Technical Assistance Consultant's Report

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Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Transport Infrastructure and Logistics Study (BTILS)

FINAL REPORT

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Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
AH	–	Asian Highway
ASA	–	Air Service Agreements
ASEAN	–	Association of Southeast Asian Nations
ASYCUDA	–	Automated System for Customs Data
BACS	–	Bhutan Automated Customs System
BCX	–	Watertight covered high side bogie wagon used on Indian rail system
BFTA	–	BIMSTEC Free Trade Area
BG	–	Broad gauge
BIMSTEC	–	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BR	–	Bangladesh Railways
BTILS	–	BIMSTEC Transport Infrastructure and Logistics Study
BWG	–	BIMSTEC Working Group
B2B	–	Business-to-business
C&F	–	Clearing and forwarding (agent)
CFS	–	Container freight station
CONCOR	–	Container Corporation of India – operator of rail container services
Crore	–	10 million
DTI	–	Direct trader input
DWT	–	Deadweight tonnage as measure of size or cargo capacity of a ship
EDI	–	Electronic data interchange
FDI	–	Foreign direct investment
GDP	–	Gross domestic product
GMG	–	Bangladeshi private airline
GMS	–	Greater Mekong Subregion
IATA	–	International Air Transport Association
ICAO	–	International Civil Aviation Organization
ICD	–	Inland clearance depot
ICES	–	Indian Customs and Excise System
IRMP	–	Indian Railway Modernization Plan
IT	–	Information technology
JBIC	–	Japan Bank for International Cooperation
JIT	–	Just-in-Time (logistics)
JMBA	–	Jamuna Multipurpose Bridge Authority
JNPT	–	Jawaharlal Nehru Port Trust (Mumbai)
KBR	–	Kellogg Brown & Root Pty Ltd (the Consultant)
LCC	–	Low cost carrier (airline)
m	–	meters
MG	–	meter gauge
MKRD	–	Mekong Regional Department (merged into Southeast Asia Department within ADB HQ)
mppa	–	millions of passengers per annum
PCS	–	Port Community System
PDR	–	People’s Democratic Republic
PRC	–	Peoples Republic of China
RCSP	–	Regional Cooperation Strategy and Program
SAARC	–	South Asian Association for Regional Cooperation
SARD	–	South Asia Regional Department of the Asian Development Bank

SASEC	–	South Asia Subregional Economic Cooperation
SAOC	–	South Asia Country Coordination and Regional Cooperation Division, South Asia Department
SERD	–	Southeast Asia Department of the Asian Development Bank
SOM	–	Senior Officials' Meeting
SRT	–	State Railway of Thailand
STEOM	–	Senior Trade/Economic Officials' Meetings
SWOT	–	Strengths, weaknesses, opportunities, threats
TA	–	Technical assistance
TAC	–	Technical Advisory Committee (of the BTILS Study)
TEU	–	Twenty-foot equivalent unit (basic container measurement used in maritime transport)
THC	–	Terminal handling change
TOR	–	Terms of reference
TWG	–	Transport Working Group
UNCTAD	–	United Nations Conference on Trade and Development
UNESCAP	–	United Nations Economic and Social Commission for Asia and the Pacific
3PL	–	Third Party Logistics (provider)

NOTE

In this report, "$" refers to US dollars.

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EXECUTIVE SUMMARY

A. Introduction

1. In December 2005, the eighth Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Ministerial Meeting formally requested an Asian Development Bank (ADB) technical assistance (TA) study to undertake the BIMSTEC Transport Infrastructure and Logistics Study (BTILS). Following a Concept Paper in May 2006 and reconnaissance and fact-finding missions, the ADB approved the study in August 2006. This study is designed to help promote interregional integration by increasing trade and travel among the BIMSTEC countries and, more specifically, the expected outcomes contained in this report would assist in the overall enhancement of intraregional transport infrastructure, improve logistics and reduce transport time and costs.

2. The key objectives of the BIMSTEC Transport Infrastructure and Logistics Study were as follows:

- identification of the transport infrastructure and logistics bottlenecks in the BIMSTEC region and their root causes;
- identification of existing policies, strategies and development plans by various parties to address these physical and non-physical barriers;
- development of proposals for relevant and practical policies and strategies to eliminate or mitigate these identified constraints;
- identification of the roles that various organizations should or could have in promoting and implementing changes to the regional transport and logistics environment; and
- development of a proposed action plan for the phased introduction of enhanced logistics in response to the changing transport environment within BIMSTEC and in the global logistics marketplace.

3. The TA inception period commenced with the mobilization of the Consultant Team on 12 February 2007 and continued for a six-week period until 23 March 2007. The major focus of work undertaken during this inception period was on preparation of the study database on trade and transport and on planning of the study leading up to the first Technical Advisory Committee[1] (TAC) Meeting held in Bangkok on 20–21 March 2007.

4. The interim period commenced with the mobilization of the full Consultant Team in April 2007, followed shortly after by the country experts engaged by ADB to provide national-level support. The interim period was designed to address the first two components of the key objectives of the BIMSTEC Transport and Infrastructure and Logistics Study (BTILS). The Consultant Team traveled extensively throughout the BIMSTEC region in the period April–June 2007 to discuss the situation with line ministries and relevant organizations, as well as traveling to BIMSTEC gateways and along BIMSTEC corridors. More than 230 persons were interviewed from both the public and private sectors. Individual reports were prepared for the trade, road, rail, maritime, aviation, trade facilitation and logistics sectors. These were consolidated into the draft Interim Report submitted to ADB and the BIMSTEC Working Group (BWG) in mid August. A presentation on the Interim Report was made at the Regional Technical Workshop and the final Interim Report was issued in October 2007.

5. The final phase commenced in July 2007 with the Consultant Team remobilizing in Bangkok, Thailand to discuss the proposed policy framework and strategies in relation to their specific sectors. These were eventually consolidated into a draft policy framework and

[1] Technical Advisory Committee consists of Country Technical Advisors and the ADB TA Implementation Team and is chaired by the BIMSTEC Working Group chairperson, or a representative.

strategies paper which was issued to the Country Technical Advisors in early September, prior to the Regional Technical Workshop held on 18–19 September 2007 in Bangkok, Thailand. At this workshop, the Country Technical Advisors together with the ADB TA Implementation Team discussed the draft policy framework and strategies, and the results were presented to the second TAC meeting which was held on 29–30 November 2007 in Bangkok, Thailand to review and finalize the draft Final Report and its key outputs: the Policy Framework and Strategies, together with an implementation plan; and the Logistics Action Plan. The second TAC meeting endorsed the proposed policy framework and strategies, including the implementation structure, as part of the Final Report for submission to the BIMSTEC Working Group.

6. In addition, a logistics seminar was held on 21 November 2007 in Colombo, Sri Lanka to present the draft Logistics Action Plan and discuss how Colombo might be developed as a regional air/sea logistics hub. The main output was extensive publicity raising the profile of the hub's potential and proposals to form a steering committee to act as a future coordination body. The Consultant Team had previously presented development proposals at a logistics seminar held in July 2007 in Delhi organized by the Chartered Institute of Logistics.

B. Proposed Policy Framework

7. The proposed policy framework and strategies are intended for the guidance of BIMSTEC and its member countries by providing a broad spectrum of transport and logistics policy and strategy recommendations on collective regional issues affecting travel and trade within the BIMSTEC region. A major component of BTILS is the development of policies and strategies for correcting the weaknesses and eliminating the threats identified in the strengths, weaknesses, opportunities and threats (SWOT) analysis contained within the Interim Report. Therefore, the main objective of these policy framework and strategies is primarily to help formulate BIMSTEC policy and strategy in relation to specific transport and logistics issues, which are constraining trade or raising transport costs in the various parts of the region. It is not the intention to develop an overall transport policy or strategy for either BIMSTEC or the region as a whole or to propose national policies or strategies, other than in the specific interests of BIMSTEC and its goals of enhanced regional connectivity and development of intraregional trade.

8. This simplified framework was initially circulated in advance of the BTILS Regional Technical Workshop held in Bangkok, Thailand, on 18–19 September 2007 as the basis for discussion. At that workshop, detailed explanations were provided on each issue and the logic of the proposed policy framework and strategies, in the form of presentations and supporting paperwork. The workshop was not designed to approve the proposed policy framework and strategies, as that was the main function of the later second TAC meeting held on 29–30 November 2007 in Bangkok, Thailand. The workshop provided an opportunity for the TAC members to contribute to the formulation and development process by assisting the Consultant Team and the ADB TA Implementation Team in delivering practical and effective solutions to the transport and logistics problems of the BIMSTEC region. The second TAC meeting revisited the proposed policy framework and strategies, agreed on some further amendments and approved their submission as part of the BTILS Final Report to the BIMSTEC Working Group in January 2008. The detailed description of the policy framework and strategies to address those issues and an implementation schedule that represented the outputs from that meeting are contained within the main report. In this executive summary they are presented in simplified table form.

9. Table ES.1 shows the proposed BTILS Policy Framework and Strategies.

Table ES.1: Proposed BTILS Policy Framework and Strategies

Ref	Title	Issue	Policy	Strategy
ROAD				
1.1.1	Overall quality of road infrastructure	Many of the road links serving international passenger and freight movements within the region are inadequate for use by modern transport and constrain access.	All the key international roads on the BISMTEC corridors should be upgraded to a minimum of Asian Highway (AH) Class III, and progress as soon as possible to AH Class II, bridges strengthened to handle loaded articulated transport and high priority accorded to regular maintenance of primary routes.	BIMSTEC should identify all sections of road corridors that are less than AH Class II and draw up an agreed priority list of road sections to be upgraded or in need of rehabilitation. BIMSTEC should facilitate the formation of an inter-governmental Road Development Expert Group to coordinate implementation of the policy. All BIMSTEC corridors should be AH Class I or II by 2020.
1.1.2	Coordination of road development programs	Countries are developing their road policies and strategies based primarily on internal, rather than external connectivity, and there is sometimes poor communication between planning authorities either side of borders	BIMSTEC supports the development of a coordinated regional road development program that enhances the connectivity between member states in order to promote travel and trade by road.	BIMSTEC through the proposed Expert Group on Road Development should promote the formulation of a coordinated time-based road development program covering the main international routes and any key linkages with the core national road networks and persuade national governments in their national framework planning to prioritize intra-BIMSTEC connectivity.
1.1.3	Upgrading of border link roads	Border roads not designed for current border activities and traffic flow and are often unsuitable for modern transport vehicles.	BIMSTEC member states should upgrade the link road connectivity between their core national road network and the border crossings, so as to be able to handle modern transport and to facilitate bilateral trade and passenger traffic.	BIMSTEC should promote the development of a progressive upgrading program of key border link roads between the crossings and the national road network BIMSTEC through its Expert Group on Road Development, which should prepare a priority list on a multilateral basis, particularly identifying missing links.

Ref	Title	Issue	Policy	Strategy
1.1.3	(continued)		Bottlenecks caused by transits through urban and rural settlements on these primary BIMSTEC routes should be eliminated by a combination of construction of bypasses and implementation of enhanced traffic management.	
		An addition problem is the intrusion of local retail and pedestrian activities onto main roads passing through rural and urban settlements causing delays, congestion and accidents.	All border roads on the AH network should have the designated AH road signage by late 2011. Other border roads should include the other country in their signage.	BIMSTEC should promote the development of a phased program to address the problems of bottlenecks on key border link roads identifying key congestion points and potential solutions to rectify the situation. This could be addressed by the adoption of two strategies depending on the amount of 'through' traffic. Firstly, by the construction of more purpose-built limited access roads, such as bypasses, to separate the transit and access functions of the road network; and secondly, by the development of local road management plans for small towns and villages.
1.1.4	Missing links with Myanmar	Lack of road connections between Myanmar and its neighbors restricts trade and the development of a through transport corridor.	BIMSTEC supports the urgent development of road connections in Myanmar, particularly of the connecting roads to neighboring countries so as to effectively link the road networks of Bangladesh, India, Myanmar and Thailand as a future land bridge.	BIMSTEC should promote the development of border road connections in Myanmar and prioritizing such linkages and facilitating, either bilateral or multilateral, initiatives between Myanmar and its neighbors. This should include promotion of funding for such developments, possibly under other regional development initiatives, such as the India-Myanmar-Thailand transport initiative.

Ref	Title	Issue	Policy	Strategy
1.1.4	(continued)			BIMSTEC should promote complementary road improvements in India and Bangladesh by facilitating prioritization of these links within their national road development programs to correlate with scheduled improvements on the Myanmar side.
ROAD TRANSPORT				
1.2.1	Fleet modernization	Road transport fleets are characterized by old, poorly maintained, overloaded rigid vehicles with limited carrying capacity and relatively low efficiency. It is dominated by owner drivers and small operators who lack the resources to modernize the national fleet.	BIMSTEC supports national and regional measures designed to promote the introduction of modern road transport fleets with lower unit operating costs.	BIMSTEC should encourage member states to examine potential financial mechanisms and other incentives to promote fleet modernization and the purchase of new equipment. Consideration should also be given to possible changes in foreign direct investment regulations covering the road transport sector, wherever possible, to attract external investment and expertise. BIMSTEC should support member governments in their efforts to enforce of axle load limits on their national highways to ensure a ‘level playing field’ between the small operators, local cooperatives and the larger fleet operators.

Ref	Title	Issue	Policy	Strategy
1.2.2	Through transport agreements	The inability of road transporters to travel to neighboring countries is considered to be a trade restriction, directly increases transaction costs and constrains the potential to develop a competitive international road transport sector	BIMSTEC supports the development of transport agreements between member states permitting bilateral and through transport movements to be undertaken using the transport units of one of the member states to its neighbor.	BIMSTEC should support the development of road transit agreements between member states being progressed under the ADB-supported programs for South Asia Subregional Economic Cooperation (SASEC), South Asian Association for Regional Cooperation (SAARC) and the Greater Mekong Subregion (GMS) Cross-border Transport Agreement for implementation.
1.2.2		.	The ultimate goal is access by the freight transport vehicles of any BIMSTEC member on the roads of any other member state whilst engaged in an international transit.	BIMSTEC could act as a monitoring organization on implementation of these initiatives. A special BIMSTEC Expert Group on Transport Facilitation and Logistics should be created to deliberate on issues related to transport agreements, trade facilitation and logistics.
RAIL				
1.3.1	Change of gauge between BIMSTEC countries	Incompatibility of gauge in India, Bangladesh, Thailand and Myanmar mean that transshipment will be required when through rail links are developed. This increases costs, lowers the service levels and makes rail less competitive.	BIMSTEC supports the development of regional rail connectivity based on minimizing the incidence of gauge changes that result in expensive transshipment costs.	BIMSTEC should support the development of integrated regional rail strategies. BIMSTEC could act as a promoter of bilateral or even trilateral (including Myanmar) discussions on development of an integrated railway development strategy. Development options include building a new gauge changing facility near Tongi, consideration of a dual gauge link Agartala/Impal/Tamu and restoration of the broad gauge link between Chilahati and Haldibari.

Ref	Title	Issue	Policy	Strategy
1.3.1	(continued)			BIMSTEC should strengthen the Meeting of Chief Executives of Railways of BIMSTEC Countries to serve as a regional technical body to coordinate rail development and operations.
1.3.2	Connectivity to landlocked countries	There is no rail connection with Bhutan and only two links to Nepal. If rail connectivity could be further developed across the region, the landlocked countries would have greater access to lower cost rail services.	BIMSTEC supports the development of enhanced rail links to its landlocked countries to improve their overall rail connectivity and their potential to access a future rail land bridge	BIMSTEC supports the removal of restrictions on open wagons moving to the Birgunj inland clearance depot (ICD).
1.3.2			.	BIMSTEC supports the undertaking of feasibility studies being undertaken by Indian Railways to examine the development of connections to Bhutan and new links to Nepal. Consideration should also be given to the possible development of an ICD in the Siliguri/New Jalpaiguri area, which would then be accessible to truckers from Bhutan and West Nepal.
1.3.3	Capacity constraints on Bangladesh Railways	There are capacity constraints on Bangladesh Railways (BR), particularly between Tongi junction and Bhairab Bazaar. Unless addressed, these will reduce the ability of BR to fulfill its potential in handling international traffic.	BIMSTEC supports proposals to enhance the effective line capacity of Bangladesh Railways to enable it to carry more regional traffic and relieve some of the congestion at Chittagong Port.	BIMSTEC supports initiatives designed to increase effective capacity in a number of ways, all of which should be investigated. These include replacement of unbraked and vacuum wagon stock (trains made up of these wagons can only operate at slow speeds, significantly reducing line capacity), duplication of the Tongi–Bhairab Bazaar section (this is proposed with assistance from ADB) and construction of a new ‘chord line’ between Dhaka and Laksam.

Ref	Title	Issue	Policy	Strategy
1.3.4	Rail connections to Myanmar from India, Bangladesh and Thailand	There are currently no rail connections between Myanmar and its BIMSTEC neighbors.	BIMSTEC supports the development of rail connectivity between Myanmar and its neighbors (Bangladesh, India and Thailand) by the eventual construction of the missing links between their rail networks, in order to facilitate both bilateral and third country trade	BIMSTEC should promote longer term initiatives designed to develop the missing link between Jiribam in India to Kalay in Myanmar. Discussions could also be held with the People's Republic of China (PRC) Government to assess their interest in supporting such a rail link connecting India with China.
			.	BIMSTEC should promote the undertaking of a pre-feasibility study for the development of a direct rail route between Bangladesh and Myanmar to assess its potential viability.
				BIMSTEC should in the short term support the undertaking on a feasibility study on the development of Andaman Sea ports and in the medium term reassess the viability of the Three Pagoda Pass route in the context of regional rail connectivity.
1.3.5	Container service network	Rail services have great potential for the carriage of medium and long distance traffic between BIMSTEC countries, but this is not being realized because the current services are fragmented, irregular and uncoordinated. If a regular container express service could be established linking Bangladesh and India, it could provide lower cost and more reliable connections within the region.	BIMSTEC fully supports the development of regular direct passenger services between Kolkata and Dhaka and considers there may be scope to extend such an initiative to the freight sector based on scheduled services between strategic rail nodes.	The strategy should be to examine the provision of regular rail freight services in the eastern part of South Asia in support of intra-BIMSTEC trade. One approach could be the establishing of a container service network linking key regional nodes. The suggested nodes are Kolkata, Siliguri/New Jalpaiguri, Tongi (Dhirasram) and Chittagong. However, an assessment would need to be undertaken to determine the demand for such a service network.

Ref	Title	Issue	Policy	Strategy
MARITIME				
1.4.1	Draught restrictions	Ports in the northern part of the Bay of Bengal suffer from draught restrictions. This limits navigation and the size of vessels that can be accommodated at the key BIMSTEC ports of Chittagong, Haldia and Kolkata.	BIMSTEC supports proposed deep water port developments in the northern Bay of Bengal designed to increase the size of container vessels that can be accommodated.	BIMSTEC supports the acceleration of the construction of the proposed Diamond Harbor Container Terminal development project south of Haldia, provided that the Indian Government's Ministry of Shipping, Road Transport and Highways approves the development. BIMSTEC supports the proposed deep water port at Chittagong/Sonadia provided that the Government of Bangladesh approves the development. A BIMSTEC Expert Group on Maritime Transport should be created to deliberate on technical issues related to ports and shipping development and operations.
1.4.2	Capacity constraints at Colombo	Container traffic handled at Colombo in 2006 was 3.1 million TEU as against the capacity of 3.3 million TEU. This has resulted in a berth utilization of over 70% and a capacity utilization of 94% causing congestion and loss of performance.	BIMSTEC recognizes the importance of Colombo as a hub port for container services and supports expediting of developments to increase its capacity and performance.	BIMSTEC considers that the implementation of the South Harbour Extension Project of Colombo Port should be 'fast tracked' to bring additional capacity on stream as soon as possible, latest by end 2011. Consideration should be given to a phased investment program for the supply of additional specialized cargo handling equipment at the Jaya Container Terminal (JCT) and Unity Container Terminal (UCT).

Ref	Title	Issue	Policy	Strategy
1.4.3	Operational efficiency	Chittagong and Kolkata are not operating efficiently for various reasons resulting in congestion, delays and higher costs.	BIMSTEC recognizes the critical importance of Chittagong and Kolkata Ports both in terms of the handling of trade to and from Bangladesh and eastern India and their gateway function for third country trade to Bhutan and Nepal.	BIMSTEC supports the efforts of the Chittagong Port Trust, and the ADB Chittagong Port Efficiency Improvement Project to resolve the operational problems at the port.
			Therefore, BIMSTEC supports all possible efforts to modernize operations at both ports towards the goal of meeting international port performance benchmarks.	BIMSTEC supports any similar studies being undertaken at Kolkata Port to resolve its current poor performance and congestion problems.
1.4.4	Port interfaces	A modern port is a transit facility. This requires the efficient and rapid movements of cargo from the port towards the import customer, or from the exporter to the point of loading within the ports. At both Chittagong and Kolkata Ports the road connectivity is very congested, at Chittagong the rail link is also constrained and at Colombo there is no rail connection to the container terminals.	BIMSTEC recognizes the need for modern ports to act as transit facilities, servicing the inter-modal transfer between the maritime and surface transport modes. Therefore, it supports all ongoing initiatives that reduce congestion at the interface between the port, servicing the maritime mode, and the road and rail networks, servicing the surface transport modes	BIMSTEC supports the development of the Chittagong Port Access Road and any measures which can be initiated to address the rail constraints. BIMSTEC recognizes the specific road interface problems in Kolkata and supports the development of remedial measures. BIMSTEC supports the ongoing technical assistance in Colombo to enable containers to be handled by rail.
1.4.5	Port community systems	The lack of port community systems in the major BIMSTEC ports results in inefficiency, duplication, delays and directly raises transaction costs.	BIMSTEC supports the development of ‘port community-type’ information system (IT) systems at the region’s major container ports to increase efficiency and improve port facilitation.	BIMSTEC supports studies designed to introduce ‘community-type’ systems at Colombo, and possibly at Chennai, Chittagong and Kolkata. This would be in the form of technical and economic feasibility studies. A precondition would be the support of the Port Authority, Customs, container terminal operators and the local ‘port community’.

Ref	Title	Issue	Policy	Strategy
1.4.6	Andaman Sea ports	Both Thailand and Myanmar have initial proposals for development of deep water ports, which could result in duplication and viability concerns as there is insufficient traffic for all six proposed ports.	BIMSTEC supports the development of rail-served deep water ports on the Thai or Myanmar Andaman Sea coast that could reduce the cost and time of intra-BIMSTEC trade.	BIMSTEC should promote the commissioning of a feasibility study to assess the deep water port options and their potential viability in processing regional traffic. This should include not only the port infrastructure and facilities but also the potential road and rail connectivity with Thailand.
AVIATION				
1.5.1	Airport capacity	Demand for capacity on routes to and from BIMSTEC countries and the main Indian metro airports is constrained by the inadequacies in the airport infrastructure in India. This is mainly resulting from airside issues (lack of runway capacity, shortage or aircraft stands and gates). Peak hour services offered by the airport to passengers, airlines, cargo operators and shippers at these and some other BIMSTEC gateways is adversely affected by lack of terminal capacity	BIMSTEC gateway airports should provide sufficient capacity to meet projected future forecast passenger and cargo demand, so as to remove any capacity restrictions in air service agreements and improve the standards of service provided to stakeholders.	BIMSTEC should encourage and re-enforce the need for accelerated airport capacity enhancement programs at constrained airports, such as Delhi, Mumbai, Chennai, Kolkata, Phuket, Kathmandu and at airports which might be constrained in the near future, such as Suvarnabhumi. In planning, sufficient lead time should be allowed to ensure that capacity will be brought 'on stream' in time to meet expected growth in demand. BIMSTEC supports the need to encourage investment by the private sector in airport infrastructure and the operation of airport services where there is public or financial benefit in so doing. BIMSTEC should promote for the timely resolution of the capacity problems at BIMSTEC airports in the interest of other member states and in removal of capacity restrictions within air service agreements.

Ref	Title	Issue	Policy	Strategy
1.5.1	(continued)	.		The Meeting of Director Generals of Civil Aviation of BIMSTEC countries should be established to consolidate regional positions on International Civil Aviation Organization (ICAO) matters, coordinate civil aviation developments and promote safety and security in airport operations.
1.5.2	Airport/rail connection	Few of the BIMSTEC airports are connected to a 'mass-transit' system and as a result there is considerable traffic congestion around airports with resultant delays.	BIMSTEC airports should have adequate landside connectivity with the cities they serve and the immediate hinterland. Wherever possible, consideration should be given to dedicated transport systems and routes to facilitate passenger movement to and from the major BIMSTEC regional airports.	BIMSTEC should promote the undertaking of a technical and financial feasibility study for the restoration of a rail link at Colombo Airport and encourage the early implementation of the new northern road with its link to the airport. If appropriate, BIMSTEC should support a feasibility study for rail connectivity to Indian metro airports, especially Delhi, Kolkata and Mumbai.
1.5.3	Inefficient cargo operations at airports	The efficient processing of cargo imports and exports at several BIMSTEC airports is adversely affected by inadequate use of information technology, insufficient shed capacity, poor management and a lack of mechanized handling systems.	Major airports in the region should provide sufficient cargo processing capacity and achieve international performance standards, in order to facilitate the growth in the aviation sector of the movement of intra-BIMSTEC trade	BIMSTEC should support and encourage the upgrading of cargo handling facilities, particularly at Delhi, Mumbai and Kathmandu with a specific focus on ensuring that modern data warehousing and IT systems are integrated with Customs, the airlines, handling agents and freight forwarders.
		The consequences of these problems are unacceptably long dwell times, increased transaction costs to shippers and agents, poor levels of service and the diversion of cargo through other airports.	.	BIMSTEC should support the development of additional cargo handling capacity at the region's mains airports. Where it is not feasible to do so on-airport, create new off-airport facilities.

Ref	Title	Issue	Policy	Strategy
1.5.3	(continued)			BIMSTEC should promote the installation of modern mechanized cargo handling equipment at any BIMSTEC airport handling more than 50,000 tons per annum.
1.5.4	Improving market access and travel opportunities	Although the majority of BIMSTEC countries have adopted liberalized air transport environments and are incrementally working towards 'open skies', there are still limitations on certain routes. The opportunity exists for BIMSTEC member states to assist each other by gradual liberalization allowing fifth freedom rights. This is important on some marginal routes and could be useful in opening up new intra-BIMSTEC services.	BIMSTEC airlines operating on intra-BIMSTEC routes should be gradually allowed fifth (and sixth) freedom flights where possible in the respective air service agreements (ASA) to assist in developing additional services. ASAs should also gradually be extended to include possible flights to additional destinations to promote tourism.	BIMSTEC should promote the development of a Memorandum of Understanding conferring preferential status on national airlines designated under an ASA, signed by three BIMSTEC member states, gradually allowing those airlines to operate fifth (and sixth) freedom services to promote the market on a flexible basis. An alternative strategy would be to persuade member governments to incorporate fifth (and sixth) freedom flights in their ASA where possible. BIMSTEC should promote liberalization of ASAs to include more national destinations to promote tourism, where possible
1.5.5	Improving air freight access and distribution opportunities	Whilst there are continuing constraints of reciprocity for passenger services, the matter is not so acute in the case of all-freighter aircraft services. Therefore, the potential exists to encourage the flow of air cargo between BIMSTEC gateways by granting flexible approval for unlimited operation of full freighter aircraft.	BIMSTEC airports should provide reasonable access to all-freighter air services, unless there are specific airport capacity constraints.	BIMSTEC should persuade each member country to agree to the gradual removal of capacity and frequency restrictions on full freighter aircraft operating from BIMSTEC gateways, subject to airside capacity being available.

Ref	Title	Issue	Policy	Strategy
1.5.6	Improving system management	There is an opportunity, and a perceived need, to improve operating standards, service levels and management skills of the BIMSTEC air transport network. This can be achieved through a structured program of collaboration and harmonization. While there are international aviation forums established in the Asia and Pacific region, it could be extremely beneficial to form a group dedicated to the policy and development needs of BIMSTEC.	BIMSTEC supports initiatives designed to enhance the management skills, knowledge and capabilities of BIMSTEC relevant government agencies, civil aviation authorities, airports and airlines.	BIMSTEC should initiate discussions with the ICAO Technical Cooperation Bureau (Chief of Operations, Asia/Pacific) to explore the potential of establishing a BIMSTEC-orientated cooperative program for aviation management and operations based in Bangkok. The Meeting of Director Generals of Civil Aviation of BIMSTEC Countries should be established to consolidate regional positions on ICAO matters, coordinate civil aviation developments, and promote safety and security in airport operations.
1.5.7	Development of low cost carrier services	The positive impact on growth, access and travel opportunities as a consequence of the low cost carrier phenomena has been evidenced worldwide. Initial research indicates there are several routes which would be suitable for low cost carrier operations and would confer immediate and significant benefits to passengers and air cargo shippers.	BIMSTEC supports the expansion of low cost carrier operations on existing and new routes throughout the BIMSTEC region, where agreed by the relevant national governments.	BIMSTEC should encourage member governments and their airport operators to provide, without prejudice to network airlines, the conditions required for the growth of the low cost carrier market. Such measures may include, for example, the provision of separate low cost carrier terminals, the inclusion of low cost airlines as designated carriers within bilateral agreements, fair allocation of capacity under bilateral agreements, financial incentives to pioneer less populated or social routes and joint marketing.

Ref	Title	Issue	Policy	Strategy
1.5.8	Airport facilitation	Service standards being accorded to passengers and cargo are below international standards at many BIMSTEC airports. It is an international requirement (ICAO Annex 9: Facilitation) for airports to meet certain standards for the processing and handling of passengers, aircrew and cargo.	Passengers, airlines and other users of BIMSTEC gateways should enjoy the highest possible level of convenience and comfort and be compliant with service standards proposed under ICAO Annex 9.	BIMSTEC should encourage member states to comply with ICAO Annex 9: Facilitation, and whenever possible a higher level than that prescribed should be provided.
TRADE FACILITATION				
1.6.1	Compliance with Revised Kyoto Convention	Most of the BIMSTEC countries are not compliant with World Customs Organization's Revised Kyoto Convention that is a 'benchmark' for customs modernization and reform.	All BIMSTEC should become signatories to the Revised Kyoto Convention as soon as possible. Until they become signatories, member states should increasingly adopt the basic standards proposed in the Convention.	BIMSTEC should monitor member states becoming signatories to the Revised Kyoto Convention and encourage non-signatories to sign the Convention by 2010. This would provide a standardized approach to customs activities across the BIMSTEC region.
1.6.2	Development of automated customs clearance systems	Modern customs organizations all use automated customs clearance systems as a method of facilitating trade. Only Thailand has a fully operational system and India has an advanced system. Most other countries use Automated System for Customs Data (ASYCUDA), but do not have the latest software and are missing important modules.	All BIMSTEC member states should have fully-automated Customs Clearance Systems which have the capacity to process import, export and transit declarations submitted electronically by traders or their representatives that reduce the need for submission of hard copy support documentation.	BIMSTEC should promote the need for international assistance in supplying Bangladesh, Nepal and Sri Lanka with any missing modules and their installation. .
				BIMSTEC should promote an assessment of the capability of the Bhutan Automated Customs System (BACS) as to whether it can be developed into a full customs processing system, comparable to the capabilities of the Thai system.

Ref	Title	Issue	Policy	Strategy
1.6.2	(continued)			BIMSTEC should encourage the effective usage of Indian Customs and Excise System (ICES) system in eastern India to the levels already achieved at the main ports and airports.
1.6.3	Information Technology (IT) connectivity to land borders	Most of the borders in South Asia in particular either have no IT connectivity or only use the system selectively due to reliability concerns. Most borders, even when systems are present use manual systems and registers due to concerns that the system will 'go down' and data will be lost.	All primary BIMSTEC land borders should have access to automated customs processing systems by 2009 and secondary borders by 2012.	BIMSTEC should promote a regional border development program in cooperation with national Customs to ensure that all the main BIMSTEC borders are connected to their respective central IT systems. This should be in the form of an Action Plan with target dates for implementation and identify funding sources. This may require the formation of a BIMSTEC Customs Cooperation Liaison Group.
1.6.4	Implementation of Direct Trader Input (DTI) capacity	A major problem is the ability of the clearing and forwarding agents and customs house agents to fully utilize DTI. This is because of the preponderance of small agents or single entities that lack the ability or resources to link into such advanced systems. As a result experienced customs officers are tied up acting as data entry clerks entering declarations into their own systems.	All primary BIMSTEC land borders and seaports should have a DTI capability and/or service centers so that by 2010 all declarations made at primary land borders are in electronic format and that by 2012 this should be extended to secondary borders.	BIMSTEC should promote the development of a regional program to develop DTI/Service Centers at all the primary BIMSTEC borders, in cooperation with national customs. They should encourage the extension of DTI by supporting the supply of DTI capability and training at primary borders, with possible assistance by the international development partners.

Ref	Title	Issue	Policy	Strategy
1.6.5	Upgrading of border infrastructure	Investment has been insufficient to keep pace with the growth in traffic levels resulting in badly congested borders with significant processing delays. The BIMSTEC corridors predominantly involve movements through secondary border crossings. The infrastructure at these BIMSTEC crossings is either basic or non-existent and will need to be appreciably upgraded in order for the proposed land-bridge to be successfully implemented	All the primary BIMSTEC land border crossings should be modernized to be compatible with international 'best practice' and the Revised Kyoto Convention and to be able to process the projected passenger and freight traffic forecasts.	BIMSTEC should promote an independent audit being undertaken of the border crossings to determine their future development needs. The audit should consider the borders in 'pairs' in that development should be undertaken in parallel on either side of the border, as in many cases there is almost nothing present at this stage. Consideration in the proposals should be given to implementation of the recommendations contained in the Revised Kyoto Convention.
1.6.6	Development of land port infrastructure	The land ports have principally been designed as a result of the lack of through transport agreements, but in addition have become part of the trading environment. Given this situation, there is a need to upgrade some land ports/ICDs and to provide them at some secondary crossings where there are presently no facilities.	BIMSTEC recognizes the importance of land ports in the development of bilateral trade in the region and encourages the development of appropriate facilities where necessary that will facilitate intra-BIMSTEC trade.	BIMSTEC should promote the undertaking of an independent audit of the existing land port operations to determine their suitability in meeting the longer term needs of intra-BIMSTEC and third country trade. Similar to the proposed studies of the border crossings, it will be important to consider the issues relating to access and the operational functions to be undertaken at these facilities.

Ref	Title	Issue	Policy	Strategy
1.6.7	Reduction in port dwell times	The charging rates for storage at the main sea and land ports in Bangladesh and eastern India significantly lead to increases in cargo and container dwell times, with consequent congestions. An efficient port or land port is primarily a 'transit' facility, providing short term storage incurred as a result of the modal change or due to the absence of through transit agreements, but these facilities are increasingly engaged in 'stock' storage.	BIMSTEC recognizes the importance of ports, ICDs and land ports in offering transit storage and supports the implementation of measures designed to reduce storage dwell times at the critical facilities.	BIMSTEC should support action taken to reduce storage free time at all container terminals, ICDs and border land ports to less than seven working days and to raise the storage charges, so as to encourage traders to remove their goods quickly. The storage charges should be based on an escalating weekly rate.
				BIMSTEC should support other measures to reduce dwell times, such as Customs notifying importers of uncleared cargo and encouraging their removal as soon as possible. Action should be taken to remove abandoned or disputed cargo from the sea ports and land ports.
LOGISTICS				
1.7.1	Development of a logistics hub at Colombo	Both Colombo Port and Airport act as transshipment hubs, but this is based solely on the transfer of whole containers or shipments same mode to same mode, without supply of added value services. This means that Sri Lanka is obtaining limited benefits from such activities. Ports such as Dubai, Singapore and Hong Kong act as major regional logistics centers built on their hub operations.	BIMSTEC recognizes the potential of Colombo as a major logistics hub for the Bay of Bengal and supports initiatives designed to realize this potential.	BIMSTEC should promote a detailed feasibility study for the development of a logistics hub at Colombo. The logistics cluster will require 'logistics parks' to be located between the port and the airport. The study should clearly identify and quantify potential demand, sites, facilities, development costs, stakeholders and funding mechanisms. This study could be integrated with government proposals to establish off-dock ICDs to relieve congestion in the port and reduce road traffic in central Colombo.

Ref	Title	Issue	Policy	Strategy
1.7.2	Foreign direct investment	In some countries, foreign direct investment restrictions, particularly in the sensitive road transport sector, mean that vital external expertise either cannot be brought in or many foreign 3PL organizations are unwilling to invest in the country because of their shareholding/control limitations.	BIMSTEC encourages the removal of any remaining foreign direct investment restrictions on third party liability (3PL)–type activities in both the domestic and international markets in BIMSTEC member states wherever possible.	BIMSTEC should monitor the foreign direct investment restrictions in the transport and logistics sectors and promote their removal wherever possible and relevant. It is recognized that there may be situations in the smaller countries, such as Bhutan and Nepal, where some restrictions may be appropriate in the domestic sector.

C. Logistics

10. The scope of work of BTILS required 'presentation of industry best practices and an Action Plan for the development of domestic logistics industries at two seminars'. This domestic focus differed from the original ADB Concept Paper that formed the basis of BTILS in which it proposed 'development of an Action Plan for the logistics industries of the BIMSTEC countries, thereby increasing the cost effectiveness of freight and passenger flows between member states' (it proposed an international rather than domestic orientation). The Consultant Team in the analysis considered both sectors and their potential interrelationship.

11. The clear message from the evaluation undertaken in this study is the key drivers to promote development of the logistics sector are missing in many of the member states:

- major retail organizations seeking to reduce inventory throughout their supply chain;
- multi-nationals seeking to improve their supply chain by holding inventory closer to the point of delivery to enhance service levels through adopting just-in-time deliveries; and
- high cost environments where the cost of holding stock is expensive.

12. These market drivers help explain why logistics has not really developed in the region. There is no significant system of domestic central and regional distribution warehousing present, nor any major development of international systems. Most countries predominantly use the standard approach of trading through import/export agents, national distributors (who function is often sales rather than distribution) and direct sales. As countries develop, then pressure will grow to commence more advanced logistics services as these three market drivers will start to appear. This is the situation in both India and Thailand with the growth in both retailing chains and multinationals in recent years, thus a fledgling third party liability (3PL) industry largely based on foreign expertise is only now gradually developing in both countries in response to these demands.

13. In developing the proposed Logistics Action Plan, the Consultant Team has assumed a basic policy and strategy framework that the Action Plan seeks to implement. These are as follows:

- Policy: the BIMSTEC logistics environment should be developed in order to provide national trade and industry with access to advanced logistics services designed to improve the quality, cost and scope of supply chain services; and

- Strategy: Physical and non-physical barriers to the development of advanced logistics services should be gradually removed to promote the growth in the national and international logistics sector.

14. The proposed Logistics Action Plan has three key components to address the following aspects:

- transport infrastructure;
- institutional; and
- support.

15. Table ES.2 shows the proposed Action Plan for Logistics.

Table ES.2: Proposed Logistics Action Plan

No.	Actions	Sub-action
1.	Development of road infrastructure	Upgrade the core road network to Asian Highway Class 1, including the Indian East-West road west of Kolkata, at least as far as Guwahati, the Dhaka-Chittagong Expressway and in the longer term the Kolkata-Jessore link;
		Improve the quality of the connectivity to the ports to at least Asian Highway Class II including the Birgunj-Kolkata, Phuentsholing-Kolkata, Sylhet-Chittagong and Mandalay-Yangon links; and improve the quality of the connectivity to the borders to at least Asian Highway Class II including Kathmandu-Birgunj, Thimpu-Phuentsholing, Myawadi-Yangon and Mandalay-Tachileik links.
2.	Development of international transport nodes	Develop ports to provide additional container handling capacity by the provision of extra processing areas, enhanced traffic management, additional handling equipment and increased use of IT. Key ports requiring attention are Chittagong, Colombo and Kolkata;
		Develop airports to improve handling performance. Major requirements are for increased mechanization and use of IT. Key developments are needed at the Indian metro airports and at Bangkok;
		Develop border posts on key transport corridors to handle projected traffic flows. Priority border for development include Benapole, Birgunj, Myawaddy, Phuentsholing and Tachileik; and
		Develop ICD and dry ports at key centers of import demand and main borders. These are designed to reduce port dwell time and reduce on-transport delays at the border in the absence of through transport agreements.
3.	Development of national transport nodes	Identify and rank key domestic transport nodes;
		Plan land for logistics parks through the reservation of zones adjacent to the main highway junctions and ports/airports - cluster development;
		Promote potential logistics parks to the logistics industry;
		Develop logistics centers by the private sector, either as developers or operators; and
		Develop major regional logistics hubs, especially at Colombo and at Bangkok Airport and the potential for Kolkata to be developed as a multi-modal hub should be examined
4.	Institutional development	Promote outsourcing by manufacturing and retailing sectors through awareness campaigns;
		Review legislation to recognize the sector and remove any legal constraints to its development;
		Remove of foreign direct investment restrictions, wherever possible, to facilitate external investment to 'kick-start' the sector;
		Improve the level of training and knowledge on logistics through training and capacity building; and

No.	Actions	Sub-action
4.	(continued)	Evaluate the tax regimes applicable to 3PL activities and consider revision to promote investment and larger entities in the transport and distribution sector.
5.	Development of trade facilitation	Remove restrictions on clearing and forwarding (C&F) agents and 3PLs being custom brokers, subject to appropriate licensing based on qualifications;
		Develop Automated Customs Clearance Systems with a direct trader input capability;
		Simplify and harmonize customs processing following the Revised Kyoto Convention and development of paperless systems;
		Establish more effective cooperation forums between customs and logistics sector; and
		Develop simplified procedure for temporary imports to promote added-value and reprocessing activities
6.	Development of support services	Improve business-to-business (B2B) and similar communication services between transport nodes & with international centers;
		Develop logistics software capacity in region;
		Develop articulated vehicles manufacturing capacity in the region to reduce import dependency;
		Encourage warehouse outfitting capacity, especially of racking systems; and
		Encourage manufacture of small fork lift truck in region to reduce import dependency.

D. Proposed BTILS Implementation Arrangements

16. The proposed policy framework and strategies shown in Table ES.1 was endorsed by TAC members during the second TAC Meeting. TAC proposed that, in order to gain support at the higher level after the BWG consideration, the BTILS Final Report, including the Transport and Logistics Policy Framework and Strategies, should be submitted for endorsement by BIMSTEC policy bodies, including the Senior Officials' Meeting (SOM) and Ministerial Meeting (MM) and the BIMSTEC Summit. It was clarified by BWG members that once the proposed policy framework and strategies are endorsed by BIMSTEC policy bodies, the sectoral committee could decide on the activities and details of investment projects.

17. The second TAC meeting agreed in principle to propose to BWG an implementing structure which includes a ministerial-level conference on transport, sectoral committee on transport and expert groups at the subsectoral level. More specifically, the identified functions of these implementing bodies are:

- Ministerial conference of relevant transport ministry for policy and decision-making;
- Sectoral Committee on Transport (separate from the Sectoral Committee on Communications) for overall transport sector coordination and integration at the technical level; and
- Expert groups for subsector technical discussion.

18. It is proposed to establish five Experts Groups representing the transport spectrum addressed by the BTILS. These groups are as follows:

- road development;
- railways, using the existing Meeting of Chief Executives of Railways of BIMSTEC countries with additional strengthening;
- maritime transport;
- aviation, using a Meeting of Director Generals of Civil Aviation as an initial forum; and
- transport facilitation and logistics.

19. The proposed Expert Groups will be reporting to the Sectoral Committee on Transport and meet as deemed necessary. They will coordinate, monitor and review progress in projects to be implemented. They may invite representatives from the public and private sectors and regional/international organizations to their meetings if appropriate. Their primary function in the initial period will be to prepare the subsector Development Action Plans 2008–20. The consultant prepared draft Terms of Reference for the Expert Groups and these will be circulated separately to the BWG and TAC members in January 2008.

I. INTRODUCTION

A. Study Background

1. The Asian Development Bank (ADB) approved the South Asia Regional Cooperation Strategy and Program 2006–08 (RCSP)[2] on 21 February 2006. This established interregional cooperation as a priority means of achieving the main goals of RCSP: to help South Asia realize its full economic potential and to support economic integration of all Asian countries. The RCSP emphasizes support for the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) to help South Asia function as a hub of regions in Asia.

2. BIMSTEC was established as an interregional grouping in June 1997 to promote free trade within the region, to increase cross-border investment and tourism and to promote technical cooperation. Its membership comprises of Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand (the BIMSTEC countries). The overall coordination and monitoring of activities is performed by the BIMSTEC Working Group (BWG) established in Bangkok and comprising of the ambassadors of the BIMSTEC countries to Thailand and the Director-General of the Department of International Economic Affairs, Thai Ministry of Foreign Affairs.

3. The BIMSTEC countries have a combined population of around 1.4 billion representing 21% of the world population and a total gross domestic product (GDP) of $1050 billion in 2005. Potentially, the BIMSTEC region with its large population and high growth in national GDPs (5.8% average in 2004) could serve as a trading bridge between South and Southeast Asia. The development of the BIMSTEC Free Trade Area (BFTA) with the associated trade liberalization is designed to promote such intraregional trade. At present, such intraregional trade is relatively minimal, representing only 4.64% of total global trade within BIMSTEC countries in 2005. It was recognized that a major factor contributing to this lack of intraregional trade has been regulatory and institutional constraints, combined with poor transport connectivity. In many cases, it is easier to trade with external overseas countries than with ones neighbors. It was considered that if transport connectivity, combined with improvements in trade and transport facilitation, could be developed, then intraregional trade could be promoted to the mutual benefit of the member states.

4. In December 2005, the eighth BIMSTEC Ministerial Meeting formally requested an ADB technical assistance (TA) study to undertake a BIMSTEC Transport Infrastructure and Logistics Study (BTILS). Following a concept paper in May 2006 and reconnaissance and fact-finding missions, the ADB approved the study in August 2006. This study is designed to help promote interregional integration by increasing trade and travel among the BIMSTEC countries and more specifically, the expected outcomes contained in this report would assist in the overall enhancement of intraregional transport infrastructure, improve logistics and reduce transport time and costs.

5. ADB appointed Kellogg Brown & Root Pty Ltd (KBR) of Australia as the international consulting firm to undertake the BTILS in February 2007. The ADB appointed six country experts to assist the international consultants: and, in addition, the ADB provided a senior transport advisor and senior program analyst to facilitate the successful execution of this study.

[2] ADB.2006. South Asia Regional Cooperation Strategy and Program (2006–08). Manila.

B. Study Objectives

6. The stated general objective of the study is to promote interregional integration by increasing trade and travel among the BIMSTEC countries. The terms of reference (TOR) specifies the outcomes of the study as being the enhancement of transport infrastructure, improvements in logistics and reductions in transport times and costs. These stated objectives represent the 'raison d' être' for the BIMSTEC intervention, rather than specific study outputs. The TOR contained no specific study objectives.

7. The key objectives of the BIMSTEC Transport Infrastructure and Logistics Study (BTILS) were agreed as follows:

- identification of the transport infrastructure and logistics bottlenecks in the BIMSTEC region and their root causes;
- identification of existing policies, strategies and development plans by various parties to address these physical and non-physical barriers;
- development of proposals for relevant and practical policies and strategies to eliminate or mitigate these identified constraints;
- identification of the roles that various organizations should or could have in promoting and implementing changes to the regional transport and logistics environment; and
- the development of a proposed action plan for the phased introduction of enhanced logistics in response to the changing transport environment within BIMSTEC and in the global logistics marketplace.

8. The first two objectives were addressed in the Interim Report, which was issued in draft form in mid August 2007 and in its final form in October 2007, following the Regional Technical Workshop held on 18–19 September 2007 in Bangkok, Thailand. The last three objectives are addressed in this report.

C. BIMSTEC Policy on Transport and Logistics

9. The potential for this study was first raised at the 51st Meeting of the BWG held in Bangkok, Thailand on 19 July 2005 under Agenda Item 10.4 'Cooperation with ADB' in that Thailand sought comments from other countries concerning possible future cooperation with the ADB, as well as other third parties. This matter followed the ADB's joint mission to Thailand by its South Asia Department (SARD) and Mekong Regional Department (MKRD)3 on 12–13 May 2005, during which the prospects of the ADB's cooperation with BIMSTEC were discussed. In the BWG minutes, it was noted that 'research by ADB on logistical systems in the region, especially regarding land and maritime transportation, could help promote intra-BIMSTEC trade'.

10. At the later fourth meeting of the BIMSTEC Economic Forum held in New Delhi, India on 30 August 2005, the forum discussed the issue of movement of goods and stated that a major hurdle among the BIMSTEC countries was the high cost of transportation and therefore it was important to look at this aspect of movement of goods using air, sea and land transport. The need for the cost of transport to be brought down, making goods become more competitive in each others market, was emphasized and in this regard stated it would be important to bring down freight rates.

11. During this meeting the representatives from Thailand informed the forum that discussions were being held on this issue at the BWG meetings and they would be approaching ADB to study this aspect and recommend ways and means to reduce the cost of transportation among member countries. The Economic Forum strongly recommended

[3] MKRD was merged into the Southeast Asia Department (SERD) in April 2006.

that the study should be carried out and felt the study should cover the identification of the factors/underlying reasons for high freight rates and should provide suggestions as to how to address such impediments.

12. In September 2005 BIMSTEC, through the Ministry of Foreign Affairs of Thailand, advised ADB of the results of the 51st Meeting of BWG and the fourth Economic Forum and requested ADB to consider this initiative. Following inter-departmental meetings within the Bank, the ADB's South Asia Country Coordination and Regional Cooperation Division (SAOC) under SARD prepared a memo suggesting a possible approach to conducting a BIMSTEC Transport Infrastructure and Logistics Study. The study proposal was presented to the BIMSTEC Senior Officials Meeting (SOM) which then recommended to the eighth BIMSTEC Ministerial Meeting held in Dhaka, Bangladesh December 2005 its endorsement and the formal request to ADB for a new TA to undertake the BIMSTEC Transport Infrastructure and Logistics Study (BTILS).

13. An ADB Reconnaissance Mission visited the BWG in Bangkok 30 January to 2 February 2006 to discuss ADB's proposed two-phased approach. In Phase 1 a Concept Paper was prepared by an ADB team, while Phase 2 would be the study itself. The BWG endorsed this phased approach.

14. BIMSTEC as an overall entity has no overarching or specific policy on either transport or logistics. The drive to undertake the study has predominantly come from below, in the form of its Economic Forum that considers intraregional trade as being constrained by the high cost of moving goods between the member states, consequently affecting the competitiveness of products in each others market place. The emphasis, thus from a BIMSTEC perspective, was on cost reduction with the focus on identification of the factors resulting in high transport costs and how to remove them.

15. The need for enhancement of logistics in the region derived principally from the ADB Concept Paper. The Paper noted the lack of a developed logistics environment in the BIMSTEC countries due to the limited penetration by third party logistics (3PLs) and the residual reliance on traditional small-scale suppliers of single services. It was considered that this lack of access to value-added supply-chain management services was constraining trade development and was a factor in the high cost of transport and limited logistics service offerings to the market.

D. Work Undertaken in Inception Phase

16. The TA inception period commenced with the mobilization of the Consultant Team on 12 February 2007 and continued for a six week period until 23 March 2007. The major focus of work undertaken during this inception period was on preparation of the study database on trade and transport and on study planning leading up to the first Technical Advisory Committee (TAC)[4] Meeting held in Bangkok on 20–21 March 2007. The primary purposes of this TAC meeting were to discuss the findings of the Draft Inception Report, to refine the study's organizational and implementation arrangements and to outline the future course of action for BIMSTEC transport cooperation upon completion of the study. The major work component during the inception period was the desk review of documents. The Team Leader and the Trade Analyst obtained access to a wide range of documents enabling them to present an overview of the trade and transport environments in the BIMSTEC region.

17. The objective of this overview was principally to present an outline analysis of the current situation in the transport and trade environment in the BIMSTEC region, in order to

[4] Technical Advisory Committee consists of Country Technical Advisors and the ADB TA Implementation Team and is chaired by the BWG chairperson.

plan and structure the later work program to ensure the effective achievement of the overall objectives of the study.

E. Work Undertaken in Interim Phase

18. The interim period commenced with the mobilization of the international consultant's full team in April 2007, followed shortly after by the country experts. The interim period was designed to address the first two components of the key objectives of the BTILS agreed at the first TAC, namely:

- identification of the transport infrastructure and logistics bottlenecks in the BIMSTEC Region and their root causes; and
- identification of existing policies, strategies and development plans by various parties to address these physical and non-physical barriers.

19. These two components represent the point from which proposals for BIMSTEC policy framework and strategies to address the identified physical and non-physical barriers have been developed. In effect, the Interim Report represents the database from which the outputs in this Final Report covering the recommending of policies, strategies and action plans have been developed. In order to provide an 'audit trail' to those outputs, Section II is a modified version of the Executive Summary of the Interim Report, thus enabling this Final Report to be a 'stand alone' report for consideration and acceptance by BIMSTEC.

20. The international consultant's team traveled extensively throughout the BIMSTEC region in the period April to June 2007 visiting capital cities to discuss the situation with line ministries and relevant organizations, as well as traveling to BIMSTEC gateways and along BIMSTEC corridors. More than 230 persons were interviewed from both the public and private sectors. Individual reports were prepared for the trade, road, rail, maritime, aviation, trade facilitation and logistics sectors. These were consolidated into a 500 page Draft Interim Report submitted to ADB and the BIMSTEC TWG on 22 August 2007. A presentation on the Interim Report was made at the Regional Technical Workshop held on 18–19 September 2007 in Bangkok, Thailand and the final Interim Report was issued in October 2007 and at the second TAC Meeting.

F. Work Undertaken in Final Phase

21. The final phase commenced in July 2007 with the Consultant Team's remobilizing in Bangkok, Thailand to discuss the draft policy framework and strategies in relation to their specific sectors. These were eventually consolidated into a draft policy framework which was issued to the technical advisers in early September, prior to the workshop. The objective of the regional technical workshop was to discuss and develop those proposals jointly with members of the TACs, the ADB team and the consultant. It should be noted the workshop was not intended to formally agree on those policies and strategies, as this was a key function of the second TAC meeting in late November 2007. However, it was considered important that the TACs were involved in the process of developing the policies and strategies in order to facilitate later 'ownership' of the resulting outputs contained in this Final Report.

22. The second TAC meeting held on 29–30 November 2007 in Bangkok, Thailand to reviewed the Draft Final Report and its key outputs:

- Policy and Strategy Framework, together with an Action Plan for its implementation; and
- Logistics Action Plan.

23. It also discussed the way forward and agreed an implementation program. In addition, there was a logistics seminar on the development of a logistics hub at Colombo, held on 21 November 2007 in Colombo, Sri Lanka, in association with the Academy for International Trade and Transport and the Sri Lanka Freight Forwarders Association. Previously the consultant presented logistics development proposals at the Chartered Institute of Logistics Conference in Delhi, India in July 2007.

II. SUMMARY OF ISSUES

24. This section summarizes the transport issues present in the BIMSTEC region and forms the base from which the proposed policy framework and strategies described in Section III were developed. While the issues are indicated under each policy in Section III, this section provides a more general overview sector by sector.

A. Road and Road Transport Sectors

25. Of all the transport modes, road transport is the most dominant throughout the BIMSTEC countries. Road transport is the most important in terms of domestic transport and distribution, though not necessarily in terms of international connectivity where the maritime and aviation modes may be equally important. Nonetheless, even a maritime or aviation movement involves movement by road transport as part of its logistics 'chain'.

1. Road Infrastructure

26. The road transport network in recent years has seen a significant improvement in the region, including those roads forming part of the designated BIMSTEC corridors. Member governments have major road infrastructure developments programmed that will further enhance the regional road network. However, the reality of the situation is that, apart from Thailand's roads and certain parts of the central Indian road network, the road infrastructure in the BIMSTEC region is poor by international standards and directly results in increased transport costs. There are few Asian Highway (AH) class I roads[5] in the BIMSTEC region, other than in Thailand, and most roads are unsuitable for heavy articulated transport. In many, cases the roads are only capable of handling small rigid vehicles and these have higher costs per kilometer, as well as being unsuitable for the carriage of containers. Even important sections of the AH network are often little more than congested local roads and are therefore not genuine highways.

27. A key issue in many countries has been the emphasis within national road programs on improving internal connectivity, rather than international linkages. The logic of such a strategy politically and even economically is understandable, as enhanced internal connectivity between the major centers is deemed critical to the country's economic growth. In an international context, the proportion of each country's trade that is specifically intra-BIMSTEC-related is relatively small, thus connectivity to ports handling the major proportion of trade have higher priority than land border connectivity. Many of the border roads have low traffic volumes and are on the periphery of the national network and thus have not obtained appreciable funding. This is a key area where regional organizations, such as BIMSTEC, can have an impact through developing policies and strategies to enhance such connectivity.

28. The BIMSTEC strategy of development of a road land-bridge between South Asia and South-East Asia will require major rehabilitation and construction work, as the roads in north-east India, Bangladesh and Myanmar are poor and only capable of handling local rather than long distance transport. The terrain is difficult with mountain ranges and many rivers. Clearly, development of these road corridors will be a longer term goal with phased development in the short to medium term towards a through-transport corridor. Not only has such a route to be technically possible, but also commercially viable to achieve the land-bridge functional goal.

29. Current issues and constraints in relation to road infrastructure in the BIMSTEC countries are as follows:

[5] An Asian Highway Class I road is a road of four lanes or more with 40 m right-of-way.

a. Bangladesh

30. The road network is deficient in terms of its ability to handle modern multi-axle articulated transport and both the number and diversity of vehicles. Even the country's primary arterial road between Dhaka and Chittagong cannot accommodate container traffic due to bridge restrictions. Expansion and enhancement of the network runs against two significant problems – the river systems that divide Bangladesh and significantly increase the cost of road construction due to the need for major bridges and the high population density ensuring that land is at a premium, complicating the task of widening or adding road capacity. Severe congestion is present in many of the villages and towns found at regular intervals along most routes with traffic being delayed resulting in higher costs. The problem is often not a lack of road width per se, although this is a factor, but that it is more attractive for pedestrians and rickshaws to use the sealed road rather than the unsealed areas, which are occupied by village activities from stalls to vehicle repairs. Road encroachment is a particularly severe problem in Bangladesh, although it is also present to a lesser extent in some of the other countries.

31. Major traffic congestion occurs on all routes entering Dhaka city and a truck curfew applies in the city during certain hours. A northern bypass is being constructed which should ease the situation, provided it does not attract development and itself become congested. Congestion also occurs at the borders. In most cases, the border posts have been created on what was previously a through road with the infrastructure clearly not being designed for the current type or volume of vehicle movement.

32. Bangladesh is committed to a program of road construction. The major projects are the construction of the Padma Bridge and improvements in the vital Dhaka–Chittagong link. Given the high cost of these two important 'prestige' projects, there is concern regarding the availability of funding for other 'international' road projects, including those likely to be promoted by any BIMSTEC regional strategy.

b. Bhutan

33. The road infrastructure in Bhutan is heavily constrained by the topography and the main issues arise from this. Roads in Bhutan are generally narrow with steep gradients. Access to parts of Bhutan is still limited, with the best or only route to some southern settlements being via India.

34. The Bhutanese Government has plans to invest in road improvement and enhance access to all parts of the country. The main objectives of the Department of Roads in their ninth five year plan (2002–07) includes improving existing road networks to reduce travel time and transportation costs and improving accessibility to social and economic development by building more roads. The main north-south road Thimpu-Phuentsholing and the Thimpu–Paro road are being upgraded nominally to AH standard, but will still only be widened to six meters and be unsuitable for articulated transport.

35. The Government places great emphases on a potential east-west link running along the south of the country that would eliminate the problems of having to cross into India to travel between Bhutanese towns along the southern border. Not only is it costly traveling south to connect with the main West Bengal – Assam highway, but drivers experience problems. Security is a major issue as both Indian states along the route require police convoying, thus causing delays in transits.

36. A key issue for Bhutan is how to improve the international connectivity whilst trying to maintain its unique culture and eco-environment. While the country wants access to a modern transport network, this connectivity could erode some of the traditional values that

the Government so wishes to preserve. To a certain extent, the proposed southern road along the lowlands represents a compromise, reducing the dependence on the Indian road system for internal transits, but also limiting the growth on the more sensitive northerly east-west road recently upgraded by the ADB.

c. India

37. While India has high quality roads in the Golden Quadrilateral[6], much of the traditional road system in India is inadequate to meet the demands of a modern road transport system, especially in the east. Even where the roads are in reasonable condition, travel speeds are slow because of a combination of narrow pavements, poor geometry, and high traffic levels exacerbated by a mixture of traffic including non-motorized transport, overloaded vehicles and buses stopping frequently for passengers. Like Bangladesh, most roads are adequate where they pass through rural areas, but experience highly congested conditions where they pass through the numerous towns and cities en route.

38. The landlocked BIMSTEC countries face some difficulties as a result of the inadequacies of the Indian road network. Bhutan transport operators reported on poor road conditions in India as a major constraint that increases travel time and trucking costs, such as between Kolkata and Phuentsholing. The minimum transport time along this corridor is estimated at five to seven days. Nepalese shippers similarly complained about the bad state of the roads in Bihar. It can take five to seven days travel for a stretch of 960 km from Kolkata/Haldia to Raxaul (Birgunj), which is considered excessive. These issues require serious attention if enhanced connectivity is to be promoted and are to be addressed in more detail under the ADB South Asia Sub-regional Economic Cooperation (SASEC) Program.

39. The Government of India has embarked on a large scale program of highway development. Up until now, the Government does not appear to have placed high priority on roads connecting to the country's borders. However, the key Barasat–Petrapole route linking India and Bangladesh has been proposed to be four-laned under the Government's National Highways Development Project Phase-III, while the main highways in north-east India are also to be duplicated as part of a commitment to development in the north-east states. The latter is critical the development of road transport links to establish a land corridor between South and Southeast Asia.

40. The Indian Government has proposed the Kaladan Multi-Modal Transit Transport Project which envisages connectivity between Indian Ports on the eastern seaboard and Sittwe Port in Myanmar and then through riverine transport and by road to Mizoram. Both sides have also agreed on the text of various legal instruments pertaining to the project. The project is estimated to cost around $105.4 million, the Indian contribution being $95.4 million. The Indian Government is also proposing to extend a credit line of $10 million to the Government of Myanmar to assist them in meeting their part of the contribution to the project.

d. Myanmar

41. Highway development in Myanmar has tended to be insular with connections to neighboring countries receiving low priority. The roads connecting Myanmar to Thailand and India are underdeveloped and in poor condition. The road north-west to India is not accessible for at least three months of the year, while the main route to Thailand is so narrow vehicles are restricted to traveling in each direction on alternate days. In the south-west, the estuarine nature of the coast has made all road construction difficult and expensive, with most movement by small river craft.

[6] Links between the four main cities in India – Delhi, Mumbai, Chennai and Kolkata

42. In reality, many of the roads in Myanmar are in poor condition (based on interviews with users) with the border linkages being particularly bad. It is recognized that many of these border roads pass through difficult terrain and this makes road construction and maintenance both difficult and costly. This situation is not helped by the civil unrest present in many of these border areas, potentially compromising routine maintenance on these road sections.

43. Myanmar is committed to the AH initiative and is building connecting roads with the assistance of limited bilateral aid programs[7]. Clearly, the lack of potential funding from the international institutions compromises its ability to develop such international links. Naturally in these circumstances, Myanmar is more focused on upgrading its internal road transport networks, rather than on international connectivity. However, even these internal road developments will be beneficial in the event of later development of the border roads. Neighboring countries are offering conditional funding on some of these border connections, but implementation is slow.

e. Nepal

44. Nepal suffers from poor road infrastructure due to the mountainous nature of the country and this affects overall transport times and connectivity. A number of bridges are only single lane and of limited load capacity, restricting the transportation flow. Other sections are highly congested, including roads in and out of Kathmandu and at other major towns. Unlike Bhutan, Nepal has a good east-west road along the lowlands and this enhances not only internal connectivity, but reduces the need to cross into India for internal transits. There is growing congestion at the borders with higher volumes of traffic. In particular, at Birgunj some reconfiguration of the roads is essential to provide a direct link between the inland container depot (ICD) and the Indian border without the need to transit through the town.

f. Sri Lanka

45. The Government is giving a high priority to infrastructure development with 5% of the GDP being allocated as infrastructure budget for the current year. The Road Development Authority has been engaged in the implementation of several foreign-funded projects covering construction of major highways, rehabilitation of roads and taking measures to reduce road congestion. The Southern Highway component of the Southern Development Transport Project is presently in progress at an estimated cost of $290 million, funded separately by the ADB and the Japan Bank for International Cooperation (JBIC). The construction work of the ADB-funded (southern) section of the Southern Highway commenced in early 2003 and is expected to be completed in 2007. The JBIC-funded section commenced in 2005.

g. Thailand

46. The main highway network in Thailand is in good condition with extensive multi-lane highways. The main constraint relates to congestion on routes to or through the Bangkok metropolitan area. The Thai Government has now adopted a policy of improving roads to the borders and is actively assisting Myanmar with the road within Myanmar connecting to the Thai road system at Mai Sot.

47. Development of the link to Dawei Port or another port in southern Myanmar in Myanmar would require the construction of new roads or substantial improvement to the existing link roads within Thailand. There has been a proposal for private interests to build

[7] These include the Indian assistance on road from Tamu to Kalemyo and Thai assistance for 18 km Myawaddy-Thingayingnang road section.

this link as a toll road, although this may be difficult unless significant volumes of traffic can be identified.

2. International Road Transport

48. There is very little international transport in the BIMSTEC region, because trucks from one country are not generally allowed to ply the roads of another. Thus, cargo carried by the road transport hauler in one country is transferred at the border to a carrier of the other country. In essence therefore, the domestic road transport services of the two countries merely interface at the border. The exception is between Bhutan, India and Nepal where transport haulers can cross into each others countries on the basis of bilateral agreements, though only India does so in reasonable numbers.

49. The international road transport throughout the BIMSTEC region is still relatively underdeveloped, including in India and Thailand. In general, the key issues are the types of vehicles used, the size of operators and poor vehicle utilization.

50. In South Asia and Myanmar, much of the road network is not suitable for operation of articulated transport. The lack of such transport directly results in increased transport costs and larger numbers of vehicles than would otherwise be required. While it is accepted that in domestic transport the average consignment size is expected to be relatively low by international standards, nonetheless there are many shipments that would benefit from larger transport. This constraint is a major issue in respect of international container transport, especially with regard to the movement of 40-foot containers.

51. The standard vehicle used on the South Asia roads is the two to three-axle rigid trucks with a small sleeper cab and an open freight box of 30–40 m^2. These trucks are predominantly old low technology units based on local designs with 135–165 hp naturally aspirated engines. Such vehicles are estimated to represent over 80% of the total trucking fleet in South Asia. These conventional rigid vehicles represent the ‘workhorse’ of the road transport industry and have a high tare weight because of their design and the materials used in their construction. This limits the weight capacity of the truck to comply with the 10-ton axle load requirement (8.2 tons on some roads). In practice, overloading is endemic as little regard is paid to such limits when compared to maximizing the volume potential of the vehicle unit. Basically, transporters load as much as can be accommodated physically on the unit, thus maximizing the payload and their income. Whilst some penalties may be imposed, the degree of regulation means that transporters are adequately protected against such eventualities. For example, drivers traveling between Kolkata and Nepal regularly overload their two axle trucks with 16 tons and the three axle trucks up to 24 tons to maximize the volumetric capacity.

52. Another key problem throughout most of the BIMSTEC region is that the sector is dominated by owner-drivers or small operators with one or two trucks and very few fleet operators. The predominance of these small operators may have some short term benefits as their fixed operating costs are low, but this situation severely constrains the ability of the road transport sector to modernize. Most trucks are old and poorly maintained because the concept of routine maintenance is not understood, as evidenced by the high amounts of roadside breakdowns along any of the main transport corridors. The revenue generated by these owner drivers and small operators is normally insufficient to allow for any appreciable fleet modernization programs.

53. Articulated transport[8] is required to reduce unit transport costs and enhance efficiency. Such units are expensive and require the fleet operator who can afford to fund, run and maintain such transport where the infrastructure permits. The restriction on foreign direct investment (FDI) in some countries has inhibited the introduction of such transport and modern transport techniques. Another constraint is the undercutting of rates by the small operators making it more difficult for the fleet operator to expand. At many of the land borders, local associations/'mafias' control rates and decide who carries what. Fleet operators with articulated transport tend to be more concentrated around the ports for the convenience of handling container traffic, rather than being present at inland locations.

54. Vehicle utilization is generally poor, leading to increased rates to cover for the idle time. The primary causes of this high vehicle downtime are waiting for loads due to market oversupply, waiting to obtain a full load as opposed to a part load and the delays at borders/checkpoints, combined with the poor infrastructure lowering average driving speeds. An additional factor in the international market is the major imbalances in availability of cargo and the consequent severe difficulty in obtaining revenue on both legs of the journey.

55. The lack of bilateral or multilateral transport agreements that permit through transport has been cited as a major constraint to regional connectivity, for example between Indian and Bangladesh. While it is acknowledged that development of such agreements would be beneficial politically and strategically, the impact on road transport costs along key corridors may be more questionable. The reality of the situation based on discussions with transport entities is that Bangladeshi transporters are not pressing for such an agreement because their interest in transiting through India is limited. They consider the potential revenue gain would not compensate for the inevitable operational problems and administrative costs arising in such movements. In addition, the traffic imbalance will inevitably result in problems in round-tripping, compared to their Indian counterparts who have access to Indian domestic traffic for their return loads. The fact that their transport activity finishes at the border effectively means it is a domestic movement and therefore it is not subject to all the regulations which would inevitably be involved in international transport. Interviews with transporters in both Nepal and Bhutan indicated that although they were permitted to transit to Kolkata, they rarely did so citing almost identical concerns to those of the Bangladeshi truckers as above. Similarly, Thai truckers also expressed some reticence on traveling into Myanmar, even if they were allowed to do so. It was noted that trading practices were such that a border transfer and storage facility often suited the trading community but may limit the potential for through transit.

56. It is recognized the above may be contrary to the institutional viewpoint whereby the development of such agreements is seen as a regional priority. Unfortunately in reaching this institutional conclusion, adequate consultation with those expected to operate under any such agreement may not have been undertaken. An additional concern is the main beneficiary would be the country with most of the outward traffic (in South Asia this would be India) and therefore there are protectionist pressures in the countries with less traffic. Most traffic from India to Nepal and Bhutan and vice versa are carried in Indian trucks despite bilateral agreements allowing all countries to compete. Another factor, possibly influencing the institutional perception for urgent signature of cross-border agreement has been the high publicity given to the success of the Greater Mekong Subregion (GMS) agreement and that it could be replicated in South Asia.

57. Despite these caveats, the development of through-transport should be progressed. The 14th South Asian Association for Regional Cooperation (SAARC) Leaders Summit decision to formulate regional transport and transit agreements and the signing of the

[8] Articulated transport is the use of tractor-trailer units (a traction unit fitting onto a separate trailer), as opposed to a rigid transport consisting of a single truck unit

Association of Southeast Asian Nations (ASEAN) Framework Agreements on Transport, Inter-State Transport and Multimodal Transport Agreements clearly demonstrate a political wish to develop region-wide through transport. The ADB SASEC program is shortly to launch an important TA study to design such a road transit agreement. There is no doubt that through-transport eliminating the need for border transfers is the desirable 'end goal' and would lower transport costs. In doing so, it will be essential to understand the requirement of the road transporters and their clients when drawing up such an agreement. It is clear from this study that the initial 'uptake' of such agreements may not be as great as expected in the early stages, though hopefully it can be expanded later on as transport and trading practices adapt to reap the benefits of such an agreement.

B. Rail and Rail Transport Sectors

58. Rail transport is especially important in the potential realization of BIMSTEC's land-bridge strategy. It is the only mode which can possibly compete with the low-cost maritime mode, given its potential to carry large volumes of cargo over long distances at relatively low unit cost per kilometer. If a through-rail system could be developed between India/Bangladesh and Thailand through Myanmar, it would provide not only the potential for carriage of existing maritime traffic, but also offer the opportunity to move lower value cargoes in bulk, given its door-to-door capability. This could significantly expand the range of products being traded between BIMSTEC members.

59. The major constraint to this goal is the lack of connectivity between the rail networks. Myanmar in the centre has only a national system without any international links. Thailand has no rail connections in the north or west where it borders with Myanmar. India is connected to Nepal, but even here there are constraints and a through link between the main part of India and the north-east states through Bangladesh at the present time is not possible. As yet, there is no rail connection between Imphal in India and the Myanmar border or between Bangladesh and Myanmar. Thus, it is accepted that the potential to establish a through-transport system based on an all-rail option will prove to be both difficult and costly to develop, thus it represents a longer term goal.

60. A key issue is the differences between the rail gauges in the member states. India has a three gauge system, but is predominantly broad gauge west of Bangladesh and meter gauge (MG) east of Bangladesh in the north-east states. Bangladesh is generally broad gauge in the west and MG in the east, with some dual gauge links. However, it is not yet possible to reach Dhaka from Kolkata using a common gauge. Both Myanmar and Thailand use MG but they are not connected. At this stage the main gauge problems are between India and Bangladesh but if a link to Myanmar were developed, then similar incompatibility problems would arise as India is converting to an all broad gauge national network. Gauge changes require transshipment and this seriously compromises the cost and service benefits of rail transport over competing modes. While it is acknowledged that an intermodal system could technically be developed, the major problem is the road infrastructure between possible connecting railheads, themselves quite far apart, and their poor quality. Therefore, intermodal transport is not considered to be a viable solution in the foreseeable future.

61. Another key issue is the potential incompatibilities in rolling stock. The Indian system is predominantly based on air-braked rolling stock, whereas in Bangladesh it is vacuum-braked. The fact is that they cannot operate on each others networks, which results in special wagons having to be used between the two countries (BCX wagons). Similar compatibility problems may arise between India and Myanmar, though probably less so in that the differences in gauge will require goods to be transshipped. Reliance on specialized wagons and the slow turnaround mean that wagon utilization is poor, and thus international movements may not be as profitable as domestic operations.

62. The last key issue is the overall condition of the rail network, especially in eastern India and Bangladesh. Investment in maintenance and development has been inadequate over the years resulting in speed restrictions and other types of limitations throughout the area, making rail less competitive versus the roads, even though roads have similar problems of poor infrastructure. It is understood that Myanmar and even Thailand have significant restrictions on some of their lines and have indicated little interest in developing border linkages.

63. The other issues and constraints in the BIMSTEC countries are as follows:

a. Bangladesh

64. The rail network has been neglected for a long time without adequate budget to provide for much needed maintenance and/or improvement. As a result, the infrastructure is generally in poor condition with a number of inadequacies, such as short loop lengths, marshalling yard lines and terminals restricting the ability of locomotives to haul full train loads. Mechanical signaling and track structures further restrict freight train speeds. Apart from about 900 km of main line, lines and crossing loops are in bad condition leading to frequent derailments. The funding constraints are further compounded with Bangladesh Railways (BR) required to operate extensive passenger services at low fares. This results in insufficient revenue to justify investment, despite the high passenger demand. The priority given to passenger trains also causes delays to freight trains and reduces their competitiveness. This is a particular problem where lines are single track.

65. The funding problems have been recognized by the Government and in the Bangladesh Railway Investment Program 2007–13 the main agreed projects are duplication of the Tongi – Bharaib Bazaar section, rehabilitation of rail lines, remodeling/rehabilitation of railway stations, signaling and procurement of locomotives and carriages/wagons. In addition, both ADB and the World Bank have assistance programs aimed at improving track and wagon maintenance.

66. BR rolling stock is poorly maintained and most is overdue for repair or beyond its economic life. BR policy is to move towards air-braked stock, but a considerable amount of unbraked rolling stock remains and this can only be hauled at a slow speed, dramatically reducing effective track capacity. The amount of unbraked stock also limits the number of trains that can use the Jamuna Bridge. Theft of brake blocks and other equipment thwarts attempts to upgrade stock and the generally poor condition of the rolling stock restricts possible train speeds.

67. While some locomotives are fitted to haul both vacuum and air-braked stock, unavailability of suitable locomotives at Darsana and Benapole has been cited as a reason for limiting the types of wagons used on the international route to vacuum-braked stock. The average turnaround time for Indian wagons bringing goods into Bangladesh is five to six days for an average movement of only 70 km. The turnaround time is considered excessive for this relatively short movement and a source of friction with Indian Railways.

68. A new dual gauge link between Ishurdi Junction and Dhaka Cantonment station provides a broad gauge (BG) link with India from the outskirts of Dhaka, but restrictions imposed by the Jamuna Multipurpose Bridge Authority (JMBA) prevent the movement of Indian BG wagons over this bridge. Re-rating the bridge, possibly involving bridge strengthening, is being investigated by ADB but the cost of such strengthening is expected to be quite high. Other options including weighbridges to ensure wagons are within allowable limits have so far been rejected by JMBA.

69. The route between India through to Myanmar and its north eastern states could be shortened if movement through Bangladesh was negotiated satisfactorily. The main route would be from Darsana to Akhaura or Shahbazpur via Ishurdi and Tongi junction. However, there would need to be the transshipment for freight between BG and MG (MG) at some point between Ishurdi and Tongi. However, it is recognized that both countries do not consider such a through route as a priority.

b. Bhutan

70. Bhutan is not presently rail connected. A feasibility study on a network of railway lines from five places in Bhutan to nearby connection points in India is being undertaken by Indian Railways. The most likely and shortest link would be between Hashimara and Phuentsholing, a distance of only about 18 km. The critical issue is whether Bhutan can generate sufficient traffic to be able to either justify or prioritize the investment requirements as estimated by Indian Railways.

71. Suggestions have been made that this line could be justified by third country container traffic from Kolkata/Haldia. There are a number of problems with this. Firstly the volumes into Bhutan are relatively low and Bhutan is becoming ever more dependent in Indian bilateral trade rather than third country. There is virtually no export traffic, so all containers would therefore be returned empty. Secondly, CONCOR[9] only operate full trainload traffic causing delays in container movements until the necessary volumes are reached. Lastly, the connecting point in Bhutan is to be an ICD located in the industrial estate outside Phuentsholing, but unfortunately almost all of the land has now been used for other purposes.

c. India

72. The ongoing 10th Five year Plan (2002–07) envisages a planned investment of Rs 60,600 crores for the development of Indian Railways network on gauge conversion, line doubling, electrification, traffic facilities and other capacity enhancement. Indian Railways have also introduced an Indian Railway Modernization Plan (IRMP) (2005–10). The plan aims at modernization of assets by the introduction of state-of-the-art technology to improve efficiency and to create the additional capacity required to meet the future traffic demand. However, for works undertaken or in progress on international lines only Rs 4400 crores have been allocated.

73. The container service between Kolkata and Birgunj is considered to be successful and has been gaining traffic, but is still well short of the original projections from when the original ICD feasibility study was undertaken. One constraint on this link is the poor connectivity to Haldia, although it appears that more of the container operators are now moving back to Kolkata Port from Haldia.

74. Suggestions have been made that, if the infrastructure and rolling stock problems could be resolved, there would be potential for such a container 'block train' link between Kolkata and Dhaka. However, the consultant considers the prospects for this type of link may be limited. Firstly, the third country traffic to Bangladesh is unlikely to ever transit through Kolkata Port. This is due to the costs of the surface transit and trade facilitation being significantly higher than using Chittagong. Since the maritime services use feeder vessels, the same vessel calls at both ports, so there is little benefit to be gained in off-loading at Kolkata before Chittagong and in some cases the vessel calls first at Chittagong. Secondly, it is unusual to containerize cargo for an all-surface transport system. Containerization is almost always used in connection with a maritime transit. There are exceptions, but in this case the prospects for such a system appear somewhat limited. However, it may be possible

[9] CONCOR (Container Corporation) is the main operator of container trains on the Indian rail network

to look at such a link on the basis of a combination of bilateral and third country traffic if it could be part of a regional container network.

75. From a BIMSTEC connectivity perspective, the critical issue is the potential for linking the Indian rail system to the Myanmar rail network. There are two possible routes from Kolkata to the proposed border point at Tamu – via Guwahati or via Bangladesh. Via Guwahati, the route would follow the Kolkata – north-east main line as far as Lumding, and then the route would be via Badarpur junction to Jiribam from whence the new link would cross into Myanmar. Once gauge conversion in the north-east states is complete, only one change of gauge would be involved, this being at the Myanmar border. The route via Bangladesh would use the BG link from Kolkata to Tongi in Bangladesh and then the MG link from Tongi to Akhaura. There are two possible potential routes from Akhura to Badarpur junction – via Agatala and Karimganj or via Shahbazur. From Badarpur the route is the same as the route via Guwahati. This route would be substantially shorter, but it would involve three gauge changes, unless the sections in the north-east states were constructed in dual gauge.

d. Myanmar

76. The key issue as regards Myanmar is its lack of international connectivity, whether such connectivity could be prioritized and if there is sufficient demand to be able to justify such developments, particularly given the high cost of constructing new lines. It is noted that the remaining link between Kalay and Tamu (135 km) has been identified by Myanmar Railways as a priority for development. The fact that the connection between Mandalay and Kalay has been completed in January 2007 is encouraging. This route possibly has more potential and could form a corridor between India and China. However, it is dependent on the Indian side also completing its line at the same time and the Indian Railways may have other priorities. Indeed, it is noted that this link is missing from their published development plan.

77. The issue of connectivity with Thailand is more of a concern. The main problem is the high cost of developing the link due to the mountainous terrain. While technically possible, clearly such developments require significant traffic levels to achieve the required financial or economic return. A recent international feasibility study indicated that the Three Pagoda Pass routing was uneconomical, mainly due to the high construction cost and lack of identified traffic. It is not clear whether the alternative more southerly route would be any cheaper and could command the necessary levels of demand, possibly in connection with the development of Dawei or another deep water port for handling Thai transit traffic.

78. Another important issue is whether the level of service that Myanmar Railways could offer when these through-links were established between Thailand and India and vice versa could be competitive with the all-sea route option. It is evident that in order to attract transit traffic a system of prioritized block trains would be required. It is a concern as to whether such a system could be developed on the basis of the existing network, which is mainly single line, or would be acceptable to Myanmar Railways. Discussions with rail officials suggest that the development of international links should be postponed until after the improvements in the domestic network have been completed.

e. Nepal

79. Traffic between Kathmandu and Kolkata or Haldia ports would normally use Birgunj, which is also well placed for traffic from the southern Terai Belt of Nepal. However, for traffic between Nepal and Bangladesh, north-east India, and in the future Myanmar and Thailand, a connection into the north-east frontier lines at New Jalaiguri may have advantages, while for traffic towards Delhi or Mumbai a more western entry point such as Nepalganj would probably benefit the traffic destined to/from western Nepal.

80. In relation to the existing services to the Birgunj ICD there are several issues. The major one is that until now open wagons have not been permitted and it is only since 2006 that bilateral traffic in covered wagons has been allowed. This has placed limitations on the volumes routing through the ICDs, resulting ultimately in problems for CONCOR in meeting its financial covenants, such that they now need to be renegotiated. The ICD operator is forced to load bulk export items into covered wagons for which they are not well-suited and this practice increases the handling costs. More importantly, the current restrictions mean that for import bulk traffics from India, Nepalese transporters have to travel to the Raxaul railhead to collect the goods. This not only increases costs, but represents the main cause of congestion at the land border. It is understood that talks are at an advanced stage to lift this restriction and the conclusion in the form of an agreement is urgently required.

81. The CONCOR service is achieving high penetration of the 20-foot full container load cargo coming from Kolkata, thus addressing some of the problems in moving this traffic by road. This has resulted in service regularity improvements, since CONCOR will only send a trainload when a complete train of 70 TEUs is available. However, their penetration of the 40 foot market is nominal as the rate charged is almost the same as twice the 20-foot container rate. As a result, it is much cheaper to either unstuff the container in Kolkata or to send it by road.

82. Currently, third country traffic to Nepal is coming through both Kolkata and Haldia. However, CONCOR have insufficient volumes from Haldia to offer a direct service. Consequently, container traffic has to be transferred by road up to the Kolkata terminal, thus adding to the costs. For this reason, importers try to route their traffic through shipping lines calling at Kolkata rather than Haldia. The fact that a number of container lines have recently moved back to Kolkata from Haldia will help.

f. Sri Lanka

83. The only key issue from a BIMSTEC perspective is the lack of rail connectivity into the port. It is understood that this is due to the dimensions of containers on flatbed wagons being greater than allowed on the interlinking rail infrastructure. In order to address the problem of port congestion until the new South Harbour Extension comes ‘on stream’; there have been proposals that all import cargo for Sri Lanka should be taken off-dock, in much the same way as at Jawaharlal Nehru Port Trust (JNPT) in India. Importers would clear and collect their goods from these off-dock ICDs or container freight stations (CFS), leaving only transshipment containers in the port. This would help improve the performance of transshipment traffic, which is threatened by competing ports such as Chennai. The ability to move these import containers off-dock in bulk with a rail link is seen as critical to adoption of this strategy. It is understood that technical discussions on how to address this situation have commenced.

g. Thailand

84. There is congestion on the single track between Ladkrabang ICD and Laem Chabang Port where 80% of the rail traffic is generated by six terminal operators in Ladkrabang ICD and together they nearly reach the full carrying capacity of rail. The capacity of Laem Chabang port is being increased to facilitate 5 million twenty-foot equivalent (TEU) at which time rail capacity will be exceeded. Already delays to trains have a knock-on effect because there is no ability to recover. State Railways of Thailand (SRT) locomotives are too old and have only very limited capacity and this exacerbates problems with the line capacity to Laem Chabang Port. There are frequent rail accidents due to heavy loading and the high traffic levels with low maintenance by SRT. Recently, the Thai Government approved the double track project for the Chachoengsao-Si Racha-Laem Chabnag rail section with a total length

of 78 km. The completion of this project, together with SRT rolling stock upgrading, is expected to ease the congestion.

85. It is clear that the development of a rail link to Myanmar, via either the Three Pagoda Pass or via Dawei, is not seen as a priority given the primary emphasis on improvements in the national network. SRT's stated priority is to improve the local Bangkok commuter services, whilst the Government is seeking overall improvements in national connectivity. Under a proposed turnaround plan, SRT will change its status to 'operator only'. These changes during the transition suggest that the Government may not be willing to become involved in the heavy investment necessary to open up the Myanmar connection and therefore any international connectivity may be more focused towards China.

C. Maritime Sector

86. The BIMSTEC region is interconnected by both main line deep sea container and feeder ships distributing containers throughout the Bay of Bengal from hub ports. The main line operators traditionally transshipped their containers through Colombo port feeding them to and from ports located in the Indian subcontinent and Bangladesh. Thus, Colombo has served as the major hub in the region due its proximity to the mainline shipping route between Europe and the Far East. However, the market dynamics are changing with Indian ports now being able to generate sufficient volumes to merit direct vessel calls by main line ships and their productivity levels are moving closer to international standards. Among the emerging ports in India, Chennai on the southeast coast is one such potential future hub port.

87. Colombo has started experiencing problems of congestion and capacity limitations. Unless operational inefficiency and capacity constraint issues are addressed immediately it is very likely that the regional feeder network may undergo a change resulting in a dwindling of transshipment traffic through Colombo in the near future. However, in the medium to long term Colombo may re-establish advantages over India with the development of the modern container terminals in the southern harbor that can accommodate vessels drawing 18 m draught, which is more that any Indian port.

88. Laem Chabang in Thailand is gaining importance in the Gulf of Thailand with mainline calls and having excess capacity in the short term. The restriction of 1 million TEU placed on Bangkok Port should result in some of the existing feeder services currently serving Bangkok being switched to Laem Chabang. It has potential as a hub, but this is more in relation to Cambodia and Lao People's Democratic Republic (PDR), rather than for BIMSTEC countries.

89. Note should be made of the importance of hub ports outside the region that have an impact on BIMSTEC shipping services. Singapore acts as a hub for most of the traffic to and from Myanmar and handles transshipment of a significant amount of container traffic between Thailand and South Asia, as an alternative to Colombo.

90. A key problem in both the northern part of the Bay of Bengal and the Andaman Sea is the limited draught due to high siltation levels at all the river ports and on the approaches. Several new ports with deeper draught are being proposed, such as at Diamond Harbor near Kolkata and Kyaukphyu in Myanmar. A new deeper draught port off Chittagong has also been under discussion. The key issue for all these developments is whether there is sufficient demand to justify these major developments and whether main line container vessels with the deeper draught would actually use them.

91. A key concern in the BIMSTEC region has been cited as its continued reliance on feeder rather than mainline services. Given the draught restrictions in the northern part of the

Bay of Bengal, this situation is unlikely to ever change. Clearly, transportation using feeder vessels will be more expensive than direct mainline vessel calls, thus sea freight rates to ports such as Kolkata and Chittagong will always be higher than to ports like Colombo, Chennai and Laem Chabang. However, there is little doubt that the poor operational performance at these northern Bay of Bengal ports has compounded the situation. While there has been some improvement, this progress has not been sufficient to increase the port performance to the extent that would justify any reductions in freight rates.

92. Important features of Bay of Bengal shipping operations are the traffic imbalances and seasonal demand. The former results in the differences between inbound and outbound rates as shipping lines struggle to balance traffic and minimize the stockpiling of empty units. The second factor is seasonal demand. From July to November is the 'high' or peak demand season and December to June is 'low' season. Shipping lines tend to raise their rates in the high season by as much as 50% compared to the low season (or drop them by 50% in the low season depending on one's perspective).

93. Another issue which is often raised is whether by having dedicated direct services around the Bay of Bengal, as opposed to using hub ports like Colombo and Singapore, sea freight rates would be lower. The trade analysis highlights that intra-BIMSTEC trade, other than in the case of Bhutan and Nepal, represents only a minor component of their overall trade, so volumes by sea between the countries is small. Consequently, the only way a dedicated direct service could work would be to have smaller more expensive vessels or reduce the service levels in order to consolidate traffic. Both options would have a negative effect on intra-BIMSTEC trade. The reality is that feeder services will always be required for the larger non-BIMSTEC traffic and dedicated direct BIMSTEC services around the Bay of Bengal are unlikely to be viable compared to existing feeder services, especially if larger feeder vessels could be introduced.

94. The operators will be seeking to minimize the number of calls in a voyage with higher loadings per call, rather than more calls to attract the same volumes of traffic. This explains why shipping lines are reluctant to call at ports such as Mongla or Ranong or Phuket. This issue is particularly important in the context of development of ports in the Andaman Sea (Kyaukpyu, Kalegauk, Dawei, and Bokpyin in Mynamar and Phangha and Satoon in Thailand). It is questionable as to whether there is the demand for all of these ports and if shipping lines would be prepared to call. Merely constructing a port will not in itself create demand. More research is required in relation to these developments involving discussions with potential service providers.

95. The following are the key issues and constraints in the maritime sector in the BIMSTEC countries.

a. Bangladesh

96. Chittagong is the main port and like other ports in the northern Bay of Bengal has significant draft restrictions, thus limiting the size of vessels that can call. This problem is compounded by various navigation restrictions that result in delayed berthing and departure. The berth occupancy is high and unfortunately the cargo handling performance is still low, despite some recent improvements. Most of the container ships are handled at the highly congested container terminal, but others have to use the general cargo berths using ships own gear. Geared container ships are more expensive to operative and have a much slower handling rate than when using ship-shore gantries, as provided at the container terminal.

97. Problems with the inland distribution system for containers, such as the weight restrictions on the road network and the lack of rail wagons for moving containers to the ICD in Dhaka, result in a high proportion of containers being unstuffed at the port. Until recently

all consolidation containers had to be unstuffed in the port's container freight station, which is unsuitable for the volumes of traffic now passing through it. The congestion problem is further exacerbated by the trade facilitation problems and low storage charges resulting in high container and cargo dwell times. The port has been the subject of congestion surcharges since July 2006.

98. Chittagong in reality is a monopoly, given that it handles almost all the Bangladeshi container traffic. This situation may be one of the key reasons for its slow performance improvement over the years. The fact that it does not have to compete for traffic may have caused some complacency and reticence to address outdated practices within the port's most critical problem areas. Unless significant changes are made in the short term, the prospects will be for increased congestion and the imposition of further surcharges, resulting in a negative affect for the intra-BIMSTEC trade. The current ADB Port Efficiency Study is attempting to address these issues with the relevant authorities.

99. The Government has being trying to promote Mongla as an alternative to Chittagong and as a potential gateway to Nepal and Bhutan. Unfortunately, this strategy has been unsuccessful because geographically the port is not strategically well located. It also has no rail link and has poor road connectivity. There is no appreciable traffic demand in the immediate catchment area, as the centers of demand are further east towards Dhaka. Lastly, the shipping lines do not want an additional call to those at Kolkata/Haldia and Chittagong as these ports are only a day sailing apart.

b. India

100. There is concern in the industry that the current legal framework is not providing the necessary regulations for a 'level playing field', or promoting fair market competition as a multiplicity of new port developments are being planned. The Planning Commission of Government of India has come out with a consultation paper on the Approach to Regulation: Issues and Options, but even under this framework regulation of inter-port competition is not made clear, particularly the mechanism needed to monitor events. The Government is aware of the situation and it is making an effort to identify possible solutions to these unique problems. There is a significant danger that too many competing ports may be developed taking advantage of various government and state subsidies and not all of them may be viable.

101. Chennai Port has a number of key issues associated with its need to downsize its operations to suit the future demand. The developments to the north at Ennore and south at Tuticorin mean that some of its activities, especially bulk handling, have been reduced. Downsizing, as in other Indian ports, is proving to be a difficult process because of the reliance on traditional practices and the excess labor force. However in relation to container operations, the situation is completely different. The container terminal performance at the private terminal is now achieving performance at around 66 moves per ship hour compared to 56 at Colombo, which was the market leader in the region. Due to the high terminal productivity with limited congestion, as well as attractive financial terms, Maersk is now moving most of its transshipment activity from Colombo to Chennai. Whether other carriers will follow remains to be seen. Clearly, Chennai has become more competitive in recent years and the prospects appear to be good for this port.

102. At Kolkata, the river draught in the approach channel restricts fully loaded container vessels beyond 500 TEUs calling. Shipping lines using Kolkata regularly experience problems due to river draft restrictions and the need to wait for high tides. If one cycle is missed, then it has a roll-over effect at the next port of call where the allocated 'window' cannot be utilized. Kolkata Port does not operate on the basis of allocating berths on 'window' arrangements, due to such uncertainties and this is a problem requiring attention.

103. The Kolkata container terminal is highly disorganized with containers being stored wherever vacant land is available. The situation is compounded by the need to find space for the high levels of customs examinations, plus all CFS activities have to take place within the port area (as opposed to at Mumbai and Chennai where all CFS activities are off-dock). The port gate is heavily congested with vehicle traffic for long periods, with trucks queuing everywhere and high turnaround times. Trucks loaded with containers are parked haphazardly causing congestion both within the port and the container terminal area. The container terminal operations are computerized but the yard operation is not. Thus, it is still reliant on manual identification of containers. Because of the large numbers of units and the need to unstack and restack them for customs examination, finding the location of individual containers is a perennial problem.

104. Container dwell time is considered to be the most critical issue. A recent study by Customs suggested an average dwell time of 23 days. There are a number of factors that lead to this adverse situation. The first is the long free time given by the Port Trust. Customs indicate that they usually do not receive entries until at least seven days after a ship's arrival. Many importers have either limited or no storage facilities, so they prefer to keep their goods in the port and delay payment of duty and fees until close to the time of making the final delivery to the end-user. The delay is then compounded because it takes one full day to get the delivery notes from the ship's agents and another day to undertake the port clearance procedures. Finally, there is the delay in getting vehicles into the port and the availability of specialized equipment to load the containers onto their vehicles. The clearance cycle is significantly higher than at the other major Indian ports.

105. Haldia suffers similar problems but this is largely masked by the lower volumes handled at this port. Industry sources suggest that the trend is to concentrate the general cargo and container activities at Kolkata and the bulk handling at Haldia, although this viewpoint was not supported during interviews with the Port Trust. However, it is noted that some of the container shipping lines have recently moved back from Haldia to Kolkata, partly due to changes in the tariff.

106. Tuticorin similarly suffers from limited draught at the berths restricting the size of vessel that can be accepted. Inspection of the container terminal showed undulations in the decking where loaded container trailers are constantly moving. The operator revealed that despite considerable repairs having been carried out, the problem persists as the terminal construction was not originally intended for container operations. Moreover, the berth length is only 190 m and therefore cannot handle the larger sized feeder vessels. There is no rail connectivity between the hinterland ICDs and the container berth within the port, even though there is a rail link into the main port area. This lack of rail connectivity is seen to be limiting the port's potential as a 'gateway' facility.

c. Myanmar

107. Yangon Port is a river port and in common with the river ports further north in Bangladesh and India, it suffers from limited channel depth, tidal variation and sand bars. One sandbar is at the entrance and the other near the port. The approach channel restricts navigation of vessels causing pilotage to be compulsory. The development of Thilawa Port is recognition of this problem and with its ability to handle vessels up to 200 m in length; 9 m draught and 20,000 deadweight tonnage (DWT) this port can in the short to medium term handle the level of demand, especially for container traffic. Yangon Port itself operates on a two shift basis only, thus increasing vessel turnaround times. Cargo handling uses traditional methods resulting in relatively low performance levels, although the development of the container facility by Hutcheson at Thilawa Port means that this is less of a problem at the present time.

108. Stakeholders cited existing customs procedures and government interference as restricting the rapid and efficient clearance of cargo, leading to the incidence of high dwell times. Given the limited traffic demand at present, this may not be critical, although it may adversely affect freight rates. However, as demand increases so will the congestion, thus it could potentially become a problem in the future.

d. Sri Lanka

109. The key issue at Colombo is the delay in the development of the south harbor extension. While the project has been discussed for many years, the pace of implementation has been slow. Industry interests all indicate that the project is now several years too late. This has been caused by a poor planning process, not allowing sufficient lead time to ensure the continuity of port capacity by investing in the future, rather than by merely addressing their current needs. The port is moving rapidly towards maximum capacity with the existing facilities and there is concern as to whether the existing port will be able to avoid congestion problems before the new facilities come on stream. Some parties have suggested that the recent transfer of some transshipment operations to Chennai, where capacity is available, is a response to these concerns.

110. Industry sources suggest there may have been an air of complacency, as the port's throughput has been growing year by year and the forecast was for this trend to continue ad infinitum. The mere fact that Colombo is situated close to the mainline shipping routes, and the assumption that the overall port development growth in India will be insufficient to keep pace with their future demand, would ensure Colombo's pre-eminent position. Therefore, there was no strong pressure for urgent action. The loss of traffic to Chennai may provide a 'wake-up call' in that Colombo will have to compete for traffic and recovering lost traffic may not be easy. Clearly the development will now proceed, but it is important for both Colombo and the BIMSTEC region that there are no further delays in its completion by end 2010.

111. The problems in delayed implementation are manifesting themselves in the existing port with berth occupancy at over 70% and the container terminals becoming increasingly congested. The South Asian Gateway Terminal facility is reaching capacity and given its location it has no further potential to expand. Fortunately, due to its high performance and relatively low container dwell times it is coping. The other two terminals operated by the Port Authority are also congested and there are additional problems in terms of equipment availability and performance as they are reaching the end of their economic life. There has been insufficient long term planning as this situation should have been addressed earlier through phased equipment purchases. Indications are that the five CFS sheds are having problems handling the volumes of less-than-container-load traffic.

112. Due to the security situation, the check-in at the main gate is controlled by the military allowing only a single lane operation for entry and exit. This leads to long delays, particularly as the military is not responsive to commercial performance pressures and conversely the users are not appreciative of the security aspects. For a major international port, the slow performance at the gate is a concern, although it is hoped this is only a temporary measure. The situation is compounded by poor transport planning whereby trucks carrying containers can either pick up or drop a box at the container yard inside the port, but two-way loaded movement that would be more efficient is not practiced.

113. The cost of using Colombo Port is cited as high due to the terminal handling charges (THC), being the second highest in the region. Importer's and exporter's agents complain they are subsidizing transshipment traffic, although comparisons with competing ports suggest that the transshipment THCs are reasonable and it is merely that the THCs for national traffic are high.

e. Thailand

114. It was agreed at the inception meeting not to examine the ports in the Gulf of Thailand. Laem Chabang is the premier container port and the growth restrictions imposed on Bangkok Port at 1 million TEU will make Laem Chabang even more dominant. The latest extension to the port means that adequate capacity is available for expansion. Performance levels are comparable to Singapore and Hong Kong. Road connectivity has been an issue, but is now being addressed by the construction of additional highway linkages.

115. The report focuses more on the Andaman Sea ports and their potential in the context of intra-BIMSTEC trade. At Phuket Port, utilization is declining due to dwindling cargo traffic being only 28% of its potential and the berth utilization down to only 20% in 2006. The main reason for this adverse position is the lack of supporting industrial clusters in the hinterland and that the port is over 800 km from the mainland areas of demand near Bangkok, with connectivity being both difficult and expensive. The potential to develop this facility as a container port, servicing the Bay of Bengal, is extremely low. It is unlikely any container shipping line would be interested in calling and in future, the primary role of Phuket will be restricted to that of a passenger port. Therefore, a specialized passenger facility may be required.

116. Ranong suffers from the same problems as Phuket as it is also located far from the centers of demand. It also suffers from a lack of rail connectivity with the nearest railhead 110 km away at Chumpohn. It is considered that Ranong's future role is likely to be in the development of the offshore energy sector. This is demonstrated by the state-owned petroleum company's presence and its interest in the port operations. The potential as a general cargo or container port appears limited. A key issue from the Thai perspective is whether to develop the connectivity or focus more on Dawei port or an alternative deep water port in Myanmar that is closer to Bangkok.

D. Inland Waterways

117. The infrastructure problems on the inland waterways system are significant. Within Bangladesh there is high rate of siltation and bank erosion, and as a result it is difficult for the vessels to navigate along these waterways. The draft restriction for the whole year navigation along the corridor from Raimongal to Daikhawa is approximately 1.83 m and in other sections the water depth available ranges from 1.5–2.1 m, with the section Chalna–Raimongol being less than 1.5 m. This means that vessels sizes are small in international terms. Extensive dredging is required to maintain these waterways but unfortunately funds are not available for this work. Major parts of the corridor suffer from navigational hazards, such as shallow water, narrow width of channels and inadequate navigational aids. As a result, night navigation is allowed only on certain sections.

118. The condition of piers, jetties and other infrastructure in both countries is generally poor. There is a lack of storage facilities; cargo handling equipment and existing support craft such as pilot, mooring and survey boats are in short supply with many of them being unserviceable. The lack of container handling facilities has been cited as a problem, particularly in Bangladesh. However, it is considered very doubtful whether there will ever be sufficient demand to invest in such specialized facilities.

119. India has recognized the problem and is taking action to provide new terminals at Kolkata and Haldia, proposed upgrading of the floating terminal at Dhubri and double vertical terminal capable of handling containers at Pandu. Storage facilities are also planned at proposed terminals at Kolkata and Haldia and depending on the utilization of these terminals/routes provision/up-gradation of these facilities could be considered from time to time. If similar facilities are provided in the Bangladesh portion of the protocol routes, it will

further enhance utilization of the routes. The declaration of the Barak River as a National Waterway is also under consideration by the Indian Government. After declaration of this river as a National Waterway, terminal facilities at Bhanga (19 km upstream of Karimganj), and at Badarpur would be taken up by Inland Waterways Authority of India (IWAI).

120. Between Bangladesh and India there was a bilateral trade agreement signed in October 1980 with a subsequent Protocol on Inland Water Transit and Trade between Bangladesh and India agreed in India in October 1999. It has been updated on a regular monthly basis, but the latest agreement signed in May 2007 is for two years. The movement of vessels between Bangladesh and India is taking place under the provisions of this protocol. However, as indicated this protocol on inland water transport was only being renewed on a monthly basis and this was considered to be the foremost obstacle on inland waterways transport corridors between Bangladesh and India. One month was not enough for the transporters to book cargoes and vessels and to organize their schedules to carry on the business. As a result, only a small number of vessels are plying on both inter-country and transit routes, causing the trade to suffer and the spirit of the agreement is lost. The decision in the latest agreement to extend to two years is a major step forwards, though this is still short in terms of promoting substantial investment in the sector. In addition, the protocol is restrictive as the only ports of call in India are Kolkata, Haldia, Pandu, and Karimganj and on the Bangladesh side Khulna, Mongla, Narayanganj and Sirajganj. Traffic destined for other locations in Bangladesh, such as Barisal, Bhairab Bazar, incur additional transshipment costs from the nearest port of call, resulting in waterways transport not being competitive. At the recent renewal discussions in May 2007, both sides agreed to take up the issue of inclusion of Silghat (India) and Ashuganj (Bangladesh) as new ports of call with their respective governments.

E. Aviation Sector

121. The aviation sector is experiencing dynamic growth. The intra-Asia Pacific passenger traffic, including the BIMSTEC countries, is forecasted by the International Civil Aviation Organization (ICAO) to increase at a 'most likely' average annual rate of 5.1% for the period 2005–20, reaching 202.7 million passengers in the year 2020. Cargo is projected to grow at around 8.5% per annum in line with International Air Transport Association International Air Transport Association (IATA) global forecasts. An analysis of the distribution of the year-end 2006 fleet indicates that wide-body aircraft dominate the intra-Asia Pacific market and this trend will continue. The average aircraft size is projected to decline moderately from 233 seats in 2005 to 222 by the year 2013 and then to increase through to the end of the forecast horizon and reach the level of 245 seats. A moderate increase in load factor to 74% in the year 2020 is expected.

122. Given these growth rates, the major concern is obviously the ability of the airport infrastructure to cope with these sustained levels of demand. There is already congestion at the major Indian metro airports, with both passenger and cargo terminals operating at close to capacity. The situation is similar, but possibly not as serious, in some of the other BIMSTEC countries. The growth of air travel has created significant pressure on airport infrastructure as existing airlines expand their services and new carriers (both low cost and network) enter the market. Governments and the private sector have responded by providing additional capacity, privatizing/outsourcing key functions, encouraging private sector investment and adopting a liberalized approach to the regulation of interregional air transport services. General funding for aviation development projects appears easier than in any of the other sectors, but the important issue is whether the rate of development can keep pace with the increase in demand.

123. The IATA Economic Briefing No. 8 Report July 2007 clearly demonstrated a strong relationship between higher connectivity to the global network and growth in GDP and labor

productivity, as well as a link between connectivity and competitiveness. The World Economic Forum Global Competitive Index for the Travel and Tourism Sector Report for 2007 also showed a relationship between connectivity and performance in that greater connectivity helps to serve a country's business sector in a better and more comprehensive fashion, and thus generates significant wider economic benefits. The implications of this are as follows:

- although there is adequate air connectivity within and between BIMSTEC countries, these connections may possibly be constrained by institutional civil aviation organizational (bureaucracy) and aero-political (the bilateral framework and air transport policy) constraints. If these were to be removed or relaxed, then by extension there would be greater connectivity and consequent positive impact on productivity and GDP;
- the removal of both real and perceived barriers to entry and sustainable success in the sector are critical and calls for strong government and private sector partnerships; and
- it is clearly important for BIMSTEC air transport services to link up as strongly as possible into the global air networks in order to maximize productivity and obtain competitive advantage. Achieving this requires the development of alliances with major international carriers operating from regional hubs in Thailand and India, developing new hubs perhaps in Sri Lanka and the strengthening of disadvantaged BIMSTEC international carriers such as Druk Air, Nepal Airlines Corporation, GMG Airlines and Bangladesh Airlines so they are able to access global market opportunities more effectively.

124. Connectivity within the BIMSTEC region is high with airlines responding quickly to demand, wherever it occurs. There are some constraints within the bilateral environment whereby all countries declare 'open skies', but in practice it is rarely available. This is due to the continuing and obvious need for each country to secure reciprocal rights for its own carriers, as well as the constrained access to the Indian metro airports.

125. Improved connectivity in the future will come from the development of the low cost carriers (LCC) which will be competing against the existing network operators. There is unquestionably sufficient demand for the expansion of LCCs in the region. The response by the two largest BIMSTEC countries, Thailand and India, to the low cost market is evidenced by the number of LCCs in each country with domestic success giving confidence to the establishment of international routes, for example; Air India Express between Chennai and Colombo and Bangkok Airways between Bangkok and Yangon. Flights under three hours are seen as the primary LCC target markets in the BIMSTEC region. LCC expansion may, however, be constrained by limitations in bilateral agreements on capacity and frequency, the response of the national network carriers and route viability. Despite this, it is estimated that by 2010 about 10–15% market penetration in the region will have been achieved by the LCC operators.

126. The pricing of airline services (for example fares) as with any commodity or product is a function of supply and demand. It is usual practice for fares internationally to be discounted and sold in response to competition via yield management systems that optimize the sales value of available capacity (seats). Analysis of the fares in the BIMSTEC region suggests that regional fares are not excessive and that cost in isolation is a barrier to travel. If there are any barriers, it is more attributable to non-price factors.

127. The analysis of the issues and constraints in the individual countries are as follows:

a. Bangladesh

128. It is not considered that there are any major constraints to expansion in terms of supply of air transport services to the BIMSTEC countries as such. The Government is cautiously moving towards 'open skies policy' consistent with protecting the national industry

and ensuring there is sufficient capacity on air routes to and from Bangladesh. However, there are significant problems with the national carrier (Bangladesh Biman) as it operates an old fleet, has declining service levels and is unable to fund fleet modernization. The Government is planning to restructure the airline in 2007. GMG, as the private carrier, is expanding rapidly to fill this void.

129. The Government's airport modernization program is gradually addressing the development of airport infrastructure, although there are presently no major problems.

b. Bhutan

130. The major issues are the limitations of Paro Airport. It is located in a high narrow valley, operates to visual flight rules only and effectively is restricted to operations in the mornings. Adverse weather conditions can mean flights are cancelled or delayed. An additional problem is that the traffic is largely dependent on the tourist industry and this is highly seasonal. As a result, despite liberal air service agreements only the national carrier Druk Air operates, and even it is highly dependent of fifth freedom services via India for viability. It is considered unlikely that any major carrier would be interested in flying to Paro given these issues.

131. Even in a monopoly situation Druk Air has appreciable problems. They need additional aircraft to develop new services and this must be an adapted A319 to cope with the specific flight conditions. Because of the physical constraints, the A319 is the largest aircraft able to use Paro and therefore they cannot lower unit operating costs by introducing aircraft with the higher seat capacity. In addition, there is a serious shortage of both flight crew and service engineers, most of whom are attracted elsewhere for work, usually to India.

132. The airport suffers from congestion due to the limited operating hours with all aircraft arriving and leaving in a two to three hour window. The main bottlenecks are immigration and the single baggage carousel. The airport has an expansion program to be implemented in 2008 addressing these issues. An alternative airport has been identified, but its location appears less than ideal for the important tourist sector.

c. India

133. The Indian aviation sector is dominated by two specific issues – consolidation of carriers and the use of concessions to address the major infrastructure constraints. The Government has approved the merger of Air India and Indian Airlines in the public sector and Jet Airways and Sahara have joined forces in the private sector. The new public sector group is expected to provide a more comprehensive integrated flight network. However, it still lacks a major hub such as exists at Bangkok, partly because of infrastructure constraints and partly because of split operations centers at Mumbai and Delhi. Indications are that Mumbai could be developed as the new hub. The new merged group will have some way to go to achieve the service standards of their major competitors, including Jet Airways which is becoming a premium carrier in quality terms. All airlines in India are facing potentially serious shortages of pilots and engineers. The Government has a strategy to address this issue, but it may not be sufficient to address the problem of trained pilots who are moving overseas.

134. The airport sector has major problems and these are only now being addressed through privatization in the form of concession agreements. The major airports (Mumbai and Delhi) have both been 'privatized' recently. However, the industry view is that the inherent delay in this process means that the problems may become worse before the full benefits come 'on stream'. These major airports are struggling to meet the demand and this is resulting in poor service levels at these airports with low passenger quality of service, runway and air traffic control congestion and long delays in cargo clearances. With regard to

passenger service, the key issue is the reliance on old basic terminals that have not been upgraded or modernized to meet the needs or the demands of both the carriers and the public. It is noted that both of the new private operators have given priority to addressing this issue in their major development programs.

135. Runway congestion is another key issue at Indian Airports, particularly at Mumbai and Delhi. While both airports have two runways, in practice only one runway is available at peak periods. This is already leading to significant delays in obtaining take-off slots, increased stacking and delayed flights during peak hours. Given the major growth predicted, this will become an increasingly serious bottleneck to growth, especially at Delhi where the problem is already apparent. Under the airport development planning, Mumbai is seeking to reorganize the taxiways to increase the effectiveness of its runways and Delhi has plans for additional runways.

136. The air cargo sector in India is far from world-class due to a combination of internal and external factors. The key external factors relate to the adverse trade facilitation regime and the internal feature is the lack of automation, with all cargo terminals being heavily reliant on manual labor. The existing terminals at the major airports are not well-suited to modern air cargo handling technology.

137. The new concessionaires recognize many of these issues and have major investment programs to address the constraints. In addition, the Government is investing in development programs at the other airports, particularly at Chennai and Kolkata, both of which are important to BIMSTEC. These are urgently needed if India is to become a major player within the BIMSTEC aviation sector.

d. Myanmar

138. The expansion of the air services will be related to both demand and the ability to secure additional aircraft to meet that demand. The links with Bangkok are considered critical, as it is effectively the gateway airport to Myanmar with its hub capabilities. Thus, it would be expected that any initial growth would probably be based on increasing further the frequency to this key destination, prior to increasing frequencies on the other routes and opening new services. It is noted that several services to other BIMSTEC countries have been suspended due to non-viability. Tourism is expected to be the main demand driver for growth.

139. A major development program is underway at Yangon Airport and this is scheduled for completion in 2007. It consists of extending the runway to be able to handle B747 aircraft, extension and modernization of the passenger terminal, splitting international and domestic passenger processing and supply of new baggage handling facilities.

e. Nepal

140. Major issues affecting services and connectivity arise from the critical lack of capacity at Kathmandu Airport and severe operational and aircraft capacity problems with the national carrier, Nepal Airlines Corporation. A government committee is currently reviewing the options as to how best to resolve the airline's difficulties. Royal Nepal Airlines, now Nepal Airlines Corporation, is limited by its fleet size. The utilization of the two Boeing 757s with 20–22 flight legs per week is probably at its maximum, allowing for 1.5 days maintenance per week. It is considered that to increase frequencies or open new routes additional aircraft will be required. However, its financial position is not strong and this is compromising its ability to both expand and improve service levels. It is also suffering from a shortage of pilots (primarily due to leakage to other airlines) to the extent that flights have had on occasions to be cancelled.

141. Nepal currently has only a single international gateway, which is located at Kathmandu. At the current airport there are insufficient aircraft parking stands for international or domestic services, a chronic shortage of terminal space and insufficient operational and maintenance facilities. The navigation aids and communication systems are also in need of replacement and/or repair. One of the major infrastructure issues is traffic peaking in that most international flights arrive and leave between 1000 hours and 1400 hours. Unfortunately, the terminal was not designed to handle the current number of flights simultaneously, resulting in severe congestion during this period. The ADB is currently progressing discussions with the Government in regard to financing the necessary improvements under a loan. Due to the limitations on long term expansion at the existing site, a new international airport is being considered and is currently the subject of a detailed feasibility study.

f. Sri Lanka

142. The key issues for the Sri Lanka aviation sector are the resolution of the security problems leading to the resurgence of the tourist sector and the ability of the ground infrastructure to handle the estimated demand in the future. The closure of the airport earlier this year, combined with the resultant rescheduling by operators, has unfortunately created a negative image that may not be fully rectified. In particular the failure of Cathay Pacific to return and provide direct flights to Hong Kong is viewed as a matter of concern by the aviation sector in general. While it may be argued that one carrier should not affect the overall situation, in this case the profile of that carrier is important and manifests residual external concerns regarding the security situation.

143. Colombo airport, in addition to being the hub for the national carrier and the Maldives, is recognized as having the potential to be a more significant regional hub when the current adverse conditions are resolved. Ground transportation is a key issue with 32 km of congested roads being the only connection to the city and tourist resorts. The recent plan for a rail connection to be funded by China appears to have collapsed.

144. Given that Colombo Port is a major maritime hub and Colombo Airport is a ‘mini-hub’, there could be potential to develop and air-sea logistics capability, much in the same way that takes place at Dubai. This would require strong Government support to realize.

g. Thailand

145. Thailand enjoys bilateral agreements with all BIMSTEC countries and adopts a very liberal approach to capacity allocation. There are already significant capacity constraints on the intercontinental services, but they are less of a problem on intra-BIMSTEC services, except to Bhutan and Nepal in their high seasons and the more general problem with India. The latter constraint is in securing additional frequencies to Indian metro airports due to the extreme congestion at those airports.

146. The problems of Bangkok Suvarnabhumi Airport have unfortunately been well publicized. The Government and Airports of Thailand have agreed a 21-point plan to resolve many of these problems. While such matters are being addressed, some but not all of the domestic services have been transferred back to the old airport at Don Muang. Despite these temporary setbacks, there is no doubt that the problems will be resolved and Thailand will eventually have a world-class airport to be proud of.

147. Because of the high growth rate and the planning and construction delays the 45 million passengers per annum (mppa) design capacity of the terminal is now almost exceeded with 2006 air traffic having reached approximately 43 mppa. To reduce congestion

the Government of Thailand has approved the operation of domestic and point-to-point charter operations from Don Muang, which re-opened in 2007 specifically for this purpose.

148. Airports of Thailand are understood to be planning the construction of a mid field terminal and a low cost terminal for LCCs services to provide additional passenger handling and gate capacity. It is also understood the construction of additional independent parallel runways is under consideration to alleviate a future shortage of runway capacity. A major stakeholder concern is the operation of the free zone, in terms of its configuration and the cost of services. Essentially, almost the entire cargo complex is dedicated to free zone operations requiring more extensive (and more expensive) customs controls, whereas the forwarders consider that a larger area should be allocated for non-free zone imports and exports and this would provide for faster and less costly processing.

F. Trade Facilitation

149. Trade facilitation is concerned with all issues in relation to assisting the movement of import, export and transit traffic and embraces a wide range of activities, including transportation. Thus, there is an element of overlap between this subject and the other sectors. This section concentrates on the non-transport issues and focuses more on the administrative and operational aspects, particularly in relation to cross-border movements.

150. Trade facilitation tends to be synonymous with Customs. This is because of the primary role of Customs as an agency in the processing and clearance of trade movements. However, there are many other agencies involved that are perhaps less visible, partly because they are only concerned with a selection of the products being traded. These agencies administer quality standards, quarantine, health, phytosanitary, agriculture and the police and security services. Other parties include banks, insurance companies and ministries concerned with export rebate schemes, as well as the actual traders and their agents. Although Customs is the core agency, it can be seen that there are many other parties involved.

151. Inadequate trade facilitation in the region has been cited in most of the studies within the BIMSTEC countries, with the exception of Thailand where there are noticeably less trade facilitation problems. Despite improvements by the customs services, importing and exporting between the BIMSTEC member countries still remains complex and costly. However, contrary to some of the previous reports, it is considered that customs procedures in themselves are not the primary cause of delays at many of the ports and borders. The use of traditional customs procedures and practices in the South Asian member states merely compounds the delays, which are already occurring due to other issues. These include:

- *Lack of border infrastructure and traffic planning:* Most of the border crossings were not designed to handle the increased volumes of traffic now using them. The result is major traffic congestion in and around the border control zones, as well as within it, and delays in handling transport. Similar problems are evident at many of the seaports;
- *Land ports at the border*: Because of the transferring of loads at the borders, land ports have been developed to cover the need for transit storage at the cross-border interface. This consists of open storage and warehouses within a customs-controlled area. The storage dwell times at these facilities have gradually increased due to trader practices and this means they are insufficient to handle the increased demand;
- *Trader practices:* Often importers do not submit clearance documents to customs immediately on arrival of the goods at the border. While this is partially due to the time taken in collecting the vast amount of supporting documents, research indicates that importers use the storage facilities provided at the border as their own, while they make the necessary financial arrangements to generate funds for payment of the import duties. Indeed, the practice of ‘selling’ goods from the border warehouse and taking deposits

from end-users to provide funds for clearance is an accepted and common trading practice. The relatively low storage charges at border ICDs and ports tend to encourage this trend. As a result, these land ports become involved in 'stock' storage rather than solely for 'transit' storage for which they were designed; and

- *Lack of cross-border transport agreement:* The need to transfer loads at the borders with intermediate storage not only slows down the border logistics, but causes a break in the logistics chain. Thus, through-transport becomes separated into two national movements leading to transport inefficiencies at the interface. Due to trader and transport practices, the situation on intermediate storage actually may suit some of the trading community.

152. Discussions with stakeholders at the border crossings surprisingly do not totally reflect the external and institutional view of the urgency to speed-up the customs procedures at the borders. This is because of the differences in perspectives between the parties involved. The Government and international agencies consider delays at the border as unacceptable because it leads directly to increased costs, as in 'time costs value'. However, at the border level there is a more pragmatic approach which is 'this is the time it takes' and a general acceptance of 'things being the way they are' without any corresponding urgency for change. Many traders merely build in the delays in border clearance into their delivery schedules. Given the logistical environment, there is limited evidence to confirm that savings of few hours in customs clearance times would have any real impact on the overall logistical costs of moving bilateral trade. Resolution of the four constraints indicated earlier would have a greater impact on saving time than isolated improvements in customs procedures.

153. This is not to suggest that the current situation on customs procedures is acceptable or that change is not urgently required, particularly as a proportion of traffic movements would benefit from faster transits. The existing procedures have not changed much in recent years, despite the heavy investment by Customs in automation, nor have they been adjusted to reflect the growth in demand for land corridor movements and the needs of stakeholders. The Revised Kyoto Convention represents a 'benchmark' for customs modernization in relation to procedures and this is expected to be adopted in principle by all customs organizations, irrespective of their ratification situation. The current procedures are generally not compliant with the convention and therefore there is pressure from within Customs to modernize and streamline their procedures. There is also some pressure for improvements from stakeholders, particularly the forwarding industry as opposed to the customs brokers, for any action that will improve the overall logistics at ports and borders. Although savings from enhanced procedures may not in isolation render significant cost savings, in combination with other actions to address other constraints, the benefits could be substantial in terms of overall logistical costs.

154. In relation to customs procedures the following key issues and constraints have been identified:

- *Procedures:* Despite automation, the procedures at the borders remain complex, almost unchanged and are largely reliant on manual processing techniques. Ironically, there are indications that automation has actually tended to increase the time taken for processing because the automated and manual systems are operated in parallel and so far automation has yielded limited benefits to either Customs or stakeholders;
- *Documentation:* The documentation requirements to undertake a clearance at the border are excessive by international standards and are almost unchanged in the last 10 years despite automation and these remain a source of governance concerns;
- *Examination:* Customs currently undertake almost 100% inspection of all shipments crossing the border and examine a very high percentage by using sampling techniques. This practice is excessive by international standards, is the major cause of delays because it is the longest process in the border procedures and is the prime source of

illicit payments. Risk management techniques normally used to address this problem are not implemented in most countries;

- *Automation:* All countries have automated customs systems, but their application at the border is often constrained by power and communication constraints. Some countries require their system to be upgraded and additional modules provided. The restricted availability of these systems has generated limited benefits in terms of faster more efficient clearances, although it has resulted in more accurate transaction data;
- *Direct trader input (DTI):* The concept of DTI whereby traders or their agents input data direct online into the customs system is not operating at the BIMSTEC borders, other than in Thailand. This results in officers being tied up as data entry clerks delaying the commencement of processing and this directly results in uneven workloads throughout the working day leading to extended processing times;
- *Classification:* There are inconsistencies in the application of the international trade classification codes at some borders. Traders consider that this reflects covert trade protection on sensitive goods and the need to generate additional revenue to meet collection targets being the prime factors driving the regular reclassification of certain product groups;
- *Valuation:* There are differences of approach used in valuation with the World Trade Organization valuation, fixed pricing and pre-shipment inspection all being practiced. Traders feel the current systems lack transparency and Customs consider the deliberate over and undervaluations represent constant problems; and
- *Working hours*: Incompatibility in the working hours on both sides of the border leads to traffic peaking and resultant delays.

155. It should be noted that Thailand has the most advanced application of modern customs procedures and is achieving world standards. India has improved significantly, but this is primarily at the major seaports and the changes have not yet filtered down to Kolkata/Haldia ports or the land borders, which are not fully connected to the central information technology (IT) system.

156. A key issue that is often overlooked is the trader practices and those of their agents. Throughout the region much of the intra-BIMSTEC trade is undertaken by small trading organizations with limited financial or administrative resources. A key problem is the delayed submission of the documents for clearance by customs and other agencies. One of the main reasons for this situation is the lack of finances to clear the goods. Traders obtain the shipment on a type of credit and are dependant on obtaining a deposit from the end-user to fund the clearance. In addition, they also lack storage space and thus delay their clearance so as to enable direct delivery from the port or border to the end-user, thereby benefiting from generous free storage time offered at some ports. The significant volumes of imports lacking an end-user at the time of importation increases the storage times at both sea and land ports and negates the potential for through-transport. Delays in the presentation of the documentation to customs at ports, such as Kolkata and Chittagong, are usually a week, and at land borders, it can be one to two days. The complexity of the requirements by Customs is clearly a factor, but not the sole factor.

157. Another issue is the expertise of the clearing and forwarding agents or customs brokers. Site investigations have highlighted the high error rate in document submissions which causes delays. In most countries the industry is poorly regulated and almost anyone can set up a broking organization with minimal resources and expertise. At the ports such organizations tend to consist mainly of larger corporate entities, whereas at the land borders they are predominantly small organizations. Even at the ports, there are large numbers of brokers who are not members of the formal freight forwarders associations or customs brokers association or the equivalent. The expertise of many of these small entities is questionable. In developed countries, customs broking has been integrated into the forwarding industry, thus eliminating the segmentation.

158. There is anecdotal evidence in some countries to suggest the brokers are sometimes opposed to simplification and modernization of customs procedures, or certainly not pressing for changes, as this would represent a threat to their business. The very complexity means the traders will not undertake the process themselves and the mystique involved in the complex procedures enables additional revenue to be levied.

159. Automation within customs, other than in Thailand, has not generated the expected benefits. The major advantage of automation is the accurate recording of transaction data providing more comprehensive and accurate trade data than was available with previous manually-based systems. It has also provided Customs with additional assessment information on valuation, classification and duty calculations, but these are not always used. However, the core test of any automation process is whether it has made the process being automated more efficient and helped to make life easier for those using it. There is limited evidence to suggest it has achieved this goal. Indeed, many suggest the automation has merely increased the numbers of procedures because of the duplication of running parallel manual and automated systems. The actual procedures for stakeholders have not changed significantly from those prior to automation. There is an underlying feeling in the region, that automation has so far failed to yield the benefits initially expected.

160. The individual issues and constraints in the member states are as follows:

a. Bangladesh

161. A specific problem in Bangladesh is the freeze on recruitment within Customs in order to reduce overall manning levels. This has been in effect for almost 20 years and means the new skills are not being brought in. It particularly compromises the ability to introduce advanced IT systems, as computer literacy is a key constraint. The Automated System for Customs Data (ASYCUDA[10]) IT system is incomplete and not being used effectively. Customs are not considered as 'facilitators' by stakeholders and are being driven to achieve revenue targets that are becoming increasingly difficult to achieve as the patterns of trade change. The current requirement for pre-shipment inspection increases import costs, lacks transparency and is a source of friction with stakeholders.

162. The main border land port at Benapole and the Port of Chittagong are being used as storage resources by traders resulting in high dwell times and severe congestion. An additional problem is the slow resolution of abandoned goods. The clearing and forwarding industry is not regulated and the overall standard of expertise is low, especially in the smaller entities.

b. Bhutan

163. The two main issues in Bhutan are border infrastructure and automation. The border crossings are congested and the level of control is compromised by the lack of processing areas and a dry port. Plans to construct an ICD at Phuentsholing are currently suspended due to lack of funding and therefore vehicles have to park on the street or in an inadequate enclosed area awaiting clearances, thus causing congestion.

164. The level of customs automation is relatively low with all components not being present. In reality, the system is still largely dependent in manual processing regimes resulting in slow clearances, especially of third country traffic. The proposed simplified system for transit from Kolkata has not been approved by India, and thus some delays are still occurring at Kolkata Port.

[10] ASYCUDA is the automated system for customs data developed by the United Nations Commission for Trade and Development

c. India

165. India has a modern customs IT system and has introduced risk management, but this has only had an impact at the major ports. Most borders are not connected to the system and have problems in the reliability of power and telephone connectivity. Risk management has also not been developed at the borders, resulting in long delays due to extended examination times. There are no testing facilities at the borders, so therefore the goods have to be held at the borders for several days or even weeks awaiting results. Interpretation of product classification under the harmonized system differs from its neighbors, who feel that reclassification by Customs of 'sensitive' goods is being used as a trade protection mechanism. Stakeholders indicate the continued need for 'facilitation payments' at the borders and in Kolkata to expedite clearances.

166. The plethora of differing export rebate schemes developed by the various ministries compromises the automation of customs clearances as they are non-standard and require specialized programs to be written and the training to be provided. Some standardization/consolidation between the schemes is essential.

d. Myanmar

167. The main issues in Myanmar are the lack of transparency in trade facilitation and implementation of modern international clearance processes. The border clearances are manually-based and require 'personal contacts' and a close relationship between Customs and the traders, although the major transactions through the Yangon Port are possibly more transparent. Use of electronic data interchange (EDI) systems are absent at the borders and there is limited coverage even in Yangon. It is understood that most payment transactions have to be routed through nominated banks in Singapore.

e. Nepal

168. The main issues in Nepal are the outdated procedures, the lack of automation, restrictions on rail traffic and delays in Kolkata Port. The customs and other border procedures have changed little in the last 20 years and are predominantly-manually based. The delay in approval of the Customs Act due to the changes of Government and their priority on other issues may be a factor in delaying modernization. While Nepal has ASYCUDA, it does not have all the modules and effectively is being used as a transaction database rather than a clearance system. There is no risk management or post audit controls with the result that examination levels are excessive.

169. The ban on open wagons entering Nepal to the ICD results in additional costs for the importation of bulk goods brought by rail and directly increases the congestion problems at the main land border at Birgunj. There is a delay in Kolkata Port of approximately a week in obtaining the necessary clearance documents from Nepal. There is an urgent need for a simplified system similar to the proposed system for Bhutan.

f. Sri Lanka

170. The key issue is the high documentation requirements, despite the increased level of automation introduced by Customs. Again, this results in the operation of parallel automated and manual rather than an integrated simplified system. Because most trading activity is concentrated on Colombo and the port only allows a very low free time, traders and their agents generally submit their documentation early and therefore dwell time is not a significant problem. However, fully automated clearance procedures using direct trader input would expedite clearance still further.

g. Thailand

171. Thailand has achieved much in the context of trade facilitation and is well in advance of all the other BIMSTEC countries. Thailand's experience could be used as a 'model' for the BIMSTEC region. There are no major issues, but there are many rules and regulations relating to Customs and the existence of 69 years of old customs procedures. The regular changes of customs rules confuse the traders and sometimes these changes are not easy to follow. Stakeholders cite a general lack of transparency and legal certainty (such as ambiguous or imprecise legislation, unpublished regulations at the local and provincial levels and other measures such as import licensing and import quotas) in the proceeding of some trade measures as concerns. The other trade facilitation constraints concern animal welfare, environment and food safety. Other concerns indicated were delays in the appeals process and the length of time taken for post audit clearances.

G. Logistics

172. One of the key problems with logistics is the difficulty in providing a clear definition of logistics. Logistics no longer concerns the simple handling of materials. It has become more of a concept, being a collection of services that facilitate the economic transactions associated with production and trade. It is multifunctional in nature because it encompasses not only the physical movements of goods (or people) covering procurement, transport consolidations, transshipment, storage, and packaging, but also the facilitation throughout the movement from the point of supply to the point of demand involving the processing of documents, coordination among participants, monitoring of activities and financing of transactions. Closely linked to this concept is the supply chain, which represents a combination of services or 'chain links' that deliver inputs from the supplier at the point of production to the final destination of the consumer. Advanced logistics seeks to maximize the extent of the control/management along the supply chain between supplier and consumer.

173. One of the key aspects in relation to the BTILS is to note that transportation is only a component within logistics, not the entirety of the process. Unfortunately, governments and the institutions often freely interchange the words using logistics to describe either transport, transport infrastructure or sometimes both. This is not limited to these organizations and transporters and forwarders often refer to themselves as logistics providers, when in reality they are only providing their traditional range of services and have merely used the word as part of a re-branding exercise.

174. The concept of global logistics has emerged gradually over the last 15 years. The essence of advanced logistical systems is that by investing more money on total logistics, benefits are yielded in terms of cost savings overall and the ability to deliver goods to market more rapidly to fulfill ever-changing consumer preferences/demands. The optimal system seeks to balance the twin objectives of cost minimization and the provision of an acceptable service.

175. The task of logistics is to make savings in production, materials sourcing, and inventory that are balanced by the increased costs of transport, whilst maintaining customer service levels. The major savings are generally in inventory and transport costs are normally higher. This is particularly important in the BIMSTEC countries, where in many of the countries the costs of holding inventory are relatively low and the cost of transport is considered high. Thus, it may not make economic sense to use advanced logistics in some of the countries at this early stage of their development. As the countries develop, the cost of land, building and labor will increase and the cost of holding inventory for the larger companies will correspondingly rise with the potential benefits from advanced logistics starting to appear. This does not suggest that the improvements in transport infrastructure

and services should not be sought, merely that this is not logistics development per se. They are merely improvements in certain links in the chain in isolation.

176. The consultant's overview on the development of the logistics sector in each of the countries is as follows:

a. Bangladesh

177. The trade, commercial and financial environment does not suggest there will be a demand for advanced logistics in the short to medium term and at this stage the transport environment is not capable of supporting such a concept. The primary need is for the development of the transport infrastructure and access to modern transport systems. The exception is the export sector where foreign buyers are increasingly dictating the supply chain from Bangladeshi producers, especially in the textile and food sectors. This will be achieved through the presence of foreign forwarders and third party logistics (3PLs), probably with local joint venture arrangements. This can be used as a 'stepping stone' towards development of the expertise to create a domestic capability.

b. Bhutan

178. The current system suits their specific environment and there is unlikely to be either the demand for or ability to pay for advanced logistics, especially given the overall size of the market. It is probable that Bhutan will become increasingly involved in logistics as an extension of Indian logistics as they are developed. This will probably be reflected in improved product lead times, rather than providing lower transaction costs.

c. India

179. The recent development of major retail organizations and the presence of multi-nationals suggest the demand for such services should grow rapidly. The high cost of land will most likely lead to increasing inventory costs and therefore adoption of more sophisticated supply chain management approaches. Basically, the demand drivers that lead to the development of the sector are starting to appear. The system of semi-autonomous states promotes the development of a regional distribution approach and improvements in the infrastructure should facilitate the concept. There is already some elementary logistics taking place in the distribution sector. A potential constraint is the reticence of many Indian companies to outsource their logistics activities. However, it is expected that the national logistics market will expand rapidly provided that global 3PLs are accepted into the domestic market to provide the required start-up expertise. The international logistics will then 'bolt-on' to the domestic industry.

d. Myanmar

180. The current environment is not conducive to the introduction of modern logistical systems. The trade, commercial and financial environment are currently at a stage where there are none of the key demand drivers present. It is not considered that improvements in the transport infrastructure will promote advanced logistics, but may potentially lower transport costs for that element of the logistics chain.

e. Nepal

181. Nepal is considered to be in a similar position to Bhutan, as the trading environment is not one in which the drivers for advanced logistics are present. However, the dominant position of the Indian community in trade is likely to promote the country becoming an extension of the developing Indian logistics industry. This will be advantageous in terms of

reducing supply lead times on import products through access to a system, which the country in isolation could not afford.

f. Sri Lanka

182. Given the size of the island and the concentration of demand in the southeast corner, there is likely to be limited demand for advanced logistics except in the export sector where it is seen to have already started, though this is controlled by foreign suppliers. However, there is a real opportunity for Colombo to become a regional logistics hub given the hub role of the port, and to a lesser extent the airport. This role would focus around multinationals holding inventory and redistributing to BIMSTEC countries, similar to the logistical services provided by Dubai and Singapore. This concept has been discussed for some time but has not materialized into the necessary facility development.

g. Thailand

183. In the short term, the potential for development of logistical services should be high. While the level of demand for such services is constrained by a number of factors, such as limited outsourcing, it is considered that the demand drivers will grow and that 3PL investment will increase significantly. The high quality of the infrastructure and development of Laem Chabang with 'mainline' shipping services suggest Laem Chabang could become a regional logistics hub competing with Hong Kong and Singapore. However, this function should be seen in the context of GMS, particularly to Cambodia and Lao PDR, rather than BIMSTEC.

184. 'Logistics' in an industry sense is only really practiced in its evolutionary stages in India and Thailand, with little or no relevance to Bhutan and Nepal and is only really used in Bangladesh and Sri Lanka's export sector. Basically, this is because the provision of advanced logistics is a response to the demands of the corporate sector needing to improve the efficiency of their supply chains based upon reducing inventory levels. It is not a concept that can be artificially introduced in the hope it will somehow change the transport and distribution environment leading to the lowering of transport costs. Indeed, the key feature of advanced logistics is that transport costs will almost certainly increase, but this can be offset in savings in inventory costs and higher service standards. Improving the efficiency of transport in isolation alone is not logistics. In the BIMSTEC countries, the cost of holding inventory is not high and the demand for high service levels is unfortunately not yet present.

III. BIMSTEC POLICY FRAMEWORK AND STRATEGIES

185. The key outputs of the BIMSTEC Transport Infrastructure and Logistics Study (BTILS) are as follows:

- proposals for relevant and practical policies and strategies to eliminate or mitigate transport and infrastructure bottlenecks (identified in Section II); and
- identification of the roles that various organizations should or could have in promoting and implementing changes to the regional transport and logistics environment.

186. The TOR for the BTILS require the development of policies and strategies for correcting the weaknesses and eliminating the threats identified in the strengths, weaknesses, opportunities and threats (SWOT) analysis contained within the Interim Report. The SWOT analysis covered both the regional and national issues, but in developing policies and strategies for BIMSTEC it is necessary to be more focused on BIMSTEC and its potential future role. It is not the intention to develop an overall transport policy or strategy for either the BIMSTEC region as a whole or to propose national policies or strategies, other than in the specific interests of BIMSTEC and its goals of enhanced regional connectivity and development of intraregional trade.

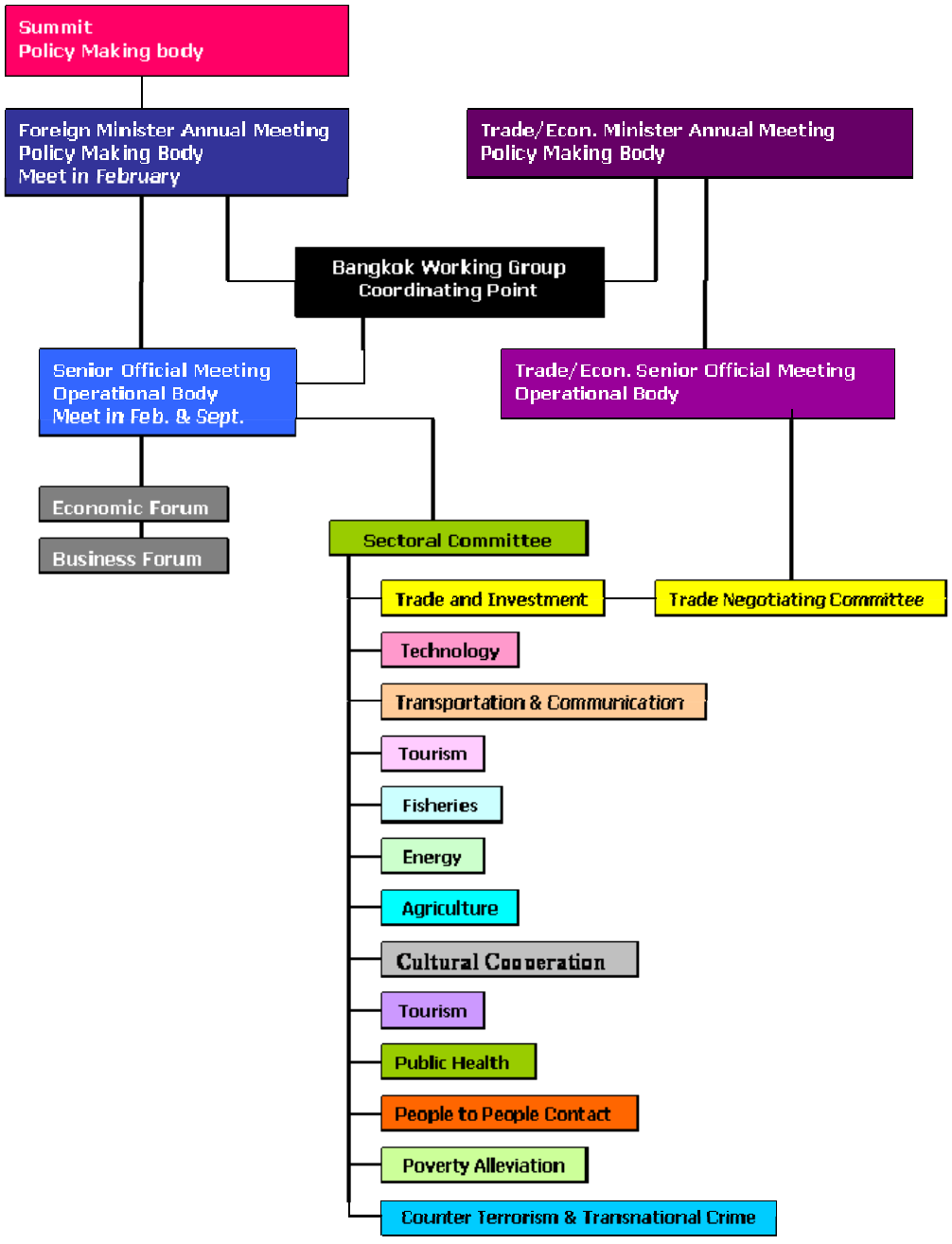
187. BIMSTEC was established in June 1997 to promote free trade within the region, increase cross-border investment and tourism and promote technical cooperation. BIMSTEC covers 13 Priority Sectors led by member countries in a voluntary manner; namely; Trade and Investment, Technology, Energy, Transport and Communication, Tourism, Fisheries, Agriculture, Cultural Co-operation, Environment and Disaster Management, Public Health, People-to-People Contact, Poverty Alleviation and Counter-Terrorism and Transnational Crimes.

188. The structure of the organization is shown in Figure 1. The BIMSTEC Working Group in Bangkok (BWG) is attended by the Director-General or Deputy Director-General of the Thai Department of International Economic Affairs and the Ambassadors of BIMSTEC member countries to Thailand or their representatives, as well as representatives from other concerned agencies. Meetings take place monthly at the Ministry of Foreign Affairs to follow up and push forward progress in each cooperation sector, as well as to study prospects and policies of cooperation before reporting to the Senior Officials' Meeting. In this connection, the BIMSTEC Centre has been established since June 2004 to support the work of the BIMSTEC Working Group. The transport and communication sector responsible for the BTILS is currently chaired by India.

189. The Senior Officials' Meeting is divided into two areas of concern: foreign affairs, and trade and economic affairs. Permanent secretaries of the foreign affairs and that of trade and economic affairs represent the delegations to their respective forums. The Senior Officials' Meetings (SOM) are assigned to monitor progress and forward proposals to the Foreign Ministerial Meeting. The Senior Trade/Economic Officials' Meetings (STEOM) are responsible for the negotiation of the BIMSTEC FTA and cooperation in the Trade and Investment Sector, which are to be reported to the Trade and Economic Ministerial Meeting. Any transport-related policies and strategies will require endorsement by the Foreign Ministerial Meeting as the responsible policy making body. It is expected that following that endorsement, the proposed policy framework and strategies may be noted/adopted at the second BIMSTEC Summit to be held in 2008.

190. It should be noted that the BIMSTEC Centre was established at the sixth BIMSTEC Ministerial Meeting held 8 February 2004 in Phuket, Thailand as a Technical Support Facility for a trial period of two years as a coordinating mechanism of BIMSTEC's general cooperation, as well as facilitate the activities of BWG and BIMSTEC Chamber of Commerce. Thailand supported the establishment of the BIMSTEC Centre seeing it as a model for the possible structure of a permanent Secretariat. The issue of the establishment of a permanent Secretariat is to be discussed at the second Summit. However, at this stage BIMSTEC has no such Secretariat capacity in terms of promoting or monitoring implementation of potential transport and logistics policies and strategies.

Figure 1: Organization Structure of BIMSTEC



Source: BIMSTEC

191. Consequently, in developing proposed strategies and policies, BIMSTEC has been considered as a 'regional pressure group' and that its future function in relation to BTILS is to promote regional policies and strategies designed to enhance regional connectivity, particularly between South and Southeast Asia, and that will facilitate intra-BIMSTEC trade. Therefore, it is a promoter with limited implementation capacity or responsibility, and that implementation will be the responsibility of the national Governments of its member states through their respective relevant national authorities, with possible assistance from international development partners. Thus, it is similar to UNESCAP, though with a wider remit for a smaller number of countries. Proposed implementation approaches are addressed in Section V.

192. The process of developing the draft policy framework and strategies commenced during the Interim Phase with the country visits and discussions with government and industry representatives in April–June 2007. This was followed by an internal workshop of the Consultant Team in August 2007 to develop draft proposals for each transport and transport-related sector. These proposals were circulated in advance of the Regional Technical Workshop held on 18–19 September 2007 in Bangkok, Thailand. This workshop was attended by members of the Technical Advisory Committee, the ADB TA Team and the Consultant Team to discuss the proposals in a group environment and to 'brainstorm' the proposals prior to their inclusion in this Final Report. It should be noted that the function of the TAC was not to endorse proposals on behalf of their respective governments, but as technical experts to approve their submission to BIMSTEC for consideration.

193. The agreed draft policy framework and strategies to be submitted to the BIMSTEC Working Group are listed below sector by sector.

A. Roads

1. Overall Quality of Road Infrastructure

a. Issue

194. The quality of the road network in the BIMSTEC region varies considerably, with many of the road links serving international passenger and freight traffic still being inadequate for the application of modern transport. Some of the key highways that form sections of the main BIMSTEC routes linking South Asia with Southeast Asia are barely 7 m wide. They are also often tree-lined, thus further constricting traffic movement and preventing pedestrians and non-motorized transport from moving off the main carriageway. In addition, although there is now generally a 10-ton axle limit on all BIMSTEC highways, there are still many bridges with low weight capacities.

195. These constraints limit the potential to use articulated road transport along many of the primary BIMSTEC routes. This type of transport with its lower unit operating costs is essential for the movement of container traffic and for the development of long-distance international road transport. Such vehicles are also less likely to be overloaded than the small rigid trucks, thus resulting in less road damage. This limitation on the use of articulated transport compromises the achievement of an economic road land-bridge across the BIMSTEC region as a longer term goal.

b. Policy

196. All the key international roads on the BIMSTEC corridors should be upgraded to a minimum of Asian Highway (AH) Class III and progress as soon as possible to AH Class II,

the bridges should be strengthened to be able handle loaded articulated transport and high priority should be accorded to regular maintenance of the primary routes.

c. Strategy

- BIMSTEC should identify all sections of their road corridors that are less than AH Class II and with member states compile an agreed priority list of road sections to be upgraded or are in need of rehabilitation. A provisional list of some of the road sections requiring upgrading to Class II is provided in Table 1 based on the UNESCAP Asian Highway database. Table 2 shows Asian Highway priority developments in the BIMSTEC region (note: attached list does not cover non-AH routes on the BIMSTEC corridors).
- BIMSTEC should facilitate the formation of an inter-governmental road development expert group to coordinate the implementation of this policy and report to BIMSTEC periodically on progress achieved. The target is that all BIMSTEC corridors should be Class AH I or II by 2020.

d. Implementation

- BIMSTEC Working Group to act as a coordinating and monitoring body with the technical-level consultation undertaken by the proposed BIMSTEC Expert Group on Road Development;
- Implementation by national Governments; and
- Assistance by international development partners, as needed.

e. Scheduling

- 2008: Finalization of agreed prioritized list of roads to be upgraded to AH Class II and inclusion in the Road Development Action Plan 2008–20.
- 2008–14: Road rehabilitation/upgrading under Phase I Implementation Programme (priority AH road sections): and
- 2015–20: Completion of Phase II Implementation Programme.

Table 1: Road Sections of Asian Highway Class II and Below

Country	AH Route No.	AH design standard	City/town name at start point	City/town name at end point	Section length (km) existing road
BANGLADESH					
Bangladesh	AH1	Below III	Bhatiapara	Kalna Ferry Ghat	3
Bangladesh	AH1	Below III	Kalna Ferry Ghat	Narail	20
BHUTAN					
Bhutan	AH48	Below III	Phuentsholing (Indian border)	Rinchending	5
Bhutan	AH48	Below III	Rinchending	Gedu	40
Bhutan	AH48	Below III	Gedu	Chukha	37
Bhutan	AH48	Below III	Chukha	Damchu	47
Bhutan	AH48	Below III	Damchu	Chuzom	12
Bhutan	AH48	Below III	Chuzom	Khasadrapchu	14
Bhutan	AH48	Below III	Khasadrapchu	Babesa	6
INDIA					
India	AH1	III	Moreh (Myanmar border)	Tengnoupal	40
India	AH1	III	Tengnoupal	Imphal	70

Country	AH Route No.	AH design standard	City/town name at start point	City/town name at end point	Section length (km) existing road
India	AH1	III	Imphal	Kohima	137
India	AH1	III	Kohima	Dimapur	81
India	AH1	III, Below III	Dimapur	Nagaon	162
India	AH1	III	Nagaon	Jorabat	181
India	AH1	III	Jorabat	Shillong	80
India	AH1	III, Below III	Shillong	Dawki (Bangladesh border)	83
India	AH1	III	Bangaon (Bangladesh border)	Barasat	60
India	AH1	III	Barasat	Kolkata	23
India	AH2	Below III	Shiliguri (Bangladesh border)	Ghoshpukur	21
India	AH2	III	Ghoshpukur	Karkarbhitta (Nepal border)	32
India	AH2	III, Below III	Banbasa (Nepal border)	Rampur	137
India	AH2	III	Rampur	Moradabad	38
India	AH42	III	Raxaul (Nepal border)	Sagauli	30
India	AH42	III	Sagauli	Piprakothi	37
India	AH42	III	Piprakothi	Muzaffarpur	67
India	AH42	III	Muzaffarpur	Barauni	105
India	AH42	III	Barauni	Mokamah	18
India	AH42	III	Mokamah	Bakhtiyarpur	46
India	AH42	III	Bakhtiyarpur	Nawada	70
India	AH42	III	Nawada	Barhi	84
MYANMAR					
Myanmar	AH1	III, Below III	Myawadi (Thai border)	Kawkareik	62
Myanmar	AH1	Below III	Kawkareik	Paan	95
Myanmar	AH1	Below III	Paan	Thaton	38
Myanmar	AH1	Below III	Thaton	Kyaikhto	67
Myanmar	AH1	III	Kyaikhto	Payagyi	77
Myanmar	AH1	III	Payagyi	Bago	16
Myanmar	AH1	III	Payagyi	Nyaunglebin	64
Myanmar	AH1	III	Nyaunglebin	Toungoo	120
Myanmar	AH1	III	Toungoo	Pyinmana	110
Myanmar	AH1	III	Pyinmana	Pyawbwe	109
Myanmar	AH1	III	Pyawbwe	Meiktila	41
Myanmar	AH1	III	Meiktila	Myittha (Yewun)	89
Myanmar	AH1	III	Myittha (Yewun)	Mandalay	78
Myanmar	AH1	III	Mandalay	Sagaing	19
Myanmar	AH1	III	Sagaing	Ondaw	24
Myanmar	AH1	III	Ondaw	Chaung-U	33
Myanmar	AH1	Below III	Chaung-U	Pale	69
Myanmar	AH1	Below III	Pale	Gangaw	135
Myanmar	AH1	Below III	Gangaw	Kalemyo	180
Myanmar	AH1	III	Kalemyo	Tamu (Indian border)	144
Myanmar	AH2	III	Tachilek (Thai border	Kyaing Tong	164
Myanmar	AH2	Below III	Kyaing Tong	Takaw	190

Country	AH Route No.	AH design standard	City/town name at start point	City/town name at end point	Section length (km) existing road
Myanmar	AH2	Below III	Takaw	Loilem	177
Myanmar	AH2	Below III	Loilem	Taunggyi	91
Myanmar	AH2	Below III	Taunggyi	Kalaw	70
Myanmar	AH2	Below III	Kalaw	Meiktila	115
NEPAL					
Nepal	AH2	III	Dhaldebar	Pathalaiya	110
Nepal	AH2	III	Hetauda	Narayanghat	77
Nepal	AH2	III	Narayanghat	Butwal	114
Nepal	AH2	III	Butwal	Kohalpur	237
Nepal	AH2	III	Kohalpur	Atariya	154
Nepal	AH2	III	Atariya	Ghaddachauki	49
Nepal	AH42	III, Below III	Kodari (PRC border)	Lamosangu	37
Nepal	AH42	III	Naubise	Mugling	83
Nepal	AH42	III	Mugling	Narayaghat	36
Nepal	AH42	III	Pathlaiya	Birgunj (Indian border)	28
THAILAND					
Thailand	AH1	I, III	Ban Khlong Luek	Aranyaprathet	6
Thailand	AH1	I, III	Prachinburi (Jct.R33/R320)	Nakhonnayok	21

Source: UNESCAP Asian Highway Database

Table 2: Identified Priority Projects for Developing the Asian Highway in the South and Southeast Asian Subregions

AH No.	Section	Km	Cost ($ m)
BANGLADESH			
AH41	Daukandi - Chittagong (upgrading to four lanes)	246	191
AH41	Chittagong - Cox's Bazar - Ramu – Gundam	186	144
AH2	Beldanga - Panchagarh	77	9
AH41	Dasuria - Paksey – Kushtia	38	4
AH41	Jhenaidah – Jessore	45	5
	Total	**592**	**353**
BHUTAN			
AH48	Phuentsholing – Thimphu (upgrading to double lanes)	179	60
	Total	**179**	**60**
INDIA			
AH1	Shillong - Dwaki	70	6
AH2	India - India/Nepal border	10	1
AH2	Siligurui - Fulbari Mod - border with Bangladesh	16	2
AH43	Madurai – Dhanushkodi	19	2
	Total	**115**	**11**

AH No.	Section	Km	Cost ($ m)
MYANMAR			
AH1	Myawadi-Kawkareik	40	19
AH1	Monya-Kalay/Kalewa	184	40
AH2	Kyaing Tong-Takaw-Loilem-Taungyi	450	23
	Total	**674**	**82**
NEPAL			
AH2	New Koshi bridge at Chatara and widening of bridges from Pathalaiya to Dhalkebar	170	31
AH42	Naubise - Thankot (tunnel) - Kathmandu - Kodari improvement and upgrading	48	24
AH42	Kathmandu - Birgunj ICD link road	110	80
	Total	**328**	**135**

Source: UNESCAP Asian Highway Database

2. Coordination of Road Development Programs

197. Member States are developing their road policies and strategies on the basis of national demands, without necessarily appreciating their neighbor's needs or that of their own international trading community. In general, their road programs are understandably mainly focused on enhancing domestic rather than international connectivity. For example, road development in eastern India has a significant impact on trade in Bangladesh, Bhutan and Nepal, but has relatively low priority within India's domestic road program. Similarly, road development in Myanmar is more focused on improving the internal national network, rather than specific connectivity to its BIMSTEC neighbors.

198. An additional issue is the limited coordination of programs on either side of the border. Poor communications between officials means that they are sometimes unaware of proposed changes 'on the other side' leading to uncoordinated developments. This compromises the achievement of the development goals in that the benefits cannot be realized until both countries' programs are completed.

199. It is noted that the 1st Meeting of the SAARC Transport Ministers held on the 31 August 2007 in New Delhi, India identified two regional/sub-regional road projects within the SAARC region passing through India and agreed that the Member States concerned, through mutual consultations, may consider the viability/desirability of these projects. These projects are the Kathmandu–Birgunj-Kolkata/Haldia and Agartala-Akhaura-Chittagong corridors.

a. Policy

200. BIMSTEC supports the development of a coordinated regional road development program that enhances the connectivity between member states in order to promote travel and trade by road.

b. Strategy

201. BIMSTEC through the proposed Expert Group on Road Development (EGRD) should formulate a coordinated time-based road development program covering the main international routes, together with any important linkages with the core national road

networks. This should be based initially on analysis of existing national programs, including their scheduling, to identify potential 'development gaps' in order to persuade national governments in their national framework planning to consider 'adjusting' their programs to meet BIMSTEC's policy of enhanced connectivity between South and Southeast Asia.

c. Implementation

- Proposed Expert Group on Road Development should coordinate and monitor road developments; and
- Investment programming/budgeting by national Governments.

d. Scheduling

- 2008: Finalization and publication of the Road Development Action Plan 2008–20 (Phases I and II Implementation Program) by the Expert Working Group covering the BIMSTEC routes and primary links; and
- 2012: Mid-term review of the Road Development Action Plan, Phase I Implementation Program; and
- 2014: Updating of Road Development Action Plan, Phase II Implementation Program.

3. Upgrading of Border Link Roads

a. Issue

202. Countries have focused their road development programs predominantly on internal connectivity between domestic centers of population and economic activity. The main use of border crossings is for processing of bilateral or short distance transit trade, with relatively low traffic concentrations in comparison to the core national road networks. In many cases, these roads were not even designed as border roads, but merely became so with independence. They are usually on the periphery of national road network and thus have been accorded low investment priority within national road programs. It is also noted that border roads in the BIMSTEC region rarely indicate that they are going to another country (i.e. that it is an international link) with signage almost always indicating domestic settlements or the border town on their side, rather than the ultimate destination.

203. Many of the roads serving the border crossings between India, Bangladesh, Bhutan and Nepal are in poor condition and congested, even despite the sometimes relatively low traffic levels. This situation restricts the development of modern international transport services using articulated vehicles, including sections of road where through transport is permitted, and means that higher unit transport costs are incurred on international, as opposed to domestic, transport activities.

204. Whereas the rural sections of many of these international highways are often adequate for the traffic they carry, severe congestion occurs in the many towns and villages along the routes. This is principally caused by retail-related activities spilling onto the road, vehicles parking, buses stopping and non-motorized transport using the main roadway. The result is that long distance passenger and freight transport is delayed getting through these settlements and road accidents are common. This situation is particularly severe in Bangladesh and eastern India.

205. This problem is being partly addressed by the construction of some bypasses, but international traffic will continue to have to transit through many of these towns and villages for some time. In some cases, the benefits of these bypasses are then compromised by retailing activities merely transferring to the bypass and causing similar congestion to that occurring in the towns they are bypassing. The resultant delays and slow transit speeds

directly increase transport costs, as well as represent a major road safety issue. The problem in many cases does not appear to be lack of road space *per se,* but of ineffective use of the available road space and the absence of effective traffic management disciplines.

b. Policy

206. BIMSTEC member states should upgrade the link road connectivity between their core national road network and the border crossings, so as to be able to handle modern transport and to facilitate bilateral trade and passenger traffic. Bottlenecks caused by transits through urban and rural settlements on these primary BIMSTEC routes could be eliminated by a combination of construction of bypasses and implementation of enhanced traffic management measures.

207. All border roads on the Asian Highway (AH) network should have the designated AH road signage by late 2011. Border roads should include the other country in their signage.

c. Strategy

208. BIMSTEC should support the development of a progressive upgrading program of key border link roads between the crossings and the national road network on the BIMSTEC corridors, with coordinated development on either side of the border. BIMSTEC through its Expert Group on Road Development should prepare a priority list on a multilateral basis, including those programmed under national framework plans, those being funded by the international institutions and other assistance mechanisms to clearly highlight 'missing' development links.

209. BIMSTEC should promote the development of a phased program to address this problem by identifying key bottlenecks and potential solutions to rectify the situation. This could be addressed by the adoption of two strategies depending on the amount of 'through' traffic. Firstly, by the construction of more purpose-built limited access roads, such as bypasses, to separate the transit and access functions of the road network and secondly, by the development of local road management plans for small towns and villages. These should be low cost locally-managed initiatives, but may require national level assistance to provide enforcement measures and a governance framework.

d. Implementation

- Proposed Expert Group on Road Development to coordinate and monitor road developments;
- Implementation by national governments as executing agencies through national framework plans; and
- Possible involvement of international development partners in program development.
- There are already some programmed improvements and these should be built upon. ADB is planning to assist in the development of the Kakarvitta-Panitanki-Fulbari-Banglabandha and the Chittagong-Akhaura-Agartala road corridors under the South Asia Subregional Economic Cooperation (SASEC). India and Thailand have been assisting Myanmar in upgrading its border roads. These initiatives should be promoted and additional links included, where necessary for attracting external technical assistance or funding.
- The strategy of development of purpose-built limited access roads is currently being implemented in India and Bangladesh on selected routes, with the assistance from ADB and other development partners, but needs further investment. The strategy of development of local road management plans could be implemented initially through localized pilot projects.

e. Scheduling

- 2008: Finalization of agreed border road development program, including the identification and elimination of key traffic bottlenecks on BIMSTEC routes, and inclusion in the Road Development Action Plan 2008–20;
- 2008–11: Implementation of improved Asian Highway signage under Phase I Implementation Program; and
- 2008–14: Improvement of border connecting roads under Phase I Implementation Program.

4. Missing Links with Myanmar

a. Issue

210. Myanmar is critical in the context of the development of road connections between South and Southeast Asia in order to create a BIMSTEC land-bridge. The current lack of or quality of road connections between Myanmar and its neighbors restricts the opportunities for land-based trade within the region. Such international road linkages have to date had low priority in the national road program, though their status has now been raised. In the case of connectivity with Bangladesh, there is no direct road link and with India and Thailand the road linkages are poor and require significant development. Both India and Thailand have been providing some technical and financial assistance to upgrade Myanmar border road sections, but progress has been limited.

211. While it is considered that long distance road transport may not be competitive with the sea route between India and Thailand, it could be attractive for shorter journeys such as between the north-east states of India and Thailand and particularly for expanding bilateral trade with Myanmar. The possible use of intermodal transport as a method of attracting through traffic could also be developed if the road linkages between the railheads were improved. Moreover, both India and Myanmar agreed to pursue the Kaladan Multimodal Transport Project, which involves the upgrading of the Sittwe Port in Myanmar as part of inland waterway and road linkage to southern Mizoram.

212. This issue probably needs to be addressed primarily on a bilateral rather than on a multilateral basis. While this primarily concerns Myanmar, both Bangladesh and India will also need to upgrade their border road connectivity in a coordinated manner in order to develop the through route capability.

b. Policy

213. BIMSTEC supports the urgent development of road connections in Myanmar, particularly of the connecting roads to neighboring countries, so as to effectively link the road networks of Bangladesh, India, Myanmar and Thailand to create a future land bridge.

c. Strategy

214. BIMSTEC should promote the development of border road connections in Myanmar and prioritizing such linkages and facilitating, either bilateral or multilateral, initiatives between Myanmar and its neighbors. This should include promotion of funding for such developments, possibly under other regional development initiatives, such as the India-Myanmar-Thailand transport initiative.

215. BIMSTEC should promote complementary road improvements in India and Bangladesh by facilitating prioritization of these links within their national road development programs to correlate with scheduled improvements on the Myanmar side.

d. Implementation

- BIMSTEC Expert Group on Road Development could act as a technical coordinating body facilitating discussions between the countries;
- Government of Myanmar;
- Bangladesh. India and Thai Governments; and
- Possible assistance from the international development partners in the form of technical assistance.

e. Scheduling

- 2008: Development of prioritized route plan with its inclusion in the Road Development Action Plan 2008–20; and
- 2009–14: Route development under Phase I Implementation Program.

B. Road transport

1. Fleet Modernization

a. Issue

216. The road transport industry in most BIMSTEC countries is dominated by owner-drivers and small operators who lack the necessary financial and commercial resources to modernize the national fleet. As a result, the overall profile of the road transport sector is dominated by large numbers of old poorly maintained overloaded rigid vehicles with limited carrying capacity and relatively low efficiency. The future need is for fleets of modern articulated vehicles capable of moving containers and cargo in heavier unit loads, thus offering lower transport costs.

b. Policy

217. BIMSTEC supports national and regional measures designed to promote the introduction of modern road transport fleets with lower unit operating costs.

c. Strategy

218. BIMSTEC should encourage member states to examine potential financial mechanisms and other incentives to promote fleet modernization and the purchase of new equipment. Consideration could also be given to possible changes in foreign direct investment (FDI) regulations covering the road transport sector, where appropriate, in order to attract external investment and expertise.

219. BIMSTEC should support member governments in their efforts to enforce axle load limits on their national highways to ensure a ‘level playing field’ between the small operators, local cooperatives and the larger fleet operators.

d. Implementation

- BIMSTEC Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries; and
- National Governments—Ministries of Finance and Transport as implementation agencies.

e. Scheduling

- 2008: Development of fleet modernization initiatives, review of FDI restrictions, and better enforcement of load limits with inclusion in the Road Development Action Plan 2008–20; and
- 2009–14: Implementation of administrative and fiscal regulatory reforms.

2. Through Transport Agreements

a. Issue

220. At many of the BIMSTEC land borders, the cargo has to be unloaded either into a land port or transferred from the truck of one country to that of the other in the 'no mans land' between borders. This represents a break in the through-logistics chain that results in higher transaction costs, increased risk of damage and pilferage, additional porterage and storage charges, as well as an increased risk of 'facilitation payments'. The inability of road transporters to travel to neighboring countries is considered to be a trade barrier and precludes the opportunity to develop a competitive international road transport sector.

b. Policy

221. BIMSTEC supports the development of transport agreements between member states permitting bilateral and through transport movements to be undertaken using the transport units of one of the member states to another. The ultimate goal is access by the freight transport vehicles of any BIMSTEC member state on the roads of any other member state whilst engaged in international transport.

c. Strategy

222. BIMSTEC should support the development of road transport agreements between member states being progressed under the ADB-supported programs for SASEC, South Asian Association for Regional Cooperation (SAARC) and the Greater Mekong Subregion Cross-border Transport Agreement (CBTA) for implementation. BIMSTEC could act as a monitoring organization on implementation of these initiatives. A special BIMSTEC Expert Group on Transport Facilitation and Logistics should be created to deliberate on issues related to transport agreements, trade facilitation and logistics.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- Member government's Ministry of Transport as the executing agencies; and
- ADB acting as the facilitation partner.

e. Scheduling

- 2008: Development of Model Bilateral Through Transport Agreements;
- 2009–10: Pilot application of the Model Bilateral Through Transport Agreement;
- 2011–13: Full implementation of Bilateral Through Transport Agreement;
- 2014: Formulation of a Regional Transport Agreement;
- 2015–16: Negotiation and Formal Adoption of Regional Transport Agreement;
- 2017–19: Pilot Application of Regional Transport Agreement; and
- 2020: Full implementation of Regional Transport Agreement.

C. Rail

1. Change of Gauge between BIMSTEC Countries

a. Issue

223. There are two main rail gauges within the BIMSTEC region. Clearly, this presents problems in relation to both the competitiveness and operation of rail transportation between BIMSTEC member states. India operates a predominantly BG network west of Bangladesh and MG in the north-east states. Bangladesh operates BG in the west of the country and MG in the east. Basically, this is a result of the inheritance of the broad gauge East Bengal Railway that was centered at Kolkata and the metric gauge Assam-Bengal Railways that was centered at Chittagong. Both Thailand and Myanmar operate metric gauge rail networks, but they are not connected.

224. India has adopted a policy of converting its MG rail system to BG, particularly in the north-east states. India has offered to contribute towards the construction of key dual gauge links in Bangladesh, but this may have only a marginal effect as Bangladesh Railways current network configuration is adequate for their purposes with MG dominant for all major flows.

225. Traffic from India to Myanmar and through to Thailand, if such a connecting link could be developed, would have to change gauge at some point as both Thailand and Myanmar are MG. The shortest route could potentially be through Bangladesh, but this would require three gauge changes with the current configuration. There appears to be two main development options. The first is dual gauging the link across Bangladesh, thus the only gauge change would be at the Myanmar border. The second is if Indian Railways were to construct the link in the north-east states to Myanmar in dual gauge. Trade between north-east India and Bangladesh could be facilitated using MG. Traffic between Bangladesh and Myanmar could travel without a gauge change and India-Myanmar traffic could travel with just one change in Bangladesh, which would make a rail land bridge more attractive and economical. Either option would reduce the need for transshipment costs and the inherent delays in such a process.

b. Policy

226. BIMSTEC supports the development of regional rail connectivity based on minimizing the incidence of gauge changes that result in expensive transshipment costs.

c. Strategy

227. BIMSTEC should support the development of integrated regional rail strategies, particularly between Bangladesh and India, which are designed to provide both countries with easy access to Myanmar and Thailand. BIMSTEC could act as a promoter of bilateral or even trilateral (including Myanmar) discussions on development of an integrated railway development strategy.

228. Adoption of the first connectivity option would require an assessment of the costs involved in dual gauging in Bangladesh or India and a future gauge changing complex at the Myanmar border. Adoption of the second option would require the construction of a new ICD near Tongi to serve Dhaka metropolitan area and act as transfer station for interchange of containers and bogies for wagons between the BG and metric gauge systems or for a dual gauge link between Agartala/Impal/Tamu.

229. A transfer station will also need to be developed at Ishurdi for goods arriving in Indian wagons, which are unsuitable for travel across the Jamuna Multipurpose Bridge. A short section of dual or MG would be required to link Ishurdi to the metric gauge network.

230. As a northern connection to this cross-Bangladesh route, the strategy should be to promote the existing BG crossing points between India and Bangladesh. In particular, the BG line between Chilahati and Haldibari could be restored rather than the MG link between Changrabhanda and Burimari.

231. BIMSTEC should strengthen the Meeting of Chief Executives of Railways of BIMSTEC Countries to serve as a regional technical body to coordinate rail development and operations. It is noted that the First Meeting held in New Delhi on 20–21 September 2004 already recommended measures to:

- expand the connectivity of the various BIMSTEC railway networks;
- promote interoperability between these networks;
- develop solutions to issues arising at breaks of gauge;
- work together on the establishment and harmonization of procedures and standards; and
- upgrade the existing network to at least minimum international standards with special emphasis on the transport of containers.

d. Implementation

- Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor rail development and operations;
- Bangladesh Railways; and
- Indian Railways.

e. Scheduling

- 2008: Bilateral discussions on through rail links and formulation of the Rail Development Action Plan 2008–20.
- 2009: Conduct feasibility study on the proposed development option(s); and
- 2010–14: Network upgrading/construction of missing rail links under Phase I Implementation Program.

2. Connectivity to Landlocked Countries

a. Issue

232. There are no rail connections with Bhutan and only two links to Nepal. If rail connectivity could be further developed across the region, the landlocked countries would have greater access to lower cost rail services, possibly enabling trade in lower value products that cannot support the high cost of road transport.

b. Policy

233. BIMSTEC supports the development of enhanced rail links to its landlocked countries to improve their overall rail connectivity and their potential to access a future BIMSTEC rail land bridge.

c. Strategy

234. BIMSTEC should support the removal of restrictions on open wagons moving to the ICD in Birgunj in order to increase its viability, reduce border congestion and lower the rail transport costs on goods having to be transshipped at the Jaigaon railhead.

235. BIMSTEC supports the feasibilities studies being undertaken by Indian Railways to examine the development of connections to Bhutan and further links to Nepal. Consideration should also be given to possible development of an ICD in the Siliguri/New Jalpaiguri area, which would then be accessible to truckers from Bhutan and East Nepal. This facility could be served by CONCOR or other Indian rail companies or consolidators handling traffic from India and third country traffic from Kolkata Port and even Bangladesh traffic.

d. Implementation

- Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor rail development and operations;
- Indian Railways; and
- Possible support from the international development partners, if required.

e. Scheduling

- 2007–08: Completion of feasibility studies undertaken by Indian Railways and inclusion of investment projects in the Rail Development Action Plan 2008–20; and
- 2010–14: Network upgrading/construction of missing rail links under Phase I Implementation Program.

3. Capacity Constraints on Bangladesh Railways

a. Issue

236. There are capacity constraints on Bangladesh Railways (BR), particularly between Tongi junction and Bhairab Bazaar. Unless addressed, these will reduce the ability of BR to fulfill its potential in handling international traffic. The Tongi – Bhairab Bazaar link is particularly important, as it is the critical link to the east towards both Chittagong and to links with the north-east states of India (and in future to Myanmar). Its development is vital for the movement of container traffic from Chittagong Port to Dhaka to relieve some of the congestion problems at the country's premier port. Doubling of this line at a cost of $108 million is included in the BR Investment Program 2007–13.

b. Policy

237. BIMSTEC supports proposals to enhance the effective line capacity of Bangladesh Railways to enable it to carry more regional traffic and to relieve some of the congestion at Chittagong Port.

c. Strategy

238. BIMSTEC supports initiatives designed to increase effective capacity in a number of ways, all of which should be investigated. These include firstly replacement of unbraked and vacuum wagon stock (trains made up of these wagons can only operate at slow speeds, significantly reducing line capacity). Secondly, duplication of the Tongi – Bhairab Bazaar section – this is proposed with assistance from ADB. Thirdly, construction of a new 'chord line' between Dhaka and Laksam – this will significantly reduce the rail distance between Dhaka and Chittagong, making rail more competitive in the future. The estimated cost of this development is $175 million (BR investment program).

d. Implementation

- Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor rail development and operations;

- Bangladesh Railways; and
- International development partners for technical assistance and loan funding.

e. Scheduling

- 2008: Conduct feasibility studies and inclusion of investment projects in the Rail Development Action Plan 2008–20;
- 2009–12: Procurement of new rolling stock;
- 2009–14: Duplication of Tongi-Bairab Bazaar Section; and
- 2009–14: Construction of new chord line.

4. Rail Connections to Myanmar from India, Bangladesh and Thailand

a. Issue

239. There is currently no rail link between India and Myanmar. A link through Tamu is proposed under the Trans-Asian Railway network, with both India and Myanmar having constructed or in the process of constructing lines that narrow the gap between their respective national networks. China (PRC) is also actively promoting a line between Kunming and Myanmar. This could connect with the Myanmar India link, thus providing a potential through route between India and PRC that could generate additional tonnage in support of a BIMSTEC rail corridor.

240. There is no rail link between Bangladesh and Myanmar. Bangladesh is promoting this as an alternative route for the Trans-Asian Railway. This would ultimately provide the shortest rail route between South and Southeast Asia, but it is likely to prove to be expensive, and thus is probably a more long term option than the proposed Trans Asia Railway link through the north-east states of India indicated above.

241. Myanmar and Thailand are not connected. A potential rail route through the Three Pagoda's Pass has been the subject of a Korean-assisted feasibility study in 2007. This routing alignment corresponds with the designated route of the Trans-Asian Railways connection. Unfortunately, this study indicated that this link would have a low rate of return, due to the high cost of construction through difficult terrain and the lack of adequate traffic demand to support the development. Myanmar has a rail link to Dawei, and an alternative route, though longer, route could be via Ban Bong Tee. However, initial indications are that this could be even more expensive.

242. It is evident that significant improvements need to be undertaken in national networks before addressing the issue of international connectivity. Thailand and Myanmar have both indicated low priority for such rail connections. On the other hand, India has minimal priority in its investment program for international rail links, and is engaged in regauging the rail network in the north-east, and Bangladesh Railways Development Plan 2007–13 does not include connectivity with Myanmar. This clearly indicates that rail connectivity is not considered as a priority, but represents a potential longer term goal.

b. Policy

243. BIMSTEC supports the development of rail connectivity between Myanmar and its neighbors (Bangladesh, India and Thailand) by the eventual construction of the missing links between their rail networks, in order to facilitate both bilateral and third country trade.

c. Strategy

244. BIMSTEC should promote longer term initiatives that are designed to promote the development of the missing link between Jiribam in India to Kalay in Myanmar, a distance of 346 km. The initial feasibility study estimated a cost of $668 million for the construction of the rail link in India between Tupul, near Imphal, to Tamu and in Myanmar between Tamu and Kalay indicated at a cost of $98 million. However, this study indicated a negative FIRR. (note: the Jiriban–Tupul Section has already been approved for funding by Indian Railways). Discussions could be held with the PRC Government to assess their interest in supporting such a rail link to connect India with PRC.

245. BIMSTEC should promote the undertaking of a pre-feasibility study for the development of a direct rail route between Bangladesh and Myanmar to assess its technical and financial viability. The missing link is between Dohazari in Bangladesh and a point in Myanmar yet to be identified. It is noted Myanmar has no proposals for such connections and the Trans-Asian Railways indicates no such link. The objective of the study should be to identify whether such a connection is ever likely to be realized, or whether the focus should be transferred to the indirect link through India.

246. BIMSTEC should promote the longer term development of the missing connection between Myanmar and Thailand. The only potential links appears to be via the Three Pagoda Pass, even though this route is estimated to cost $1 billion and the FIRR is 1%. The potential viability of this route will be dependent largely on traffic to a new deep sea port on the Andaman Sea. The short term strategy should therefore be to support a feasibility study of Andaman Sea ports and in the medium term to reconsider the viability of a rail link in the light of possible port developments and regional needs, including linkages through to PRC and Southeast Asia (see Section III.D.6).

d. Implementation

- Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor rail development and operations;
- Bangladesh, India, Thailand and Myanmar Governments and their respective rail organizations as executing agencies; and
- International development partners for technical assistance and loan funding.

e. Scheduling

- 2008–09: Conduct feasibility study of rail-served Andaman Sea ports and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I and II Implementation Program), possibly with international funding;
- 2008–09: Conduct pre-feasibility study on Bangladesh-Myanmar rail link and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I and II Implementation Program);
- 2013–14: Update feasibility studies to identify viability of missing links; and
- 2014: Update Phase II Implementation Program.

5. Container Service Network

a. Issue

247. Rail services have great potential for the carriage of medium and long distance traffic between BIMSTEC countries, but this is not being realized because the current services are fragmented, irregular and uncoordinated. The core service package of cost/speed/reliability is not sufficiently attractive to bring in added-value traffic, such as non-bulk and general cargo.

248. If new regular container express service could be established linking Bangladesh and India, it could provide lower cost and more reliable connections within the region and encourage the development of modern freight consolidation and forwarding companies. This concept could later be extended through to Myanmar and Thailand. The service could attract some cargo currently moving by road, and also generate new flows to move for which the current services are either too expensive or too unreliable.

b. Policy

249. BIMSTEC fully supports the development of regular direct passenger services between Kolkata and Dhaka and considers there may be scope to extend such an initiative to the freight sector, based on scheduled services between strategic rail nodes.

c. Strategy

250. The strategy should be to examine the provision of regular rail freight services across the eastern part of South Asia in support of intra-BIMSTEC trade. One approach could be the establishing of a container service network linking key regional nodes. The suggested nodes would be Kolkata, Siliguri/New Jalpaiguri, Tongi and Chittagong. In order to assess the potential for a scheduled container network, a study should be undertaken to identify the level of likely traffic flows between nodal points.

d. Implementation

- Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor rail development and operations;
- Indian and Bangladesh Railways as possible implementation agencies; and
- International development partners, if required, for independent demand forecasting.

e. Scheduling

- 2008–09: Conduct Rail Freight Traffic Demand Study and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I and II Implementation Program); and
- 2010–14: Introduction of new container express services linking India and Bangladesh, if viable.

D. Maritime Transport

1. Draught Restrictions

251. Ports in the northern part of the Bay of Bengal all suffer from draught restrictions. This is due to the heavy siltation levels in the Ganges/Brahmaputra Rivers and other river networks feeding into the continental shelf in this area. This limits navigation and the size of vessels that can be accommodated at the key BIMSTEC ports of Chittagong, Haldia, and Kolkata.

252. Kolkata (and Haldia) located on the River Hooghly suffers from severe draught limitations along the 232 km long channel. Tidal variations and the dock gate system further restricts the navigation time. Unless vessels are able to catch the high tide and/or lighter at Haldia, ships can lose over 12 hours leading to higher ship turn-round time and cascading roll-over effect at the following ports of call.

253. At Chittagong Port, available draught is reduced by the presence of wrecks along the river channel and the need to wait for high tide. These conditions combine to restrict the

vessel size and limit the time and duration of navigation. As a consequence, the feeder vessel size is small, even though traffic could possibly justify larger vessel sizes than those currently deployed on the route.

254. The net result of these constraints is that shipping lines have to use sub-optimal container vessels to service these ports and this increases freight charges, thus acting as a constraint to trade. It also leads to longer transit times due to delays in vessel arrivals and availability of berths.

a. Policy

255. BIMSTEC supports proposed deep water port developments in the northern Bay of Bengal designed to increase the size of container vessels that can be accommodated.

b. Strategy

256. BIMSTEC supports the acceleration of the construction of the proposed Diamond Harbor Container Terminal development project south of Haldia, provided that the Indian Government's Ministry of Shipping, Road Transport and Highways approves the development.

257. BIMSTEC supports the proposed deep water port at Chittagong/Sonadia provided that the Government of Bangladesh approves the development.

258. A BIMSTEC Expert Group on Maritime Transport should be created to deliberate on technical issues related to ports and shipping development and operations.

c. Implementation

- Proposed Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Kolkata Port Trust, and the Ministry of Shipping, Road Transport and Highways, Government of India;
- Chittagong Port Authority and the Ministry of Shipping, Government of Bangladesh; and
- International development partners, if required, for technical assistance and loan funding.

d. Scheduling

259. It is recognized that both of these developments represent long term solutions. However, early decisions are required (2007–08) as to whether these projects will actually proceed in order that remedial strategies can be developed to deal with current constraints, either as interim or long term measures. A Maritime Transport Development Action Plan 2008–20 should be formulated by the Expert Group on Maritime Transport.

2. Capacity Constraints at Colombo Port

260. Colombo is the only container hub port in the BIMSTEC region. Main Line Operators use the port because of its deep draught and its proximity to the main shipping lanes between Southeast Asia and Europe/Middle East. The feeder services operating out of Colombo carry a significant percentage of intra-BIMSTEC trade, and thus the performance of Colombo Port has an impact on the region as a whole. About 75% of all container traffic is transshipment, mainly to or from BIMSTEC countries.

261. Container traffic handled at Colombo in 2006 was 3.1 million TEU, as against the port's nominal capacity of 3.3 million TEU (which could be enhanced to 4 million with minor

improvements). This has resulted in berth utilization of over 70% and overall capacity utilization of 94%. These further resulted in the port becoming increasingly congested leading to a decline in performance. Already some of the transshipment traffic is moving to neighboring Indian ports. It is to the benefit of traders in the region to have a high quality hub port, where traffic for the Bay of Bengal ports is consolidated in order to obtain the full benefits of the 'hub-and-spoke' shipping services.

262. The Government of Sri Lanka and the Sri Lankan Port Authority recognize the need for increasing the port's capacity. However, the proposed South Harbor Extension intended to resolve the capacity issues is behind schedule, with insufficient allowance having been made in the planning process for the lead time in project development. As a result, the new facilities will be coming on stream only after the port is operating at over 100% of its design capacity, causing major operational problems.

263. The port performance at Colombo was the best in the region, achieving all the international performance benchmarks. However, its premier status is now under threat from some Indian ports with higher performance. This is one of the reasons leading to a major operator transferring transshipment operations to another port. Availability of specialized equipment has also been identified as a key problem due to the absence of a phased roll-over investment program, whereby there is constant investment in equipment and planned redundancy.

a. Policy

264. BIMSTEC recognizes the importance of Colombo as a hub port for container services and supports expediting of developments to increase its capacity and performance.

b. Strategy

265. BIMSTEC considers that implementation of South Harbor Extension Project of Colombo Port should be 'fast tracked' to bring additional capacity on stream as soon as possible, with completion in 2011. Consideration should also be given to a phased investment program for the supply of additional specialized cargo handling equipment at the JCT and UCT terminals, both of which are controlled by the Sri Lankan Ports Authority.

c. Implementation

- Proposed Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Ministry of Ports & Aviation, Government of Sri Lanka as the decision party and loan guarantor;
- Sri Lanka Port Authority as executing agency; and
- International development partners for technical assistance and loans.

d. Scheduling

- 2007: Award of tenders for South Harbor Extension;
- 2008: Commencement of port construction;
- 2008–09: Tendering and delivery of additional container handling equipment; and
- 2011: Commissioning of South Harbor Extension.

3. Operational Efficiency

a. Issue

266. The key BIMSTEC ports in the northern Bay of Bengal (Chittagong and Kolkata) are not achieving international performance standards. Both ports suffer from major congestion in the container yards (CY), at the berths, at the container freight stations (CFS), on internal port roads, at the port gates, and in the interfaces with the surface transport networks. Both are adversely affected by high container and cargo dwell times, shortages of cargo handling equipment and poor port and trade facilitation. All these factors significantly raise the cost of using these ports to stakeholders.

267. Inefficient operational methods at Chittagong Port include the use of inappropriate general cargo berths for handling containers using ships gear, requirement for LCL operations at the CFS located within the port, parking of containers and vehicles wherever empty spaces are available, abundance of non-working persons and vehicles within the port, limited gate capacity, lack of integrated container terminal management system and shortage of specialized container handling equipment. The situation is compounded by the inability to convey containers inland to the destination due to bridge restrictions on the road network and lack of rail rolling stock to connect with ICDs, thus most cargo has to be unstuffed in the port. This negates much of the benefits of containerization. Most shipping lines have been levying congestion surcharges. Whilst there has been some level of improvement with dwell times falling to around 17 days, much needs to be undertaken to reach acceptable performance standards.

268. The capacity of the existing container terminal is 200,000 TEU per annum and the new facility, scheduled for completion by the end of 2007, will add another 500,000 TEU capacity. This is a major advance, except that the port already handles over 800,000 TEU and is expected to exceed 1 million TEU in 2008–09.

269. The situation is similar at Kolkata Port, where low operational efficiency results from handling containers at general cargo berths using either mobile cranes and or ships own gear, which is reflected on the low berth throughput of 13 TEU per ship berth hour. (Chennai achieves 53 TEU with gantry cranes). The average time at berth is 1.68 days of which 34% is non-working time. The container terminal operations are not yet computerized. Congestion is present at the gate, inside the port and in the container yards and current container dwell time has been measured by Customs at 23 days.

270. Unless improvements are made at both ports the situation will only get worse and lead to the imposition of, or increase in, congestion surcharges. The congestion will also lead to other types of increases in transaction costs.

b. Policy

271. BIMSTEC recognizes the critical importance of Chittagong and Kolkata Ports, both in terms of the handling of trade to and from Bangladesh and Eastern India and their gateway function for third country trade to Bhutan and Nepal. Therefore, BIMSTEC supports all possible efforts to modernize operations at both ports towards the goal of meeting international port performance benchmarks.

c. Strategy

272. BIMSTEC supports the efforts of the Chittagong Port Trust and the ADB Chittagong Port Efficiency Improvement Project to resolve the operational problems at the port. It will be

important to monitor the performance indicators that measure the level of improvement, in order to be able to present a viable case for the removal of congestion surcharges.

273. BIMSTEC supports any similar studies being undertaken at Kolkata Port to improve current performance and resolve the congestion problems. Major improvements have been achieved at the larger ports (JNPT at Mumbai and Chennai) and Kolkata Port Trust should be implementing similar operational strategies designed to close the performance gap between these ports and Kolkata.

d. Implementation

- Proposed Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Chittagong Port Trust and Kolkata Port Trust as executing agencies; and
- International development partners to provide technical assistance and loan funding.

e. Scheduling

- 2008: Development of Maritime Transport Development Action Plan 2008–20;
- 2009–14: Improvements in ship/shore handling performance and availability of specialized handling equipment and reductions in idle time and container dwell times under Phase I Implementation Program.

4. Port Interfaces

274. A modern port is a transit facility. This requires the efficient and rapid movement of cargo from the port towards the import customer, or from the exporter to the point of loading within the port. The interface, consisting of the links between the port and the national highway or rail network, is critical in achieving this goal. Unfortunately, some of the key BIMSTEC ports suffer connectivity problems, especially at these port interfaces. This results in long queues at the port gates.

275. In Chittagong the main problem is that the port is located in the centre of the city and thus there is already congestion in the immediate vicinity of the port area. There is as yet no dedicated connection road to bypass the congested urban road network. The rail connection is already limited by the lack of rolling stock, but this is compounded by the lack of railway sidings within the port to handle full rake container trains. This causes additional undue delays leading to higher costs.

276. Kolkata suffers from problems as it is similarly located within the city environs. Congestion at the port gate is a major complaint by stakeholders and this is exacerbated by bureaucratic regimes at the port gates.

277. Colombo suffers from the inability of the rail interface to handle containers. This compromise potential plans to remove import containers in bulk to off-port sites to relieve congestion in the container yards.

a. Policy

278. BIMSTEC recognizes the need for modern ports to act as transit facilities, servicing the inter-modal transfer between the maritime and surface transport modes. Therefore, it supports all ongoing initiatives that reduce congestion at the interface between the port, servicing the maritime mode, and the road and rail networks, servicing the surface transport modes.

b. Strategy

279. BIMSTEC should support the development of the Chittagong Port Access Road being proposed under the Chittagong Port Trade Facilitation Project and any measures which can be initiated to address the rail constraints.

280. BIMSTEC recognizes the specific road interface problems in Kolkata and supports the development of remedial measures, be they in terms of development of road infrastructure, implementation of traffic management measures or introduction of expedited gate procedures.

281. BIMSTEC supports the ongoing technical assistance in Colombo to enable containers to be handled by rail.

c. Implementation

- Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Kolkata Port Trust and National Highways Authority of India as executing agencies;
- Chittagong Port Authority, Roads and Bridges Department, and Bangladesh Railways as executing agencies;
- Sri Lankan Government, Sri Lankan Ports Authority and Sri Lankan Railways as executing agencies; and
- International development partners to provide technical assistance and loan funding, where appropriate.

d. Scheduling

- 2008: Development of Maritime Transport Development Action Plan 2008–20;
- 2008–09: Development of port interface improvement plans under Phase I Implementation Program; and
- 2009–14: Development of new interfacing infrastructure.

5. Port Community Systems

282. Most of the major ports in the world, especially those handling large volumes of container traffic, have either installed or are in the process of developing port community systems. Given the projected level of container traffic through some of the BIMSTEC ports, it is considered essential for such a facility to be developed at the larger ports. As these ports expand, the amount of data flow increases between members of the ‘port community’—those organizations that have a direct or indirect requirement for information relating to vessels and their cargoes. This demand for data transfer between the various organizations interfacing within the port is particularly important in relation to the container activities because this sector normally has the most demand for data transfer.

283. Each of the main parties involved in the ‘port community’ will probably already have their own computer systems, which have been developed to meet their own particular needs. The ideal solution in processing and disseminating all the required data at major ports is to be able to link the various computer systems of all the parties interested in port-related activities by means of a ‘port community system’ (PCS). This would allow the transfer of relevant data between the various organizations through a central data system, rather than each organization having to send or receive data from each party individually. The relevant party needs only to key in the data once and, through the system, make it available to all other approved organizations, thus saving time and reducing the error rates involved in repeatedly keying in complex data to each party.

284. The lack of port community systems in the major BIMSTEC ports results in inefficiency, duplication, delays, and directly raises transaction costs. For a port the size of Colombo, the presence of a 'community system' would appear almost mandatory. In addition, there are strong cases for development of such systems at Chennai, Chittagong and Kolkata.

a. Policy

285. BIMSTEC supports the development of 'port community-type' IT systems at the region's major container ports to increase efficiency and improve port facilitation.

b. Strategy

286. BIMSTEC supports studies designed to introduce 'community-type' systems at Colombo and possibly at Chennai, Chittagong and Kolkata. This would be in the form of technical and economic feasibility studies. A precondition would be the support of the Port Authority, Customs, container terminal operators and the local 'port community'.

c. Implementation

- Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Port Authorities;
- Customs;
- Container terminal operators; and
- International development partners for technical assistance.

d. Scheduling

- 2008: Development of Maritime Transport Development Action Plan 2008–20;
- 2008–09: Conduct technical and financial studies; and
- 2010–14: Installation and commissioning of port community systems under Phase I Implementation Program.

6. Andaman Sea Ports

a. Issue

287. Thailand's ports onto the Andaman Sea and Bay of Bengal (Phuket, Ranong) are located in the far south of the country, distant from the main centers of demand. As a result all Thai intra-BIMSTEC trade, other than some road traffic to and from Myanmar, has to transit through Singapore or Colombo. Thailand is interested in a more direct link between itself and South Asia and this could be via a surface corridor to Myanmar. In addition, Thailand is considering development of deep water ports on the Andaman Sea coast.

288. The Myanmar Government has a number of proposals to develop deep water ports to service traffic from Thailand, as well as to and from other parts of the Greater Mekong Subregion. Four potential locations have been identified (Kyaukpyu, Kalegauk, Dawei and Bokpyin). To date no independent assessment has been made as to which port should be developed.

289. It is clear that there will not be sufficient traffic to support all these ports, particularly as there will need to be major investments in transport infrastructure to connect the ports to the regions of demand. Potential future rail connectivity between Myanmar and Thailand would be largely dependant on port-related traffic and therefore selection of the optimal port location is critical to the planning of future rail, and to a lesser extent road, routes.

b. Policy

290. BIMSTEC supports the development of a rail-served deep water port on the Thai or Myanmar Andaman coast that could reduce the cost and time of intra-BIMSTEC trade.

c. Strategy

291. A feasibility study should be commissioned to assess the deep sea port options on the Andaman coast and their potential viability. The study shall examine not only the port infrastructure and facilities, but also the potential road and rail developments between Thailand and Myanmar, which would be needed to support the new port. Assessment of the likely demand will be critical and should include the potential for attracting other traffic for the Greater Mekong Subregion. Such a study should not only examine the potential for container traffic, but also bulk shipments.

d. Implementation

- Expert Group on Maritime Transport to coordinate and monitor maritime transport development and operations;
- Governments of Myanmar and Thailand as executing agencies; and
- International development partners to provide technical assistance and loan funding, if required.

e. Scheduling

- 2008: Development of Maritime Transport Development Action Plan 2008–20;
- 2008–09: Conduct of master plan and feasibility study for rail-served Andaman Sea ports; and
- 2010–14: Port construction under Phase I Implementation Program.

E. Aviation

1. Airport Capacity

a. Issues

292. Demand for capacity on routes to and from BIMSTEC countries and the main Indian metro airports is seriously constrained by the inadequacies of the airport infrastructure in India. This is mainly arising from airside issues – lack of runway capacity, shortage of aircraft stands and gates, rather than specifically passenger terminals. These are resulting in the imposition of access restrictions in the air service agreements (ASA) or its implementation that limits the potential to increase the number and frequency of flights needed to meet growing demand.

293. Peak hour services offered by the airport to passengers, airlines, cargo operators and shippers are, at several BIMSTEC gateways, severely constrained by a lack terminal, ramp and/or runway capacity. The causes and extent of the problems are different at each airport. In general, the Indian airports tend to suffer from all three issues; at Kathmandu, the constraints are caused by lack of aircraft parking and passenger processing capacity; at Bhutan by immigration and baggage handling; at Phuket, by a shortage of apron space; and at Bangkok, due to the rapid level of overall growth. New airports are being considered in Bhutan and Nepal to address capacity constraints.

294. The impact on users typically involves aircraft being held prior to landing, aircraft being delayed on departure, excessive passenger queue lengths, late baggage delivery, parking of aircraft at remote stands, slow cargo processing, and processing delays at security, immigration and customs check points. All these result in unnecessary inconvenience to passengers and additional cost to airlines, and in the case of freight it adds to the overall cost of using the air mode.

295. In general, the respective governments are actively addressing the problems and are well advanced in creating additional capacity, or where this is not achievable in the short term, formal or informal scheduling is being implemented. The major concern is that the delays in undertaking these remedial developments will lead to more congestion and service problems before the benefits of such programs can be realized.

b. Policy

296. BIMSTEC gateway airports should provide sufficient capacity to meet projected future forecast passenger and cargo demand, so as to remove any capacity restrictions in ASAs and improve the standards of service provided to stakeholders.

c. Strategy

297. BIMSTEC should encourage and re-enforce the need for accelerated airport capacity enhancement programs at constrained airports, such as Delhi, Mumbai, Chennai, Kolkata, Phuket, Kathmandu and at airports which might be constrained in the near future, such as Suvarnabhumi. In planning, sufficient lead time should be allowed to ensure that capacity will be brought 'on stream' in time to meet expected growth in demand. BIMSTEC supports the need to encourage investment by the private sector in airport infrastructure and the operation of airport services where there is public or financial benefit in so doing.

298. BIMSTEC should promote the timely resolution of the capacity problems at BIMSTEC airports in the interest of other member states and in removal of capacity restrictions within ASAs. The Meeting of Director Generals of Civil Aviation of BIMSTEC countries should be established to consolidate regional positions on ICAO matters, coordinate civil aviation developments and promote safety and security in airport operations.

d. Implementation

- Proposed Meeting of Director Generals of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations;
- National governments;
- Civil aviation authorities; and
- Airport operators.

e. Scheduling

- 2008: Development of Civil Aviation Development Action Plan 2008–20;
- 2008–09: Implementation of Phase 1 capacity developments at Delhi and Mumbai, and finalization of longer term planning of BIMSTEC metro airports; and
- 2009–12: Completion of planned expansion of Indian metro airports; and
- 2009–14: Airport facility upgrading and expansion in other metro airports.

2. Airport/Rail Connection

a. Issue

299. Public transport access to and from the airport is critical to airport efficiency and user convenience. The majority of BIMSTEC airports have adequate surface access by road. However, Colombo Airport is located 35 km from the city and is particularly disadvantaged, because the road system leading to the airport is highly congested and subject to safety issues. Restoring the railway could provide immediate relief to the congested roads and provide reliable and safe transportation to and from the airport with points in between. A pre-feasibility completed in 2001 by the Engineering and Consulting Firms Association of Japan (Nippon Koei) suggested the link was viable, but a more detailed study is required.

300. Other airport access problems exist at Paro due to the poor road connectivity with Thimpu, although a new road is under construction and due for completion in 2008. Bangkok Airport lacks the rail connectivity required of a major world airport. This link is delayed, but is under construction and scheduled for completion in 2008.

301. Neither of the major Indian airports has direct rail connectivity. It is not considered at this stage to be a significant constraint but if the airports grow at the expected rate landside connectivity is likely to increasingly become an issue. Rail has the ability to move large numbers of passengers quickly to and from the airport, relieving the congested road networks around the airports.

b. Policy

302. BIMSTEC airports should have adequate landside connectivity with the cities they serve and the immediate hinterland. Wherever possible, consideration should be given to dedicated transport systems and routes to facilitate passenger movement to and from the major BIMSTEC regional airports.

c. Strategy

303. BIMSTEC should promote the undertaking of a technical and financial feasibility study for the restoration of a rail link at Colombo airport and encourage the early implementation of the new northern road with its link to the airport.

304. BIMSTEC should, if appropriate, support a feasibility study for rail connectivity to Indian metro airports, especially Delhi, Kolkata and Mumbai.

d. Implementation

- Expert Group for Road Development Meeting of Chief Executives of Railways of BIMSTEC countries to coordinate and monitor developments;
- National governments; and
- International development partners for technical assistance and possible loan funding, if required.

e. Scheduling

- 2008: Inclusion in Road Development Action Plan and Rail Development Action Plan 2008–20;
- 2009–10: Conduct feasibility studies on airport access improvements;
- 2011–14: Implementation of airport access projects under Phase I Implementation Program; and

- 2015–20: Implementation of airport access projects under Phase II Implementation Program.

3. Efficiency of Cargo Operations at Airports

a. Issues

305. The efficient processing of cargo imports and exports at several BIMSTEC airports is adversely affected by the inadequate use of information technology, insufficient shed capacity, poor management and the lack of mechanized air freight handling systems. The consequences of these problems are unacceptably long dwell times, increased transaction costs to shippers and agents, poor levels of service, and the diversion of cargo to other airports.

b. Policy

306. Major airports in the region should provide sufficient cargo processing capacity and achieve international performance standards, in order to facilitate the growth in the aviation sector of the movement of intra-BIMSTEC trade.

c. Strategy

307. BIMSTEC should support and encourage the upgrading of cargo handling facilities, particularly at Delhi, Mumbai and Kathmandu, with a specific focus on ensuring that modern data warehousing and IT systems are integrated with Customs, the airlines, handling agents and freight forwarders. At Delhi and Mumbai airports, this will be undertaken by the private sector within the concession arrangements and at Kathmandu outsourcing is being evaluated.

308. BIMSTEC should support the development of additional cargo handling capacity at the region's main airports. Where it is not feasible to do so on the airport, new off-airport facilities should be created. In addition, sufficient space should be provided for freight forwarders and consolidators to fulfill their function effectively through the provision of offices, communications and other necessary facilities.

309. BIMSTEC should promote the installation of modern mechanized cargo handling equipment at any BIMSTEC airport handling more than 50,000 tons per annum.

d. Implementation

- Proposed Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations;
- Member governments;
- Airport operators; and
- Cargo terminal operators.

e. Scheduling

- 2008–09: Conduct airport efficiency studies and inclusion of investment projects in the Civil Aviation Development Action Plan 2008–20; and
- 2010–14: Development of cargo handling terminals under Phase I Implementation Program.

4. Improving Market Access and Travel Opportunities

a. Issues

310. Some of the BIMSTEC countries have liberalized their air transport environments and are incrementally working towards 'open skies", though there may be some limitations on certain routes. Notwithstanding the requirement of some states to enforce strict reciprocity on third and fourth freedom traffic, the opportunity exists for BIMSTEC member states to assist each other by allowing gradual liberalization in fifth freedom rights. Thus, a carrier operating a third freedom route under an ASA would be able to extend the service to another BIMSTEC country, and return. This is important on some marginal routes and has been adopted in the case of Druk Air flights via India, but extending similar arrangement could be useful in opening up new intra-BIMSTEC services.

b. Policy

311. BIMSTEC airlines operating on intra-BIMSTEC routes should be allowed fifth (and sixth)[11] freedom flights in the respective air service agreements, where possible, to assist in developing additional services. ASAs should also gradually be extended to include possible flights to additional destinations to promote tourism.

c. Strategy

312. BIMSTEC should promote the development of a Memorandum of Understanding conferring preferential status on national airlines designated under an ASA, signed by three BIMSTEC member states, allowing those airlines to operate fifth (and sixth) freedom services to promote the market on a flexible basis. An alternative strategy would be to persuade member governments to incorporate fifth (and sixth) freedom flights in their Air Service Agreements, where possible.

313. BIMSTEC should promote liberalization of ASA, where possible, to include more national destinations to promote tourism.

d. Implementation

- Proposed Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations; and
- National Civil Aviation Authorities.

e. Scheduling

- 2008: Development of Civil Aviation Action Plan 2008–20; and
- 2009–14: Development of MOU or adjustments in ASAs.

5. Improving Air Freight Access and Distribution Opportunities

a. Issues

314. Aircraft are approved to travel between countries under the conditions of an ASA, which regulates to different degrees stringency, frequency, capacity, pricing and airports which may be served by an airline. Major advances have been made by BIMSTEC member countries with the removal or minimization of these regulatory barriers and this has stimulated growth and investment.

[11] Under the 1944 Chicago Convention, sixth freedom rights mean the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States.

315. Whilst there are continuing constraints of reciprocity for passenger services, the matter is not so acute in the case of all-freighter aircraft services. Therefore, the potential exists to encourage the flow of air cargo between BIMSTEC gateways by granting approval for flexible operation of full freighter aircraft. For example, this policy has been applied in Bangladesh at Chittagong Airport and it could reasonably be considered for other BIMSTEC destinations where there is adequate cargo handling capacity and a shortage of airfreight capacity with network carriers, thus the requirement for all-freighter operations.

b. Policy

316. BIMSTEC airports should provide reasonable access to all-freighter air services, unless there are specific airport capacity constraints.

c. Strategy

317. BIMSTEC should persuade each member country to agree for the gradual removal of capacity and frequency restrictions on full freighter aircraft operating to and from BIMSTEC gateways, subject to airside capacity being available.

d. Implementation

- Proposed Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations;
- National Governments; and
- Ministries of Civil Aviation and Civil Aviation Authorities.

e. Scheduling

- 2008: Development of Civil Aviation Development Action Plan 2008–20; and
- 2009–14: Relaxation of restrictions on all freighter flights.

6. Improving System Management

a. Issues

318. There is an opportunity, and a perceived need, to improve operating standards, service levels and management skills in the BIMSTEC air transport network. This can be achieved through a structured program of collaboration and harmonization. Although there are already international aviation forums established in the Asia and Pacific Region, it could be beneficial to form a group dedicated to the policy and development needs of BIMSTEC.

319. ICAO manages and coordinates the world wide Cooperative Development of Safety and Continuing Airworthiness Program (COSCAP), Cooperative Aviation Security Program, Asia/Pacific (CASP) and Cooperative Agreement for the Prevention of the Spread of Communicable Diseases by Air Travel (CAPSCA) in the Asia/Pacific Region in which all BIMSTEC countries are represented. ICAO has indicated a willingness to consider a similar forum for functions other than safety, security and aviation medicine, such as for aviation management, finance, air law, and airport design. The program could be administered from the ICAO Asia/Pacific Regional Office in Bangkok and guided by a steering committee, meeting annually, made up of representatives of BIMSTEC member states (including airports and airlines), ICAO and donors, and be funded by member states, donors and the private sector (aircraft manufacturers, airport equipment companies, and airlines).

320. Preliminary discussions with ICAO, BIMSTEC civil aviation ministries, civil aviation authorities and airports indicated that, considering the excellent experience with the other

cooperative programs in which they are members already, this initiative would be worthwhile and beneficial, as it would not only provide a forum for knowledge sharing but it could also provide a tool for the resolution of operational matters (route capacities and slot allocation) under the aegis of ICAO.

b. Policy

321. BIMSTEC supports initiatives designed to enhance the management skills, knowledge and capabilities of BIMSTEC relevant government agencies, civil aviation authorities, airports and airlines.

c. Strategy

322. BIMSTEC should initiate discussions with the ICAO Technical Cooperation Bureau (Chief of Operations, Asia/Pacific) to explore the potential of establishing a BIMSTEC-orientated cooperative program for aviation management and operations based in Bangkok. The Meeting of Director Generals of Civil Aviation of BIMSTEC Countries should be established to consolidate regional positions on ICAO matters, coordinate civil aviation developments, and promote safety and security in airport operations.

d. Implementation

- Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate policy and operational issues and developments; and
- ICAO Asia and Pacific (APAC) Office.

e. Scheduling

- 2008–09: Formation of BIMSTEC cooperation program with ICAO support.

7. Development of Low Cost Carrier Services

a. Issue

323. The positive impact on growth, access and travel opportunities as a consequence of the low cost carrier (LCC) phenomena has been evidenced worldwide. Within BIMSTEC, India and Thailand have both supported the rapid development of low cost carriers, which to date have primarily targeted the domestic market, where new routes have been opened and air travel has been made available to a substantial number of people who were previously dependent upon road and rail. Sri Lanka also has a low cost carrier.

324. Initial research indicates there are several international BIMSTEC routes which would be suitable for low cost carrier operations and would confer immediate and significant benefits to passengers and air cargo shippers.

325. Whilst this issue is not a bottleneck per se*,* failure to support the expansion of low cost carriers would not optimize the potential benefits of the air transport system, with consequent loss of opportunity and benefits for the public.

b. Policy

326. BIMSTEC supports the expansion of low cost carrier operations on existing and new routes throughout the BIMSTEC region where agreed by the relevant national governments.

c. Strategy

327. BIMSTEC should encourage member governments and their airport operators to provide, without prejudice to network airlines, the conditions required for the growth of the low cost carrier market. Such measures may include for example the provision of separate low cost carrier terminals, the inclusion of low cost airlines as designated carriers within bilateral agreements, fair allocation of capacity under bilateral agreements, financial incentives to pioneer less populated or social routes and joint marketing.

d. Implementation

- Proposed Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations;
- National governments;
- Civil aviation authorities;
- Airport operators; and
- Airlines.

e. Scheduling

- 2008: Inclusion LCC policies and strategies in the Civil Aviation Development Action Plan 2008–20; and
- 2009–14: Growth in the BIMSTEC of LCC operations.

8. Airport Facilitation

a. Issue

328. Service standards being accorded to passengers and cargo are below international standards at many BIMSTEC airports. It is an international requirement[12] for airports to meet certain standards for the processing and handling of passengers, aircrew and cargo. These regulations are usually implemented via a national facilitation program and an airport facilitation program. However, ICAO standards and recommended practices only specify the minimum required and it is the responsibility of individual airports to determine the level of service actually provided. In practice airports, via the Airport Facilitation Committee, collaborate with airlines and state agencies with regard to a wide arrange of passenger-related issues, such as medical services, signage, processing and delay management.

329. With the formation of BIMSTEC, there is an opportunity to take a network approach to facilitation to ensure a high standard is provided at all BIMSTEC gateways. This would lead to significantly improved levels of passenger and cargo handling. Issues that could be harmonized at BIMSTEC aviation gateways could include, for example, visa on arrival procedures, green channel cargo processing and ‘fast track’ crew clearances.

b. Policy

330. Passengers, airlines and other users of BIMSTEC gateways should enjoy the highest possible level of convenience and comfort and be compliant with service standards proposed under ICAO Annex 9.

[12] ICAO Annex 9: Facilitation

c. Strategy

BIMSTEC should encourage member states to comply with ICAO Annex 9 – Facilitation, and whenever possible a higher level than that prescribed should be provided.

d. Implementation

- Proposed Meeting of Directors General of Civil Aviation of BIMSTEC countries to coordinate civil aviation development and airport operations;
- National governments;
- Civil Aviation Authorities; and
- Airport Facilitation Committees.

e. Scheduling

- 2008: Inclusion of air transport facilitation policies and measures in the Civil Aviation Development Action Plan 2008–20; and
- 2008–10: Implementation of ICAO Annex 9 at all BIMSTEC airports.

F. Trade Facilitation

1. Compliance with Revised Kyoto Convention

331. Most of the BIMSTEC countries are not compliant with World Customs Organization's (WCO) Revised Kyoto Convention, which is a 'benchmark' for customs modernization and reform. The Convention came into force on 6 February 2006 when India became the 40th signatory. Even in the case of India becoming a signatory, this does not necessarily imply compliance, but it does represent an undertaking to introduce recommended processes and procedures within a given timeframe. In all countries, other than Thailand, the current procedures are characterized by manual processing, duplication of manual and IT systems, significant amounts of hard copy support documentation, high examination levels and inconsistent application of compliance and enforcement controls. India has made much progress in relation to its major airports and seaports, but this has yet to be extended to eastern India. Other countries will need to make significant changes to become compliant.

332. The effect created by the lack of implementation of the standards proposed under the Convention is that trade facilitation at the gateway ports and borders are time-consuming, inefficient and subject to governance problems. This directly leads to increases in transaction costs for intra-BIMSTEC trade and encourages the incidence of illicit or informal trade at the expense of legitimate trade.

a. Policy

333. All BIMSTEC countries should become signatories to the Revised Kyoto Convention as soon as possible. Until they become signatories, member states should increasingly adopt the basic standards proposed in the Convention.

b. Strategy

334. BIMSTEC should monitor member states becoming signatories to the Revised Kyoto Convention and encourage non-signatories to sign the Convention by 2010. This would provide a standardized approach to customs activities across the BIMSTEC region.

c. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries; and
- National government and their customs authorities.

d. Scheduling

- 2008–10: Countries should sign Revised Kyoto Convention.

2. Development of Automated Customs Clearance Systems

a. Issue

335. Modern customs organizations all use automated customs clearance systems as a method of facilitating trade. Importers and exporters submit declarations electronically via EDI to Customs, who then process the entries electronically. Customs clear the goods using the electronic entry, although sight of hard copy documents may also be required for control purposes. Subject to examination the goods are cleared electronically by Customs following payment of duty and advise the importer, exporter or his agent that the goods are free to be transported away. This significantly reduces the amount of documentation required, speeds up the processing, reduces the interface between Customs and the agent that is a primary source of governance problems, and this will in turn reduce transaction costs. At this stage, only Thailand has such a system in place, despite all other BIMSTEC countries having some form of automated system in operation.

336. The ASYCUDA system developed by UNCTAD is the most common system used worldwide and is used by Customs in Bangladesh, Nepal, Sri Lanka and Thailand. There are a number of versions including ASYCUDA++ and the more advanced ASYCUDA World. The system consists of a series of modules or components. All these countries have the core modules, but some lack key subsidiary modules that enable the system to be an active processing tool, rather than merely a transaction database. The absence of these modules, especially the Direct Trader Input Module used by traders to submit electronic declarations, is compromising the implementation of the system and constrains the realization of benefits to traders.

b. Policy

337. All BIMSTEC member states should have fully-automated customs clearance systems which have the capacity to process import, export and transit declarations submitted electronically by traders or their representatives that reduce the need for submission of hard copy support documentation.

c. Strategy

338. BIMSTEC should promote the need for international assistance in supplying Bangladesh, Nepal and Sri Lanka with any missing ASYCUDA modules and their installation.

339. BIMSTEC should promote an assessment of the capability of the BACS system in Bhutan as to whether it can be developed into a full customs processing system, comparable to the capabilities of the Thai system.

340. BIMSTEC should encourage the effective usage of ICES system in eastern India to the levels already achieved at the main ports and airports

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- National customs; and
- International development partners and UNCTAD to provide technical assistance and software.

e. Scheduling

- 2008–10: Provision of missing system modules.

3. IT Connectivity to Land Borders

a. Issue

341. Customs have developed automated clearances systems, but these have in many cases not been fully connected to the borders and land ports. Some land borders in South Asia, in particular, either have no IT connectivity or only use the system selectively due to reliability concerns. At these borders, even when these systems are present, Customs continue to use manual systems and registers because of concerns that the system will 'go down' and data will be lost. This means the processing of imports and exports at these land borders takes much longer than at sea ports and airports, where on-line clearance systems are available.

342. A key issue is the reliability of the communication and power supply. Many of the borders, particularly secondary borders, suffer from either, no telephone lines or low quality reception, compounded by regular electrical interruptions in supply or voltage variations. This applies even at major borders, such as at Benapole-Petrapole. It will not be possible to extend the benefits of automated systems to land-based trade until these utility problems are resolved. This could be resolved by a combination of UPS units and back-up generators, though it is acknowledged that the reliability of the communications quality may be more complex.

b. Policy

343. All primary BIMSTEC land borders (Benapole, Birgunj, Jaigon, Mai Sai, Mai Sot, Myawaddy, Petrapole, Phuentsholing, Raxaul, Tacheleik) should have access to automated customs processing systems by 2009 and secondary borders by 2012.

c. Strategy

344. BIMSTEC should promote a regional border development program in cooperation with national Customs to ensure that all the main BIMSTEC borders are connected to their respective central IT systems. This should be in the form of an Action Plan with target dates for implementation and identify funding sources. This may require the formation of a BIMSTEC Customs Cooperation Liaison Group.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- National Customs as executing agencies; and
- International development partners as potential providers of technical assistance and loan funding.

e. Schedule

- 2008: Development of regional IT border connectivity program;
- 2008–09: Connectivity at primary borders; and
- 2010–12: Connectivity at secondary borders.

4. Implementation of DTI Capacity

a. Issue

345. The development of direct trader input systems is critical to improvements in trade facilitation. It is proposed that this facility should be available at all airports, seaports and major border crossings in the BIMSTEC region. However, a major problem is the ability of the clearing and forwarding agents and customs house agents to fully utilize this capability. This is because of the preponderance of small agents or single entities that lack the ability or resources to connect into such advanced systems. As a result, experienced customs officers are occupied acting as data entry clerks entering declarations into their own system, and thus delaying the commencement of clearance processing.

346. An interim strategy adopted in some countries, including India, is the establishment of separate service centers, where the data is keyed in by non-operational customs personnel. Such centers are either operated by Customs or approved external parties on a cost-based fee basis. Gradually, Customs should phase out the acceptance of manual submissions, so that subsequently all entries have to be submitted electronically using DTI from the agent's own premises or via service centers. This will speed up the process and release customs from data entry duties to more effective compliance activities, resulting in improved clearance performance. It also tends to eliminate some of the 'activity' peaking that result in workload imbalances during the working day. DTI tends to have the effect of consolidating clearing agents into larger corporate entities, thus increasing their professionalism.

b. Policy

347. All primary BIMSTEC land borders and seaports should have a DTI capability or service centre, so that by 2010 all declarations are submitted in electronic format at primary borders and by 2012 at secondary borders.

c. Strategy

348. BIMSTEC should promote the development of a regional program to develop DTI/Service Centers at all the primary BIMSTEC borders, in cooperation with national customs. They should encourage the extension of DTI by supporting the supply of DTI capability and training at primary borders (Benapole, Birgunj, Jaigon, Mai Sai, Mai Sot, Myawaddy, Petrapole, Phuentsholing, Raxaul, Tacheleik), with possible assistance by the international development partners.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- National customs as executing agencies;
- Clearing House and C&F Agents Associations as beneficiaries; and
- International development partners, if external assistance is necessary.

e. Schedule

- 2008: Development of DTI and Service Centre connectivity program;
- 2009–10: All electronic declarations at primary borders; and
- 2011–12: All electronic declarations at secondary borders.

5. Upgrading of Border Infrastructure

a. Issue

349. Border investment has been targeted principally at the primary border crossings. Unfortunately, such investment has been insufficient to keep pace with the growth in traffic levels now transiting through these facilities. In many cases, the infrastructure was not designed on the basis of current operational functions, and most are non-compliant with recommendations contained in the revised Kyoto Convention, especially with regard to traffic separation schemes. The result of this lack of investment and poor border design is that many of the borders are badly congested and subject to significant delays in processing.

350. The BIMSTEC corridors predominantly involve movements through secondary border crossings. This is mainly because the orientation on the BIMSTEC routes is generally north-west/southeast between Thailand/Myanmar and eastern India and Bangladesh, as opposed to SASEC which has a more north-south or east-west orientation. The infrastructure at these BIMSTEC crossings is either basic or non-existent and will need to be appreciably upgraded in order for the proposed land-bridge to be successfully implemented.

b. Policy

351. All the primary BIMSTEC land border crossings (Benapole, Birgunj, Jaigon, Myawaddy, Petrapole, Phuentsholing, Raxaul, Tacheleik) should be modernized to be compatible with international ‘best practice’ and the Revised Kyoto Convention and be able to process the projected passenger and freight traffic forecasts.

c. Strategy

352. BIMSTEC should promote the undertaking of an independent audit of the primary border crossings to determine their future development needs. This should include not only the border crossing ‘control zone’, but the immediate road and rail interfaces, in order to reduce the congestion levels. The audit should consider the borders in ‘pairs’ as any proposed developments need to be undertaken in parallel on both sides of the border in order to maximize the benefits. Initial priority should be given to improvements at Benapole–Petrapole, Birgunj–Raxaul, Phuentsholing–Jaigon. This could possibly be undertaken under the ADB SASEC program.

353. In relation to the lower volume BIMSTEC corridor, border post considerations in the proposals should be given to implementation of the recommendations contained in the Revised Kyoto Conventions regarding joint/juxtaposed border facilities to limit development costs. This strategy would enable enhanced facilities, even when volumes are relatively low. The only precondition for such an approach is that the physical border line is not under dispute. This could possibly be undertaken under an ADB BIMSTEC program.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;

- National Governments in Bangladesh, Bhutan, India, Myanmar and Nepal and there respective Customs Authorities as executing agencies; and
- International development partners for technical assistance and possible future loan funding.

e. Scheduling

- 2008–09: Border Audits and development of modernization program; and
- 2010–14: Upgrading of border post and interfacing infrastructure.

6. Development of Land Port Infrastructure

a. Issue

354. The land ports have principally been designed as a result of the lack of through transport agreements, but in addition have become part of the trading environment. Many trading terms used in bilateral trade are based on delivery into the land port in the importing country. For example, exporters in India ship to free delivered Benapole land port enabling the exporter to be responsible for the movement over the border into the land port, but from that point on all changes are to importer's account. While the use of land ports represents a break in the logistics chain and therefore compromises optimal logistics, it should be acknowledged that the land ports are important to the trading community and therefore they do help to promote intra-BIMSTEC trade.

355. Given this situation, there is a need to upgrade some land ports/ICDs and to provide them at some secondary crossings where there are presently no facilities. Major congestion occurs at the Benapole-Petrapole crossing, both at the interfaces of the land-ports and especially within them, particularly at Benapole. Merely constructing more infrastructure is not considered to be the optimal solution. It may require a combination of better traffic management, enhanced trade facilitation and adjustments to layout possibly with a separate road for returning vehicles.

356. At other smaller borders, there is a need for minimal unsophisticated low cost land ports/ICDs in the importing countries. Examples of this are the requirement for facilities at Phuentsholing and Banglabandha. At Tamu, there are proposals for a cross-border trading zone to promote bilateral trade. All these initiatives need encouraging in order to promote bilateral trade, particularly on these minor routes.

b. Policy

357. BIMSTEC recognizes the importance of land ports in the development of bilateral trade in the region and encourages the development of appropriate facilities where necessary that will facilitate intra-BIMSTEC trade.

c. Strategy

358. BIMSTEC should promote the undertaking of an independent audit of the existing land port operations to determine their suitability in meeting the longer term needs of intra-BIMSTEC and third country trade. In such a study, it will be important to consider the issues relating to access and the operational functions to be undertaken at these facilities.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;

- National governments in Bangladesh, Bhutan, India, Myanmar and Nepal and their respective customs authorities or land port authorities as executing agencies; and
- International development partners for technical assistance and possible future funding.

e. Schedule

- 2008–09: Land port and ICD development audits; and
- 2010–15: Upgrading of land port and ICDs.

7. Reduction in Port Dwell Times

a. Issue

359. The charging rates for storage at the main sea and land ports in Bangladesh and eastern India significantly lead to increases in cargo and container dwell times, with consequent congestion. An efficient port or land port is primarily a 'transit' facility, providing short term storage incurred as a by-product of the modal change or due to the absence of through transit agreements. It is also recognized because of trading terms, the responsibilities between the importer and exporter often changes at this point and this may also contribute to the delays.

360. However, it is also evident that the low storage charges contribute to problems. For example, at Colombo and Kolkata, the clearance procedures are broadly similar, yet at Colombo most import cargo is cleared in three days and removed from the port, whereas at Kolkata most documentation is not even tendered in the first week and the dwell time is 23 days. Similar problems to those at Kolkata exist at Chittagong where high dwell time is also incurred. At the land ports and ICDs, similar delays occur, especially in Bangladesh. Basically, importers are keeping their goods in the ports, ICDs and land ports because it is 'cheaper' for them to do, since most do not have their own storage facilities. Thus, these facilities are actively engaged in 'stock' storage. Unless storage rates are increased and free time reduced, the dwell times will continue to rise with the facilities becoming even more congested than they already are.

361. The congestion is compounded by abandoned/confiscated goods that are subject to dispute with Customs. The ports and ICDs, as well as some of the land ports, are getting increasingly congested by such cargo, which is stored for considerable periods of time, sometimes even years. While there are time limits for resolving disputes and auctioning cargo, these are often not complied with. Unless enforcement of the relevant customs legislation covering abandoned /confiscated goods is improved and the dispute procedures are expedited, the facilities will continue to become a 'dump' for such traffic and storage availability for legitimate trade will increasingly be restricted or unavailable.

b. Policy

362. BIMSTEC recognizes the importance of ports, ICDs and land ports in offering transit storage and supports the implementation of measures designed to reduce storage dwell times at these critical facilities.

c. Strategy

363. BIMSTEC should support action taken to reduce storage free time at all container terminals, ICDs and border land ports to less than seven working days and to raise the storage charges so as to encourage traders to remove their goods quickly. The storage charges should be based on an escalating weekly rate.

364. BIMSTEC should support other measures to reduce dwell times such as Customs notifying importers of uncleared cargo and encouraging their removal as soon as possible. Action should be taken to remove abandoned or disputed cargo from the sea ports and land ports.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- National governments;
- National Customs;
- Relevant Port Authorities; and
- Land Port Authorities.

e. Schedule

- 2008–09: Reduction in free times to seven working days maximum and imposition of higher escalating storage charges, following discussions with stakeholders.

G. Logistics

1. Development of a Logistics Hub at Colombo

365. Both Colombo Port and Airport act as a transshipment hub, but this is based solely on the transfer of whole containers or shipments same mode to same mode, without supplying any added value services. This means Sri Lanka is obtaining limited benefits from such activities. Competing port/airport complexes such as Dubai, Singapore and Hong Kong act as major regional logistics centers built on their hub operations.

366. For example, bulk shipments could be brought in containers or by air into Colombo and stored in free economic zones or bonded stores and then be redistributed later by sea or air in response to orders received. This would mean the suppliers could offer just-in-time deliveries from Colombo to the whole of the Bay of Bengal area. While this is a sophisticated operation, Colombo is the only port in the region with this potential. (Bangkok/Laem Chabang has similar potential, but this is GMS-orientated rather than BIMSTEC).

367. This potential has been highlighted on a number of occasions by various parties, but has never progressed to serious discussion at the appropriate Government levels. It is also clear that the parties involved in the logistics cluster, such as the port authority, airport authority, customs, forwarders and third party logistics operators, all have differing policies and strategies and therefore there is no coordinated effort to develop such a logistics hub in the way that has taken place at the competing hubs.

a. Policy

368. BIMSTEC recognizes the potential of Colombo as a major logistics hub for the Bay of Bengal and supports initiatives designed to realize this potential.

b. Strategy

369. BIMSTEC should promote a detailed feasibility study for the development of a logistics hub at Colombo. The logistics cluster will require ‘logistics parks’ to be located between the port and the airport. The study should clearly identify and quantify potential demand, sites, facilities, development costs, stakeholders and funding mechanisms. A comparative analysis should also be made with Dubai, Hong Kong and Singapore to clearly

identify the success factors that have resulted in their growth and whether similar factors could be replicated at Colombo. This study could be integrated with government proposals to establish off-dock rail-connected ICDs to relieve congestion in the port and reduce road traffic in central Colombo following the recent High Court Ruling.

c. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries;
- Government of Sri Lanka;
- Sri Lanka transport community; and
- International development partner to fund the required feasibility study.

d. Scheduling

- 2008–09: Conduct ICD feasibility study.

2. Foreign Direct Investment

a. Issue

370. Advanced logistics requires specialized skills in the form of facilities, IT systems and personnel. To develop these from a standard transport and warehousing environment takes time. A number of the BIMSTEC countries have rapidly developing economies and are ripe for the introduction of such practices, but lack the expertise and resources to do so. Specifically they lack 3PL (third party logistics) organizations with a supply chain management capability. In some countries, foreign direct investment restrictions, particularly in the sensitive road transport sector, mean that this external expertise either cannot be brought in or many foreign 3PL organizations are unwilling to invest in the country because of their shareholding/control limitations. While it is accepted that national companies will eventually have this capability, it will take some years, whereas allowing foreign 3PLS into the market would 'fast track' this process to the benefit of both domestic consumers and importers.

b. Policy

371. BIMSTEC encourages the removal of any remaining foreign direct investment restrictions on 3PL–type activities in both the domestic and international markets in BIMSTEC member states wherever possible.

c. Strategy

372. BIMSTEC should monitor FDI restrictions in the transport and logistics sectors and promote their removal wherever possible and relevant. It is recognized that there may be situations in some of the smaller countries, such as Bhutan and Nepal, that some restrictions may be appropriate in the domestic sector.

d. Implementation

- Proposed Expert Group on Transport Facilitation and Logistics could act as a technical coordinating and monitoring body facilitating discussions among the countries.

e. Scheduling

- 2008: Identification of restrictions; and
- 2009–10: Removal of FDI restrictions in the transport sector wherever possible.

IV. LOGISTICS ACTION PLAN

373. The TOR for the BTILS required 'presentation of industry best practices and an Action Plan for the development of domestic logistics industries at two seminars'. This domestic focus differed from the original ADB Concept Paper[13] that formed the basis of BTILS in which it proposed 'development of an Action Plan for the logistics industries of the BIMSTEC countries, thereby increasing the cost effectiveness of freight and passenger flows between member states' (it proposed an international rather than domestic orientation). The consultant in the analysis considered both sectors and their potential inter-relationship.

374. The clear message from the evaluation undertaken in this study is the key drivers to promote development of the sector are missing in many of the member states:

- major retail organizations seeking to reduce inventory throughout their supply chain;
- multi-nationals seeking to improve their supply chain by holding inventory closer to the point of delivery to enhance service levels through adopting just-in-time deliveries; and
- high cost environments where the cost of holding stock is expensive.

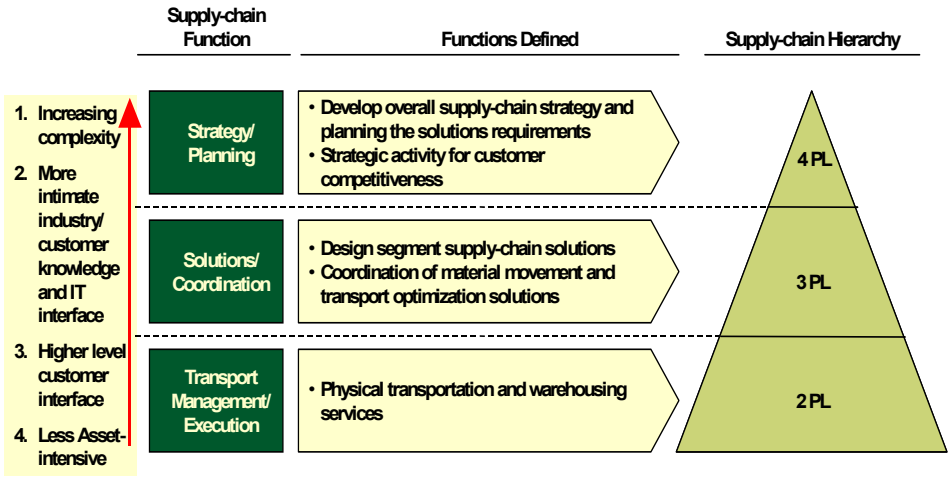
375. This helps explains why logistics has not really developed in the region. There is no significant system of domestic central and regional distribution warehousing present, nor any major development of international systems. Most countries predominantly use the standard approach of trading through import/export agents, national distributors (who function is often sales rather than distribution) and direct sales. As countries develop, then pressure will grow to commence more advanced logistics services as these three market drivers will start to appear. This is the situation in both India and Thailand with the growth in both retailing chains and multinationals in recent years. Thus, a fledgling 3PL industry largely based on foreign expertise is only now gradually developing in both countries in response to these demands.

376. Figure 2 shows the supply chain function and how this is reflected in the supply chain hierarchy. It highlights the 2PL environment where physical transport and warehousing are discrete activities and which has low asset intensity. This progresses upwards into the more complex solutions coordination involved in 3PL activities, based on outsourcing for an increasing amount of the logistics chain. Finally, there is the most complex 4PL where an integrator assembles the resources, capabilities and technology of its own organization and other organizations to design, build and run comprehensive supply chain solutions.

377. The survey of logistics in BIMSTEC clearly indicates the dominance of 2PL-type activities. Given the lack of demand drivers, this has been so far sufficient to meet both domestic and international logistics requirements. It is considered that in some of the smaller countries this situation will continue at least in the medium term. Whether these countries have the capability to be engaged in more complex logistical solutions is less important than whether there is pressure for such solutions, which will inevitably raise transport costs and, most importantly, whether there is sufficient savings in inventory and improvements in service to offset those additional costs. As indicated, at this stage only India and Thailand appear to have the preconditions for the 2PL to 3PL progression based on the evolving demand drivers.

[13] BIMSTEC Transport and Logistics Study : Concept Paper RSC No C51897

Figure 2: Supply Chain Function/Hierarchy



378. The development of the transport infrastructure and of the road transport sector (rail or even intermodal transport is rarely used in advanced logistics), are important 'building blocks' in creating the environment whereby advanced logistics can be practiced. Indeed, they are critical to effective logistics performance, but they are only there to support logistics provided the demand for such services is present. Merely by developing a quality transport infrastructure alone will not lead to the presence of advanced logistics, as is demonstrated by the situation in Thailand that has an exemplary road network, but relatively small logistics sector at this stage.

379. In developing an Action Plan for logistics for the BIMSTEC region, the consultant has adopted an approach based on the assumption that the demand drivers will be present. It is not considered the Action Plan should attempt to create the 'demand drivers', but should merely identify the steps necessary to be able to respond to those demands as they evolve. Logistics is a service industry and as such responds rather than dictates. Therefore, the plan should be designed to create an environment whereby the service providers can develop their product to meet the needs of their customers.

A. Development of the Plan

380. In developing the proposed Action Plan, the consultant has assumed a basic policy and strategy framework that the Action Plan seeks to implement. These are as follows:

- *Policy:* the BIMSTEC logistics environment should be developed in order to provide national trade and industry with access to advanced logistics services designed to improve the quality, cost and scope of supply chain services; and
- *Strategy:* Physical and non-physical barriers to the development of advanced logistic services should be gradually removed to promote the growth in the national and international logistics sector.

381. The proposed Action Plan has three key components to address the following aspects:

- transport infrastructure;
- institutional; and
- support services.

1. Infrastructure

382. Development of the transport infrastructure is the most obvious component and in some national plans tends to be the only issue. This is perhaps because of the perception that logistics and transport infrastructure are almost interchangeable terminology in some institutional environments. As indicated, the development of the transport infrastructure is only important in the context of creating the appropriate conditions whereby the logistics industry can respond effectively to a specific type of demand from trade and industry.

a. Roads

383. Clearly, upgrading of the whole road network throughout the region is required, so as to provide rapid and efficient deliveries by road between points of supply and points of demand. Thailand is a good example of the quality of road infrastructure necessary to support an efficient logistics industry. However, in a region with such diverse conditions in the national road networks, it is necessary to be much more specific in order to provide the necessary focus in an Action Plan. The three most important types of road connections are as follows:

- the core national road network linking the major centers of demand;
- connections to the key ports; and
- connectivity to the main border crossings.

384. In general, there is a correlation between population and demand in logistics. The points of supply and end-users are usually concentrated in centers of population, and therefore a key requirement is to have quality highways between the major cities. The Golden Quadrilateral in India that links the four main cities in India – Delhi, Mumbai, Chennai and Kolkata - and the programmed east-west highway are good examples, as is the road network in Thailand. However, the greater the demand clearly the more comprehensive that network will need to be, thus India and Thailand need to have a more complex network than countries such as Bangladesh or Myanmar.

385. Distance is also a factor as logistical systems are based on central and regional distribution centers having a ‘delivery area’, normally with slower moving products being located at central warehouses and faster moving lines being delivered from regional facilities on a just-in-time basis. In the countries where the demand is more concentrated, such as Nepal, Bhutan and Sri Lanka, the distribution distances are less and therefore the quality of the road network becomes less critical, as the central and regional storage functions tend to be combined.

386. Standard advanced logistical systems are predominantly based on movement in bulk from the point of supply, be it from a manufacturer’s central stock warehouse or a port to a regional centre or even the end-user in bulk form. In essence, this means volume delivery and the use of articulated transport. This in turn means the requirement for Asian Highway Class I roads, wherever possible, to ensure quality and efficiency of ‘line-haul’ or ‘trunking’ services. The presence of AH Class II and III in the primary road network will potentially and adversely affect the efficiency of logistical services in that region as traffic volumes increase. In this context, the key road developments in the BIMSTEC region are considered to be as follows:

- The Indian east-west road west of Kolkata, at least as far as Guwahati to AH Class I;
- Dhaka–Chittagong to Class I; and
- Dhaka–Jessore to minimum Class II.

387. Improvement in connectivity to the seaports is critical in the context of international logistics. This is vital in the context of imports for distribution to points of wholesale and retail,

as well as material inputs for national production. For exports, it is essential to move product quickly and efficiently in response to the demands of overseas suppliers. The latter is particularly important as advanced logistics is already prevalent in this context in many of the countries and the ability to respond to supplier's logistical demands is seen as a key element in the competitiveness of one country versus another. Given the export synergies and competition between member countries in sectors such as textiles and garments, there is a need to ensure security of the export logistics chain by the ability to transfer goods efficiently from the manufacture to the container yard at the port.

388. This port link may in some cases be a corridor rather than an individual road, and is thus not just a national issue. Nepal and Bhutan, for example, are both dependent on the port link through Kolkata and thus the port connectivity issue covers link roads though India. These highways need to be AH Class I or II depending on the volume of traffic. In the context of BIMSTEC the key road developments are:

- Birgunj–Kolkata;
- Phuentsholing–Kolkata;
- Sylhet–Chittagong; and
- Mandalay–Yangon.

389. The third component is improvements to border linking roads to facilitate cross border logistics. As indicated in previous sections, these border roads often lie on the periphery of national road networks and have not always obtained the appropriate level of funding. From a logistical perspective, this will become increasingly important in South Asia, as it is considered that both Bhutan and Nepal will probably become extensions of the Indian logistics systems, rather than being discreet markets. Bangladesh is also expected to become more involved in trade with India in relation to substitution of products from third countries, as the Indian manufacturing sector expands and diversifies. Myanmar may in the longer term also become much more involved in cross border logistics with Thailand.

390. It should be noted that, from a logistics perspective, this does not necessarily demand more border connections. Indeed, the requirement may be for less border corridors in favor of fewer but better links. There is a danger that the pressure for opening more borders will disseminate effort and limit access to funding of the primary linkages. Thus, a more focused approach is needed. The requirement is mainly for quality AH Class II roads, though given the volumes, there may be demand for Class I in certain cases. In a BIMSTEC context, the key routes for development are as follows:

- Kathmandu–Birgunj;
- Thimpu–Phuentsholing;
- Myawaddy–Yangon; and
- Mandalay–Tachileik.

b. Rail

391. In general, rail is less involved in advanced logistics because of its lack of flexibility and ability to meet the demanding service requirements. However, its potential, as a line-haul service provider, increases versus road over the longer distances provided it can be competitive in terms of time and reliability. This is particularly relevant in terms of container traffic and other types of unitized movements, because using this medium offers the possibility of developing a rail network of 'block trains' with priority train 'paths' that can ensure that the transit times are comparable with road transport.

392. The development of container train networks, such as that offered by CONCOR in India, offers the possibility to bypass some of the constraints of the road network. The

development of such networks should therefore be encouraged wherever possible, not only for movement of traffic between ports and ICDs, but also to developed domestic services.

c. Ports

393. The major logistical constraints in the seaports tend to be as much trade facilitation-related as infrastructure-related. In a logistical sense, the ports should only be a transit facility on the through logistics chain, whereas some ports are engaged in longer term storage due to slow and disputed clearances. However, there are some more significant infrastructure constraints at the key BIMSTEC ports of Chittagong and Kolkata adversely affecting international logistic movements through these ports and then impacting on the quality of logistical services in their distribution areas. These problems mainly consist of lack of handling areas within the port, especially in the container yards, congestion around port gates, poor immediate access roads and a general lack of handling equipment. Action is required to address all these issues. Colombo as a regional distribution hub also urgently needs additional capacity to maintain performance standards.

d. Airports

394. Air transport is important in the context of international logistics in relation to the movement of small high value product, spares and samples, perishable goods and just-in-time (JIT) deliveries. In general, the airports and air services meet the requirements of the logistics industry. However, there is a need for upgrading the quality of the air cargo facilities and the introduction of more mechanized handling at the major airports, particularly in India.

e. Borders

395. The border crossings are becoming increasingly important with developments in India and Thailand, whereby they will increasingly become logistics centers for their neighbors. Eastern India has the potential to act as a logistics cluster for Bhutan and Nepal, already Siliguri and Patna are trading centers for these countries. Even Bangladesh could be linked to the Indian market, whereby stock is held in India and delivered in a JIT basis to end-users in Bangladesh. Similarly, Thailand will increasingly be a supplier to Myanmar by land from logistics clusters close to the borders, such as at Chiang Rai and Tak.

396. In general, little attention has been given to development of border crossings. While trade facilitation is an important constraint at these land borders, the assessment undertaken as part of this study clearly indicated that border infrastructure was considered by the transport sector as the primary constraint. This tends to be a combination of either lack of facilities or poor design or both. The overall profile is often of large numbers of trucks queuing or parked at key border crossings.

397. For logistics the primary need is for a relatively small number of quality efficient borders, rather than lots of small limited volume border crossings. These smaller border crossings are needed to facilitate cross border trade, but are of limited value for advanced logistics. While there is a need to upgrade both sides of the border, the priority is development of the facility in the country predominantly handling the import traffic, as this involves more complex procedures and often a break in the logistics chain. Thus, for example, the upgrading of facilities on the Bangladeshi, Bhutanese and Nepalese sides is considered more important than on the Indian side. In the case of the Thai-Myanmar border, Thailand has already upgraded so the primary development requirement is on the Myanmar side. The priority crossings for upgrading are as follows:

- Bangladesh: Benapole;
- Bhutan: Phuentsholing;

- Myanmar: Tachileik and Myawaddy; and
- Nepal: Birgunj.

398. The relatively small number should not be interpreted as indicating other crossings are not important, but merely that these key facilities need to be improved prior to development of 'secondary' crossings.

f. ICD/Land Ports

399. The function of an ICD is to enable an import shipment to be transferred from the point of entry closer to the point of delivery without having to be cleared at the sea or land port, or conversely to consolidate exports and clear them for international transit. However, as importantly, ICDs are used as a mechanism to reduce operations and cargo dwell times at the seaports. It is noted that in BIMSTEC countries, ICDs normally only handle maritime traffic.

400. In terms of ICD development, the priority from a logistics perspective is to have quality facilities at strategic locations, rather than necessarily more and more ICDs. A problem in countries such as Nepal occurs when too many such facilities are built. There is a problem of viability, as ICDs are dependent of volume. Too many ICDs disseminate the demand and this compromises both service and costs.

401. The land ports represent a constraint in the logistics chain in which goods should be in transit passing through borders, rather than being unloaded and held in store. In developed countries land ports at the borders have been eliminated. This should be a future goal for international logistics, but it is recognized that due to the combination of trading practices, lack of cross border transit agreements and poor trade facilitation that these facilities have an important role in the short to medium term.

402. There is a strong case for combining land port and ICD activities into a single complex at key locations, such as Birgunj and Phuentsholing, rather than developing separate facilities. As cross border transport agreements are developed, it should be possible to pass in transit through borders to inland centers for the final clearance. In a logistical sense, there should be no difference between an ICD and a land port in terms of function.

403. Where land ports are either present or need to be developed, there is limited value in duplicating facilities either side of the border. It is more logical to develop a single complex covering both sides' requirements and then address the physical location aspects of held product through more effective trade facilitation. For example, it should be possible to hold goods in stock on one side of the border and clear them electronically for entry from the other side, so that when they are loaded they can pass through the border unimpeded. ASEAN and GMS countries have recently agreed to pursue the single window system characterized by the single submission of data and information, single and synchronous processing of data and information and single decision-making for customs release and clearance.

g. Transport Nodes

404. Transport nodes are specific locations of concentrated transport and logistical activity. There are four main types in the BIMSTEC region:

- modal interchange points – ports and airports;
- international transfer points – borders, land ports and ICDs;
- distribution centers – transfer point between line-haul and localized distribution; and
- trading centers.

405. For the first two, the location of the transport node tends to be a specific facility handling international logistics, whereas in the case of the other two it may be a location outside an important city or even between cities, such as a key road junction or may even be a ‘logistics cluster’ consisting of a series of mini-concentrations.

406. The development of transport nodes and connectivity between them is critical to the advanced logistics, particularly in a domestic context. These are the locations where logistics activities and 3PL operations are concentrated. A key component of any Action Plan should be to identify these national domestic transport nodes and give them some form of investment ranking. Whilst the first two types discussed above may be relatively easy to identify, the latter two are sometimes less obvious and require much more localized knowledge. Only when this has been completed can the process of focusing planning and investment be undertaken in developing logistics parks to support domestic logistics.

407. The number of the key transport nodes will to a certain extent be determined by the quality of the road network. This is because it tends to dictate the size of the distribution area that can be covered from a specific transport node. Theoretically, the poorer the road network the more nodes that would be required. However, in practice poor road networks cannot support advanced logistics. Consequently, from a logistics viewpoint the potential number of logistics transport nodes may be relatively small in the early stages of development. In countries such as Bangladesh and Myanmar, there are unlikely to be more than 10 potential key logistics nodes, in Bhutan, Nepal and Sri Lanka, there are likely to be no more than 5, but in India and Thailand more than 20.

h. Logistics Centers

408. In a global concept, a logistics centre is technically any ‘centre’ where logistics takes place and therefore is open to wide interpretation, and even the global logistics industry cannot agree a standard definition. A more conventional understanding in a developed logistics environment is of a complex of warehousing and distribution facilities located at a key transport node and which are predominantly used by 3PLs. The core functions of any such centers are a combination of warehousing and distribution.

409. In general, there are two types of storage (transit and stock). Transit storage is temporary storage with a low storage ‘dwell time’, such as occurs at regional distribution warehouses that are predominantly concerned with transit storage in that goods are normally stored for relatively short periods of time prior to final delivery within the local area (the facility is principally concerned with distribution rather than storage). The storage requirement is a by-product of the distribution function arising from the interface between longer distance transport carrying products in large consignments and local transport delivering order-picked consignments to wholesale and retail outlets.

410. However, many logistics centers also have some stock warehousing function. There are three main reasons for this activity. Firstly, manufacturers have tended to reduce their warehousing facilities on their own sites in order to maximize the use of their site for core production purposes and have consequently contracted out the warehousing to 3PLs who pick up the goods from the end of the production line and store them in their own premises awaiting final sale. Secondly, the system of central warehouses is used predominantly to respond to the growth in global sourcing methodologies, and the storage for the slower-moving product lines or large items which would otherwise inhibit the performance of the regional warehouses if stored there. Thirdly, to hold strategic stocks of products close to the end-users, such that they are able to respond quickly to orders received. This is particularly important in relation to international traffic due to the longer delivery lead times between the shipper and the consignee and for domestic traffic where the road network is constrained or in support of production line manufacturing techniques.

411. In countries such as India, there is currently significant emphasis on the development of logistics parks, but in many cases there is some confusion in that many of these are in reality free or special economic zones whose primary function is manufacturing and reprocessing, and logistics is only a secondary support function.

412. In general, the 3PLs and the trade and transport sector will determine the location of such logistics centers at the key transport nodes, subject to planning by regional or local authorities. However, the key requirements are:

- good road access to main highways or port/airport; and
- availability of land for development of warehousing and distribution activities.

413. From a planning perspective, it is logical to combine these either at a single location (a logistics park) or a combination of sites in general proximity to each other (a logistics cluster). The latter is often used when the availability of a large site area is not available at a single location. The current systems adopted in some countries of such facilities being spread over a wide area with minimal planning is inefficient and can result in additional transaction costs. A key planning objective should be cluster development.

414. It is critical that the relevant planning authorities in their zonal land use plans reserve suitable areas at the identified transport nodes for the future development of logistics parks where 3PLs can construct and operate specialized warehousing and distribution facilities. While the sizing of such distribution facilities will be related to the nature of the demand and type and scope of service being operated, generally such warehouses would be expected to exceed 10,000 m^2 each and in some cases be as much as 100,000 m^2 on a single floor. As land prices and rents rise, there will be a tendency for increased introduction of narrow isle racking systems and high-bay storage systems up to 20 m in height (use of the vertical as well as the horizontal plane).

415. There are several development and management options for the actual physical development of such logistics complexes. In most cases, the central and/or local government designates specific areas for development of logistics facilities through land use planning mechanisms and more detailed planning through planning consents and building regulations. Most logistics centers tend to be developed by the private sector, though in some countries the regional government may also be an investor in order to 'promote' logistic developments in their region, rather than in neighboring regions. However, the most common scenario is that 3PLs or other users lease the land or the facilities from a property developer or construct their own facilities on leasehold or freehold land. The site infrastructure (such as roadways and utilities) is usually provided either by the local government or the overall site developer. An important role for regional government will be the promotion of such opportunities to the 3PL and domestic transport sector.

416. It is recognized in relation to international logistics that some of these centers may need to be developed within a customs control zone, such as in an ICD, free or special economic zone. In the planning of facilities, it will be important to include adequate space to develop these centers either within the zone or immediately adjacent.

i. Logistics Hubs

417. In some regions certain logistics activities are even more concentrated in the form of logistics hubs. These hubs act as a centralized distribution facility(s) to a much larger catchment area where regional 'spoke' logistics centers exist. These hubs tend to be both unimodal and intermodal.

418. In the maritime sector, Colombo is a maritime hub for the Bay of Bengal area and Laem Chabang is for the GMS subregion. Containers are brought by the main line operators and redistributed by feeder ships in the case of Colombo and by road or rail in the case of Laem Chabang. Mumbai and Chennai are also developing as potential maritime hubs. In the aviation sector Bangkok is the dominant hub, with mini-hubs at Colombo, Delhi and Mumbai.

419. These transfer points are important to 3PL operators. Initially, the presence of such operators may be required merely to oversee the efficiency of the transfer operations on behalf of their clients, but increasingly they have become added-value logistical centers. The multinationals and trading entities retain stock at these hubs for later distribution to the region, as opposed to having to hold stock throughout the region. In the case of exports they act as consolidation points. Dubai, Hong Kong and Singapore, in particular, have developed a major logistics industry based on being a maritime/aviation hub.

420. In the maritime sector, Colombo has particular regional importance and it is important that the Government of Sri Lanka recognizes and supports this potential by making the necessary land available for development of a logistics cluster, together with a supporting road network. Similarly, there is a requirement to provide additional capacity adjacent to Suvarnabhumi Airport to support its aviation hub potential. Kolkata has the potential to be an intermodal hub covering eastern India, Nepal and Bhutan, but this will require coordination of the parties concerned as to how this potential can best be realized.

2. Institutional

421. While the logistics sector is almost exclusively operated by the private sector, the respective governments have an important role in creating an environment within which the sector can evolve. While the governments have a key responsibility for the development of the transport infrastructure and for planning, they also have a less visible role in promoting logistics by helping to address some of the non-physical barriers likely to constrain its introduction as demand develops.

a. Outsourcing

422. The logistics industry is largely dependent on outsourcing. Major retailers and manufacturers contract out the logistics function in order for them to concentrate more on their core selling and production functions. In the case of large manufactures, such as the multinationals, they have been selling non-core businesses or outsourcing those elements which are not related to manufacturing to external parties, such as to 3PLs. In doing so, the manufacturers no longer physically control these out-sourced elements (they are managed through information systems). Physical transport and distribution is one of the major activities which have been outsourced for sometime by these organizations. Similarly, most large retail organizations concentrate on sales as their core function and contract out the supply and distribution activities.

423. The decision on whether it is appropriate for a company to use third party, as opposed to own services, depends on a number of factors. Typically, outsourcing will provide economies of scale for medium/small manufacturers and permit focusing of resources on core business functions for larger organizations. In general, it was noted that in the BIMSTEC region there is a reticence by both large and small companies to outsource. In many cases, this is due to the practice of maintaining of traditional business practices based on integrated business environments and subcontracting only to known parties within the business circle. Many large entities either have their own transport resources or prefer to manage logistics in-house for reasons of confidentiality. The smaller entities similarly either have their own transport or have a close relationship with local transporters or forwarder 2PL operators. The concept of outsourcing is not well established in the BIMSTEC region, other than possibly in

Thailand, but even here it is at a low level compared to developed countries. It is clear that this is one of the major reasons for the slow development of logistics in India. The key problem is that these organizations do not yet 'trust' putting their business out to unknown local entities.

424. The governments, through their Ministries of Commerce and Trade, are in a position to promote the concept of outsourcing through their participation in commerce and trade entities, such as Chambers of Commerce, Shippers Councils and trade bodies on which they are represented. Thus, they can act as a 'pressure group' to encourage major corporate entities to at least seriously consider of logistics outsourcing and this could assist in stimulating demand for 3PL activities. It is noted that Thailand has included this in their national logistics plan, and have even formed the National Logistics Commission chaired by the Prime Minister.

425. However, it is also recognized that the 3PL organizations as they evolve in each country have an important responsibility to 'market' their functions, as well as their individual services. The industry needs to undertake 'awareness' campaigns so the market understands what services they offer and the advantages of using 3PL and advanced logistics. Such campaigns should focus on strategic industrial sectors where the benefits of reducing the cost of inventory are most likely to arise.

b. Legislation

426. Given the relatively recent development of logistics, much of the existing legislation does not fully recognize the presence of 3PL logistical services. In general, the legislation treats the logistical services, such as warehousing, transport, forwarding, and customs clearance (2PL activities) as discreet segregated activities being subject to separate legislation for each sector. It often fails to encompass the totality of the logistics chain, and therefore it is sometimes difficult to identify all the legal requirements, and consequently to ensure compliance. In some countries there is currently a lack of legislation covering Clearing and Forwarding Agents, let alone the more complex activities of a 3PL.

427. Governments should examine their current legislation, especially transport legislation, to ensure that 3PL company activities are adequately recognized and reflected in the current laws and regulations and identify whether there is a need for supplemental legislation to support the sector. Key areas are likely to be definitions on scopes of services and legal responsibilities. It is not suggested that the sector should be specifically regulated, but its position clarified in relation to current legislation relating to components of the various different services provided by a 3PL.

c. Foreign Direct Investment

428. The introduction of advanced logistics requires the expertise of the major international players. Whilst it may be possible for national organizations to develop advanced logistics, this would significantly delay its application and increases the costs during the 'learning curve'. In practice, the major global players have generally tended to open up the logistics sector in developing countries, either in the form of joint ventures (JVs) or the establishment of subsidiaries. Consequently, there is an urgent need to import such expertise and resources into the national markets, even if only as a 'building block' to the gradual development of the sector based on national expertise obtained through skill transfer. The formulation of such strategic alliances may well dictate the pace of development of the sector.

429. Certain countries still have foreign direct investment (FDI) restrictions in relation to some of the extended scope of services offered by 3PLs. This is most common in respect of

domestic road transport which would form a key component of a 3PL's operations, but also other areas such as customs clearance. Whilst it can be argued such service elements could be contracted out by the 3PL, this compromises a key objective of the 3PL which is to provide integrated services and thus 'control' as much of the logistics chain as possible. Discussions with 3PL operators in the region have indicated that while JVs represents an option to market entry, it is often not the preferred entry. This is because of the difficulty in finding a suitable JV partner given the lack of large national transport and forwarding entities to team up with, the fact that they will have to provide almost all the technical expertise virtually free and that they do not control 'their own destiny' as a minor shareholder. These concerns limit their willingness to invest in the sector.

430. There is also no doubt that the FDI restrictions in the retailing and service industry sectors have constrained the demand for advanced logistics. A good example is the restriction on retailing in India with the major organizations like Wal-Mart, Tesco and Carrefour only now becoming established through JVs. These types of organizations tend to drive the sector. In addition, the emphasis on advanced logistics by the multinationals has tended to focus on the export market, rather than the domestic sector.

d. Training

431. The discussions in the BIMSTEC countries have generally indicated a relatively limited understanding of logistics. This is not only within institutions, but also in the transport sector. To a certain extent, this reflects the differing perceptions as to what is logistics. Consequently, there is a need for education in logistics both at an operational and academic level.

432. Special logistics modules should be included in all transport-related degree courses, as well as transport industry training programs. It is noted that in some countries, such as Sri Lanka, the transport faculties now include logistics as part of their remit. However, in many other countries, logistics is not included on the curriculum. Logistics should also be included in all courses involving transport economics in order to increase the comprehension of the subject in a discipline that is often critical to government planning. There is also a case for providing awareness training within Ministries of Transport to ensure they fully appreciate the potential of logistics, as opposed to simple transport operations.

e. Taxation

433. Given the relatively new development of the sector, the status of 3PLs in terms of taxation is sometimes unclear, relative to that of 2PL organizations. It may be necessary in some countries to review the current taxation system to ascertain whether it promotes or constrains growth in the logistics sector. A key issue will be investment allowances, and whether specific incentives are required in the short term to encourage investment by both national and overseas entities, for example by possible tax incentive schemes. Specific issues are likely to relate to investment in logistics facilities, such as logistics/distribution warehouses and IT systems, and modern road transport resources.

434. A key problem in the road transport and forwarding industries in most countries is the dominance of small operators, such as owner-drivers and family units. These entities lack the resources to move from 2PL to 3PL operations. Indeed, in most cases, they lack the ability to maintain and upgrade existing resources. There is a need to promote the development of larger entities in the diverse parts of the logistics sector, particularly road transport, forwarding and warehousing to be able to combine activities in order for them to practice modern logistics. It is important to these larger entities that they are not disadvantaged over the small operators, who in many cases are subject to a more 'flexible' taxation regime.

Again, there may be a need not only for investment incentives, but that these should be linked to a minimal size of organization or level of investment.

f. Trade Facilitation

435. In the international logistics sector the primary requirement is for improvements in the trade facilitation environment. Basically, advanced logistics operates in a developed environment with high reliance on IT systems. With the exception of Thailand, all the other countries are characterized by complex clearance procedures requiring large amounts of documentation and dual manual and automated systems. The customs clearance activity is usually undertaken by customs brokers or Customs House Agents in isolation to other elements of the logistics chain. This makes it difficult to integrate in a 3PL activity.

436. Therefore, the first requirement is to permit C&F agents to also be customs brokers, thus integrating the clearing and forwarding functions. While it is recognized that brokers require training and licensing, such individuals should operate within a corporate environment. Foreign entities allowed to be forwarders should also be allowed to act as clearing agents, provided they have appropriately qualified and licensed personnel. This move would allow a degree of integration at the port/airport/border interface. As a second stage, 3PLs can provide C&F services in addition to their other responsibilities.

437. The development of customs services is fundamental to improvements in international logistics. While clearly the simplification and harmonization of customs procedures is the most important, the development of electronic communications and control systems is also critical. This mainly involves the development of automated systems that connect directing to the 3PLs own systems – direct trader input (DTI). Under this system, the 3PL/C&F agent makes the customs declaration electronically from his own offices and can monitor its clearance without a physical presence. Only in Thailand is such a facility widely available and used, although India has a similar capability, but its use is much lower. In other countries, the module is missing from the present Customs IT systems. However, such a capacity has to be provided in tandem with the simplification and harmonization, otherwise the customs IT system is only a data recording system rather than a processing system.

438. The success of Dubai, Hong Kong and Singapore as logistics centers is directly linked to them being viewed as ‘easy places’ to conduct international logistics. Efficient trade facilitation is critical to both this perception and its practical implementation. In part, this has been achieved by Customs and other parties involved in ‘border’ control engaging in an active dialogue with the 3PL industry and having a comprehension of their needs, as well as there own. At this stage, most of the customs organizations in the BIMSTEC countries tend to be authoritarian in nature and are more focused on revenue generation as their primary function, rather than trade facilitation as recommended under the Revised Kyoto Convention. There is a necessity to develop an effective cooperation forum, such that Customs in particular can gain an understanding of the needs of the logistics sector as a step towards making their services more ‘user friendly’ or customer-oriented, whilst not compromising their compliance enforcement role.

439. One key area requiring more attention is the provision of added-value services on transshipment traffic and reprocessing and other movements, which involve a temporary import that is re-exported after further processing. While internationally there are procedures to cope with these situations, many BIMSTEC Customs treat this as an import and then an export, thus increasing the transaction costs. In more developed environments, the monitoring of such shipments is undertaken electronically with 3PLs and processors without the need for such full double processing (for example a simplified scheme is in place to facilitate this activity). This situation is symptomatic of the need for higher levels of IT processing and connectivity between the logistics operators and customs systems through

EDI. Upgrading of Customs IT systems is essential to the effective development of the sector, but also their ability to interface with other organizations.

3. Support Services

440. The logistics sector is dependent of developed infrastructure and an institutional framework that supports the development and operation of 3PL and 4PL type activities in both the domestic and international sectors.

a. Communications

441. In advanced logistics, the control of the logistics chain is mainly directed by complex IT systems, largely due to the critical importance of the inventory control function. This is often referred to as e-logistics. In order for the 3PL operators to provide services for his client, a close relationship needs to be developed between the functions of the manufacturer in terms of production and sales and that of the 3PL stocking and distribution functions. This is done operationally through linkages in their IT systems. Another good example of this is in the retail sector where the retailer's sales functions, represented by the recording of sales in the till receipts, needs to be reflected in the residual stock held on shelves at the retail point and to trigger restocking orders to the 3PL. The IT linkage between the 3PL or 4PL and client is critical.

442. In domestic distribution systems, the IT architecture is normally based on a central and backup server based at an independent location with online connectivity to the central and regional warehouses, and subcontractors and the clients. Advanced logistics require reliable secure communication networks. Unfortunately, in the BIMSTEC region, the communications systems are often not to the required quality and reliability. Even in India, the business to business (B2B) systems are considered substandard in meeting 3PL needs and have been cited as a constraint to the introduction of advanced logistics. Other than Thailand, and possibly Sri Lanka, the quality of the communications systems is currently inadequate to support significant development of the sector.

443. One of the primary development needs therefore in support services is an overall improvement in both the quality and the reliability of the communications services. This is most important in relation to connectivity to the major cities, ports, manufacturing centers and transport nodes. It is recognized that connectivity to the land borders and remoter locations is likely to remain variable for some time and is therefore of less priority. Advanced logistics must be supported by a quality communications system.

b. Logistics Software

444. Advanced logistics is too complex to be undertaken using manual systems, given the levels of data flow and the inter-relationship between the data. Many major 3PL consider that their IT capability is the key to their success. The IT demands of such operators require the following standard functions within an integrated software package:

- warehouse management/inventory control;
- order processing;
- transport management; and
- accounting.

445. It is noted the logistics software has predominantly originated in developed countries. While India, in particular, has a reputation for software development, it has not been engaged in writing software for the logistics industry. It is recognized that, in the initial stages, it will necessary to be more dependent on foreign expertise, but it is important that regional

expertise evolves to reduce this dependency. This will be particularly important in the technical sector relating to systems. Software development organizations, particularly in India, need to build up their expertise in logistics software.

c. Equipment

446. The development of advanced logistics will involve the use of different equipment, particularly in the transport and warehousing sector. In transport, the key requirements will be for standard articulated transport units (cab units and 12 m flatbed or curtain sided trailers with 2–3 axles). While in developed countries, there is extensive use of swap-bodies, especially in the movement of lighter high cubic traffic, this will not be required in the BIMSTEC region in the foreseeable future. It is noted that the manufacturing capability of articulated transport, be it tractor or trailer units, in BIMSTEC countries is somewhat limited and therefore may need further development.

447. A feature of advanced logistics is modern warehousing complexes handling both stock and transit storage. These all vary according to the nature of the activity and the type of goods handled. Most involve the use of standard racking systems and 3–6 ton fork lift trucks. There is limited manufacturing capacity in this type of equipment in the BIMSTEC region. The more advanced systems require automated high bay racking systems and narrow aisle high reach fork trucks, but the demand for such equipment is likely to be much more limited and therefore less attractive for local manufacturers. Given the relatively low labor costs in international terms, the emphasis is more likely to be on mechanization rather than automation in the short to medium term. It is considered there should be the ability to manufacture such equipment locally, but it has yet to materialize.

448. It is recognized that in order to develop logistics in the region much of the equipment will need to be imported. This will make the introduction of such system more expensive. However, there should be an opportunity to build up a specialized manufacturing sector based on import substitution, so as to gradually reduce this dependency on developed countries.

B. Action Plan for Logistics

449. Table 3 and Table 4 show the action plan for logistics and Table 5 its implementation.

Table 3: Action Plan for Logistics (summary)

No.	Actions	Lead responsibility	Schedule		Expected output/results
			Start	End	
1	Development of road infrastructure	National road authorities	2008	2015	Improved connectivity between key transport nodes and access for heavy transport.
2	Development of international transport nodes	Terminal operators and customs	2008	2012	Reduced cargo dwell times and the ability to expedite movement of product from the international logistics system into the domestic system.
3	Development of domestic transport nodes	Regional planning authorities	2008	2012	Development of logistics centers/parks at key national transport nodes.
4	Institutional development	National governments Training organizations	2008	2010	A better informed institutional and business sector regarding logistics and increased investment in logistics industry.
5	Development of trade facilitation	Customs	2008	2010	Development of an e-customs capability to interface with the logistics sector.
6	Development of support services	Ministries of Communications and equipment suppliers	2008	2015	Reliable quality communication systems and improved availability of logistics equipment in region.

Table 4: Action Plan for Logistics

Description		Responsible	To be completed by
DEVELOPMENT OF ROAD INFRASTRUCTURE			
Start date	1 January 2008		
Main weaknesses	The road network in the region is generally of insufficient quality to support the development of the logistics sector, particularly with constraints on the use of articulated transport.		
Main objectives	To upgrade both the quality and connectivity of the road infrastructure and to be able to handle heavier unit transport.		
Sub-action			
1.	Upgrade the core road network to Asian Highway Class 1, including the Indian East-West road west of Kolkata, at least as far as Guwahati, the Dhaka-Chittagong Expressway and in the longer term the Kolkata-Jessore link.	National road authorities of Bangladesh and India	2015
2.	Improve the quality of the connectivity to the ports to at least Asian Highway Class II including the Birgunj-Kolkata, Phuentsholing-Kolkata, Sylhet-Chittagong and Mandalay-Yangon links.	National road authorities of Bangladesh, India and Myanmar	2010
3.	Improve the quality of the connectivity to the borders to at least Asian Highway Class II including Kathmandu-Birgunj, Thimpu-Phuentsholing, Myawaddy-Yangon and Mandalay-Tachileik links.	National road authorities of Bangladesh, Bhutan, India and Myanmar	2015
Required resources	Funding from national budgets; and Technical assistance and loans from international development partners.		
Expected outputs	Improved connectivity between key transport nodes.		

Description			Responsible	To be completed by
Completion by	31 December 2015			
Responsible	Lead	National and regional road authorities		
	Support	National governments		
	External	International development partners		
DEVELOPMENT OF INTERNATIONAL TRANSPORT NODES				
Start date	1 January 2008			
Main weaknesses	There are constraints at the international entry and exit points that delays shipments and compromise the ability to introduce more advanced logistics.			
Main objectives	To transport the international transport nodes into transit facilities with minimum cargo dwell times.			
Sub-action				
1.	Develop ports to provide additional container handling capacity by the provision of extra processing areas, enhanced traffic management, additional handling equipment and increased use of IT. Key ports requiring attention are Chittagong, Colombo and Kolkata.		Port Authorities Terminal Operators	2012
2.	Develop airports to improve handling performance. Major requirements are for increased mechanization and use of IT. Key developments are needed at the Indian metro airports and at Bangkok.		Airport authorities Terminal Operators	2012
3.	Develop border posts on key transport corridors to handle projected traffic flows. Priority border for development include Benapole, Birgunj, Myawaddy, Phuentsholing and Tachileik.		Border authorities State Customs	2012
4.	Develop ICD and Dry ports at key centers of import demand and main borders. These are designed to reduce port dwell time and reduce onward transport delays at the border in the absence of through transport agreements.		Land Port Authorities Terminal Operators	2012
Required resources	Funding from national budgets; and Technical assistance and loans from international development partners.			
Expected outputs	Reduced cargo dwell times lowering transaction costs; and Ability to expedite movement of product from the international logistics system into the domestic system.			
Completion by	31 December 2012			
Responsible	Lead	Terminal operators and Customs		
	Support	Port, airport, land port authorities National governments		
	External	International development partners		
DEVELOPMENT OF NATIONAL TRANSPORT NODES				
Start date	1 January 2008			
Main weaknesses	Lack of forward planning leading to the development of logistics clusters			
Main objectives	To enable the establishment of logistics centers/parks at key national transport nodes			

Description			Responsible	To be completed by
Sub-action				
1.	Identify and rank key domestic transport nodes.		Transport Planning Authorities Logistics Operators Major Transport Companies	2009
2.	Plan land for logistics parks through the reservation of zones adjacent to the main highway junctions and ports/airports – cluster development.		National and regional planning authorities	2009
3.	Promote potential logistics parks to the logistics industry.		Regional governments	2009–15
4.	Develop logistics centers by the private sector, either as developers or operators.		Private sector	2009–15
5.	Develop major regional logistics hubs, especially at Colombo and at Bangkok Airport and the potential for Kolkata to be developed as a multi-modal hub should be examined.		Sri Lankan Government Airports of Thailand Regional Government in Kolkata	2009–10
Required resources	Transport and logistics planning expertise; and Private sector funding.			
Expected outputs	Logistics hubs, parks and centers to support the logistics industry.			
Completion by	31 December 2012			
Responsible	Lead	Planning authorities		
	Support	National and regional governments		
	External	Private sector International development partners		
INSTITUTIONAL DEVELOPMENT				
Start date	1 January 2008			
Main weaknesses	Lack of awareness of advanced logistics at institutional and business levels and the requirements needed to promote the sector.			
Main objectives	To create an environment within which the logistics sector can evolve.			
Sub-action				
1.	Promote outsourcing by manufacturing and retailing sectors through awareness campaigns.		Ministries of trade and commerce Business organizations-chambers of commerce, trade associations	2010

Description		Responsible	To be completed by
2.	Review legislation to recognize the sector and remove any legal constraints to its development.	National governments Ministries of transport	2010
3.	Remove of foreign direct investment restrictions, wherever possible, to facilitate external investment to 'kick-start' the sector.	National governments	2009
4.	Improve the level of training and knowledge on logistics through training and capacity building.	Universities Technical institutes Industry training establishments	2010
5.	Evaluate the tax regimes applicable to 3PL activities and consider revision to promote investment and larger entities in the transport and distribution sector.	Ministries of finance	2010
Required resources	Logistics trainers		
Expected outputs	A better informed institutional and business sector regarding logistics; and Increased investment in logistics industry.		
Completion by	31 December 2010		
Responsible	Lead National governments Support Training establishments External Logistics industry		

DEVELOPMENT OF TRADE FACILITATION

Start date	1 January 2008		
Main weaknesses	Trade facilitation has not advanced to the extent of being compatible with the needs of advanced logistics.		
Main objectives	To enable the establishment of logistics centers/parks at key national transport nodes.		
Sub-action			
1.	Remove restrictions on C&F agents and 3PLs being customs brokers, subject to appropriate licensing based on qualifications.	Customs	2008
2.	Develop Automated Customs Clearance Systems with a direct trader input capability.	Customs	2010
3.	Simplify and harmonize customs processing as per the Revised Kyoto Convention and development of paperless systems.	Customs	2010
4.	Establish more effective cooperation forums between Customs and logistics sector.	Customs Industry associations	2008
5.	Develop simplified procedures for temporary imports to promote added-value and reprocessing activities.	Customs	2009
Required resources	Investment in Customs IT systems.		
Expected outputs	Development of an e-customs capability to interface with the logistics sector.		

Description			Responsible	To be completed by
Completion by	31 December 2012			
Responsible	Lead	Customs		
	Support	Forwarding and 3PL industry associations		
	External	Private sector International development partners for possible funding of customs IT developments		
DEVELOPMENT OF TRADE FACILITATION				
Start date	1 January 2008			
Main weaknesses	Development of the sector is dependent of improvement in the communications infrastructure and imports of specialized equipment.			
Main objectives	Improvements in the reliability and quality of IT and Business to Business communication networks; and Improved access to regionally produced software and equipment.			
Sub-action				
1.	Improve B2B and similar communication services between transport nodes and with international centers.		Ministries of Communications	2015
2.	Develop logistics software capacity in region.		IT companies	2010
3.	Develop articulated vehicles manufacturing capacity in the region to reduce import dependency.		Vehicle manufactures	2015
4.	Encourage warehouse outfitting capacity, especially of racking systems.		Warehouse supply manufactures	2010
5.	Encourage manufacture of small fork lift truck in region to reduce import dependency.		Fork lift truck manufacturers	2015
Required resources	Funding for communication development.			
Expected outputs	Reliable quality communication systems; and Improved availability of logistics equipment in region.			
Completion by	31 December 2012			
Responsible	Lead	Customs		
	Support	Forwarding and 3PL industry associations		
	External	Private sector International development partners for possible funding of customs IT developments		

Table 5: Implementation Schedule

No.	Action	Sub-action	Scheduling 2008 2009 2010 2011 2012 2013 2014 2015
1.	Development of road infrastructure	Upgrade the core road network to Asian Highway Class 1, including the Indian east-west road west of Kolkata, at least as far as Guwahati, the Dhaka-Chittagong Expressway and in the longer term the Kolkata-Jessore link;	
		Improve the quality of the connectivity to the ports to at least Asian Highway Class II including the Birgunj-Kolkata, Phuentsholing-Kolkata, Sylhet-Chittagong and Mandalay-Yangon links; and	
		Improve the quality of the connectivity to the borders to at least Asian Highway Class II including Kathmandu-Birgunj, Thimpu-Phuentsholing, Myawadi-Yangon and Mandalay-Tachileik links.	
2.	Development of international transport nodes	Develop ports to provide additional container handling capacity by the provision of extra processing areas, enhanced traffic management, additional handling equipment and increased use of IT. Key ports requiring attention are Chittagong, Colombo and Kolkata;	
		Develop airports to improve handling performance. Major requirements are for increased mechanization and use of IT. Key developments are needed at the Indian metro airports and at Bangkok;	
		Develop border posts on key transport corridors to handle projected traffic flows. Priority borders for development include Benapole, Birgunj, Myawaddy, Phuentsholing and Tachileik; and	
		Develop ICD and Dry ports at key centers of import demand and main borders. These are designed to reduce port dwell time and reduce on-transport delays at the border in the absence of through transport agreements.	
3.	Development of national transport nodes	Identify and rank key domestic transport nodes;	
		Plan land for logistics parks through the reservation of zones adjacent to the main highway junctions and ports/airports - cluster development;	
		Promote potential logistics parks to the logistics industry;	
		Develop logistics centers by the private sector, either as developers or operators; and	

No.	Action	Sub-action	Scheduling 2008 2009 2010 2011 2012 2013 2014 2015
3.	(continued)	Develop major regional logistics hubs, especially at Colombo and at Bangkok Airport and the potential for Kolkata to be developed as a multi-modal hub should be examined.	
4.	Institutional development	Promote outsourcing by manufacturing and retailing sectors through awareness campaigns;	
		Review legislation to recognize the sector and remove any legal constraints to its development;	
		Remove of foreign direct investment restrictions, wherever possible, to facilitate external investment to 'kick-start' the sector;	
		Improve the level of training and knowledge on logistics through training and capacity building; and	
		Evaluate the tax regimes applicable to 3PL activities and consider revision to promote investment and larger entities in the transport and distribution sector.	
5.	Development of trade facilitation	Remove restrictions on C&F agents and 3PLs being custom brokers, subject to appropriate licensing based on qualifications;	
		Develop automated customs clearance systems with a direct trader input capability;	
		Simplify and harmonize customs processing as per the Revised Kyoto Convention and development of paperless systems;	
		Establish more effective cooperation forums between Customs and logistics sector; and	
		Develop simplified procedure for temporary imports to promote added-value and reprocessing activities.	
6.	Development of support services	Improve B2B and similar communication services between transport nodes and with international centers;	
		Develop logistics software capacity in region;	
		Develop articulated vehicles manufacturing capacity in the region to reduce import dependency;	
		Encourage warehouse outfitting capacity, especially of racking systems; and	
		Encourage manufacture of small fork lift truck in region to reduce import dependency.	

C. Logistics Seminar

450. It is clear from the survey that in most countries the logistics drivers are not yet present resulting in limited demand for such services. In many areas, the transport infrastructure and services are not of sufficient quality to be able to support these advanced systems, even if the demand were present. Given this situation, there appeared limited value in providing logistics seminars in countries where unfortunately there is no application expected within the short to medium term. The assessment suggested there is no logistics synergy between the countries and only three countries are likely players in the 'logistics' market in the short to medium term – India, Sri Lanka and Thailand. Therefore, it was considered that only these three countries could potentially benefit from seminars of the proposed Action Plan, though other countries could use the plan as a 'roadmap' to its possible later development.

451. Thailand has already held such a seminar supported by the Ministry of Transport at its Public Private Sector Meeting on the 21 February 2007. At this meeting, a Logistics Strategy and Action Plan was provided and discussed. While this was very much oriented towards the specific needs of Thailand and its potential as a regional hub, their proposed Action Plan could theoretically be adapted to form a regional plan and applied to the three countries where the potential for logistics is most likely to be developed. The Action Plan in Section IV.B covers all the issues contained in the Thai plan and therefore is compatible with it, though is not identical given the different remit.

452. As indicated, the situation differs in each country, but it is clear that in reality countries tend to be interested only in their specific environment and are not really interested in discussion of the subject in a regional context. It is considered that the problem of definition of logistics has meant that the idea of these seminars was probably more to present a transport infrastructure development action plan, such as per Section V. In discussion with those involved in logistics it was evident that seminars on regional logistics would have limited support and therefore it was necessary to try having a more country-specific focus.

453. It was considered that there was no need for further discussion in Thailand. The Public Private Sector Meeting held in February 2007 developed policies and strategies and any further meetings would therefore merely duplicate the previous meeting and could create confusion. The situation in India was different because a similar public-private forum had not yet taken place. The consultant participated in the Chartered Institute of Logistics and Transport seminar in July 2007 highlighting the potential logistical development needs in India, particularly in relation to the rail/port interface. A second seminar was planned in September and October 2007 but there were two major logistics events held in Delhi, one on global logistics and the other on Indian Logistics. The former had international speakers and was on a scale beyond the resources of the project. Following advice from the Institute, the proposed second seminar was therefore postponed, as it was clear attendance after these two conferences would have been limited.

454. The second seminar was focused on the development of Colombo as a potential logistics hub. The concept of such a logistics cluster has been promoted in a number of previous reports, including in the ADB assistance to the port, but unfortunately little has materialized. Thus, it was proposed that a seminar could be held specifically on this subject, in association with the Academy for International Trade and Transport and the Sri Lanka Institute of Freight Forwarders. A report on the seminar is provided in the Appendix. The main objective of the seminar from a national perspective was to raise the status of the demand for development of a logistics cluster. This was achieved with 140 attendees and good publicity. The Freight Forwarders Association is following-up the initiative.

V. PROPOSED IMPLEMENTATION ARRANGEMENTS

A. Authorization Mechanisms

455. The proposed policy framework and strategies contained in Section III require completion of an authorization process in order for them to become official BIMSTEC policy framework and strategies. This process commenced with the Regional Technical Workshop held on 18–19 September 2007 in Bangkok, Thailand. At that meeting attended by representatives from the Technical Advisory Committee, the draft proposals were discussed and amendments were made where appropriate. The resulting policy framework and strategies approved by that meeting were contained in the Draft Final Report, which was issued on the 15 October 2007. This meeting was not intended to authorize those proposals, but to agree on the format in which they would be presented to BIMSTEC in the Draft Final Report.

456. The second Technical Advisory Committee Meeting held on the 29–30 November 2007 in Bangkok, Thailand discussed in detail each of the proposed draft policy framework and strategies in the Draft Final Report. This was conducted partly on the basis of some members' attendance at the previous Technical Workshop and partly on consultations with their own relevant government departments during the intervening period. The second TAC Meeting amended and approved the proposed policy framework and strategies in the Draft Final Report to those contained in Section III of this Final Report and authorized their submission to the BIMSTEC Working Group (BWG) for adoption. The Final Report containing these agreed policy framework and strategies was submitted to the ADB in December 2007 and will be circulated to the TAC members and the BWG in January 2008.

457. TAC proposed that, in order to gain support at the higher level after the BWG consideration, the BTILS Final Report, including the Transport and Logistics Policy Framework and Strategies, should be submitted for endorsement by BIMSTEC policy bodies, including the Senior Officials' Meeting (SOM) and Ministerial Meeting (MM) and the BIMSTEC Summit. It was clarified by BWG members that once the proposed policy framework and strategies are endorsed by BIMSTEC policy bodies, the sectoral committee could decide on the activities and details of investment projects.

B. Implementation Mechanisms

458. It is proposed that the present Transport and Communications Sectoral Committee should be split and two separate Sectoral Committees formed, one covering communications and the other Transport and Logistics (see Section V.C). This recognizes the importance of each sector and that there is limited synergy between the two subjects, other than traditionally Ministries of Transport and Communications were combined, but in most countries have now been split.

459. It is recognized that given the different transport modes and the need for technical advice that there will need to be some form of technical coordination body between the Chair Country and the expert groups representing each sector. This body is required to coordinate projects and activities under the BIMSTEC Transport Cooperation Agenda, including the Action Plan and Implementation Program. In principle, it will have a similar function to that provided by the Technical Advisory Committee (TAC) during the BTILS and the new body should be consistent with the BIMSTEC working structure.

460. It is therefore proposed that a BIMSTEC Sectoral Committee on Transport and Logistics be formed (separate from the Sectoral Committee on Communications) and a Ministerial Conference of relevant Transport Ministry be convened for policy and decision-making. This strategy has already been adopted by the Tourism, Energy, Culture and

Counter Terrorism and Transnational Crimes sectors within BIMSTEC. This approach would therefore be consistent with overall BIMSTEC implementation arrangements.

461. It is proposed to establish five Experts Groups representing the transport spectrum addressed by the BTILS study. These groups are as follows:

- road development;
- railways, using the existing Meeting of Chief Executives of Railways of BIMSTEC countries with additional strengthening;
- maritime transport;
- aviation, using a Meeting of Director Generals of Civil Aviation as an initial forum; and
- transport facilitation and logistics.

462. The proposed Expert Groups will be in regular contact with the BIMSTEC Sectoral Committee on Transport and Logistics and meet as deemed necessary. They will coordinate, monitor and review progress in projects to be implemented and report to the Sectoral Committee. They may invite representatives from the public and private sectors and regional/international organizations to their meetings if appropriate. Indeed, it is recommended that participation by the private sector in the work of the Expert Groups should be encouraged.

463. The inter-governmental Road Development Expert Group in 2008 would be responsible for the following:

- developing a prioritized list of roads to be upgraded to AH Class II for inclusion in the Road Development Action Plan;
- developing an agreed border road development program to eliminate congestion on key border links for inclusion in the Road Development Action Plan;
- developing a prioritized route plan for upgrading connectivity between Myanmar and its BIMSTEC neighbors for inclusion in the Road Development Action Plan; and
- finalizing and publishing a Road Development Action Plan 2008–20 in phases, with Phase 1 being 2008–14 and Phase II being 2015–20.

464. The inter-governmental Rail Development Expert Group evolving from the Meeting of Chief Executives of Railways of BIMSTEC countries in 2008 would be responsible for the following:

- engaging in bilateral and multilateral discussions on the rail development options between India, Bangladesh and Myanmar in order to be in a position to conduct a feasibility study in 2009 on possible route development;
- monitoring development of the Bangladesh Railways in expanding its capacity to carry intra-BIMSTEC traffic;
- monitoring and coordinating the possible development of rail links between Myanmar and its neighbors; and
- finalizing and publishing a Rail Development Action Plan 2008–20 in phases, with Phase 1 being 2008–14 and Phase II being 2015–20.

465. The inter-governmental Maritime Development Expert Group in 2008 would be responsible for the following:

- examining the plans for construction of deep water ports in northern Bay of Bengal area and assessing their development potential;
- monitoring the development of the South Harbor Extension in Colombo and the supply of equipment to the existing container terminals;

- monitoring performance of Kolkata and Chittagong ports using international performance indicators;
- examining the need for the development of port community systems at the major ports;
- finalizing and publishing a Maritime Development Action Plan 2008–20 in phases, with Phase 1 being 2008–14 and Phase II being 2015–20; and.
- developing the Terms of Reference for a master plan and feasibility study of the Andaman Sea Ports.

466. The inter-governmental Aviation Development Expert Group evolving from the Meeting of Directors of Civil Aviation in 2008 would be responsible for the following:

- monitoring developments at the Indian metro airports and at Bangkok;
- consolidating regional positions on ICAO matters;
- promoting safety and security at BIMSTEC airports;
- promoting liberalization of ASA examining identified constraints;
- examining the potential to establish a BIMSTEC cooperative program with ICAO;
- monitoring the conformance to IACO Annex 9 at selected airports;
- conducting air cargo terminal efficiency studies at constrained airports or preparing Terms of Reference for an external study; and
- finalizing and publishing an Aviation Development Action Plan 2008–20 in phases, with Phase 1 being 2008–14 and Phase II being 2015–20.

467. The inter-governmental Transport Facilitation and Logistics Development Expert Group in 2008 would be responsible for the following;

- identifying ways in which fleet modernization programs could be developed;
- facilitating discussion on through transport agreements;
- monitoring ratification of the Revised Kyoto Convention;
- monitoring the implementation of ASYCUDA and ICES in the region;
- promoting the development of IT connectivity to the border with DTI;
- developing and supervising a border and land port audit program to identify development needs;
- monitoring dwell times at key ports and land borders in the region;
- monitoring the development study of ICDs/Logistics Centers in Colombo; and
- finalizing and publishing an International Road Transport and Logistics Development Action Plan 2008–20 in phases, with Phase 1 being 2008–14 and Phase II being 2015–20.

468. The Consultant prepared draft Terms of Reference for the Expert Groups and these will be circulated separately to the TAC members in January 2008.

C. Reporting Mechanism

469. The proposed reporting mechanisms are as indicated diagrammatically in Figure 3 on the following page.

Figure 3: Reporting Mechanisms for Implementation of BIMSTEC Transport and Logistics Policies/Strategies

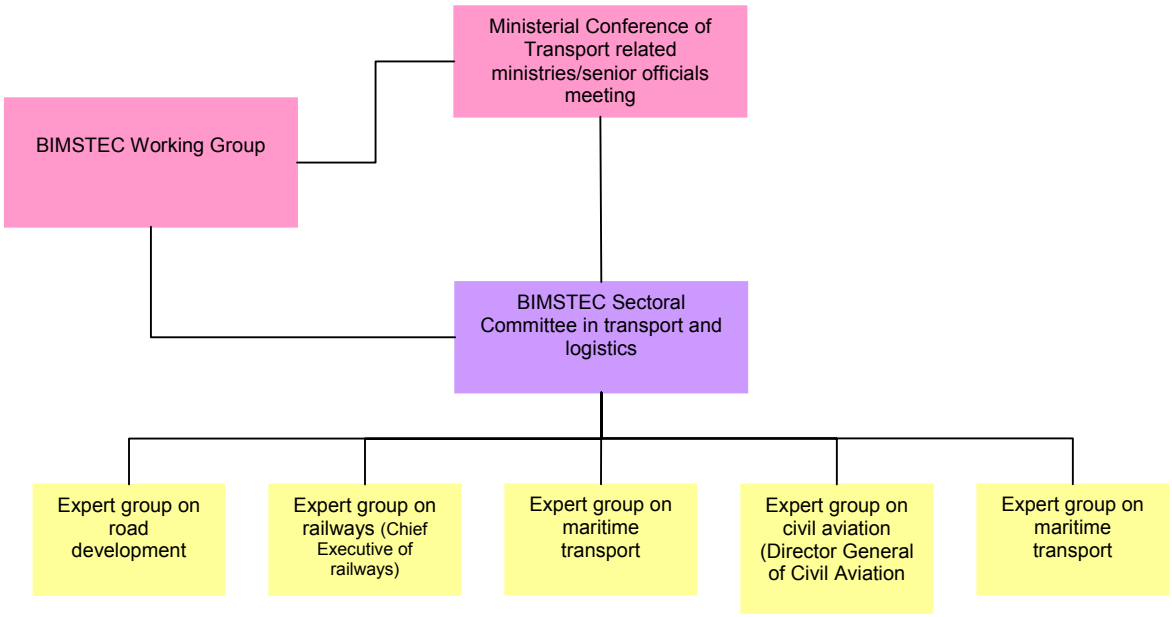


Table 6: Action Plan and Implementation Program

Ref.	Title	Policy	Action	Timeframe
				2008 2009 2010 2011 2012 2013 2014 2015
ROAD				
3.1.1	Overall quality of road infrastructure	All the key international roads on the BIMSTEC corridors should be upgraded to a minimum of Asian Highway (AH) Class III and progress as soon as possible to AH Class II, the bridges should be strengthened to be able to handle loaded articulated transport and high priority accorded to regular maintenance of the primary routes.	Finalization of agreed prioritized list of roads to be upgraded to AH Class II and inclusion in the Road Development Action Plan 2008–20	
			Road rehabilitation/upgrading under Phase 1 Implementation Program (priority AH road sections); and	
			Completion of Phase II Implementation Program.	2015–20
3.1.2	Coordination of road development programs	BIMSTEC supports the development of a coordinated regional road development program that enhances the connectivity between member states in order to promote travel and trade by road.	Finalization and publication of the Road Development Action Plan 2008–20 (Phases I and II) by the Expert Working Group covering the BIMSTEC routes and primary links;	
			Mid-term review of the Road Development Action Plan, Phase 1 Implementation Program; and	
			Upgrading of Road Development Action Plan, Phase II Implementation Program.	

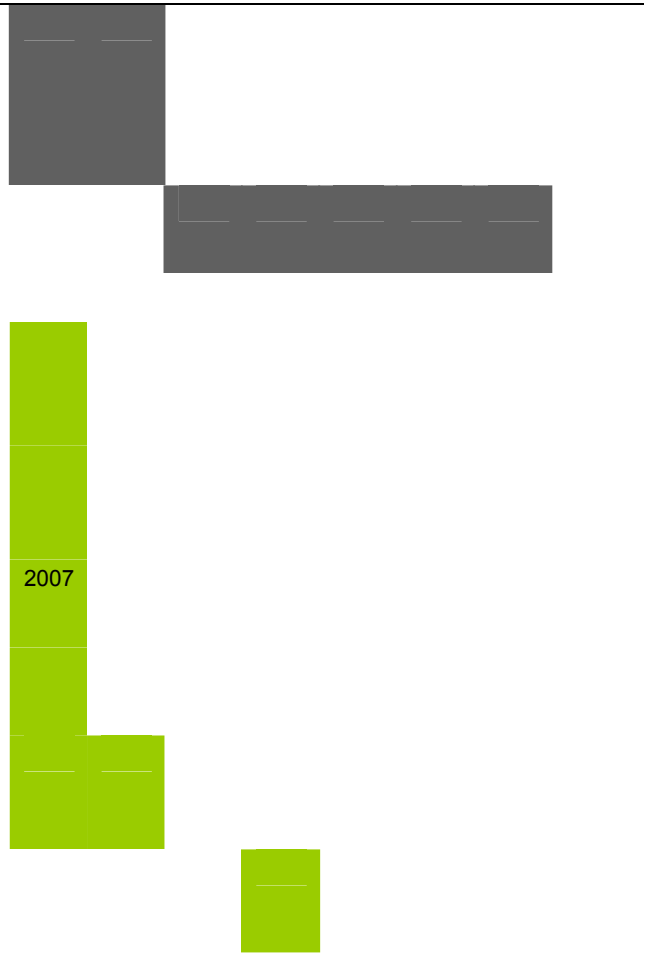
Ref.	Title	Policy	Action	Timeframe							
				2008	2009	2010	2011	2012	2013	2014	2015
3.1.3	Upgrading of border link roads	BIMSTEC member states should upgrade the link road connectivity between their core national road network and the border crossings, so as to be able to handle modern transport and to facilitate bilateral trade and passenger traffic.	Finalization of agreed border road development program, including the identification and elimination of key traffic bottlenecks on BIMSTEC routes and inclusion in the Road Development Action Plan 2008–20								
		Bottlenecks caused by transits through urban and rural settlements on these primary BIMSTEC routes should be eliminated by a combination of construction of bypasses and implementation of enhanced traffic management measures. All border roads on the Asian Highway (AH) network should have the designated AH road signage by late 2011. Other border roads should include the other country in their signage.	Implementation of improved international signage under Phase I Implementation Program; and								
			Improvement of border connecting roads under Phase I Implementation Program.								
3.1.4	Missing road links with Myanmar	BIMSTEC supports the urgent development of road connections in Myanmar, particularly of the connecting roads to neighboring countries so as to effectively link the road networks of Bangladesh, India, Myanmar and Thailand to create a future land bridge.	Development of prioritized route plan, and inclusion in the Road Development Action Plan 2008–20; and								
			Route development under Phase I Implementation Program.								

Ref.	Title	Policy	Action	Timeframe
				2008 2009 2010 2011 2012 2013 2014 2015
ROAD TRANSPORT				
3.2.1	Fleet modernization	BIMSTEC supports national and regional measures designed to promote the introduction of modern road transport fleets with lower unit operating costs.	Development of fleet modernization initiatives, review of FDI restrictions and better enforcement of load limits with its inclusion in the Road Development Action Plan 2008–10 (Phase I and II Implementation Program); and	
			Implementation of administrative and fiscal regulatory reforms.	
3.2.2	Through transport agreements	BIMSTEC supports the development of transport agreements between member states permitting bilateral and through transport movements to be undertaken using the transport units of one of the member states to another.	Development of Model Bilateral Through Transport Agreement;	
		The ultimate goal is access by the freight transport vehicles of any BIMSTEC member state on the roads of any other member state while engaged in international transport.	Pilot application of the Model Bilateral Through Transport Agreement;	
			Full implementation of Bilateral Through Transport Agreement;	
			Formulation of a Regional Transport Agreement;	
			Negotiation and Formal Adoption of Regional Transport Agreement;	2015–16

Ref.	Title	Policy	Action	Timeframe
			Pilot Application of Regional Transport Agreement; and	2017–19
			Full Implementation of Regional Transport Agreement.	2020
RAIL				
3.3.1	Change of gauge between BIMSTEC countries	BIMSTEC supports the development of regional rail connectivity based on minimizing the incidence of gauge changes that result in expensive transshipment costs.	Bilateral discussions on through rail links and formulation of the Rail Development Action Plan 2008–20;	2008
			Conduct feasibility study on the proposed development option(s); and	2009
			Network upgrading/construction of missing rail links under Phase Implementation Program.	2010–2015
3.3.2	Connectivity to landlocked countries	BIMSTEC supports the development of enhanced rail links to its landlocked countries to improve their overall rail connectivity and the potential to access a future BIMSTEC rail land bridge.	Completion of feasibility studies undertaken by Indian Railways and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I and II Implementation Program); and	2007–08
			Network upgrading/construction of missing rail links under Phase I Implementation Program.	2010–2015
3.3.3	Capacity constraints on Bangladesh Railways	BIMSTEC supports proposals to enhance the effective line capacity of Bangladesh Railways to enable it to carry more regional traffic and to relieve some of the congestion at Chittagong port.	Conduct feasibility studies and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I Implementation Program);	2008

Ref.	Title	Policy	Action	Timeframe							
				2008	2009	2010	2011	2012	2013	2014	2015
			Procurement of new rolling stock;								
			Duplication of Tongi-Bairab Bazaar Section; and								
			Construction of new chord line.								
3.3.4	Rail connections to Myanmar from India, Bangladesh and Thailand	BIMSTEC supports the development of rail connectivity between Myanmar and its neighbors (Bangladesh, India and Thailand) by the eventual construction of the missing links between their rail networks, in order to facilitate both bilateral and third country trade.	Conduct feasibility study of rail-served Andaman Sea ports and inclusion of investment projects in the Rail Development Action Plan 2008–20;								
			Conduct pre-feasibility study on Bangladesh-Myanmar rail link and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I Implementation Program);								
			Update feasibility studies to identify viability of missing links; and								
			Update Phase II Implementation Program.								

Ref.	Title	Policy	Action	Timeframe
3.3.5	Container service network	BIMSTEC fully supports the development of regular direct passenger services between Kolkata and Dhaka and considers that there may be scope to extend such an initiative to the freight sector based on scheduled services between strategic rail nodes.	Conduct Rail Freight Traffic Demand Study and inclusion of investment projects in the Rail Development Action Plan 2008–20 (Phase I and II Implementation Program); and	
			Introduction of new container express services linking Bangladesh and India, if viable.	
MARITIME				
3.4.1	Draught restrictions	BIMSTEC supports proposed deep water port developments in the northern Bay of Bengal designed to increase the size of container vessels that can be accommodated.	Decisions on whether these projects are to be approved for development.	
			Formulation of a Maritime Transport Development Action Plan.	
3.4.2	Capacity constraints at Colombo	BIMSTEC recognizes the importance of Colombo as a hub port for container services and supports expediting of developments to increase its capacity and performance.	Award of tenders for South Harbor Extension	2007
			Commencement of port construction; and	
			Tendering and delivery of additional container handling equipment.	
			Commissioning of South Harbor Extension	



Ref.	Title	Policy	Action	Timeframe
3.4.3	Operational efficiency	BIMSTEC recognizes the critical importance of Chittagong and Kolkata Ports both in terms of the handling of trade to and from Bangladesh and Eastern India and their gateway function for third country trade to Bhutan and Nepal.	Development of Maritime Transport Development Action Plan 2008–20;	
		Therefore, BIMSTEC supports all possible efforts to modernize operations at both ports towards the goal of meeting international port performance benchmarks.	Improvements in ship/shore handling performance and availability of specialized handling equipment and reductions in idle time and container dwell times under Phase I Implementation Program.	
3.4.4	Port interfaces	BIMSTEC recognizes the need for modern ports to act as transit facilities, servicing the intermodal transfer between the maritime and surface transport modes. Therefore, it supports all ongoing initiatives that reduce congestion at the interface between the port, servicing the maritime mode, and the road and rail networks, servicing the surface transport modes.	Development of Maritime Transport Development Action Plan 2008–20	
			Development of port interface improvement plans under Phase I Implementation Program; and	
			Development of new interfacing infrastructure.	
3.4.5	Port community systems	BIMSTEC supports the development of 'port community-type' IT systems at the region's major container ports to increase efficiency and improve port facilitation.	Development of Maritime Transport Development Action Plan 2008–20	
			Conduct technical and financial studies; and	

Ref.	Title	Policy	Action	Timeframe
			Installation and commissioning of port community systems under Phase I Implementation Program.	
3.4.6	Andaman Sea ports	BIMSTEC supports the development of a rail-served deep water port on the Thai or Myanmar Andaman coast that could reduce the cost and time of intra-BIMSTEC trade.	Development of Maritime Transport Development Action Plan 2008–20;	
			Conduct master plan and feasibility study for rail-served Andaman Sea ports and;	
			Port construction under Phase I Implementation Program.	
AVIATION				
3.5.1	Airport capacity	BIMSTEC gateway airports should provide sufficient capacity to meet projected future forecast passenger and cargo demand, so as to remove any capacity restrictions in Air Service Agreements and improve the standards of service provided to stakeholders.	Development of Civil Aviation Development Action Plan 2008–20;	
			Implementation of Phase 1 capacity developments at Delhi and Mumbai, and finalization of longer term planning of BIMSTEC metro airports;	
			Completion of planned expansion of Indian metro airports; and	
			Airport facility upgrading and expansion in other metro airports.	

Ref.	Title	Policy	Action	Timeframe
3.5.2	Airport/Rail connection	BIMSTEC airports should have adequate landside connectivity with the cities they serve and the immediate hinterland. Wherever possible, consideration should be given to dedicated transport systems and routes to facilitate passenger movement to and from the major BIMSTEC regional airports.	Inclusion in Road Development Action Plan and Rail Development Action Plan 2008–20	
			Conduct feasibility studies on airport access improvements;	
			Implementation of airport access projects under Phase I Implementation Program; and	
			Implementation of airport access projects under Phase II Implementation Program.	2015–20
3.5.3	Efficiency of cargo operations at airports	Major airports in the region should provide sufficient cargo processing capacity and achieve international performance standards, in order to facilitate the growth in the aviation sector of the movement of intra-BIMSTEC trade.	Conduct of airport efficiency studies and inclusion of investment projects in the Civil Aviation Development Action Plan 2008–20; and	
			Development of cargo handling terminals under Phase I Implementation Program.	
3.5.4	Improving market access and travel opportunities	BIMSTEC airlines operating on intra-BIMSTEC routes should be allowed fifth (and sixth) Freedom flights wherever possible in the respective Air Service Agreements to assist in developing additional services. ASAs should be extended to additional destinations to promote tourism	Development of Civil Aviation Action Plan 2008–20; and	
			Development of MOU or adjustments in ASAs.	

Ref.	Title	Policy	Action	Timeframe
3.5.5	Improving air freight access and distribution opportunities	BIMSTEC airports should provide reasonable access to all-freighter air services, unless there are specific airport capacity constraints.	Development of Civil Aviation Development Action Plan 2008–20; and	
			Relaxation of restrictions on all-freighter flights.	
3.5.6	Improving system management	BIMSTEC supports initiatives designed to enhance the management skills, knowledge and capabilities of BIMSTEC government agencies, civil aviation authorities, airports and airlines.	Formation of a BIMSTEC cooperation program with ICAO support.	
3.5.7	Development of Low Cost Carrier services	BIMSTEC supports the expansion of low cost carrier operations on existing and new routes throughout the BIMSTEC region, where agreed by the relevant national governments	Inclusion of LCC policies and strategies in the Civil Aviation Development Action Plan 2008–20; and	
3.5.7	(continued)		Growth in the BIMSTEC LLC operations.	
3.5.8	Airport facilitation	Passengers, airlines and other users of BIMSTEC gateways should enjoy the highest possible level of convenience and comfort and be compliant with service standards proposed under ICAO Annex 9.	Inclusion of air transport facilitation policies and measures in the Civil Aviation Development Action Plan 2008–20; and	
			Implementation of ICAO Annex 9 at all BIMSTEC airports	
TRADE FACILITATION				
3.6.1	Compliance with Revised Kyoto Convention	All BIMSTEC should become signatories to the Revised Kyoto Convention as soon as possible. Until they become signatories, member states should increasingly adopt the basic standards proposed in the Convention.	Countries should sign the Revised Kyoto Convention.	

Ref.	Title	Policy	Action	Timeframe
				2008 2009 2010 2011 2012 2013 2014 2015
3.6.2	Development of automated customs clearance systems	All BIMSTEC member states should have fully-automated customs clearance systems which have the capacity to process import, export and transit declarations submitted electronically by traders or their representatives that reduce the need for submission of hard copy support documentation.	Provision of missing system modules.	
3.6.3	IT connectivity to land borders	All primary BIMSTEC land borders should have access to automated customs processing systems by 2009 and secondary borders by 2012.	Development of regional IT border connectivity program;	
			Connectivity at primary borders; and	
			Connectivity at secondary borders.	
3.6.4	Implementation of DTI capacity	All primary BIMSTEC land borders and sea ports should have a DTI capability and/or service centers so that by 2010 all declarations are submitted in electronic format at primary borders and by 2012 at secondary borders.	Development of DTI and Service Center connectivity program;	
			All electronic declarations at primary borders; and	
			All electronic declarations at secondary borders.	
3.6.5	Upgrading of border infrastructure	All the primary BIMSTEC land border crossings should be modernized to be compatible with international 'best practice' and the Revised Kyoto Convention and be able to process the projected passenger and freight traffic forecasts.	Border Audits and development of modernization program; and	

Ref.	Title	Policy	Action	Timeframe 2008	2009	2010	2011	2012	2013	2014	2015
			Upgrading of border post and interfacing infrastructure.								
3.6.6	Development of land port infrastructure	BIMSTEC recognizes the importance of land ports in the development of bilateral trade in the region and encourages the development of appropriate facilities where necessary that will facilitate intra-BIMSTEC trade.	Land port and ICD development audits; and								
			Upgrading of land ports and ICDs.								
3.6.7	Reduction in port/ICD dwell times	BIMSTEC recognizes the importance of ports, ICDs and land ports in offering transit storage and supports the implementation of measures designed to reduce storage dwell times at these critical facilities.	Reduction in free times to seven working days maximum and imposition of higher escalating storage charges.								
LOGISTICS											
3.7.1	Development of a logistics hub at Colombo	BIMSTEC recognizes the potential of Colombo as a major logistics hub for the Bay of Bengal and supports initiatives designed to realize this potential.	Conduct ICD/Logistic center feasibility study.								
3.7.2	Foreign direct investment	BIMSTEC encourages the removal of any remaining foreign direct investment restrictions on 3PL–type activities in both the domestic and international markets in BIMSTEC member states wherever possible.	Identification of restrictions; and								
			Removal of FDI restrictions in the transport sector, wherever possible.								

APPENDIX: THE LOGISTICS SEMINAR IN COLOMBO

1. The Logistics Seminar was held on 21 November 2007 at the Waters Edge, Battarmulla, Sri Lanka.

2. The Opening Address 'ADB Support for Regional Logistics Initiatives' was given by Ms Laurance Pochard, Deputy Country Director of the ADB Sri Lanka Resident Mission. Ms Pochard welcomed the 140 participants to the ADB-sponsored event as part of the BIMSTEC BTILS initiative. She highlighted ADB's current support for the transport sector, particularly the Southern Transport Development Project and the South Harbor Extension. ADB recognizes the need to address the 'software' issues in transport and this was why the Bank was becoming more involved in logistics studies. The position of Colombo between Singapore and Dubai represented a unique opportunity that could be realized through the development of logistics by providing added-value services for transshipment traffic. She emphasized the need for positive action to combat potential competition in the logistics sector from the Southern Indian ports.

3. The first presentation was by Mr. Jagdesh Mirchandani, Business Advisor for the USAID/TCP study. He presented 'Facts and Figures' from the recent Transport Competitive Programme (TCP) explaining the methodology adopted using the 'Fastpath' analytical approach covering general logistics benchmarking and analysis of the logistics and transport status by sector. He specifically focused on Sri Lanka indicating that the time and cost of importing was similar to the average for the region, but double that of Singapore. In measuring logistics performance, the rating for exports was generally good, though could be improved, with the problems being highlighted were congestion at the port gate, road congestion in general and the lack of rail linkage. The logistics ratings for imports were less good with high port charges and delays in documentation clearances, as well as the gate and road congestion issues. While the programme indicated overall performance as reasonable compared to international norms, poor price and reliability detracted from the overall profile of Colombo as a world class logistics centre.

4. The 'Potential and Challenges for the Development of an Aviation Hub in Sri Lanka' was presented by Professor Amal Kumerage from University of Moratuwa. He highlighted that despite economic growth and increased income that the SAARC region had one of the least developed aviation sectors, particularly in terms of intraregional connectivity between capital cities. Despite this, Colombo presently holds a premier position as an intra-regional air hub for SAARC. However, in the recent World Bank Survey Sri Lanka ranked 92 out of 100. In the context of hub development, geographical centrality was becoming less important, whereas efficient inter-modalism, modern and reliable physical infrastructure, efficient ICT documentation and sector competencies were becoming ever more critical. Development of logistics centers to add value to goods in transit was key feature of competing centers, such as Dubai and Singapore that had developed an industry based on such activities.

5. Captain Nihal Keppetipola, Additional Managing Director, Sri Lanka Ports Authority presented a paper on 'Development in the port sector to support a logistics hub & views on the Logistics hub of Colombo'. He particularly focused on the developments within the ports, firstly the conversion of two of the general cargo berths to be able to handle container traffic and then the South Harbour Extension. He indicated that this new facility should be ready in 2011. They were also addressing the issue of shortages of equipment at the JCT and UCT terminals by seeking to purchase more specialized container equipment. He indicated that they planned to develop an area outside the

port gate as an ICD and that logistics operations could be incorporated within this site (though the site is relatively small). He suggested that there was a need for more comprehensive logistics services to provide added value and that these should be concentrated around the port, though they were interested in developing other sites if necessary.

6. Mr. Noel Priyatilleke, Chairman of the Sri Lankan Apparel Export Association presented 'Shippers' views/experiences on logistics, development and the importance for competitive trading'. He indicated that it was critical for manufactures to be competitive by having cost, lead times and service levels that were ahead of their competitors, availability of raw materials, competitive labor costs, a stable economic environment and continuous innovation. Worldwide there were changing attitudes on global sourcing that required ever higher standards. Manufacturers are increasingly becoming responsible for the supply chain and thus need access to efficient logistics. The importance of a hub was to be right on price, speed, quality, safety and ethics through a reliable network of logistics. Fourteen years ago Colombo was ranked 21st in world ports but is now 33rd. There was a need for the logistics sector to now 'walk the talk' to provide the services the sector needs.

7. In a presentation on 'Global and Regional developments in Logistics' Mr. Anthony Bayley, Consultant for the ADB BIMSTEC BTILS focused on the regional dimension and the role that other countries expected from Colombo as their logistics hub. He indicated that advanced logistics was developing in India and Thailand, but was largely absent in the other BIMSTEC countries. In Sri Lanka there was limited domestic demand given the country's concentration on Colombo, but advanced logistics was actively practiced in the export sector. He explained the BIMSTEC Logistics Action Plan covered the need to improve the transport infrastructure, address the institutional constraints and develop the provision of support services. He emphasized the requirement for Colombo to adopt a combined sectoral strategy in order to develop such a hub that could provide added-value type services. This would require integration of transport infrastructure planning, enhanced trade facilitation measures in relation to the way that transshipment cargo was being processed and the appointment of a 'project champion' to make things happen in pursuit of the goal of a logistics cluster. He suggested that unless action was taken soon, competing centers would seize the opportunity to the detriment of not only Colombo but possibly the region as a whole.

8. 'Customs focus on enhancing/facilitating a logistics hub' was presented by Mr. Sarath Jayatilleke, Director General of Sri Lanka Customs. He described the progress that had been made in recent years in Customs procedures and operations. The Sri Lanka Automated Cargo Clearance Systems (SLACCS) had significantly improved performance, but it was recognized that the systems needed to be updated and they would be installing ASYCUDA World, which had more advanced processing capability. There was a need to modernize the Customs legislation as it was now outdated and did not conform to modern needs. He highlighted that many of the complaints on delays were arising due to the adverse security situation and instructions from other parties. He highlighted the need to establish a medium for discussion with the logistics industry so that each party recognized the needs of the other.

9. 'Operator view – Does Colombo have a future as a transshipment & logistics hub?' was presented by Mr. Eric Maard, Managing Director, Maersk Lanka (Pvt) Ltd. He highlighted the position of Sri Lanka in 92nd position in the World Bank Logistics League table and posed the question as to how could Colombo become a hub with this low type of ranking. He cited the problem of FDI restrictions and the need to liberalize the customs rules, simplify the import licensing regime, allow private sector to handle

multicountry consolidation in the port, eliminate certain changes to promote value added activities and the development of the infrastructure. Being a transshipment hub has benefits to national importers and exporters in terms of lower freight rates and better access to capacity, as well as revenue generation. He indicated the problem of regulated tariffs that were making Colombo less attractive. He provided data showing that handling, transshipment and navigation costs were higher than their nearest competitors. If Colombo was to reach its potential as a logistics hub, it needed urgent implementation of the South Harbour Extension with landside infrastructure, elimination of FDI restrictions, suspension of the system of regulated tariffs, investment in infrastructure/equipment and training and the establishment of a proper regulatory body supported by a dedicated ministry.

10. 'A Reality Check' as a summing up was provided by Mr. Niral Kadawatharatchie, Chairman of the Sri Lankan Freight Forwarders Association. He indicated that whilst Colombo had inherited competitive advantages, particularly geographical, and some positive action had been taken, they had failed to 'walk the talk'. The southern extension to the port was planned in 2002 and yet still no construction had started, whilst their competitors had developed and the use of EDI in trade facilitation has hardly progressed, despite having the best telecom infrastructure in the region. He cited the low ranking of Sri Lanka in the World Bank Study as proof of the poor situation. Urgent action was required to expedite the port developments, increase the cargo handling capacity at the airport with more freighter capacity and that the Government with or without the private sector should develop the roads and rail network to suit freight traffic. There was a specific need for leadership through a 'project champion' and a change of mind set in bureaucrats and officials with better coordination between agencies. In trade facilitation there was a requirement for 'state of the art' IT systems (such as PORTNET) and the elimination of archaic procedures and regulations. There was an urgent need to establish Intelligent Warehousing and Distriparks, which could be done by the private sector but needed government support in creating the proper environment and cutting red tape. He highlighted that it was now or never for Sri Lanka as the opportunities were there if only they could be realized.

11. The seminar was fully reported in the Sri Lanka Press and Media and was included in the national TV station Business News for 1 week. Thus, it achieved it primary objective in raising the profile of the need to development the logistical environment in Colombo.

12. The consultant wishes to acknowledge the valuable assistance of the Academy for International Trade and Transport and the Sri Lanka Freight Forwarders Association in organizing the event.