conducts increasingly higher trade, and higher trade costs mean landed price of imports (or exports) is more expensive. On the other hand, Asia's trade covers an increasingly large number of intermediate and capital goods, and expensive trade resulting from higher trade costs escalates the cost of production (Hummels 2009).

With this rising trade, Asia is witnessing a reduction in tariffs in manufactures. However, unlike developed economies, transport costs continue to impede the trade in Asia.

Propensity to increase trade is likely to be higher with the reduction of transport costs, rather than tariff reduction (see De 2008a, 2008b). Tariffs in Asia, although showing a declining trend, are still a crucial barrier to trade,[5] and except transport equipment, which is classified as project goods used for infrastructure development, trade in all other sectors is influenced by tariffs, transport costs, and infrastructure quality.[6] This can be seen in Figure 1. The congestion at the origin and high dispersions in Figure 1 clearly indicate that both tariffs and freight rates in Asia are high. Therefore, Asia's integration agenda has to expand beyond tariffs.

Figure 1: Tariff and Transport Cost Incidence in Asia, 2005



Note: Both tariff (weighted average) and freight (ocean) rates are trade-weighted averages for the bilateral merchandise trade among seven Asian countries in 2005.

Source: De (2009).

On the demand side, Asia has been witnessing a sharp rise in merchandise trade and has been showing greater regional trade interdependence on a large variety of goods. However, on the supply side, lack of regional connectivity has continued to impose higher trade costs, thus impeding trade growth and eroding the benefits of trade liberalization in Asia. There is potential for improving regional transport networks to reinforce regional production and trade. Any attempt to deeper integrate the economies of the region thus holds high promise if accompanied by initiatives that help integrate the region through improved cross-border transportation networks.

3. TRANSPORT INTEGRATION IN ASIA: SLOW BUT STEADY PROGRESS

An Asia-wide transport network is essential for Asian countries to get their goods to market more efficiently, quickly, and cheaply, but, its overall physical progress has so far been limited. There are many social, political, economic, and technical factors behind its slow progress. Technical factors affecting transport integration in Asia in general include: absence of integrated and harmonized railway networks (e.g., Myanmar–India and PRC–Viet Nam), absence of adequate and active overland official trade outlets and associated facilities (e.g., India–Bangladesh and PRC–Lao People's Democratic Republic [Lao PDR]), absence of

[5] According to De (2008b), a reduction in tariffs by 10% would increase bilateral trade by about 3–4% in Asia.

[6] For transport equipment, bilateral tariffs have a less significant role as trade is conducted as project goods that enjoy "duty free" market access (De 2008b).

trade facilitation (soft infrastructure) policy measures (especially in the interior part of Asia), and absence of transit trade (in the whole of Asia with some exceptions).

Efforts to develop an Asia-wide transport network started as early as the 1960s. However, little progress was achieved until the 1980s (UNESCAP 2006). During the 1980s and early 1990s, the region experienced significant political and economic changes which ultimately have helped increase the trade and mobility of production factors in Asia. Subsequently, the demand for physical connectivity increased during the 1990s to support the export-led growth strategy and fragmented production network which later fuelled successful implementation of some transport corridors in the Greater Mekong Subregion (GMS) and elsewhere in Asia. Nevertheless, the need for full regional connectivity in Asia is still unmet. This also highlights the significant role regional cooperation can play in enhancing physical connectivity.

3.1 Progress in Asian Land Transport Infrastructure Network

In 1992, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) initiated the Asian Land Transport Infrastructure Development (ALTID) project with the aim of improving and expanding transport and communications links within the region, as well as with other regions. The ALTID project is comprised of the Asian Highway (AH), the Trans-Asian Railway (TAR), and the facilitation of land transport. At the initial stages of the ALTID project implementation, the main emphasis was placed on the formulation of the AH and TAR networks and the establishment of related standards and requirements. AH and TAR could become the major building blocks of the development of an international integrated intermodal transport system in Asia and beyond.

3.1.1 Asian Highway Network

The process of identifying the AH routes began in the late 1950s, but it has only seen relatively better progress only after 1992 when the ALTID project was initiated. Initially, 69,000 km of AH routes were identified with the participation of 18 member countries: Afghanistan, Bangladesh, Cambodia, the PRC, India, Indonesia, the Islamic Republic of Iran, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam (see UNESCAP 1995). From 1995 to 2002, an additional 72,000 routes were identified and added to the AH[7] with participation of new members from Central Asia and the South Caucasus, the Russian Federation, and the remaining part of Asia. These routes formed the northern corridor of the AH, effectively linking Northeast Asia with Central Asia, the Caucasus, and Europe. Finally, with the participation of Japan in 2003, the entire network of the AH was extended to cover a total of 141,000 km of highways in 32 countries (see Map 1).

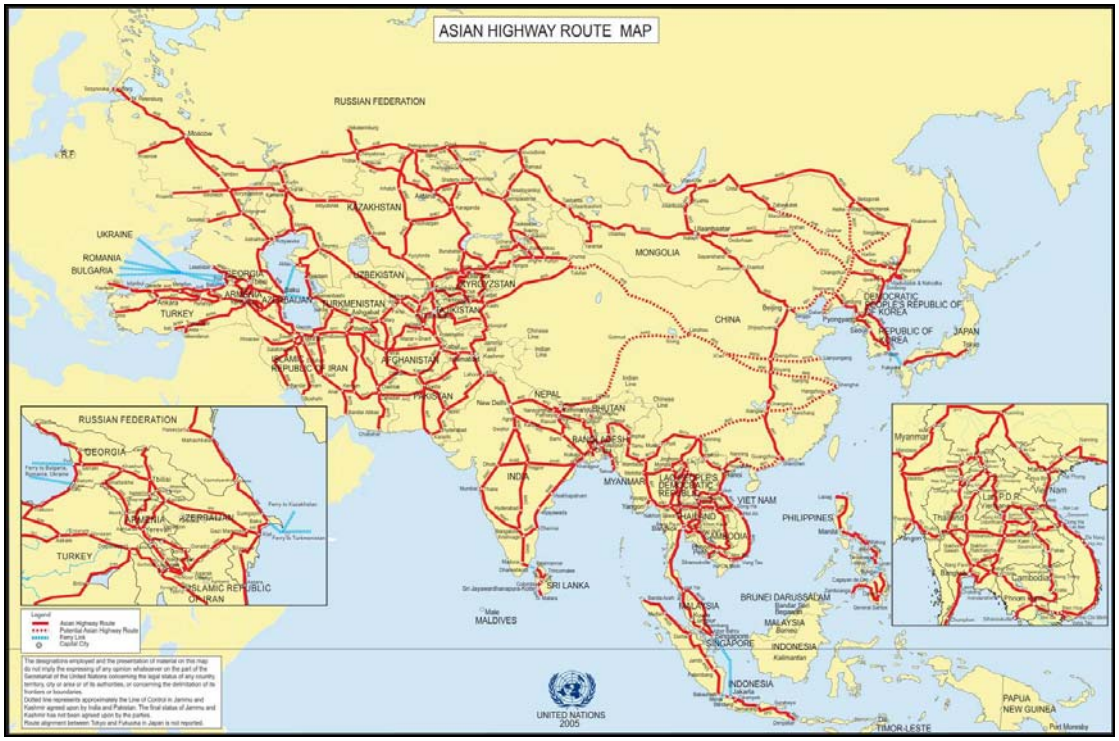
With progress in the formulation of the AH, it was considered necessary to formalize the network through an intergovernmental agreement to ensure effective coordination of national planning with regional requirements and regular region-wide reviews and updating of the network. Following a series of negotiation meetings among experts and representatives of member states, the Intergovernmental Agreement on the Asian Highway Network was adopted at an intergovernmental meeting held in November 2003, followed by a signing ceremony organized during the 68th session of UNESCAP in Shanghai, PRC in April 2004. Finally, the Intergovernmental Agreement on the Asian Highway Network[8] entered into force on 4 July 2005, and as of 31 March 2008, the agreement has been signed by 28 countries, of which 22 are contracting parties (see Appendix, Table 1). The main obligations of the

[7] During this period, two further studies were done on the AH, one in 1996 and another in 2001 (UNESCAP 1996, 2001a).

[8] The full text of the AH Agreement is available from http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf.

contracting parties to the AH agreement are to adopt the AH network as a coordinated plan for the development of highway routes of international importance, to bring the AH routes in their respective countries in conformity with classification and design standards as provided by the agreement, and to facilitate navigation along the routes through the placement of adequate signage.

Map 1: Asian Highway Network

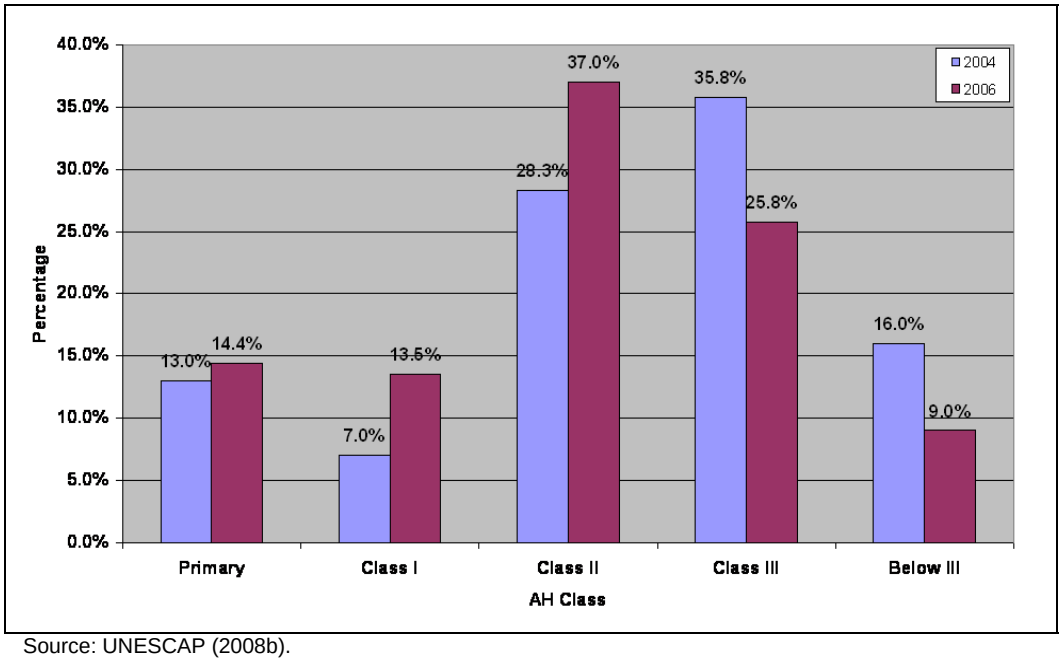


Source: UNESCAP (2008b).

Since 2004, significant progress has been achieved in developing and upgrading the AH network. During 2005 and 2006, about 10,000 km of the AH in member countries has been upgraded to meet minimum standards and other sections have been improved to higher class standards.[9] However, according to UNESCAP (2008b), about 12,000 km (or 9% of the network) still remain below minimum standards (see Figure 2).

[9] Asian Highways are classified into 4 classes. Primary class refers to access-controlled highways. Class I refers to 4 or more lanes roads with asphalt or cement concrete pavement. Class II roads are 2 lanes roads paved with asphalt or cement. Class III roads are also 2 lanes roads, but with double bituminous treatment. Class III roads are regarded as the minimum desirable standard and upgrading of pavement to asphalt concrete or cement concrete is encouraged.

Figure 2: Status of the Asian Highway Network, 2007



Source: UNESCAP (2008b).

About US$26 billion has been invested or committed for the development of various sections of the AH routes in member countries (UNESCAP 2008b). The study also identified 121 priority projects to upgrade and improve about 26,000 km of the AH, which require around US$18 billion of investment. To help support financing of AH routes, the Asian Highway Investment Forum was set up by UNESCAP in 2007 to discuss investment opportunities and prospects in member states, different approaches to project financing, and the experiences of international financing institutions and the private sector in financing, development, and operation of major highways. A working group on the Asian Highway was also established to enforce the agreement and consider any amendments. The working group also provides a forum to discuss policies and issues related to the development of international highways in member states. A forum of Asian Transport Ministers, constituted by UNESCAP, is envisaged to play significant role in providing strategic guidance for the regional development of highways in Asia.

The Intergovernmental Agreement on the Asian Highway Network has made it easier for member countries to secure grants and loans to upgrade the AH routes. The upgrading and development of the AH has been receiving priority attention from member countries and is being incorporated into national plans. For example, the Fourth Five-year Development Plan (2005–2009) of the Islamic Republic of Iran envisages development of the Asian Highway; the AH routes have received priority attention in the Association of Southeast Asian Nations (ASEAN), with the result that the AH routes in Indonesia, Malaysia, Singapore, and Thailand now conform to the AH or higher standards, and all AH routes in Cambodia and Lao PDR are committed for upgrading with construction in progress; the AH connecting four metropolitan cities, New Delhi, Mumbai, Kolkata, and Bangalore, and the North-South corridor are being upgraded to four lanes under the National Highways Development Project in India; the international community is assisting Afghanistan in rehabilitating and restoring most of the AH routes to re-establish regional connectivity; Mongolia is implementing the Millennium Road Project which includes the development of all Asian Highway routes in Mongolia; and the PRC is developing 35,000 km of a high-standard national truck highway system which includes the majority of AH routes in the PRC. The AH will continue to serve as a coordinated plan for the development of the road network in Asia, being given priority for development, upgrading, and financing.

3.1.2 Trans-Asian Railway Network

The TAR was originally conceived in the 1960s. Its medium- to long-term objective was to provide a continuous 14,000 km rail link between Singapore and Istanbul, Turkey, with possible onward connections to Europe. Following the endorsement of the ALTID project in 1992, the original concept was extended into a regional network to cover the entire Asian continent, linking to the pan-European rail network at various locations and offering connections to major seaports in Asia and Europe, as well as providing sea access to landlocked countries either directly or in combination with highways.

In view of the varying standards used by national railways and the differences in their level of technical development, UNESCAP adopted a step-by-step approach to identify the TAR network. For practical reasons, it was divided into four major components reflecting economic and (or) geographic subregions, as well as potential traffic flows, and each component was studied separately.

The progress of the TAR has been very similar to the AH. From 1995 to 2001, about 80,900 km of railway routes under the TAR were identified. The first study was completed in 1995 to define the northern corridor (32,500 km), connecting the rail networks in the PRC, Kazakhstan, Mongolia, the Russian Federation, and the Korean peninsula (UNESCAP 1995).[10] A second study defined a subregional railway network (12,600 km) in the ASEAN and Indochina area (UNESCAP 1996b). A third study identified the southern corridor (22,600 km) connecting Thailand and the southern PRC province of Yunnan with Turkey, through Myanmar, Bangladesh, India, Pakistan and the Islamic Republic of Iran, with Sri Lanka also part of the corridor (UNESCAP 1999b). In 2001, the north-south corridor (13,200 km) linking Northern Europe and the Persian Gulf through the Russian Federation, Central Asia, and the Caucasus was studied (UNESCAP 2001b).

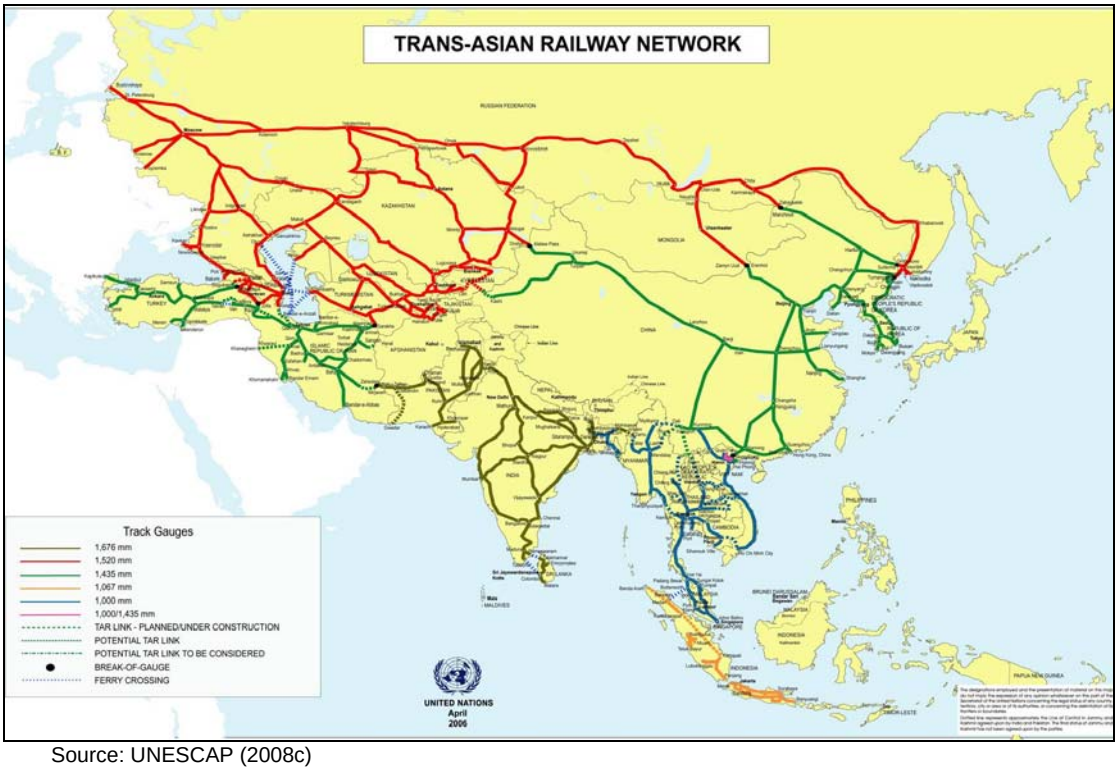
Building on the success of the Intergovernmental Agreement on the Asian Highway Network, the TAR network has also been formalized through a related intergovernmental agreement. Following an extensive negotiation process from 2004–2005, the Intergovernmental Agreement on the Trans-Asian Railway Network[11] was adopted by the 62nd session of the UNESCAP in Jakarta on 12 April 2006 through Resolution 62/4. A formal signing ceremony of the agreement was organized on 10 November 2006 during the Ministerial Conference on Transport held in Busan, Republic of Korea and 18 member States signed on that occasion. The agreement has now been signed by 22 countries of which six have ratified or accepted it.[12] The current TAR network covers 114,000 kilometres of railways in 28 member countries. The Intergovernmental Agreement on the Trans-Asian Railway Network will come into force on 11 June 2009 with the PRC becoming the eighth country approving the agreement (UNESCAP 2009).

[10] The northern corridor was refined later through UNESCAP (1999).

[11] The full text of the TAR Agreement is available from http://www.unescap.org/ttdw/common/TIS/TAR/TARintergovagreement.asp.

[12] See, Appendix 2 for the list of countries signed the TAR.

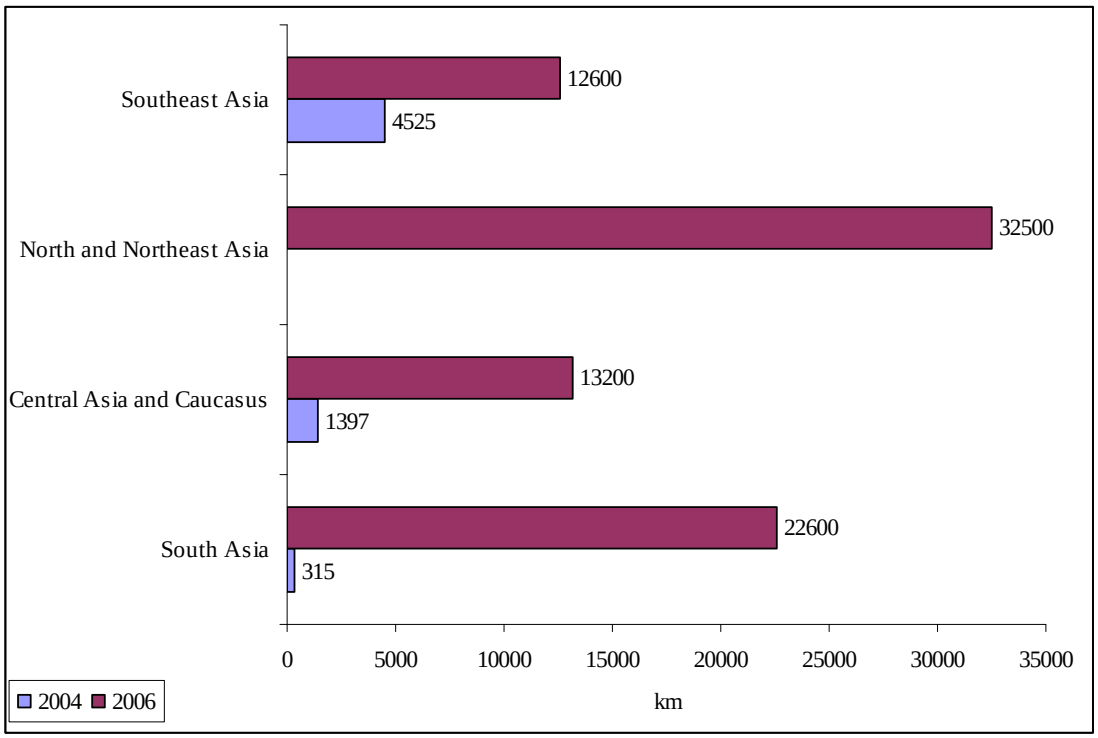
Map 2: Trans-Asian Railway Network



Source: UNESCAP (2008c)

In parallel with the formulation and formalization of the TAR network, UNESCAP has promoted the operational integration of national railway networks through the implementation of a series of demonstration runs of container block-trains along the TAR northern corridor. During 2003–2004, four demonstration runs were successfully implemented: from Tianjin (PRC) to Ulaanbaatar (Mongolia), from Lianyungang (PRC) to Almaty (Kazakhstan), from Brest (Belarus) to Ulaanbaatar (Mongolia), and from Nakhodka (Russian Federation) to Malacewicze (Poland). These runs demonstrated the capability of railways to develop efficient container services and to serve the international movement of containers within Asia and between Asia and Europe. The number of trains that operated on the route of Nakhodka/Vostochnaya–Almaty-Assake, which started operation in February 2003, reached 107 trains from January–August 2007. In 2007, 31 container block train services were in operation along the route linking the PRC, Kazakhstan, Mongolia, and the Russian Federation.

Figure 3: Missing Links Along the TAR Network



Note: kilometer (km)

Source: UNESCAP (2008c).

Investment in physical infrastructure development of the TAR network has now become an important issue. According to UNESCAP's estimate, around 6,500 km, which is 8% of 81,000 km of the TAR network, is missing links, mostly in the South-East Asia subregion (Figure 2). An estimated investment of US$15 billion is required to build single-track lines on the missing links to complete the TAR network (UNESCAP 2008c).

3.2 Role of the Subregional Transport Corridor Programs in Restoring the Silk Route

In addition to regional initiatives such as the AH and TAR, there are several subregional initiatives to connect countries within the subregions (see Bhattacharyay 2008, 2009). These subregional programs have undertaken several road and railway projects, some of which can facilitate the restoration of Asia-wide networks.

The GMS program is comprised of Cambodia, two provinces of the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam and has undertaken three major economic corridor projects: the East-West Economic Corridor, running from Da Nang, Viet Nam, through Lao PDR and Thailand to Myanmar; the North-South Economic Corridor, which covers the major routes running from Kunming through Chiang Rai to Bangkok or Nanning through Hanoi to Haiphong; and the Southern Economic Corridor, running through the southern parts of Thailand, Cambodia, and Viet Nam. The countries in the GMS have also signed a cross-border transport agreement (CBTA) for facilitating the movement of goods and vehicles across borders.

Association of Southeast Asian Nations (ASEAN) has several cross-border transport projects, of which the ASEAN Highway and the Singapore-Kunming Railway projects are the major ones.

The South Asian Association for Regional Cooperation (SAARC) which is an economic bloc of eight countries in South Asia has planned transport corridors across the region. Ten road

corridors, five rail corridors, ten inland or maritime gateways, and seven aviation gateways were identified in 2007 for implementation.

The South Asia Subregional Economic Cooperation (SASEC) initiative involving Bangladesh, Bhutan, India, and Nepal gives priority to the following transport projects: improvement of Kakarvitta–Panitanki–Fulbari–Banglabandha road (chicken neck), establishment of a missing rail link between Agartala and Akhaura, devising and implementing an arrangement for cross-border trucking operation, and modernization of cross-border management regime. However, the progress in all four projects has been very slow.

Likewise in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), a regional study (BIMSTEC Transport Infrastructure and Logistic Study) was completed in 2008. The implementation of BIMSTEC Trilateral Highway linking India-Myanmar-Thailand has also been undertaken by the member countries in 2005 for improving physical connectivity in the subregion.

The Subregional Economic Cooperation in South and Central Asia (SECSCA) program was initiated in 2003 to support the Central and South Asia Transport and Trade Forum initiative involving Afghanistan, the Islamic Republic of Iran (as an observer), Pakistan, Tajikistan, Turkmenistan, and Uzbekistan and support other potential cooperation opportunities among these countries. Another objective of this program is to connect landlocked Central Asia and seaports in South Asia via Afghanistan. The SECSCA has two major corridors connecting the Central Asian countries to the Arabian Sea and the Persian Gulf via Afghanistan—namely, the North-South Corridor (connecting Tajikistan, Turkmenistan, and Uzbekistan through Afghanistan to the ports of Karachi, Gwadar, and Port Qasim in Pakistan) totaling about 2,800 km and the East-West Corridor (connecting the same countries, through Afghanistan to the ports of Bandar-e-Abbas and Chabahar in the Islamic Republic of Iran) totaling about 2,900 km.

The Central Asia Regional Economic Cooperation (CAREC) program, comprised of Afghanistan, Azerbaijan, the PRC (Xinjiang Uygur Autonomous Region), Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan, has six transport corridor projects for facilitating transport and trade within the subregion and beyond. These corridors are: Corridor 1, Europe–East Asia; Corridor 2, Mediterranean–East Asia; Corridor 3, the Russian Federation–Middle East and South Asia; Corridor 4, the Russian Federation–East Asia; Corridor 5, East Asia–Middle East and South Asia; and Corridor 6, Europe–Middle East and South Asia. Box 1 shows the latest development in the CAREC.

Box 1: Emerging CAREC Transportation Networks

With the help of financing from the Asian Development Bank (ADB), Kazakhstan is extending US$700 million to help improve a major road that will transform the country's economy. The new "Central Asian Regional Economic Cooperation (CAREC) Transport Corridor I" will run 2,715 km from the city of Khorgos on Kazakhstan's border with the PRC, through Almaty and Shymkent, and to the western border with the Russian Federation.

The northern branch of the ancient Silk Road ran through today's Kazakhstan, placing the region at the heart of trade between the PRC and Europe and bringing the region immense prosperity. The new road, spanning the world's largest landlocked country, is expected to be comparably transformative. By 2020, the road is expected to increase Kazakhstan's GDP by 68% above the 2010 baseline and to increase the GDP of neighboring Central Asian countries by 43%. The PRC, the Russian Federation, and the European Union (EU) will also reap significant gains from the road project. By 2020, the PRC's GDP is expected to grow 6% over 2010 baseline levels, while the GDP of the Russian Federation and the EU are expected to grow an additional 4%.

In Kazakhstan, roads play an important role in providing access to rural areas and facilitating transit traffic and in-country transport movement. However, the Kazakh road sector has experienced long-standing operational and institutional constraints that raise the cost of doing business. The road network is incomplete, many sections of road need repair, travel times are long, and cumbersome cross-border procedures increase the burden on trade and traders. These constraints have led to higher than average transport costs, hampered regional cooperation and integration opportunities, and impeded Kazakhstan's competitiveness. ADB financing will contribute to the removal of these constraints. The improved road will increase travel speed 40% by 2015, while reducing freight transport costs by half. It will also shorten travel distances, improve road safety standards, and lead to a decline in accident rates. ADB will partner with the Islamic Development Bank (IDB) and the Japan International Cooperation Agency (JICA) to handle a 480 km section of the road network in the southern part of Kazakhstan.

The overall investment for the road project is approximately US$6.7 billion, of which US$1.48 billion will come from ADB and its partners. ADB will provide US$700 million multi-tranche financing facility, while IDB will provide US$414 million and JICA US$150 million. Other financiers behind the overall corridor development plan include the government of Kazakhstan, the private sector, the World Bank, and European Bank for Reconstruction and Development.

Source: Asian Development Bank (ADB) based on http://www.adb.org/Carec/transportation.asp.

3.2.1 Euro-Asian Transport Linkages

The Euro–Asia Transport Linkages is a joint project of the United Nations Economic Commission for Europe (UNECE) and UNESCAP, undertaken in 2001. The objective of this project is to integrate Europe and Asia through transport corridors. Countries which have participated in the project at this initial stage include Afghanistan, Armenia, Azerbaijan, Belarus, Bulgaria, the PRC, Georgia, the Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Romania, the Russian Federation, Tajikistan, Turkmenistan, Turkey, Ukraine, and Uzbekistan (UNECE/UNESCAP 2004).[13]

In 2000, UNECE and UNESCAP put forward their "Common Economic Commission for Europe/ Economic and Social Commission for Asia and the Pacific (ECE/ESCAP) Strategic Vision for Euro-Asian Transport Links" at the Second International Euro-Asian Conference

[13] The Euro-Asian component was launched at the First Expert Group Meeting on Developing Euro-Asian Transport Linkages held from 9–11 March 2004 in Almaty, Kazakhstan.

on Transport, which was subsequently modified and adopted by the UNECE Inland Transport Committee in 2001. The "Strategic Vision" has proposed following four major Euro-Asian transport corridors with links to Pan-European Transport Corridors (PETC):

1. Trans-Siberian: Europe (PETCs 2, 3, 9)–the Russian Federation–Japan, with branches from the Russian Federation to:
    a. Kazakhstan–PRC and the Korean peninsula
    b. Mongolia–PRC;
2. Transport Corridor Europe-Caucasus-Asia (TRACECA): Eastern Europe (PETCs 4, 7, 8, 9)–across the Black Sea–Caucasus–across the Caspian Sea–Central Asia;
3. Southern: Southeastern Europe (PETC 4)–Turkey–the Islamic Republic of Iran, with branches from the Islamic Republic of Iran to:
    a. Central Asia–PRC
    b. South Asia–Southeast Asia/Southern PRC;
4. North-South: North Europe (PETC 9)–Russian Federation, with branches to:
    a. Caucasus–Persian Gulf
    b. Central Asia–Persian Gulf
    c. Across the Caspian Sea–the Islamic Republic of Iran–Persian Gulf.

3.2.2 Lessons Identified

Much as yesterday's Silk Road today's land transport network in Asia aims to serve cultural exchanges and trade within Asia and between Asia and Europe. In the contemporary world, today's network is assumed to cover a much wider territory than its mythical past and, needless to mention, reaches a much bigger market. In summary, progress in transportation links so far has been made through several subregional initiatives. Although some subregions such as the GMS have successfully implemented cross-border corridors and progressed much further in strengthening connectivity, few others (such as the SAARC) have yet to make any major breakthroughs. The subregional transport corridors like the GMS transport and trade facilitation program have created a demonstration effect in Asia and have become a role model for other subregions in Asia (such as in CAREC). The improvement of the subregional transport corridors in the GMS has resulted in significant savings in vehicle operating costs and reduced travel time (ADB 2009a; 2009b). Although several benefits are apparent from completed subregional projects, three main issues hamper the full delivery of these benefits: first, the subregional transport corridors ("hardware") in Asia are not always supported by "software" (trade facilitation) except perhaps in the GMS; second, missing infrastructure links in many subregions have reduced the effectiveness of the completed projects in subregions; and third, lack of synergy between national and subregional transport corridors is very common. As a result of the road improvement, national traffic has increased across the corridors, indicating that national level benefits have been high. It is apparent that international traffic has been slow to grow, partly due to the absence of an agreement to facilitate cross-border movement of vehicles and absence of strong and stable pan-Asian transport networks. The pan-Asian transport corridors (AH and TAR) as well as country strategies continue to depend on national institutions for planning and national funds for implementing the projects. The overall attitude toward AH and TAR projects apparently favors addressing national constraints rather than developing regional arrangements.

4. VISION OF AN INTEGRATED ASIA: THE ENABLING ENVIRONMENT

Unlocking Asia's trade potential is a daunting task. Costs for not having uninterrupted road or railway connectivity across the region or facilitation of border trade can offset gains appearing from trade preferences as proposed under several free trade agreements and

other arrangements. Therefore, the need for a better enabling environment for trade that offers lower trade costs has gained momentum in Asia. However, a favorable regional climate to create a modern day Silk Road to operate in its full potential is missing in Asia. Because of this, the agenda of the Asian Regional Cooperation has to go beyond "policy" barriers and include "non-policy" barriers like regional connectivity both in its hardware (pan-Asian transport corridors) and software (facilitation of movements of goods and vehicles across borders). A scrutiny of subregional programs clearly shows that most of them have now undertaken exclusive projects to improve subregional connectivity. To realise the potentials of these subregional networks, we may have to integrate them with the pan-Asian arteries such as the AH and TAR. Therefore, in order to promote seamless connectivity in Asia, the primary challenging task is twofold: first, to integrate the different subregional transport corridors and modes (railways, roads, air, and maritime shipping) which will facilitate the movement of goods and services in Asia and beyond; and second, to overcome institutional constraints and bottlenecks that are deteriorating the regional competitiveness by making trade expensive.

4.1 Accession to the International Conventions

As goods begin to move along international transport corridors, the need for harmonization of laws and processes amongst a larger group of countries becomes clear. International conventions related to transport are essential in facilitating the movement of goods, especially at border crossings, by reducing procedures and formalities and, consequently, time required. Pan-Asian transport networks require appropriate legal frameworks to define the following: rights of passage for goods, people, and vehicles; permits, licenses, and other measures to facilitate transit rights; and consultation and dispute settlement mechanisms.

In recognition of the fact that harmonized transport facilitation measures at the national and international levels are a prerequisite for enhancing international trade and transport along road and rail routes of international importance, Asian countries must accede to the international conventions on road and rail transport. Asian countries, if they have not already done so, must consider the possibility of acceding to seven international conventions in the field of land transport facilitation which were originally developed under the auspices of the ECE[14]: Convention on Road Traffic, 1968; Convention on Road Signs and Signals, 1968; Customs Convention on the International Transport of Goods under Cover of Transit International Routier (TIR) Carnets (TIR Convention), 1975; Customs Convention on the Temporary Importation of Commercial Road Vehicles, 1956; Customs Convention on Containers, 1972; International Convention on the Harmonization of Frontier Controls of Goods, 1982; and Convention on the Contract for the International Carriage of Goods by Road (CMR), 1956.[15]

The accession of Asian countries to the international conventions is rather mixed. While some progress has been made, it has been uneven. Progress can be seen particularly in the countries of Central Asia and the Caucasus. For example, Kyrgyzstan and Uzbekistan have acceded to all seven conventions listed in the resolution, while Azerbaijan, Georgia, and Kazakhstan each became party to six conventions and Tajikistan and Turkmenistan to four. Armenia and Mongolia each acceded to five conventions. With its accession to an additional convention, the Islamic Republic of Iran is now a party to four conventions. Accession to different versions of conventions also undermines facilitation objectives.

[14] Currently, there are 56 transport-related international legal instruments initiated by the ECE aimed at facilitating the movement of goods, people, and vehicles across international borders.

[15] For details of selected international conventions on transport facilitation including those contained in the resolution 48/11, see UNESCAP (2007).

4.2 Intermodal Transport and Transit

The initiatives for building supply capabilities and trade liberalization in Asian countries need to be complemented by a new approach to intermodal transport and transit with the goal of making the entire continent interconnected, as it was during the time of the Silk Road. Integrated overland connectivity would provide substantial benefits to landlocked countries like Afghanistan, Bhutan, Lao PDR, Mongolia, and Nepal by giving them access to Asian markets at lower costs. An integrated intermodal transport network would yield much larger economic benefits, while minimising risks. Integration of Asian transport networks is especially crucial to landlocked areas within countries as this could serve to end their landlocked or semi-isolated status and provide shorter transport and transit links. There is an urgent need for prioritization of Asian corridor projects and enhancement of regional integration through regional transit in a time-bound manner. In some subregions such as South Asia, the lack of transit is one of the major constraints for the low level of economic exchanges (RIS 2008; De, Chaturvedi, and Khan 2009). In general, the task ahead is to revive, renovate, and re-establish Asia's transportation networks which played a pivotal role in integrating the region in ancient times and to establish Asia-wide intermodal transport and transit in order to reduce the trade transportation costs across borders. Asia should have either its own regional transit arrangement or all Asian countries should accede to existing international conventions.

4.3 Strengthening and Harmonizing Rules, Regulations, and Standards

In order for the infrastructure hardware of an Asia-wide transport network to function effectively, necessary soft infrastructure, such as relevant rules, regulations, and standards, needs to be in place. Rules, regulations, and standards must meet at least a common regional structure, but preferably an international design. Participating countries need to formulate and agree on a harmonized set of rules, regulations, and standards, similar to the CBTA adopted by the GMS countries. A CBTA is a very important step towards harmonizing the software relating to cross-border infrastructure use and could provide a template for other Asian subregions.

Furthermore, to make such an agreement effective, Asian countries need to incorporate the agreement provisions into their respective national laws, regulations, and standards. There is a need for higher level coordination among many concerned stakeholders and agencies, such as transport, customs, immigration, and quarantine authorities. At the same time, capacity of concerned national institutions, particularly for less developed countries, needs to be enhanced for effective implementation of these agreements. There is also a need for a uniform or compatible standard (preferably an international standard) for development of cross-border transport networks to make the networks effective and beneficial for all stakeholders. Establishment of an efficient management system and associated capacity building to look after the harmonization of standards relating to cross-border transportation would pave the way to achieving regional connectivity. This would ultimately help achieve single-stop and single-window customs across pan-Asian corridors.

4.4 Financing Cross-border Transport Projects

Connecting Asia through the restoration of the Silk Route requires a large investment. It will be a difficult challenge to mobilize such a large investment particularly due to ongoing financial and economic crisis. This calls for an appropriate financing mechanism to mobilize Asia's huge savings for infrastructure development. This financing scheme should aim to raise resources from public sectors, multilateral development banks, and private sectors on a public-private partnership model. Bigger economies like Japan, Korea, the PRC, and India

have leading roles in filling the financing gap. They should unilaterally come forward to fill-up resources gaps in the AH and TAR, particularly financing and managing missing links and bridges.

4.5 Strengthening Coordination among Countries and Stakeholders

Weak coordination, like high tariffs, prohibits trade among countries. The poor coordination between planning, implementing, and financing agencies causes high-level inefficiency in infrastructure development. Coordination among various concerned agencies or institutions within a country is also required because each may have different objectives. In order to have timely implementation of vast pan-Asian transport corridors, effective coordination between countries and other stakeholders is vital. Without such coordination, it is unlikely that an optimal cross-border infrastructure will come into existence. Thus, an effective coordinating institution will be necessary to generate willingness of countries to participate in the projects. It can also resolve conflicting interests, if any arise, between the governments and stakeholders.

4.6 Closer Cooperation on Security

Secure trade is as important as free trade and security-driven improvements can benefit trade. While implementing pan-Asian transport corridors, security concerns should not go unnoticed. Security issues must be addressed adequately before Asian countries adopt regional transport and transit arrangements. Using modern technology, governments in Asia could address security measures that, if not managed properly, might drive up trade costs, hamper trade, and close down the corridors. Therefore, our focused attention should be on the following: searching for greater efficiency in international transportation, the need for cooperation in adopting collective measures to promote transport security, and the imperative of improving customs regimes, port facilities, and logistics management.

Asian countries have to commit themselves to increasing security for all transport modes and to promoting policy coherence and coordination among international organizations. New programs to combat terrorism clearly will involve investment in new technology and infrastructure, possibly raising the costs of trade in the short to medium term. At the same time, the prospect of reducing future threats through technology-intensive security and customs inspections should be viewed as an investment in greater trade efficiency. Automated technology, such as bar codes, wireless communications, radio frequency identity tags, tamper-proof seals for containers with global positioning technology, and other electronic measures, could accelerate global trade while improving security. Sharing information among security agencies, port and airport authorities, shippers, and customs can help expedite the movement of freight through terminals without any new physical investment.

4.7 Formulating Asian Common Transport Policy

Seizing Asia's vast economic opportunities requires enabling policies and institutions. First, going beyond national commitments, an active and inclusive approach towards regional infrastructure development is of the utmost importance. Second, the enabling policies and institutions should generate adequate willingness of countries to participate. Without inclusive and common transport policies that provide broad access to all participating countries, smaller economies and landlocked countries have to rely on their own resources to take part in regional transport or take advantage of promising growth opportunities, which is far from reality. An Asian common transport policy (ACTP) would fill this gap for optimum utilization of existing utilities as well as expansion of new regional transport facilities by

involving countries in the region. The possible elements of ACTP could be harmonization of technical standards such as truck size and weight regulations, standardization of railway gauges and rolling stocks across the region, simplification of documentation and customs clearance procedures, standardization of cabotage rules, regulations on the movement of certain goods, and facilitation of movement of container trains and goods vehicles within the region subject to fulfilment of individual country road transportation rules and regulations. This policy should help facilitate capacity building in smaller countries, as well as facilitating studies which include generating common transport statistics, consensus building among participating countries, prioritizing the development of regional transport networks, and coordination, cooperation, and partnership among concerned stakeholders.

4.8 Strengthening Regional Cooperation

The experiences of Europe and Latin America, where the presence of cross-border infrastructure is comparatively high, and to a lesser extent, Africa, where the development of cross-border infrastructure has taken a new shape, suggest that regional cooperation promotes greater prosperity and stability for participating countries. A major success factor is their ability to build regional initiatives that are based on shared strategic vision, as captured in the Initiative for the Integration of Regional Infrastructure in South America.[16] Asian subregional cooperation programs have to be much stronger to address the regional infrastructure needs and enabling institutions and policies.[17]

Given Asia's diversity and geographical contrasts, an integrated regional transport network would yield much larger economic benefits, while minimizing risks. Asia-wide connectivity projects like the AH and TAR should be complemented by subregional cross-border transport projects. In other words, multiple effective subregional transport projects mean stronger Asian connectivity. There are several ongoing subregional initiatives to enhance physical connectivity in Asia. However, the progress of the implementation, in general, has been slow. Therefore, what is important for Asian countries is to enhance the facilitation of trade and transport across borders. Integrated regional connectivity would provide substantial benefits to landlocked and small island countries as well as poor, small countries by giving them access to world market at lower costs.

5. CONCLUSION

Asia's economic performance since the last decade, particularly in the first half of the ongoing decade, has been commendable. Undoubtedly, Asia is a major economic force in the world. Accompanying this rise is the need for efficient regional infrastructures to meet the increasing demand of production and consumption, as well as that of international trade. Any slowdown or failure in responding to this demand will necessarily impact the growth and hamper trade and poverty reduction efforts in the region. Asia's growth potential will only be realized if it can ensure that its infrastructure does not become a severe handicap.

[16] The Initiative for the Integration of Regional Infrastructure in South America (IIRSA) is a dialog forum among South American countries, which seeks to promote the development of transport, energy, and telecommunication infrastructure from a regional viewpoint, aimed at physical integration of the 12 South American countries and the achievement of an equitable and sustainable territorial development pattern. About US$69 billion, comprised of 514 infrastructure projects having direct or indirect cross-border implications, have been identified for investments across 12 Latin American countries, of which 51 projects amounting US$ 7.51 billion were already concluded as of December 2008 (IIRSA 2009).

[17] There has also been an attempt to foster regional cooperation centering Silk Road in the recent past. For example, the Silk Road Initiative (SRI) which is a regional UNDP (United Nations Development Program) programme that aims to enhance cooperation and development among the PRC, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. It focuses on facilitating public private partnerships in three main areas: investment, trade and tourism. For further details, visit http://www.undp.org.cn

Nevertheless, the quality and capacity of Asia's infrastructure, both on the national and cross-border levels, is certainly a matter of concern.

The lack of regional connectivity is one of the major constraints hindering the full potential of regional growth and economic integration in Asia. Strong regional cooperation among Asian countries is essential for establishing Asia-wide physical connectivity and economic integration.

In order to move towards a fully integrated Asia, a comprehensive approach is needed to address the physical infrastructure issues, including roads, rail, inland waterways, maritime transport, dry ports, airports, seaports, and information and communication technology, as well as the non-physical soft infrastructure issues, including cross-border transit facilitation measures; customs clearance, and other facilitating polices and regulations. Addressing these issues, requires collaborative efforts among Asian countries, multilateral development banks, the United Nations agencies, intergovernmental organizations, bilateral donor agencies, private sectors and professional associations. In particular, high-level policy direction and commitments are important for the successful restoration of the Silk Road providing mutually beneficial regional transport infrastructure and services in the Asian region and beyond. In this regard, a commonly agreed strategic regional transport policy and an associated plan are needed to facilitate closer cooperation for re-establishing the Silk Road and achieving an integrated Asia.

The ways and means to achieve the goal of Asia-wide connectivity need to be fine tuned, taking into consideration the experience of the last decade. The core issues that need to be addressed are reaching a consensus on how the subregional transport networks can be integrated with pan-Asian networks such as the TAR and AH without compromising subregional infrastructure needs and formulating and implementing an Asia-wide trade facilitation mechanism, either by acceding the international conventions or through a regional arrangement with full conformity to international conventions. Factors that need to be considered to address these core issues are as follows:

- further enhancing policies and regulations by providing a better balance of national, subregional, and regional transport networks;
- encouraging financing to counter rising demands for funds for regional transport projects;
- developing intermodality in transport network development;
- focusing on nonphysical barriers to trade across networks; and
- mobilizing private sector's fund and ensuring its participation in operations and maintenance.

The three key messages in this paper are: subregional transport projects have enabled cooperation among the countries by improving the efficiency of transport and creating a favorable climate for dialogue and exchange of information; for the benefits of the regional projects, trade facilitation across Asia should be expedited; and enabling policy reforms is needed to encourage private sector participation in regional projects. In view of the ongoing crisis, it is crucial for sustainable regional growth and prosperity that Asian countries be better connected.

Finally, the trade and income gains of large economies in Asia like Japan, the PRC, India, and Korea through rebuilding Asia's transportation infrastructure and associated software will be substantial in absolute value. However, the gain of smaller economies will be proportionality large compared to their economic sizes. Now it is the time for Asia to further enhance its economic integration process, setting in place improved pan-Asia infrastructure and extending supports towards capacity building in smaller and vulnerable economies in the region.

APPENDIX

Table A1: Signatories of Asian Highway Network (as of 31 March 2009)

No	Signatory	Date of signature	Date of entry into force
1	Afghanistan	26 April 2004	8 April 2006
2	Armenia	26 April 2004	5 September 2005
3	Azerbaijan	28 April 2004	3 August 2005
4	Bhutan	26 April 2004	16 November 2005
5	Cambodia	26 April 2004	4 July 2005
6	PRC	26 April 2004	4 July 2005
7	Georgia	26 April 2004	9 March 2006
8	India	27 April 2004	17 May 2006
9	Indonesia	26 April 2004	
10	The Islamic Republic of Iran	26 April 2004	
11	Japan	26 April 2004	4 July 2005
12	Kazakhstan	26 April 2004	30 January 2008
13	Kyrgyzstan	26 April 2004	28 November 2006
14	Lao PDR	26 April 2004	
15	Malaysia	24 September 2004	
16	Mongolia	26 April 2004	23 October 2005
17	Myanmar	26 April 2004	4 July 2005
18	Nepal	26 April 2004	
19	Pakistan	26 April 2004	17 January 2006
20	Philippines	2 November 2005	17 March 2008
21	Republic of Korea	26 April 2004	4 July 2005
22	Russian Federation	27 April 2004	4 July 2005
23	Sri Lanka	26 April 2004	4 July 2005
24	Tajikistan	26 April 2004	9 July 2006
25	Thailand	26 April 2004	11 June 2006
26	Turkey	26 April 2004	
27	Uzbekistan	26 April 2004	4 July 2005
28	Viet Nam	26 April 2004	4 July 2005

Notes: Lao People's Democratic Republic (Lao PDR), The People's Republic of China (PRC)

Source: UNESCAP (2008b)

Table A2: Signatories of Trans-Asian Railway Network (as of 31 March 2009)

No.	Signatory	Date of Signature	Ratification (R), Acceptance (A), Approval (AA), Accession (a)
1	Armenia	10 November 2006	
2	Azerbaijan	10 November 2006	
3	Bangladesh	9 November 2007	
4	Cambodia	10 November 2006	27 April 2007 (A)
5	PRC	10 November 2006	13 March 2009 (AA)
6	Georgia	18 December 2007	
7	India	29 June 2007	13 September 2007
8	Indonesia	10 November 2006	
9	The Islamic Republic of Iran	10 November 2006	
10	Kazakhstan	10 November 2006	
11	Lao PDR	10 November 2006	
12	Mongolia	10 November 2006	4 September 2008
13	Nepal	10 November 2006	
14	Pakistan	28 January 2008	
15	Republic of Korea	10 November 2006	5 February 2008
16	Russian Federation	10 November 2006	4 January 2008 (A)
17	Sri Lanka	10 November 2006	
18	Tajikistan	10 November 2006	19 February 2008 (AA)
19	Thailand	10 November 2006	4 February 2008
20	Turkey	10 November 2006	
21	Uzbekistan	10 November 2006	
22	Viet Nam	10 November 2006	

Notes: Lao People's Democratic Republic (Lao PDR), The People's Republic of China (PRC)

Source: UNESCAP (2009).

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