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Addressing Hard and Soft Infrastructure
Barriers to Trade in South Asia

Tasneem Mirza and Eleanor Bacani
No. 16 | February 2013



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Addressing Hard and Soft Infrastructure Barriers to Trade in South Asia¹

ABSTRACT

This paper explains hard and soft barriers to trade in South Asia by analyzing transport links and trade facilitation issues. First, the paper examines data on transport networks and trade logistics obtained from national statistics, government agencies, and consultations with private stakeholders and freight forwarders to understand physical barriers to trade in South Asia. Second, this paper estimates trade gains from addressing soft-side issues, including efficiency improvements in the movement of trade cargo. Results indicate that there is considerable opportunity to increase trade flows in South Asia through institutional reforms and by streamlining customs-related processes at borders. With well-targeted investments and strategic implementation of policies, trading partners in the region can realize sufficient gains.

JEL Classification: F10, F14, F17

Keywords: Trade facilitation, cross-border logistics, regional cooperation, Gravity Model, Principal Component Method

¹ We would like to thank participants at the 7th South Asia Department Economists' Annual Conference, Niny Khor, Gambhir Bhatta, and an anonymous reviewer for comments on the earlier draft of the paper.

ABBREVIATIONS

| | | |
|---------|---|--|
| 2SLS | – | Two-stage Least Squares |
| ASIDE | – | Assistance to States for Infrastructure Development of Exports |
| ASYCUDA | – | Automated Systems for Customs Data |
| BACS | – | Bhutan Automated Customs System |
| BLPA | – | Bangladesh Land Port Authority |
| BOT | – | Build-Operate-Transfer |
| CCTV | – | Closed-circuit television |
| CEPII | – | Centre d'Etudes Prospectives et d'Informations Internationales |
| CIA | – | Central Intelligence Agency |
| GDP | – | Gross Domestic Product |
| GTAP | – | Global Trade Analysis Database |
| ICD | – | Inland Clearance Depot |
| ICP | – | Integrated Check Post |
| IV | – | Instrumental variable |
| LCS | – | Land Customs Stations |
| LP | – | Land Port |
| PCR | – | Principal Component Regression |
| PRC | – | People's Republic of China |
| SAARC | – | South Asian Association for Regional Cooperation |
| SASEC | – | South Asia Subregional Economic Cooperation Program |
| SRC | – | SAARC Road Corridor |
| UNCTAD | – | United Nations Conference on Trade and Development |
| WDI | – | World Development Indicators |

I. SOUTH ASIA'S TRADE & TRANSPORT LOGISTICS

1. Thorough analysis of a range of data on trade and economies, infrastructure and logistical challenges in South Asia highlights that limited connectivity, inadequate border logistics, and inefficient cross-border arrangements are major impediments to intraregional trade. It emphasizes that Bangladesh and India, as key economies with access to seaports, can play a major role in promoting trade and regional integration.

2. Intraregional trade in South Asia is largely asymmetric. Some countries trade mostly within the region, while others trade mostly with the rest of the world. For example, landlocked Bhutan and Nepal trade mostly within South Asia, while Bangladesh and Sri Lanka, having direct access to seaports, trade mostly with the rest of the world. Bhutan and Nepal's export share within the region is 86% and 65% respectively, of which, more than 90% of goods are exported to India (Table 1). However, exports within the region for Bangladesh (3%), India (5%) and Sri Lanka (6%) are very small, as most of their export markets are to the United States and Europe.

Table 1. Share of Merchandise Trade within the Region

| Country | Export Share (%) | Import Share (%) |
|------------|------------------|------------------|
| Bangladesh | 3 | 14 |
| Bhutan | 86 | 63 |
| India | 5 | 1 |
| Maldives | 15 | 17 |
| Nepal | 65 | 53 |
| Sri Lanka | 6 | 20 |

Sources: World Development Indicators. 2010. World Bank; Commodity trade database. 2009. United Nations.

3. Table 2 shows degrees of openness in terms of the trade ratio to GDP. In particular, small countries such as the Maldives (77%) and Bhutan (80%) have large trade-to-GDP ratios relative to others. This is because these countries specialize only on a few sectors and rely on other countries for imports. For example, most needs for consumer goods including processed food, furniture, electronics, and cosmetics are fulfilled through imports. Since informal trade is relatively large in South Asia, and it is difficult to track the volume and flow, recorded trade statistics highly underestimate the true picture. Taneja (2005) provides approximations that indicate informal trade within the region to be just as large as, and in some cases larger than, formal trade for most countries in South Asia.

Table 2. Total Trade in South Asia

| Country Name | Merchandise exports (current million US\$) | Merchandise trade (% of GDP) |
|--------------|--|------------------------------|
| Bangladesh | 15,084 | 41 |
| Bhutan | 496 | 80 |
| India | 162,613 | 30 |
| Maldives | 169 | 77 |
| Nepal | 813 | 42 |
| Sri Lanka | 7,345 | 42 |

Sources: World Development Indicators. 2010. World Bank; Commodity trade database. 2009. United Nations.

4. What are the main barriers to South Asia's trade? This paper explains hard and soft barriers to trade in South Asia by analyzing transport links and trade facilitation issues. First, the paper examines data on transport networks and trade logistics obtained from national statistics, government agencies, and consultations with private stakeholders and freight forwarders to understand physical barriers to trade in South Asia. Second, this paper estimates trade gains from addressing soft-side issues, including efficiency improvements in the movement of trade cargo. Results indicate that modest efficiency improvements in trade document preparation and customs clearance can lead to significant increases in trade. In particular, if all countries in South Asia were to reach the average level of efficiency in East Asia and the Pacific, average exports can increase by 10.7%.

5. The rest of the paper is organized in the following way. Section II presents an overview of infrastructure and logistics for trade in selected South Asian countries to provide a key understanding of trade by land route, accessibility to seaports, ongoing investment efforts, and needs for future long-term investments and policy reforms. The countries presented here are Bangladesh, Bhutan, India, and Nepal – countries under the South Asia Sub-regional Economic Cooperation (SASEC) program.² It concludes that well-targeted investments, strong cooperation, and leadership by India and Bangladesh, the dominant economies, would produce the potential for significant economic opportunities of benefit to themselves and their landlocked neighbors.

6. Section III presents an empirical analysis on trade costs, using dataset obtained from the World Bank report *Doing Business 2011* to compare South Asia's performance across a range of measures with other economies, and to identify how trade facilitation, among other logistical improvements, affects bilateral trade flows in the region. There is a wealth of literature that empirically estimates time and other costs of trade (Limao & Venables 2001; Hummels 2001; Francois and Manchin 2007). This paper builds on existing empirical work in the gravity literature, first by using disaggregated data for all components of logistics procedure as a proxy variable for trade facilitation, and then by presenting alternative methods for estimating gravity model of trade. Although data on time to trade is well-examined in the literature. The unique contribution of this paper is that it analyzes disaggregated components of time data to provide a thorough and detailed view on the most time-costly barriers at borders. Simulations of trade gains in three reform scenarios provide the basis for prioritizing solutions to long-standing cross-border trade and logistics issues.

II. OVERVIEW

7. It takes 27 days to complete trading procedures when exporting a standardized container cargo in South Asia (*Doing Business 2011*). This is time spent to move goods from the manufacturing gate to seaports, and does not include the paperwork for international shipments. Most countries in this study consume most time on document preparation and clearance requirements, while a relatively smaller portion is spent on inland transportation and in cargo handling. Each of the countries—Bangladesh, Bhutan, India, and Nepal—spends nearly two-thirds of the time on completion of paperwork and other institutional procedures. For

² The SASEC Program is an initiative to promote economic cooperation between Bangladesh, Bhutan, India, and Nepal that was endorsement at the SAARC Summit in 1997. ADB's support as the Secretariat to the sub-region is undertaken mainly through (i) capacity building and institutional strengthening of the SASEC Program, (ii) various regional cooperation initiatives, and (iii) ADB-financed projects and TAs.

instance, in Bangladesh it takes 25 days to export, of which 17 days (68%) of time is spent preparing documents and on customs clearance. The 15-day average across the study area is than that of East Asia and the Pacific. Slow and cumbersome procedures, lack of transparency in customs, and inefficiencies in border and port management pose serious challenges for trade in South Asia (Mirza and Hertel 2009; Wilson and Otsuki 2007).

8. Intraregional trade in South Asia is hampered not only by high costs of lengthy processes—nearly all South Asian economies spend more than half of trade cost on paperwork processing—but also due to trade and transport agreements between countries. While Bangladesh, Bhutan, India, and Nepal are in close proximity, their trade within the region is asymmetric and depends mainly on bilateral relations. Bhutan and Nepal, for example, have strong trade links with India (more than two-thirds of their trade is with India). In contrast, bilateral trade between Bangladesh–Bhutan, Bangladesh–Nepal, and Bhutan–Nepal remains at less than one-tenth of total trade despite their close geographic proximity. Several factors determine the intensity of intraregional trade, including border management systems, cross-border transport and transshipment facilities, in-transit logistics and handling of goods, legal procedures, and other bilateral/multilateral trading arrangements.

9. In recent years South Asian countries have undertaken substantial investments to increase efficiency of paperwork processing, and manage security and accountability. For instance, in customs automation and modernization governments undertook introduced computerized facilities, along with streamlining procedures and regulations. For example, India developed an e-commerce portal of central board of excise and customs called ICEGATE (Indian Customs EDI Gateway) that provides e-filing services to trade and cargo carriers and other clients of Customs Department, and facilitate related government-to-government transactions. Bangladesh and Nepal adopted UNCTAD's ASYCUDA (automated system for customs data) for the processing and recording of customs transactions. While ASYCUDA is operational, it is not yet connected to the border gates from the central server, and the system is used mainly for data storage, while customs processes and checks are still done manually.

10. The logistics and transport of cargo in South Asia is in its nascent stage for much of cross-border trade. Most trade is non-containerized, with storage in open stacking yards at borders. Warehousing facilities, parking spaces, and transshipment yards are limited in proportion to the volume of cargo. While there is significant trade in agriculture, including fruits and vegetables, most borders do not maintain testing laboratories or cold storage facilities. In most cases, security clearances are done manually as automated scanning systems are not available, even at some major land ports, airports, and seaports. Transshipment is also a serious concern as it adds to trade-costs. Policies regulating traffic movement are limited on a bilateral basis, and often constitute additional fees for moving goods from one side of the border to warehouses of the partner country. Modern trading practices including risk management systems, national single windows, or harmonized border procedures are largely missing.

11. There is a wealth of literature that empirically estimates time and other costs of trade (Limao & Venables 2001; Hummels 2001; Francois and Manchin 2007). This paper builds on existing empirical work in the gravity literature, first by using disaggregated data for all components of logistics procedure as a proxy variable for trade facilitation, and then by presenting alternative methods for estimating gravity model of trade. Although data on time to trade is well-examined in the literature,. The unique contribution of this paper is that it analyzes disaggregated components of time data to provide a thorough and detailed view on the most time-costly barriers at borders. Simulations of trade gains in three reform scenarios provide the basis for prioritizing solutions to long-standing cross-border trade and logistics issues.

BHUTAN

Trade and Economy at a Glance

12. Bhutan's economy is largely dependent on the production and exports of hydroelectricity, most of which is exported to India. In 2009, hydropower accounted for 42% or \$234 million of Bhutan's total exports of \$557 million. Some of the major hydropower traders of Bhutan are the Chukha Hydropower Project, the Kurichhu Hydropower Project, and the Tala Hydropower Project. The hydropower sector, being a major economic driver, contributes about 40% to the national revenue. Other major commodity exports are iron and steel, metal and stone products (such as calcium and gypsum), and fruits and vegetables. Bhutan's largest trading partner is India. In 2009, 94% of Bhutan's total exports (\$521 million) were to India. Major imports from India are mineral products (25%), base metal and products (16%), machinery and electrical equipment (13%), and vehicle and transport equipment (10%). With a trade value largely close to GDP, Bhutan is considered to be a fairly open economy. Other than India, Bhutan's major export partners are Bangladesh; Hong Kong, China; and Nepal. Some of Bhutan's major import partners are the People's Republic of China (PRC), Japan, Singapore, Sweden, and Thailand.³

Major Trading Regions

13. Bhutan shares several key border points with India (as shown in Figure 1⁴). Table 3 provides detailed information on border gates including their strategic importance, facilities, trade shares, and potential investments needs. Phuentsholing is the largest border post in Bhutan, carrying 66% of exports and 85% of imports; Samtse region carries 19% of exports and 4% of imports, most of which constitute bilateral trade with India; Samdrup Jhongkha carries 11% of exports and 5% of imports. There are significant needs for improving facilities at these border points to ensure efficient movement of people and cargo through access to e-commerce facilities, cargo handling and logistics services, efficient customs operations, and enhanced security. Being a landlocked country Bhutan's connectivity is largely challenged as it is located nearly 900 kilometers (km) away from the nearest accessible port. Most of Bhutan's third-country cargo exits through the Phuentsholing Gate and travels along West Bengal on SAARC Road Corridor 3 (SRC 3) to reach the ports of Kolkata and Haldia. Poor road conditions in certain sections and long waiting time at ports make for large transaction costs for Bhutan traders. Third-country trade for Bhutan mostly goes through the Port of Kolkata, and does not use Mongla/Chittagong ports in Bangladesh. However, access to these seaports in Bangladesh will significantly reduce travel distance. With improved road links and transport agreements, the southeast transit corridor of Bhutan, Samdrup Jhongkha, can become a key economic corridor.⁵

³ Staff calculations using data obtained from Bhutan Trade Statistics, 2009, Department of Revenue and Customs, Ministry of Finance.

⁴ Figure 1 shows SAARC Road Corridors (SRC) as developed in the SAARC Regional Multimodal Transport Study. The maps have been augmented by adding specific border points between countries to indicate trade exchange points. Not all SRCs 1-10 are indicated in each map, but only the relevant corridors for the respective countries are shown.

⁵ Data collected during Regional Trade Facilitation Consultation Mission to Bhutan, Asian Development Bank, April 2011; Bhutan Trade Statistics 2009, Department of Revenue and Customs, Ministry of Finance.

Table 3. Key Trade Regions in Bhutan

| Bhutan & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|------------------------------------|--|
| Phuentsholing - West Bengal (IND) | <ul style="list-style-type: none"> • Strategic Importance: Largest trading region for Bhutan; falls along SAARC Road Corridor 3 (SRC 3). • Main Gates: Phuentsholing Gate, Lhamoi Zingkha Gate. • Border amenities: Regional Revenue & Customs Office, Private Clearing Agents, 2 Parking Lots, 1 Transshipment Yard with limited cranes and equipment, 2 Warehouses. • Trade Share: Export share: 66%; Import share: 85%. • Investment Needs: The Royal Government of Bhutan has highly prioritized development of a dry port at Phuentsholing. |
| Samdrup Jongkha (SJ) - Assam (IND) | <ul style="list-style-type: none"> • Strategic Importance: Located in the southeast of Bhutan, SJ has potential to become a key corridor for trade with/through Bangladesh and NE India; falls along SRC 5. • Main Gates: Samdrup Gate, Phuentsholing Gate, Daifam Gate, Richenthang • Trade Share: Export share: 11%; Import share: 5% • Investment Needs: Development and upgrading of border infrastructure and cross-border road links. |
| Gelephu - Assam (IND) | <ul style="list-style-type: none"> • Strategic Importance: Located in the south-center, is likely to become an important border point once the development of southern road networks is complete. • Main Gates: Gelephu Gate. • Trade Share: Export share: 1%; Import share: 3% |
| Samtse - Assam (IND) | <ul style="list-style-type: none"> • Strategic Importance: Key region for trade with Nepal. • Main Gates: Gomtu Gate, Samtse Gate, Pugli Gate, Other: Jytty, Bindoo, Sipsso, Trashijong. • Trade Share: Export share: 19%; Import share: 4% |
| Paro Airport | <ul style="list-style-type: none"> • Strategic Importance: Only international airport in Bhutan. • Trade Share: Export share: 5%; Import share: 3%. |

Source: Data collected during Regional Trade Facilitation Consultation Mission to Bhutan, Asian Development Bank, April 2011; Bhutan Trade Statistics 2009, Department of Revenue and Customs, Ministry of Finance.

14. Given its mountainous landscape, there are limited road networks in Bhutan. Single lane roads are common and susceptible to landslides. The terrain does not allow high-speed commute, and goods usually move in trucks with capacity 8-10 metric tons. The transportation sector has been largely privatized and clearing agents and freight forwarders now handle trade cargo. Bhutan does not have a domestic railway network, but railway lines from India are relatively close to the border. In recent years, the Government of Bhutan has been modernizing and streamlining processes related to customs. BACS is now fully functional at 25 customs stations and is being used by the Department of Trade to issue import/export licenses. Accession to the Revised Kyoto Convention is also being considered.⁶

⁶ Mr. Tandin Tshering (personal communication), Trade and Transport Facilitation in South Asia, The World Bank, 2008; Trade Logistics Service Liberalization in Bhutan.

NEPAL

Trade at a Glance

15. Nepal suffers a large trade deficit of Rs.314 billion (Table 4). India is the major trading partner of Nepal commanding 65% of exports (Rs 39 billion) and 57% (Rs 214 billion) of imports. Other than India and the PRC, Nepal's imports from neighboring countries are very small. Nepal's exports to Bangladesh (6%) and Bhutan (3%) are very small share-wise, and exports to the Maldives and Sri Lanka are even smaller. Major export commodities from Nepal include iron and steel products (16%), textiles and readymade garments (13%), yarns (7%), carpet (7%), and woolen and pashmina shawls (3%).

Table 4. Trade in Nepal, FY 2009/2010

| Country Name | Exports (million Rs.) | Share | Imports (million Rs.) | Share |
|--------------|--------------------------|-------|--------------------------|-------|
| Bangladesh | 3,373 | 6 | 764 | 0 |
| Bhutan | 1,554 | 3 | 1333 | 0 |
| India | 39,902 | 65 | 214,261 | 57 |
| Maldives | 0.3 | 0 | - | - |
| Sri Lanka | 100 | 0 | 54 | 0 |
| PRC | 1,008 | 2 | 39,218 | 10 |
| ROW | 15,012 | 24 | 119,975 | 33 |
| Total | 60,949 | 100 | 375,605 | 100 |

Source: A Glimpse of Nepal's Foreign Trade, Trade & Export Promotion Center, Ministry of Commerce, Government of Nepal, October 2010.

Major Border Points with India

16. Similar to Bhutan, most of Nepal's trade with the rest of the world takes place through the Port of Kolkata/Haldia which lies about 1,000 km away from Kathmandu, a commuting distance of at least 14 hours. SRC 2 connects Kathmandu to its major border point at Birgunj that carries 55% of Nepal's total trade and connects to Raxaul in India (Figure 2). Birgunj is the only major border point that has connectivity to broad gauge railway. As shown in the map, other major border points in Nepal are Biratnagar and Kakarvitta, located in the southeast (carrying 11% and 1% of total trade, respectively), and Bhairahawa and Nepalgunj in the southwest (taking 13% and 2% of total trade, respectively). Located along the southern border of India, Nepal has a total of 22 partially active border points used for small-scale local trade.

17. To facilitate international trade, Nepal maintains dry port facilities, also known as Inland Clearance Depots (ICDs) at the major trade points of Bhairahawa, Birgunj, Biratnagar, and a newly-completed dry port at Kakarvitta. These dry ports are inland facilities that offer customs offices, security check points, container stacking yards, parking areas, and freight stations. Private operators handle dry ports that with long-term leases with the Government of Nepal. The ICDs at Bhairahawa, Birgunj, Biratnagar were developed under joint project of the government and the World Bank at a cost of \$28.5 million; the ICD at Kakarvitta was developed under ADB financing. The 'Nepal Intermodal Transport Development Board' was set up to oversee the management and operations of these ICDs. Currently, there are ongoing plans to develop integrated check posts (ICPs) at the major border posts, namely Birgunj, Bhairahawa, Biratnagar, and Nepalgunj jointly with the Government of India (GOI). These ICPs will have

dedicated passenger and cargo terminals providing various trade, transport and transshipment related facilities under a single complex to expedite processes.⁷

Figure 2. Key Border Points in Nepal

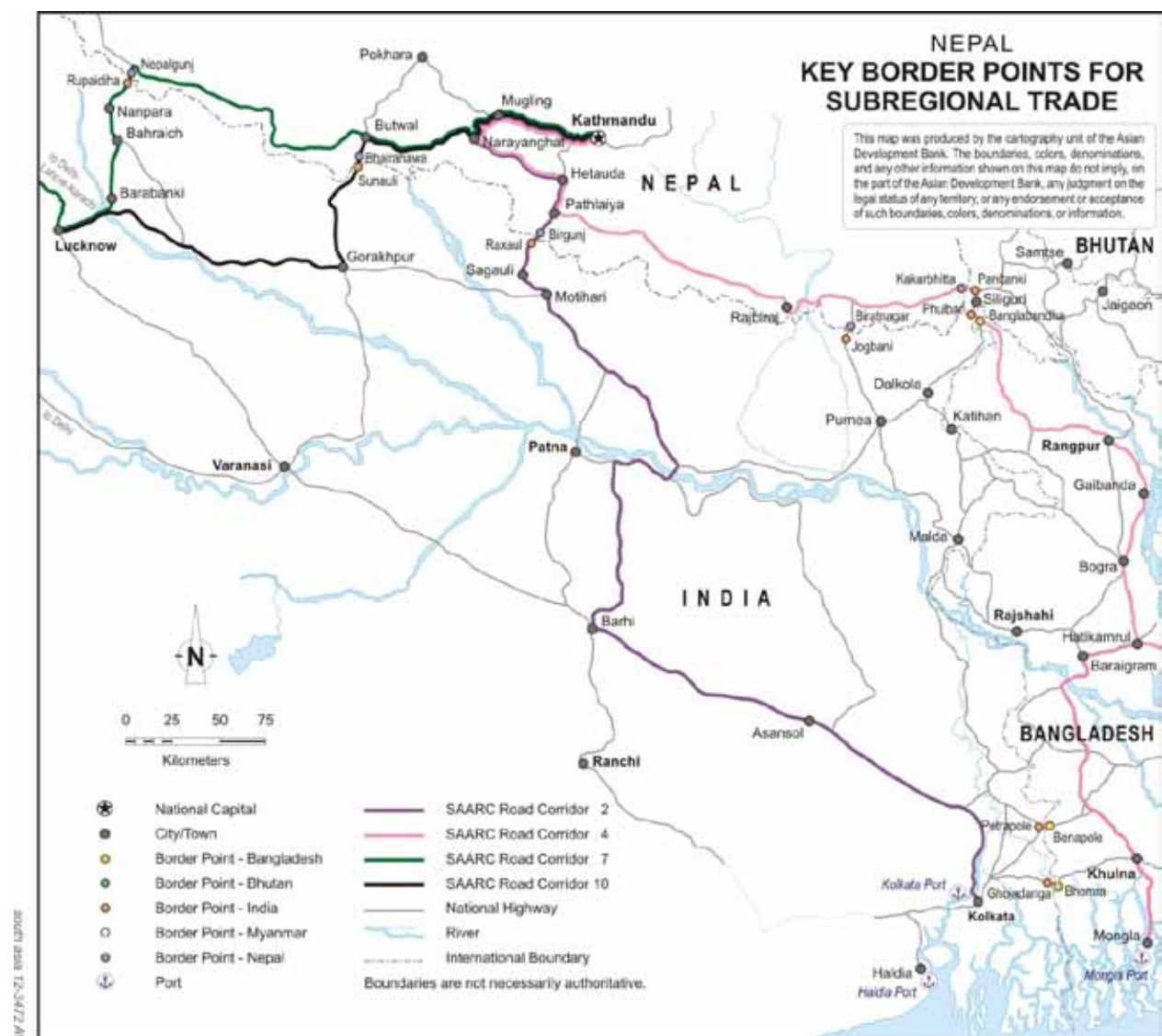


Table 5. Key Border Points in Nepal

| Nepal & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|-----------------------------------|--|
| Birgunj - Raxaul (Bihar) | <ul style="list-style-type: none"> • Strategic Importance: Located at south-central, Birgunj is the largest trading border point for Nepal, and is the only one with access to broad-gauge railway; falls on SRC 2. • Border amenities: An Inland Clearance Depot (ICD) or a dry port jointly developed by the government and the World Bank. The ICD consists of broad-gauge railway yard, administration block, container stacking yard, covered |

⁷ Pamphlet on 'Inland Clearance Depot/Dry Port in Nepal, Nepal Intermodal Transport Development Board, Ministry of Industry, Commerce and Supplies, Government of Nepal.

| Nepal & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|---------------------------------------|--|
| | <p>container freight station, high-level goods platform, covered goods shed.</p> <ul style="list-style-type: none"> • Trade Share: 55%. • Ongoing Investments: An Integrated Check Post (ICP) is under consideration. Upgrading of existing roads and bridges connecting to Birgunj are also under consideration. Bilateral wagon interchange agreement for movement of larger cross border rail cargo will be beneficial. |
| Bhairahawa - Sunauli (Uttar Pradesh) | <ul style="list-style-type: none"> • Strategic Importance: Located in the south-west, Bhairahawa is the second-largest trading border point for Nepal; falls along SRC 10. • Border amenities: The existing ICD is equipped with an administration block, bituminous pavement area, inspection shed, customs litigation and goods shed, a gate complex, security office, and canteen area. • Trade Share: 13%. • Ongoing Investments: ICP under consideration. Upgrading of existing roads and bridges connecting to Birgunj are also under consideration. |
| Biratnagar - Jogbani (Bihar) | <ul style="list-style-type: none"> • Strategic Importance: Biratnagar is the major trading point in the southeast region. • Border amenities: ICD is equipped with container yard for 150 TEUs, parking areas for 80 trucks, administration block, container freight station, vacant area for parking and storage, ancillary facilities, including electric substation, workshop, water-tank and car parking. • Trade Share: 11%. • Ongoing Investments: ICP under consideration. Upgrades of existing roads and bridges connecting to Birgunj are also under consideration. |
| Nepalgunj - Rupaidiha (Uttar Pradesh) | <ul style="list-style-type: none"> • Strategic Importance: Nepalgunj is a developing trading point in the southwestern region. • Border amenities: No ICD exists but an ICP is under consideration. • Trade Share: 2%. |
| Kakarvitta - Phulbari (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Kakarvitta is the main trading corridor leading to Bhutan, Bangladesh and northeast India; falls along SRC 4. • Border amenities: An ICD Facility has been recently completed in 2011 with ADB funding, along with a road upgrading project to improve connectivity to Birgunj and Bhairahawa. The project includes installation of facilities such as a secured boundary, covered shed, weighbridge, container platforms and administrative buildings, and a separate immigration office with all facilities. The project also includes installation of ASYCUDA selectivity and a brokers' direct trade input module. • Trade Share: 3%. |

Source: Data collected during Regional Trade Facilitation Consultation Mission to Nepal, Asian Development Bank, March 2011.

18. Nepal has bilateral agreements for trade and transit with India—by virtue of the Treaty of Trade, the Treaty of Transit, and Agreement of Cooperation to Control Unauthorized Transit. The Treaty of Trade facilitates transit through India along 15 mutually agreed trading routes connecting to the Port of Kolkata. The Ports accommodate Nepali goods in transit by allotting specific storage, berthing facilities, and access to terminal handling and other services. Although goods from Nepal are exempt from customs and transit duties in India, costs associated with transporting goods from the border of Nepal to the port are quite high. Nepali exports are containerized at the border using containers that arrive from shipping liners at the port. Since Nepal does not have provisions for container facilities, traders must incur the cost of an empty container arriving from the port to pick up exporting goods. Various formalities and paperwork are required at ports—aneecdotal evidences suggest that 35 steps need to be completed from

the point of arrival of goods till they are loaded onto ships that take about a week; additional waiting time for vessels and other unnecessary delays at the border adds to unnecessary storage costs. At the Port of Kolkata, goods are loaded to feeder vessels and sent to Singapore where they are loaded to larger mother vessels to be exported to Europe and the USA. As suggested by freight forwarders and exporters from Nepal, shipments usually take up to 2 months from the producer gates to reach importers, hence reducing quick access to the world market.⁸

Recent Initiatives

19. The Department of Customs (DOC) has taken several steps to modernize customs facilities. The department initiated a broker's module that allows customs agents to input data and print electronic versions of customs declarations in 10 major customs offices covering 90% of transactions; implemented risk-based clearance in five major customs offices; and installed wide area network in seven customs offices and in the DOC. Improved systems will facilitate faster clearance and alleviate traffic congestions in major border points such as Birgunj. Nepal has installed the Automated Systems for Customs Data (ASYCUDA), a computerized system for customs data management. However, ASYCUDA is only being used to store revenue data, and customs clearances are still done manually. Therefore Nepal is considering further initiatives to modernize customs. It is also keen to move towards a national single-window system that will facilitate one-stop clearance of paperwork for traders.⁹

BANGLADESH

Trade within the Region

20. Bangladesh is considered a fairly open economy with significant trade with the rest of the world, but very little trade with South Asian neighbors. As shown in Figure 1, the main trading route between Nepal and Bangladesh is through the eastern border point of Kakarvitta in Nepal, travelling along SRC 4 through Phulbari in India to the northern tip of Bangladesh in the land port of Banglabandha. The main trading route with Bhutan is through the Phuentsholing border coming through Hasimara and Chengrabandha in India and entering Bangladesh at Burimari along SRC 8. Another key route expected to increase in importance in future is along SRC 5, starting at Samdrup Jongha in Bhutan and connects to Tamabil in Sylhet. While volumes through these routes are presently very small, interventions on the soft and hard aspects of infrastructure and connectivity are expected to boost trade.

Land Ports

21. Most of Bangladesh's trade within the region comprises of imports from India (13% of Bangladesh's imports are from India). Bangladesh imports cotton, yarn and other raw materials for the readymade garments sector, a major export of Bangladesh (comprising 77% of its total exports). Being surrounded by India on the west, north and east, Bangladesh shares about 40 border points with India, of which less than 15 are active. Benapole is the largest trading point between India and Bangladesh. Other significant land ports include Sonamosjid, Hili, Bibirbazaar, Akhaura, Bhomra, Darsana, and Nakugao. For trading with Nepal, Banglabandha

⁸ Designing and Implementing Trade Facilitation in Asia and the Pacific, UNESCAP, 2009; Interviews with the private sector, firms, and freight forwarders in Nepal, March 2011.

⁹ Data collected during Regional Trade Facilitation Consultation Mission to Nepal, Asian Development Bank, March 2011; Trade Facilitation Workshop: Towards a National Single Window', UNESCAP, February 2011.

is the corresponding border port, and for trading with Bhutan, Tamabil and Burimari are key land ports. The Bangladesh Land Port Authority (BLPA), established in 2001, administers the Land Ports of Bangladesh. The Benapole Land Port is managed by the BLPA, and most of the remaining Land Ports are operated by private port operators under the Build-Operate-Transfer (BOT) arrangement.¹⁰ Currently, four land ports are under the BOT arrangement: Sona Masjid, Hili, Teknaf and Bibir Bazar; Banglabandha and Birol have been designated with an operator but have not started operations, while Tamabil, Bhomra, Burimari, and Akhaura do not have an operator (Table 6).¹¹

Table 6. Key Land Ports in Bangladesh

| Bangladesh & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|---|--|
| Benapole (SW) ¹² - Petrapole (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Benapole carries the largest trade between India and Bangladesh. With the completion of the Padma Bridge, the land distance between Benapole and Dhaka will shorten significantly, thereby increasing usage of the port. • Land Port (LP) Facilities: One of the earliest, the Benapole LP began functioning in 1978. The LP is built over 60 acres of land with truck terminals of 1,156 truck capacity, 36 warehouses with a capacity of 3,000 M.T., five open stack yards, one transshipment yard, and one truck terminal. The Land Port is under the Bangladesh Land Port Authority's (BLPA) own management. Under the BLPA the Benapole Port Modernization Project at an estimated cost of Tk. 398.8 million is under implementation from 2008 to 2012. This includes construction of a passenger terminal, four transit sheds, and an open stack yard. • Imports: Rice, fertilizers, raw material for chemical and apparel industries, iron and steel, tires, and other manufactured goods. About 280-300 trucks/day carry imports to Benapole. • Exports: Jute products, beetlenuts, and Hilsha fish. About 40-50 trucks trucks/day carry exports from Benapole. • Relevant ADB Projects/TA: (i) Feasibility Study on Benapole Land Port is ongoing under ADB; (ii) The upgrading of Hatikamrul-Rangpur National Highway into a four-lane road is also under consideration by ADB. |
| Sonamasjid (W)-Mehdipur (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Sona Masjid is one of the largest trading points with India. • Imports: Fresh fruits, tomatoes, onions, ginger, fly ash, stone chips, dry chili, green chili, China clay, and button lac. • Exports: Cumin, raw rice barn, silk products, garments. • LP Facilities: Under operation since 2006. Nineteen acres of land, 14 warehouses, one transshipment yard, two open yards, two weigh bridges, two truck-parking yards. Under operation of BOT¹³ (Build-Operate-Transfer). • Relevant ADB Projects: (i) Upgrading of the Sonamasjid-Rajshahi-Hatikamrul road into a four-lane highway (205 km, project cost: US\$351 million). |

¹⁰ In a BOT project a private company is given the task to undertake construction of the necessary buildings, financing, and designing of the project. The private company undertakes management of the port and collects revenue for a concessionary period to recover costs. At the end of the concession period, ownership is returned to the government.

¹¹ Regional Trade Facilitation Consultation Mission to Bangladesh, Asian Development Bank, April 2011; 'At a Glance', Bangladesh Sthala Bandar Kartipaksha Pamphlet, May 2009.

¹² N:North; S:South; E:East; W:West.

| Bangladesh & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|---|--|
| Hili (NW)- Hili (West Bengal) | <ul style="list-style-type: none"> • LP Facilities: Under operation since 2007. LP consists of 10 acres of land, four warehouses, two open yards, one customs godown, one transshipment yard, one weigh bridge, one truck terminal, and one administrative building. Under operation of BOT. • Imports: Fruits, fresh fish, maize, rice bran, oil cake, onions. • Exports: Sugar-cane molasses, coal, bricks. |
| Bibirbazaar (SE) - Srimantpur (Tripura) | <ul style="list-style-type: none"> • LP Facilities: Under operation since 2009. LP includes 10 acres of land, a warehouse, a weigh bridge, one yard, one fork lift, and office building. Under BOT operation. |
| Birol (NW) - Radhikapur (West Bengal) | <ul style="list-style-type: none"> • LP Facilities: 17.54 acres of land is available, although no infrastructure is in place as there is no road/rail connectivity to port. Needs about 3.5 km of road link to get the port functioning. BOT Operator has been appointed but cannot start yet. |
| Banglabandha (N) - Phulbari (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Banglabandha provides trade links with Nepal; falls along SRC 4. Trade volumes here are still very low due to cross-border vehicle movement restrictions. Until January 2011, India and Bangladesh had a truck-to-truck loading and unloading system for transshipments of goods at the zero point. Thereafter the land port at Banglabandha allowed trucks to reach the warehouses. Earlier in October 2010 the two countries signed an agreement on standard operating procedures and a car-pass procedure. • Imports: Whole red lentils, leather. • Exports: Cotton products, Cotton-knitted fabric, batteries, juice, float glass. • LP Facilities: 10 acres of land, a warehouse, a yard, an office building, one barrack.–Relevant ADB Projects: four-laning of Hatikamrul-Rangpur National Highway (157 km, project cost: \$270 million). |
| Tamabil (NE) - Dawki (Meghalaya) | <ul style="list-style-type: none"> • Strategic Importance: Tamabil has large potential for bilateral trade/transit with Bhutan; falls along SRC 5. • Imports: Coal, stone, and animal products. • Exports: Potato chips, fruit, juice, bricks. • LP Facilities: 14.72 acres of land, infrastructure not in place due to land litigation. Appointment of BOT Operator under process. • Relevant ADB Projects: Turning Dhaka-Bhairab-Jagadishpur-Shaistaganj-Sylhet-Tamabil Road (N-2) into a four-lane highway (286 km, project cost: \$490 million). |
| Burimari (N) - Chengrabandha (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Burimari is the main trading LP with Bhutan; falls along SRC 8. • LP Facilities: 11 acres of land, two warehouses, a yard, a weigh bridge, an office building, barrack house, generator. Appointment of BOT Operator is in process. • Relevant ADB Projects: Improvement of Rangpur-Teesta-Burimari (Lalmonirhat) into a four-lane highway (138 km, project cost: \$237 million). • Possible GOI Funding: Burimari-Lalmonirhat Road (92 km, project cost: \$85 million). |
| Akhaura (E)- Agartala (Tripura) | <ul style="list-style-type: none"> • Strategic Importance: Akhaura is the only active trade point on the eastern side of Bangladesh. • Imports: Paper board. • Exports: Fresh fish, stone, cement. • LP Facilities: 15 acres of land, one open yard, an office building, truck parking. Appointment of BOT Operator in process. • Relevant ADB Projects: Upgrading of Dharkar-Akhaura-Senarbadi Road into a four-lane road (13 km, project cost: \$22 million); Upgrading of Comilla-Brahmanbaria Highway into four lanes (85 km, project cost: \$150 million) |

| Bangladesh & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|--|--|
| | <ul style="list-style-type: none"> • Support from the Government of India, which recently approved funding for a road between Akhaura and Chittagong Port, and port development. |
| Teknaf (SE)-Mongdu (Myanmar) | <ul style="list-style-type: none"> • Strategic Importance: Teknaf is the only trade point connected to Myanmar. • Imports: Wood, fish, dry fish, pickled plum, dry plum, varieties of pulses, bamboo. • Exports: Cement, garments, plastic tanks, aluminum products, fish. • LP Facilities: Under operation since 2006. Twenty-seven acres of land, two warehouses, one passenger jetty, one cargo jetty, a cargo yard, a weigh bridge, an open yard, a pontoon. Under BOT operation. |
| Bhomra (SW)-Ghojadanga (West Bengal) | <ul style="list-style-type: none"> • Strategic Importance: Bhomra is potentially an important trade border point following construction of the Padma Bridge. • Imports: Fresh fruits, dry fish, onions, garlic, ginger, turmeric, dry chilies, fly ash, granulated slag, sandstone, marble chips, oil, spades, betel leaf, ball clay, dry fruit (plums), dolomite chips, glass, coal, raw cotton, tamarind, weighing scales, gypsum, quartz powder, lump, boulder, grain dust. • Exports: Yarn and cotton products, bricks, knitted fabrics. • LP Facilities: 16 acres of land acquired, operation is ongoing as land customs station under Bangladesh Customs. Appointment of a BOT operator is in process. |

Sources: Data collected during Regional Trade Facilitation Consultation Mission to Bangladesh, Asian Development Bank, April 2011; 'At a Glance', Bangladesh Sthala Bandar Kartipaksha Pamphlet, May 2009; 'Banglabandha port prospects dim', The Daily Star News, 3 August 2011.

Sea Routes

22. Most of Bangladesh's trade is outside the region and transits through sea routes. Two major ports, Chittagong and Mongla, are both riverine and operated by feeder vessels. Chittagong Port is located at about 8-10 hours from Dhaka city, and carries 90% of country's ocean borne cargo. The port charges are quite high, and congestion and delays add to transport costs, while productivity is extremely low and vessel turnaround time unpredictable. The port does not yet maintain timetabled service. Exporters need to incorporate the added uncertainty in their delivery time for shipments. Mongla Port, located in the Sundarban area, is smaller, more-recently developed, and has a large capacity that is not yet fully utilized. The port mainly supports agricultural goods. However, with the completion of the Padma Bridge, the port is expected to become an important sea route because of its more direct connectivity by road to the capital, Dhaka.

INDIA

Land and Sea Transport

23. India has established long-term trade and transit agreements with Bhutan and Nepal. To date, Bhutan and Nepal's trade with the rest of the world takes place via transit through India. India also has developed extensive road and rail networks connecting the north to the Port of Kolkata. National highways in India have expanded, largely connecting major cities to industries and ports. They carry about 40% of India's passenger and freight traffic.¹⁴ The Port of Kolkata is the entry point for a large quantity of goods to India, and all maritime for Nepal and Bhutan. It is the oldest and the third-largest port in India. High turnaround time, detention fees, congestion

¹⁴ World Highways, Feb 2007

fees, and other costs are major deterrents to flow of goods from South Asia through this key port. While it takes 13-20 days for goods to reach North Europe through the Port of Colombo, it takes 25-32 days via the Kolkata hub. As such, it costs an additional \$1,300 to ship a carpet from Nepal to Europe through Kolkata rather than Mumbai.¹⁵ Engagement of private sector port operators will play a vital role to modernize and improve services at the port. Since India's coal imports mainly come through Kolkata, investing on infrastructural improvement of the port will have large benefits for India as well.¹⁶

Recent Initiatives

24. Recently, India has initiated plans for the development of 13 ICPs along India's land borders with Bangladesh, Myanmar, Nepal and Pakistan. These ICPs will be dedicated passenger and cargo terminals providing for passenger flows, cargo processing, cargo inspection sheds, warehouse and cold storage, a quarantine laboratory, scanner DFMD/HHMD, clearing agents, banks, a CCTV/public address system, parking facilities, currency exchange, x-ray scanners, fuel stations, and other public amenities, including hotels, restaurants and duty free shops, in a single complex. A Land Port Authority of India is in the process of being formed to oversee the development and management of these ICPs. The Government of India is also considering development of mirror ICPs at the four major India-Nepal border points.

25. India maintains several Land Customs Stations (LCS) providing services for goods en-route. A number of states in the North Eastern Region have initiated projects to upgrade infrastructure and facilities in some of these LCSs through funds available from the government's Assistance to States for Infrastructure Development of Exports (ASIDE). Specifically, the ASIDE facility currently supports three LCSs in Meghalaya, four in West Bengal, and one in Tripura. The availability of additional funds will be critical to meet the state's needs and priorities. Further, about 50 land customs points are not either under the ICP program or ASIDE.¹⁷

A Regional Hub

26. To the north of Bangladesh, in the northern areas of West Bengal in India, the Sikkim/Jalpaiguri/Darjeeling area enjoys close proximity to Bangladesh, Bhutan and Nepal (Figure 1). Given the unique geographic location of these countries, South Asia has potential for a regional trading hub. There are four Land Customs Stations (LCSs), at Panitanki, Phulbari, Jaigaon and Chengrabandha, run by a Commissionerate of Customs based at Silliguri. Table 7 shows a detailed description of trade that take place in each LCS. As indicated in the SASEC Tourism Development Plan (2005), the region has a high potential to develop; a cost-benefit study established the viability of an international airport at Bagdogra, with a high internal rate of return of 19% for the development (ADB-UNCTAD 2008).

¹⁵ South Asia: Growth and Regional Integration. Washington, D.C., World Bank.

¹⁶ 'Why the Ports Sector is India's Infrastructure Laggard'. Trusted Sources, Research & Network. August 2010; The World Bank, 2008.

¹⁷ Aide Memoire, Regional Trade Facilitation Consultation Mission, Asian Development Bank, March 2011.

Table 7. Key Border Points/LCSs for Regional Integration

| India & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|--|---|
| Phulbari – Banglabandha (BAN) | <ul style="list-style-type: none"> • Strategic Importance: Phulbari is an LCS at India and caters to trade between Nepal with Bangladesh. The LCS falls along SRC 4. • Trade value: From 2010 to 2011, imports from Bangladesh stood at Rs. 2 million while exports stood at Rs. 7.6 million. • Exports to Bangladesh: Bricks. • Imports from Bangladesh: Stone boulder. • Transit Trade (Bangladesh to Nepal): Float glass, cotton knitted fabrics, batteries, medicine, cotton waste. • Transit Trade (Bangladesh to Nepal): Whole red lentils, chirata, wet buffalo leather, ginger. • Regulatory Framework: Bangladeshi export consignments to Nepal are unloaded from Bangladeshi trucks and uploaded on Nepalese trucks in India at the Phulbari LCS. Consignments are sealed by the Phulbari customs authorities and escorted by them to the Panitanki LCS at the Indo-Nepal border. Nepalese exports to Bangladesh are escorted in a similar manner to the Indo-Bangladesh border by officers from the Panitanki LCS. • List of Documents: Documents required for bilateral trade between India and Bangladesh comprise: (i) a bill of import/export, (ii) a letter of credit, (iii) a commercial Invoice, and (iv) a packing list. Documents required for bilateral trade between Nepal and Bangladesh through India are: (i) a customs transit declaration, (ii) a commercial invoice, (iii) a packing list, and (iv) an undertaking by NTWCL (Nepal Transit Warehousing Company Ltd.) covering for losses in transit. • Ongoing investments: Upgrades of LCS have been taken up under the ASIDE Scheme. The Siliguri Jalpaiguri Development Authority (SJDA) has progressed in land acquisition. |
| Panitanki - Kakarbhitta (NEP) | <ul style="list-style-type: none"> • Strategic Importance: Panitanki is a functional LCS at Indo-Nepal border and caters to trade between Nepal with Bangladesh. On a daily basis, the number of trucks crossing this LCS is: 18-35 trucks importing from Nepal, 60-90 trucks exporting to Nepal, and 12-30 trucks going through India in-transit. • Trade value: From 2010 to 2011, imports stood at Rs. 2,518.2 million, while exports stood at Rs. 2,695.3 million. • Regulatory Framework: The procedure for transit is governed by the provisions of India-Nepal Treaty of Transit. The clearance procedure for bilateral trade is governed by the India-Nepal Treaty of Trade and provisions of the Customs Act/Customs Tariff Act, and any restriction/prohibition for a particular item imposed under the Foreign Trade (Development & Regulation) Act, 1992. • List of Documents: Documents required for bilateral trade between India and Nepal comprises (i) a bill of entry/export, (ii) a Country of Origin certificate for preferential tariff treatment, (iii) a commercial Invoice, (iv) a packing list, (v) a Plant Quarantine Clearance Certificate/CFL test report and other documentation, where applicable (viii) a letter of credit (if any), Nepal Customs' Pragyapan Patra declaration. Transit trade between Nepal and a third country requires: (i) a customs transit declaration, (ii) a commercial Invoice, (iii) a packing list, (iv) an undertaking by NTWCL/letter of credit. • Exports to Nepal: Coal, petroleum products, raw jute, cycles & cycle parts, cement clinker/slag, vegetables including potatoes and onions, manufactured articles directly exported from Indian factories under Nepal invoice. • Imports from Nepal: Tea, ginger, readymade garments and shoes, noodles, plywood, and core veneer. • Transit Trade (Bangladesh to Nepal): Whole red lentils, food products, |

| India & Corresponding Border Post | Strategic Importance, General Description, Investment Needs & Ongoing Initiatives |
|-----------------------------------|---|
| | industrial slag. • Transit Trade (Nepal to Bangladesh): Betel nuts, fabrics, cosmetics, consumer articles, toys, readymade garments. |
| Jaigaon - Phuentsholing (BHU) | • Strategic Importance: Jaigaon is the major LCS on Indo-Bhutan border. On a daily basis, the average number of trucks crossing this LCS is: 36 trucks importing from Bhutan, 49 trucks exporting to Bhutan, and 44 trucks going through India in-transit. • Trade value: From 2010 to 2011, import stood at Rs. 10,370.6 million, and export stood at Rs. 6,721.4 million. Trade between India and Bhutan is free as governed by the Indo-Bhutan Trade Treaty (2006). No duty is payable/receivable for import and export between Bhutan and India. • Exports to Bhutan: Vehicles, electrical appliances, manganese ore, quartz, transformers, beverages. • Imports from Bhutan: Ferrous silicon, calcium, plywood, fruits, beverages. • Transit Trade (Bhutan to 3rd Country): Fruits, stone chips, limestone, mesh powder, steel bars, beverages. • Transit Trade (3rd Country to Bhutan): Motor vehicles, garments, melamine, medicines, machinery goods, consumer goods, marble slabs, copper rods, food items, computer accessories. |
| Chengrabandha – Burimari (BAN) | • Strategic Importance: Chengrabandha is a notified LCS on India-Bangladesh border. It is the main route of trade between Bhutan and Bangladesh. The route from Phuentsholing to Chengrabandha goes through Dhupghuri and Hasimara along NH-31/NH-31C in India. • Ongoing Investments. The Government of India is considering an ICP development project at Chengrabandha. |

Sources: Data collected during Regional Trade Facilitation Consultation Mission to Bangladesh, Asian Development Bank, April 2011; Data obtained from Office Memorandum in response to ADB Mission from Central Board of Excise & Customs, Department of Revenue, Ministry of Finance, Government of India.

III. AN EMPIRICAL ANALYSIS OF TRADE COSTS

27. This section analyzes South Asia's time costs of trade and highlights the key areas for soft-side reforms that will maximize trade potential for the region. Quantitative analysis determines that in addition to hard infrastructure to strengthen transport connectivity, there is a critical need to address the soft-side issues that facilitate smooth and easy flow of cargo across South Asian borders. Lengthy cross-border trade procedures are a major cost barrier for businesses trying to sell their products in the global markets. As substantiated in the literature, slow delivery time reduces market competitiveness as South Asian exports can no longer compete with more efficient exporters.

A. Quantifying Time Costs

28. Compared with the rest of the world, South Asia lags significantly behind in time and cost efficiencies of trading goods. Table 8 presents average time/costs of trade by country for a fully-loaded twenty-foot-equivalent-unit (TEU) container. On average 32 days are spent on moving goods from producer gates to shipping docks, which is comparatively much larger than in other comparable developing regions. It costs about \$1,512 to export and \$1,745 to import a standardized cargo in South Asia—both much higher than in East Asia and the Pacific, Latin America and the Caribbean, and the Middle East and North Africa. Figure 3 shows the average

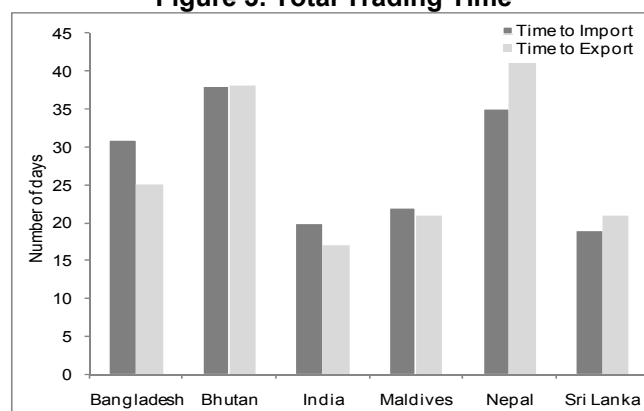
number of days to trade by country. India and the Maldives are more time efficient than other economies in the region. Bhutan (38 days) and Nepal (41 days) are outliers, largely owing to their geographical disadvantage; traders travel longer distances by land and complete customs checks and clearance processes at multiple border points, leading to significant delay and extra cost.

Table 8. Trading Time and Costs across Regions

| Region | Time (in Days) | | Costs (in US\$) | |
|-------------------------------|----------------|-----|-----------------|------|
| | Exp | Imp | Exp | Imp |
| East Asia & Pacific | 23 | 24 | 890 | 935 |
| Eastern Europe & Central Asia | 27 | 28 | 1652 | 1845 |
| High income OECD | 11 | 11 | 1059 | 1106 |
| Latin America & Caribbean | 18 | 20 | 1228 | 1488 |
| Middle East & North Africa | 20 | 24 | 1049 | 1229 |
| South Asia ¹⁸ | 32 | 33 | 1512 | 1745 |
| Sub-Saharan Africa | 32 | 38 | 1962 | 2492 |

Source: *Doing Business Survey 2011, World Bank.*

Figure 3. Total Trading Time



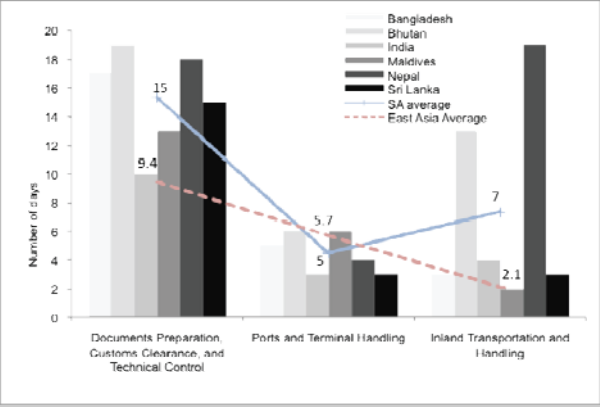
Source: *Doing Business Survey 2011, World Bank.*

29. Figures 4 and 5 present time it takes to complete various stages of cross-border logistics procedure (i) documents preparation, customs clearance and technical control, (ii) ports and terminal handling, and (iii) inland transportation and handling. Unarguably, almost all countries in South Asia spend the most time—between 40-70%—in compiling and approving legal documents, and completing legal formalities related to customs clearance and technical control. On average, traders spend about 15 days to complete customs paperwork, which is on average 6 days longer than in East Asia and the Pacific. Bhutan and Nepal, having to cross multiple borders, take longest (19 and 18 days, respectively) to complete legal procedures for export. Key non-tariff barriers include disputes over classification of goods and customs valuations, lack of mutual recognition of laboratory certification, non-acceptance of certificates of rules of origin, permits and license requirements, imposition of countervailing and anti-dumping duties, and sanitary and phytosanitary measures, among others. Strong subregional trade programs that will modernize customs, standardize and harmonize cross-border procedures, enhance accountability and transparency, and simplify administrative and procedural barriers to trade are

¹⁸ South Asia is defined here as comprising of 6 countries: Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka.

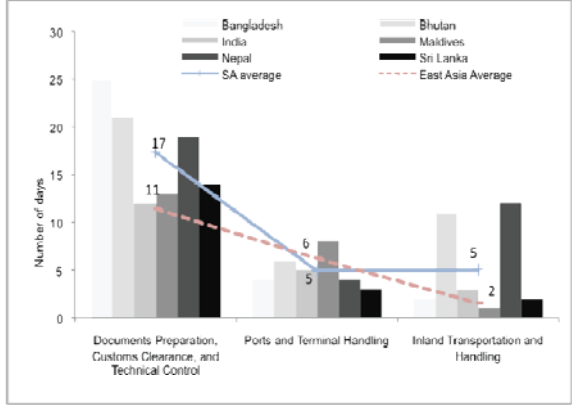
critically needed in South Asia. Further enhancing current cross-border transport agreements and facilitating vehicle movement will likely increase trade flows at the subregional level.

Figure 4. Trading Time to Export, by Procedure



Source: *Doing Business Survey 2011, World Bank.*¹⁹

Figure 5. Trading Time to Import, by Procedure



Source: *Doing Business Survey 2011, World Bank.*

B. Empirical Model and Methodology

30. This section provides an estimation of time costs of trade, i.e. to what extent trade potential in South Asia is reduced due to inefficiencies in cross-border trade procedures. We first use an econometric model to estimate the elasticity of trade with respect to changes in deliverable time. And then, we conduct policy simulation exercises to observe potential economic gains that can be achieved from efficiency improvements.

31. The gravity model builds upon a *a priori* expectation that bilateral trade volume tends to be larger between two countries that are geographically closer with each other and with relatively higher incomes. In addition, various economic factors and policy variables also have an impact on total trade. The general empirical model can be written as:

$$TRADE = \beta_0 + \sum_{i=1}^k \psi_i TF + \sum_{i=1}^k \gamma_i ECO + \sum_{i=1}^k \delta_i GEO + \varepsilon \tag{eq.1}$$

32. Where the dependent variable is trade at *cif* prices. The independent variables are classified in the groupings namely, (i) Trade facilitation (*TF*), (ii) economic factors (*ECO*), and (iii) geographic attributes (*GEO*).

(i) Trade data is developed for 94 countries for the year 2004 and is obtained from GTAP version 7.0. The dataset is originally obtained from the United Nations Commodity Trade Statistics Database (COMTRADE). Trade data is aggregated over all merchandise.²⁰

(ii) Trade facilitation (*TF*) is represented by time i.e. the number of days needed to export/import a standardized container. World Bank’s *Doing Business 2011* data have recently developed latest data on cross-country time indicators under *Trading across Borders*, where time is disaggregated with reference to the nature of the trade

¹⁹ Selected high-income countries in East Asia and the Pacific comprise the People’s Republic of China; Fiji; Hong Kong, China; Marshall Islands; Palau; Singapore; Thailand; and Tonga. We used five-year average of Gross National Income per capita (atlas method, current US \$) and selected only those countries with five-year average of \$3,000 and more.

²⁰ See Table A1 for complete list of data sources.

procedure, as presented earlier. Data in *Trading across Borders* are compiled using a standard set of goods that are traded across countries. In order to make the data comparable across countries, several assumptions are considered: the product is non-hazardous, does not require refrigeration or any special phytosanitary or environmental safety standards, and is shipped by sea in a dry cargo, full TEU container load.²¹

(iii) Economic variables (*ECO*) are those characterizing the supply capacity of countries or affinity for larger trade due to their economic characteristics. Given that bilateral trade between partner countries is directly proportional to income and country size, the model proxies these with real GDP per capita and real GDP. For every bilateral pair of countries, the products of these country-specific variables are used. Data on real GDP and real GDP per capita are obtained from the World Bank's World Development Indicators (WDI) Database. Tariff is used in the model as the only measurable policy variable. For bilateral tariffs, trade-weighted preferential rates are used for ad valorem tariffs (including tariff rate quotas) plus ad valorem equivalents (AVEs) of specific tariffs. Data on bilateral preferential tariff are obtained from the Market Access Map (MacMap), originally available at the *Center d'Etudes Prospectives et d'Information Internationales* (CEPII).

(iv) Geographic variables (*GEO*) characterize the relative distance between two partner countries. Geographic distance is measured as the distance between the two trading countries' capital. To measure ties between the bilateral pair, dummy variables for common border and common language are used; the coefficient for these variables is expected to be positive—i.e. when two countries share a language or a common border their bilateral trade is expected to be larger. Dummy variables are used for whether none (0), either (1) or both countries (2) are landlocked. Data on distance and the dummies are obtained from CIA's World Factbook.

33. Given the independent variables as described above, the full model can be written as:

$$\begin{aligned} \ln Trade_{xm} = & \beta_0 + \psi_1 \text{Log}i_x + \psi_2 \text{Log}i_m + \gamma_1 \ln GDP_x \cdot GDP_m + \gamma_2 \ln GDP_p \cdot GDP_c + \gamma_3 \ln \tau_{xm} + \delta_1 \ln Dist_{xm} \\ & + \delta_2 \text{Land}L_{xm} + \delta_3 \text{Lang}_{xm} + \delta_4 \text{Border}_{xm} + \varepsilon \end{aligned} \quad \text{eq. 2}$$

Where subscript x denotes the exporting country and m denotes the importing country. The error term, ε represents the combined effect of omitted variables or other factors which have not been considered in the model.²²

²¹ *Doing Business* considers a hypothetical private firm that is locally owned with a minimum of 100 employees, is located in the country's most populous city and is outside an export processing zone (EPZ) or an industrial estate with special export or import privileges. The time and cost for ocean transport are not taken into account. Total time comprises the time needed to complete paperwork related to trade, customs clearance, packaging or containerization, terminal handling and waiting time at ports. It is assumed that traders commit to completing each legal procedure without delay. Document preparation includes all documents required per shipment for clearance by government ministries, customs officials, port and container terminal officers, health and technical control agencies and banks are included. Documents include Certificate of Origin, Commercial Invoice, Bill of Lading, and more. All fees associated with completing procedures to export or import the standardized container are included. Official costs only cover document fee, administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges and inland transport, and exclude unofficial payments and custom tariffs and duties or costs related to ocean transport.

²² We assume that the combined effect of the omitted variables is independent of each variable included in the equation and has the expectation of zero.

34. Aggregated data on time for trade facilitation variables have been used in several papers in the literature (Persson 2010; Portugal-Perez and Wilson 2009; Martinez-Zarzoso and Marquez-Ramos 2008; Dennis and Shepher 2007). This paper complements the existing work on bilateral trade flows by utilizing disaggregated time data components. This is done by including each of the disaggregated variables through principal component regression (PCR). This allows us to capture all components of logistics procedure without necessarily including every component in the model separately; it will also not be possible to include all components separately due to issues related to multicollinearity. This is done by first estimating a new set of orthogonal or uncorrelated variables that extracts the most correlation from each of the three components of logistics procedure. These orthogonal variables are then ranked based on their degree of correlation and variance. The first of these orthogonal variables or the ‘principal component’ has the highest correlation and variance; each succeeding component has lower correlation and more noise. Intuitively, the principal component then becomes the right hand side variable.

35. In the modeling we also recognize the fact that a gravity model may suffer simultaneity bias. This is because reverse causality may arise for countries that have invested on facilitating trade—as they may end up investing more due to a demand pull situation, i.e. there is a greater need for developing infrastructure to facilitate larger trade. Loosely speaking, not only do slow procedures reduce trade but the possibility of low trade may be a reason for inadequate efforts for facilitation. This logic leads to bidirectional causality, which will then bias the coefficient estimate of the dependent variable of interest.

36. To account for simultaneity bias, we employ a two-stage least square (2SLS) estimation method for PCR. Several instrumental variables (IVs) are used as proxy for trade facilitation. IVs are selected on the basis that they: (i) have a causal effect on trade facilitation; and (ii) have no direct effect on trade but only an indirect effect through the trade facilitation variable. The three IVs used in the model are governance indicator, ease of access to public sector financing, and ease of access to private sector financing for infrastructure investments. A complete theoretical development of the simultaneous model, and the instrumental variables used for estimation are explained in details in Mirza and Hertel, 2010. The first stage of the regression is specified as follows:

$$\ln \hat{Logis}_{xm} = \beta_1 \ln Gov_{xm} + \beta_2 \ln Priv_{xm} + \beta_3 \ln Pub_{xm} + \mu_{xm} \quad \text{eq. 3}$$

37. Governance is measured using the Corruption Perceptions Index (CPI) developed by Transparency International. The ease of private sector borrowing is measured using interest rate for long term investments for the private sector, and the ease of government financing is measured using the size of national deficits relative to income (i.e. standardized by GDP levels). We also conduct post-regression diagnostics, a Hausman specification test, to check for endogeneity and affirm validity of the IVs.

C. Policy Simulation Results

1. Measuring trade in terms of time efficiency

38. Table 10 reports results from the empirical estimation. Column 1 reports results from the OLS model. Our key variables of interest are *Logis*. We find that an improvement in trade facilitation of the exporting country, i.e. reduction of 10% in total time spent in trade logistics procedures, increases exports by 4.3%. An improvement in trade facilitation, i.e. 10% reduction

in total time spent in trade logistics, boosts imports by 2%. These numbers are fairly consistent with those estimated in the literature using dataset in total time spent in trade logistics procedure from *Doing Business*. It is also consistent with existing literature that the elasticity derived with respect to exporting time is larger than that derived from importing time.

39. The estimated coefficients for all other variables are highly statistically significant at the 1% level, and have signs and magnitude consistent with the gravity literature. As confirmed by the estimates, trade volumes are positively related to partners' GDP, and negatively related to distance. The coefficient estimate for landlocked dummy variables is negative, indicating that landlocked countries are generally less integrated. Countries sharing a common border (1.37) or common language (0.76) have larger bilateral trade. Income (GDP_{pc}) has a negative and statistically insignificant coefficient, which is not what one would expect, owing to its high correlation with the trade facilitation indicator. The regression has a reasonably large explanatory power with an R^2 of 0.82, illustrating that the variation in bilateral trade flows is well explained by variables in the model.

Table 9. Regression Results using time as trade facilitation variable

| Dependent Variable: | Variable | OLS | PCR | IV-PCR (2SLS) |
|---------------------|-------------------------|--------|--------|---------------|
| Trade | $TRADE_{xm}$ | | | |
| Exporter's Time | $Logis_x$ | -0.43* | -0.41* | -0.45* |
| Importer's Time | $Logis_m$ | -0.20* | -0.27* | -0.18* |
| Size | $GDP_x GDP_m$ | 1.12* | 1.06* | 1.06* |
| Income | $GDP_{pc_x} GDP_{pc_m}$ | -0.05 | -0.17* | -0.16* |
| Distance | Dist | -1.00* | -0.94* | -0.95* |
| Landlocked | LandL | -0.15* | -0.08 | -0.00 |
| Common Language | Lang | 0.76* | 0.78* | 0.74* |
| Border | Border | 1.37* | 1.35* | 1.40* |
| Tariff | τ | -2.60* | -2.19* | -2.56* |
| Constant | | -11.4* | -10.7* | -10.5* |
| R-squared | | 0.82 | 0.82 | 0.82 |

Source: Staff estimates.

Number of observations: 4445

* Statistically significant at the 1% level.

40. The estimated elasticities derived using PCR and IV-PCR (2SLS) do not vary significantly with those estimated using OLS, as shown in columns 2 and 3 respectively. The elasticity estimates for an exporter's time using PCR and IV-PCR are -0.41 and -0.45, which are very close to the OLS estimate of -0.43. The elasticity estimates for an importer's time using PCR and IV-PCR are -0.27 and -0.18, which are also fairly consistent with that of estimated elasticity of -0.20 using OLS. Hence, we find reasonable confidence in our estimated elasticities for both exporting and importing time.²³

²³ We also consider that since the variables are log-transformed, the use of logarithm brings in a truncation problem in the dependent variable, leaving out observations with zero-trade values. Although we do not use an alternative method that controls for zero trade, this issue has been addressed extensively in the literature using various estimation methods, including the Poisson Distribution model and the Negative Binomial model (Diankov et. al. 2006; Persson 2007). In each case, the estimated elasticities using these methods are fairly consistent with those estimated in our study. Djankov, S., C. Freund and C. S. Pham (2006), 'Trading on Time', World Bank Policy Research Working Paper No. 3909 (Washington, D.C.: World Bank).

41. In the simulation exercises that follow, we use the estimated elasticity derived from IV-PCR to estimate gains from improvements in logistics procedure.²⁴ We are interested to look at the impact of specific procedural reforms on trade. We established from earlier sections that nearly 40%-70% of total times are spent on documents preparation, customs clearance and technical control. Clearly, this is a low-hanging fruit for South Asian countries, and we analyze the impacts of efficient improvements in institutional procedures in the simulation exercises.

2. Simulation improved time efficiency in South Asia

42. In the following simulation exercises, we consider three policy scenarios. The first policy scenario looks at where all countries attain best practices in South Asia i.e. each country attains the same level of efficiency as the country with the fastest time to export a standardized container. For example, as shown in Figure 2 India completes document preparations, customs clearance, and technical control in 10 days for exporting goods, which is relatively faster than other South Asia countries (Bhutan takes 19 days; Nepal takes 18 days, Bangladesh takes 17 days, Sri Lanka takes 15 days, and the Maldives takes 13 days).²⁵ Then, we estimate trade gains if all countries in South Asia are able to complete document processing in 10 days. This implies that if Bangladesh were to reduce its total trading time to 10 days from 17 days, it may gain up to 15.2% of additional exports (Table 10).

Table 10. Estimated Trade Gains (%) from Policy 1
Policy 1: All countries in South Asia attain best practices within the region (India)

| Country | Documents Preparation, Customs Clearance, and Technical Control | |
|----------------|---|-----------|
| | Importing | Exporting |
| Bangladesh | 11.5 | 15.2 |
| Bhutan | 5.6 | 12.3 |
| India | — | — |
| Maldives | 0.9 | 6.9 |
| Nepal | 4.6 | 9.8 |
| Sri Lanka | 2.2 | 12.4 |
| Simple average | 4.1 | 9.4 |

Source: Staff estimates.

Note: Dash (—) indicates that the country already meets target levels of reforms.

43. In essence, if all countries, on average, were to streamline procedures and process documents promptly at borders, and increase efficiency of customs clearance and technical control up to the level of India, then South Asia's exports will increase by 9.4% on average. This is reflective of the fact that variability in performance across countries is the largest for institutional procedures, being one of the major weaknesses in South Asia. Some standard documents required in trading include bill of export/import, certificate of origin, letter of credit, commercial invoice, packing list, quarantine clearance and laboratory test results. Landlocked countries require additional documents (e.g. transit declaration or other related documents needed for third country trade) which need multiple signatures and are checked and validated at

²⁴ Given the empirical difficulty with assigning separate estimated contributions to each component of logistics procedure with any precision, we can only derive a single estimate for trade elasticity—one for exporting time and the other for importing time.²⁴ Recall that in eq. 2, we assume that for $Logis_x (\psi_{11} = \psi_{12} = \psi_{13})$ and for $Logis_m (\psi_{21} = \psi_{22} = \psi_{23})$.

²⁵ Although data indicates that India enjoys best-practices, India has a long way to go in implementing expedited documentation process. Much of the drop in the time for exporting and importing was achieved by introducing electronic data interchange (EDI) systems and by reducing delays at ports and customs through infrastructure improvements. India is also considering construction of ICPs and 13 selected border points.

multiple points. This requires longer waiting times and needs a high degree of coordination across cross-border agencies.

44. For comparison, we use two additional reform scenarios for South Asia (Table 11). The second policy scenario simulates the effect of reforms in South Asia such that all countries reach the average level of efficiency of selected high-income countries in East Asia and the Pacific.²⁶ In this case, exports from South Asia increase by 10.7% and imports increase by 4.7%, indicating that documents preparation and customs clearance processes in East Asia are much more efficient than those in South Asia. In the case of Policy 3 all countries in South Asia reach halfway up to best practices in East Asia and the Pacific. Columns 5 and 6 clearly show that trade gains are substantial and are also closely comparable to trade gains achieved in Policies 1 and 2.

Table 11. Estimated Trade Gains (%) from Policies 2 and 3

Policy 2: All countries reach the average level of efficiency of East Asia and the Pacific

Policy 3: All countries reach halfway up to best practices in East Asia and the Pacific

| Country | Policy 2 | | Policy 3 | |
|------------|-----------|-----------|-----------|-----------|
| | Importing | Exporting | Importing | Exporting |
| Bangladesh | 12.2 | 16.7 | 19.0 | 21.2 |
| Bhutan | 6.0 | 13.3 | 9.6 | 15.8 |
| India | 0.6 | 1.4 | 5.9 | 8.7 |
| Maldives | 1.5 | 8.3 | 6.6 | 9.5 |
| Nepal | 5.0 | 10.6 | 8.8 | 11.2 |
| Sri Lanka | 2.9 | 14.1 | 9.6 | 15.6 |
| Average | 4.7 | 10.7 | 9.9 | 13.7 |

Source: Staff estimates.

45. Overall results highlight one of the major challenges that South Asian traders face when moving goods across borders— the significant inefficiencies in customs practices and administrative capacity at borders. It is well known that the requirements for the number of trade documents in South Asia remain some of the most onerous in the world, and that the processing of these documents is time-consuming. The current approach often includes the requirement for multiple copies and in some cases obtaining approvals/authorization of the documents from several national and local government agencies. In the absence of ‘single stop’ and ‘single window’ applications in the subregion, hard copy documents have to be presented at the point of clearance upon arrival, rather than there being any other opportunity for processing. The overall procedures are also characterized by the transfer of hard copy documents between internal departments for processing and obtaining multiple signatures by individual ‘specialists’ rather than by ‘multi-skilled’ personnel, with the clearing and forwarding (C&F) agents acting as ‘couriers’ between offices. Institutional reforms to improve efficiency and processes will likely increase prospects for trade in South Asia.

²⁶ Selected high-income countries in East Asia and the Pacific comprise People’s Republic of China; Fiji; Hong Kong, China; Marshall Islands; Palau; Singapore; Thailand; and Tonga. We used five-year average of Gross National Income per capita (atlas method, current US \$) and selected only those countries with a 5-year average of \$3,000 and more.

IV. SOFT-SIDE POLICY CHALLENGES AND OPTIONS

46. Reducing documents and streamlining procedures are interrelated to various soft-side issues associated with trade facilitation. This section discusses some of these general policy issues and provides some responses that can be considered for soft-side trade reforms at the national and regional levels based on international best practices.

- **Customs Modernization.** Despite using automated customs systems, manual processing is still common practice and is conducted in parallel to automated processes. Many border check points are not yet 'on line' to their centralized customs IT systems. This means customs is primarily cleared manually and there are significant challenges related to data recording and exchange between BCPs and central customs authorities. Furthermore, there is no IT connectivity between border check posts across countries. For instance, goods going from Nepal to the Port of Kolkata that will be checked at Nepal-India border—and also at the port—do not include prior notification on the goods' arrival. This implies pre-clearance procedures cannot be conducted, which increases processing time at borders. Further, implementation of automated risk management systems to identify high-risk cargo and reduce physical examinations will benefit customs and compliant traders. As such full automation and modernization of customs will greatly improve operational efficiency and accountability.
- **Integrated Border Management.** Integrated border management allows customs or other entities to take a central role in border management, and entitles them to conduct multiple functions through a 'single-stop' facility. For example, traders can submit all paperwork to customs related to product certification, quarantine clearance, and transit declarations, thereby reducing the need for interfaces with multiple entities. South Asia could largely benefit from developing integrated border facilities such as single window systems that have already been set up in many places in East and Central Asia.
- **Transport Agreements.** Limited transport agreements are a major barrier for the physical movement of goods, especially trade of landlocked regions including Bhutan, Nepal, and the northeastern states of India. Bhutan and Nepal's third-country cargo transits through India and uses the Port of Kolkata; the terms and conditions for the transit are stated in the bilateral Treaty of Transit. While access to the Bangladeshi ports at Mongla and Chittagong would shorten travel distance significantly, especially for Bhutan and the northeastern states of India, there is no such arrangement at present. Developing subregional transport agreements or expanding bilateral arrangements will facilitate direct connectivity to nearby sea ports and greatly increase global market access.
- **Business Climate for Private Stakeholders.** Limited trade consultations between governments and businesses, combined with a lack of information about import, export and transit processes and procedures, is presently a major barrier to trade. The operating environment is the key channel through which the trading community is fully aware of rights and obligations, and to anticipate correctly the requirements arising from trade operations, while ensuring transparency, openness, mutual trust, and respect. Increasing access to information on trade processes through the development of information centers, strengthening customs websites, and enhancing service-orientation by way of transparent and predictable procedures, regulations and control methods will enhance the enabling environment for larger trade volumes.

- **Improving inter-agency coordination.** Trade facilitation comprises a complex set of functions that involve multiple ministries and agencies, including finance, commerce, customs, transport, communications, as well as private stakeholders including traders, C&F, shipping agents, banks, insurance, and other service providers. As a result interministerial/interagency coordination is a significant challenge, and there is a strong need for facilitating an integrated operational framework, and for strengthening institutional capacity. Due to the involvement of multiple stakeholders there is often a lack of a ‘champion’ to provide the strategic thrust for national trade facilitation. Increasing ownership, building team work, and developing a strategic framework will be of significant value.
- **Public Private Partnership Arrangements.** Modernization of trading facilities, through scaling up of investments in infrastructure, is needed to significantly improve cross-border logistics procedure in the region. In many countries, the private sector is engaged in the modernization of trading facilities. The PRC; Hong Kong, China; the Republic of Korea; and Singapore have implemented public-private partnerships to accelerate trading processes by using paper-free electronic data interchange systems and pre-arrival customs declarations, the arbitrary inspection of products, the improvement and expansion of port and berthing facilities, and more.²⁷ Having done little in this area, South Asia has a large potential to engage the private sector in land and sea port management.

V. CONCLUSION

47. Improved integration has clear advantages for all; the key is to identify the benefits and take up effective policy measures to realize them. For instance, Bangladesh can potentially find new and large export markets in Bhutan, Nepal, and northeastern states of India, given current low trade volumes. Similarly, Bhutan and Nepal have much to gain from improved integration and trade policies to enhance market access. A much greater coordinated effort is needed through bilateral or multilateral channels to realize the full potential of trade in South Asia. While the challenges are many, so are the opportunities for improvements and a more prosperous South Asia. As illustrated through our empirical analysis, modest efficiency improvements in trade document preparation and customs clearance can lead to significant increases in trade. In particular, if all countries in South Asia were to reach the average level of efficiency in East Asia and the Pacific, average exports can increase by 10.7%.

48. South Asia has the potential to become the crossroads of Asia—connecting all parts of the wider Asia, including Central Asia on the west, South-East Asia on the east and East Asia in the north-east. Its geographical advantage is undeniable and, if utilized well, can bring tremendous opportunities. Connecting to high-growth economies can open doors for large markets, economies of scale, and the sharing of technology and ideas. Developing global industrial chains, re-exports, and shipping services can lead to industrial growth, the creation of jobs, and huge spillover effects. With effective policies and institutions in place a more integrated Asia could become more stable and resilient to external shocks. Since the region is home to more than 20% of the world’s population and more than 40% of the world’s poor, the welfare impact of effective policies could be very substantial.

²⁷ Strachan, A. 2009. Beyond Investment: Engaging the Private Sector in Trade Facilitation. International Forum on Advising, Empowering and Inspiring Trade, *International Trade Center*, 4.

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APPENDIX

Table A1. Variable Data Source

| Variable | Source |
|--|---|
| Trade | Global Trade Analysis Project (GTAP) version 7, originally from the United Nations Commodity Trade Statistics Database (UN Comtrade) |
| Trade facilitation (time and cost) | Doing Business Survey 2011, World Bank |
| Real GDP Real GDP per capita | World Development Indicators (WDI), 2004, World Bank |
| Bilateral Tariff | Market Access Maps (MacMap), United Nations Conference on Trade and Development (UNCTAD); originally from the CEPII database of the French Research Center in International Economics |
| Distance Dummy variables: Landlocked; Common Language, and Common order. | Central Intelligence Agency (CIA), the World Factbook |
| Corruption Perceptions Index | Transparency International |
| Costs of Borrowing by the Private and Public Sectors; National Deficit | Global Market Information Database (GMID) |

Table A2. Best Practices, by Nature of Procedure.

| Country | Documents Preparation Customs Clearance and Technical Control | |
|----------------|---|----------------|
| | Time to Export | Time to Import |
| Bangladesh | 17 | 25 |
| Bhutan | 19 | 21 |
| India | 10 | 12 |
| Maldives | 13 | 13 |
| Nepal | 18 | 19 |
| Sri Lanka | 15 | 14 |
| Best practices | 10 | 12 |

Source: *Doing Business Database, World Bank (2011)*.

Note: Top performer is highlighted.

Addressing Hard and Soft Infrastructure Barriers to Trade in South Asia

This paper explains hard and soft barriers to trade in South Asia by analyzing transport links and trade facilitation issues. First, the paper examines data on transport networks and trade logistics obtained from national statistics, government agencies, and consultations with private stakeholders and freight forwarders to understand physical barriers to trade in South Asia. Second, this paper estimates trade gains from addressing soft-side issues, including efficiency improvements in the movement of trade cargo. Results indicate that there is considerable opportunity to increase trade flows in South Asia through institutional reforms and by streamlining customs-related processes at borders. With well-targeted investments and strategic implementation of policies, trading partners in the region can realize sufficient gains.

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