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India-Baltic Sea Region Trade and Connectivity: Myth or Reality?*

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Abstract: India and Baltic Sea Region (BSR) may seem very different areas of the world, and indeed in many ways they are heterogeneous. But, there are many similarities. Both the regions enjoy diversity-of geography, culture, landscape, economy and language. Notwithstanding their vast achievement in the global trade, trade between BSR and India has been fairly low and unevenly distributed across BSR countries. Intuitively, efficient regional trade corridor between them - be it ocean, air or land - is important to increase trade volume, diversify exports, attain export sophistication, and strengthen economic integration. This paper suggests that the India-BSR trade exchange and connectivity shall aim to improve the performance of regional infrastructure and eliminate the technological asymmetry in transportation dealing the trade between them. While at the verge of another global financial crisis, this paper suggests that an integrated regional trade and transport corridor between India and Europe in general and with BSR, in particular, would yield much larger economic benefits. This study calls for a strategic partnership for policy development and an action plan to foster regional cooperation and integration between India and the Baltic Sea Region.

Kewords: Baltic Sea Region, EU, India, trade, connectivity, trade facilitation.

1. Introduction

India and Baltic Sea Region (BSR)[1] may seem very different areas of the world, and indeed in many ways they are heterogeneous. But, there are many similarities. Both the regions enjoy diversity - of geography, culture, landscape, economy and language. The European Union (EU) is the second largest democracy, next to India. Cultural diversity is an

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important strength of Europe. So is also India's. There are important linkages too. Both the India and the EU had rich trade and cultural interactions in the past. While single market is the EU's one of the greatest achievements, India has been successful in achieving the status of world's fastest growing economy. Their GDP, population, and area in the world are very impressive (Table 1.1). Both are also home to world class companies. Today, BSR and India together represent about one-third of Europe and Asia's income, two-third of their combined population and half of its surface area.[2]

Table 1.1: India and BSR in World Economy in 2009

	BSR11	**India**
GDP (US$ trillion, current price)	7.57 (PPP: 7.08)#	1.16 (PPP: 3.36)#
GDP Per Capita (US$, current price)	34,815 (PPP: 27,666)#	1,017 (PPP: 2,957)#
Population (million)	303.63 (5%)*	1139.96 (17%)*
Area (% of world)	14.4	2.45

Note: * As per cent of world population # At PPP price.
Source: World Development Indicators Online Database, World Bank.

Notwithstanding its vast achievement in the global trade, the inter-regional trade between BSR and India has been fairly low - marginally increased from 2.9 per cent in 2000 to 3.43 per cent in 2009.[3] However, the region has high trade potential. For example, the trade between India and the EU has the potential to cross US$ 570 billion mark by 2015.[4] There is vast unrealized trade in goods and services between India and the BSR. Causes of such underutilization of inter-regional trade are plenty, but most of which are economic in nature. For example, it was found in literature that high trade barriers - both visible and invisible, poor physical connectivity, inadequate trade facilitation measures, lack in standards, unfriendly regulations, etc. are presumably some stumbling blocks of higher trade exchange between the EU and India.[5]

Box 1.1: EU-India FTA: Estimated Welfare Gains

Study I (Decreux and Mitaritonna, 2007): This study shows that an FTA between the EU and India would have a positive impact on European exports. Increase to the Indian market would be US$ 17 billion under Scenario 1 and US$ 18 billion under Scenario 2. An FTA between the EU and India would also have positive impacts on the EU economy, thanks to terms of trade gains adding up with a better allocation of resources. However, given the initial limited role of India as trade partner for the EU, such gains remain relatively small for the European economy. In all simulated scenarios India's opening is more pronounced than the EU one, simply because of an initially very large Indian protection. This explains why EU terms of trade are improving under all the alternative proposals. The overall trade impacts on India are positive under both scenarios and exports from India to the EU would increase in all sectors. Total increase in Indian exports to the world in 2020 would be approximately US$ 9 billion under both scenarios, of which US$ 5 billion to the EU. The overall impact in terms of Indian real income is sensitive to the inclusion of relevant sectors for India in the negotiation, and, in particular, the services sector will be important for India to reap the full welfare benefits of an FTA with the EU.

Study II (Polaski *et al.*, 2008): This study suggested that Indian exports would increase by US$ 3.5 billion (5.5 per cent) and India's imports would increase by US$ 2.6 billion (3.4 per cent). Because the overall increase in imports would be less than the increase in exports, India's existing bilateral trade deficit with the EU would narrow. Overall, India would experience a very small welfare loss (US$ 250 million). In contrast, the EU would benefit unambiguously from the agreement, although to a very modest extent. Exports would increase by US$ 1.3 billion, a gain of 0.05 per cent in the share of total European exports. Imports would increase by US$ 3.2 billion (0.12 per cent). Europe's existing bilateral trade surplus with India would decrease.

Study III (Winters *et al.*, 2009): This study concluded that the dissimilarities of composition of export structures between the partners' exports to each other, and excluded countries' exports to them, suggested that the scope for negative effects arising from the EU-India FTA would be relatively limited. South Asian countries would be by far the most vulnerable to negative impacts from the FTA. Other developing

Box 1 continued...

Box 1 continued...

countries such as Brazil and China as well as the Russian would generally experience trade diversion rather than trade reorientation in the EU market, especially in manufacturing. In the Indian market, such countries would suffer considerable competitive pressures from the improved access for the EU, but since they trade little with India, it would not be of great significance in aggregate. However, the methodology adopted in the study was partial equilibrium in general and hence could not take into consideration the general equilibrium effects of this FTA deal. Also, the study does not attempt to estimate the welfare impacts on those countries.

Study IV (Raihan, 2009): Based on a global general equilibrium modelling technique, the EU-India FTA would result in welfare gains for both India and EU. In absolute terms, the gains of EU would be much higher than those of India. However, in terms of share in GDP, the gains of India would be much larger than that of the EU. India's welfare gain would mainly be driven by the gain in terms of trade, whereas the EU's welfare gain would primarily be due to a gain in allocative efficiency.

India's diversity provides huge opportunities for trade, investment, and economic growth. The remarkable success of India in past decades demonstrates this. The Indian economy has flourished as she has become more closely intertwined with the world. It is expected that with India-EU FTA, economic integration, not only among EU member states but also between EU and India, will be deepening, albeit at a faster pace in coming days.[6] At the same time, an FTA between them would lead to higher market access for both the regions (see Box 1.1). Eventually, this would encourage more fragmentation of production and services, provided the regional economy is adequately supported by improved and adequate regional infrastructure facilities, both hardware (for example, physical infrastructure) and software (for example, trade facilitation measures).

India has a population of approximately 1.21 billion people and a GDP of approximately US$ 1.53 trillion (agriculture 20 per cent, industry 25 per cent and services 55 per cent), whereas the EU population amounts to 460 million citizens and its GDP is approximately US$ 13 trillion.[7] Indian trade represents approximately US$ 596 billion (2010-11), almost 60 per cent of which is contributed by import, slightly more than 1/4th of which with the EU. This large

difference in size between the two economies will largely impact the results of any bilateral liberalization scenario, if not supported by adequate trade facilitation measures and improved connectivity. A truly design regional infrastructure between India and the EU would, therefore, not only reduce trade costs but also generate production networks. Integrated regional connectivity would provide substantial benefits to landlocked areas within region (countries) by giving them access to world market at lower costs. At the same time, the efficiency and performance of customs, air and sea ports, ocean and air shipping facilities, etc. are important for competitiveness and trade prospects between India and the EU (BSR). The present trade volume between India and BSR countries is low and unevenly distributed across BSR countries. Intuitively, efficient regional trade corridor between them – be it ocean, air or land, is thus important to (i) increase trade volume, (ii) diversify exports, (iii) attain export sophistication, and (iv) strengthen economic integration. Therefore, the objective of the India-BSR trade exchange and connectivity should aim to improve the performance of regional infrastructure, both hardware and software, and eliminate the technological asymmetry in transportation dealing the trade between them.

The most important question is whether or not improved connectivity would help in creating trade between India and BSR. Duval and Utoktham (2009) showed that a country could increase its intraregional and South-South trade significantly by achieving a more homogeneous performance across all trade and business facilitation areas.[8] Improved connectivity through trade facilitation indeed plays an immense role in diversification of exports, presumably applicable also for BSR countries and India.

Regional infrastructure leads to foster regional integration. Looking at the success of regional infrastructure through Ten-T projects in the EU, many regions (subregions) across the world have been initiating regional infrastructure projects.[9] TransBaltic is envisaged as an international (regional) infrastructure that aims to help integrate transport system in the BSR. TransBaltic is a strategic and macro-scale project, co-funded by the BSR 2007-2013 Programme. The main objective of TransBaltic is to provide regional level incentives for the creation of a comprehensive multimodal transport system in the BSR by means of joint transport development measures and jointly implemented business concepts.[10]

Given above, the objective of this paper is to assess the current and projected trade exchange patterns between India and the Baltic Sea Region, with particular emphasis on the territorial routing of freight flows between those two regions. The rest part of the paper is arranged as follows. Section 2 presents trade pattern between India and BSR. Section 3 deals with future trade potential between India and BSR countries. The barriers to trade between India and BSR are also discussed in this section. The discussion on the transportation links between India and BSR is carried out in Section 4. Section 5 presents the scopes and opportunities in physical connectivity between Asia and Europe with special reference to India and BSR. Conclusions are drawn in Section 6.

2. India-BSR Trade Pattern

India has been playing a key role in the global integration process – either through multilateral trade process or through regional trade agreements (RTAs). Regional trade agreements (RTAs) have increased by five-fold over 1990-2008, from 86 in 1990 to 434 in 2010.[11] Among the Asian countries, India leads with the largest number of FTAs (30), followed by Singapore (26), China and Korea (22 each) and Japan (19). The principal reason for the proliferation of FTAs is the increasing perception of these arrangements as a means to promote trade liberalization among the negotiating partner countries. As part of the 'Global Europe' initiative, the EU has initiated talks with large and rapidly growing markets around the world (European Commission, 2006).[12] The primary aim of this strategy is to enhance the competitiveness of EU companies for "stronger engagement with major emerging economies and regions together with a sharper focus on barriers to trade behind the border". The EU perceives trading agreements with countries in Asia such as South Korea, the Association of South East Asian Nations (ASEAN) and India as well as the Andean Community and Central American countries in Latin America will be a "stepping stone" to a global market economy. The ongoing EU-India FTA negotiations are particularly important for India because EU is India's largest trade partner accounting for more than a quarter of its exports. An FTA with the EU will allow Indian exporters preferential access to one of its major markets and this can have potentially far reaching implications for world trade. By March 2011, 12

rounds of negotiations had taken place between the European Commission and the Indian government but with no substantial advancement. Given the slow progress of talks, concerns have been expressed that it might not be possible to conclude FTA negotiations by 2010-11 (Khorana and Perdikis, 2010).

The EU is India's largest trading partner while India ranks as the EU's tenth most important trading partner and that trade in goods more than doubled over 2000-2008 (EUROSTAT, 2009). In 2009, nearly 25 per cent of total India's exports went to the EU and 21 per cent of India's total imports came from the EU. India's top export destinations within the EU were Germany (28 per cent) followed by the United Kingdom (19 per cent) and Belgium (11 per cent). India's exports of goods to the EU have grown at an average of 13 per cent per year, particularly commodities and manufacturing goods.

2.1 Trade Openness and Trends in Export and Import

BSR region in EU is heavily trade dependent. Almost 100 per cent of GDP is the trade openness (Table 2.1(a)). It even outnumbers the Euro area in trade openness. There are, however wide variations in trade openness across BSR countries. While country like Russia shows low level of trade openness (53 per cent), Estonia witnesses over 155 per cent of the same in BSR. Denmark, Lithuania and Sweden all have over 100 per cent trade openness in 2008 – driven by over 50 per cent exports of goods and services in GDP (Table 2.1(b)). In contrast, Indian economy is relatively less opened, where export of goods and services only contributes 23 per cent of GDP. Indirectly, such a low level of exports of goods and services in India suggests a strong future potential due mainly to India's vast economic size, population strength, domestic market and the rate of growth. As India progresses further, its trade openness will rise further, thus providing ample scopes of generation of economic wealth and prosperity. BSR-India trade would obviously benefit out of it.

India-BSR trade has been growing at a rate of 38 per cent per annum since 2000. It increased from US$ 6 billion in 2000 to US$ 28 billion in 2009. Such a rapid rise in trade is driven by India's import of US$ 20 billion alone. Germany is the largest trading partner of India in BSR (Table 2.2(a)),

sharing 65 per cent of India's export to BSR region. Russia and Denmark come next. India's export to BSR countries is uneven where export is mainly driven by Germany. However, the case is slightly different if we consider India's import, where Russia with 18 per cent share in India's total import from BSR comes next to Germany. India's imports from Sweden and Finland have also crossed US$ 1 billion mark in 2008 (Table 2.2(b)). India's import from BSR has been growing much higher than that of her export to region, allowing higher market access to BSR economies (Table 2.3). Today, import from BSR has been contributing about 53 per cent of India's import from the EU and 8 per cent in India's import from the world. Thus, BSR countries together as a region has gradually appeared as the largest trade partner of India from the EU.[13] However, the trade integration may depend on trade competitiveness and complementarity between the economies. A stronger complementarity between BSR and India would lead for higher trade exchange, thereby deepening the economic integration.

Table 2.1(a): Trade Openness (% of GDP)

Countries	2006	2007	2008
Denmark	100.90	102.50	107.10
Estonia	172.10	156.80	155.40
Finland	85.40	86.40	84.40
Germany	85.00	86.80	88.30
Latvia	111.20	104.60	96.70
Lithuania	128.30	122.20	129.70
Norway	74.80	75.60	76.90
Poland	82.50	84.40	83.20
Russia	54.80	52.00	52.80
Sweden	94.80	97.50	101.00
BSR 10	98.98	96.88	97.55
India	47.440	45.880	50.700
Euro Zone	79.60	81.10	81.00
World	56.90	57.80	-

Source: World Development Indicators Online Database, World Bank.

Trade data on EU-India trade flows suggest that EU's exports to India have increased heavily. Total BSR exports to India increased mainly in machinery and transport equipment and manufactured goods (Table 2.5). These product groups account for over 70 per cent of the total Indian imports from BSR countries. Indian exports to BSR also increased with textiles

and clothing and chemicals accounting for most exports (Table 2.4). The compositions of BSR-India trade show that the BSR has substantial trade deficit with India in agricultural products, energy, and textiles and clothing, which is, however, not the case in machinery and transport equipment, for which the trade balance is positive.

Table 2.1(b): Exports of Goods and Services (% of GDP)

Countries	2006	2007	2008
Denmark	52.00	52.30	54.70
Estonia	80.10	72.80	75.60
Finland	45.20	45.70	44.20
Germany	45.30	46.90	47.20
Latvia	44.90	42.20	41.80
Lithuania	59.10	54.40	59.20
Norway	46.40	45.80	48.10
Poland	40.40	40.80	39.80
Russia	33.70	30.30	30.80
Sweden	51.50	52.60	54.20
BSR 10	49.86	48.38	49.56
India	22.20	21.16	22.67
Euro Zone	40.50	41.50	41.10
World	28.40	28.90	-

Source: World Development Indicators Online Database, World Bank.

Table 2.2 (a): Indian Export to BSR Countries: Volume and Share

Countries	Export 2000 Volume (US$ million)	Export 2000 Share (%)	Export 2009 Volume (US$ million)	Export 2009 Share (%)	Export 2000-2009 AGR* (%)
Belarus	3.68	0.11	35.79	0.43	97.09
Denmark	183.58	5.47	577.70	6.91	23.85
Estonia	4.10	0.12	32.45	0.39	76.84
Finland	58.20	1.73	200.07	2.39	27.08
Germany	1865.30	55.59	5451.10	65.21	21.36
Latvia	13.53	0.40	37.19	0.44	19.44
Lithuania	8.95	0.27	53.91	0.64	55.82
Norway	58.13	1.73	222.74	2.66	31.47
Poland	87.58	2.61	390.37	4.67	38.42
Russia	903.73	26.93	914.00	10.93	0.13
Sweden	168.78	5.03	443.71	5.31	18.10
BSR 10	3355.53	100.00	8359.02	100.00	16.57

Table 2.2(b): Indian Import from BSR Countries: Volume and Share

Countries	Import 2000 Volume (US$ million)	Import 2000 Share (%)	Import 2009 Volume (US$ million)	Import 2009 Share (%)	Import 2000-2009 AGR* (%)
Belarus	1.95	0.07	490.07	2.50	2781.29
Denmark	140.73	4.71	597.16	3.04	36.04
Estonia	0.45	0.02	32.66	0.17	795.20
Finland	190.25	6.36	1109.39	5.65	53.68
Germany	1780.10	59.53	10721.60	54.63	55.81
Latvia	3.53	0.12	151.21	0.77	465.53
Lithuania	3.40	0.11	142.45	0.73	454.41
Norway	45.85	1.53	963.57	4.91	222.40
Poland	41.58	1.39	343.36	1.75	80.65
Russia	544.08	18.19	3472.32	17.69	59.80
Sweden	238.38	7.97	1601.78	8.16	63.55
BSR 10	2990.28	100.00	19625.56	100.00	61.81

Note: *Average annual growth rate.

Source: Direction of Trade Statistics Yearbook Online Database, International Monetary Fund (IMF).

Table 2.3: Trends in India-BSR Trade

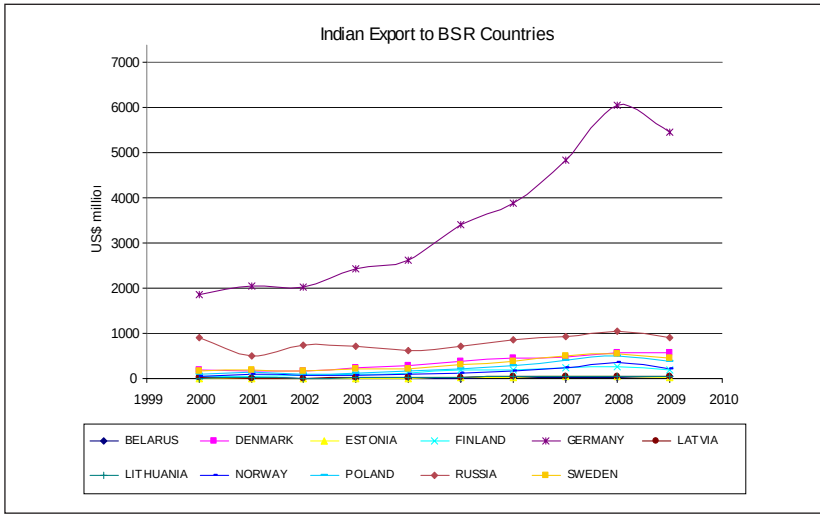
Year	Export to BSR10		Import from BSR10	
	Share in EU	Share in World	Share in EU	Share in World
	(%)			
2000	32.29	7.87	27.87	5.94
2001	28.79	7.08	32.73	6.83
2002	29.54	6.67	31.45	6.52
2003	28.34	6.43	35.03	6.86
2004	25.26	5.56	38.23	6.62
2005	24.53	5.50	40.79	7.09
2006	24.39	5.25	45.42	7.43
2007	24.00	5.09	46.49	7.18
2008	25.00	5.34	51.25	7.44
2009	23.94	5.06	53.12	7.62

Source: Direction of Trade Statistics Yearbook Online Database, International Monetary Fund (IMF).

2.2 Export Propensity and Competitiveness

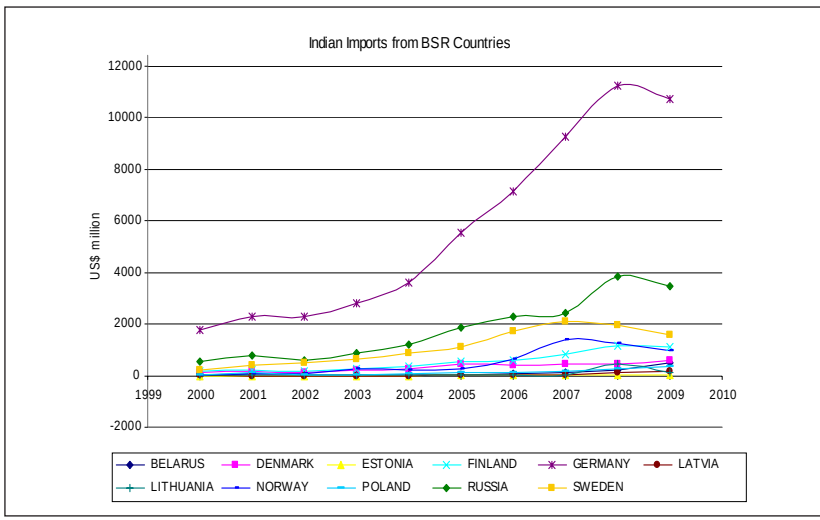
The globalization and the rapid growth of international trade have further made it imperative for firms to penetrate into foreign markets and seek expansion opportunities. Unlike China, India's export propensity has been

Figure 2.1(a): Trends in Indian Export to BSR Countries: 2000-2009



Source: World Development Indicators Online Database, World Bank.

Figure 2.1(b): Trends in Indian Import to BSR Countries: 2000-2009



Source: World Development Indicators Online Database, World Bank.

relatively low, which has been hovering between 9 to 12 per cent of GDP (Table 2.6). In sharp contrast, India's export propensity with the EU has been about 2 to 3 per cent of GDP only, of which only 2 per cent directed to Euro Zone and less than 1 per cent to the BSR. Barring Germany, India's export propensity with BSR countries is miniscule. Therefore, overall degree of reliance of India's domestic producers on the EU and BSR markets in relative term has been low. Nevertheless, the low export propensity has also been reflected in India's low export competitiveness with BSR countries.

The export competitiveness measures the share of an economy in the world market for a particular good.[14] It is a basic measure of world market power. Table 2.7 presents India's export competitiveness at bilateral level for an aggregated export. India's export competitiveness in EU market has fallen in the last decade. For example, India used to export about 1/4th of its global export to the EU in the beginning of the last decade, which reduced to 21.13 per cent in 2009. The similar trend continued in Euro zone and BSR. Barring Poland and Belarus, India's export competitiveness has fallen in remaining BSR countries during 2000 and 2009. However, Germany is still the largest market in BSR with which India enjoys relatively higher export competitiveness (3.30 per cent in 2009). However, the non-BSR EU countries also matter for India's export competitiveness as the gap in index scores between the EU and BSR is quite substantial.

2.3 Trade Complementarity and Intra-Industry Trade

Whether the trade between India and BSR would enhance will depend on trade complementarities between them. An increasing tendency of the index scores between two countries also provides some indication of the likelihood of their further integration. In general, the trade complementarity index (TCI) measures the degree to which the export pattern of one country matches the import pattern of another.[15] The calculated TCIs in Table 2.8 show relatively low but growing trade complementarity between India and BSR.

TCI scores indicate that India had trade complementarity of 39.50 per cent of its exports to BSR in 2009, increased from 35.57 per cent in 2003. Apparently, there is relatively higher trade creation potential between India and BSR. However, the economic size will continue to drive the trade complementarity between them. India fulfills larger import demand of BSR.

Table 2.4 India's Export to Select BSR Countries: Top Three Commodity Groups (US$ million)

Partner	HS Code	Commodity Group	2009-2010	HS Code	Commodity Group	2000-2001
Denmark		Total	580.42		Total	174.380
Denmark	62	RMG, not Knitted or Crocheted.	174.77	62	RMG, not Knitted or Crocheted.	33.850
Denmark	61	RMG, Knitted or Corcheted	66.13	42	Leather and Goods	23.230
Denmark	87	Automobiles and Components	44.22	61	RMG, Knitted or Corcheted.	19.410
Finland		Total	208.36		Total	58.310
Finland	61	RMG, Knitted or Corcheted	23.46	61	RMG, Knitted or Corcheted.	9.300
Finland	21	Edible Preperation	15.33	62	RMG, not Knitted or Crocheted.	7.490
Finland	84	Machinery and Parts	14.69	63	Textile Products	4.650
Germany		Total	5412.89		Total	1907.57
Germany	61	Rmg, Knitted or Corcheted.	584.00	62	RMG, not Knitted or Crocheted.	221.900
Germany	62	Rmg not Knitted or Crocheted.	473.63	42	Leather and Goods	195.440
Germany	85	Electrial Machinery	439.09	61	RMG, Knitted or Corcheted.	133.700
Norway		Total	228.91		Total	60.390
Norway	62	Rmg, not Knitted or Crocheted.	28.70	63	Textile Products	11.270
Norway	99	Misc. Goods	27.45	62	RMG, not Knitted or Crocheted.	7.170
Norway	87	Automobiles And Components	21.95	61	RMG, Knitted or Corcheted.	6.810
Poland		Total	421.13		Total	86.220
Poland	87	Automobiles and Components	43.14	9	Coffee, Tea, Mate and Spices.	13.980
Poland	29	Organic Chemical	34.49	52	Cotton.	11.580

Table 2.4 continued...

Table 2.4 continued...

Poland	52	Cotton	25.42	62	RMG, Not Knitted Or Crocheted.	10.720
Russia		Total	980.69		Total	889.010
Russia	30	Pharmaceutical	258.96	61	RMG, Knitted or Corcheted	206.820
Russia	9	Coffee, Tea, etc	103.76	9	Coffee, Tea, Mate and Spices.	131.180
Russia	21	Edible Preperation	60.8	62	RMG, not Knitted or Corcheted	106.640
Sweden		Total	145.49		Total	176.160
Sweden	62	RMG, not Knitted or Corcheted	20.5	63	Textile Products	29.870
Sweden	71	Natural or Cultured Pearls, etc	18.97	62	RMG, not Knitted or Corcheted	23.050
Sweden	87	Automobiles and Components	11.59	42	Leather and Goods	20.520

Source: Export-Import Databank, Government of India.

Table 2.5 India's Import from Select BSR Countries: Top Three Commodity Groups (US$ million)

Partner	HS Code	Commodity Group	2009-2010	HS Code	Commodity Group	2000-2001
Denmark		Total	592.37		Total	142.50
Denmark	27	Mineral fuels, mineral oils and products	198.37	85	Electrical machinery and equipment	32.39
Denmark	84	Machinery and mechanical appliances	86.45	89	Ships, boats and floating structures.	31.48
Denmark	30	Pharmaceutical	48.44	84	Machinery and mechanical appliances	19.20
Finland		Total	1010.66		Total	207.39
Finland	85	Electrical machinery and equipment	532.55	98	Project goods; some special uses.	61.48

Table 2.5 continued...

Table 2.5 continued...

Finland	84	Machinery and mechanical appliances	155.69	85	Electrical machinery and equipment	49.70
Finland	72	Iron and steel	61.73	84	Machinery and mechanical appliances	27.41
Germany		Total	10318.18		Total	1759.59
Germany	84	Machinery and mechanical appliances	3159.87	84	Machinery and mechanical appliances	534.12
Germany	85	Electrical machinery and equipment	1357.67	85	Electrical machinery and equipment	221.63
Germany	90	Optical, photo. Cinema. Medical or surg.	716.70	90	Optical, photo cinema. Medical or surg.	143.16
Norway		Total	907.35		Total	46.85
Norway	89	Ships, boats and floating structures.	488.29	75	Nickel and articles thereof.	10.35
Norway	84	Machinery and mechanical appliances	134.36	85	Electrical machinery and equipment	6.15
Norway	85	Electrical machinery and equipment	45.04	48	Paper and paperboard	5.51
Poland		Total	387.29		Total	42.63
Poland	27	Mineral fuels, mineral oils and products	108.47	98	Project goods	12.58
Poland	84	Machinery and mechanical appliances	70.30	85	Electrical machinery and equipment	6.07
Poland	72	Iron and steel	44.33	29	Organic chemicals	4.87
Russia		Total	3566.79		Total	517.66
Russia	31	Fertilisers.	975.74	72	Iron and steel	108.39
Russia	27	Mineral fuels, mineral oils and products	880.22	31	Fertilisers.	89.72
Russia	72	Iron and steel	493.43	48	Paper and paperboard	64.07
Sweden		Total	1590.14		Total	238.19
Sweden	85	Electrical machinery and equipment	628.19	85	Electrical machinery and equipment	97.46
Sweden	84	Machinery and mechanical	254.65	84	Machinery and mechanical	36.86
Sweden	72	Iron and steel	111.90	48	Paper and paperboard	16.36

Source: Export-Import Databank, Government of India

Changes in TCI over time also tell us the trade profiles are becoming more or less compatible. The TCI scores also indicate that bilateral trade between India and BSR has greater potential to grow since trade in similar product lines has started growing, leading towards deepening production networks between them. On the other, this relatively high degree of complementarity is assumed to indicate more favourable prospects for a successful trade arrangement between India and BSR.

Table 2.6: Trends in India's Export Propensity with BSR Countries*

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	(%)									
Belarus	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.003
Russia	0.196	0.103	0.143	0.119	0.087	0.085	0.090	0.075	0.086	0.066
Estonia	0.001	0.002	0.001	0.001	0.001	0.002	0.003	0.005	0.004	0.002
Latvia	0.003	0.001	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.003
Lithuania	0.002	0.004	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.004
Poland	0.019	0.030	0.021	0.021	0.022	0.026	0.030	0.033	0.041	0.028
Denmark	0.040	0.036	0.035	0.038	0.038	0.046	0.047	0.039	0.046	0.042
Germany	0.405	0.426	0.400	0.406	0.363	0.407	0.408	0.389	0.496	0.396
Norway	0.013	0.018	0.013	0.012	0.013	0.015	0.018	0.020	0.029	0.016
Sweden	0.037	0.038	0.034	0.035	0.031	0.037	0.039	0.041	0.046	0.032
Finland	0.013	0.012	0.014	0.017	0.018	0.023	0.021	0.018	0.021	0.015
BSR (11)	0.729	0.673	0.665	0.655	0.581	0.648	0.665	0.630	0.780	0.607
Euro Area	1.659	1.671	1.666	1.695	1.698	1.925	1.987	1.932	2.346	1.911
EU	2.258	2.337	2.250	2.312	2.299	2.641	2.727	2.624	3.120	2.535
World	9.263	9.508	9.961	10.198	10.448	11.776	12.672	12.377	14.614	11.995

Note: *Export propensity is defined as ratio of export to GDP. It shows the overall degree of reliance of domestic producers on foreign markets.

Source: Calculated based on Direction of Trade Statistics Yearbook Online Database, IMF.

Is there any scope for production networks and vertical trade between India and BSR? To answer this, we look at the intra-industry trade (IIT) index at disaggregated (4-digit HS) level. The IIT occurs when a country simultaneously imports and exports similar types of products within the same 'industry' or 'sector'. There are two types of intra-industry trade: horizontal IIT and vertical IIT. Horizontal intra-industry trade refers to the simultaneous exports and imports of goods classified in the same sector and at the same stage of processing. This is usually based on product differentiation. Vertical intra-industry trade refers to the simultaneous exports and imports of goods classified in the same sector but which are at different stages of processing.

This is normally based on the "fragmentation" of the production process into different stages, each performed at different locations by taking advantage of the local conditions. It is also discussed widely in literature that the IIT is a measure of the degree to which trade in a particular sector represents intra-industry trade (based on scale economies and/or market structure). By engaging in IIT, a country can reduce the number of similar goods it produces, and benefit from scale economies. Higher IIT ratios suggest that these sources of gains are being exploited. The IIT index measures the degree of overlap between imports and exports in the same commodity category, with a value of 1 indicating pure intra-industry trade and a value of 0 indicating pure inter-industry trade.[16]

2.7: India's Export Competitiveness with BSR Countries

Country	2000	2009
	(%)	
Belarus	0.01	0.02
Russia	2.12	0.55
Estonia	0.01	0.02
Latvia	0.03	0.02
Lithuania	0.02	0.03
Poland	0.21	0.24
Denmark	0.43	0.35
Germany	4.38	3.30
Norway	0.14	0.13
Sweden	0.40	0.27
Finland	0.14	0.12
BSR (11)	7.87	5.06
Euro zone	17.91	15.93
EU	24.38	21.13

Note: *Export competitiveness is share of a country's export to a particular country in total world export.
Source: Calculated based on Direction of Trade Statistics Yearbook Online Database, IMF.

Table 2.9 presents the calculated IIT scores of top 10 products (at HS4 level) for the year 2009. We found that IIT index levels are higher in manufacturing goods than primary good, reflecting the greater role of economies of scale in the production of those products. Moreover, index scores suggest that there are production-sharing opportunities in a static sense in chemical, electrical and electronics, machinery and mechanical appliances, iron and steel industry, etc. products with varying potentials. Germany offers highest intra-industry trade potential in 210 products (IIT>0.50), whereas Norway offers IIT potentials in 49 products only.

2.8: Trends in India's Trade Complementarity with BSR Countries

Country	2003	2004	2005	2006	2007	2008	2009
	(%)						
Germany	37.220	37.663	38.301	39.035	38.312	40.974	40.917
Denmark	38.559	38.801	38.349	38.516	39.377	41.254	42.319
Finland	34.610	34.441	34.811	35.221	35.138	36.580	40.438
Norway	34.815	34.266	35.076	34.947	33.985	35.621	36.885
Poland	35.074	36.866	37.277	36.727	36.958	38.102	39.072
Russia	33.460	33.571	33.689	34.092	33.261	34.245	37.099
Sweden	35.246	35.582	36.229	36.827	37.135	38.705	39.761
BSR 7	35.569	35.884	36.247	36.481	36.309	37.926	39.499

Note: Taken India as reporter and BSR countries as partners.

Source: Calculated using WITS, World Bank.

2.4 Unleashing the Intra-Industry Trade Potential

How do we then intensify vertical intra-industry trade between India and BSR? Our analysis indicates that a number of product categories and sectors exhibit an increasing share of intra-industry trade having higher economies of scale between India and BSR, and these are the sectors where we have the potential for the growth of bilateral trade between the two regions through intra-industry trade. In order to realize the potential, both the regions have to undertake further trade liberalization such as reduction of tariffs and removal of non-tariff barriers, and to effective action for reduction of trade costs through improvement in trade facilitation, both "at border" and "behind the border". By driving down real trade costs and trade and transport logistics barriers, India and BSR may realize the potential of higher production-sharing arrangements. The drivers of such trade go beyond relative factor endowments, to factors such as complementary use of information and communication technologies and natural geographies (clustering, agglomeration, and scale effects). Kimura and Kobayashi (2009) argued that the key to attract fragmented production blocks is to (i) improve locational advantages by, for example, developing special economic zones (SEZs) with at least an improved local level investment climate; and (ii) reduce the cost of service links that connect remotely located production blocs by improving trade and transport facilitation. In fragmentation of production, the improved service links, for example an improved connectivity, is important for expansion of production networks across a region.

Table 2.9 Intra-Industry Trade Index in 2009: Top 10 Products at 4-digit HS

HS	Product Description	Germany	HS	Product Description	Denmark
2824	Lead oxides; red lead and orange le	0.999	8421	Centrifuges, including centrifugal	0.994
2104	Soups and broths and preparations	0.997	8441	Other machinery for making up paper	0.989
4409	Wood (including strips and friezes	0.995	8306	Bells, gongs and the like, non-electric	0.987
8547	Insulating fittings for electrical	0.995	5401	Sewing thread of man-made filaments	0.978
2801	Fluorine, chlorine, bromine and iod	0.994	8547	Insulating fittings for electrical	0.975
5906	Rubberised textile fabrics, other t	0.990	8420	Calendering or other rolling machine	0.968
2530	Mineral substances not elsewhere sp	0.989	8201	Hand tools, the following : spades,	0.965
5809	Woven fabrics of metal thread and w	0.982	8466	Parts and accessories suitable for	0.959
9503	Other toys; reduced-size (scale) mo	0.978	7306	Other tubes, pipes and hollow profile	0.958
9405	Lamps and lighting fittings including	0.976	7411	Copper tubes and pipes.	0.943
	Products with IIT>0.50	210		Products with IIT>0.50	87
	Products with IIT<0.50	694		Products with IIT<0.50	297

HS	Product Description	Poland	HS	Product Description	Russia
8466	Parts and accessories suitable for	0.993	3809	Finishing agents, dye carriers to a	0.998
8482	Ball or roller bearings.	0.992	7307	Tube or pipe fittings (for example,	0.991
8208	Knives and cutting blades, for mach	0.989	2922	Oxygen-function amino-compounds.	0.989
7220	Flat-rolled products of stainless	0.987	2905	Acyclic alcohols and their halogena	0.975
8473	Parts and accessories (other than c	0.972	9030	Oscilloscopes, spectrum analysers	0.972
7019	Glass fibres (including glass wool)	0.939	2519	Natural magnesium carbonate (magnes	0.967
9017	Drawing, marking-out or mathematica	0.918	7301	Sheet piling of iron or steel, whet	0.959
2933	Heterocyclic compounds with nitroge	0.913	8480	Moulding boxes for metal foundry;	0.953
6306	Tarpaulins, awnings and sunblinds;	0.902	3812	Prepared rubber accelerators; compo	0.946
5807	Labels, badges and similar articles	0.896	8414	Air or vacuum pumps, air or other	0.946
	Products with IIT>0.50	74		Products with IIT>0.50	60
	Products with IIT<0.50	232		Products with IIT<0.50	162

Table 2.9 continued...

Table 2.9 continued...

HS	Product description	Finland	HS	Product description	Norway	HS	Product description	Sweden
8424	Mechanical appliances	0.997	7615	Table, kitchen or other household a	0.991	9015	Surveying (including photogrammetri	0.987
8308	Clasps, frames with clasps, buckles	0.993	4911	Other printed matter, including pri	0.960	7507	Nickel tubes, pipes and tube or pip	0.986
8471	Automatic data processing machines	0.986	8505	Electro-magnets; permanent magnets	0.949	3706	Cinematographic film, exposed and	0.985
7009	Glass mirrors, whether or not frame	0.970	8513	Portable electric lamps designed to	0.935	7304	Tubes, pipes and hollow profiles,	0.973
8547	Insulating fittings for electrical	0.969	8708	Parts and accessories of the motor	0.930	8512	Electrical lighting or signalling	0.971
8476	Automatic goods-vending machines	0.962	4901	Printed books, brochures, leaflets	0.908	2942	Other organic compounds.	0.959
6802	Worked monumental or building stone	0.943	8543	Electrical machines and apparatus,	0.894	9506	Articles and equipment for general	0.957
8419	Machinery, plant or laboratory equip	0.922	3811	Anti-knock preparations, oxidation	0.887	8433	Harvesting or threshing machinery,	0.956
8466	Parts and accessories suitable for	0.917	3204	Synthetic organic colouring matter,	0.867	5608	Knotted netting of twine, cordage	0.947
8414	Air or vacuum pumps, air or other	0.910	8516	Electric instantaneous or storage	0.858	8537	Boards, panels, consoles, desks,	0.943
	Products with IIT>0.50	50		Products with IIT>0.50	49		Products with IIT>0.50	88
	Products with IIT<0.50	232		Products with IIT<0.50	174		Products with IIT<0.50	311

Note: IIT index was calculated for bilateral trade between India and BSR countries.
Source: Calculated based on UNCOMTRADE

3. Future Trade Potential between India and BSR

Trade reforms formed an integral part of the globalization process. The foremost objective for the trade reforms is primarily to enhance trade in goods and services. India has been pursuing trade-led globalization since 1991, and the country has certainly benefited from the opening-up of its economy to the world. This is evident from the increase in trade to GDP ratio. However, India's share in world trade is still low and appears unimpressive when compared with China. One precondition of trade-led globalization process is that trade liberalization has to be actively supported by trade facilitation infrastructure, both hardware and software, in order to get optimal results. Falling short of adequate infrastructure would lead to suboptimal trade, or, in other words, the trade potential would remain unlocked. Therefore, properly estimated trade potential help support the countries to take necessary policy measures-either to retool the export-led globalization process or to build/plan infrastructure (national and/or international) to support the country's (or a region's) growth and trade or the combination of both.

Literature suggests that complementarities and fragmentation may come along the size of the trade volume: the larger is volume of trade between India and BSR, the higher the possibility of production fragmentation and trade complementarities. Given above, the objective is to estimate the future trade potential between India and BSR countries.

3.1 Data and Methodology

We use an augmented Gravity model to first analyze the trade flows and the coefficients thus obtained are then used to predict trade potential. The augmented gravity model considers cross-section data on trade, distance, gross domestic product (GDP) and population.[17] Appendix 3.1 provides the methodology and data sources.

3.2 India's Trade with BSR: Forecasted Results

We took India's trade (export + import) with BSR countries in US$ million at current price at the bilateral level as dependent variable. It was regressed over economic size (GDP), market size (population) and distance. The estimated regression coefficients are presented in Appendix 3.1. Forecasted

trade till 2030 for India's each BSR trading partner is presented in Table 3.1. Appendix 3.1 provides the growth assumptions considered to estimate the trade potential. Following observations are worth considering.

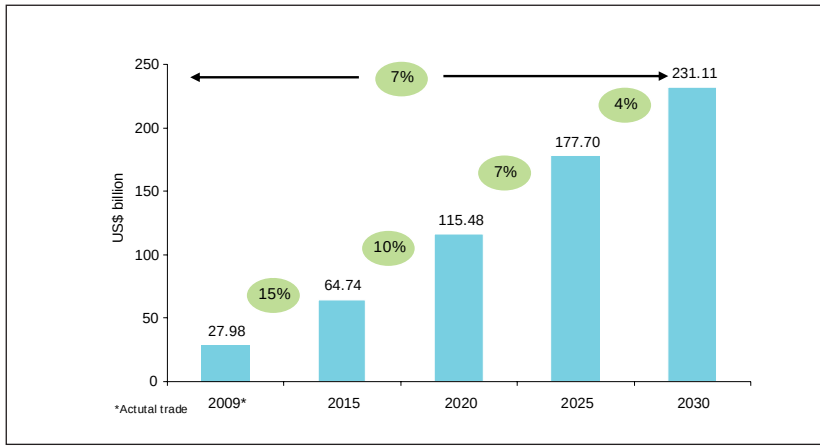
Table 3.1: India's Future Trade (Export + Import) Volume with BSR

Year	Total Trade (US$ billion)
2009	27.98*
2010	37.69
2011	42.33
2012	47.64
2013	50.34
2014	56.21
2015	64.74
2016	73.03
2017	82.84
2018	92.01
2019	103.42
2020	115.48
2021	126.99
2022	139.40
2023	152.17
2024	165.63
2025	177.70
2026	189.60
2027	200.79
2028	210.74
2029	220.36
2030	231.11

Note: *Actual
Source: Author's calculation.

First, the gravity model indicates that India's total trade (export + import) in value term with BSR countries has the potential to increase from an actual trade of US$ 27.98 million in 2009 to a future trade of US$ 115.48 billion in 2020 and US$ 231.11 billion in 2030. The bilateral trade between India and BSR is estimated to be growing at a CAGR of 11 per cent during 2009 and 2030. Although the economic and population growth in BSR countries were assumed to be negligible, India's trade with BSR region would be mainly driven by India's vast population and economic size.

Figure 3.1: India's Future Trade Volume with BSR



Note: Data in circle present compound annual growth rate.

Second, as noted in Table 3.2, Germany will continue to be India's largest trading partner from BSR. The bilateral trade between India and Germany, which is presently US$ 16.17 billion, is likely to cross US$ 100 billion mark in 2030. With US$ 82.85 billion trade, Russia will follow next. India's trade with Poland, Denmark, Finland and Sweden would be in the range of US$ 5-10 billion in 2030.

Table 3.2: India's Future Trade Volume with Major BSR Countries

Year	Denmark	Finland	Germany	Norway	Poland	Russia	Sweden	BSR 7	BSR 11	Share of BSR7
	(US$ billion)									(%)
2009*	1.17	1.31	16.17	1.19	0.73	4.39	2.05	27.01	27.98	96.53
2010	1.30	1.14	15.67	1.58	3.04	12.00	2.08	36.81	37.69	97.65
2011	1.39	1.22	16.45	1.78	3.19	14.80	2.41	41.24	42.33	97.40
2012	1.64	1.37	18.75	1.83	3.39	16.69	2.68	46.34	47.64	97.27
2013	1.88	1.41	19.09	2.06	3.60	17.95	2.81	48.79	50.34	96.91
2014	2.01	1.54	22.41	2.20	3.77	19.45	2.93	54.33	56.21	96.66
2015	2.55	1.68	27.70	2.34	3.96	21.05	3.14	62.43	64.74	96.42
2016	3.00	1.72	32.96	2.49	4.16	22.85	3.23	70.40	73.03	96.41

Table 3.2 continued...

Table 3.2 continued...

2017	3.54	1.95	38.32	2.57	4.40	25.58	3.43	79.80	82.84	96.32
2018	3.98	2.29	42.69	2.75	4.65	28.65	3.64	88.66	92.01	96.36
2019	4.23	2.52	49.07	2.94	4.91	32.09	3.87	99.63	103.42	96.33
2020	4.77	2.96	54.46	3.13	5.19	35.93	4.00	110.45	115.48	95.65
2021	5.40	3.58	60.78	3.41	5.53	39.35	4.23	122.28	126.99	96.29
2022	5.83	4.11	67.10	3.69	5.89	43.10	4.46	134.17	139.40	96.25
2023	6.26	4.83	73.42	3.77	6.27	47.20	4.71	146.46	152.17	96.25
2024	6.89	5.26	79.76	3.95	6.68	51.69	5.07	159.30	165.63	96.18
2025	7.42	5.98	84.09	4.24	7.11	56.61	5.35	170.81	177.70	96.12
2026	7.84	6.29	89.35	4.41	7.52	61.09	5.66	182.16	189.60	96.07
2027	8.15	6.61	93.61	4.66	7.95	65.92	5.98	192.88	200.79	96.06
2028	8.37	6.82	96.87	4.73	8.40	71.14	6.10	202.43	210.74	96.06
2029	8.59	7.03	99.13	4.90	8.88	76.77	6.34	211.64	220.36	96.04
2030	8.60	7.18	102.40	5.06	9.38	82.85	6.49	221.97	231.11	96.04

Source: Author's calculation.

Finally, due to smaller economic size, India's trade with Belarus, Estonia, Latvia, and Lithuania wouldn't increase much, thereby indicating BSR7 countries will continue to dominate the trade with India, showing almost a static 96 per cent share in total BSR trade with India.

3.3 Barriers to Trade between India and BSR

The India-BSR trade may fall short of a target of US$ 50 billion in 2013 if we don't facilitate the trade adequately. No doubt, the barriers are continued to prohibit the trade and becoming much more complex than ever before. It is, therefore, important to understand the size of the barriers at the macro level for the sake of drawing appropriate policy. To assess what types of barriers are prohibiting the trade flow between India and BSR and their variations, we have made an attempt to estimate a gravity model. The estimated results are given in Table 3.3. The data sources and definitions are given in Appendix 3.2. The estimated coefficients are having the correct signs. The fixed effect regression (in the form of log linear OLS) was selected over random effect (in the form of log linear GLS) based on significant Hausman test result. The model explains about 93 per cent of observations, thus showing a good fit. Following observations are worth considering.

Table 3.3: Regression Results
Dependent variable = Export

Variables	Coefficients
GDP of Reporter	0.912*** (0.141)
GDP of Partner	0.383*** (0.141)
Liner Connectivity Index of Reporter	-0.0603 (0.282)
Liner Connectivity Index of Partner	0.421 (0.285)
Tariff	-0.278 (-0.208)
Distance	-1.024** (-0.442)
Adjacency dummy	-1.677* (-0.944)
FTA dummy	1.086 (0.719)
Air connectivity dummy	1.325 (0.859)
Language dummy	-2.602*** (-0.736)
BSR dummy	-0.407 (-0.473)
R-squared	0.932
Observations	231
Country fixed effect	Yes
Hausman test	
Chi2 value	16.56
p-value	0.0000

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All variables are in log scale.

First, market sizes of both reporter (exporter) and partner (importer) (here represented by GDP) dominate the trade flow. The estimated coefficients are statistically significant at 1 per cent level. Bigger is the market size, higher the trade between the trade partners. Thus, India's rising economic growth would obviously lead to higher trade between India and BSR in coming years, *ceteris paribus.*

Second, as India's trade with its partners is mostly carried out by ocean, shipping connectivity thus plays a critical role in enhancing merchandise

trade flow.[18] However, the liner shipping connectivity index (LSCI) in our model has appeared as statistically insignificant in both reporter and partner, but showing correct sign. To a smaller extent, it can be said that India's current shipping network has been negatively affecting trade flow. Strengthening India's liner shipping network with the global network would lead to higher trade.

Third, tariff has correct sign with trade flow in the model, but again statistically insignificant. There is a possibility that further tariff cut (importance of trade liberalization) would lead to higher trade flow, ceteris paribus.

Fourth, the estimated coefficient of distance is having correct sign and statistically significant at 5 per cent level. Indirectly, it suggests that transport cost is still a strong barrier to trade.

Fifth, barring language and adjacency dummies, rest dummies have appeared with statistically insignificant coefficients. India's major trading partners are not geographically adjacent countries, due to which estimated coefficient of adjacency dummy has appeared as negative and statistically significant. In case of language dummy, language (culture) is still a significant barrier to trade. Estimated coefficient of FTA dummy is positive but not statistically significant. However, it has correct sign, thereby suggesting RTA and/or BTA has positive association with trade flow. The similar argument also applies to air connectivity. The estimated coefficient of the air connectivity dummy is positive but statistically insignificant. Stronger air connectivity is important for achieving higher trade. Finally, low volume of trade and small observations between India and BSR may perhaps the reasons for which the estimated coefficient of BSR dummy has come out as statistically insignificant and negative.

4. Transportation Links between India and BSR

Transport between India and BSR bears historical and political significance, which possessed no ground transport links as on date. Both India and BSR countries are major maritime nations by virtue of its long coast line, strategically located on the world's shipping routes, its long tradition of seafaring with a large pool of trained maritime personnel, and its dynamic economies.

While ports and shipping have been playing a pivotal role in the overall development of BSR and Indian economies, the transportation links between them is virtually absent. Inadequate connectivity has important impacts on trade and, therefore, the development of the economy. It typically results in suboptimal choice of mode and port, leading to time and cost escalations, and in extreme cases to congestion in the ports due to an inability to move cargo out of the port. Country looses its comparative advantage due to poor connectivity, and product looses its competitiveness due to higher transport costs. The objective is, therefore, to improve the external and internal accessibility of the Baltic Sea Region (EU, 2011).

International containerized liner trade began on the trans-Atlantic routes just over four decades ago. The centre of gravity of containerized trade gradually shifted to the trans-Pacific services as new global trading patterns evolved. Asia has become the new hub of global container trade, where China and India are the two major drivers of the global economy. This undermines the important of transportation links between BSR and India, which is strategically important not only for a strengthening Asia-Europe connectivity but also for facilitating an effective global production networks and supply chains. Thus, cooperation between India and BSR has become increasingly important.

4.1 Air Connectivity between India and BSR

Three out of 11 BSR countries have direct air links with India. Germany's Lufthansa, Finland's Fin Air, and Russia's Aeroflot have regular passenger and cargo services with India. Air India also serves Germany and Russia. Table 4.1 shows the current passenger airlines serving between Indian and BSR cities. Of late, Denmark has introduced cargo flight between India and Denmark. However, supply of air services is obviously fall short of demand. Except Germany, rest BSR countries have negligible shares in India's total freight and passenger traffic (Table 4.2). Germany handles over 1 million passenger traffic (having 4 per cent share in Indian total passenger traffic) and about 103,000 tonnes of freight (share of 9 per cent in total Indian air freight) in India. The trend in market share is mixed. Russia in freight and passenger categories and Finland in freight are having increasing shares in Indian market, whereas the other airlines from BSR are having a falling trend in market share. Nevertheless, presence of BSR countries in Indian aviation sector is weak.

Table 4.1: Passenger Airlines between India and BSR*

Airlines	Indian Cities	BSR Cities
Lufthansa	Delhi, Chennai, Kolkata, Mumbai, Bangalore	Munich, Frankfurt
Fin Air	Delhi	Helsinki
Aeroflot	Delhi, Mumbai	Moscow
Air India	Delhi, Mumbai	Frankfurt, Munich, Moscow

Note: *Direct serving airlines as on 30 April 2011.
Source: Author's calculation.

Table 4.2: Air Freight and Passenger Movement between India and BSR

(a) Freight

Year	Denmark	Finland	Germany	Russia	India Total
	Volume ('000 tonnes)				
2007-08	6.67	5.42	106.03	4.25	1025.01
2008-09	7.63	5.50	99.36	2.79	1072.47
2009-10	2.27	6.44	103.26	7.11	1139.07
	Share (%)				
2007-08	0.65	0.53	10.34	0.41	100.00
2008-09	0.71	0.51	9.26	0.26	100.00
2009-10	0.20	0.57	9.07	0.62	100.00

(b) Passenger

Passenger	Denmark	Finland	Germany	Russia	India Total
	Volume (million numbers)				
2007-08	*	0.12	1.36	0.15	27.17
2008-09	0.00	0.13	1.29	0.19	28.93
2009-10	0.00	0.12	1.26	0.22	32.08
	Share (%)				
2007-08	0.00	0.44	5.01	0.54	100.00
2008-09	0.00	0.46	4.45	0.67	100.00
2009-10	0.00	0.38	3.93	0.67	100.00

Note: *Very negligible.
Source: Ministry of Civil Aviation, Government of India.

4.2 Maritime Connectivity between India and BSR

4.2.1 Need for Stronger Shipping Network

Countries' access to world markets depends largely on their transport connectivity, especially as regards regular shipping services for the import and export of manufactured goods (UNCTAD, 2011). Unlike air links, the liner

shipping networks between India and BSR countries are relatively strong. While ports in BSR have been fairly developed, there is, however, wide variation in shipping connectivity in BSR and also between India and BSR.

Table 4.3 presents the liner shipping connectivity index (LSCI), which indicates a country's integration level into global liner shipping networks. UNCTAD's Liner Shipping Connectivity Index (LSCI) aims at capturing a country's level of integration into global liner shipping networks. The current version of the LSCI is generated from five components: (a) the number of ships; (b) the total container-carrying capacity of those ships; (c) the maximum vessel size; (d) the number of services; and (e) the number of companies that deploy container ships on services from and to a country's ports.[19] Higher is the index value, stronger the country's integration with the global liner shipping networks. With a score of 90.88, Germany occupies the fourth position in the world. India, on the other, comes in the group of top 25 countries in LSCI. The gap between Germany and other BSR countries in LSCI is wide and that too increasing over time. What follows is that current gap in liner shipping connectivity between India and BSR, if not tackled, may likely to slow down the trade prospect between them.

Table 4.3: Trends in Liner Shipping Connectivity Index (LSCI)

Country	2004	2005	2006	2007	2008	2009	2010
Denmark	11.56	24.25	25.39	22.10	26.49	27.68	26.76
Estonia	7.05	6.52	5.76	5.78	5.48	5.71	5.73
Finland	9.45	10.16	8.58	10.70	9.72	10.15	8.36
Germany	76.59	78.41	80.66	88.95	89.26	84.30	90.88
Latvia	6.37	5.82	5.10	5.87	5.52	5.18	5.98
Lithuania	5.22	5.88	5.66	6.83	7.76	8.11	9.55
Norway	9.23	8.31	7.34	7.80	7.91	7.93	7.93
Poland	7.28	7.53	7.50	7.86	9.32	9.21	26.18
Russia	11.90	12.72	12.81	14.06	15.31	20.64	20.88
Sweden	14.76	26.61	28.17	25.82	30.27	31.34	30.58
BSR10	15.94	18.62	18.70	19.58	20.70	21.03	23.28
India	34.14	36.88	42.90	40.47	42.18	40.97	41.40

Source: UNCTAD.

Managing the ocean freight through improved shipping network is, therefore, crucial for trade integration between India and BSR. Presumably, ocean freight is likely to grow faster in coming years owing to rising weight-value ratio of India's trade with BSR countries. It has been calculated that weight-value ratio (US$/kg) in the last decade has increased in both export and import (Table 4.4). This directly indicates that weight (kg) in India's trade (US$) has gone up across its BSR partner countries during 2000 and 2009, adding higher shipping costs on traded goods. While a stronger ocean shipping network is required in order to facilitate the trade between India and BSR, controlling the ocean shipping costs at the same time would pave the way for higher trade. In order to meet the challenges emanating from rising ocean freight, advancement information and communication technology, technological changes in shipping and related sectors coupled with stiff demands from trade, ports in India and BSR are required to gearup themselves by modernizing the port infrastructure, enhancing the quality of maritime services, increasing the productivity level, and establishing shipping links between them and also with global networks.

Table 4.4 Weight-Value Ratio (US$/kg) of India's Trade with BSR and World

Country	Export		Import	
	2000	2009	2000	2009
Norway	0.53	0.60	0.54	0.55
Germany	0.27	0.29	0.40	0.43
Denmark	0.21	0.25	0.89	1.05
Poland	0.39	0.44	2.06	1.96
Sweden	0.21	0.24	0.87	0.83
Russia	0.30	0.33	1.78	1.93
Finland	0.30	0.31	0.79	0.77
World	1.76	1.93	1.74	1.78

Source: Calculated based on UNCOMTRADE 4-digit HS trade.

4.2.2 Ocean Freight between India and BSR

Barring Germany and Russia, India's ocean freight trade with other BSR countries is relatively low in volume. Table 4.5 presents India's import from BSR countries and Table 4.6 presents India's export to BSR countries. A comparison between the two years (2000-01 and 2008-09) clearly suggests

India's import sources in BSR have increased over time compared to export. Traditionally, Germany and Russia are India's two major trade partners from BSR for sourcing selected products. Now, several new products are increasingly sourced from BSR, and new countries are also added as India's partners such as import of fertilizer from Latvia and Lithuania, and POL product from Denmark and Latvia. Vizag (VPT), Kandla (KPT) and Mumbai (MbPT) are the top three ports handling India's import cargo (non-containerized) from BSR. Compared to import, India's non-containerized export BSR countries has been limited to only iron and steel and others ores, of which iron and steel is exported to Germany through Chennai port (ChPT), and other ores to Finland through Tuticorin port (TPT) in 2008-09. Therefore, most of India's major ports are handling trade with BSR, suggesting a wider ambit of cooperation between ports of India and BSR.

Table 4.5 Ocean Cargo (Import) between India and BSR Countries:* 2008-09

(a) Import from BSR: 2008-09

	HDC	PPT	VPT	ChPT	TPT	NMPT	JNPT	MbPT	KPT	Total
	('000 tonnes)									
POL-CRUDE										
Russia									228	228
POL-PRODUCT (including LPG)										
Denmark							12			12
Latvia							7			7
Russia	8						20			28
FERTILIZER										
Germany			58			56				114
Latvia			30						35	65
Lithuania			119		68				240	427
Russia			578		97	199			388	1262
FRM-DRY**										
Russia	14	197								211
IRON & STEEL										
Germany				6				199		205
Russia								329	50	379
EDIBLE OIL										
Russia						3	17			20
COAL (COKING)										
Russia	17	27	6							50

(b) Import from BSR: 2000-01

	KDS	HDC	VPT	ChPT	TPT	MoPT	MbPT	KPT	Total
	('000 tonnes)								
FERTILIZER									
Germany				31	82				113
Russia			538		110	12		166	826
IRON (SCRAP)									
Germany								31	31
IRON & STEEL									
Germany							73		73
Russia	14		4			20	228		266
MACHINERY									
Germany						10			10
PETROLEUM (COKE)									
Russia		22							22

Notes: *Excluding container trade. **Fertilizer Raw Materials (FRM). ***List of abbreviations of port is given in Appendix 4.1.
Source: Ministry of Shipping, Government of India.

Table 4.6 Ocean Cargo (Export) between India and BSR Countries:*

(a) Export to BSR: 2008-09

	ChPT	TPT	Total
	('000 tonnes)		
IRON & STEEL			
Germany	15		15
OTHER ORES			
Finland		13	13

(b) Export to BSR: 2000-01

	VPT	MbPT	KPT	Total
	('000 tonnes)			
EDIBLE OIL				
Germany		2	6	8
Russia			8	8
OTHER LIQUIDS				
Russia	2		3	5
OTHER ORES				
Russia			19	19
ALLUMINA				
Russia	295			295
SAND				
Russia	20			20
EXTRACTION				
Russia			54	54

Notes: *Excluding container trade. **List of abbreviations of port is given in Appendix 4.1.
Source: Ministry of Shipping, Government of India.

Container Traffic

There is a wide variation in container traffic across BSR. Barring Germany and Russia, containerized trade in BSR is low. Germany is the largest country handling 12.77 million TEUs container in BSR. With 2.18 million TEUs, Russia comes next. Container traffic in Poland and Russia in BSR and India has grown faster than the world average in the last decade (Table 4.7). Today BSR contributes about 4.22 per cent of world container traffic, whereas about 1.78 per cent is contributed by India.

Table 4.7: Trends in Container Traffic

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	CAGR*
	(million TEUs)										(%)
Denmark	0.57	0.46	0.59	0.89	1.21	0.91	0.68	0.68	0.65	0.64	1.35
Finland	0.93	1.02	1.09	1.16	1.31	1.31	1.42	1.56	1.53	1.06	1.53
Germany	7.70	8.43	9.25	10.94	12.48	13.60	15.01	16.64	17.18	12.77	5.78
Poland	0.25	0.26	0.32	0.35	0.43	0.51	0.64	0.77	0.86	0.81	14.06
Russia	0.32	0.61	0.77	0.96	1.37	1.80	2.27	2.96	3.31	2.18	23.91
Sweden	0.88	0.85	0.81	0.86	1.10	1.25	1.27	1.29	1.30	1.25	3.94
BSR6	10.64	11.62	12.82	15.16	17.90	19.39	21.28	23.91	24.83	18.71	6.47
India	2.45	2.76	3.21	3.92	4.33	4.98	6.14	7.38	7.67	7.89	13.87
World	224.77	235.08	263.46	297.00	338.43	376.27	416.75	467.51	491.05	443.74	7.85
Share of BSR in world (%)	4.73	4.94	4.87	5.10	5.29	5.15	5.11	5.11	5.06	4.22	
Share of India in world (%)	1.09	1.18	1.22	1.32	1.28	1.32	1.47	1.58	1.56	1.78	

Note: *Compound annual growth rate (CAGR).
Source: World Development Indicators, World Bank, based on Containerisation International.

Hamburg, Bremen/Bremerhaven from BSR and Nhava Sheva (Jawaharlal Nehru) in India are the major container ports in the world. All of them share major portion of their respective country's container traffic. St. Petersburg in Russia and Gothenburg in Sweden also handle a considerable volume of container traffic in BSR. Nhava Sheva has been growing much faster than other ports in BSR (Table 4.8). As India moves ahead with double digit growth rate in coming years, container traffic at Nhava Sheva will certainly expand significantly.

Table 4.8: Trends in Container Traffic of BSR Ports and India

Port	Country	2005	2006	2007	2008	2009	CAGR
		(million TEUs)					(%)
Hamburg	Germany	8.095	8.882	9.917	9.737	7.008	-3.54
Bremen/ Bremerhaven	Germany	3.744	4.444	4.892	5.488	4.579	5.16
Nhava Sheva**	India	2.670	3.298	4.060	3.953	4.061	11.06
St. Petersburg	Russia	1.275	1.588	1.856	1.983	1.342	1.28
Gothenburg	Sweden	0.803	0.839	0.854	0.863	0.818	0.44

Notes: *Compound annual growth rate (CAGR) **Known as Jawaharlal Nehru Port.
Source: Various issues of Containerisation International.

Table 4.9: Container Traffic between India and BSR Countries in 2009*

Country	Export	Import	Total
	(TEU)		
Norway	2858	5075	7933
Germany	38953	83189	122142
Denmark	2327	22073	24400
Poland	5512	22629	28140
Sweden	2671	25103	27774
Russia	12471	273748	286219
Finland	1603	11681	13285
BSR 7	66395	443498	509893
India Total**	3372000	3493000	6865000
Share of BSR7 in India Total (%)	1.97	12.70	7.43

Notes:*Estimated based on UNCOMTRADE. **Actual, taken from Ministry of Shipping, Government of India.
Source: Author's calculation.

Container trade between India and BSR is about half a million TEUs (about 7.43 per cent of India's total trade). Noted in Table 4.8, about 66,395 TEUs were exported to BSR in 2009, and 443498 TEUs were imported from the region. Most of the container traffic is handled at Jawaharlal Nehru, Chennai, Mumbai, and Tuticorin ports. It has been observed by the Ministry of Shipping, Government of India that India will be handling 21 million TEUs by 2014 from the 9 million TEUs in 2009.[20] Therefore, it is quite expected that more shipping lines will serve Indian coast in future, and there is urgent need for container port capacity in India. BSR countries have good presence in Indian port sector such as Maersk (Denmark) handling container terminals in Mundra and Jawaharlal Nehru. More such investments from BSR will come with rising market and business opportunities in Indian container port sector.

Exhibit 4.1: India-Europe Port Rotation by Major Lines

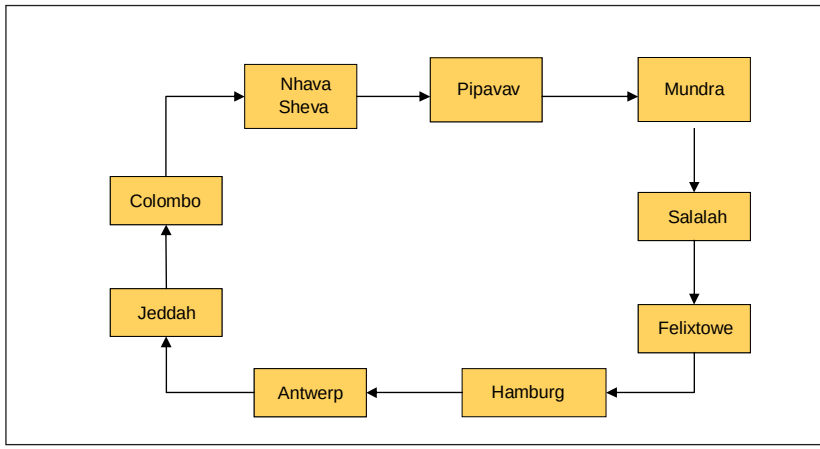
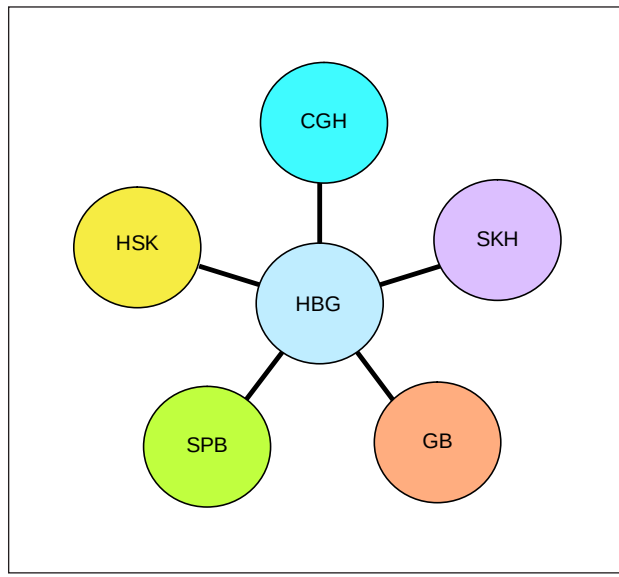


Exhibit 4.2: Hub and Spokes



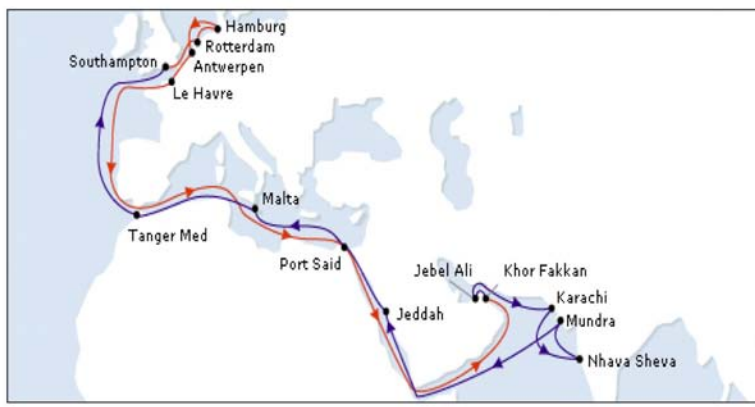
Note: Copenhagen (CGH), Gothenburg (GB), Hamburg (HBG), Helsinki (HSK), St. Petersburg (SPB), Stockholm (SKH).

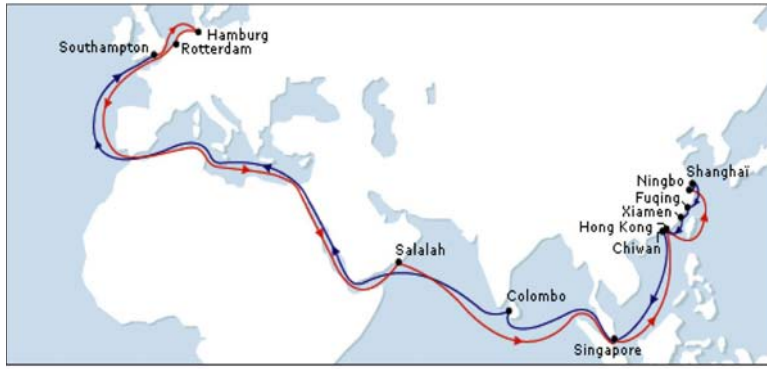
4.2.3 Liner Shipping Network between India and BSR

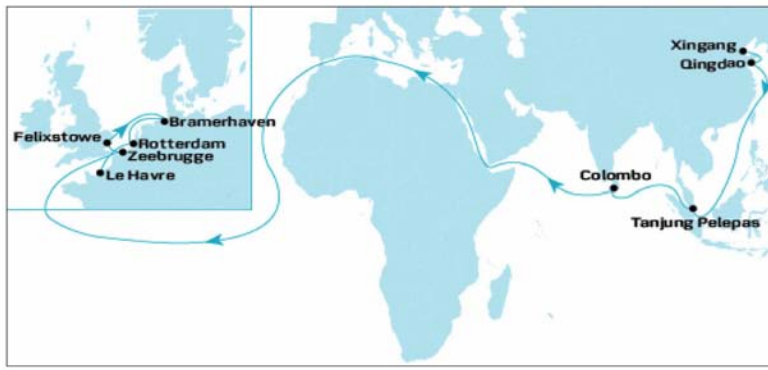
Unlike airports, container ports in India are relatively better connected with most of the major container ports in Europe, of which Antwerp (Belgium), Rotterdam (Netherlands), Southampton (UK), Felixstowe (UK), Hamburg (Germany) and Bremen (Germany) are the prominent one. Many shipping lines offer direct liner services between Indian and European ports. The most prominent port rotation for Indian sub-continent-Europe services is given in Exhibit 4.1.

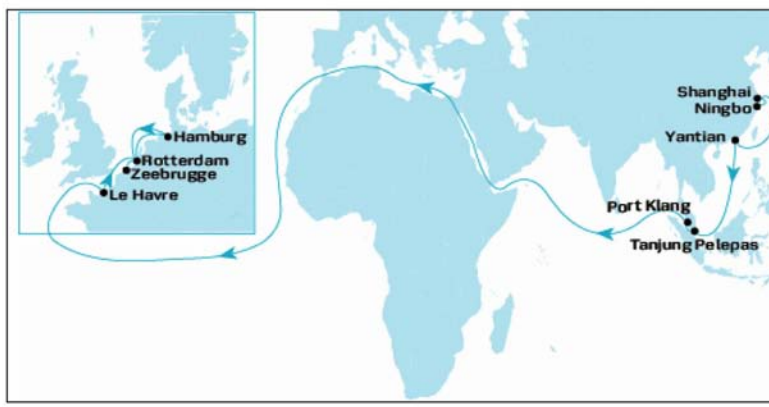
While there are many liner services between India and European ports, none is directly connecting Indian ports with Scandinavian part of Baltic Sea Region. At present, three ports work as hubs for Indian cargoes moving to and from Scandinavian part of BSR, which are Hamburg, Rotterdam, and Southampton, feeder services from there connect St. Petersburg (Russia), Gothenburg (Sweden), Copenhagen (Denmark), Helsinki (Finland), and other ports in the region. Exhibit 4.2 presents the hub and spokes centering Hamburg. Presently, low volume of trade between India and Scandinavian part of BSR doesn't generate much cargo for a regular and direct liner service business. However, in view of the rising trade between India and Baltic countries, feasibility of opening direct liner services should be explored. Finally, BSR and India need to frame an appropriate policy to facilitate the ocean shipping.

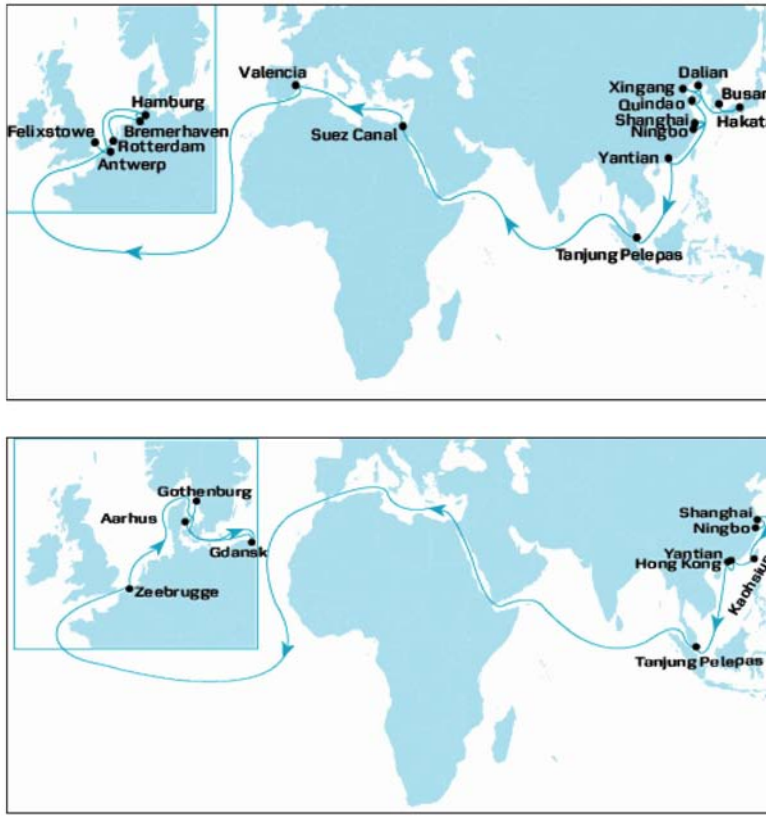
Map 4.1 India-Europe Liner Services Network




Southampton
Hamburg
Rotterdam
Salalah
Colombo
Singapore
Ningbo
Shanghaï
Fuqing
Xiamen
Hong Kong
Chiwan


Felixstowe
Bramerhaven
Rotterdam
Zeebrugge
Le Havre
Xingang
Qingdao
Colombo
Tanjung Pelepas


Hamburg
Rotterdam
Zeebrugge
Le Havre
Shanghai
Ningbo
Yantian
Port Klang
Tanjung Pelepas



Source: Author's calculation.

4.2.4 Possibility of Shipping through Arctic Ocean[21]

The ocean freight between India-BSR will see a major change once the Arctic Ocean is opened for sea transportation. Noted in Akimoto (2009), the opening of the Arctic Ocean routes will cultivate four new aspects of sea traffic since the Arctic Ocean routes will serve as shorter routes and the sea lanes in the world will become connected throughout in unbroken networks of open-ended routes.

At present, there are two routes in the Arctic Ocean: the Northeast Passage (alias "Northern Sea Route") extending along the northern parts of Russia and the Northwest Passage traveling along the coastal areas of

Map 4.2: North Pole and Arctic Ocean

Source: http://www.athropolis.com

Canada.[22] If these routes became available throughout the year or summer season at the least, without forced reduction of ship speed, those routes would gain advantage over the conventional sea routes connecting the Pacific Ocean, the Atlantic Ocean, and the Indian Ocean, in terms of navigation distance. For example, the navigation distance between Tokyo and Rotterdam via the Arctic Ocean is estimated to be 40 per cent shorter than that via the Suez Canal.[23] Since sea transportation accounts for more than 90 per cent of cargo transportation around the world, short cut routes via the Arctic Ocean would be likely to bring larger benefits to the world economy. Furthermore, once international sea routes became available through the Arctic Ocean, sea lanes around the world would be linked throughout to form a circle, which will improve the efficiency and flexibility of global maritime distribution system. For instance, shipping services, starting from Western Europe via the Suez Canal, calling in ports along the Indian Ocean (including ports in India) to reach East Asia, and then travelling through the Arctic Ocean and finally reaching Northern Europe, will become feasible. The potential benefits of a clear Northwest Passage are significant. Ship routes from Europe to Japan,

China and other eastern destinations would be about 4000 kilometers (2500 miles) shorter.[24] The Arctic sea routes would provide a greater variety of shipping route options. For example, in case the Malacca Straits becomes impassable due to piracy, natural disasters or accidents, the Arctic Ocean will be used as an alternative route.

4.3 Concluding Remarks

In the absence of adequate connectivity, country looses its comparative advantage, and product looses its competitiveness. Efficient connectivity solutions not only ensure trade competitiveness through their direct impact on costs and delivery times, but also enhance competition between ports by increasing shipper options. Improving connectivity is, therefore, also important for promoting competition among economic forces and thereby improving the efficiency of services available to consumers.

In contemporary world, the centre of gravity of containerized trade gradually shifted to the trans-Pacific services as new global trading patterns evolved. Asia has become the new hub of global container trade, where China and India are the two major drivers of the global economy. This undermines the important of transportation links between BSR and India, which is strategically important not only for a strengthening Asia-Europe connectivity but also for facilitating an effective global production networks and supply chains. Opening of shipping routes through Arctic Ocean would bring North America, Europe and Asia much closer. Therefore, cooperation between India and BSR will become increasingly important.

Countries' access to world markets depends largely on their transport connectivity, especially as regards regular shipping services for the import and export of manufactured goods. Barring Germany and Russia, India's ocean freight trade with other BSR countries is relatively low in volume. While ports in BSR have been fairly developed, there is, however, wide variation in shipping connectivity in BSR and also between India and BSR. This paper shows that current gap in liner shipping connectivity between India and BSR may likely to slow down the trade prospect between them. In order to meet the challenges emanating from rising ocean freight, advancement information and communication technology, technological changes in

shipping and related sectors coupled with stiff demands from trade, ports in India and BSR are required to gear-up themselves by modernizing the port infrastructure, enhancing the quality of maritime services, increasing the productivity level, and establishing shipping links between them and also with global networks.

Hamburg, Bremen/Bremerhaven from BSR and Nhava Sheva (Jawaharlal Nehru) in India are the major container ports in the world. All of them share major portion of their respective country's container traffic. St. Petersburg in Russia and Gothenburg in Sweden also handle a considerable volume of container traffic in BSR. Nhava Sheva has been growing much faster than other ports in BSR. As India moves ahead with double digit growth rate in coming years, container traffic at Nhava Sheva will certainly expand significantly. Most of India's major ports are now handling trade with BSR, suggesting a wider ambit of cooperation between ports of India and BSR. It is quite expected that more shipping lines will serve Indian coast in future, and there is urgent need for container port capacity in India. BSR countries have good presence in Indian port sector such as Maersk (Denmark) handling container terminals in Mundra and Jawaharlal Nehru.

Unlike airports, container ports in India are relatively better connected with most of the major container ports in Europe, of which Antwerp (Belgium), Rotterdam (Netherlands), Southampton (UK), Felixtowe (UK), Hamburg (Germany) and Bremen (Germany) are the prominent one. Many shipping lines offer direct liner services between Indian and European ports. While there are many liner services between India and European ports, none is directly connecting Indian ports with Scandinavian part of Baltic. At present, three ports work as hubs for Indian cargoes moving to and from Scandinavian part of BSR, which are Hamburg, Rotterdam, and Southampton, feeder services from there connect St. Petersburg (Russia), Gothenburg (Sweden), Copenhagen (Denmark), Helsinki (Finland), and other ports in the region. Presently, low volume of trade between India and Scandinavian part of BSR doesn't generate much cargo for a regular and direct liner service business. However, in view of the rising trade between India and Scandinavian countries, there might be liner services between them soon. To make it a feasible business opportunity, countries in BSR and India

need to frame an appropriate policy to facilitate the ocean shipping. This will also lead to higher investments from BSR in Indian container port sector.

5. Scopes and Opportunities in Connectivity between Asia and Europe

It is clearly evident that Asia-Europe trade and transport along East-West axis will increase dramatically. Asia's trade with Europe will surpass its all past records in 2020. Transportation systems should be prepared to accommodate the growing demand for transport and logistics. Air shipping is a feasible alternative as countries are moving towards 'high value – low volume' goods due to technological change and human preferences. Ocean shipping has been playing an important role in Asia-Europe trade. However, to encourage the energy saving climate friendly transportation system, overland connectivity between Asia and Europe is another feasible option. At the moment special focus is emerging towards the development of land transportation from China, India and other East and Central Asian countries to European countries.[25] The key concern is how to decrease the costs of transportation without damaging the environment. Regional cooperation can play a significant role in enhancing connectivity between Asia and Europe in general and India and BSR in particular.

5.1 Asia-wide Connectivity

An Asia-wide transport network is essential for Asian countries to get their goods to market more efficiently, quickly, and cheaply, but, its overall physical progress has so far been limited. There are many social, political, economic, and technical factors behind its slow progress. Technical factors affecting transport integration in Asia in general include: absence of integrated and harmonized railway networks (for example, Myanmar–India and China-Vietnam), absence of adequate and active overland official trade outlets and associated facilities (for example, India–Bangladesh and China–Lao People's Democratic Republic (Lao PDR), absence of trade facilitation (soft infrastructure) policy measures (especially in the interior part of Asia), and absence of transit trade (in the whole of Asia with some exceptions).

Efforts to develop an Asia-wide transport network started as early as the 1960s. However, little progress was achieved until the 1980s (UNESCAP

2006). During the 1980s and early 1990s, the region experienced significant political and economic changes which ultimately have helped increase the trade and mobility of production factors in Asia. Subsequently, the demand for physical connectivity increased during the 1990s to support the export-led growth strategy and fragmented production network which later fuelled successful implementation of some transport corridors in the Greater Mekong Subregion (GMS) and elsewhere in Asia.

China is leading six nations in taking the Eurasian Land-Bridge into a new era.[26] For the first time since the "Euro-Asian Second Continental Bridge" was opened by finally linking of the Chinese and Kazakstan railways in 1992, a direct, regular train service is being established between China and Europe's biggest industrial nation, Germany, with the cooperation of Russia, Kazakstan, Belarus, Poland, and Mongolia. All six nations have signed an agreement to ensure that the China-Europe land-bridge really works (the first continental bridge in Eurasia is the Russian Trans-Siberian Railroad). On 9 January 2008, a pilot container train, flying flags in traditional Chinese style, left Beijing for Hamburg, Germany's leading port, an epic trip 9,780 km long. Before this new agreement was signed, Chinese rail connections to Russia and Central Asia had been greatly expanded, but the critical connection to Western Europe has barely functioned, due to long cross-border customs delays, different rail gauges, and other barriers which severely slowed transport. A new "southern route" of the land-bridge is also on the agenda. It is proposing as a third continental bridge, to link Shenzhen to Rotterdam. This route between South China and Europe-15,150 km long-would go through 21 countries, including Myanmar, India, and Turkey. With opening of daily rail cargo services between Antwerp and Chongqing, the Europe-Asia overland connectivity has now become a reality (Box 5.1).

Box 5.1 Antwerp Launches Daily Rail Freight Service to China

The first scheduled departure of a new Antwerp-Chongqing rail connection left the Belgian port on Monday (9 May 2011), carrying a mixture of bulk cargo and container freight. The five-days-a-week service, operated jointly by Hupac, Russkaya Troyka and Eurasia Good Transport, goes from the port of Antwerp's Combinant terminal through

Box 5.1 continued...

Box 5.1 continued...

Germany and Poland to Ukraine, Russia, Mongolia and China – more than 10,000km. Antwerp port spokesman Annik Dirkx said: "By rail, the journey takes between 20-25 days, while the sea route takes up to 35 days." And Belgium's Customs authorities hope to reduce the transit time further, to 15-20 days, through its Green Lane project – an information-sharing partnership with the various Customs authorities along the route. Dirkx admitted that the rail route was more expensive than its ocean counterpart, but insisted that for high-value technological goods, speed to destination was very important, thereby balancing cost against time. The type of cargo moving eastbound is largely chemicals, while westbound goods are mostly automotive and technological goods. The project to link Antwerp and Chongqing was established in 2010 by the Development Authority of the Province of Antwerp, Antwerp Port Authority and the Belgian Administration of Customs & Excise. Sufficient cargo in both directions is a crucial factor for the viability of the line; the municipality of Chongqing's largest concern was generating enough return cargo from Europe to China.

Source: Isabel Lesto | Wednesday, 11 May 2011, Available at http://www.ifw-net.com freightpubs/ifw/index/antwerp-launches-daily-rail-freight-service-to-china/20017871387.htm

The demand for transport along East–West axis has been rising fast, which calls for a better policy for implementation and capacity improvement. Four issues have taken centre stage of Asia-Europe connectivity: (i) need for better interoperability between different infrastructures, standards and systems, (ii) removal of physical and operational bottlenecks, especially on the borders, (iii) need for soft infrastructure dealing transit and seamless movement of goods, and (iv) arrangement of security.

5.1.1 Progress in Asian Land Transport Infrastructure Network

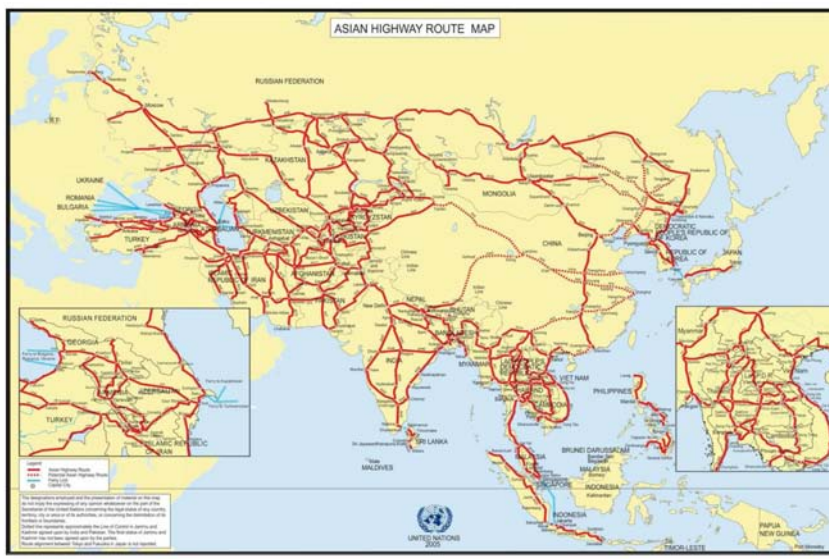
In 1992, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) initiated the Asian Land Transport Infrastructure Development (ALTID) project with the aim of improving and expanding transport and communications links within the region, as well as with other regions. The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

the major building blocks of the development of an international integrated intermodal transport system in Asia and beyond.

Asian Highway Network

The process of identifying the AH routes began in the late 1950s, but it has only seen relatively better progress only after 1992 when the ALTID project was initiated. Initially, 69,000 km of AH routes were identified with the participation of 18 member countries: Afghanistan, Bangladesh, Cambodia, the PRC, India, Indonesia, the Islamic Republic of Iran, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam (see UNESCAP 1995). From 1995 to 2002, an additional 72,000 routes were identified and added to the AH[27] with participation of new members from Central Asia and the South Caucasus, the Russian Federation, and the remaining part of Asia. These routes formed the northern corridor of the AH, effectively linking Northeast Asia with Central Asia, the Caucasus, and Europe. Finally, with the participation of Japan in 2003, the entire network of the AH was extended to cover a total of 141,000 km of highways in 32 countries (see Map 5.1).

Map 5.1 Asian Highway Network



Source: UNESCAP.

With progress in the formulation of the AH, it was considered necessary to formalize the network through an intergovernmental agreement to ensure effective coordination of national planning with regional requirements and regular region-wide reviews and updating of the network. Following a series of negotiation meetings among experts and representatives of member states, the Intergovernmental Agreement on the Asian Highway Network was adopted at an intergovernmental meeting held in November 2003, followed by a signing ceremony organized during the 68th session of UNESCAP in Shanghai in April 2004. Finally, the Intergovernmental Agreement on the Asian Highway Network[28] entered into force on 4 July 2005, and as of 31 December 2010, the agreement has been signed by 28 countries, of which 22 are contracting parties. The main obligations of the contracting parties to the AH agreement are to adopt the AH network as a coordinated plan for the development of highway routes of international importance, to bring the AH routes in their respective countries in conformity with classification and design standards as provided by the agreement, and to facilitate navigation along the routes through the placement of adequate signage.

Since 2004, significant progress has been achieved in developing and upgrading the AH network. During 2005 and 2006, about 10,000 km of the AH in member countries has been upgraded to meet minimum standards and other sections have been improved to higher class standards.[29] However, according to UNESCAP (2008a), about 12,000 km (or 9 per cent of the network) still remain below minimum standards.

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

a forum to discuss policies and issues related to the development of international highways in member states. A forum of Asian Transport Ministers, constituted by UNESCAP, is envisaged to play significant role in providing strategic guidance for the regional development of highways in Asia.

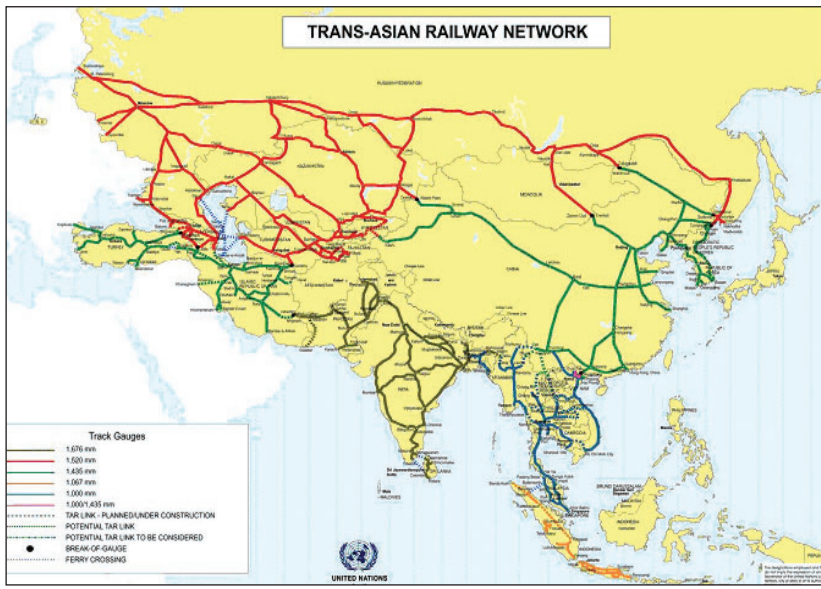
The Intergovernmental Agreement on the Asian Highway Network has made it easier for member countries to secure grants and loans to upgrade the AH routes. The upgrading and development of the AH has been receiving priority attention from member countries and is being incorporated into national plans.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

Trans-Asian Railway Network

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

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

Map 5.2: Trans-Asian Railway Network



Source: UNESCAP.

The progress of the TAR has been very similar to the AH. From 1995 to 2001, about 80,900 km of railway routes under the TAR were identified (Map 5.2). The first study was completed in 1995 to define the northern corridor (32,500 km), connecting the rail networks in the China, Kazakhstan, Mongolia, the Russian Federation, and the Korean peninsula (UNESCAP 1995).[30] A second study defined a subregional railway network (12,600 km) in the ASEAN and Indochina area (UNESCAP 1996b). A third study identified the southern corridor (22,600 km) connecting Thailand and the southern China province of Yunnan with Turkey, through Myanmar, Bangladesh, India, Pakistan and the Islamic Republic of Iran, with Sri Lanka also part of the corridor (UNESCAP 1999b). In 2001, the

north-south corridor (13,200 km) linking Northern Europe and the Persian Gulf through the Russian Federation, Central Asia, and the Caucasus was studied (UNESCAP 2001b).

Building on the success of the Intergovernmental Agreement on the Asian Highway Network, the TAR network has also been formalized through a related intergovernmental agreement. Following an extensive negotiation process from 2004–2005, the Intergovernmental Agreement on the Trans-Asian Railway Network[31] was adopted by the 62nd session of the UNESCAP in Jakarta on 12 April 2006 through Resolution 62/4. A formal signing ceremony of the agreement was organized on 10 November 2006 during the Ministerial Conference on Transport held in Busan, Republic of Korea and 18 member States signed on that occasion. The agreement has now been signed by 22 countries of which six have ratified or accepted it. The current TAR network covers 114,000 km of railways in 28 member countries. The Intergovernmental Agreement on the Trans-Asian Railway Network will come into force on 11 June 2009 with the PRC becoming the eighth country approving the agreement (UNESCAP, 2009).

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

Investment in physical infrastructure development of the TAR network has now become an important issue. According to UNESCAP's estimate,

around 6,500 km, which is 8 per cent of 81,000 km of the TAR network, is missing links, mostly in the South-East Asia subregion. An estimated investment of US$15 billion is required to build single-track lines on the missing links to complete the TAR network (UNESCAP, 2008b).

5.2 Euro-Asian Transportation Links

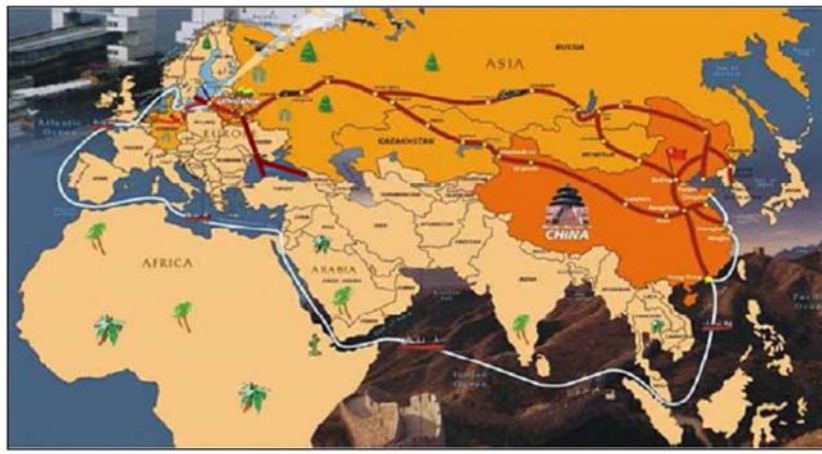
The Euro–Asia Transport Linkages is a joint project of the United Nations Economic Commission for Europe (UNECE) and UNESCAP, undertaken in 2001. The objective of this project is to integrate Europe and Asia through transport corridors. Countries which have participated in the project at this initial stage include Afghanistan, Armenia, Azerbaijan, Belarus, Bulgaria, the PRC, Georgia, the Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Romania, Russia, Tajikistan, Turkmenistan, Turkey, Ukraine, and Uzbekistan (UNECE/UNESCAP 2004).[32]

In 2000, UNECE and UNESCAP put forward their "Common Economic Commission for Europe/ Economic and Social Commission for Asia and the Pacific (ECE/ESCAP) Strategic Vision for Euro-Asian Transport Links" at the Second International Euro-Asian Conference on Transport, which was subsequently modified and adopted by the UNECE Inland Transport Committee in 2001. The "Strategic Vision" has proposed following four major Euro-Asian transport corridors with links to Pan-European Transport Corridors (PETC):

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

- North-South: North Europe (PETC 9)–Russian Federation, with branches to:
  a. Caucasus–Persian Gulf
  b. Central Asia–Persian Gulf
  c. Across the Caspian Sea–the Islamic Republic of Iran–Persian Gulf.

Map 5.3: East -West Economic Corridor

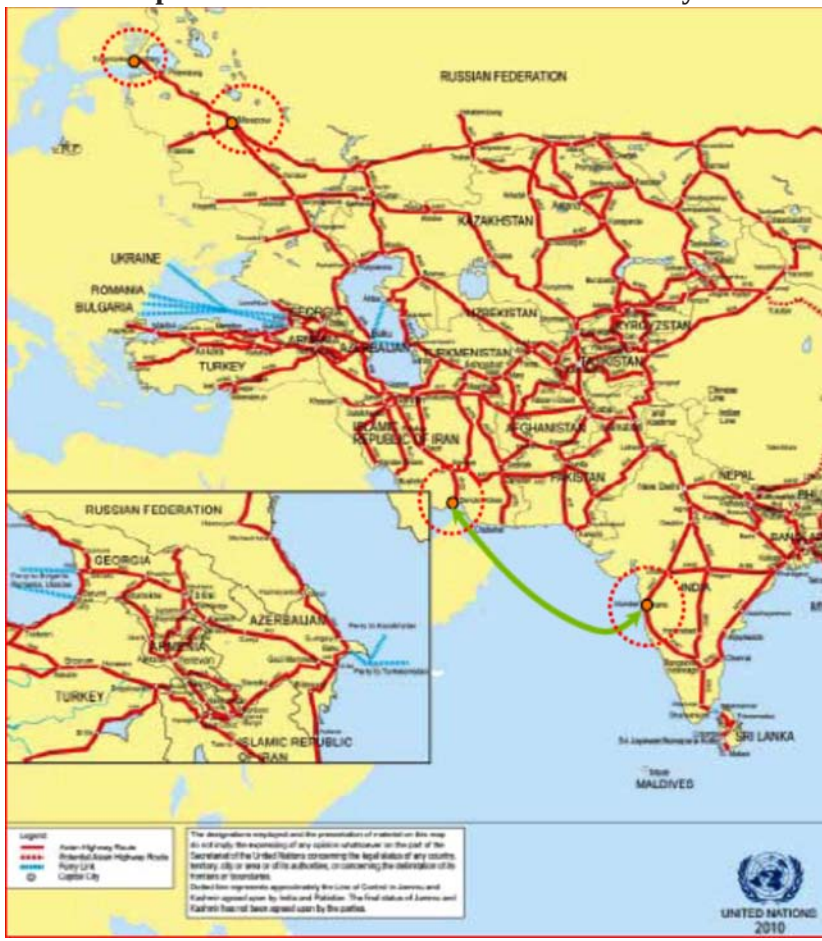


Map 5.4: India – BSR Overland Link

Note: Artistic impression and not in scale.

Source: Author based on Google map.

Map 5.5: India-BSR Intermodal Connectivity



Source: Author based on UNESCAP.

There is also a proposal of East-West Transport Corridor (EWTC), proposed in Asia- Europe Transport Ministers Meeting in 2009 (Map 5.3). EWTC is intermodal transportation route between Asian countries (China, central Asian countries), Russia, Belarus, Ukraine, countries of Black Sea Region, Southern Baltic Sea Region countries (Lithuania, Kaliningrad district, Northern Germany, Denmark, Southern Sweden) and the markets of Central, Western and Northern Europe.

Drawn in Map 5.4, it is possible to connect India with BSR by road and rail either at the port Gdansk (in Poland) or at Riga (in Latvia). Both Gdansk and Riga are well established container port cities in BSR and well connected with other Baltic countries. Another option to connect BSR and India would be to use an intermodal link of both maritime and land routes, which is pictorially presented in the Map 5.5. Maritime route would be from Jawaharlal Nehru port to Bandar Abbas port in Iran. The land route will follow Asian Highway (AH) from the Iranian port Bandar Abbas to Moscow and St. Petersberg through AH 8 passing across Azerbaijan, Georgia and Russia and then to Torfyanovka in Finland (BSR). This intermodal transportation route between India and BSR covers the markets of Russia, Central and West Asia, and Eastern and Northern Europe. However, the likelihood of this connectivity should be subject to further detailed technical analysis and financial feasibility.

5.3 Fostering India -BSR Connectivity: The Enabling Environment

In order to promote seamless connectivity between India and Baltic, the primary challenging task is twofold: first, to integrate the different transport corridors and modes (railways, roads, air, and shipping) which will facilitate the movement of goods and services; and second, to overcome institutional constraints and bottlenecks that are deteriorating the global competitiveness by making trade expensive. Some of the policy suggestions are noted below.

Accession to the International Conventions

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

In recognition of the fact that harmonized transport facilitation measures at the national and international levels are a prerequisite for enhancing international trade and transport along road and rail routes of international importance, Asian and European countries must accede to the international conventions on road and rail transportation. They must consider the possibility of acceding to international conventions in the field of land transport facilitation which were originally developed under the auspices of the ECE[33]: Convention on Road Traffic, 1968; Convention on Road Signs and Signals, 1968; Customs Convention on the International Transport of Goods under Cover of Transit International Routier (TIR) Carnets (TIR Convention), 1975; Customs Convention on the Temporary Importation of Commercial Road Vehicles, 1956; Customs Convention on Containers, 1972; International Convention on the Harmonization of Frontier Controls of Goods, 1982; and Convention on the Contract for the International Carriage of Goods by Road (CMR), 1956.[34]

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

Intermodal Transport and Transit

The initiatives for building supply capabilities and trade liberalization need to be complemented by a new approach to intermodal transport and transit with the goal of making the entire continent interconnected, as it was during the time of the Silk Road. There is an urgent need for prioritization of projects and enhancement of regional integration through transit in a time-bound manner. In general, the task ahead is to revive, renovate, and re-establish

Asia's transportation networks which played a pivotal role in integrating the region in ancient times and to establish Europe-Asia intermodal transport and transit in order to reduce the trade transportation costs across borders. Asia-Europe transit arrangement is must for better connectivity between India and BSR.

Strengthening and Harmonizing Rules, Regulations, and Standards

In order for the infrastructure hardware of an Asia-wide transport network to function effectively, necessary soft infrastructure, such as relevant rules, regulations, and standards, needs to be in place. Rules, regulations, and standards must meet at least a common regional structure, but preferably an international design. Participating countries need to formulate and agree on a harmonized set of rules, regulations, and standards. Furthermore, to make such an agreement effective, countries need to incorporate the agreement provisions into their respective national laws, regulations, and standards. There is a need for higher level coordination among many concerned stakeholders and agencies, such as transport, customs, immigration, and quarantine authorities. At the same time, capacity of concerned national institutions, particularly for less developed countries, needs to be enhanced for effective implementation of these agreements. There is also a need for a uniform or compatible standard (preferably an international standard) for development of cross-border transport networks to make the networks effective and beneficial for all stakeholders. Establishment of an efficient management system and associated capacity building to look after the harmonization of standards relating to cross-border transportation would pave the way to achieving regional connectivity. This would ultimately help achieve single-stop and single-window customs across pan-Asian corridors and also between Asia and the Europe.

Financing Cross-border Transport Projects

Connecting Asia with Europe requires a large investment. It will be a difficult challenge to mobilize such a large investment particularly due to ongoing financial and economic crisis. This calls for an appropriate financing mechanism to mobilize Asia's huge savings for cross-border infrastructure development. This financing scheme should aim to raise resources from public sectors, multilateral development banks, and private sectors on a

public-private partnership model. Bigger economies like Japan, Germany and other EU members have leading roles in filling the financing gap. They should unilaterally come forward to fill up resources gaps in cross-border transportation between Asia and the Europe, particularly financing and managing missing links and bridges.

Strengthening Coordination among Countries and Stakeholders

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

Closer Cooperation on Security

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

Strengthening Regional Cooperation

The experiences of Europe and Latin America, where the presence of cross-border infrastructure is comparatively high, and to a lesser extent,

Africa, where the development of cross-border infrastructure has taken a new shape, suggest that regional cooperation promotes greater prosperity and stability for participating countries. A major success factor is their ability to build regional initiatives that are based on shared strategic vision, as captured in the Initiative for the Integration of Regional Infrastructure in South America.[35] We need to strengthen Asia-Europe Regional Cooperation and India-BSR Cooperation to address the regional infrastructure needs and enabling institutions and policies.[36] At the same time, progress in Asian projects on connectivity will complement that between Asia and the Europe.

6. Conclusions and Policy Recommendations

Higher trade cost is an obstacle to trade and impedes the realization of gains from trade liberalization. It often increases due to obstacles to trade, of which non-availability, or inefficient infrastructure is a prominent one. Possibly, higher trade costs along services links would also discourage fragmentation of production. However, low trade costs do not necessarily promote production networks. One can say better infrastructure is necessary but not sufficient condition for the development of production networks. Trade costs are measured in terms of transportation as well as border trade and distribution costs. In literature, costs are usually decomposed into three elements: monetary cost, time cost, and reliability/credibility/stability.[37] The last one seems to be particularly important in the case of India.

The EU being a larger economy, it needs to help India in achieving a higher degree of complementarity by committing not only greater investments in India but also helping the country to attain higher trade capacity. The success of trade between India and the EU may depend crucially on the extent to which the larger market, India, given its relative size, becomes more accessible to EU products and vice versa. Therefore, the prospects of increasing trade between India and BSR may depend more on the existence of product complementarities and production fragmentation.[38]

The foregoing analysis suggests that India's total trade (export+import) in value term with BSR countries has the potential to increase from an actual

trade of US$ 27.98 million in 2009 to a future trade of US$ 115.48 billion in 2020 and US$ 231.11 billion in 2030. The bilateral trade between India and BSR is estimated to be growing at a CAGR of 11 per cent during 2009 and 2030. Although the economic and population growth in BSR countries were assumed to be negligible, India's trade with BSR region would be mainly driven by India's vast population and economic size. At the same time, Germany will continue to be India's largest trading partner from BSR. The larger BSR economies (BSR7 countries) will continue to dominate the trade with India.

The India-BSR trade may fall short of a target of US$ 50 billion in 2013 if we don't facilitate to the trade adequately. In order to draw an appropriate trade policy we need to understand the size and variations of the trade barriers. The study shows market size would drive the trade flow. India's rising economic growth would obviously lead to higher trade between India and BSR in coming years, *ceteris paribus*. Strengthening India's liner shipping network (importance of transport facilitation) with the global network would lead to higher trade. Further tariff cut (importance of trade liberalization) would lead to higher trade flow, *ceteris paribus*.

Trade between Asia and Europe will increase dramatically in coming years. Transportation systems should be prepared to accommodate the growing demand for trade and logistics. Stronger transportation linkages between India and BSR complement Asia-Europe connectivity.

We need to encourage the energy saving environment friendly transportation system, and the key concern is how to decrease the costs of transportation without damaging the environment. The demand for transport along East–West axis has been rising fast, which calls for a better policy for implementation and capacity improvement. Two important projects have been identified. First, the East-West Transport Corridor (EWTC) project that links Asian countries (China, central Asian countries), Russia, Belarus, Ukraine, countries of Black Sea Region, Southern Baltic Sea Region countries (Lithuania, Kaliningrad district, Northern Germany, Denmark, Southern Sweden) and the markets of Central, Western and Northern Europe. Second, India and BSR transportation that links India with Baltic region that covers the markets of Russia, Central and West Asia, and Eastern and Northern

Europe. However, the likelihood of these connectivity projects should be subject to further detailed technical analysis and financial feasibility.

Finally, we need to integrate the different transport corridors and modes (railways, roads, air, and shipping) which will facilitate the movement of goods and services. At the same time, we have to overcome institutional constraints and bottlenecks that are deteriorating the global competitiveness by making trade expensive. This paper shows that there is a significant role that regional cooperation can play in enhancing connectivity between Asia and Europe in general and India and BSR in particular.

Unlocking the trade potential between Asia and Europe is a daunting task. Costs for not having uninterrupted road or railway networks across the region or between Europe and Asia offset gains appearing from trade preferences as proposed under several free trade agreements and other arrangements such as India-EU FTA or China-EU FTA. Therefore, the need for a better enabling environment for trade that offers lower trade costs has gained momentum in India and other parts of Asia. However, a favorable regional climate to create a modern day Silk Road to operate in its full potential is missing. Because of this, the agenda of the Regional Cooperation between India and Europe or between India and BSR has to go beyond "policy" barriers and include "non-policy" barriers like regional connectivity both in its hardware (developing transport corridors) and software (facilitation of movements of goods and services). A scrutiny of regional cooperation programmes clearly shows that most of them have undertaken exclusive projects to improve the connectivity.

The Need for India-BSR Regional Cooperation

Given India's diversity and geographical contrasts, an integrated regional transport network with Europe in general and BSR in particular would yield much larger economic benefits. It is important for India and BSR (or EU) countries to enhance the facilitation of trade and transport across borders. Integrated regional connectivity would provide substantial benefits to smaller countries by giving them access to world market at a lower cost. There is no doubt that overland connectivity between India with BSR is a myth at present, but it would become a reality in medium to long run.

We need a strategic partnership for policy development and an action plan to foster regional cooperation and integration between India and BSR. To intensify the regional cooperation and integration, one of the essential tasks would be to initiate an EU-India Trade Facilitation Initiative (EITFI). One of the objectives of this initiative would be to discuss areas of common interests among the stakeholders communities of the BSR countries and India and enhance cooperation between them. We should identify administrative and procedural barriers that unnecessarily impede the participation of more firms in trade, and propose solutions through this new initiative. Some of the trade barriers such as asymmetry in standards, customs documentations, absence of testing facilities at border custom stations are common barriers to trade. An effective coordinating institution will be necessary to generate willingness of countries to participate in the projects. It can also resolve conflicting interests, if any arise, between the governments and stakeholders.

Finally, challenges of today and tomorrow cannot be met by separate and individual effort. Cooperation is thus crucial. This is reflected in the emerging interest of various business and government stakeholders from Asia and Europe. We recommend that a structured agenda is needed to combine the efforts of businesses, policy makers, and governments for stronger economic relations. An association between India and BSR may be formalized involving governments, chambers of commerce, think-tanks, etc., which would not only provide a platform for cooperation and action but also take the India-EU partnership ahead.

Endnotes

1. The BSR cooperation eligible area includes EU member states Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and northern parts of Germany, as well as the neighboring countries of Norway, north-west regions of Russia and Belarus.
2. Calculated based on World Development Indicators (WDI) Online Database, World Bank
3. Calculated based on Direction of Trade Statistics Yearbook Online Database, International Monetary Fund (IMF), Washington, D.C.
4. The India-EU FTA is likely to be fully implemented by 2015 by when India's trade in goods with the bloc could be around US$ 251 billion and trade in services US$ 321 billion, according to a study done by FICCI. Refer, for example, FICCI (2008).
5. Refer, for example, CARIS-CUTS International (2007)
6. The EU-India FTA is known as Broad-based Trade and Investment Agreement (BTIA). The EU and India hope to increase their trade in both goods and services through the Free Trade Agreement (FTA) negotiations that they launched in 2007 (European Commission, 2011). The EU-India FTA is known as Broad-based Trade and Investment Agreement (BTIA).

7. Indian data was taken from IMF and the Census of India, whereas EU data was sourced from the European Commission.
8. Refer, for example, Duval and Utoktham (2009) Djankov *et al.* (2006)
9. Refer, De *et al.* (2009), ADB/ADBI (2009), among others
10. TransBaltic is a strategic and macro-scale project, co-funded by the BSR 2007-2013 Programme. The main objective of TransBaltic is to provide regional level incentives for the creation of a comprehensive multimodal transport system in the BSR by means of joint transport development measures and jointly implemented business concepts. For further information, please refer TransBaltic project, available at http://transbaltic.eu
11. Refer, WTO.
12. This strategy outlines the road map for comprehensive trade liberalization within the framework of bilateral relations.
13. However, the trend does not hold correct if we exclude Germany from BSR.
14. Export competitiveness takes a value between 0 to 100 per cent, with higher values indicating greater market power of the country in question. For further details, refer Mikic and Gilbert (2007).
15. The index lies on the range 0-100, with 100 indicating perfect complementarity. For further details of TCI, please refer, Mikic and Gilbert (2007, p.72).
16. Before calculating IIT, data coordinates at HS nomenclature H2 were matched for both the countries. For further details of IIT, please refer Mikic and Gilbert (2007, p.76).
17. For a discussion on the gravity model, please visit Anderson and van Wincoop (2003).
18. We employ UNCTAD's Liner Shipping Connectivity Index which suggests how well countries are connected to global shipping networks. It is computed based on five components of the maritime transport sector: number of ships, their container-carrying capacity, maximum vessel size, number of services, and number of companies that deploy container ships in a country's ports. For further details, please refer UNCTAD (2011)
19. Noted in UNCTAD, the index is generated as follows: for each of the five components, a country's value is divided by the maximum value of that component in 2004, and for each country, the average of the five components is calculated. This average is then divided by the maximum average for 2004 and multiplied by 100. In this way, the index generates the value 100 for the country with the highest average index of the five components in 2004. The data are derived from *Containerisation International* Online.
20. Refer, Government of India (2011), based on Frost & Sullivan.
21. The usual disclaimer is that this sub-section is meant for a discussion on transportation through Arctic, and not to undermine its environmental sensitivity.
22. Refer Akimoto (2009)
23. *Ibid*
24. *Ibid*
25. Attention of Governments of Asian and European countries towards the development of Asia-European transport network is also evident. The first Asia-Europe (ASEM) Transport Ministers Meeting was launched in Lithuania on 19 October 2009, with the ambition to create an Action plan and agenda for future work of ASEM Transport Ministers. Second meeting will take place in China in 2011.
26. Refer, for example, Burdman (2008)
27. During this period, two further studies were done on the AH, one in 1996 and another in 2001 (UN-ESCAP 1996, 2001a).
28. The full text of the AH Agreement is available from http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf.
29. Asian Highways are classified into four classes. Primary class refers to access-controlled highways. Class I refers to 4 or more lanes roads with asphalt or cement concrete pavement. Class II roads are two lanes roads paved with asphalt or cement. Class III roads are also two lanes roads, but with double bituminous treatment. Class III roads are regarded as the minimum desirable standard and upgrading of pavement to asphalt concrete or cement concrete is encouraged.
30. The northern corridor was refined later through UNESCAP (1999).
31. The full text of the TAR Agreement is available from http://www.unescap.org/ttdw/common/TIS/TAR/TARintergovagreement.asp.
32. The Euro-Asian component was launched at the First Expert Group Meeting on Developing Euro-Asian Transport Linkages held from 9-11 March 2004 in Almaty, Kazakhstan.

33. Currently, there are 56 transport-related international legal instruments initiated by the ECE aimed at facilitating the movement of goods, people, and vehicles across international borders.
34. For details of selected international conventions on transport facilitation including those contained in the resolution 48/11, see UNESCAP (2007).
35. The Initiative for the Integration of Regional Infrastructure in South America is a dialogue forum among South American countries, which seeks to promote the development of transport, energy, and telecommunication infrastructure from a regional viewpoint, aimed at physical integration of the 12 South American countries and the achievement of an equitable and sustainable territorial development pattern. About US$68.27 billion, comprised of 508 infrastructure projects having direct or indirect cross-border implications, have been identified for investments across 12 Latin American countries, of which 12 projects are being executed under public-private partnerships (IIRSA, 2010).
36. There has also been an attempt to foster regional cooperation centering Silk Road in the recent past. For example, the Silk Road Initiative (SRI) which is a regional UNDP (United Nations Development Programme) programme that aims to enhance cooperation and development among the PRC, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. It focuses on facilitating public private partnerships in three main areas: investment, trade and tourism. For further details, visit http://www.undp.org.cn
37. Refer, for example, Anderson and van Wincoop (2004).
38. This is also not to deny that export efficiencies and other characteristics such as the degree of concentration and diversification of trade profiles amongst the partners are also vital to trade expansion between India and BSR.

References

ADB/ADBI. 2009. *Infrastructure for a Seamless Asia*, Asian Development Bank/ Asian Development Bank Institute, Manila/Tokyo.

Akimoto, Kazumine. 2009. "Power Games in the Arctic Ocean." *Arctic Ocean Quarterly Bulletin*, Ocean Policy Research Foundation, Tokyo

Anderson, J. E. and E. van Wincoop. 2003. "Gravity with Gravitas: A Solution to the Border Puzzle." *American Economic Review*, Vol. 93, No. 1, pp. 170-192.

Anderson, J. E. and E. van Wincoop.2004. "Trade Costs", *Journal of Economic Literature*. Vol. 42, No. 3. pp. 691-751

Burdman, M. 2008. "Eurasian Land-Bridge Enters a New Era". EIR News Service, Washington, D.C.

CARIS - CUTS International. 2007 "Qualitative Analysis of a Potential Free Trade Agreement between the European Union and India". Centre for the Analysis of Regional Integration, Sussex and CUTS International, Jaipur.

David C, and P. Pedroni. 2004. *The Effect of Infrastructure on Long Run Economic Growth*. Harvard University, Massachusetts

De, P., M. Samudram, and S. Moholkar. 2010. "Trends in National and Regional Investors Financing Crossborder Infrastructure Projects in Asia". ADBI Working Paper 245, Asian Development Bank Institute (ADBI), Tokyo.

Decreux, Y. and C. Mitaritonna. 2007. "Economic Impact of a Potential FTA between the EU and India". CEPII – CIREM Study for the European Commission, Final Report No. 2007-03-15, available at http://trade.ec.europa.eu/doclib/docs/2007/may/tradoc_134682.pdf

Djankov, Simeon, Caroline Freund and Cong S. Pham. 2006. "Trading on Time". Policy Research Working Paper No. 3909, World Bank, Washington, D.C.

Duval, Yann and Chorthip Utoktham. 2009. “Behind the Border Trade Facilitation in Asia-Pacific: Cost of Trade, Credit Information. Contract Enforcement and Regulatory Coherence”, UNESCAP TID Staff Working Paper No. 02/09, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok.

EU. 2011. “Fact sheet, Priority 2: External and Internal Accessibility of the BSR” European Union. available at http://eu.baltic.net/Internal_and_external_accessibility.34.html

European Commission. 2006. “Global Europe: Competing in the World”. Available at http://europa.eu/legislation_summaries/external_trade/r11022_en.htm

European Commission. 2011. The EU- India FTA, Available at http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/ india/

EUROSTAT. 2009. The EUROSTAT Databases, available at http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

FICCI. 2008 “India-EU Trade and Investment: Current Status and Issues”. Federation of Indian Chambers of Commerce & Industry (FICCI), New Delhi.

IIRSA. 2010 “Notes on Infrastructure and Integration in South America”. Initiative for the Integration of Regional Infrastructure in South America, Buenos Aires.

Kimura and Kobayashi. 2009. “Why is the East Asia Industrial Corridor Needed?” ERIA Policy Brief No. 2009-01, Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta.

Khorana S. and N. Perdikis. 2010. “EU-India Free Trade Agreement: Deal or No Deal?”. *South Asia Economic Journal*, Vol. 11, No.2, pp. 181-206

Mikic, M, and J. Gilbert. 2007. *Trade Statistics in Policy Making: A Handbook of Commonly Used Trade Indices and Indicators*. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok.

Munnell, A. H. 1990. “How does Public Infrastructure Affect Regional Economic Performance?,” Federal Reserve Bank of Boston, pp. 69-112.

Munnell, A. H. 1992. “Infrastructure Investment and Economic Growth.” *Journal of Economic Perspectives*, Vol. 6, No. 4, pp. 189-198.

Nordås, H. K., E. Pinali and M. G. Grosso. 2006. “Logistics and Time as a Trade Barrier”. Trade Policy Working Paper No. 35, Organisation for Economic Co-operation and Development (OECD), Paris

OECD. 2003. “Quantitative Assessment of the Benefits of Trade Facilitation”. TD/TC/WP(2003)31/FINAL, Organisation for Economic Co-operation and Development, Paris.

OECD. 2005. “The Economic Impact of Trade Facilitation”. TD/TC/WP(2005)12/FINAL, Organisation for Economic Co-operation and Development, Paris.

Polaski, S., A. Ganesh-Kumar, S. McDonald, M. Panda and S. Robinson. 2008. *India’s Trade Policy Choices: Managing Diverse Challenges*. Carnegie Endowment for International Peace, United States.

Raihan, S. (2009) “European Union-India Bilateral Free Trade Agreement: Potential Implications for the Excluded Low-income Economies in Asia and Africa”, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok.

UNCTAD (2011) *Review of Maritime Transport 2010*. United Nations Conference on Trade and Development, Geneva.

UNECE/UNESCAP. 2004. Proceedings of the 2nd Expert Group Meeting on Developing Euro-Asian Transport Linkages, 3-5 November, Odessa, Ukraine, United Nations Economic Commission for Europe/United Nations Economic and Social Commission for Asia and the Pacific, Geneva/Bangkok.

UNESCAP. 1995. Feasibility Study on Connecting Rail Networks of PRC, Kazakhstan, Mongolia, the Russian Federation, and the Korean Peninsula (ST/ESCAP/1663), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 1996a. Asian Highway Network Development in the Asian Republics (ST/ESCAP/1697), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 1996b. Trans-Asian Railway Route Requirements: Development of the Trans-Asian Railway in the Indo-China and ASEAN Subregion (ST/ESCAP/1679), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 1999a. Development of Asia-Europe Rail Container Transport Through Block-trains-Northern Corridor of the Trans-Asian Railway (ST/ESCAP/2032), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 1999b. Development of the Trans-Asian Railway-Trans-Asian Railway in the Southern Corridor of Asia-Europe Routes (ST/ESACP/1980), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2001a. Asian Highway: The Road Networks connecting PRC, Kazakhstan, Mongolia, the Russian federation, and the Korean Peninsula (ST/ESCAP/2173), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2001b. Development of the Trans-Asian Railway: Trans-Asian Railway in the North-South Corridor Northern Europe to the Persian Gulf (ST/ESCAP/2182), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2006. Enhancing Regional Cooperation in Infrastructure Development including that related to Disaster Management, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2007. Towards a Harmonized Legal Regime on Transport Facilitation in the ESCAP Region: Guidelines (ST/ESCAP/2489), United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2008a. UNESCAP Briefing: Development of the Asian Highway, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2008b. Trans-Asian Railway: Facts and Figures, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

UNESCAP. 2009. Intergovernmental Agreement on the Trans-Asian Railway Network to Come into Force in June 2009, Press Release No. G/09/2009 18 March 2009, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

Winters, L. A., M. Gasiorek, J. L. Gonzalez, P. Holmes, M. M. Parra and A. Shingal. 2009. "Innocent Bystanders: Implications of an EU-India Free Trade Agreement for Excluded Countries", Commonwealth Secretariat, London.

Appendix 3.1

(i) The Augmented Gravity Model

Our approach is to estimate the trade potential between India and BSR countries. This is done based on an augmented Gravity model (Anderson-van Wincoop type) in its most basic form, and explains that bilateral trade is proportional to the product of economic sizes of country pairs and inversely related to the distance between them. The basic Gravity model has, therefore, taken the following shape:

$$Ln(T_{ij}) = \alpha + \beta_1 Ln(Y_i.Y_j) + \beta_2 Ln(D_{ij}) \qquad (1)$$

Augmenting the basic Gravity model equation (1), controlling for dummy variables that influence the trade flows, we get

$$Ln(T_{ij}) = \alpha + \beta_1 Ln(Y_i.Y_j) + \beta_2 Ln(P_i.P_j) + \beta_3 Ln(D_{ij}) + \varepsilon_{ij} \qquad (2)$$

where T_{ij} is bilateral total trade flow (export plus import, taken in US dollars at current prices) between countries i and j, Y_i and Y_j represent the economic size of countries i and j (here represented by countries' GDP taken at current US dollar value), P_i and P_j are population of country i and country j, D_{ij} is the bilateral distance between countries i and j. Equation (2) was used to forecast the trade flows with BSR countries, and the coefficients thus obtained are then used to estimate the trade potential under various scenarios. The augmented gravity model considers a cross-section data for the year 2009.

(ii) Data Sources

Outline	Classification	Particular	Sources
Trade in goods	Aggregate total	Trade in goods taken in current US$	United Nations Commodity Statistics (UN COMTRADE)
Economic size	GDP, population	GDP taken in current US$	World Development Indicators, World Bank
Bilateral distance	Capital to capital distance	Surface distance taken in km.	CEPII database

(iii) Regression Estimates

Dependent variable = Total Trade

Variables	Coefficients
GDP	0.818*** (0.0674)
Population	0.223** (0.0877)
Distance	-0.776*** (-0.176)
Observations	154
R-squared	0.718

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All variables are taken in log scale.

(iv) Growth Rate Assumptions

GDP Growth (%)

Country	2011-2015	2016-2020	2021-2025	2026-2030
Belarus	12.92	10.46	11.63	11.00
Denmark	4.29	3.24	2.00	1.00
Estonia	4.24	3.55	2.00	1.00
Finland	4.63	3.03	2.00	1.00
Germany	3.08	2.37	2.00	1.50
India	10.35	10.07	12.00	10.00
Latvia	5.64	3.38	2.00	1.00
Lithuania	6.76	5.11	6.00	7.00
Norway	5.16	4.53	4.00	3.00
Poland	6.72	6.83	8.00	7.00
Russia	15.07	14.13	12.00	10.00
Sweden	8.93	7.14	7.00	5.00

Population Growth (%)

Country	2011-2015	2016-2020	2021-2025	2026-2030
Belarus	-0.50	-0.50	-0.50	-0.50
Denmark	0.25	0.30	0.10	0.01
Estonia	-0.15	0.01	-0.50	-0.50
Finland	0.48	0.10	-0.50	-0.50
Germany	-0.20	-0.06	-0.05	-0.05
India	1.33	1.14	1.00	1.00
Latvia	-0.30	-0.09	-0.05	-0.05
Lithuania	-0.58	-0.49	-0.60	-0.70
Norway	0.80	0.17	-0.01	-0.80
Poland	-0.01	0.01	0.01	0.01
Russia	-0.34	-0.48	-0.80	-0.80
Sweden	0.30	0.07	0.00	0.00

Appendix 3.2

Augmenting the basic gravity model equation (1) in Appendix 3.1, controlling for dummy variables that influence the trade flows, we get

$$Ln(EX_{ij}) = \sum_{i \neq j} \alpha_{ij} + \beta_1 Ln(GDP_i) + \beta_2 (GDP_j) + \beta_3 (LCI_i) + \beta_4 (LCI_j) + \beta_5 (Tariff_{ji})$$
$$+ \beta_6 Ln(D_{ij}) + \beta_7 ADJ_{ij} + \beta_8 LAN_{ij} + \beta_9 AC_{ij} + \beta_{10} FTA_{ij} + \beta_{11} BSR_{ij} + \varepsilon_{ij} \quad (3)$$

where EX_{ij} is bilateral export from country i to country j, taken in US dollars at current price, D_{ij} is the bilateral distance between countries i and j. We have taken some dummies such as Adj, Lan, AC, FTA and BSR. ADJ_{ij} is a dummy variable to identify a pair of countries that are geographically adjacent or contiguous, or which share a border (=1 if they are adjacent, 0 otherwise); $Lang_{ij}$ is a dummy variable to capture language similarity between a pair of countries (=1 if they have language similarity, 0 otherwise); FTA_{ij} is a dummy variable that represents if a pair of countries have any preferential trade agreement (PTA) or free trade agreement (FTA), AC_{ij} is a air connectivity dummy (=1 if India and partner countries have direct passenger air links, 0 otherwise), BSRij puts a special emphasis on BSR member countries (=1 for BSR member, 0 otherwise), and ε_{ij} is a log-normally distributed error term. The above equation (3) is used to assess the barriers to trade flows. The augmented gravity model considers a cross-section data for the year 2009. Following diagnostics were carried out:

- Linearity assumption between response variable and predictors was checked.
- Statutory hypothesis tests were carried out on the parameter estimates.
- Ramsey tests were done to check model specification.
- Normality of residuals was tracked through Kernel density plot.
- All estimates were checked for heteroscedasticity through the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. Cameron and Trivedi's decomposition of IM-test was also used as an alternative.
- Multi-collinearity problems were checked by looking at partial correlations and then by using variance inflation factor (VIF).
- Models do not suffer from endogeneity as highly correlated exogenous variables are not used in the gravity equations. However, the possibility of endogeneity cannot be ruled out.
- Selection of model, fixed or random, was based on the Hausman χ^2 test. For the fixed effect specifications, the OLS method has been used, while the random effects models have been estimated using the GLS method, correcting for possible heteroscedastic errors and panel specific serial correlation

Data Sources

Outline	Classification	Particular	Sources
Export	Aggregate total, export from country i to country j	Taken in current US$	UN COMTRADE
Economic size	GDP	Taken in current US$	World Development Indicators, World Bank
Connectivity	LCI (Liner connectivity index)	Index number	UNCTAD
Tariff	Simple average tariff, imposed by country j to country i	Taken in percent	WITS, World Bank
Bilateral distance	Capital to capital distance	Surface distance taken in km.	CEPII
ADJ	Adjacency dummy	=1 for adjacent countries, 0 otherwise	
LAN	Language dummy	= 1 for speaking in same language, 0 otherwise	
FTA	Free trade agreement dummy; considers regional and/or bilateral agreement	= 1 for FTA, 0 otherwise	Author's own
AC	Air connectivity dummy	=1 for direct air links between India and partner country, 0 otherwise	
BSR	Baltic Sea Region dummy	= 1 for BSR member country, 0 otherwise.	

Appendix 4.1 List of Abbreviations of Indian Ports

KOLKATA, *of which*	KoPT
KOLKATA DOCK SYSTEM	KDS
HALDIA DOCK COMPLEX	HDC
PARADIP	PPT
VISAKHAPATNAM	VPT
ENNORE	EPL
CHENNAI	ChPT
TUTICORIN	TPT
COCHIN	CPT
NEW MANGALORE	NMPT
MORMUGAO	MPT
MUMBAI	MbPT
JAWAHARLAL NEHRU	JNPT
KANDLA	KPT

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