

TRADE AND TRANSPORT FACILITATION IN SOUTH ASIA

3. INTER-REGIONAL TRADE: THE TRANSPORT SECTOR

3.1 Introduction

30. The transport systems directly affect trade competitiveness through delivery costs, transit times, and supply reliability. In terms of cost, time and reliability, each commodity has different requirements. Certain characteristics may be sufficient for low value/bulk commodities, while much higher standards are demanded for high value/premium products. Indeed, there is also significant differentiation within commodity groups; the supply parameters for basic tee-shirts are, for example, very different to those for fashion garments. Poor transport chains reduce competitiveness and restrict opportunities.

31. This section of the report examines the performance of the basic building blocks of South Asia's international transport chain:

- Ports and shipping
- Highways and road transport
- Railways
- Air transport

Infrastructure and services are examined and the issues and possible improvements identified. Where relevant, performance is compared with the region's main competitors, especially East Asia.

32. The analysis concentrates on continental South Asia. Sri Lanka's trade, both with the world and the rest of South Asia, is overwhelmingly by sea and Sri Lanka is the best served country in the region. Colombo is the regional hub port and is served by the mainline container vessels. Sri Lanka has the cheapest and quickest container shipping services to Asia, Europe and the US markets and has also frequent feeder services to the other container ports in the region. Sri Lankan trade with the rest of South Asia is broadly covered by the reviews of ports, shipping, and the main land transport corridors. Transport within Sri Lanka is not, however, covered by the report.

3.2 The Maritime Sector: Ports And Shipping

33. World seaborne traffic reached another record high in 2005, 7.1 billion tons. South Asia depends on sea transport for its trade with the rest of the world¹² but its total sea trade was only 475 million tonnes, a very small proportion of global ocean freight. It has, however, been growing more rapidly than the world trend of 4 – 5 percent/annum: over the last five years, India's and Pakistan's ocean trade has grown at about 12 percent/annum, and Bangladesh's at >6 percent/annum. Most of the sea freight remains bulk cargo, but container traffic has been growing very rapidly, and now accounts for 17 percent of total tonnage. Container cargo has generally a much higher unit value and carry most of the manufactured products which face the most intense competition. Container services are central to the region's competitive position in the newer sectors of the regional economy.

¹² Air freight tonnages total about 1.2 million tonnes, though in value it has much greater importance.

3.2.1 Container Traffic

34. Container traffic to/from South Asia has grown rapidly and now totals 6.7 million TEU, but is dwarfed by flows to/from China and is less than 2 percent of global flows, Table 12.

Table 12 World and Asian Container Flows: 2005

Region/Country	TEU Flow (millions)	Percent of World Flow	Annual Growth 2000-2005
World	382	100%	11%
Asia	201	53%	14%
China	73	19%	25%
Indonesia	5	1%	6%
Malaysia	13	3%	20%
Continental South Asia	7	2%	14%
Bangladesh	1	*	11%
India	5	1%	15%
Pakistan	2	*	13%
* <0.5 percent			

The rapid growth in container traffic is expected to continue for the foreseeable future, assuming that economic momentum is maintained and the ports can handle the traffic.

Container Shipping Services

35. Until the late 1990s, South Asia, other than Sri Lanka, depended almost entirely on container feeder services, connecting through hub ports. Increased traffic and higher port productivity has led shipping lines to introduce direct services to several of the region's ports. At Nhava Sheva, less than 15 percent of containers are now shipped by feeder vessels. Pakistan is served by a combination of direct (mainly to Asia, but some to Europe) and feeder services (mainly to Europe¹³ and the US). Until very recently, Chennai, the main container port on India's east coast, was served by feeder vessels despite having the traffic, draft and productivity that would normally justify direct services. This is beginning to change with services direct to Asia and even some services direct to Europe and the US.

36. Other ports in India continue to be served by feeder vessels (mainly from Singapore and Colombo) though some are beginning to have a few direct services (e.g. Kochi, Mundra, Pipavav and Tuticorin). Ports in the Bay of Bengal are served exclusively by feeder vessels. Chittagong has the traffic to justify direct services but the port has neither the necessary draft nor the handling productivity. Indeed, productivity is so low and vessel turnaround so unpredictable that the feeder lines do not provide a timetabled service. This has serious consequences for exporters who must build additional time into their delivery schedules to ensure that mainline connections are made at the hub ports.

37. UNCTAD compiles an annual composite index of liner shipping connectivity which combines fleet assignment, services as well as vessel and fleet sizes. It provides a comparative indication of the level of shipping service, Table 13.

¹³ While there are direct services to Europe, the fastest delivery time is via a feeder service through Salalah.

Table 13 UNCTAD: Liner Connectivity Index
(Maximum score in 2004 = 100)

Rank	Country	2004	2005	2006
1	China	100.0	108.3	113.1
2	Hong Kong	94.4	96.8	99.3
3	Singapore	81.9	83.9	86.1
4	USA	83.3	87.6	85.8
10	Malaysia	62.8	65.0	69.2
18	India	34.1	36.9	42.9
20	Sri Lanka	34.7	33.4	37.3
22	Thailand	31.0	31.9	33.9
32	Indonesia	25.9	28.8	25.8
38	Pakistan	20.2	21.5	21.8
49	Philippines	15.4	15.9	16.5
54	Vietnam	12.9	14.3	15.1
109	Bangladesh	5.2	5.1	5.3

China and Hong Kong have the highest ranked connectivity. India is ranked quite highly and its connectivity is increasing, but it still has less than 40 percent of China's level of connectivity. Sri Lanka, with a small economy, benefits from having Colombo as a hub port. Pakistan has about half India's connectivity and Bangladesh has extremely low connectivity, well below its main competitors in the garment sector.

38. All ten of the world's largest container shipping lines operate to South Asia and the market is highly competitive. Freight rates reflect the market conditions and, in the last five years, rates from Asia to Europe have varied from US\$1200 – US\$1800/ TEU. The

“shipping conferences” still discuss and announce rate increases but few “stick” unless they reflect market conditions. Estimates of present freight rates and delivery times are detailed in Table 14.

Table 14 Container Shipping: Service Standards

Destination:	Origin:	Pakistan	-----India -----		Bangladesh	China
			West Coast	East Coast		
Europe	US\$/TEU	1150 – 1350	1050 - 1250	1100 - 1300	1200 – 1400	1650
	Days	19 ¹⁴	17	21	22 – 30	19 - 21
US East Coast	US\$/TEU	2700 – 2750	2600	2700	2800 – 3200	n.a
	Days	19 – 22	19 - 21	23	27 – 35	24
US West Coast	US\$/TEU	2750	2500	2600	2400	1800
	Days	22 – 29	26	24	19 – 28	15

South Asia has a time and cost advantage over China for destinations in Europe and the US East Coast but a substantial disadvantage on US West Coast routes; the world may be shrinking, in many ways, but distance still counts. There is very little difference in the rates between feeder and direct services; the direct services use vessels with a capacity of 2,500 – 4,500 TEU, while feeder services combine an expensive short feeder leg and a much longer leg on a very large, low cost mainline vessel (rates from Colombo to Europe, for example, are about US\$800 - 900/TEU). Bangladesh faces the highest freight rates, to Europe and the US East Coast, the longest shipping times, and the poorest service.

39. There is little domestic coastal container shipping in South Asia, and there are restrictions on foreign shipping lines operating such services. Container movements between South Asian countries used to be routed through hub ports but regular container services have been established, in the last two years, between India's West Coast and Pakistan, and between India's East Coast and Bangladesh. The high demand for these services has led the shipping lines to add vessels on both routes. The recently revised Shipping Protocol should strengthen India-Pakistan shipping links.

¹⁴ The fastest service is 15 days, but most are around 19 days

Container Port Services

40. With the possible exception of Nhava Sheva, there are no totally specialized container ports in the region but all the main ports have dedicated container terminals, Table 15¹⁵.

Table 15 South Asia: Main Container Handling Ports

	TEU (millions)	Country	Terminals	Management	Productivity (TEU/ship day)	Max. Draft (meters)
Nhava Sheva	2.67	India	3	Private/Public	1123	12.0
Karachi	1.14	Pakistan	2 ¹	Private	25 – 27 ²	10.5
Chittagong	0.83	Bangladesh	1 ³	Public	300 ⁴	9.0
Chennai	0.83	India	1	Private	1151	13.4
Port Qasim	0.58	Pakistan	1	Private	22 – 24 ³	11.5
Tuticorin	0.32	India	1	Private	903	10.7
Mundra	0.25	India	1	Private	n.a.	16.0
Cochin	0.20	India	1	Private	300	10.0
Kolkata	0.20	India	1	Public	191	6.0
Mumbai	0.16	India	1	Public	320	9.1
Kandla	0.15	India	1	Public	378	11.5
Haldia	0.11	India	1	Public	198	8.0

¹ Containers, on geared vessels are also handled by private stevedores at the general berths

² Container moves/crane hour

³ Construction of a new terminal has been completed; it will be concessioned to the private sector

⁴ Productivity was only 207 TEU/ship day in FY2001

The main container terminals in both India and Pakistan are, with one exception (JNPT at Nhava Sheva), privately managed. The public sector Port Trust container terminals operate at substantially lower levels of productivity¹⁶. It is now generally accepted that future terminal development will be largely financed and managed by the private sector. Public sector funding will be confined to common port facilities, such as ensuring adequate berth and channel depths.

41. The ports in the Bay of Bengal have low levels of productivity. These result from a combination of factors: smaller vessels; smaller consignments; public sector management; and, less productive equipment. Chittagong, Bangladesh's main port, is probably the world's least productive container port handling such numbers of containers. The recent major procurement of specialized container equipment may help raise productivity but the port also needs major and sustained changes in management, systems and incentives.

42. Efficient container facilities are critical for the exports of garments, textiles and other higher value goods. India and Pakistan¹⁷ have container terminals which, while not matching terminals such as Singapore or Tanjung Pelepas, provide broadly international levels of productivity, Table 16.

¹⁵ There also some relatively new dedicated container terminals, privately operated, which have yet to generate traffic of 100,000 TEU/year, e.g. Pipavav and Vizag; Hazira container terminal has yet to start.

¹⁶ The lower level of public sector terminal productivity is also reflected at Nava Sheva where the public sector terminal's (JNPT) productivity has been a third less than the privately managed terminal (NSICT).

¹⁷ A new deep sea port at Gwadar has recently been constructed in Pakistan but traffic has yet to develop.

Table 16 International Container Terminals: Productivity

	Berth Occupancy	SSG moves hour	Annual Productivity TEU/m	TEU/SSG
NSICT	{ 87%	25	2,267	170,000
JNPT		19	1,926	164,000
Chennai	46%	22	937	118,000
KICT	{ 40%	27	942	141,000
PICT		25	534	64,000
QICT	50%	25	967	83,000
Shanghai	74%	29	2,010	207,000
Leam Chabang	48%	34	2,016	184,000
Rotterdam	48%	26	1,174	163,000
Algeciras	58%	30	1,574	205,000
Los Angeles	n.a.	28	1,190	142,000
New York	51%	25	836	102,000
Yokohama	27%	47	799	120,000

Nhava Sheva has very high levels of annual productivity, reflecting very high berth occupancy, indeed NSICT operated for several months at 100 percent berth occupancy. Such high rates reduce overall terminal efficiency and indicate the urgent need for additional capacity.

43. While handling speeds, at many South Asian ports, are at international levels, average container dwell times remain well above international norms. Customs clearance is generally

no longer the major source of delay, although poor documentation may delay some containers for extended periods. The long dwell times appear the result of: long free storage periods at some ports; inadequate transport capacity to move containers to inland container depots (ICD) for clearance; and, the lack of direct delivery from the berths. In addition, some traders will keep their containers in the ports until the contents are sold, only then clearing them. Unfortunately, long dwell times can have significant economic costs: congested stacking yards feed through to reduced terminal productivity and thus the need for additional investment.

3.2.2 Non-Container Traffic

44. Container traffic has been expanding very rapidly but the great majority of trade continues to be low value, particularly fuels and minerals, handled by bulk shipping. There is some residual break-bulk general cargo, such as steel, which is important at a few ports.

Bulk Shipping Services

45. The size and type of vessel used in the bulk trades depend upon the type of traffic and the draft available. Draft does not appear to be a crucial constraint in either India or Pakistan. Given the distance to the Gulf, most oil is carried in Panamax vessels and bulk exports, like iron ore from India, can be loaded in very large vessels at some of the ports. However, Pakistan importers of coal, iron ore and petroleum report that they would like to use larger vessels. There may also be advantage in providing deeper draft at India ports handling coal imports as very large vessels could significantly reduce the landed cost of coal. More serious problems are faced in the Bay of Bengal where large bulk ships are, in some cases, moored offshore and cargo transhipped to smaller vessels for delivery.

46. With the partial exception of public sector imports, shippers or consignees make their own arrangements using either chartered ships or, in some cases, their own vessels. The rates are those available on the world market and, as bulk ships do not face significant bottlenecks in the main ports (other than in Bangladesh), there are no freight penalties for slow ship turnaround times. Bulk charter rates have been high for the last two years, as a result of the very high demand for shipping to China but, over the longer term, the world market rates have been declining as vessel size has increased.

Non-Container Port Services

47. The South Asian ports handling more than 10 million tonnes of non-container traffic are shown in Table 17.

Table 17 South Asia Ports: Non-Container Traffic
(million tonnes)

		POL ¹	Dry Cargo + Non-POL Oils			Total
			B/Bulk	Bulk	Total	
Vizag	India	15	2	33	35	50
Kandla	India	22	4	13	17	39
Haldia	India	17	1	17	18	34
Chennai	India	11	1	22	23	34
New Mangalore	India	21	1	11	12	34
Mumbai	India	19	7	6	13	33
Mormagao	India	1	*	30	30	31
Paradip	India	1	*	29	29	30
Karachi	Pakistan	11	4	7	11	21
Chittagong	Bangladesh	4	n.a	n.a	15	18
Port Qasim	Pakistan	6	1	7	8	14
Tuticorin	India	1	2	10	12	13
Cochin	India	10	*	1	2	12

¹ Petroleum, oils and lubricants * <500,000 tonnes

Non-container traffics are largely handled by the public sector port trusts. Private bulk terminals have been developed in Port Qasim and there are a few private ports in India that handle non-container traffic, e.g., Hazira, Mundra and Pipavav, but the traffic has yet to develop substantially. In Karachi, private stevedoring companies work on the berths and plans are being developed for private bulk terminals, as part of Karachi's transformation into a landlord port. Elsewhere, the port trust system remains largely unchanged with public sector employees organized and supervised by public sector management.

48. Most bulk cargo is handled mechanically; approximately 60 percent, in Indian ports, with grain and fertilizer being the major exceptions. Cargo handling speeds are adequate to turn round ships quickly with no significant queuing time and the vessel charter terms are broadly the same as for the region's major competitors. The exception is Chittagong: productivity has increased by 60 percent but, for non-containerized cargo, remains at about 1,500 tonnes/day.

49. Break-bulk traffic has declined enormously with containerization but remains important at some ports (such as Mumbai) and for some industries (such as steel for automotives). High productivity can be achieved for bulk cargo, even at port trusts, as handling is mechanized or partly mechanized. Break bulk handling is labor intensive and the over-manning and restrictive practices at the public sector ports have their greatest impact. At Karachi, break bulk is handled largely by private stevedores who achieve 2,500 tonnes/day significantly above the rates achieved in Chennai or Mumbai.

3.2.3 Improving Maritime Services and Reducing Costs

50. Shipping services are provided within a competitive international market. Governments may have little direct control but they can exert a pervasive influence by establishing the enabling environment for low cost, fast and efficient maritime services. Governments need to act to ensure:

51. *Adequate port capacity*: Port capacity, especially for containers, is perpetually in danger of lagging behind demand, resulting in congestion, poor services and surcharges. New terminals are being opened and others are in the planning process (Karachi, Chennai, Nhava Sheva, etc), but the demand is increasing rapidly and the lead time between the decision to create new terminals and their opening needs to be shortened. Nhava Sheva was operating at full capacity by 2003; this had been forecast, but the third terminal only started operating in 2006.

52. *International level productivity*: Productivity is the key to reduced ship turnaround time, increased predictability, and lower freight rates. It may also result in higher level container services; for some ports, this may mean direct services, in Chittagong, it might mean timetabled services. While several terminals have broadly international levels of productivity, they are not near the top of the league. The most major improvements can be achieved by.

- Reducing container dwell times and thus congestion in the stacking yards. Dwell times have been reduced but they still remain well above “best practice”. A combination of actions may be needed: further streamlining of port, customs, and trade procedures, direct delivery from the berths, reduced free dwell time and rapidly escalating storage charges.
- Improving inland transport. Inland transport inadequacies are a serious issue at many ports, including Nhava Sheva, the Karachi ports and Chittagong. They may increase dwell times, the use of road rather than rail and/or high levels of container stripping at the port.

53. *Adequate port draft*: The size of the largest container vessels has increased to 10,000 TEU and the present mainline vessels of 5 – 6,000 TEU will cascade to other routes. The average size of ship serving South Asia has risen substantially and, as traffic increases, shipping lines will want to deploy even larger ships. The major container ports have limited draft (Karachi 10.5 meters, Port Qasim 11.5 meters, Nhava Sheva 12 meters at restricted times) and, to allow the next phase of container shipping, drafts need rapidly to be deepened to 13.5 or even 14.5 meters¹⁸. Ports with limited drafts may lose their competitive position and be relegated to feeder port status. Deeper port drafts would also benefit some bulk commodity users.

54. *Lower port vessel dues*: Charges on vessels are very high in comparison with ports in the Middle East and East Asia, Table 18.

Table 18 Port Dues/Vessel Call
(US\$ per 2,800 TEU vessel)

Port	Port Dues
Karachi, Port Qasim	30,000
Nhava Sheva	26,000
Yantian	14,000
Singapore/Hong Kong	6,000
Colombo	5,500
Jebel Ali	3,100
Salalah	2,100

Source: a major shipping line

The high charges deter ships from making additional calls, particularly for relatively low volumes of containers and they feed through to the users in higher freight rates. Overall economic policies may be better served by lower port profits and lower shipping freight rates.

55. *Lower port costs and cargo charges*: Port cargo charges are comparable with other major ports for both bulk and container traffics. Many handling rates for bulk cargo are negotiated and are in line with or perhaps rather lower than international rates. For example, at Karachi, the rates are US\$ 4 – 6/tonnes and this often includes

additional services such as bagging on the quayside and re-handling or stacking. For containers, handling charges in major Indian ports are low, relative to international levels, while those in Pakistan terminals are average or slightly above average, Table 19.

¹⁸ Whether drafts need to be increased to the 16 meters required for the largest container vessels is a much more problematic question.

Table 19 Indicative Container Handling Charges

	US\$/TEU		US\$/TEU
Port Kelang, Malaysia	53	<i>India (Nhava Sheva and others)</i>	80-90 (a)
Felixstowe	100	Yantian	100
Singapore	106	<i>Port Qasim</i>	105
Shanghai	107	Rotterdam	110
<i>Karachi</i>	113 (b)	Hong Kong	142
<i>Sri Lanka</i>	159 (c)	<i>Bangladesh</i>	200 (d)

(a) Charges at the Port Trust operated ports may be significantly higher

(b) Handling charges at the general cargo berths are up to US\$ 30 lower

(c) National imports and exports. Revenues from transshipment average only \$58/TEU

(d) Including unofficial (speed money) and ancillary costs

The charges/costs at Chittagong are extremely high by international standards although ports, in some other developing countries, charge similarly high levels. The overall port and inland terminal costs of trade formed part of the analysis of Doing Business 2008 and the high costs in Bangladesh remain very evident, Table 20.

Table 20 Port and Terminal Costs

	US\$/TEU	
	Exports	Imports
Bangladesh	420	585
India	150	200
Pakistan	115	239
Sri Lanka	155	245

Source: Doing Business 2008

56. While port charges may be reasonable, they could be reduced with lower port costs. In general, this will require reduced labor costs by eliminating such practices as the Karachi Dock Labour Board and the continuing over-staffing at most port trusts. Mumbai still employs 22,000 workers, despite a large part of its traffic moving to Nhava Sheva, and they account for almost 75 percent of port costs (excluding depreciation); the situation is similar at Chennai.

Substantial cost reductions may also be achieved by restructuring and greater private sector management. Unfortunately, there is often little pressure to contain or reduce costs. The Tariff Authority for Major Ports, in India, uses a cost-plus, rate of return form of tariff regulation, high labor costs can thus be passed to the port user.

57. *Professional and focused commercial port management:* While the private terminal operators employ professional port management, this is often not the case for Port Trusts. The senior management of many Port Trusts comes from outside the sector: in Pakistan, active and retired naval officers and, in India, officers of the Indian Administrative Service. Neither source guarantees the commercial, marketing and operational skills necessary in an increasingly competitive environment. It may also be desirable to limit port management to port activities. Many of the older ports have inherited very substantial landholdings; for instance, in Karachi, Kolkata and Mumbai. The land generates large revenues for the port and often has very considerable development potential. It is not clear why ports should benefit from such land revenues or whether ports are the most appropriate entity for land management and development. It may be much more efficient to hive off the non-operational landholdings, and allow port managements to focus entirely on managing the ports.

58. *Removal of residual protection from national fleets:* South Asian trade is carried very largely on foreign registered vessels. The role of the South Asian national fleets has become very limited

- o India: the percentage of trade carried in Indian ships has fallen from 36 percent in the mid-1980s to about 13 percent.
- o Pakistan: the private sector fleet has virtually disappeared and the Pakistan National Shipping Corporation (PNSC) has declined from 71 vessels (1970) to 14 vessels (2006).
- o Bangladesh: the state owned shipping line (BSC) carries about 5.5 percent and the total national fleet perhaps 7 – 8 percent of Bangladesh's sea trade.

The national fleets have little container capacity and most vessels are tankers or bulk carriers.

59. The UNCTAD 44:40:20 formula for liner shipping is no longer mentioned, except in Bangladesh where it remains official, but not implemented, policy. However, some protection of national shipping remains. For coastal shipping in India, a shipper must give first refusal to the members of the Indian Shipowners Association, though their rate has to match that offered by the foreign line. Both India and Pakistan provide reservation protection for cargo imported by the public sector, though the system appears to be weakening somewhat. In Pakistan, the Government gave PNSC a ten year monopoly to import crude oil, despite PNSC owning only one tanker¹⁹.

60. Such protection is a very inefficient way of promoting national participation. Excluding foreign ships from cabotage may deter new container services, based on transshipment. Much greater success may be achieved by a more attractive tax regime. The shift to a tonnage tax may be responsible for the recent increase in the Indian fleet to 8 million gross tonnes with most of the major Indian ship-owners buying new ships or “quality” second hand vessels, despite high prices in the world market. Revival of the Pakistan national private fleet may be more of a problem, given the mistrust generated in the 1990s by the abrupt reversal in tax policies.

61. In the light of present conditions, it is difficult to see a continuing rationale for public ownership of shipping. The private sector, whether local or foreign, can provide cheap and efficient services. Governments could facilitate maritime services far more effectively by improving the enabling environment rather than by direct participation.

3.3 Highways and Truck Transport

62. Road transport is the primary transport mode in South Asia, as it is throughout the world. Truck transport dominates not just short distance movements but almost all market segments. Overall, road transport accounts for about 95 percent of total ton-kms in Pakistan, 70 percent in India and 60 percent in Bangladesh²⁰. Land transport is much more costly than ocean transport and transport costs within South Asia normally account for a very significant proportion of the total trade-transport cost. The cost and quality of trucking services are heavily influenced by the quality of the highway network.

3.3.1 South Asia's Highway Network

Present Status

63. India and Pakistan have extensive road networks, mostly paved, with high levels of motorized access. Bangladesh also has an extensive network but much less is paved and the level of all-weather access is substantially lower. The more mountainous countries (Afghanistan, Bhutan and Nepal) have less dense networks and much lower motorized access. The major problems are less the size and coverage of the networks, and more their quality and capacity in the face of rapidly growing traffic. India and Pakistan only began to invest in major inter-urban highways during the mid-1990s and progress has been slow. Even now, most of the network remains one lane (3.5 meter) or intermediate (5.5 meter) width with poor pavement condition, slow speeds and long travel times.

64. Pakistan expects to complete the multi-lane highway from Peshawar to Karachi in FY2008 and India's four laning of the Golden Quadrilateral (connecting Delhi, Kolkata, Chennai and Mumbai) is now approaching completion. There are still less than 10,000 km of multi-lane highways in South Asia, and many are existing roads widened to four lanes without substantially improved alignment or access

¹⁹ In 2005, PNSC rates were reportedly US\$10.3/tonne, well above single voyage charter rates, which were in the US\$ 5 – 6/tonne range. With high profits, PNSC has bought new tankers from retained earnings

²⁰ Inland water transport remains important for low value bulk cargo accounting for about 35 percent of ton-kms

control²¹. Bangladesh is addressing critical bottlenecks on its network, including four lane sections on the Dhaka – Chittagong route, but not yet moving to a high speed, high capacity network.

65. In terms of the total network, the achievements have been limited and the region is still far from having a modern, high speed inter-urban highway network. However, the improvements have already had a marked impact on some of the trade corridors. Average truck trip times between Delhi and Mumbai, for example, have fallen from 5/6 days to 2/3 days. Long truck transit times do not just reflect road conditions, however, they also reflect the type of truck, gross overloading and numerous check posts.

Priorities and Constraints

66. India and Pakistan are now according high priority to road infrastructure and have developed plans for the major expansion of their primary highway networks.

- India's National Highway Development Plan includes 10,000 km of four lane, 6,500 km of six lane and 1,000 km of expressways, at a total cost of US\$50 billion, a very marked increase in highway investment.
- Pakistan plans a major investment program, totaling Rs. 216 billion (≈US\$ 3.6 billion) on the North-South corridor as part of the National Trade Corridor Improvement Program (NTCIP). The motorway network will be extended and additional capacity provided.
- Bangladesh envisages substantial investment, but perhaps not the radical transformation envisaged in India and Pakistan.
- The other countries face perhaps less severe capacity constraints on their main inter-urban networks, though Nepal is planning a “fast track” route to provide an improved link between Kathmandu and the Indian border.

While high priority is being given to highways in India and Pakistan, there are major constraints to overcome if the objectives are to be achieved:

67. *Finance:* To provide high capacity highways along their major trade corridors, investment will have to be increased substantially but public finances are already seriously constrained. The International Financial Institutions (IFIs) and bilateral donors (particularly Japan) will provide funding but the levels are likely to be small relative to the need, especially in India, and other sources of funding will be needed. GOI and, to a lesser extent GOP, see the private sector as the key but it is not clear whether private capital can be the solution. China strongly encouraged such funding in its massive highway expansion program but <10 percent of the funding came from private sources. India has a more developed capital market than China but, on the basis of international experience, it may be optimistic to expect that more than 15 – 20 percent of financing will be generated from the private sector. Generating the remaining funding is a critical issue.

68. *Construction Capacity:* India and Pakistan already face difficulties in constructing highways with existing investments. Their road construction industries have expanded and adopted more modern technology but their scale is small relative to the proposed programs. The increased demand should attract foreign firms but this has not happened to any significant extent. A number of country and sector specific factors may explain this lack of interest:

- *A perception of rather xenophobic business and taxation environments;* possibly a contributory factor but all the major port management companies now operate in the region
- *Security concerns:* again perhaps a contributory factor, but foreign contractors are willing to work in areas with significantly worse security conditions;

²¹ This may be compared with highway development in China, where 50,000km of multi-lane road were constructed, including 25,000km of expressway, in a ten year period.

- *Low contract prices and low profit expectations:* foreign contractors do not fully understand the business parameters of the construction sector in South Asia;
- *Dispersed activity:* road construction extends over many kms, significantly adding to the complexity of control and thus management risk;
- *Poor reputation of the sector:* road construction and related activities have the reputation of being infiltrated with local mafias and/or local political interests.
- *Dependence on government for payment:* governments have a poor reputation with regard to payments and dispute resolution is almost always very lengthy and thus expensive.

The expanded highway programs will have to be undertaken very largely by domestic contractors. Whether/how they will meet these demands efficiently and cost-effectively is a major question.

69. *Management Capacity:* Planning and management in the highway sector may be improving but remains weak and, unless strengthened, may be overwhelmed by the increased highway development. Procedures are cumbersome and delays lengthy. There is a reluctance to commit the resources necessary for planning and design, and poor quality designs are almost universal, leading to delays, redesigns and much higher outturn costs²². The profession faces too much work chasing too few well qualified and experienced engineers. The cost of professional services should rise and attract outside expertise but the prices remain the same and the quality declines.

70. *Overall Assessment:* Inadequate highways could severely restrict economic growth; a threat as serious as the shortage of power. Expanded highway programs have been announced but it is not certain that the severity of the constraints to their implementation is yet fully appreciated. Addressing the constraints of financing, management and construction of the highway programs should have the highest government priority.

3.3.2 *Trucking*

Present Industry Structure

71. The industry is dominated by very small operators, owning one or two trucks. This is not unusual, it is the case in most deregulated or unregulated markets²³. Most trucking industries have a large number of small operators, a moderate number of medium-scale operators and a few large operators. In South Asia, there are few medium sized operators and very few large operators. In India, for example, less than 10 percent of enterprises have more than 15 trucks. In Pakistan, firms carrying bonded cargo must have a fleet of more than 25 vehicles; only about six companies are now active. Large firms, with more than 100 trucks, are extremely rare²⁴ but their number is growing.

72. In the very long distance trucking market, the larger companies play a more significant role. Most small operators confine their activities to relatively short-hauls, especially agricultural traffic and, when working longer routes, often act as sub-contractors to larger companies. The largest operational fleets in India may have >1000 trucks but up to 80 percent of these trucks will be hired-in from owner operators as their costs are lower.

73. In most parts of the world, long distance road freight is carried by multi-axle tractor/semi-trailers. These vehicles are expensive but their high capacity and intensive utilization keep the unit costs low. Until relatively recently, the trucking industries in South Asia were dominated by two axle rigid trucks. These remain predominant in Bangladesh; there are <1000 trucks capable of hauling 40ft containers. In India and Pakistan, three axle trucks have become much more common, and the multi-axle semi-

²² Poor designs may benefit almost all parties, providing the opportunity for additional formal and informal payments. Only the taxpayer and the road user suffer.

²³ The average size of trucking enterprises in the EU is only 3.9 employees.

²⁴ Pakistan has only one very large enterprise, the public sector National Logistics Cell with >1300 trucks.

trailer is now entering the market in greater numbers. The shift to multi-axle vehicles is more advanced in Pakistan but increasing numbers are being sold in India, though they are still a small proportion of total vehicle sales, Table 21.

Table 21 India: Sales of Commercial Freight Vehicles

Truck Type	Capacity Tons	-----Sales-----		Growth 2005/2006
		2005	2006	
Two axle rigid	8 – 16	91,700	99,100	8%
Three axle rigid	25 – 26	68,900	111,700	62%
Multi-axle trailer	30 – 49	10,800	22,300	107%

The trend to larger vehicles will increase with the growth in higher value/higher volume commodities and the modernization of the highway network which will allow higher speeds and vehicle utilization.

Source: Indian Foundation of Transport and Research Training

Road Freight Services

74. Trucking rates in India and Pakistan are among the lowest in the world, Table 22.

Table 22 Road Freight Rates: 2002

Country	US\$/tonne-km
Pakistan	1.5 – 2.1
India	1.9 – 2.7
Brazil	2.5 – 4.8
USA	2.5 – 5.0
Central Asian Republics	3.5 – 8.5
Australia	3.6
China	4.0 – 6.0
Bangladesh	5.5

For very long distance movements of bulk commodities, the rates can be even lower²⁵. Rates are higher for containers but in Pakistan, for example, they were only about US\$2 ton-km. Rates in Bangladesh are higher because of the much shorter haul distances.

75. The low rates are the result of: (a) highly competitive markets; (b) low capital costs; (c) low crew costs; (d) relatively low fuel prices; (e) relatively high vehicle utilization with little empty running; (f) no effective regulation; and, most importantly, (f) massive overloading. The rates may be very low, but the overall economic and social costs are much higher (road damage, impact on other road users, and adverse road safety).

76. The very low freight rates are matched by low quality – long transit times, unpredictable delivery, no cargo insurance, etc. Trucks can carry the large overloads because they are specially modified and are driven very slowly, even on good roads. In general, users obtain the service that they want; low cost rather than high quality. The market is changing as the economies become more diversified. In India, large shippers are shifting away from transport agents and the spot market to longer term contracts with transport companies, incorporating performance standards and penalties. A similar pattern is happening in Pakistan: the normal terms for the delivery of a container from Lahore to the Karachi ports are 48 hours at a rate of US\$280/FEU, but a premium service is available with delivery in 28 hours (three drivers) at a rate of US\$417/FEU.

Raising the Performance of the Trucking Sector

77. Trucking is a highly competitive service industry and it can be argued that it provides the level, type and quality of services that its customers demand. In general, the freight carried is low value and the retail/distribution industries do not require sophisticated trucking and logistics services. Where higher quality is demanded, arrangements are made to provide such services.

78. As the economies develop and move into higher value products, with higher volume/weight ratios, and more complex production and retail systems, the trucking sector will respond. Such responses may include different configurations of truck type and size as well as larger firms taking advantage of economies of scale in more complex distribution. Under this line of reasoning, little

²⁵ Rates for bagged cargo on very long distance hauls in Pakistan can be below US\$ 1/ton-km.

outside action is necessary as the industry will itself take the initiative as/when required by its customers. However, there are actions that can/should be taken to (i) improve efficiency and reduce distortions; (ii) reduce the level of external economic and social costs; and (iii) remove important barriers to change in the industry.

79. *Control of overloading*: The effective enforcement of appropriate axle and vehicle weight regulations would undoubtedly have profound impacts. There is little incentive for truck owners to re-equip with multi-axle vehicles, if 30 ton loads can be carried on three axle trucks which cost little to run but cause major economic and social damage. Lower payloads on existing vehicles would reduce road damage, increase speeds, improve braking efficiency and make trucks less unstable. Freight rates would increase, in the short-term, as an effective subsidy would have been withdrawn, but would be progressively reduced with larger vehicles, higher speeds and increased vehicle utilization. The control of overloading is the key to facilitating change and experience elsewhere suggests that truckers respond rapidly. Unfortunately, the effective implementation of axle-load and vehicle weight regulations has proved extremely difficult/impossible in most developing countries.

80. *Revising vehicle license fees*: User charges should reflect, at least, the road damage and other social costs caused; studies suggest that trucks are undercharged in South Asia. Fuel taxes are the main form of user charging but they are rather imprecise and are normally supplemented by license fees. These should be revised to reflect differential damage which would give a further incentive for truckers to move to trucks with more axles. Higher user charge revenue could help finance the highways.

81. *Removal of protection from truck manufacturers*: Domestic manufacturers are protected by high tariffs and local content requirements. Reducing these barriers would increase competition and give incentives to manufacturers to upgrade their technology. Modern articulated trucks are expensive and are often unaffordable for small truckers. Their ownership route for such trucks is often through secondhand vehicles and there is a world trade in such vehicles. This avenue to ownership is often not possible in South Asia as such imports are effectively banned.

82. *Improved highway infrastructure*: Modern, high capacity trucks have their greatest impact if they can operate on modern highways allowing rapid trip times and high vehicle utilization. Their potential is significantly diminished on congested roads catering to both motorized and non-motorized transport. Modern trucks operating on modern highways, without unnecessary checkpost delays, should reduce the Mumbai – Delhi transit time from the present 48 – 72 hours to 24 – 36 hours.

83. *Reduction in checkposts*: A reduction in checkposts and simplification of documentation would reduce delays and improve service reliability. If such checks are required, they should be single multi-agency posts with aligned and coordinated documentation. Unfortunately, agency interests militate against such simple solutions.

84. *Modern trucking terminals*: More cities are restricting the entry of heavy vehicles, imposing constraints to truck operations. Modern terminals outside the urban areas would provide waiting areas, facilities for the agents/brokers, and amenities for truck drivers and assistants, including health and education facilities in this age of HIV/AIDS.

85. *Carrier registration*: There are presently no attempts to ensure that trucking enterprises meet and maintain standards of financial, managerial or safety competence though agents/brokers provide some implicit but informal guarantee. A voluntary registration scheme, for carriers meeting specified standards, need not introduce barriers to entry but could differentiate and gradually modernize the sector especially if accompanied by cargo insurance and/or the proper insurance of vehicles.

3.4 Rail Transport

86. Though rail has lost a very considerable part of the freight market, it remains important in India and has the potential, throughout South Asia, to play a much greater role in trade-transport, especially for the movement of containers. Investment will be required, but this will need to be accompanied by far reaching changes in management and the business approach. Some changes are already underway but more will be required if rail is to compete successfully and increase freight traffic and earnings.

3.4.1 South Asian Railways

87. Pakistan Railways (PR) has more than double the route-km of Bangladesh Railways (BR); both are dwarfed by Indian Railways. However, the three railways share a number of features: they remain government departments; they have broad and meter gauges though PR is now almost entirely broad gauge and IR is progressively converting to broad gauge; a limited commercial network is expected to fund much larger non-commercial networks; and freight is expected to subsidise passengers.

88. There are also very major differences between the railways. IR is one of the world's largest networks and is reasonably productive; Bangladesh, on the other hand, is small and one of the least productive, Table 23.

	Unit	Bangladesh	China	India	Pakistan	Thailand
Route length	Kms	2,855	71,897	63,140	7,791	4,044
Traffic Units (T.U.)	Billion	4.9	2048	826	25.4	22.1
T.U./route-km	Million	1.9	28.5	12.9	3.3	6.1
T.U./wagon	Million	0.1	3.5	1.5	0.2	0.6
T.U./employee		138	1165	537	310	933
Passenger revenue ÷ freight revenue per traffic unit		0.26	1.40	0.38	0.40	0.70

IR is less than half as productive as Chinese Railways, and PR is a half/third as productive as Thai Railways, a network with similar traffic. The South Asian railways vary considerably with regard to their role and importance in the freight sector as well as to their performance and financial status. Passenger fares in South Asia remain very low, relative to freight rates.

Bangladesh Railways

89. BR's share of the freight market has declined to 7 percent. Freight operations are constrained by the age, type, condition and braking systems of the wagons which limit payloads and speeds; the average speed of BR freight trains is only 11/12 kph. However, container demand on the Chittagong – Dhaka link exceeds capacity and shippers have to wait 3 – 5 days for wagons. Such demand for a short haul (the road distance is about 220 kms) reflects the poor road conditions, the difficulty of moving uncleared containers by road, and faster/cheaper customs clearance at the Dhaka rail ICD. Capacity is constrained by the single track, the priority given to passenger trains, a lack of flat wagons and the limited space at the ICD.

90. If the operational performance of BR is poor, its financial position is worse. In FY2005, BR generated revenues of US\$64 million but had operating costs (excluding depreciation) of US\$99 million.

Indian Railways

91. IR's freight tonnage has increased consistently, though its share of the freight market has fallen. In the 1990s, IR abandoned wagon-load cargo to concentrate on train-load traffic. Bulk commodities account for 95 percent of traffic but containers have grown rapidly, from 700,000 TEU (FY1997) to over 1.9 million TEU (FY2006). Container traffic is managed by Concor, a public sector majority owned company, which until recently had the monopoly for the market. Concor is a major player on the key trade route, Mumbai to Delhi, but faces problems in meeting the demand, with too few wagons and too few train paths. With increasing freight and passenger traffic, track capacity has become a serious constraint on IR's main commercial routes.

92. IR's finances deteriorated during the late 1990s/early 2000s, with operating ratios approaching 100 percent and inadequate provisions for renewals. The situation has improved; freight traffic has increased rapidly (reflecting the growth in the economy), operational performance has improved and IR's financial position has had a rapid turnaround, helped by a more commercial approach to pricing. To expand container traffic, IR has licensed an additional 14 operators on the same "hook and haul" arrangement as it operates with Concor.

Pakistan Railways

93. PR failed to respond to a highly competitive trucking industry and its share of the freight market has fallen to about 4 percent. In effect, PR has become a medium sized passenger railway which also carries some freight. One of the basic limitations on the freight business, other than the lack of management and operational priority, has been the outdated, primarily four wheeler wagon fleet. Given the geographical distribution of population and economic activity, rail should play a significant role in the freight sector with long hauls, large traffic flows and relatively few major origins and destinations. The basic track infrastructure is capable of handling much higher freight flows with a 23 ton axle-load and maximum speed of 110 km/h. With some new high-speed flat wagons, PR operates a scheduled container service between Karachi and Lahore. Traffic increased from 8,000 TEU (FY2001) to 28,000 TEU (FY2005) but the potential is much higher; PR only carries 5 percent of the containers handled at the ports.

94. The railway performance deteriorated so much, in the 1990s, that government decided to privatize PR. Governments changed and privatization was dropped but there was a management and investment hiatus lasting several years. PR is not profitable; it cannot service its debts and is often unable to fund fully its operating costs and pension payments.

Afghanistan, Bhutan and Nepal

95. These countries have no domestic rail networks but both Afghanistan and Nepal have cross-border rail links, connecting with rail networks in neighbouring countries. During the Soviet-era, rail through the Soviet Union became Afghanistan's main trade route trade with Europe. The route remains but has yet to regain its former importance. The rail link from IR to the Birgunj ICD has improved Nepal's international trade-transport system significantly, though traffic has not reached its forecast levels. A rail link has been proposed from Spin Boldak (Kandahar Province, Afghanistan) to the PR network at Chaman. The feasibility of linking Bhutan to IR is being studied but the traffic may be too limited to justify major investment.

3.4.2 Increasing Rail's Role in Trade-Transport

96. The need to raise the profile of railways in the freight market has received attention throughout the region. Reform programs or new initiatives have been announced for all the railways, and major programs of investment proposed. Whether and to what extent the traditional and rather bureaucratic

management of the railways can respond and compete effectively remains a core issue. The success of some initiatives, as on IR, may provide the impetus necessary to make more far-reaching changes.

Bangladesh Railways

97. Despite its limited turnover, BR has a seven year development plan of over US\$900 million, with US\$430 million funding agreed by ADB and assistance likely from JBIC and the World Bank. The plan includes doubling the track between Dhaka and Chittagong, improved signaling, additional rolling stock and the construction of a much larger rail ICD in Dhaka. The 2015 targets are to increase freight traffic by 115 percent and raise BR's share of the container market to 26 percent.

98. To address management and operational performance, a reform program has been agreed with the objective of turning BR into a market oriented business organization with improved governance, financial management, human resources and operational systems. BR will remain within the public sector though there may be some increase in the role of the private sector. Funding for the investment program is linked to the achievement of reform milestones:

- *Within 12 months:* reorganization to a lines of business (LOB) approach completed; five year business plan for each LOB; architecture for new accounting/financial management systems
- *Within 24 months:* asset register completed; outsourcing/divestiture plan for non-core activities; financial management and accounting statements; internal pricing structure for LOB; mechanism for targeted PSO payments; and
- *Within 48 months:* outsourcing/divestiture completed; new tariff structure; BR legally established as a business corporation; safety and technical regulatory body established.

99. The reform program has been carefully designed but its success is uncertain, given the vested interests and resistance to change. It seems similar, in concept, to the programs attempted in many railways during the late 1980s/early 1990s; these failed and governments moved to concessioning. Establishing freight as a line of business should move BR toward a more commercial approach but may not give the container business the focus that it deserves. BR might perhaps emulate IR and create a Concor-type enterprise to manage the container business. This might be a logical first step in the commercialization of BR's freight operations though the licensing of private operators to manage container operations, on a "hook and haul" would perhaps have greater long term attraction.

Indian Railways

100. IR has the potential for major expansion in the freight sector especially now that IR has adopted a new business approach which emphasizes the participation of the private sector.

101. *New business model:* Private sector participation has been proposed in such areas as logistics centers, hotels, and locomotive and rolling stock manufacturing. Perhaps most important is the decision to introduce the private sector into the railway business. 15 companies have been licensed to run container trains and the new companies are reported to have placed orders for several thousand wagons. More recently, IR announced that it would license private operators to run air-conditioned commuter trains in Mumbai²⁶. Opening up the railway sector, in this fashion, is a major departure from the traditional approach and could be applied to other market segments, particularly general cargo. To compete successfully with road transport, IR should leave the private sector to manage and retail the freight services, confining its role to its basic strengths of managing the network and hauling the trains.

102. *Massive investment:* Achieving the potential in the freight sector will require major investment in additional track capacity and operating assets and a very commercial approach to the market. In a

²⁶ The private operator would provide the complete train, IR would only provide the driver. However, this decision appears to have been quickly reversed by IR.

recent presentation²⁷, IR estimated that its total investment funding needs for the period 2007 – 2012 would be Rs. 3,500 billion, about US\$78 billion, a fourfold increase compared with recent levels. The scale and timeframe for the program appear optimistic (50 percent larger than the National Highway Development Programme) as is the expectation of US\$33 billion from the private sector through PPPs. However, a major increase on previous investment may be expected, especially with the improvement in IR's own finances. Clearly, IR needs to carefully prioritize its investment program and one of the highest priorities may be the construction of the dedicated freight corridor along the Delhi – Mumbai route.

103. *Dedicated freight corridors*: The main commercial routes already face serious capacity constraints and additional freight will create further congestion leading to declining service standards. To provide the track capacity required, IR proposes to construct dedicated freight corridors (DFC). Initially proposed for Delhi - Mumbai and Delhi – Kolkata, the proposals have been extended to over 11,000 km, though the economic and financial feasibility of this network has yet to be demonstrated.

104. The DFC concept is very attractive, providing a transformation in freight capacity and the opportunity for a new level of service quality. The DFC can be designed for the traffic; between Delhi and Mumbai the emphasis may be transit speed, on other corridors, it may be very heavy axle-loads. However, the costs are high, US\$28 billion and, unless the DFCs generate new rail traffic or can be constructed in an incremental manner, the financing costs could endanger IR's overall finances. There is also a problem of providing short-term additional capacity. It will take at least five years to construct the DFC and the experience of major highway construction in India suggests that they may take much longer. Investment in signaling, less direct routing, and prioritized construction will be necessary, but some constrained freight capacity may be inevitable unless IR reduces the level of passenger train provision.

105. *Restructuring IR*: Some saw the development of the DFC as the opportunity to restructure the rail sector but GOI decided to maintain essentially the status quo. However, the implications of the DFC may still lead to change. The DFC will likely result in a small network of very profitable freight routes, and a much larger network of largely passenger routes. Some form of “lines of business” approach to the management of such a structure would appear to be the logical outcome. The DFC need separate accounts but may also be most effectively managed and operated outside the framework of the present zonal railways. Such a change may then allow a more fundamental review of how the railways are managed with separate businesses being created, and possibly the provision of more explicit and targeted subsidies for loss-making lines and services.

Pakistan Railways

106. There is the potential to increase PR's share of the long distance freight market, and the Prime Minister has made it plain that an efficient, volume freight business is fundamental to the development of both the National Trade Corridor and Pakistan Railways. To fulfill the potential will require a major change in PR's culture which presently gives total priority to the passenger service. Central to the change is increased management and commercial autonomy for the railways, in general, and for the freight business, in particular. To provide the level and quality of service required, the freight business needs to have separate management, scheduled track capacity, dedicated motive power and adequate wagon capacity.

107. A recent report on the Pakistan transport sector²⁸ set out an agenda for revitalizing the commercial role of PR. The agenda consists of a set of inter-related activities:

²⁷ Indian Railways: On the Fast Track

²⁸ Transport Competitiveness in Pakistan, World Bank Report No. 36523-PK, July 18, 2006

- *Creation of a focused railway enterprise*: non-core activities (factories, schools, hospitals, etc) and non-operational land should be transferred and managed separately;
- *Financial restructuring*: commercial lines of business accounting; the provision of targeted PSO subsidies; transfer of past debts and pension liabilities;
- *Institutional reorganization*: effective separation of the freight and passenger businesses, possibly through the creation of separate subsidiaries;
- *Cost reduction program*: closure of non-commercial lines/services; reduced staffing on lightly used lines; streamlined staffing; and more outsourcing;
- *Re-establishment of rail freight credibility*: concentration of PR on its core strengths and wholesaling rail services to the private sector to manage and operate; and,
- *Opening access to the private sector*: the new IR business model adopted by IR also offers opportunities in Pakistan, especially in container services.

Work is already being undertaken on the corporatization of PR and the introduction of commercial cost accounting, but the creation of effective freight and passenger business units will require top-level commitment.

108. Restructuring PR is necessary but not sufficient for a substantially greater freight role. It has to be accompanied by high speed bogie wagons and additional motive power. Additional capacity on the single track sections of the NTC will be required with the most immediate need being modern signaling, communications and train control. PR's draft business plan foresees a total investment need of Rs.100 billion (US\$1.7 billion) over for the period to FY2011, spread across the key areas of the railways operations and assets.

3.5 Air Transport

109. Approximately 1.2 million tonnes of South Asia's international trade is moved by air. India accounts for about 60 percent of the traffic, Pakistan rather more than 20 percent and Bangladesh rather more than 10 percent, Table 24.

Table 24 South Asia: Air Freight
(‘000 tonnes)

		1998	2000	2002	2004	2005	Growth
Bangladesh	Domestic	1	1	1	9	10	
	International	82	111	101	111	113	
	Total	83	112	102	120	123	5.8%
India	Domestic	109	133	147	188	229	
	International	488	532	561	693	823	
	Total	597	665	708	881	1052	8.6%
Nepal	Domestic	1	3	3	2	3	
	International	13	17	13	13	11	
	Total	14	20	16	15	14	0
Pakistan	Domestic	40	38	41	49	56	
	International	141	148	156	200	217	
	Total	181	186	197	249	273	5.6%
Total	Domestic	151	175	192	248	298	
	International	724	808	831	1017	1164	
	Total	875	983	1023	1265	1462	8.3%

Air cargo is a very small proportion of the international trade tonnage, 0.5-1.5 percent, but a rather higher proportion of its value (India's trade in precious stones and jewelry)²⁹. Almost throughout the region, there is an export imbalance in air freight (Nepal is the exception). The imbalance used to be much greater, but the liberalization of the Indian economy has led to a rapid growth in import freight.

110. Most of the freight capacity is provided by regular freighter services and the belly capacity of scheduled passenger services but additional capacity is often chartered during peak periods. India and Pakistan have direct air freight services to major export destinations but some traffic is routed through hubs in the Gulf/Middle East which are the main routing for Bangladesh's air freight. The share of cargo carried by air freighters has gradually increased but, even in India, it is now not much more than 50 percent.

111. In both India and Pakistan, domestic air cargo is quite substantial, reflecting the size of the countries and inadequate land transport for rapid deliveries. India, in particular, has a well developed network of express delivery companies, including both local and large international operators.

3.5.1 Air Freight Commodity Structure

112. The cost of air transport is very much higher than by sea, though transit times are much shorter; door-to-door total transport costs are five – ten times higher. The impact on export costs is substantial, Table 25.

Table 25 Logistics Costs: Fruit and Vegetables
(Indian Rs/kg)

Commodity:	Vegetables	Vegetables	Grapes
Destination:	Dubai	Europe	Europe
Transport:	Air	Air	Sea
Farm gate Price/kg	25.0	30.0	24.0
Inland transport	*	18.0	1.6
Packaging and testing	2.1	12.6	12.6
Port clearance	7.9	9.0	1.8
International transport	32.0	80.0	9.5
Delivered cost/kg	67.0	149.6	49.5
Logistics/CIF price	48%	72%	26%

* Negligible, production very close to airport

shipped by sea) or when there have been delays and rapid shipment is required to meet contracted delivery dates, as with garments. Most textiles and garments are shipped by sea (in the case of Bangladesh, >90 percent) but air exports are significant and growing. Air shipment is rarely at the request of the buyer; it is normally the seller's decision to avoid late delivery.

With sea transport, the delivered cost of grapes is about double the farm gate price; when air transport has to be used, the delivered cost can be 250 – 450 percent higher than the farm gate price.

113. Given its high costs, the use of air transport is confined to commodities and/or destinations for which sea is not a viable alternative. This is usually when sea transport takes too long, as with many fresh fruits and vegetables (grapes, onions and potatoes

have long shelf lives and can be

3.5.2 Air Transport Market

114. South Asia relies primarily upon foreign carriers. Even in Pakistan, which attracts relatively few foreign carriers, the state owned airline carries less than 40 percent of international air cargo. In India, with the rapid growth in foreign carrier passenger services, as well as foreign freighter services, the international cargo carried by Indian carriers (overwhelmingly Air India) has fallen to about 14 percent. Biman, the Bangladesh national carrier, offers the lowest freight rates to the Middle East but most exporters are prepared to pay a premium to use other carriers.

²⁹ Globally, air freight is about one percent of total international trade tonnage, but 35 – 40 percent of the total value of international trade

115. Air cargo freight rates are set by the market and depend upon the country and the level of competition. The increasing number of carriers serving India and the growth in passenger flights has raised freight capacity and led to quite intense competition for freight traffic. In 2004/5, freight rates of US\$2.5/kg were being quoted for European destinations. There was a report, early 2006, that air cargo capacity had increased by about 25 percent and new carriers were quoting freight rates 10 – 15 percent below established operators. Airfreight rates to Europe were then Rs75/kg – Rs.95/kg. The rates were most competitive on the routes with the greatest additional capacity, i.e. the London and the Far East sectors. Rates fluctuate with demand: in May, 2006, a sudden drop in outbound cargo led to rates on New York sector falling, Rs.140/kg → Rs.100/kg (min. 500 kg), and Gulf carriers offering Rs.60/kg to any point in Europe.

116. Air transit times for air cargo to/from Nepal differ little from the other countries in the region; via hubs in the Middle East delivery times are 2 – 4 days to Europe and 4 – 6 days to the USA. Freight rates are, however, significantly higher: US\$3.5/kg to Europe and US\$5.5/kg to New York. Air freight rates for Bangladesh and Pakistan are much closer to those from India but, with less competition, they are 15 – 30 percent higher than from Mumbai.

3.5.3 Increasing Air Transport's Contribution to Competitiveness

117. The recent experience of India suggests the appropriate policy direction. Essentially, the more carriers, the greater the freight capacity, the more intense the competition, and the lower the freight rates. Increasing passenger services will significantly increase air freight capacity as well as service frequency and reliability. Moving toward a more open skies regime has substantially benefited India and it seems a reasonable policy for other countries in the region. Protection of a national airline does not seem a cost-effective means of promoting either passenger or freight markets. More problematic would be if, with an open skies policy, foreign carriers were reluctant to provide services.

118. The other actions that can be taken to increase air transport's contribution to trade-transport competitiveness are very similar to those in the maritime sector, i.e. ensuring a conducive enabling environment through efficient, low cost terminal facilities. Efficiency in terms of facilities and rapid turnaround of the aircraft, and efficiency in terms of rapid and reliable handling of the cargo. As with the sea ports, the introduction of the private sector to both provide and manage the freight terminal facilities seems the way forward, especially when there are specialized requirements as for the export of perishable commodities. South Asia has yet to develop the sophisticated supply chains and facilities necessary for the export of high quality/high value horticultural produce. The public sector should not try to provide such facilities but should facilitate their provision by the private sector. Kenya, for example, is now a major international supplier of both flowers and horticultural products; growth really took off when the government ceased its involvement in the air cargo sector and allowed the private sector to arrange its own transport and develop its own facilities in and around the airport.