Asia-Pacific Research and Training Network on Trade
Working Paper Series, No. 56, June 2008

Transit and Trade Barriers in Eastern South Asia: A Review of the Transit Regime and Performance of Strategic Border-Crossings

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Executive Summary

In recent years, South Asia has received growing attention as a region that is integrating successfully into the world economy. South Asia has successfully converted preferential trading agreement (SAPTA) into a free trade agreement (SAFTA) in July 2006. However, intra-subregional transit trade volume is still miniscule in eastern South Asia (Bangladesh, Bhutan, India and Nepal), compared to its extra-subregional transit trade. About 2 percent of transit trade of eastern South Asia is conducted within the subregion, whereas the rest 98 percent is extra-subregional.

With SAFTA, South Asian countries are now looking toward deeper integration of the region. However, in reality, South Asia is far from realising its full potential. One of the critical factors prohibiting South Asia in achieving its full potential is absence of regional transit trade. Unlike European Union, South Asia does not have a regional transit arrangement, although partial transit exists for landlocked countries like Afghanistan, Bhutan and Nepal. India and Bangladesh do not have transit arrangement even though they are adjacent and share a common border. At the same time, India has bilateral transit arrangement with Bhutan and Nepal, two landlocked countries with which India share an international border.

The present squishy transit arrangement in South Asia is disappointing, as the greater benefits of SAFTA and multilateral free trade are contingent upon full regional transit. Therefore, the scope and issues covered under the GATT Article V (Freedom of Transit) have become extremely important since regional trade in South Asia has expanded. A regional transit arrangement will help South Asia to better integrate the region and also to strengthen the globalisation process.

The econometric evidences of this paper strengthen the existing linkage of trade costs, transit, and trade flows: higher the transaction costs between each pair of partners, less they trade. In our particular case, it is seen that a 10 percent fall in transaction costs at border has the effect of increasing country's exports by about 3 percent. The analysis of this paper shows that a regional transit arrangement would perhaps enhance the regional trade, controlling for other variables. At the same time, implementation of e-governance at border is found to be significant determinant of trade flows thus indicating e-filling of Custom formalities has been helping the trade to grow in eastern South Asia. This is also not to deny that many of the border Customs stations surveyed in this study are yet to be equipped with modern ICT. Nevertheless, this study holds out, among others, the importance of transit as a major source of advantage for the regional as well as international trade. Hence, an important means of promoting the regional trade could be accepting to full transit in South Asia, which will not only enhance regional trade but will also strengthen the globalisation process, being pursued by the WTO.

The efficiency of border corridors is also a critical factor for a region's competitiveness and its trade prospects. Using Data Envelopment Analysis (DEA), we have evaluated efficiency of the border crossings in eastern South Asia. We have found that among the nine Land Customs Stations (LCSs), Raxual in India is relatively an efficient border, while rest eight LCSs are relatively inefficient. However, average performance of nine LCSs has improved over time pointing to the fact that there has been a positive development in border Customs stations.

To improve performance, border corridor management authorities (here, government) need to constantly evaluate operations or processes related to providing, marketing and selling of services to the users. Since present trade flow is very much uneven between the border corridors, a full regional transit arrangement in South Asia would likely redistribute the regional trade and traffic among the existing corridors.

Therefore, in order to maximise the benefits of trade liberalization in view of SAFTA and in anticipation of full regional transit arrangement either under GATT Article V or under SAFTA, South Asian countries should give utmost importance to inefficient border Customs stations for making them efficient. If the objective is to achieve equitable growth of trade and traffic in South Asia, all the border corridors have to improve their efficiency over time. The requisite policy agenda extends broadly to stimulating the evolution of border corridor services, promulgating new performance standards, and encouraging their implementation.

I. Introduction

Countries that depend on transit trade, notably the landlocked countries, are confronted with a variety of practical constraints that increase the transportation costs of their international trade (UNCTAD, 2004, 2007).[1] It is estimated that landlocked developing countries have to bear, on average, 50 percent higher international transport costs than their neighbouring transit/coastal countries (UNCTAD, 2004). The specific constraints are related to Customs and border procedures and also to the fact that cargo and transport services have to adapt a different sets of administrative, legal, commercial and other conditions when passing through a third country. Transit arrangements that aim at diminishing these constraints need to take new developments into account, notably concerning trade facilitation, new technologies, multimodal transport, and transport security.

In recent years, South Asia has received growing attention as a region that is integrating successfully into the world economy. South Asia has successfully converted preferential trading agreement (SAPTA) into a free trade agreement (SAFTA) in July 2006. With SAFTA, South Asian countries are now looking toward deeper integration of the region. This FTA would lead to growth in intra-regional trade from US$ 6 billion to US$ 14 billion by 2010 (Government of India, 2006).[2] However, in reality, South Asia is far from realising its full potential. One of the critical factors prohibiting South Asia in achieving its full potential is absence of regional transit trade.[3] Unlike European Union, South Asia does not have regional transit arrangement, although partial transit exists for landlocked countries like Afghanistan, Bhutan and Nepal. The present squishy transit arrangement in South Asia is nonetheless disappointing.

Realising the urgent need for enhancing South Asian trade, the Heads of South Asian Association for Regional Cooperation (SAARC) countries have been harping on the potential of an integrated transport and transit system for the region.[4] They have emphasized that higher intra-regional trade would not be achieved until and unless the physical infrastructure and appropriate Customs clearance and other facilitation measures, including multimodal transport operations, are in place. They have also pointed out that in this effort, uninterrupted overland connectivity is equally important. In order to reduce regional and multilateral trade transportation costs, the South Asian leaders aim to integrate the region through an improved connectivity including a regional transit arrangement. The need for regional transit arrangement in South Asia is long standing. However, challenges are numerous. A full regional transit means a stronger multilateral transit. A set of studies show that the economies with geographical contiguity could potentially benefit substantially from higher trade, provided the trade and transport barriers are removed through a regional transit arrangement (e.g. EU).[5] Some earlier studies identified several challenges related to

[1] For example, UNESCAP (2008) commented that while relaxing regulations and tariffs is a way to help least developed landlocked countries (LLDCs) to achieve prosperity, the physical distance from sea ports remains a major obstacle. Building roads, railway lines and other transport infrastructure is thereferore required to help these countries to find new markets for their goods.

[2] Countries in South Asia are planning to enhance intra-regional trade from 5 percent to 12 percent within next five years due to SAFTA (Government of India, 2006).

[3] See, for example, Ray and De (2003), World Bank (2004), ADB (2005), to mention a few.

[4] Refer, the Declaration of 14th SAARC Summit, New Delhi, 3-4 April 2007.

[5] See, for example, Polak and Heertje (1993)

the implementation of GATT commitments in transit and trade facilitation in context of South Asia.[6] But, none so far attempted to best design a regional transit transport arrangements in context of South Asia.[7]

A regional transit arrangement will help South Asia to better integrate the region and also to strengthen the globalisation process. The scope and issues covered under the GATT Article V (Freedom of Transit) have become extremely important since regional trade in South Asia has expanded. The GATT Article V addresses traffic in transit. It regulates the conditions a member may impose on goods transported through its territory by another party to a foreign destination.[8] Quite naturally, in order to operationalise a South Asian transit system, WTO offers several solutions. Therefore, a study on WTO rules on transit and its developmental implications for South Asian countries is highly significant because all South Asian countries, except Afghanistan and Bhutan, are members of WTO, and South Asian countries have accorded an FTA in accordance with WTO rules in 2006 and are aiming to form a Customs Union by 2013 and an Economic Union by 2020.

In view of above, the objective of this paper is to assess potential gain of a regional transit with special emphasis on eastern South Asia subregion, namely, Bangladesh, Bhutan, India and Nepal. The profile of intra-regional transit trade and related transit arrangements are presented in the next section (Section 2). Section 3 discusses the transit arrangement mechanisms in eastern South Asia subregion. WTO rules on transit (GATT Article V) and its development perspectives on eastern South Asia are discussed in Section 4. Section 5 presents the results of a field survey, which was carried out on selected border crossing corridors in the subregion. We also discuss the constraints of transit trade in the subregion and the potential gaps in the transit arrangement in the subregion. Econometric results are presented in Section 6. Finally, conclusions and policy recommendations are given in Section 7.

II. Transit Trade in Eastern South Asia: Profile and Arrangement

The importance of tariffs as barriers to trade has gradually come down, however, high-tariffs still exist for certain sensitive products, and there is a strong presence of Non-Tariff Barriers (NTBs) including high border transaction costs in the region.[9] High transportation costs are also penalising trade in South Asia (De, 2008a). However, poor institutions (e.g. lack of e-filing of trade documents), inadequate infrastructure (e.g. lack of modern warehouse or container handling facility at border), and absence of a regional transit trade (virtually in the entire region) are prohibiting the trade to grow in South Asia.[10]

In South Asia, Afghanistan, Bhutan and Nepal are landlocked countries and solely depend on transit through neighbouring countries. They confront with a variety of practical constraints that increase the logistics costs of their international trade

[6] See, for instance, UNESCAP (2006, 2007)
[7] Except perhaps ADB (2005), which was the first comprehensive study for establishment of regional transit in South Asia.
[8] See, WTO (2005a and 2005b)
[9] See, for instance, Das and Pohit (2006), Taneja (2007), to mention a few.
[10] See, for example, Subramanian (2001), Arnold (2007), Wilson and Ostuki (2007), De (2008b).

(Box 1). Landlocked developing countries, as a group, are among the poorest of developing countries, with limited capacities and dependence on a very limited number of commodities for their export earnings. About 38 countries are presently landlocked with no access to sea (Uprety, 2006). Lack of territorial access to the sea, remoteness and isolation from world markets have contributed to their relative poverty, substantially inflating transportation costs and lowering their effective participation in international trade (UNCTAD, 2005). For example, Bhutan and Nepal heavily rely on Indian eastern coast for their international trade. Due to several bottlenecks including those are visible at border crossings and transit ports, Bhutan and Nepal face substantial trade costs, which, otherwise could have been avoided if a regional transit trade regime is restored in South Asia. The trade-reducing effect is strongest for transport-intensive activities. Most, if not all, landlocked countries in South Asia are commodity exporters. The very high transport costs which they must bear constrain export development since that burden limits the range of potential exports and markets in which goods can be competitively and profitably traded. The price of imports tends to increase because of high transit transportation costs.

In eastern South Asia, Nepal and Bhutan depend on India for their regional and international trade. In particular, Nepal is increasingly dependent on India for its 68 percent of exports and 62 percent of imports in a year (Table 1(a)). The relatively bigger country like Bangladesh sources about 13 percent of global imports from Bhutan, India, and Nepal, but its export to these countries is low, compared to import (Table 1(b)). The interesting development is that Bangladesh's trade with Bhutan has witnessed a steep rise in recent years, where this entire trade is carried overland using the India – Bangladesh – Bhutan transit corridor. India's trade with adjacent countries like Bhutan and Nepal have also gone up, which is again carried overland (Table 1(c)), where India has bilateral transit agreements with both of them. India's trade with Bangladesh has witnessed a phenomenal rise, despite the fact that they do not have any bilateral transit arrangement. The trade between Bangladesh and Nepal witnessed a marginal rise between 2000 and 2006. About US$ 4.50 million was the bilateral total trade between the two countries, carried overland in 2006 through a tiny corridor between India, Nepal and Bangladesh.[11] A trilateral transit understanding between Bangladesh, India, and Nepal is in place in order to facilitate the overland trade between Nepal and Bangladesh. Bhutan's trade is again India-centric. Bhutan sources about 75 percent of its import from India and sales almost 88 percent of its exports to that country (Table 1(d)). However, trade among the countries in eastern South Asia subregion is not always a transit trade. For example, India's bilateral trade with Bangladesh, Bhutan and Nepal can not be termed as transit trade, whereas the same between Bangladesh, Bhutan and Nepal through India can be seen as transit trade since the trading countries in this particular case are not geographically adjacent. Similarly, the trade of Bhutan and Nepal with rest of the world through another country (here, India) can also be termed as transit trade. We discuss the profile of this transit trade in context of eastern South Asia next.

A. Transit Trade Profile of Eastern South Asia

Until recently, transit trade in South Asia was not in the forefront of regional and multilateral cooperation. However, increasing trade volume in recent years has forced the countries in South Asia to be more lenient on transit trade – regional and

[11] Refer, Chapter 5 (corridor 3) of this paper, and also see Map 1 in Appendix 3.

otherwise. The transit trade in eastern South Asia subregion can be grouped in two categories: (i) intra-subregional and (ii) extra-subregional. Tables 2(a) and 2(b) present the volume of intra-subregional and extra-subregional transit trade for three countries, namely, Bangladesh, Bhutan and Nepal, passed through India. Following observations are worth noting.

Table 1(a): Nepal's Trade with India and Bangladesh

	1991	2000	2006
	(US$ million)		
Exports to			
Bangladesh	0.12	1.90	3.24
India	17.45	307.20	562.98
Total (above 2)	17.57	309.10	566.22
Share in global export (%)	6.83	42.89	68.25
Imports from			
Bangladesh	12.70	8.10	1.45
India	85.01	574.20	1481.51
Total (above 2)	97.71	582.30	1482.96
Share in global import (%)	19.54	37.08	61.85

Source: Calculated based on IMF (2007)

Table 1(b): Bangladesh's Trade with India, Nepal and Bhutan

	1991	2000	2006
	(US$ million)		
Exports to			
Bhutan	0.30	0.90	4.08
India	22.8	50.13	146.93
Nepal	11.54	1.32	1.32
Total (above 3)	34.64	52.35	152.33
Share in global export (%)	2.05	0.94	1.19
Imports from			
Bhutan	3.90	4.53	12.95
India	189.49	945.45	2230.77
Nepal	0.14	3.98	3.16
Total (above 3)	193.53	953.96	2246.88
Share in global import (%)	5.66	10.60	12.56

Source: Calculated based on IMF (2007)

Table 1(c): India's Trade with Bangladesh, Bhutan and Nepal

	1991	2000	2006
	(US$ million)		
Exports to			
Bangladesh	324.56	860.33	1967.8
Bhutan	1.20	2.73	118.03
Nepal	77.28	143.4	1346.83
Total (above 3)	403.04	1006.46	3432.66
Share in global exports (%)	2.25	2.36	2.79
Imports from			
Bangladesh	5.73	79.85	128.43
Bhutan	0.50	20.33	104.30
Nepal	19.19	238.48	619.28
Total (above 3)	25.42	338.66	852.01
Share in global imports (%)	0.13	0.67	0.46

Source: Calculated based on IMF (2007)

Table 1(d): Bhutan's Trade with India

	Trade with World		Trade with India			
	Value		Value		Share	
	Export	Import	Export	Import	Export	Import
	(US$ million)		(US$ million)		(%)	
2001	126.23	227.20	118.79	176.62	94.11	77.74
2002	79.13	253.88	70.50	191.40	89.09	75.39
2003	90.64	292.32	83.96	258.49	92.63	88.43
2004	209.03	471.05	196.15	257.62	93.84	54.69
2005	287.75	430.50	251.95	323.35	87.56	75.11
2006	350.00	320.00	*			

Note: *Data not available.
Source: Customs and Revenue Department, Royal Government of Bhutan (Royal Government of Bhutan, 2007)

Table 2(a): Intra-subregional Transit Trade

Exporter	Partner	Transit through	1991	2000	2006
			(US$ million)		
Bangladesh	Bhutan, Nepal	India	11.840	2.220	5.400
			(0.232)	(0.015)	(0.018)
Bhutan	Bangladesh, Nepal	India	5.110	5.530	13.230
			(3.060)	(1.565)	(1.975)
Nepal	Bangladesh, Bhutan	India	0.260	2.960	5.440
			(0.034)	(0.129)	(0.169)
Total			17.210	10.710	24.070

Note: Numbers in parentheses are individual country's shares in their respective world trade.
Source: Calculated based on IMF (2007) and Royal Government of Bhutan (2007)

Table 2(b): Extra-subregional Transit Trade

Exporter	Partner	Transit through	1991	2000	2006
			(US$ million)		
Nepal	ROW*	India	654.98	1409.60	1182.79
			(86.47)	(61.53)	(36.65)
Bhutan	ROW*	India	25.09	49.17	98.72
			(15.02)	(13.91)	(14.73)
Total			680.07	1458.77	1281.51

Notes: *Rest of World, excluding India. 1. Numbers in parentheses are individual country's shares in their respective world trade.
Source: Calculated based on IMF (2007) and Royal Government of Bhutan (2007)

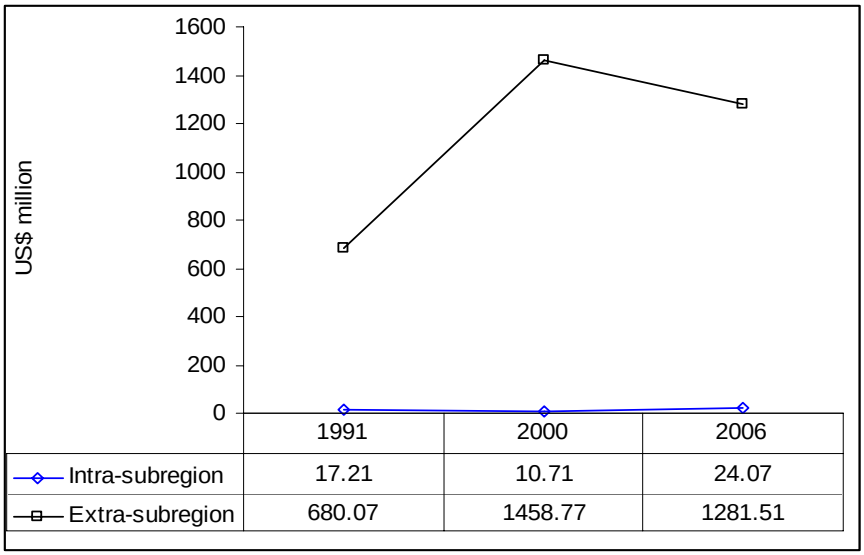
First, intra- and extra- subregional transit trade in eastern South Asia have increased substantially in last one and a half decade. The extra-subregional transit trade grew much faster than the intra-subregional transit trade. Presently, about 2 percent of transit trade of eastern South Asia is conducted within the subregion, whereas the rest 98 percent is extra-subregional.

Second, the volume of intra-subregional transit trade is much smaller than extra-subregional transit trade in eastern South Asia. In 2006, countries in eastern South Asia had in total about US$ 24.07 million intra-subregional transit trade, which was about 2 percent of total extra-subregional transit trade (US$ 1.82 billion in 2006) of the subregion.

Third, countries in eastern South Asia have very limited intra-subregional transit trade, compared to extra-subregional transit trade. In terms of their global trade, intra-subregional transit trade has been miniscule. Bhutan is the only country which has over 55 percent of intra-subregional transit trade, contributing about 2 percent of Bhutan's international trade (US$ 13.23 million in 2006). The rest two countries, namely, Bangladesh and Nepal, are having very negligible transit trade within the subregion.

Fourth, compared to intra-subregional transit trade, extra-subregional transit trade of eastern South Asia is very high. Extra-subregional transit trade is driven by Nepal. About 37 percent of Nepal's global trade (US$ 1.18 billion) is transit trade, conducted with outside of eastern South Asia, whereas the same in case of Bhutan is about 15 percent. The falling shares of extra-regional transit trade (as percentage of global trade) of both the countries (86.47 percent in 1991 to 36.65 percent in 2006 in case of Nepal, and 15.02 percent in 1991 to 14.73 percent in 2006 in case of Bhutan) indicate that bilateral trade with neighbouring India is not only growing fast but also replacing the extra-subregional transit trade of Bhutan and Nepal.

Figure 1: Trends in Intra- and Extra-Subregional Transit Trade



	1991	2000	2006
Intra-subregion	17.21	10.71	24.07
Extra-subregion	680.07	1458.77	1281.51

Source: Calculated based on IMF (2007) and Royal Government of Bhutan (2007)

Therefore, despite an absolute rise in intra- and extra- subregional transit trade in eastern South Asia in recent years, intra-subregional transit trade is still miniscule, compared to its extra-subregional transit trade volume. About 2 percent of transit trade of eastern South Asia is conducted within the subregion, whereas the rest 98 percent is extra-subregional. At the same time, India's bilateral trade with Bhutan, Bangladesh and Nepal is not only growing fast but is also replacing the extra-subregional transit trade of Bhutan and Nepal.

Box 1: Economic and Developmental Challenges of Landlocked Countries: Case of Bhutan and Nepal

Afghanistan, Nepal and Bhutan are the three South Asian countries which are landlocked. They solely depend on neighbouring countries for their international trade. Table 1.1 shows the main access to the sea for least developed landlocked countries. Freedom of transit is thus vital for these countries that is working to progress toward trade diversification and economic development but is obstructed by the distance to the sea and the resultant high cost of transportation.[12] Transportation costs are not, however, the only problem these countries face.

Table 1.1: Main Access to the Sea for Least Developed Landlocked Countries

Country	Per Capita Income (US$ PPP) (2005)#	Distance (km)*	Means
Afghanistan	**	2,000-10,600	Road
Bhutan	**	800	Road
Burkina Faso	1213.30	900-1,210	Road
Burundi	698.87	1,455-1,850	Road, Water
Central African Republic	1224.30	1,400-1,815	Road, Water
Chad	6757.30	1,715-2,015	Road, Rail
Ethiopia	1054.60	781	Rail
Lao PDR	2039.10	670	Road, Rail, Water
Lesotho	3335.20	740-800	Rail
Malawi	667.07	560-700	Rail
Mali	1033.10	1,170-1,289	Road, Rail
Nepal	1550.40	890	Road, Rail
Niger	780.90	1,100-2,690	Road, Rail
Rwanda	1206.20	1,750	Road, Rail, Water
Uganda	1453.50	1,450	Road, Rail
Zambia	1022.70	1,975	Road, Rail, Water

Notes: *Distance from principal towns to main ports. The range is for the shortest and the longest routes used. # Taken at current price. **Data not available.
Sources: UNCTAD, LDC 1986, Report, UN, TD/B/1120, p. 51; and World Development Indicators CD-ROM 2007, World Bank

UNCTAD (2005) noted that lack of access to the sea constitutes a major obstacle for economic and social development. Not surprisingly the majority of the landlocked countries have some of the lowest growth rates in the world. Because their productive activities are not sufficiently diversified, their export revenues depend on a limited number of products. Moreover, their lack of direct access to the sea entails additional expenses because of the costs of transporting goods through a transit State, resulting in a less than competitive international trade and causing delays or even interruptions in their development and economic growth. In this context, the 1970 study pointed out that because there was no uniform criterion for evaluating the additional transport costs, comparisons are often based on a hypothetical difference, the term "additional" meaning that the evaluation concerns only the transport costs directly related to the fact that the state in question is deprived of a coastline; the definition thus covers only those expenses relating directly to international exchange.

Transportation, which is critical in all economies, in doubly important in the economies of Afghanistan, Bhutan or Nepal, whose foreign trade, and therefore its economic development, is contingent on its ability to access the sea. It is no accident that the majority of economically

[12] Refer, Almaty Programme of Action, UN (2003).

weak landlocked countries are situated in regions that have only rudimentary transport networks. In most cases, their neighbours are also developing states, with similar deficiencies in transportation networks and economic structure. In general, the trade between Afghanistan, Nepal and Bhutan and their transit neighbours is rarely important because their economies do not complement each other. Rather, both groups often enter into competition with each other for international resources. In the international market the handicap of being without access noticeably hinders the trade of Afghanistan, Nepal and Bhutan, although this is not easily measurable in economic terms. Afghanistan, Nepal and Bhutan also are burdened with increased costs arising from the necessity of warehousing stocks, delays in ports, expenditures in the change of routes (often indispensable), and losses on exchange rates when transport costs must be paid in convertible currencies. Clearly, the South Asian landlocked countries depend heavily on the transport policies of transit countries.

The cost of trade transportation increases if the country is landlocked (here, Afghanistan, Bhutan and Nepal)[13]. Moreover, in many landlocked countries, notably in South Asia, inland transport accounts for more than half the total door-to-door transport time and cost of imports and exports. For example, transporting goods from the port of Mumbai (India) over a distance of 2,100 km to Birganj (Nepal), can take up to 30 days and costs between US$ 7,000 to US$ 9,000 per twenty ton equivalent unit (TEU) or container, yet a container delivered in Mumbai from Europe, more than 7,000 km away, takes about 18 days at a shipping cost of US$ 3,500. Excessively high transport costs inflate the consumer prices of imported goods in landlocked countries and undermine the competitiveness of their exports in foreign markets. They are thus a serious barrier to trade for countries like Nepal and Bhutan.

The landlocked countries face additional transport bottlenecks in international trade. The distances from their principal towns to the main ports vary from 670 km to 2,000 km (Table 1.1). The international trade of these countries is dependent on the transit-transport infrastructures and services along the routes through their transit neighbours, over which they have little control. Furthermore, the ability of the transit countries to improve, from their own resources, transit-transport infrastructures and services in the ports and along the transit corridors is very limited because many of them are themselves developing countries. This increases the need for international support for improving the transit-transport systems in these developing countries.

In general, then, the majority of LLC are among the poorest countries of the world. The absence of seacoast and their distance and isolation from international markets aggravate their economic situation and constitute the main reason for their underdevelopment. Certainly, though the transit problem has long been solved for European landlocked countries, considerable problems remain for developing landlocked countries in Africa, Asia, and Latin America. The urgency of solving the problem perhaps explains the selflessness of the developed landlocked countries regarding the transit problems of developing landlocked countries. Because historically the most important question for landlocked countries has been freedom of access to the sea, their most important demand has always been recognition by the international community that law supporting the right of access is fundamental. This explains why their effort has been to obtain a universal treaty-regime on this matter.

Source: Uprety (2006)

[13] See, for example, De (2008a, 2008b).

III. Cross-border Movement of Goods and Vehicles: Transit Arrangement in Eastern South Asia

Cross-border infrastructure alone would not facilitate the movement of goods and vehicles between countries if non-physical impediments are not removed. Transport facilitation can only serve its purpose if based on harmonized legislation, institutions, and practices, at subregional, regional and international levels. In spite of consistent efforts and achievements over the years, significant differences continue to exist between South Asian countries in terms of their legislation, institutional arrangements and practices. Operational standards that differ between neighbouring countries lead to lack of traffic and transit rights and barriers to the movement of goods and people, having a negative impact on countries' trade and economies. Issues relating to the facilitation of goods and services have traditionally been incorporated in bilateral agreements between countries. 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 time required.

A. International Conventions and South Asian Countries

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, the UNESCAP at its 48th session adopted resolution 48/11 of 23 April 1992 on road and rail transport modes in relation to facilitation measures. It recommended that the countries in the region, if they had not already done so, 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 Economic Commission for Europe (ECE):14 (a) Convention on Road Traffic, 1968; (b) Convention on Road Signs and Signals, 1968; (c) Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention), 1975; (d) Customs Convention on the Temporary Importation of Commercial Road Vehicles, 1956; (e) Customs Convention on Containers, 1972; (f) International Convention on the Harmonization of Frontier Controls of Goods, 1982; and (g) Convention on the Contract for the International Carriage of Goods by Road (CMR), 1956.[15]

Most of the South Asian countries are yet to ratify international conventions for cross-border movements of goods and vehicles. There are seven UN Conventions that set out a basic framework for the cross-border movements of goods and vehicles. The subregional extent of accession to these Conventions is shown in Table 3.

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

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

Table 3: International Conventions and South Asian Countries*

Convention	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Convention on Road Traffic (1968)	No	**Yes**	No	**Yes**	No	No	**Yes**	**Yes**
Convention on Road Signs and Signals (1968)	No	No	No	**Yes**	No	No	**Yes**	No
Customs Convention on Temporary Importation of Commercial Road Vehicles (1956)	**Yes**	No	No	No	No	No	No	No
Customs Convention on Containers (1972)	No	No	No	No	No	No	No	No
Convention on International Transport of Goods under Cover of TIR Carnets (1975)	**Yes**	No	No	No	No	No	No	No
Convention on the Contract for the International Carriage of Goods by Road (1956)	No	No	No	No	No	No	No	No
Convention on the Harmonisation of Frontier Controls of Goods (1982)	No	No	No	No	No	No	No	No

Note:* As of December 2007.
Source: Compiled based on UNESCAP (2007)

The disparity in accession to the international conventions can lead to a number of negative consequences. One of these is the lack of territorial continuity of conventions caused by the non-accession by one or more states located between contracting parties. Because the provision of a convention can be invoked only when the states on both sides of the border are party to the convention, the need for widespread accession cannot be overemphasized. Lack of territorial continuity caused by the non-accession of states located between contracting parties can disrupt the application of the convention.

In South Asia, Bangladesh and Sri Lanka have signed the "Convention on Road Traffic", while India and Pakistan have signed both "Convention on Road Traffic" and "Convention on Road Signs and Signals". Bhutan, Maldives, and Nepal have not signed any one these seven UN Conventions. Except Afghanistan, no South Asian countries have signed the "Customs Convention on the Temporary Importation of Commercial Road Vehicles" or the "Convention on the International Transport of Goods under TIR Carnets". Accession to different versions of conventions is likely to undermine facilitation objectives. For instance, many countries are contracting parties to the Convention on Road Traffic (1949), but have not ratified the new version of the convention (1968). The Convention on Road Traffic (1949) is still valid in relations between the Contracting Parties to it.

Therefore, in order to facilitate the cross-border movements of goods and vehicles, South Asian countries should pursue a closer regional cooperation to accede to all of these conventions.

B. South Asian Arrangement

South Asia is yet to accord a regional transport and transit arrangement for cross-border movement of goods and vehicles. SAARC has Inter-Governmental Group (IGG) to advice on facilitation of transport in South Asia. A battery of proceedings of IGG shows that harmonization of standards and mutual recognition in transport sector has been the key issue in South Asia. There has been less concerned effort to accede to the aforesaid UN Conventions in South Asia.

Of recently, there has been some important developments in regional transportation in South Asia in recent years. As per the directives of the 14th SAARC Summit held in New Delhi in April 2007, the SAARC Ministers of Transport of SAARC countries for the first time met in New Delhi on 31 August 2007. Taking a note of the recommendations of SAARC Regional Multimodal Transport Study (SRMTS), SAARC Transport Ministers agreed to accord a Regional Transport and Transit Agreement, and a Regional Motor Vehicle's Agreement in 2008.[16]

Table 4: Trade and Transit Arrangement in Eastern South Asia

Agreement	Type	MFN Trade	MFN Transit	GATT Signatories
India – Bangladesh	Bilateral	Yes	No	Yes
India – Nepal	Bilateral	Yes	Yes	Yes
India – Bhutan	Bilateral	Yes	Yes	India – Member; Bhutan - Observer
India-Pakistan	Bilateral	No	No	Yes
Pakistan – Afghanistan	Bilateral	Yes	Yes	Pakistan – Member Afghanistan - Observer
Bangladesh – Nepal	Bilateral	Yes	Yes	Yes
Bangladesh – Bhutan	Bilateral	Yes	Yes	Bangladesh-Member, Bhutan - Observer
Bhutan – Nepal	Bilateral	Yes	No	Nepal-Member, Bhutan - Observer

In eastern South Asia, except Bhutan, all other countries are members of WTO. The trade in eastern South Asia is conducted on MFN basis following regional (SAFTA) and the bilateral trade agreements.[17] As shown in Table 4, except the trade between India and Bangladesh, or Bhutan and Nepal, bilateral trade agreements of remaining countries in the subregion offer mutual understanding on transit. The movement of goods and vehicles is controlled through national legislation and a series of bilateral transit and trade agreements – and, in certain cases, also "ad-hoc" arrangements deriving from intent between certain country pairs for mutual cooperation.[18] An example of this mutual cooperation is the movement of Bhutanese goods through Indian territory, which is governed by the stipulations contained in the

[16] SAARC countries have been discussing on a regional Motor Vehicles Agreement (MVA), and a final decision on MVA will be made during the Second Transport Ministers Meeting, scheduled to be held in Sri Lanka in the middle of 2008. Refer, the Note titled "India's Chairmanship of SAARC", issued by the SAARC Division, Ministry of External Affairs, Government of India, 22 April, 2008, New Delhi.

[17] See, Appendix 1 which provides a chronological list of agreements signed by countries in eastern South Asia.

[18] As reported in Padeco (2005), p. II-8. Also see, Rahmatullah (2006)

"Agreement on Trade and Commerce" between the two countries and an attached Protocol.[19]

(i) India – Bangladesh Trade Agreement

Bilateral trade between India and Bangladesh is conducted under the provisions of the prevailing India – Bangladesh Trade Agreement, which was first signed on 28 March 1972.[20] Under the aforesaid trade agreement, both countries provide MFN treatment to each other except in case of transit trade. India has long been negotiating with Bangladesh for agreeing them to transit trade, but seen little progress. Since Bangladesh and India are geographically adjacent, deeper cooperation would be most desired to make the countries agree to transit of goods and services. This will certainly reenergise South Asian regional cooperation and could be an example for others to follow. Nonetheless, India and Bangladesh are also signatories of GATT where Article V of GATT provides opportunities to accord transit arrangement.

- **India – Bangladesh Agreement on Inland Water Transportation**

India and Bangladesh signed bilateral agreement for inland water transportation titled "Protocol on Inland Water Transport and Trade", on 4 October 1999, which was renewed in 2007, for bilateral and transit trade between the two countries. This agreement derives directly from the provisions of the aforesaid India - Bangladesh Trade Agreement.

- **India – Bangladesh Agreement on Railways**

India and Bangladesh signed agreements relating to operation of railways for the purpose of trade in goods and services between the two countries. These agreements derive directly from the provisions of the India - Bangladesh Trade Agreement. Under these agreements, both the countries agreed to operate trains (goods/passengers) through three border routes, namely, Gede (India) – Darsana (Bangladesh), Singhabad (India) - Rohanpur (Bangladesh), and Agartala (India) – Akhaura (Bangladesh).

(ii) India – Nepal Trade Agreement

India and Nepal signed bilateral trade agreement "Treaty of Trade", on 6 December 1991. The Validity of this Treaty of Trade in its existing form stands extended for till 5 March 2012. A Protocol is also attached to this Agreement, which

[19] The India – Bhutan Agreement of 2003 states: "there shall be free trade and commerce between the two countries" and "free movement of goods flowing between the two countries". There are no references however to road vehicles, other forms of surface transport, or of the rules governing the use of Indian road space by Bhutanese vehicles (and vice versa) in either the Agreement or the attached Protocol.

[20] This was an interim arrangement, which identified the commodities to be traded and fixed a monetary ceiling for the export/import of each commodity with a view to achieving balanced trade. This was later replaced by a new agreement in July 1973. The new agreement was amended in December 1974 to include a clause that bilateral trade between the two countries would be conducted in convertible currency effective 1 January 1975. The current agreement was signed on 21 March 2006, replacing the earlier trade agreement signed on 4 October 1980.

defines the operational modalities including the list of bilateral trade routes. India and Nepal also signed an Agreement to control unauthorised trade on 6 December 1991. This Agreement sets out certain procedures for the control and prevention of smuggling.

- **India – Nepal Transit Agreement**

In order to provide a transit access to Nepal, India and Nepal signed "Treaty of Transit" on 5 January 1999. As a result, India provides maritime transit and supporting services and facilities to Nepal at Kolkata and Haldia ports, which are located in West Bengal state of India. A Protocol to the Treaty of Transit between Nepal and India specifies detailed operational modalities including entry and exit points to and from India for the transit trade of Nepal. Besides, both the countries signed a Memorandum to the Protocol to the Treaty of Transit which specifies the detailed procedures to be applied to imports to, and exports from, Nepal.

- **India – Nepal Rail Services Agreement**

India and Nepal entered into a Rail Services Agreement for operating and managing the rail services for Nepal's transit trade as well as bilateral trade between the two countries. Specifically, it specifies transit trade between Kolkata / Haldia ports in India and Birgunj in Nepal via Raxaul in India and between stations on Indian Railways and Birgunj via Raxaul for bilateral trade.

(iii) India – Bhutan Trade Agreement

India and Bhutan signed bilateral trade agreement in 1995, which provides the broad contour of the free trade between the two countries. The Protocol to this trade agreement signed between the two countries specifies the bilateral trade routes (including transit) and detailed trading procedures. Interestingly, there are no references to transport, although the common understanding is that the free movement of vehicles between the two countries is accommodated by the Agreement. India provides transit to Bhutan through Kolkata and Haldia ports.

(iv) Bangladesh - Nepal Transit Agreement

Nepal and Bangladesh does not have any bilateral trade agreement. Instead, they have a transit agreement, signed on 2 April 1976, and a protocol attached to this transit agreement. This transit agreement and the protocol have given transit right to Nepal to access overseas market (3rd country market), but they do not deal with their bilateral overland trade. In order to operationalise the bilateral transit trade, Bangladesh and Nepal have accorded an agreement titled "Operational Modalities for Additional Transit Route between Nepal and Bangladesh", which provides terms for the use of Banglabandha (Bangladesh) – Phulbari (India) – Khakarbitta (Nepal) as transit corridor for bilateral trade. India provides transit to Nepal and Bangladesh for their overland bilateral trade, where this transit corridor is exclusively used for bilateral trade between Nepal and Bangladesh and not for their extra-regional transit trade. Box 2 provides some basic features of this agreement.

(v) Bangladesh - Bhutan Trade Agreement

Bangladesh and Bhutan have signed bilateral trade agreement on 12 May 2003. This agreement grants MFN status to each other's trade. The Protocol attached to this bilateral trade agreement defines Burimari (Bangladesh) – Changrabandha (India) – Jaigaon (India) – Phuentsholing (Bhutan) as transit route for bilateral trade between Bangladesh and Bhutan. Here also India provides transit to Bangladesh and Bhutan for their bilateral overland trade.

From the ongoing discussion, it may be concluded that bilateral trade in eastern South Asia (and subsequent overland transportation) is undertaken through bilateral trade agreements, where India provides overland transit to Bangladesh, Nepal and Bhutan for their bilateral trade, and maritime transit to Nepal and Bhutan for their international trade.

Box 2
Operational Modalities for Additional Transit Route between Nepal and Bangladesh

- This Agreement provides terms for the use of the Khakarbitta (Nepal – Panitanki – Bagdogra - Ghoshipukur by-pass – Phansidewa - Phulbari (India) - Banglabandha (Bangladesh) Corridor.
- Trucks carrying cargo-in-transit would move in convoys of a maximum of 20-25 trucks;
- Cargo-in-transit would move in "pilfer-proof" containers/trucks capable of being sealed;
- Transit would take place over weekdays at specified times;
- Gross vehicle weight of trucks should not exceed 16.2 tonnes for conventional vehicles and 19 tonnes for three or multi-axle vehicles;
- The convoy would be escorted from entry to exit point;
- Only trucks with Nepali registration can be used for the transit;
- Drivers/assistants/cleaners, who would travel with the trucks, should hold identity cards, issued by HMG of Nepal authorities;
- Goods will not be subject to usual customs examination and other checks as long as the seals have not been tampered with or unless there are valid reasons to do so;
- The following categories of goods shall not be allowed for transit (negative list);
    - Firearms and ammunition;
    - Hazardous cargo except petroleum products subject to compliance of safety measures required for such movement;
    - Gold and silver bullion;
    - Goods prohibited for protecting human, animal and plant life;
    - Antiques and similar other objects; and
    - Narcotics and psychotropic substances.
- HMG of Nepal would require to appoint authorised agents (declarants) at Panitanki/Phulbari, who would represent the importers/exporters for the purpose of liaison with concerned Indian authorities. All Nepalese importers/exporters would have to use the services of these agents. The agents would be accountable to these importers/exporters in respect of transactions;
- Insurance/guarantee requirements for Nepalese cargo-in-transit on this route would be waived, provided the Nepal Transit and Warehousing Co Ltd. gives an undertaking to compensate for the possible revenue loss; and
- Government of India and His Majesty's Government of Nepal would take all necessary steps as may be required, for initiating action against offenders when serious violations of the principles governing the transit along this route are noticed.

Source: Nepal – Bangladesh Trade Agreement, Government of Bangladesh

IV. Trade Facilitation: Transit and WTO Rules

In November 2001, the Doha Ministerial Conference called for negotiations on trade facilitation[21] after the 2003 WTO Ministerial and subject to agreement on the modalities of negotiation. The current mandate of the Negotiating Group for Trade Facilitation (NGTF) established in 2004 is mainly to clarify and improve Articles V (freedom of transit), Article VIII (fees and formalities connected with importation and exportation) and Article X (publication and administration of trade regulations) of the GATT 1994. The NGTF has also focused on identifying special and differential treatment for developing and least-developed countries apart from exploring areas for technical assistance and support for capacity building for the developing and the least-developed country members.

A. GATT Article V (Freedom of Transit)

The Article V of the GATT sets out the basic requirement of freedom of transit through the most convenient route and further requires that no discrimination be made on the basis of flag of vessel, place of origin, departure, entry, exit or destination.[22] It also calls on parties not to discriminate on the basis of ownership of goods or means of transport. Further, Article V stipulates the obligation not to impose any unnecessary delays or restrictions on transit. It also requires Members to impose reasonable fees and charges that would be non-discriminatory and limited to the cost of service provided.

Proposals on Article V have been made by Canada, European Communities, Korea Bolivia, Japan, Kyrgyz Republic, Mongolia, Paraguay, Cuba, Rwanda, Switzerland, Peru, Rwanda, Singapore, Bolivia, Japan, Kyrgyz Republic, Mongolia and Paraguay. The proposals relate to simplification of procedures for transit, exceptions to the principle of non-discrimination for sensitive items, regional trade arrangements and use of international standards.

Table 5: Landlocked Countries in South Asia and Transhipment Points

Landlocked Country	Transshipment Seaport	Transshipment Country
Afghanistan	Karachi	Pakistan
Bhutan	Kolkata, Haldia	India
Nepal	Kolkata, Haldia	India

In the South Asian context, as noted in Table 5, Afghanistan, Bhutan and Nepal being landlocked have bilateral transit arrangements with neighbouring

[21] The WTO defines trade facilitation as "the simplification and harmonization of international trade procedures, where international trade procedures" are defined as the "activities, practices, and formalities involved in collecting, presenting, communicating, and processing data required for the movement of goods in international trade." In the end, the objective of trade facilitation is to reduce the cost of doing business for all parties by eliminating unnecessary administrative burdens associated with bringing goods and services across the borders. The definition makes it clear that trade facilitation relates to a variety of activities such as import and export procedures (customs or licensing procedures), customs valuation, technical standards, health and safety standards, administrative procedures, transportation and shipping; insurance, payment and mechanisms and other financial requirements, and goods in transit.

[22] See Appendix 2, which provides text of GATT Article V.

countries. However, countries often link Article V going beyond standard argument of regional or multilateral transit commitments. For example, India requires transit facilities from Bangladesh for transporting goods to India's Northeastern region. It is important to note that goods to India's Northeastern region are transported along the circuitous route around Bangladesh. Movement of cargo through Bangladesh is likely to reduce the distance significantly. Also, there are considerable delays at the cross-border processing at the two countries. In fact, it has been estimated that such costs would offset any potential benefits from the reduced distance.[23] If border-crossing procedures are significantly reduced and transit access for Indian vehicles is allowed, (which under the current transit arrangement is not allowed) there will be significant savings in time and cost. India has preferred to deal with transit issues at a bilateral level in South Asia. Not much headway has been made on this issue with Bangladesh. However, with Nepal the issue of transit has always been a key feature of the bilateral protocols and Agreements.

(i) Simplification of Procedures for Transit

WTO Members have made suggestions on facilitating transit through simplification of documentary requirements and procedures required for transit. Members have suggested that as fees, simplification of procedures for transit purposes bears a close resemblance to provisions of Article VIII the submissions made by Members to the Council on Article VIII automatically apply to transit. In this context, Members have suggested that specific guidelines are needed on how unnecessary procedures can be reduced or simplified. In addition, requirements and procedures for transit should be less onerous than those for importation. Other suggestions include introduction of mechanisms that would institutionalize cooperation among the Member countries, harmonizing transit policies between Members and sharing of information among custom authorities could further facilitate transit. Recognizing the need for simplification of transit procedures, the 'Indo-Nepal Treaties of Trade, of Transit, and Agreement for Cooperation to Control Unauthorised Trade' was revised in 1996 in which new procedures were to be applied in the clearance of Nepalese containerised traffic in transit to and from Nepal.

(ii) Exceptions to the Principle of Non-discrimination for Sensitive Items and Goods Requiring Transhipment

WTO Members have pointed out that it may not always be possible to apply the principle of non-discrimination to all types of consignments. Certain goods may be subject to special provisions. However, Members should consider the publication of the list of such 'sensitive items'. Similarly it has been pointed out that in cases where there is a possibility of illegal release of transit goods (as in the case of land-locked countries), more sophisticated risk management techniques may be required. Also, goods in transit that require trans-shipment may need additional inspection (in relation to those that do not require trans-shipment) to prevent the smuggling of goods in transit into the transit country.

While India allows transit facilities to Nepal, it has faced the problem of leakage of third country goods into its markets (Chaturvedi, 2007). This issue has come up time and again with the Indian authorities. In fact the issue of unauthorized

[23] See, for example, Subramanian and Arnold (2001), De (2005), De and Ghosh (2008), to mention a few.

trade has been addressed in the bilateral agreements between India and Nepal signed since 1961. The Indian Customs maintains a list of sensitive items so that such goods are under closer scrutiny during transit from Indian soils. However, such a list, though circulated within Customs, is not made publicly available. Similarly, goods for transhipment require additional inspection to prevent smuggling. A large proportion of goods in transit from India to Nepal, first arrive by sea to the Indian port of Kolkata and are then transhipped by road and rail to Nepal. India could accept the proposal that goods in transit requiring transhipment may need additional inspection.

(iii) Regional Transit Arrangements

The existing Article V requires WTO Members to operate national transit schemes but does not recognize the issue of transit at a regional level. Members have pointed out that the solution to transit can be found through regional cooperation as can be witnessed in some of the existing international and regional transit instruments, such as, the TIR Convention, the European Convention on common transit; the ASEAN Framework agreement on the facilitation of goods in Transit, and UN instruments relating to transit. Thus, Members could consider the establishment of regional transit regimes within the framework of Article V.

India plays a dual role in transit, both as a provider of transit facilities to Nepal and as a seeker of transit facilities from Bangladesh. Currently India has a bilateral treaty on transit with Nepal. It is in India's interest to enter into a similar bilateral transit arrangement with Bangladesh so that it can access the remote areas of the Northeastern region at lower costs and time. However, Bangladesh has been reluctant to offer transit facilities to India as it fears leakage of Indian goods into Bangladesh. As the proposals on transit address the issue of leakage of goods by allowing Members to implement additional inspection on such goods and requesting Members to publish a list of sensitive items, India and Bangladesh could take into account the suggested measures in framing a bilateral treaty on transit.

(iv) Use of International Standards

WTO Members have suggested the use of international standards for transit. Members could consider the possibility of accession to various instruments relating to transit such as The Customs Convention on the International Transport of Goods under cover of TIR Carnets (TIR Convention), Geneva, 14 November 1975; and The Customs Convention on the ATA Carnet for the Temporary Admission of Goods (ATA Convention), Brussels, 6 December 1961; The Convention on Temporary Admission (done at Istanbul, 26 June 1990) (as per Annex A as it relates to ATA Carnets).

The TIR Carnet is a road transport document which allows containerized and in some cases bulk cargo to move through simplified and harmonized administrative formalities. The ATA Carnet is designed to facilitate the importation, irrespective of the means of transport, of goods, which are granted temporary duty-free admission (including transit, importation for home use and temporary admission).

Although they would simplify transit considerably, the use of international standards such as the ATA Carnets or the TIR Carnets, is absent in the South Asian countries (Table 3). India, Bangladesh and Nepal do not accede to the TIR

Convention or the ATA Convention India uses the ATA Carnet, for a very limited purpose, mostly for duty free temporary admission of imports. The requirements of the TIR Convention (in terms of specifications for vehicles and procedures) would be extremely difficult to adhere to for countries like India, Nepal and Bangladesh. Also, it is difficult to envisage at present the possibility of the IRU recognizing an association in a Member country that would accept the obligations and conditions set out by the IRU. At this stage these countries would be unable to meet the rigorous requirements of the Convention as it would require enormous resources and a fairly large time span. India could however accept these international standards on a 'best endeavour basis'.

(v) Relevance of the Revised Kyoto Convention

The principles of the Customs Transit Procedures are covered in detail in Specific Annex E, Chapter E.I of the Revised Kyoto Convention and provide for a safe, secure and standard transit procedure. The World Customs Organisation (WCO) encourages its Members to accede to international Conventions relating to transit such as the TIR Convention and instruments provided by the WCO on Customs transit that facilitate transit procedures for temporary admission of goods. They suggest further that if Members are not in a position to accede to these Conventions, while drawing up multilateral/bilateral agreements they should take into account Customs transit, standards and recommended practices mentioned in the Revised Kyoto Convention.

Box 3
Trade Facilitation and Regional Cooperation

Regional economic integration initiatives usually focus on trade liberalization, tariff reduction and quota abolition. However, trade facilitation issues too have received increased attention in recent years. In fact, several specific trade facilitation measures, including those related to transit trade and coordination at border crossings, are often included in the trade promotion agendas of regional organizations. Likewise, removal of trade barriers is recognized as a driver of regional integration and development.

Typical regional activities concerning trade and transport facilitation include capacity building, regional customs bond guarantee schemes, rules of origin, the licensing of clearing agents, common customs standards, regional unification of documents, and mutual recognition of third-party motor vehicles and drivers' licenses. Schemes enabling cooperation between customs authorities and regional networks of chambers of commerce also exist at the regional level. Furthermore, regional mechanisms, such as agreements to simplify visa procedures, are often established to facilitate the movement of people. Given that vehicles which move traded goods also require the movement of people, such schemes also facilitate trade in goods.

Eastern and southern Africa's main challenges in intra-regional trade relate to customs clearing agents, clearing fees, demurrages, transit periods, revenue leakage and transport infrastructure. As to transit delays, specific constraints relate to inadequate capacity of agents, excessive documentation requirements, corruption, lack of coordination, insufficient use of adequate ICT, and incomplete information about applicable rules and regulations.

It was suggested that, in western Africa, a regional initiative be developed to establish a coordinating body or agency mandated to coordinate implementation of agreed WTO trade facilitation measures in the region. It was argued that differing capacities among countries in the region and individual circumstances require an overarching body to oversee and

coordinate implementation of trade and transport facilitation measures. In southern and eastern Africa, COMESA has embarked on several regional trade and transport facilitation initiatives, especially as regards transit trade.

In South America, many trade facilitation initiatives are closely linked to the Initiative for Regional Integration in South America (IIRSA) and its infrastructure programmes. Trade and transport facilitation may be incorporated into regional integration processes such as the adoption of ICT, multimodal transport, financial instruments and regional energy markets. Other major initiatives are taking place within sub-regional groupings, in particular MERCOSUR.

In central and western Asia, a particularly important issue relates to transit trade, as the region includes many land-locked countries and, as a whole, is located between major trading blocs, whose trade transits through the region. The Economic Cooperation Organization (ECO) is working on several programmes to facilitate transit trade.

Land-locked countries depend heavily on effective trade and transport facilitation and require adequate transport infrastructure, an enabling legal framework, an effective administrative setting, and human resources and ICT capacity.

It was recognized that, while cooperation through bilateral or regional transit arrangements is essential, agreements or instruments adopted at the local and regional levels should remain consistent with the objectives of relevant internationally agreed conventions.

Source: UNCTAD (2005)

B. Multilateral and Regional Commitments on Transit of South Asian Countries

Trade facilitation issues have received growing attention in several regional cooperation initiatives across the world (Box 3). Although the GATT Article V assumes greater significance in South Asia, the freedom of transit has been completely ignored in regional trade agreement in South Asia. The comparative chart in Table 6 on the provisions of TF measures in regional and bilateral trade agreements in South Asia tells us neither SAFTA nor bilateral FTAs adequately addressed the issue of transit. In sharp contrast, the India-Singapore CECA has several provisions on the same. For example, India – Singapore CECA provides provisions of non-discrimination, no additional fees and documentations when the goods in transit, and there is clear provision of coordination and cooperation to safeguard the interests of exporters and importers. We provide here country-wise evidences on GATT Article V.

Bangladesh

In Bangladesh, Article V has immense relevance since it has potentials to offer transit facilities to nearby landlocked countries and landlocked region with a country. Nepal and Bhutan have shown keenness to use two sea ports of Bangladesh viz. Chittagong and Mongla. However, it is not clear what all specific measures have been taken by Bangladesh as part of the proposed Article V for instance, related to documentation, securities and guarantees, seals and identifications and charges on transit goods. The role of private sector in supplementing efforts for implementing Article V is also not clear. However, Bangladesh has established extensive network of institutions for border agency coordination.

Table 6: Matters related to Goods in Transit

TF Measures	SAFTA	India-Sri Lanka FTA	Pakistan-Sri Lanka FTA	Indo-Singapore CECA
Non-discrimination	No	No specific provisions	No specific provisions	Transit goods would not be discriminated.
Discipline on fees and charges	No	No specific provisions	No specific provisions	No additional fees charged.
Discipline on transit formalities and documentation requirements	No	No specific provisions	No specific provisions	No additional documentation required (Article 3.14)
Coordination and cooperation	Provisions regarding consignment	No specific provisions	No specific provisions	Mechanism in place.

Source: Chaturvedi (2007)

India

In case of Article V, India has extended transit to landlocked countries like Bhutan and Nepal. Table 7 provides the status of TF measures on Article V in India. The Indian customs require declaration of all the transit goods as per the standard declaration form available on site and also at the relevant offices. Customs is making an effort to enhance the level of coordination among various border agencies. As different degrees of security concerns are present at different points in the country there is a limited use of simplified transit declaration. Customs has also launched work on simplifying procedures established for the authorized consignors involved in the transit procedures. No duty or tax is charged by India on the transit goods. There are no cash deposits required for goods in transit and securities and guarantees are discharged as soon as the necessary requirements are met.

Transit of goods through India from or to countries adjacent to India is regulated in accordance with the bilateral trade and transit treaties and is subject to such restrictions as may be specified by the Directorate General of Foreign Trade (DGFT) in accordance with international conventions. In order to tackle abuse of the Customs transit corridors, the Government of India has issued a list of sensitive commodities at periodic intervals, keeping domestic market requirements as criteria. At present, there are nine such commodities identified as sensitive commodities. In the recent past, the Directorate of Revenue Intelligence (DRI) has caught several consignments worth millions of rupees which were being directed for domestic consumption in India. This has become a major issue especially with Nepal.

Nepal

Many features of Article V are not applicable to Nepal being a landlocked country. However, Nepal has launched several measures to facilitate transit trade destination for Nepal. It has signed trade transit treaty with India for easy access to the Kolkata and Haldia ports. A standardized customs transit declaration document is also introduced, which is in operation with India.

Table 7: WTO TF Proposals and Status of Trade Facilitation Measures on Transit (Article V) in India

Groups of Measures Falling Under Those Areas	Status in India
1. Strengthened Non-Discrimination	√
2. Disciplines on Fees and Charges	
(a) Publication of Fees and Charges and Prohibition of Unpublished ones	√
(b) Periodic Review of Fees and Charges	√
(c) More effective Disciplines on Charges for Transit	√
(d) Periodic Exchange between Neighbouring Authorities	√
3. Disciplines on Transit Formalities and Documentation Requirements	
(a) Periodic Review	√
(b) Reduction/Simplification	√
(c) Harmonization/ Standardization	X
(d) Promotion of Regional Transit Arrangements	√
(e) Simplified and Preferential Clearance for Certain Goods	X
(f) Limitation of Inspections and Controls	X
(g) Sealing	X
(h) Cooperation and Coordination on Document Requirements	√
(i) Monitoring	√
(j) Bonded Transport Regime/Guarantees	X
4. Improved Coordination and Cooperation	
(a) Amongst Authorities	√
(b) Between Authorities and the Private Sector	√

Note: √ represents TF measures introduced and absence of measures are indicated by X.
Source: Chaturvedi (2006), based on WTO TN/TF/W/43/Rev.4

Pakistan

Private sector is being engaged in improving the quicker clearance of goods in transit without any discrimination. Pakistan has extended transit to Afghanistan, which is landlocked. As per the National Trade and Transport Facilitation Project (NTTFC), private sector is being engaged in improving the quicker clearance of goods in transit without any discrimination. Pakistan has recently introduced Pakistan Customs Computerized System (PACCS) for faster Customs operation including transit and transhipment.[24]

Sri Lanka

In Sri Lanka, the government has decided to support rapid clearance of goods in transit. In this context, a policy of non-discrimination for transit goods is in place, which also ensures simplified clearance procedures. Provisions have also been made for acceptance of guarantees against the clearance of goods in transit. On a selective basis, risk assessment is launched while pre-arrival clearance is extended only to

24 The PACCS is a completely paperless one window system accessible from anywhere in the country and only requires PACCS User ID, and internet connectivity. This highly sophisticated risk management system is fully automated and works 24x7 on the basis of self assessment. Refer, WTO (2006) Communication from Pakistan, TN/TF/W/135, Negotiating Group on Trade Facilitation, 17 July 2006

courier cargo with additional measures for quicker clearance of perishable goods. The scheme of post-clearance audit has also been introduced.

The foregoing discussion suggests that the GATT Article V has major significances for South Asia. First, we may amend SAFTA and bilateral FTAs in line with GATT Article V. Second, we encourage the WTO TF programmes in order to strengthen the "Freedom of Transit" rights. According to Chaturvedi (2007), the current WTO TF programme may have to go beyond current mandate and take into account specific WTO commitments which may emerge during the ongoing negotiations as per the GATT Articles V, VIII and X. There are five broad concerns in Article V which are addressed by the various proposals viz. matters relating to transit goods, disciplines on fees and charges, disciplines on transit formalities and documentation requirements, improved cooperation among authorities.[25] However, the key hurdles in terms of implementing Article V are related to different standards and regulations adopted by various neighbouring countries, inadequate transport infrastructure and different level of automation (UNESCAP, 2007). The lack of common legal approaches and border crossing formalities also hamper effective implementation. The lack of transparency in transit fees and charges which is sometime discriminatory as well is another major challenge.

Among the key proposals received on Article V, the issues covered are transit regime, procedures and technical assistance. There are suggestions to develop transit regime based on international standards and adherence to international instruments for dealing with goods in transit for which regional transit cooperation agreements may be put in place. The proposals emphasize on reasonable, non-discriminatory and simplified procedures for cross-border movement of vehicles. There is a suggestion to implement the principles of simplification, standardization, and transparency in implementing the Article V.[26] Efforts may also be made to minimize the burden on cargo in transit and in differentiating cargo undergoing transhipment and review the present documentary requirements and fees for non-transhipped goods in transit, as well as those for goods in transit with transhipment. There is also a suggestion to introduce risk management for authorized traders. The maximum technical assistance is possibly required for Article V as landlocked countries for example in South Asia are at different levels of development. The technical assistance and capacity building programmes needs to take this into account. The different levels of ICT compatibility, trained manpower and security concerns are the key challenges.

V. Transit and Trade Barriers at Border Crossings in Eastern South Asia: Field Survey Results

In South Asia, much of the merchandise trade between India and its mainland neighbouring countries is taking place along land routes, particularly through the road corridors. However, as discussed in previous sections, except between Nepal, Bhutan and India, there is no cross-border direct movement of road freight transportation between India and Bangladesh and between Pakistan and India. At the Bangladesh -

[25] See, for example, WTO (2005) Article V of GATT 1994: Scope and application, TN/TF/W/2, Negotiating Group on Trade Facilitation, 12 January 2005

[26] Refer, WTO (2008) WTO Negotiations on Trade Facilitation: Compilation of Members' Textual Proposals, TN/TF/W/43/Rev.14, Negotiating Group on Trade Facilitation, 12 March 2008.

India and the Pakistan – India borders goods are required to be transhipped as no direct through road transport movement across the border is allowed.[27] However, the potential of freight movement by road between the geographically adjacent countries of South Asia is tremendous, once such a through transport movement can be facilitated (ADB, 2005).

In view of the importance of GATT Article V and the required facilitation, we attempt here to understand the extent of transit systems in place in selected land corridors in eastern South Asia. First, we carry out a systematic comparative analysis of the transit arrangements and the subsequent mechanisms in place in eastern South Asia. This has been done through field survey conducted in Bangladesh, Bhutan, India, and Nepal. Second, this leads us to identify the potential gap, which will be helpful for us to prescribe effective transit measures for facilitation of trade in the subregion.

Table 8: Surveyed Border Crossing Corridors

	Land Corridor*		**Border Crossing Corridors Surveyed**	**Border Customs Stations**
	Lahore – New Delhi – Kolkata – Petrapole – Benapole – Dhaka (2322 km)		Petrapole (India) / Benapole (Bangladesh)	Wagha(Pakistan) / Wagha Border (India), Petrapole (India) / Benapole (Bangladesh)

[27] However, the cross-border transportation of railway freight is permitted between India and Pakistan and India and Bangladesh in certain routes partially,

	Thimphu – Phuentsholing – Jaigon – Kolkata / Haldia (760 km)		Phuentsholing (Bhutan) / Jaigaon (India), Changrabandha (India) / Burimari (Bangladesh)	Phuentsholing (Bhutan) / Jaigon (India)
	Thimphu – Phuentsholing - Jaigaon – Burimari- i) Dhaka – Chittagong (966 km) and ii) Mongla (880 km)			Phuentsholing (Bhutan) / Jaigaon (India), Changrabandha (India) / Burimari (Bangladesh)
	Kathmandu – Kakarvitta - Phulbari – Banglabandha – i) Mongla (1362 km) or ii) Dhaka – Chittagong (1442 km)		Kakarvitta (Nepal) / Panitanki (India), Phulbari (India)/ Banglabandha (Bangladesh)	Kakarvitta (Nepal) / Panitanki (India), Phulbari (India) / Banglabandha (Bangladesh)

	Kathmandu – Kolkata/ Haldia (1323 km)		Birgunj (Nepal)/ Raxaul (India)	Birgunj (Nepal) / Raxaul (India)

Note: * Distance noted in this table represents an approximate length of the corridor

Our methodological discourse towards assessing the need for transit follows a wide spectrum of studies on the similar topic in other regional blocs. We conduct an econometric exercise to capture the intensity of this barrier on trade flow. The analysis is based on both secondary and primary data. We have selected four land border crossing corridors (and corresponding land customs stations) connecting the four countries in the subregion. Table 8 provides the list of four border corridors, which are the potential transit points falling in the Asian Highway (AH) and/or SAARC Regional Multimodal Transport (SRMT) corridors. Map 1 in Appendix 3 illustrates the survey region and the Appendix 4 provides the field survey questionnaire.[28]

Our purpose of the field survey is to understand the state of affairs of LCSs in aforesaid four border crossing corridors in the subregion. Selection of four border crossing corridors was based on (i) potential to provide direct connectivity by enabling through movement across the subregion; (ii) ability to provide access for landlocked countries to ports or to other major transport networks; and (iii) potential to provide shorter routes that would provide major transport cost savings. We present a narrative summary and the field survey results for each of the surveyed corridors next.

(a) Petrapole (India) - Benapole (Bangladesh)

Petrapole – Benapole border crossing corridor falls under the SAARC Highway Corridor 1: Lahore – New Delhi – Kolkata – Petrapole/Benapole - Dhaka – Akhaura/Agartala, This corridor, covering a distance of 2,453 kms, starts at Lahore, crosses the border at Wagha (Pakistan)/Attari (India) and reaches New Delhi using the NH 1. From New Delhi to Kolkata, it follows the Golden Quadrilateral Network and reaches Petrapole (India) / Benapole (Bangladesh) using the NH 34 and NH 35. The corridor then uses National Highway N 706 up to Jessore, N 702 up to Magura and then the N 7 to reach Daulatdia on the west bank of Jamuna River. After crossing the river, from Paturia, the corridor follows the N 5 to reach Dhaka. From Dhaka it

[28] A large part of secondary information including quantitative information was collected from Padeco (2005) report, which was conducted for Asian Development Bank (ADB), TA No 6112-REG.

follows the N 2 and N 102 up to Dharkar and then R 120 to reach Akhaura (Bangladesh). From Akhaura, the corridor follows the NH 44 to reach Agartala (see Map 2 in Appendix 3).

Table 9: Barriers at Petrapole - Benapole

Physical (hardware) Barriers	• Cargo to be transhipped due to lack of through trucking services • Lack of adequate warehousing/storage capacity • Insufficient parking space for trucks or space for unloading the goods for checking • Lack of loading/unloading facilities to international standard • Narrow pavement and the access road passes through congested towns/cities in Indian side resulting in slow transits and movement of goods and passengers • Inadequate banking and communication facilities
Non-Physical (software) Barriers	• Cumbersome trade and transportation documentation • Lack of standardisation of documentation and implementation of modern customs procedures • Lack of through bills-of-lading • Lack of harmonisation of office hours and holidays • Restrictions on vehicle movement between countries • Overloading of vehicles • Customs valuation

Table 9 captures the list of common barriers at both sides of the India-Bangladesh border falling in this particular corridor. Intensity of physical (hardware) barriers at Petrapole-Benapole is much more than the non-physical (software) barriers. Among the physical barriers, we have found that transhipment of cargoes, lack of adequate warehousing/storage facility, inadequate parking space for trucks or space for unloading/unloading of goods, narrow pavement (only 5.5m wide) and the access road passes through congested towns/cities in Indian side are adding to transaction costs at border. The intensity of non-physical barriers is also very high at this border. For example, each country requires different documents, such as transit, export, and import declarations. Exporters are required to prepare separate documents on each side of the border resulting in errors in the transposition process.

At present there is no agreement between Bangladesh and India for freight and vehicles movement by road. Thus, trade has to be transhipped at the border. This transhipment of cargo is carried out either by unloading the cargo in the warehouses of the other country or directly from one vehicle to another in at the 'no-mans' land at Benapole (Bangladesh). At Petrapole (India), Customs checking is done at a place other than within the terminal premises, which results in delays and increased transaction costs. There continues to be the absence of a simplified legal framework and unified Customs documentation between India and Bangladesh.

Within India, lengthy delays occur frequently at the border and in unloading at Customs storage warehouses. At the India – Bangladesh border, weekly holidays are on different days. The Bangladeshi Customs are closed on Friday and often on Saturday. Nothing can be processed on a holiday. On the Indian side, while cargoes can be processed on Sunday, which is a holiday, there is no appraisal service available

on that day. Under present procedures in use, about 300 trucks per day are able to cross the border line for transhipment of goods.[29]

Average dwell time of cargo passing through the border is in the order of 7-15 days, caused by delays in the logistic chain, i.e. mainly the delivery of documents to clearing and forwarding (C&F) agents by importers. However, the lack of transparency of inspection procedures and inadequate documentation are also cited as major constraints. The lack of bank cheque clearing facilities at Benapole forces clearing and forwarding agents to travel to Jessore to deposit money in a Customs account and then to return to Benapole with receipts to show that the necessary payments have indeed been made and this leads to additional delays in clearance. There are also high charges associated with cargo insurance. Along with it, according to both Chaturvedi (2007) and Bhattacharya and Hossain (2006), the Customs valuation is also another trade barrier between the two countries. Another important aspect is human resource capacity. Both the countries Customs officials and related agency personnel have to be trained in a manner to expedite all Customs related formalities at ports and borders. There should be interactions among the Customs officials of the two countries at a regular frequency.

(b) Phuentsholing (Bhutan) - Jaigaon (India) - Changrabandha (India) - Burimari (Bangladesh)

This corridor falls in the SAARC Highway Corridor 8: Thimphu – Phuentsholing - Jaigon – Chengrabandha - Burimari - i) Chittagong (966 kms) and ii) Mongla (880 kms). From Thimphu, the corridor follows the Thimphu - Phuentsholing Highway (TPH) to reach the border at Phuentsholing/Jaigon (India). From Jaigon, the corridor uses the NH 31 and NH 34 to reach the Bangladesh border post at Burimari. The corridor then uses the N 509, N 506 and N 5 to reach Hatikumrul. From Hatikumrul, the corridor follows two different routes, to reach Mongla port it follows the N 507, N 6, N 704 and N 7 and to reach Chittagong it follows the N 5, N 405, N 4, N 3 and N 1 (see Maps 3 and 4 in Appendix 3).

Table 10: Barriers at Phuentsholing (Bhutan) - Jaigaon (India) – Changrabandha (India) - Burimari (Bangladesh)

Physical Barriers	• Narrow road between Thimphu and Phuentsholing • Weight limitation of truck plying between Thimphu to Phuentsholing; a six-wheel truck is only allowed to carry 8 tonnes within Bhutan. • Lack of adequate parking space, proper cargo handling equipments (cranes, forklifts, etc.) at Phuentsholing • Insufficient customs offices at Phuentsholing • Inadequate parking place at the Jaigon leading to roadside congestion • Lack of warehousing, parking areas, cargo yard, etc. at the Burimari • Inadequate electricity, absence of radio network, poor telecom facilities, and absence of baggage scanners at Burimari
Non-Physical Barriers	• In Bhutan, the lack of through–bills-of-lading, slow customs clearance and lack of common standardized formats for documentation, including electronic documentation • There is no agreement between Bangladesh, Bhutan and India for free movement of vehicles between these countries which leads to transhipment at Burimari.

[29] Refer, for example, De and Bhattacharyay (2007)

	• Lack of transparency in Custom inspection and procedures in Burimari • Bangladeshi Customs officers are required to be summoned from Panchagarh, located 50 kms. away from the border. • Cargoes are required to be transhipped between Bangladesh registered vehicles and Bhutan registered vehicles leading to escalation of costs and time

Phuentsholing (Bhutan) - Jaigaon (India)

From Thimphu, the corridor follows the Thimphu - Phuentsholing Highway (TPH) to reach the border at Phuentsholing/Jaigon (India). From Jaigon, the corridor uses state roads up to Hansimara and then follows the NH 31, NH 31C and NH 34 to reach Kolkata. From Kolkata, it follows the NH 6 and NH 41 to reach Haldia port (see Map 4 in Appendix 3).

Table 10 shows the barriers at Phuentsholing (Bhutan) - Jaigaon (India) – Changrabandha (India) - Burimari (Bangladesh) border corridor. Investments are needed to improve the road sections in Bhutan and the border facilities at both Phuentsholing and Jaigon. In case of non-physical barriers, there is a need to promote the use of "through bills of lading", as well as standardized formats for documentation. In particular, Burimari land border station in Bangladesh needs special attention, which lacks in warehousing and cargo loading / unloading facilities. Besides, it also suffers from electricity and communication system. There is a lack of transparency in Customs inspection and procedures in Burimari. For example, Bangladeshi Customs officers are required to be summoned from Panchagarh, located 50 kms away from the border. To address non-physical barriers, India, Bhutan and Bangladesh need to develop a formal motor transportation agreement for free movement of goods and vehicles along the border corridor.

(c) Kakarvitta (Nepal) - Panitanki (India) - Phulbari (India) - Banglabandha (Bangladesh)

This border crossing corridor falls in SAARC Highway Corridor 4: Kathmandu – Kakarvitta - Phulbari – Banglabandha – i) Mongla (1,314 kms) or ii) Chittagong (1,394 kms). This corridor starts at Kathmandu and uses the East-West Highway to reach the border at Kakarvitta (Nepal)/Panitanki (India) and then it follows the NH 31C, NH 31 and SH 12A for short stretches and partly a state road of West Bengal to reach Phulbari (India) / Banglabandha (Bangladesh). From Banglabandha, the corridor follows the N 5 up to Hatikumrul and then it follows two different routes - one follows the N 507, N 6, N 704 and N 7 to reach Mongla port and the other uses the N 405, N 4 and N 3 to reach Dhaka. From Dhaka the corridor follows the N 1 to reach Chittagong (see Map 5 in Appendix 3).

Table 11: Kakarvitta (Nepal) - Panitanki (India) - Phulbari (India) - Banglabandha (Bangladesh)

Physical Barriers	• In Nepal, along the corridor from Kathmandu – Kakarvitta, the 36 kms section from Mugling to Narayanghat faces frequent landslides. • A number of bridges along the Hetauda to Pathalaiya section in Nepal are only of single lane and will become a major constraint as traffic increases. • In India, the constraint is the lack of permanent Customs offices at

	Phulbari border post. • Inadequate immigration facilities at Panitanki and Phulbari. • Foreign exchange facilities do not exist at Panitanki and Phulbari. • Weight limitation on bridges in Bangladesh • Lack of permanent facilities covering immigration, Customs, post office and telephones at Banglabandha.
Non-Physical Barriers	• Lack of bilateral transport agreements between India and Bangladesh and India and Nepal • In Bangladesh, there is lack of transparency in Custom inspection and procedures. • At the border, cargoes are required to be transhipped between Bangladeshi registered vehicles and Nepali registered vehicles. • Bangladeshi Customs officers are stationed at Panchagarh, 50 kms away from Banglabandha • In India, trucks can not move freely at any time of the day between Bangladesh and Nepal. The trucks must be escorted in a convoy at a time mutually agreed between the parties concerned.

Table 11 provides a list of physical and non-physical barriers of the aforesaid corridor between India, Nepal and Bangladesh. Apparently, this corridor has the potential to become a major regional and multilateral transit corridor, provided we address the physical barriers adequately, particularly in Nepal. In Nepal, along the corridor from Kathmandu – Kakarvitta, the 36 kms section from Mugling to Narayanghat faces frequent landslides. A number of bridges along the Hetauda to Pathalaiya section in Nepal are only of single lane and will become a major constraint as traffic increases. Since this corridor is used for the trade between Nepal and Bangladesh, India is yet to develop Phulbari as a full border Customs station. Another drawback is cargoes are required to be transhipped between Bangladeshi registered vehicles and Nepali registered vehicles at Phulbari thus adding costs due to multiple handling. On Bangladesh side, Bangladeshi Customs officers are stationed at Panchagarh, 50 kms away from Banglabandha, which is simply unfavourable to the entire trade operation. However, to popularize trade at this corridor, India, Nepal and Bangladesh need to develop bilateral transport agreement.

(d) Birgunj (Nepal) - Raxaul (India)

This corridor starts at Kathmandu and reaches the border point at Birgunj/Raxaul (India) passing through Mugling, Narayanghat and Hetauda. From Raxaul, the corridor follows NH 28A, NH 28, NH 31, NH 34, NH 6 and NH 41 to reach Kolkata/Haldia port (see Map 6 in Appendix 3).

Table 12: Birgunj (Nepal) - Raxaul (India)

Physical Barriers	• In Nepal, one of the major constraints is the long distance involved from Kathmandu to Birgunj (276 kms) that could be reduced to 120 kms if a new 'Fast Track Road' were built. • The 36 kms section from Mugling to Narayanghat in Nepal faces frequent landslides. In addition, a number of bridges along the Hetauda to Pathalaiya section are only single lane and could become a major constraint as traffic increases. • Congestion at the Birgunj border is a frequent phenomenon • Customs yard for road-based cargo is inadequate. • In India, bad road conditions, particularly in Bihar, reduce truck speeds to

	20 km per hour over an approx. 180 km section and consequently adds one whole day to the journey times. The section Motihari – Sagauli – Ramgarhwa - Raxaul (NH 28A, around 50 kms distance) is highly congested. • Parking space at Raxaul for unloading goods for checking is not available • Immigration office lacks in basic amenities. • Most of the work of the office is performed in the yard in front of the office building. • The absence of foreign exchange facility at the border
Non-Physical Barriers	• In Nepal, absence of through bills-of-lading provided by shipping lines. • The present conditions favour unstuffing of containers in Kolkata/Haldia port, rather than be carried through as FCLs to Nepal. • Problem associated with Customs inflexibility with time. • Facilitation payments in India and the imposition of bonds discourage Nepalese truck owners from taking their trucks to Kolkata/Haldia port. Similar problems apply to Indian trucks entering Nepal. • The 'Indian Standards Institute' does not readily accept standards set by the counterpart 'Nepali Standards Bureau'. • Very high insurance/bond prices charged by Indian Customs when associated with 'sensitive cargoes', even though these do not reflect the losses sustained. • Abandoned Nepali cargo can not easily be disposed of at Kolkata/Haldia ports. • No computerisation at the borders, and documentation processed manually. • Lack of security in some of the remoter areas along the corridor and as a result trucks sometimes do not travel at night.

Table 12 provides a list of physical and non-physical barriers at Birganj – Raxaul border corridor. We feel that investment is needed to build the 'Fast Track' road between Kathmandu and Birgunj as this would significantly reduce transit times in Nepal. However, the most important measure would be to address the problem of the 180 kms through Bihar which is seen as a priority by Nepalese traders and transporters. As indicated, this adds a whole day to the transit. Investments are also needed to improve facilities at both the Birgunj and Raxaul border points and development of a road-based freight station at Birgunj. In the context of non-physical barriers, there is a need to promote the system of through bills of lading and to standardize the Indian Customs Transit Declaration (CTD). Both Indian and Nepalese authorities should also address the various non-physical measures mentioned in Table 12 through mutual consultation, particularly the formalisation of the road transport arrangements between the two countries.

A. Status of Trade Facilitation Services at Border in Comparison

Table 13 provides a comparative chart of 14 surveyed Land Customs Stations (LCSs). Box 4 captures field level observations. A quick glance of Table 13 tells us that these LCSs have many things in common, and they have several dissimilarities as well. While there is no mismatch in timing of operation of Customs and Immigration among the LCSs, days of operation differ between India and Bangladesh. Baring Immigration, Customs and Security, which are essential part of all the LCSs, rest facilities in physical and non-physical categories varies across the LCSs. For example, except Birganj, none is having an exclusive container handling yard attached to

border. Similarly, except Petrapole, none has effectively adopted fast track cargo clearance system. So is also the case of e-governance of Customs. While Petrapole and Raxaul use ICEGATE, Benapole and Birganj use ASYCUDA. Deviating from its main usage, what we found at the time of field survey is that ASYCUDA in Nepal has been used for calculation of revenue and other administrative purpose. Customs formalities in remaining LCSs are mostly handled manually. The existing EDI system also suffers from certain shortcomings which add to the transaction costs. For example, though the filing of declarations has been made possible online, a hard copy of the declaration is generated by the system, albeit at a later stage, and signed for a variety of legal and other requirements, both for the importer and Customs. Other supporting documents are also submitted for verification of government authorities and their agents. Thus, many shortcomings associated with documentation continue to exist under the present EDI system.

Procedural complexities very often work as deterrents to India–Bangladesh trade. [30] The Customs offices in eastern South Asia still require excessive documentation, especially for imports, which must be submitted in hard copy. [31] According to De and Ghosh (2008), an Indian exporter to Bangladesh has to obtain 330 signatures on 17 documents at several stages. While most of these are standard for international trade, the government tends to add requirements that are purely local in nature. The bureaucratic response to problems and anomalies has been to introduce new procedures and documents to avoid their recurrence. This introduces a significant increase in the cost of doing business but, in many cases, has little effect on the cause of the problems. Because of this complex, lethargic, and primitive procedure, pilferage continues to rise. This often changes the composition and direction of trade in South Asia.

Most of the LCSs suffer from limited warehouse capacity and lack of bank and foreign exchange facilities. In some cases, banks are located few kms. away from the border (e.g. Burimari, Panitanki and Karkabitta). Foreign exchange facility is also not available adequately at these borders. Even some LCSs do not have foreign exchange facility, such as Burimari and Banglabandh in Bangladesh, Karkabitta in Nepal, and Phulbari and Panitanki in India.

Except Kolkata and Haldia ports, none of the LCSs we surveyed has adequate capacity (both software and hardware) to deal with goods in transit. In most cases, officials are not aware of their countries commitment under GATT Article V and the obligations therein. It seems South Asian countries have promoted bilateral transit agreements / arrangements which are not consistent with all other commitments on Trade Facilitation and with a view to reducing trade barriers. Therefore, they need to cooperate and coordinate in designing and applying bilateral and regional transit agreements / arrangements. Moreover, eastern South Asian countries have not taken full account of international standards and instruments when designing and applying those agreements or arrangements.

[30] There are several studies which have dealt trade facilitation issues in context of trade between India and Bangladesh. One can refer, for example, Chaturvedi (2006).

[31] Improvements in customs procedures have truly reduced the amount of informal payments needed for clearing cargo. Even so, underhanded transactions at the border to clear exports remain high. The actual amount is negotiated between the shippers and the customs agent, with both agreeing on the amount per shipment that will be reimbursed without an invoice and is therefore available to pay customs officials for expediting cargo clearance.

Box 4: India–Bangladesh Trade: Field Level Observations

The idea to export starts once the exporter receives an order. Subsequently, the Letter of Credit (LC) Export (and series of traders down the line) prepares the export consignment. A clearing agent is contacted. The clearing agent takes one day to prepare the export document and another day to get the documents cleared by the customs authority. Until this stage, the exporter does not face any problem; nor does the clearing agent need to pay any bribes as the exporter gives complete documents to avoid future problems.

Next, the consignments are loaded. The trip to the border usually starts at around 12:00 am from Kolkata. Trucks usually reach Bongaon from Kolkata at around 4:00 pm, taking 16 hours to travel about 100 km. On their way, trucks usually move slowly because they are heavily loaded.

The trucks have to wait at the warehouse at Bongaon, usually for 3–4 days, to get the entry serial number from the Bongaon municipality. This serial number is provided at the Petrapole Central Warehouse. However, some local influential people at Bongaon take over the delivery responsibility from these outside transport companies on a contract basis, taking a holding charge of around 10 days and managing to export the consignment within 6–7 days. They make a profit by moving the goods out of warehouse in fewer days than paid for.

There is also unofficial, private parking at Petrapole called "Makkel Parking" and "Laxmi Parking" for the rate of Rs500–1,000 per day per truck. These private parking companies get priority in getting serial numbers for the export queue by bribing the concerned authorities at different layers of the delivery process. After getting the serial number from Bongaon, the trucks move to the Central Warehouse at Petrapole close to the border gate. Here the trucks are usually detained for 10–12 days for the whole process, taking into account the intake capability of Bangladesh.

The Central Warehouse at Petrapole has the capacity of around 700 trucks. This warehouse is safe for the consignments. The export documents are cleared from the customs at this point. Before entering the warehouse, the drivers have to pay around Rs500–1,000 to local people who claim to be collecting parking charges; this is totally illegal. There are local collections in different names such as the Petrapole Border People Welfare Fund. Next, at the Central Warehouse, the inspector or superintendent of customs gives the consignee an allotment number, which is the serial number for the trucks to be allowed to cross the border.

After crossing the border, trucks have to undergo the export formalities in Bangladesh, where the Bangladesh customs officials check the export papers and give the required clearance. Here, the trucks are detained for 2–4 days, since checking each export paper and export duty receipt (for which money has to be deposited in the bank) takes time.

Bangladesh Customs charges extra illegal money ranging from Rs. 500 to Rs. 1,000 to give the clearance. The amount depends on the customs officer assigned and the type of goods involved.

B. Benchmarking the Border Corridors

One of the common features of the border corridors surveyed in this study is that the present trade flow is very much uneven across the border corridors. A full regional transit arrangement in South Asia would likely enhance the regional trade volume, resulting in redistribution of trade and traffic among the corridors. Efficient corridors are thus very important in order to maximize the benefits of full regional connectivity. At the same time, inefficient corridors would require much attention in

order to put them in the peer group and to facilitate the trade along that particular corridor.

The demand for cross-border infrastructure, both hardware and software, is growing fast in South Asia. A failure to respond to this new demand will slow down growth process and hamper the South Asian trade. Therefore, one of the objectives of the trade facilitation would be to eliminate the asymmetry among the corridors in anticipation of full regional connectivity. An evaluation of the efficiency of the border corridors would thus help us to understand the performance level of the border corridors in South Asia.

In view of the above, we measure the relative efficiency of border corridors with the help of Data Envelopment Analysis (DEA). DEA is a linear programming based technique for measuring the relative performance of organisational units where there is a presence of multiple inputs and outputs. There is reasonable consensus among economists that the mobility of goods, services and labour across regions depends largely on the quality and quantity of various integrated facilities available, and not directly and solely on the amount of investment or capital stock. Naturally therefore, the use of the DEA is likely to better reflect the input-output relationship relative to capital in such a context.

In the DEA methodology, formerly developed by Charnes, Cooper and Rhodes (1978), efficiency is defined as a weighted sum of outputs to a weighted sum of inputs, where the weights structure is calculated by means of mathematical programming and constant returns to scale (CRS) are assumed.[32]

[32] However, Banker, Charnes and Cooper developed a model with variable returns to scale (VRS) in 1984. See, for example, Banker, Charnes, Cooper (1984)

Table 13: Status of Trade Facilitation Services at Border

Particulars	Petrapole	Benapole	Changrabandha	Burimari	Jaigaon	Phuentsholing	Phulbari	Banglabandh	Panitanki	Karkabitta	Raxaul
Country	**India**	**Bangladesh**	**India**	**Bangladesh**	**India**	**Bhutan**	**India**	**Bangladesh**	**India**	**Nepal**	**India**
Working time (per day)	09.00 - 17.00	09.00 – 17.00	09.00 – 17.00	09.00 – 17.00	09.00 – 17.00	09.00 – 17.00	09.00 – 17.00	09.00 - 17.00	09.00 – 17.00	09.00 – 17.00	09.00 – 17.00
Working days (per week) for Immigration	7	7	7	7	7	7	7	7	7	7	7
Working days (per week) for Customs	7	6	7	6	7	7	7	6	7	7	7
Physical											
Customs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Immigration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes*	Yes*	Yes	Yes@	Yes*	Yes*	No	No	Yes@	Yes@	Yes*
Health	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes
Warehouse	Yes*	Yes*	Yes	Yes	Yes*	Yes*	Yes*	Yes	Yes*	Yes*	Yes*
Weight bridge	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Container handling yard	No	No	No	No	No	No	No	No	No	No	No
Currency exchange	Yes*	Yes*	Yes	No	Yes*	Yes*	No	No	No	No	Yes*
Waiting room	Yes	Yes	No	No	No	Yes	No	No	No	No	No
Shops, hotels, & restaurants	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	No	Yes	No	Yes
Non-physical											
e-commerce of Customs	Yes (ICEGATE)	Yes (ASYCUDA)	No	No	No	No	No	No	No	No	Yes (ICEGATE
Internet	Yes	No	No	No	No	No	No	No	No	No	No
Telecom	Yes	Yes	Yes*	Yes+	Yes*	Yes*	Yes+	Yes+	Yes*	Yes+	Yes*
Fast Track Cargo Clearance	Yes#	No	No	No	No	No	No	No	No	No	No

Notes: *Insufficient # For selected goods +Insufficient and not for all. @Located few kms away from the border. $Only for export cargo, import from Nepal handled manually. ^ Only for revenue calculation and not for Customs operation.

Source: Compiled from the field survey

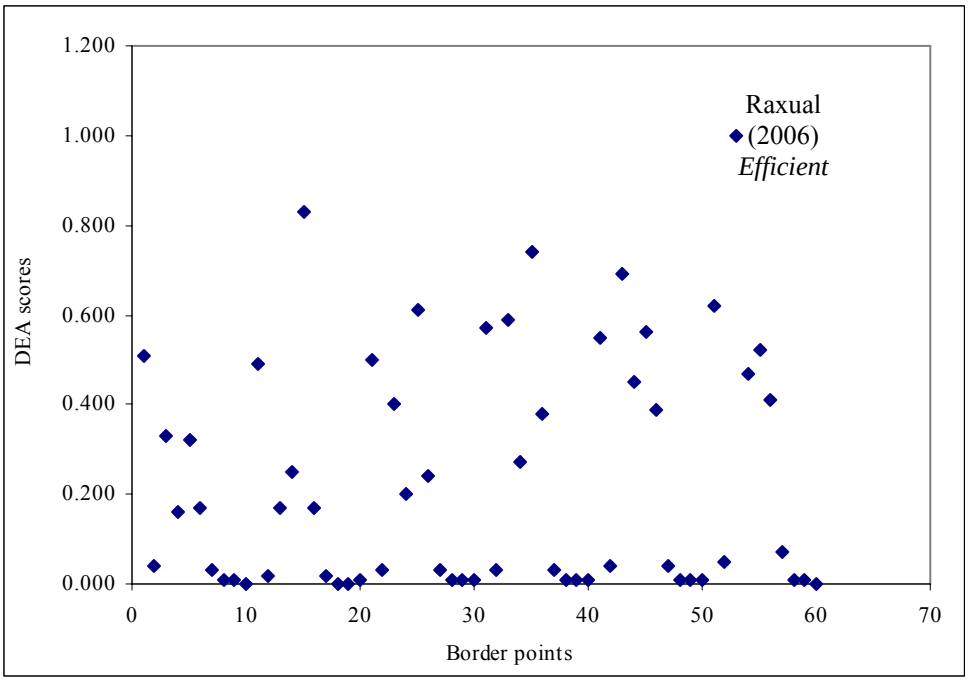
Moreover performance evaluation and benchmarking are a widely used method to identify and adopt best practices as a means to improve performance and increase productivity, are particularly valuable when no objective or engineered standard is available to define efficient and effective performance. Benchmarking is often used in managing service operations, because service standards (benchmarks) are more difficult to define than manufacturing standards. Difficulties are further enhanced when the relationships between the inputs and the outputs are complex and involved many unknown tradeoffs. For example, DEA is a tool which can evaluate performance and benchmarking of port services in a context of multiple inputs and outputs.[33]

Table 14 provides the basic assumptions of DEA while the estimated efficiency scores of border customs s are provided in Table 15. Appendix 5 provides a technical note on DEA. Following observations are worth noting.

Table 14: Basic Assumptions in DEA Model

No	Particulars
1	Decision Making Units (DMU) = 9 border customs points
2	Inputs: Transaction cost, and Transaction time, measured for each DMU
3	Output: Export (bilateral) handled by each DMU
4	Time period: 2001 to 2006 (6 years)
	Model specification: Farrell Input-Saving Measure of Technical Efficiency with Constant Returns to Scale (CRS) and Strong Disposability of Inputs

Figure 2: Scatter of DEA Scores: 2001 – 2006



[33] Refer, for example, Park and De (2004)

Table 15: DEA Scores

DMU (Border Customs)	Country	2001	2002	2003	2004	2005	2006
Petrapole	India	0.510	0.490	0.500	0.570	0.550	0.620
Benapole	Bangladesh	0.040	0.020	0.030	0.030	0.040	0.050
Raxaul	India	0.330	0.170	0.400	0.590	0.690	**1.000**
Birganj	Nepal	0.160	0.250	0.200	0.270	0.450	0.470
Jaigaon	India	0.320	0.830	0.610	0.740	0.560	0.520
Phuentsholing (1)	Bhutan	0.170	0.170	0.240	0.380	0.390	0.410
Phuentsholing (2)	Bhutan	0.030	0.020	0.030	0.030	0.040	0.070
Burimari	Bangladesh	0.010	0.000	0.010	0.010	0.010	0.010
Kakarvitta	Nepal	0.010	0.000	0.010	0.010	0.010	0.010
Banglabandha	Bangladesh	0.000	0.010	0.010	0.010	0.010	0.000
	Average	0.158	0.196	0.204	0.264	0.275	0.316

Table 16: Relative Efficiency of Border Customs

Relatively Efficient	Moderately inefficient	Highly Inefficient
• Raxual	• Birganj • Petrapole • Jaigaon • Phuentsholing	• Benapole • Burimari • Kakarvitta • Banglabandha

First, DEA scores suggest that, among the nine border customs points, Raxual is the only efficient border, rest are inefficient (Figure 2 and Table 15). Other side of Raxual is Birganj (in Nepal), which is relatively inefficient but has succeeded improving its position during 2001 to 2006. Had the Birganj be as efficient as Raxual, this India - Nepal border corridor would have been added further gains to the regional trade in general and the trade between India and Nepal in particular.

Second, Petrapole, even though relatively inefficient, has improved its position over time. Other side of the border, Benapole is comparatively inefficient.

Third, average performance of nine border points has improved over time (DEA score of 0.158 in 2001 to 0.316 in 2006) pointing to the fact that there has been a positive development in aggregate term in border Customs stations and trade facilitation.

There are indeed sizeable gains to be won by making both sides of the border efficient. The efficiency of border corridors and LCSs is an important factor for South Asia's competitiveness and its trade prospects. In order to maximise the benefits of trade liberalization in view of SAFTA and in anticipation of full regional transit arrangement either under GATT Article V or under SAFTA, governments in South Asia should give utmost importance to inefficient border Customs stations for making them efficient. If the objective is to equitable growth of trade and traffic in South Asia, all the border crossing points have to improve their efficiency over time. Therefore, the new agenda of the trade facilitation should consider measures in order to (i)

constantly improve the performance of border corridors and LCSs, and (ii) eliminate the asymmetry between the LCSs pair.[34]

VI. Effects of Border Barriers and Services on Exports

The effect of trade barriers on trade in eastern South Asia can be confirmed by way of an analysis of the determinants of trade. Since our objective is to explain the trade costs of intra-regional exports, we focus on factors specific to bilateral trade flows. Nevertheless, the main idea has been to factor-in the role of trade facilitation in eastern South Asian countries, which is hypothesized as an important factor in enhancing subregional trade volume. To suffice the aforesaid objective, we estimate the following model.

$$X_{ijl}^{t} = \int (TC_{ijl}^{t}, TT_{ijl}^{t}, D_{kl}^{t}) \quad (1)$$

Taking log of equation (1), we get

$$LnX_{ijl}^{t} = \beta_0 + \beta_1 LnTC_{ijl}^{t} + \beta_2 LnTT_{ijl}^{t} + \beta_3 D_1 + \beta_4 D_2 + \beta_5 D_3 + \beta_6 D_4^{t} + e_{ijl}^{t} \quad (2)$$

where, X^{t}_{ijl} is country i's exports to country j through border l in year t, TC^{t}_{ijl} is estimated transaction costs of country i's exports to country j at border l in year t, TT^{t}_{ijl} is estimated transaction time of country i's exports to country j at border l in year t, D_1 is a dummy variable, which takes the value 1 if i and j share a common border (border dummy), D_2 is a dummy variable, which takes the value of 1 if i and j have transit arrangement (transit dummy), D_3 is a dummy variable which takes the value of 1 if the road standard (in terms of axel load) is same between i and j (road standard dummy), and D_4 is a dummy variable which takes the value of 1 if e-commerce facility is used by Customs of countries i and j at border l (e-Customs dummy). Here, e^{t}_{ijl} is an error term, t represents a time series of 2001 to 2006, and β_0, β_1, β_2, β_3, β_4, β_5, and β_6 are parameters to be estimated. Both TC (US$/TEU) and TT (days) are estimated based on field survey data, which are half yearly averages for each of the years of 2001 to 2006. Appendix 6 provides the estimated values of TT

[34] There have been some developments in eliminating the barriers at border comprehensively. For example, Indian government's Integrated Check Post (ICP) project is a forward looking step, which would help improve India's border infrastructure serving South Asian neighbours. India has planned about 13 ICPs with one on India-Pakistan border, four on India-Nepal border, one on India-Myanmar border and seven on the India-Bangladesh border. The cost of setting up 13 ICPs has been estimated at Rs 7.34 billion. Of these, four ICPs at Petrapole, Moreh, Raxual and Wagah are proposed to be set up in Phase I at a cost of Rs 3.42 billion. In Phase II the balance nine ICPs at Hili, Chandrabangha (both in West Bengal) Sutarkhandi (Assam), Dawki (Meghalaya), Akaura, (Tripura) Kawarpuchiah (Mizoram), Jobgani (Bihar), Sunauli (Uttar Pradesh) and Rupaidiha/Nepalganj (Uttar Pradesh) would be established at a cost of Rs 3.94 billion. For further details, one can visit Ministry of Home Affairs, Government of India, available at www.mha.nic.in

and TC, whereas Appendices 7 and 8 present estimated components of TC and TT, respectively.[35]

The TC (transaction cost) for each border point is calculated for each year by using equation (3).

$$TC_{ijl}^{t} = \sum_{k=1}^{n} X_k^l \quad (3)$$

where X^l_k represents transaction costs components observed at border l, namely, (i) loading/unloading fees at border, (ii) parking fees at border, (iii) speed money at border, and (iv) clearing agent's fees at border, all collected through field survey.

The TT (transaction time) for each border point is calculated for each year by using equation (4)

$$TT_{ijl}^{t} = \sum_{k=1}^{n} Y_k^l \quad (4)$$

where Y^l_k represents transaction time components observed at border l, namely, (i) parking time at border, (ii) time for Customs clearance at border, and (iii) loading/unloading time at border, collected through field survey.

Estimated results

The model considered here uses data for the years 2001 to 2006 for exports of four eastern South Asian countries, namely, Bangladesh, Bhutan, India, and Nepal. The model considers data at the bilateral level for all the variables for their individual partners. By taking transaction costs and transaction time, we cover a major portion of trade costs at border. Before estimating the models, we obtained a matrix of correlation coefficients between the explanatory variable to rule out any possibility of multicollinearity problems.[36]

The log-linear type equation has been estimated using both Ordinary Least Square (OLS) and Random-effects Model (REM) GLS regression, which follows the Gaussian distribution. The REM has turned out to be the proper model fitting for the data, as per the Hausman (1978) specification test.[37]

As regards the other diagnostic tests, autocorrelation and heteroscedasticity are the two possible problems that might emerge. This is mainly due to the large samples used in the typical panel studies. In our present case, however, the sample size being small, such tests are not emerging much critical.

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[35] The usual caveat is that the series has been estimated based on field survey by interviewing the selected stakeholders, which may not necessarily match with the same tabulated by any other sources. We purposely made available this database for further research on the subject.

[36] See, Appendix 9, which presents partial correlation coefficients between dependent and independent variables.

[37] The Hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If they are (insignificant P-value, Prob>chi2 larger than .05) then it is safe to use random effects. For example, using Stata 10.0, we hand found $ch^2(6) = 0.95$ (Prob>$chi^2 = 0.9875$) in Model 1 which helped us to select random effect model.

Table 17 reports the estimated regression result. We expect that the transaction time and transaction cost variables are negatively correlated with the volume of exports. Variables being in natural logarithms, estimated coefficients show elasticity. The elasticity is useful both as an indicator of the effect of trade barriers on trade volumes. The model performs well as most of the variables do have expected signs.

Table 17: Regression Results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	OLS	OLS	OLS	GLS	GLS	GLS
	Fixed effect			Random effect		
Transaction costs	-0.308		-0.245	-0.309		-0.245
	(-1.170)**		(-1.010)	[-1.180]**		[-1.010]
Transaction time	-0.285	-0.100		-0.286	-0.100	
	(-0.660)	(-0.250)		[-0.660]	[-0.250]	
Border dummy	2.867	3.792	3.262	2.865	3.792	3.262
	(2.730)*	(5.430)*	(3.800)*	[2.730]*	[5.430]*	[3.800]*
Transit dummy	0.677	0.150	0.261	0.679	0.150	0.261
	(0.730)	(0.250)	(0.390)	[0.730]	[0.250]	[0.390]
Road standard dummy	0.221	0.817	0.383	0.219	0.817	0.383
	(0.320)	(1.790)**	(0.610)	[0.320]	[1.790]**	[0.610]
e-Customs dummy	0.821	0.667	0.789	0.821	0.667	0.789
	(1.530)**	(1.280)***	(1.480)**	(1.530)**	[1.280]***	[1.480]**
No of observations	60	60	60	60	60	60
R^2	0.863	0.862	0.865	0.877	0.874	0.876
Wald χ^2				379.15	374.90	382.49
Prob>χ^2				0.000	0.000	0.000

Notes: *Significant at 1% level, **Significant at 5% level, ***Significant at 10% level. Here, t-values are given in first bracket, whereas z-values are given in third bracket.

The econometric evidence seems to strengthen the existing linkage of trade costs and trade flows: higher the transaction costs between each pair of partners, less they trade. In our case, it is seen that a 10 percent fall in transaction costs at border has the effect of increasing country's exports by 3.1 percent (in Model 4). Although as per the specification tests, REM turned out to be the appropriate model, we have run the fixed effects estimation as well and compared between the OLS and GLS R^2. We could see that a marginal improvement in overall goodness of fit of the REM estimation (87.7 percent in Model 4), compared to OLS (86.3 percent). The REMs report values of Wald $\chi 2$. The reported $\chi 2$ value of 379.15 in Model 4 is highly significant with the probability>$\chi 2$ (=0.0000). Taken jointly, our model shows almost a perfect fit.

As seen from Table 17, the coefficients of the parameters for transaction time and transit dummy are not statistically significant. The insignificance of transit dummy is also in a way pointing towards the importance of transit in South Asia. The insignificant transit dummy in all the models in Table 17 indicates that the present level of transit (which is sort of partial arrangement) has played no great role in enhancing the regional trade flow, primarily in context of eastern South Asia. Therefore, a regional transit would perhaps enhance the regional trade, controlling for other variables.

The estimated parameter of e-Customs dummy is significant thus telling us that e-filling of Customs formalities has been helping the trade to grow in eastern South Asia. This is also not to deny that a large number of border Customs stations surveyed in this study are yet to be equipped with computerisation and related facilities.[38]

Transaction time dummy has not appeared as significant, but carries expected sign.[39] The insignificance of transit time is of the fact that both transaction cost and transaction time work in same direction with trade flow in the regression panel, and hence transit time has been overshadowed by transaction cost in the regression models. We also can not refute the question of endogeneity. As pointed by Djankov *et al* (2006), trade volumes might also affect waiting time (and subsequently costs) at the border. Omitted variable bias could also be a plausible reason for insignificance of transit time.

Among other variables, trade goes up when countries sharing border (significant border dummy). The insignificance of road quality dummy points to the fact that it does not impose a great barrier in present set-up. However, since there is no full regional transit in the subregion, we might have failed to capture its impact properly.

This paper emphasises that transaction costs at border affect the trade flows very much the way tariff does. We could therefore argue that the benefits of trade liberalisation in South Asia have been limited so far, since the region has largely failed to reduce the transaction costs at border. There are indeed sizeable gains if we make it simpler for goods to cross the borders. Nevertheless, this study holds out, among others, the importance of transit as a major source of advantage for the regional trade. Hence, an important means of promoting the regional trade could be accepting to full transit in South Asia.[40] Accepting to transit will generate dynamism in regional cooperation and build lasting partnership.

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[38] The usual caveat is that not all the border Customs points are equipped with e-Customs. The application of e-Customs is more where there is comparatively large volume of trade (e.g. Petrapole and Benapole). This finding has resemblance with Wilson *et al* (2003, 2005), noted in Duval (2007), where it was shown that increasing port efficiency and e-business usage/service sector infrastructure are most important in realizing trade facilitation benefits. However, improving e-Customs involves potentially significant investment in infrastructure. This question may also be answered properly if we look at the trade flows before and after the establishment of e-Customs, which is beyond the scope of this paper.

[39] Contrary to the finding of this paper, a good number of studies find that time delays at border is a crucial determinant of trade flows, where the relation between trade flows and time delays is not always linear. In a recent study, Perrson (2007) found that time delays both on the part of the exporter and the importer on average significantly decrease trade flows, and an extra day of waiting at border has smaller marginal effects if the time requirements are already high.

[40] The need for regional transit and simpler movement of goods has been well accepted by the leaders of South Asia. The Heads of SAARC countries had recognised the full benefits of an integrated transport system in the region. They emphasised that higher intra-regional trade would not be realised until and unless physical infrastructure and matters relating to Customs clearance and other facilitation measures, including multimodal transport operations were not taken care of. They also felt that the region needs full regional connectivity in order to unleash its trade potentials. Refer, the Declaration of 14th SAARC Summit, New Delhi, 3-4 April 2007, SAARC Secretariat, Katmandu, available at http://www.saarc-sec.org/main.php

VII. Conclusion

South Asian economies are aiming to undertake trade facilitation measures that will greatly reduce current physical and non-physical barriers to trade—by means of both visible infrastructure (such as multimodal corridors and terminals) and invisible infrastructure (such as reformed policies, procedures, and regulations). Due to lack of adequate research on trade facilitation, not much information is available on the existing profile of trade facilitation measures (both at the border and the capital) in South Asia. This is a research area that needs special attention from policymakers and researcher scholars in South Asia.

With an increased emphasis on administrative reform, governance, and security, the need for regional transit is felt urgently. Transit is an intrinsic element of any cross-border movement of goods and vehicles, and yields significant influence on the national economy. One of the major causes for high trade transaction costs in eastern South Asia is cumbersome and complex cross-border trading practices. This is also not to deny that complex requirements in cross-border trade increase the possibility of corruption. The goods carried by road in South Asia in large are subjected to transhipment at the border, which impose serious impediments to regional and multilateral trade. The position is further compounded by lack of harmonization of technical standards. Considering this region's emergence as a free trade area from 2006 onward, full transit will help South Asian countries to gain the potential benefits of moving to an effective free trade regime.

The econometric evidences strengthen the existing linkage of trade costs and trade flows: higher the transaction costs between each pair of partners, less they trade. In our case, it was seen that a 10 percent fall in transaction costs at border has the effect of increasing country's exports by about 3 percent. The analysis of this paper shows that a regional transit would perhaps enhance the regional trade, controlling for other variables. At the same time, implementation of e-governance at border is found to be significant determinant of trade flows thus indicating e-filling of Custom formalities has been helping the trade to grow in eastern South Asia. This is also not to deny that many of the border Customs stations surveyed in this study are yet to be adequately equipped with ICT. Nevertheless, this study holds out, among others, the importance of transit as a major source of advantage for the regional as well as international trade. Hence, an important means of promoting the regional trade could be accepting to full transit in South Asia, which not only enhance regional trade but will also strengthen the globalisation process pursued by the WTO.

The efficiency of border corridors is also a critical factor for a region's competitiveness and its trade prospects. Using Data Envelopment Analysis, we have evaluated efficiency of the border corridors in eastern South Asia. The average performance of the nine border points examined has improved over time pointing to the fact that there has been a positive development in border Customs stations. However, eight of nine land customs points are found to remain relatively inefficient (Raxual in India being the most efficient). In order to maximise the benefits of trade liberalization in view of SAFTA and in anticipation of full regional transit arrangement either under GATT Article V or under SAFTA, South Asian countries should give utmost importance to upgrade inefficient border customs stations. If the objective is to achieve equitable growth of trade and traffic in South Asia, it is

important that not only all the border corridors become more efficient over time but that an equally high level of efficiency be achieved across all of the Customs stations, thereby reducing the asymmetries among the corridors.

To improve performance, border corridor management authorities (here, government) need to constantly evaluate operations or processes related to providing, marketing and selling of services to the users. Hence, it is felt that at each border a complementary and coordinated performance monitoring approach is very much required to address the changing environment of global and regional trade and to gain sustainable improvement in competitiveness. Thus, the requisite policy agenda extends broadly to stimulating the evolution of border corridor services, promulgating new performance standards, and encouraging their implementation both at the national and regional levels.

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Appendix 1
Trade and Transit Agreements in Eastern South Asia

Country: Bangladesh

- "Trade Agreement between Bangladesh and India" (04/10/1980);
- "Protocol on Inland Water Transport and Trade" (04/10/99) with attached "Agreed Minutes of the Bilateral Meeting for the Renewal of the Protocol on Inland Water Transit and Trade between Bangladesh and India held in India from 26/10/99 to 28/10/99";
- Working Agreements made between the Government of India and the Government of the People's Republic of Bangladesh represented by the Indian Railways and Bangladesh Railways relating to Gedes-Darsana, Singhabad-Rohanpur and Agartala-Aukhara (Various dates);
- "Transit Agreement between the Government of the People's Republic of Bangladesh and His Majesty's Government of Nepal" (02/04/1976);
- "Agreement on Trade between the Royal Government of Bhutan and the Government of the People's Republic of Bangladesh" (12/05/2003);
- "Protocol to the Agreement on Trade between the Royal Government of Bhutan and the Government of the People's Republic of Bangladesh (12/05/2003); and
- "Agreement on Transit between the Royal Government of Bhutan and the Government of the People's Republic of Bangladesh" (08/09/1980).

Country: Bhutan

- "Agreement on Trade and Commerce between the Government of the Kingdom of Bhutan and the Government of the Republic of India"(1995);
- "Protocol to the Agreement on Trade and Commerce between the Government of the Kingdom of Bhutan and the Government of the Republic of India"
- "Agreement on Trade between the Royal Government of Bhutan and the Government of the People's Republic of Bangladesh" (12/05/2003); and
- "Agreement on Transit between the Royal Government of Bhutan and the Government of the People's Republic of Bangladesh" (08/09/1980).

Country: India

- "Trade Agreement between Bangladesh and India" (04/10/1980);
- "Protocol on Inland Water Transport and Trade" (04/10/99) with attached "Agreed Minutes of the Bilateral Meeting for the Renewal of the Protocol on Inland Water Transit and Trade between Bangladesh and India held in India from 26/10/99 to 28/10/99";
- Working Agreements made between the Government of India and the
- Government of the People's Republic of Bangladesh represented by the Indian Railways and Bangladesh Railways relating to Gedes-Darsana, Singhabad-Rohanpur and Agartala-Aukhara (Various dates);
- "Agreement on Trade and Commerce between the Government of the Kingdom of Bhutan and the Government of the Republic of India"(1995);
- "Protocol to the Agreement on Trade and Commerce between the Government of the Kingdom of Bhutan and the Government of the Republic of India";
- "Treaty of Transit between His Majesty's Government of Nepal and the Government of India" (05/01/1999);
- "Protocol to the Treaty of Transit between Nepal and India";
- "Memorandum to the Protocol to the Treaty of Transit between Nepal and India";
- "Treaty of Trade between His Majesty's Government of Nepal and the Government of India" (06/12/1991);

- "Protocol to the Treaty of Trade" (Nepal and India);
- "Agreement of Co-operation between His Majesty's Government of Nepal and Government of India to Control Unauthorised Trade" (06/12/1991);
- "Operational Modalities for Additional Transit Route between Nepal and Bangladesh"; and
- "Rail Services Agreement Between Ministry of Industry, Commerce and Supplies, His Majesty's Government of Nepal and Ministry of Railways, Government of India".

Nepal

- "Transit Agreement between the Government of the People's Republic of Bangladesh and His Majesty's Government of Nepal" (02/04/1976);
- "Treaty of Transit between His Majesty's Government of Nepal and the Government of India" (05/01/1999);
- "Protocol to the Treaty of Transit between Nepal and India";
- "Memorandum to the Protocol to the Treaty of Transit between Nepal and India";
- "Treaty of Trade between His Majesty's Government of Nepal and the Government of India" (06/12/1991);
- "Protocol to the Treaty of Trade" (Nepal and India);
- "Agreement of Co-operation between His Majesty's Government of Nepal and Government of India to Control Unauthorised Trade" (06/12/1991);
- "Operational Modalities for Additional Transit Route between Nepal and Bangladesh";
- "Rail Services Agreement between Ministry of Industry, Commerce and Supplies, His Majesty's Government of Nepal and Ministry of Railways, Government of India".

Source: Compiled by authors

Appendix 2
Text of GATT Article V (Freedom of Transit)

1. Goods (including baggage), and also vessels and other means of transport, shall be deemed to be in transit across the territory of a contracting party when the passage across such territory, with or without trans-shipment, warehousing, breaking bulk, or change in the mode of transport, is only a portion of a complete journey beginning and terminating beyond the frontier of the contracting party across whose territory the traffic passes. Traffic of this nature is termed in this article "traffic in transit".

2. There shall be freedom of transit through the territory of each contracting party, via the routes most convenient for international transit, for traffic in transit to or from the territory of other contracting parties. No distinction shall be made which is based on the flag of vessels, the place of origin, departure, entry, exit or destination, or on any circumstances relating to the ownership of goods, of vessels or of other means of transport.

3. Any contracting party may require that traffic in transit through its territory be entered at the proper custom house, but, except in cases of failure to comply with applicable customs laws and regulations, such traffic coming from or going to the territory of other contracting parties shall not be subject to any unnecessary delays or restrictions and shall be exempt from customs duties and from all transit duties or other charges imposed in respect of transit, except charges for transportation or those commensurate with administrative expenses entailed by transit or with the cost of services rendered.

4. All charges and regulations imposed by contracting parties on traffic in transit to or from the territories of other contracting parties shall be reasonable, having regard to the conditions of the traffic.

5. With respect to all charges, regulations and formalities in connection with transit, each contracting party shall accord to traffic in transit to or from the territory of any other contracting party treatment no less favourable than the treatment accorded to traffic in transit to or from any third country.*

6. Each contracting party shall accord to products which have been in transit through the territory of any other contracting party treatment no less favourable than that which would have been accorded to such products had they been transported from their place of origin to their destination without going through the territory of such other contracting party. Any contracting party shall, however, be free to maintain its requirements of direct consignment existing on the date of this Agreement, in respect of any goods in regard to which such direct consignment is a requisite condition of eligibility for entry of the goods at preferential rates of duty or has relation to the contracting party's prescribed method of valuation for duty purposes.

7. The provisions of this Article shall not apply to the operation of aircraft in transit, but shall apply to air transit of goods (including baggage).

*Interpretative note with respect to paragraph 5: With regard to transportation charges, the principle laid down in paragraph 5 refers to like products being transported on the same route under like conditions.

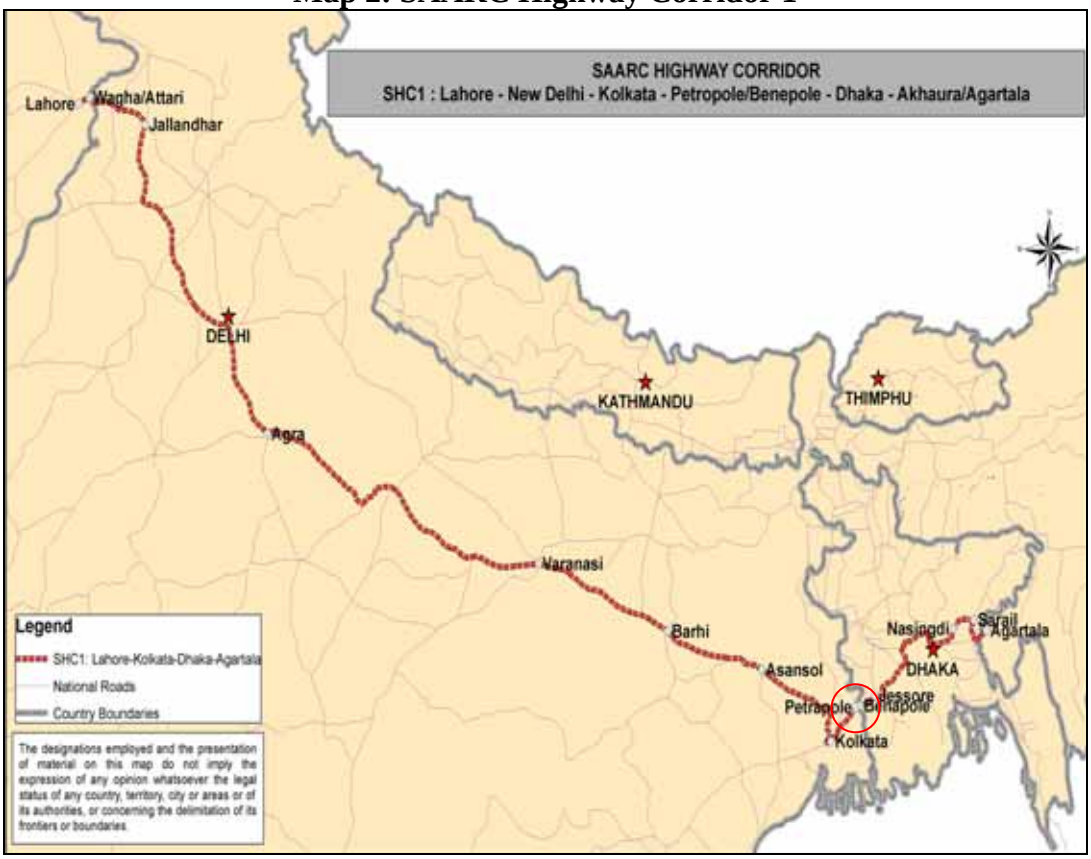
Source: WTO (2005a) Article V of GATT 1994: Scope and application, TN/TF/W/2, Negotiating Group on Trade Facilitation, 12 January 2005

Appendix 3

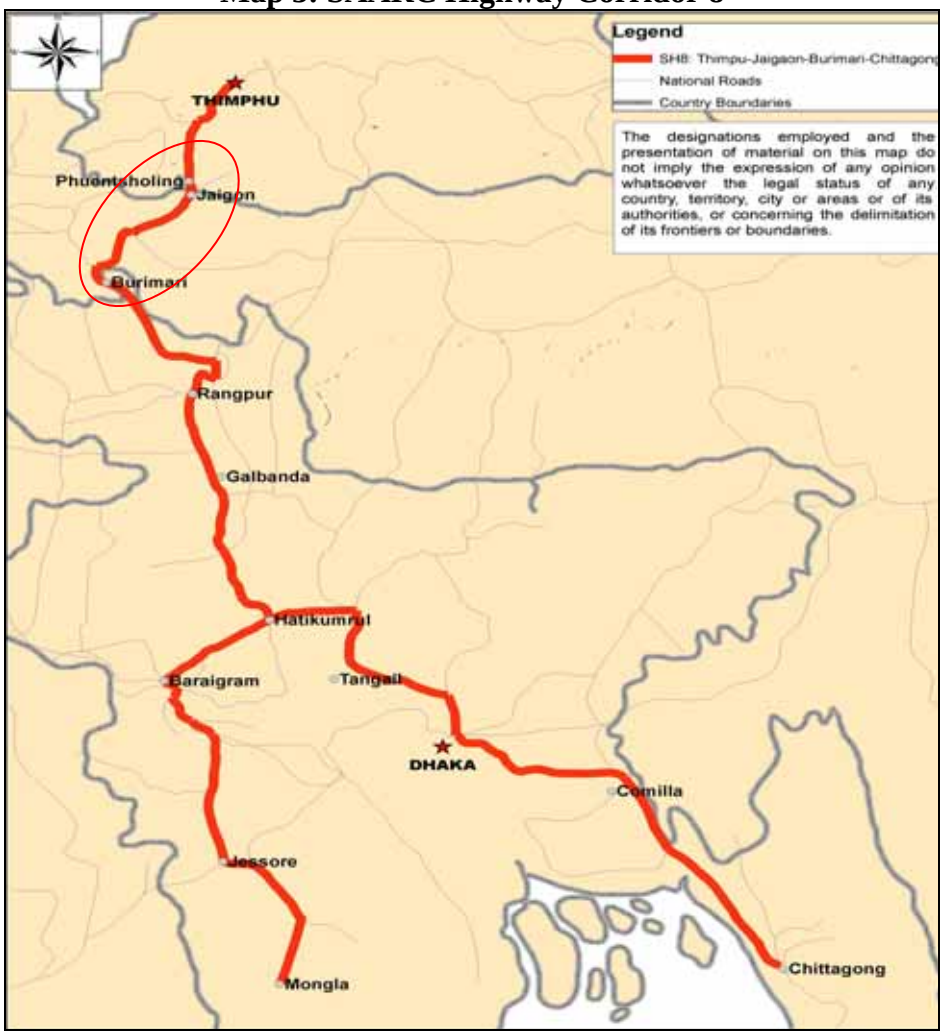
Map 1: Survey Region and Border Points

Legend: 1. Petrapole – Benapole (India – Bangladesh), 2. Burimari – Changrbandha – Jaigaon – Phuentsholing (Bangladesh – India – India – Bhutan), 3. Banglabandh – Phulbari – Karkabitta (Bangladesh – India – Nepal), 4. Raxaul – Birganj (India – Nepal).

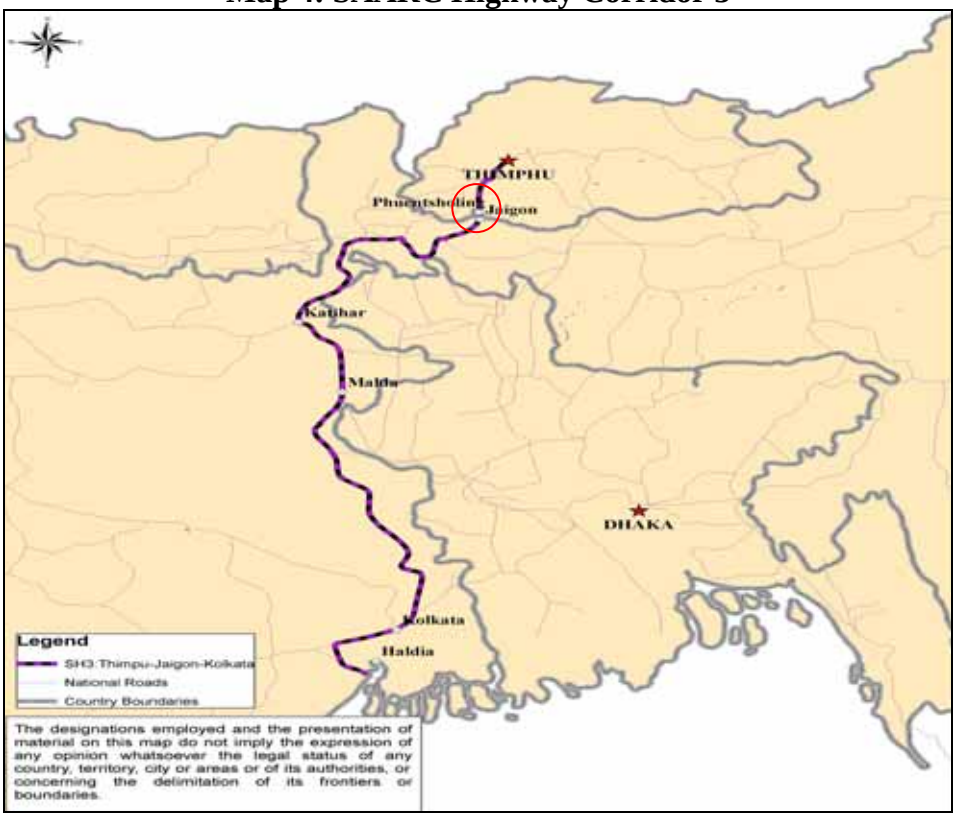
Map 2: SAARC Highway Corridor 1



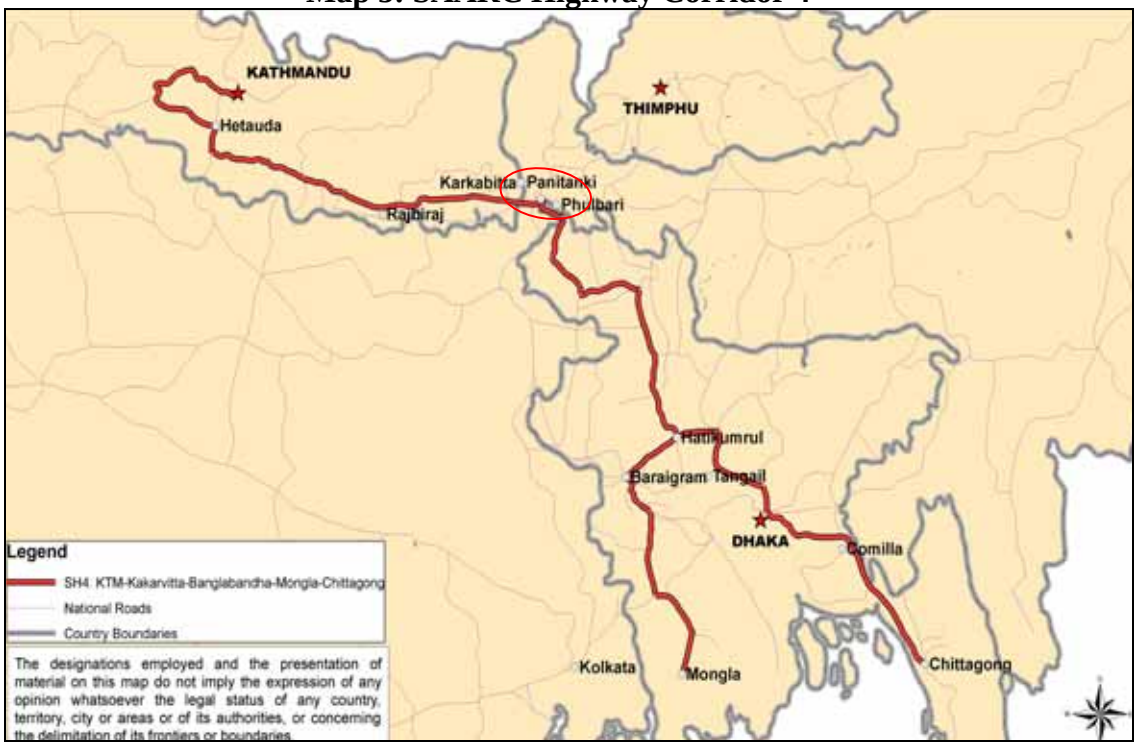
Map 3: SAARC Highway Corridor 8



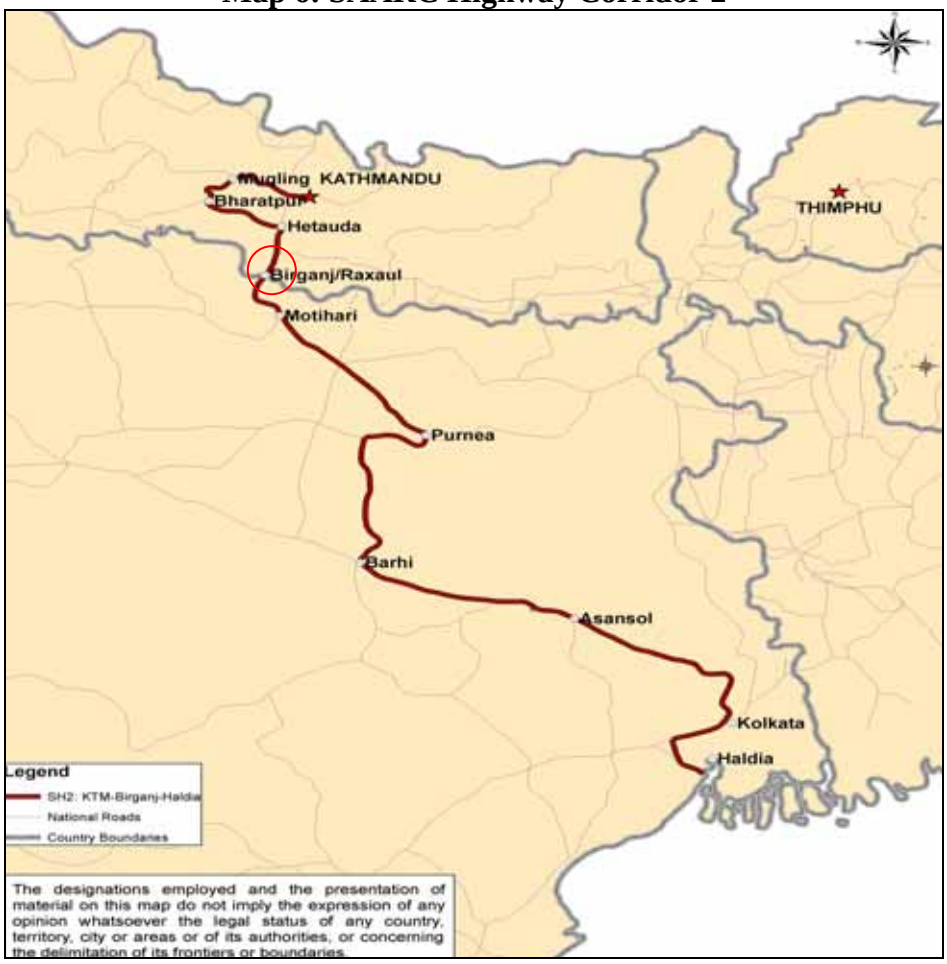
Map 4: SAARC Highway Corridor 3



Map 5: SAARC Highway Corridor 4



Map 6: SAARC Highway Corridor 2



Appendix 4
Questionnaire to Trade Service Providers at Border

Sr. No | | | |

Country: Bangladesh/ Bhutan/ India / Nepal
Border: India – Bangladesh / India – Nepal / India - Bhutan

1. Identification of the Service Provider

1.1. Name of the border point: _____

1.2. Name of the other side of the border: _____

1.3. Name of the Organization:_____

1.4. Address of the Organization:

_____
_____

_____
Telephone:_____ Fax: _____
Mobile: _____ Email:_____
Website (if any):_____

1.5. Name of the Respondent: Mr/Ms/Mrs _____

1.6. Designation of the Respondent:_____

1.7. Name of the Enumerator: Mr/Ms/Mrs_____

1.8. Date of Survey:_____

For Office Use Only:

- Cooperation of respondent: Good / Moderate / Poor
- Reliability of information: High / Moderate / Poor / Very Poor
- Report Collected: Yes / No, If yes, describe it_____

Reviewed by: _____ Date:_____

If sent back for verification/correction:
Verification done: Yes / No If yes, date of verification:_____

Verified by: _____ Date:_____

2. Survey Information

2.1 Name of the border:
2.2 Location:
Police station:
District:
Country:
2.3 Year of establishment:
2.4 Is it declared as land port or free trade zone? Yes / No. If yes,
Date or year of declaration:
2.5 Is it a declared export and import zone for international trade? Yes / No
2.6 How many government offices are engaged in managing trade through this border? Please arrange them serially. Attach additional sheets, if required.

No.	Name of the office	Headed by	Function	No of People working per shift
1	Customs			
2	Immigration			
3	Health			
4	Bank			
6	Warehouse			
7				
8				

2.7 How many private outfits are stationed at this border? Please arrange them serially. Attach additional sheets, if required.

No.	Private affiliates	Function	Staff strength
1	Foreign exchange		
2	Photocopy		
3	Hotels and restaurant		
4	Transport operator		
5	Warehouse		
6	Shops		
7	Cyber café		

2.8 Is this border made for handling
(a) Goods
(b) Passengers
(c) Both goods and passengers

2.9 What are the **government** facilities at this border? Please arrange them serially.

No	Facilities	Managing authority	Quality (Good/Bad)	Quantity (Specify unit)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

2.10 What are the **private** facilities at this border? Please arrange them serially.

No	Facilities	Managing authority	Quality (Good/Bad)	Quantity (Specify unit)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

2.11 Is this border has separate gate for passenger and goods? Yes / No. If yes, reply following.

Particulars	Size/Length (specify unit)	Number	Functional (Yes / No)
Gate for passengers			
Gate for goods (export)			
Gate for goods (import)			
Others, if any			

2.12 What is the working time of the border?

(a) 24 hours in a day, 7 days in a week, 365 days in a year, or

(b) _____,_____,_____

2.13 What is the working time of the border management authorities?

No	Authority	Hours /Day	Days/Week
1	Customs		
2	Immigration		
3			
4			
5			

2.14 What was the total cargo handled at this border every year? (Specify the unit.)

Year	Export (Value)	Export (Quantity)	Import (Value)	Import (Quantity)
1991				
1995				
2000				
2001				
2002				
2003				
2004				
2005				
2006				
2007				

2.15 What cargoes are handled at this border?

(a) Export Cargo

Year	Export cargo	No of Trucks (Total)	Quantity (Total), Specify unit	Origin	Destination
2001					
2002					
2003					
2004					
2005					
2006					
2007					

(b) Import Cargo

Year	Import cargo	No of Trucks (Total)	Quantity (Total), Specify unit	Origin	Destination
2001					
2002					
2003					
2004					
2005					
2006					
2007					

2.16 Is this border has cargo warehouse? Yes/ No. If yes, fill-up the following.

Size (specify unit)	Capacity	Working time	Facilities	Is it e-enabled? Yes/No

2.17 What are the deficits of this border? Please arrange them serially. Add additional sheets if required.

Facilities	Yes/No	Facilities	Yes/No	Facilities	Yes/No

2.18 What is the time (monthly average) taken for cargo clearance at this border?

Year	Parking time (days) for export per truck/container	Customs time (days) for export per truck/container	Loading/unloading time (days) for export/ import per truck / container
2001			
2002			
2003			
2004			
2005			
2006			
2007			

2.19 What are the transaction costs (monthly average) of your border? (specify Unit_____) (US$/tonne)

Year	Loading / Unloading	Parking Fees	Speed Money	Clearing Agent's Fees
2001				
2002				
2003				
2004				
2005				
2006				
2007				

2.20 Is Electronic Data Interchange (EDI) working at this border? Yes / No. If yes, please answer followings.

(a) Year of introduction of EDI:_____

(b) Category of users: _____

(c) No of trade declarations used through EDI per shipment: _____

2.21 Is trade handled during night time? Yes / No.

(a) If yes, what is operation time? _____

(c) If no, what are the reasons for not having night time operation?

2.22 Is this land border handle transit cargo? Yes/ No. If yes, fill-up followings. Specify the unit. Use additional sheet, if required.

Year	Cargo value	Cargo quantity	Origin	Destination
2001				
2002				
2003				
2004				
2005				
2006				
2007*				

*Up to August 2007

2.23 Is there any transit cargo shed at this border? Yes / No.

2.24 What are the documents required for export / import through this border? Use additional sheets, if required.

Export documents	Import documents

Appendix 5
Basic DEA models (CCR and BCC)

DEA, as developed by Charnes et al. (1978), is basically a linear programming application to measure relative efficiency among similar DMUs entailing multiple inputs and outputs. Suppose we have a set of n peer DMUs, which produce multiple output vector Y, by utilizing observed multiple input vector X, respectively. Then, the production possibility set F is defined as follows.

$$\mathbf{F} = \{(\mathbf{Y}, \mathbf{X}) \mid \mathbf{X} \text{ can produce } \mathbf{Y}\} \qquad (1)$$

An efficient frontier (or production technology) can be represented by a set of DMUs, that satisfy Pareto efficiency conditions. This efficient frontier requires the following two basic assumptions (Shephard, 1970).

First, the efficient frontier should satisfy the convexity assumption of the production possibility set F. This means that, for a DMU with a single input A and single output B, if
$(y^A, x^A) \in \mathbf{F}$ and $(y^B, x^B) \in \mathbf{F}$, then $(\lambda y^A + (1-\lambda) y^B, \lambda x^A + (1-\lambda) x^B, 0 \le \lambda \le 1) \in \mathbf{F}$
where, λ is a variable concerning linear combination of DMUs.

Second, the efficient frontier should satisfy the 'free disposability' assumption of inputs and outputs. This means that, for inputs, if $(y^A, x^A) \in \mathbf{F}$ and $x^B \ge x^A$, then $(y^A, x^B) \in \mathbf{F}$, and, for outputs, if $(y^A, x^A) \in \mathbf{F}$ and $y^B \le y^A$, then $(y^B, x^A) \in \mathbf{F}$.

Shephard (1970) provided another functional representation of production technology through the definition of a distance function [equation (2)].

$$\mathrm{D}(\mathbf{Y}, \mathbf{X}) = \min\{\theta \mid (\mathbf{X}, \mathbf{Y}/\theta) \in \mathbf{F}\} \qquad (2)$$

where, θ is a variable representing the efficiency index; and D(Y, X) is output oriented distance function.4 To estimate such a distance function, Aigner and Chu (1968) used linear programming, which later helped Charnes, Cooper and Rhodes (1978) in framing the DEA methodology shown in equation (3). Interestingly, this optimal solution can be viewed as reciprocal of Farrell's technical efficiency estimates (1957).

$$\text{Min} \quad \theta - \varepsilon \sum_{r=1}^{s} s_r^+ - \varepsilon \sum_{i=1}^{m} s_i^-$$

subject to:

$$x_{ij_0}\theta - \sum_{j=1}^{n} x_{ij}\lambda_j - s_i^- = 0, \quad i = 1, 2, \cdots, m,$$

$$\sum_{j=1}^{n} y_{rj}\lambda_j - y_{rj_0} - s_r^+ = 0, \quad r = 1, 2, \cdots, s,$$

$$\lambda_j, s_i^-, s_r^+ \ge 0, \quad \forall j, r, i. \qquad (3)$$

where, we assume n units, each using m inputs to produce s outputs. We denote by Yrj the level of the r th output (r = 1, 2, …., s) from unit j (j = 1, 2, n) and by Xij the level of the j th input (j =1, 2, …., m) to the j th DMU.

ε is a very small positive number that prevents the weights from vanishing (formally, ε should be seen as a non-Archimedean constant), Si-, Sr+ represent the slack variables, λj are variables whose optimal values will define an efficient production possibility minimizing inputs DMU0 without detriment to its output levels. As a result, the optimal solution of θ represents the estimated efficiency of DMU0.

Equation (3) represents CCR model, which considers the constant returns to scale condition of efficient frontier to retain the above two basic assumptions whereas the constant returns to scale condition means, for k > 0, if $(\mathbf{Y}, \mathbf{X}) \in \mathbf{F}$, then $(k\mathbf{Y}, k\mathbf{X}) \in \mathbf{F}$.

By adding the convexity constraint $\sum \lambda j = 1$ to the traditional CCR model, the BCC model (1984) estimates pure technical efficiency and scale efficiency, on the assumption that variable returns to scale in production technology exist.

Appendix 6

Estimated TC and TT Values

Trade Flow	Exporter	Importer	Border	Year	TC (US$/TEU)	TT (Days)
Export	India	Bangladesh	Petrapole	2001	110.21	2.60
Export	Bangladesh	India	Benapole	2001	76.68	2.34
Export	India	Nepal	Raxaul	2001	88.10	1.90
Export	Nepal	India	Birganj	2001	121.31	1.82
Export	India	Bhutan	Jaigaon	2001	29.92	1.22
Export	Bhutan	India	Phuentsholing	2001	37.11	1.01
Export	Bhutan	Bangladesh	Phuentsholing	2001	7.27	1.87
Export	Bangladesh	Bhutan	Burimari	2001	5.74	1.10
Export	Nepal	Bangladesh	Kakarvitta	2001	45.52	1.60
Export	Bangladesh	Nepal	Banglabandha	2001	22.18	1.66
Export	India	Bangladesh	Petrapole	2002	121.67	3.00
Export	Bangladesh	India	Benapole	2002	93.91	2.10
Export	India	Nepal	Raxaul	2002	110.66	1.56
Export	Nepal	India	Birganj	2002	110.12	1.22
Export	India	Bhutan	Jaigaon	2002	12.65	1.18
Export	Bhutan	India	Phuentsholing	2002	22.71	1.11
Export	Bhutan	Bangladesh	Phuentsholing	2002	17.09	1.23
Export	Bangladesh	Bhutan	Burimari	2002	19.43	1.22
Export	Nepal	Bangladesh	Kakarvitta	2002	55.44	1.20
Export	Bangladesh	Nepal	Banglabandha	2002	21.18	1.30
Export	India	Bangladesh	Petrapole	2003	166.23	3.27
Export	Bangladesh	India	Benapole	2003	110.93	2.82
Export	India	Nepal	Raxaul	2003	92.89	1.22
Export	Nepal	India	Birganj	2003	155.29	1.40
Export	India	Bhutan	Jaigaon	2003	22.98	1.28
Export	Bhutan	India	Phuentsholing	2003	18.19	1.02
Export	Bhutan	Bangladesh	Phuentsholing	2003	18.82	1.45
Export	Bangladesh	Bhutan	Burimari	2003	11.67	1.10
Export	Nepal	Bangladesh	Kakarvitta	2003	23.56	1.00
Export	Bangladesh	Nepal	Banglabandha	2003	18.89	1.20
Export	India	Bangladesh	Petrapole	2004	149.34	3.22
Export	Bangladesh	India	Benapole	2004	128.37	2.88
Export	India	Nepal	Raxaul	2004	99.36	1.00
Export	Nepal	India	Birganj	2004	120.59	1.28
Export	India	Bhutan	Jaigaon	2004	18.42	1.19
Export	Bhutan	India	Phuentsholing	2004	27.65	1.03
Export	Bhutan	Bangladesh	Phuentsholing	2004	19.92	1.20
Export	Bangladesh	Bhutan	Burimari	2004	20.50	1.10
Export	Nepal	Bangladesh	Kakarvitta	2004	52.19	0.98
Export	Bangladesh	Nepal	Banglabandha	2004	29.72	1.00
Export	India	Bangladesh	Petrapole	2005	154.77	3.67
Export	Bangladesh	India	Benapole	2005	144.84	3.29
Export	India	Nepal	Raxaul	2005	78.02	1.00
Export	Nepal	India	Birganj	2005	111.99	1.00
Export	India	Bhutan	Jaigaon	2005	30.82	1.08
Export	Bhutan	India	Phuentsholing	2005	34.25	1.00
Export	Bhutan	Bangladesh	Phuentsholing	2005	12.45	1.88
Export	Bangladesh	Bhutan	Burimari	2005	18.11	1.00
Export	Nepal	Bangladesh	Kakarvitta	2005	28.21	1.20
Export	Bangladesh	Nepal	Banglabandha	2005	20.81	1.00
Export	India	Bangladesh	Petrapole	2006	165.05	3.93
Export	Bangladesh	India	Benapole	2006	149.62	3.37

Export	India	Nepal	Raxaul	2006	70.40	1.12
Export	Nepal	India	Birganj	2006	90.88	1.00
Export	India	Bhutan	Jaigaon	2006	33.51	1.11
Export	Bhutan	India	Phuentsholing	2006	32.20	1.00
Export	Bhutan	Bangladesh	Phuentsholing	2006	9.39	1.90
Export	Bangladesh	Bhutan	Burimari	2006	15.22	1.00
Export	Nepal	Bangladesh	Kakarvitta	2006	33.88	1.00
Export	Bangladesh	Nepal	Banglabandha	2006	33.18	1.10

Notes: Estimation was based on equations 3 and 4. TEU means twenty equivalent units. We have converted the weight in kg into weight in TEU. This was done based on author's personal communication with International Navigation Association (PIANC), Brussels. The conversion rate we used here was 12,000 kg ≅ 1 TEU to get a loaded 20' container (popularly known as FCL), sourced from PIANC. Data was originally collected per 26 tonne (≅ 26,416 kg) loaded truck.

Appendix 7

Estimated TC Components

Trade Flow	Exporter	Importer	Border	Year	Loading / unloading fees	Parking fees	Speed money	Clearing agent's fees
					(US$ / TEU)			
Export	India	Bangladesh	Petrapole	2001	74.29	33.33	1.29	1.30
Export	India	Bangladesh	Petrapole	2002	83.19	35.88	1.43	1.17
Export	India	Bangladesh	Petrapole	2003	118.02	45.05	1.96	1.20
Export	India	Bangladesh	Petrapole	2004	109.29	37.14	1.76	1.15
Export	India	Bangladesh	Petrapole	2005	118.07	33.58	1.82	1.30
Export	India	Bangladesh	Petrapole	2006	129.94	31.92	1.94	1.25
Export	Bangladesh	India	Benapole	2001	57.17	17.74	0.90	0.87
Export	Bangladesh	India	Benapole	2002	69.21	22.32	1.10	1.28
Export	Bangladesh	India	Benapole	2003	88.20	20.29	1.30	1.14
Export	Bangladesh	India	Benapole	2004	97.51	28.24	1.51	1.11
Export	Bangladesh	India	Benapole	2005	111.45	30.39	1.70	1.30
Export	Bangladesh	India	Benapole	2006	113.96	32.78	1.76	1.12
Export	India	Nepal	Raxaul	2001	68.57	17.30	1.03	1.20
Export	India	Nepal	Raxaul	2002	77.27	30.87	1.30	1.22
Export	India	Nepal	Raxaul	2003	66.80	23.78	1.09	1.22
Export	India	Nepal	Raxaul	2004	71.34	25.61	1.16	1.25
Export	India	Nepal	Raxaul	2005	58.05	17.97	0.91	1.09
Export	India	Nepal	Raxaul	2006	52.64	15.83	0.82	1.11
Export	Nepal	India	Birganj	2001	91.20	27.56	1.43	1.12
Export	Nepal	India	Birganj	2002	85.44	22.23	1.29	1.16
Export	Nepal	India	Birganj	2003	118.25	33.80	1.92	1.32
Export	Nepal	India	Birganj	2004	90.29	27.60	1.41	1.29
Export	Nepal	India	Birganj	2005	78.15	31.20	1.37	1.27
Export	Nepal	India	Birganj	2006	69.28	19.38	1.10	1.12
Export	India	Bhutan	Jaigaon	2001	20.65	7.50	0.82	0.95
Export	India	Bhutan	Jaigaon	2002	9.17	2.30	0.62	0.56
Export	India	Bhutan	Jaigaon	2003	15.96	5.29	0.89	0.84
Export	India	Bhutan	Jaigaon	2004	12.22	4.83	0.64	0.73
Export	India	Bhutan	Jaigaon	2005	19.36	9.90	0.72	0.84
Export	India	Bhutan	Jaigaon	2006	22.32	11.85	0.56	0.78
Export	Bhutan	India	Phuentsholing	2001	25.80	10.56	0	0.75
Export	Bhutan	India	Phuentsholing	2002	14.78	7.24	0	0.69
Export	Bhutan	India	Phuentsholing	2003	14.57	3.09	0	0.53
Export	Bhutan	India	Phuentsholing	2004	18.44	8.33	0	0.88
Export	Bhutan	India	Phuentsholing	2005	21.92	11.41	0	0.92
Export	Bhutan	India	Phuentsholing	2006	21.82	9.56	0	0.82
Export	Bhutan	Bangladesh	Phuentsholing	2001	5.55	1.46	0	0.26
Export	Bhutan	Bangladesh	Phuentsholing	2002	13.32	3.33	0	0.44
Export	Bhutan	Bangladesh	Phuentsholing	2003	14.22	3.10	0	0.50
Export	Bhutan	Bangladesh	Phuentsholing	2004	16.16	3.22	0	0.54
Export	Bhutan	Bangladesh	Phuentsholing	2005	10.62	1.40	0	0.43
Export	Bhutan	Bangladesh	Phuentsholing	2006	8.03	1.14	0	0.22
Export	Bangladesh	Bhutan	Burimari	2001	3.42	1.42	0.34	0.56
Export	Bangladesh	Bhutan	Burimari	2002	13.70	4.39	0.62	0.72
Export	Bangladesh	Bhutan	Burimari	2003	7.49	3.10	0.50	0.58
Export	Bangladesh	Bhutan	Burimari	2004	14.60	4.81	0.48	0.61
Export	Bangladesh	Bhutan	Burimari	2005	13.92	3.12	0.48	0.59
Export	Bangladesh	Bhutan	Burimari	2006	10.29	3.92	0.45	0.56
Export	Nepal	Bangladesh	Kakarvitta	2001	24.23	19.20	1.11	0.98
Export	Nepal	Bangladesh	Kakarvitta	2002	29.04	24.19	1.19	1.02
Export	Nepal	Bangladesh	Kakarvitta	2003	14.27	7.67	0.76	0.86

Export	Nepal	Bangladesh	Kakarvitta	2004	32.19	17.79	1.03	1.18
Export	Nepal	Bangladesh	Kakarvitta	2005	21.64	5.04	0.67	0.86
Export	Nepal	Bangladesh	Kakarvitta	2006	22.88	9.23	0.85	0.92
Export	Bangladesh	Nepal	Banglabandha	2001	8.92	12.09	0.45	0.72
Export	Bangladesh	Nepal	Banglabandha	2002	9.06	11.04	0.43	0.65
Export	Bangladesh	Nepal	Banglabandha	2003	9.39	8.50	0.42	0.58
Export	Bangladesh	Nepal	Banglabandha	2004	17.23	11.20	0.53	0.76
Export	Bangladesh	Nepal	Banglabandha	2005	13.05	6.74	0.48	0.54
Export	Bangladesh	Nepal	Banglabandha	2006	17.98	13.53	0.78	0.89

Note: Same as Appendix 6

Appendix 8

Estimated TT Components

Trade Flow	Exporter	Importer	Border	Year	Parking time at border	Time for Customs clearance	Loading/ unloading time
					(Days per Truck)		
Export	India	Bangladesh	Petrapole	2001	0.26	1.06	1.28
Export	India	Bangladesh	Petrapole	2002	0.53	1.19	1.28
Export	India	Bangladesh	Petrapole	2003	0.61	1.07	1.32
Export	India	Bangladesh	Petrapole	2004	0.60	0.93	1.69
Export	India	Bangladesh	Petrapole	2005	0.58	1.01	2.08
Export	India	Bangladesh	Petrapole	2006	0.62	1.04	2.27
Export	Bangladesh	India	Benapole	2001	0.21	1.18	0.95
Export	Bangladesh	India	Benapole	2002	0.18	1.21	0.73
Export	Bangladesh	India	Benapole	2003	0.23	1.47	1.12
Export	Bangladesh	India	Benapole	2004	0.19	1.16	1.53
Export	Bangladesh	India	Benapole	2005	0.26	1.05	1.98
Export	Bangladesh	India	Benapole	2006	0.31	1.04	2.02
Export	India	Nepal	Raxaul	2001	0.48	0.66	0.76
Export	India	Nepal	Raxaul	2002	0.42	0.49	0.65
Export	India	Nepal	Raxaul	2003	0.21	0.41	0.60
Export	India	Nepal	Raxaul	2004	0.15	0.27	0.58
Export	India	Nepal	Raxaul	2005	0.17	0.28	0.55
Export	India	Nepal	Raxaul	2006	0.23	0.27	0.62
Export	Nepal	India	Birganj	2001	0.44	0.53	0.85
Export	Nepal	India	Birganj	2002	0.27	0.40	0.55
Export	Nepal	India	Birganj	2003	0.33	0.38	0.69
Export	Nepal	India	Birganj	2004	0.31	0.40	0.57
Export	Nepal	India	Birganj	2005	0.18	0.33	0.49
Export	Nepal	India	Birganj	2006	0.21	0.33	0.46
Export	India	Bhutan	Jaigaon	2001	0.33	0.34	0.55
Export	India	Bhutan	Jaigaon	2002	0.42	0.27	0.49
Export	India	Bhutan	Jaigaon	2003	0.47	0.30	0.51
Export	India	Bhutan	Jaigaon	2004	0.46	0.26	0.47
Export	India	Bhutan	Jaigaon	2005	0.45	0.22	0.41
Export	India	Bhutan	Jaigaon	2006	0.49	0.23	0.39
Export	Bhutan	India	Phuentsholing	2001	0.11	0.39	0.51
Export	Bhutan	India	Phuentsholing	2002	0.16	0.33	0.62
Export	Bhutan	India	Phuentsholing	2003	0.11	0.28	0.63
Export	Bhutan	India	Phuentsholing	2004	0.10	0.29	0.64
Export	Bhutan	India	Phuentsholing	2005	0.12	0.25	0.63
Export	Bhutan	India	Phuentsholing	2006	0.11	0.21	0.68
Export	Bhutan	Bangladesh	Phuentsholing	2001	0.38	0.74	0.75
Export	Bhutan	Bangladesh	Phuentsholing	2002	0.25	0.45	0.53
Export	Bhutan	Bangladesh	Phuentsholing	2003	0.31	0.59	0.55
Export	Bhutan	Bangladesh	Phuentsholing	2004	0.18	0.51	0.51
Export	Bhutan	Bangladesh	Phuentsholing	2005	0.24	0.76	0.88
Export	Bhutan	Bangladesh	Phuentsholing	2006	0.25	0.74	0.91
Export	Bangladesh	Bhutan	Burimari	2001	0.12	0.55	0.43
Export	Bangladesh	Bhutan	Burimari	2002	0.17	0.46	0.59
Export	Bangladesh	Bhutan	Burimari	2003	0.17	0.45	0.48
Export	Bangladesh	Bhutan	Burimari	2004	0.19	0.45	0.46
Export	Bangladesh	Bhutan	Burimari	2005	0.22	0.34	0.44
Export	Bangladesh	Bhutan	Burimari	2006	0.25	0.33	0.42
Export	Nepal	Bangladesh	Kakarvitta	2001	0.37	0.51	0.72
Export	Nepal	Bangladesh	Kakarvitta	2002	0.27	0.39	0.54
Export	Nepal	Bangladesh	Kakarvitta	2003	0.28	0.28	0.44

Export	Nepal	Bangladesh	Kakarvitta	2004	0.15	0.32	0.51
Export	Nepal	Bangladesh	Kakarvitta	2005	0.16	0.26	0.78
Export	Nepal	Bangladesh	Kakarvitta	2006	0.19	0.27	0.54
Export	Bangladesh	Nepal	Banglabandha	2001	0.29	0.31	1.06
Export	Bangladesh	Nepal	Banglabandha	2002	0.23	0.30	0.77
Export	Bangladesh	Nepal	Banglabandha	2003	0.17	0.32	0.71
Export	Bangladesh	Nepal	Banglabandha	2004	0.19	0.25	0.66
Export	Bangladesh	Nepal	Banglabandha	2005	0.22	0.20	0.58
Export	Bangladesh	Nepal	Banglabandha	2006	0.16	0.23	0.71

Note: Same as Appendix 6

Appendix 9

Partial Correlation Coefficients

	X^t_{ijl}	TC^t_{ijl}	TT^t_{ijl}
X^t_{ijl}	1		
TC^t_{ijl}	-0.6668* (0.0000)	1	
TT^t_{ijl}	-0.2437** (0.0606)	0.3703* (0.0036)	1

*Significant at 5% level. **Significant at 10% level