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Next: Proposed Change

The primary goal of this study was not to identify new projects for investment or to provide a regional transport master plan for improved transportation and logistics networks. The problems discussed in this study have been the subject of discussion at the national and regional levels for a number of years, and the conclusions derived from the comparative analysis are consistent with the issues already raised by the private sector. Rather, our objective has been to develop a mechanism whereby the best efforts of government, the private sector, and international experience can be mobilized, and regional stakeholders can use the mechanism to identify and provide direction for solutions for these problems. Summary recommendations for consideration at national and regional levels are presented in Table 6.1. The solutions are important not only for improving current economic performance and developing areas where economic development has been lagging, but also to meet the challenges of the future when rapidly falling transaction costs and constantly improving logistics will change the nature of competitive advantage for both developed and developing countries.

Because many of the solutions involve policy matters and coordination between countries, an effective and sustainable mechanism by which such coordination can be achieved is important. One of the key recommendations of the delegates from the four countries at the World Bank/Economic and Social Commission for Asia and the Pacific April 1999 Regional Technical Workshop on Transport and Transit Facilitation (see proceedings of the workshop)¹ was to establish a regional technical working committee to examine and promote key subregional issues. Regional representation is critical because many of the solutions extend beyond national and bilateral issues. Technical expertise is critical because of the breadth of activities to be covered and the interdependent links among issues. This study confirms

1. Proceedings of the workshop can be obtained from the World Bank. Also available at the Bank's external website <http://www.worldbank.org/html/tpd/transport/trfacil/present.htm>.

TABLE 6.1 NATIONAL AND REGIONAL ACTIONS: SHORT TERM AND MEDIUM TO LONG TERM

National	Regional
<i>Short Term</i>	
<p>1. Strengthen the Transport and Trade Facilitation Technical Committees (TTTCs) recently established in Bangladesh, Bhutan, and Nepal that are aimed at sustaining interaction between the public agencies and the private sector. These committees now include representation from ministries or departments of commerce, customs, and transport or communication, and private sector representation from chambers of commerce, transport service providers associations, and trade associations. Examine similar institutional options for increased effective dialogue on transport, logistics, and trade facilitation issues in India in the public and private sectors.</p>	<p>1. Establish a regional technical working committee to (a) identify methods for improving logistics for intraregional and extraregional trade, (b) set priorities and short-term targets for achieving the greatest benefits, and (c) develop a forceful and sustainable program for improving logistics in the region. The committee will include:</p> <ul style="list-style-type: none"> • Government representatives of the relevant trade, transport, and customs agencies to provide the policy and public infrastructure perspective. • Private sector representatives from shippers, consignees, chambers of commerce, and logistics providers to bring a private sector and commercial perspective. • Specialists from other countries and academia representatives to provide best practices knowledge of trade facilitation, supply-chain management, and logistics services, as well as practical limitations on reforms experienced by other regional trade blocs.
<p>2. Technical assistance should be provided to assist transport ministries, development banks, planning ministries, freight forwarders, major shippers, and experts in logistics in the techniques of supply-chain analysis. The logistics cost model developed would provide an easy and adaptable tool for training stakeholders. Procedures should be developed for incorporating supply-chain analysis into decisions regarding investments in transport infrastructure and changes in procedures for cross-border movement. Workshops could be used to inform transport professionals, shippers and consignees, and forwarders of the techniques used in supply-chain management.</p>	<p>2. Regional workshops could be used to share information among transport professionals, shippers and consignees, and forwarders to improve supply-chain logistics in the region. This would be particularly helpful for improving regional and international trade, particularly for landlocked regions.</p>
<p>3. Port reform and modernization for improved performance and logistics is a priority for development of the countries' trade in global markets. The measures would include:</p> <ul style="list-style-type: none"> • Privatization of port management and operations, • Dedicated private terminal operations to expedite cargo handling, • Facilitating routing cargo through more efficient ports, and • Better coordination of movements between feeder and mainline vessels by improving port performance so the feeder vessels can operate on a fixed schedule. 	<p>3. Bilateral (and multilateral) dialogue and agreements can facilitate routing regional cargo through more efficient ports. For instance, routing cargo through more efficient ports on the western coast of the subcontinent could reduce travel time by about one week for exports to Europe.</p>

National	Regional
<p>4. Improve the physical design of land border crossings in high traffic crossings to reduce congestion and delays, with strategic investments in place of the current practice of ad hoc investments. Support private sector involvement in development of superstructure and operations at border crossings.</p>	<p>4. Coordination among relevant countries in effectively improving the physical design of strategic high-traffic land border crossings so that current congestion and delays are reduced dramatically.</p>
<p>5. Simplification of import and export cargo clearance procedures within the countries, including introduction of Automated Systems for Customs Data (or compatible) documentation.</p>	<p>5. Harmonization and standardization of cross-border cargo clearance procedures across countries.</p>
<p>6. Improved communication systems and adoption of automated technology for electronic transfer of information.</p>	<p>6. Compatibility of automated systems for effective electronic interchange of information.</p>
<p>7. Eliminate requirements for transshipment of cargo by trucks at border crossings and move toward increased transit access for vehicles from neighboring countries, so that multiple cargo handling and associated costs and delays are avoided. In addition, introduce:</p> <ul style="list-style-type: none"> • Automatic weighing of vehicles at border points • Simplified procedures and risk-assessment strategies to replace current cargo inspection practices • Round-the-clock clearance of cargoes at high-density interchange points like Petrapole–Benapole and Gede–Darsana. 	<p>7. Revisions of bilateral transit protocols to facilitate uninterrupted movement of transit. Important changes include:</p> <ul style="list-style-type: none"> • Replacement of the movement of transit cargo in truck convoys to flexible movement against specified time limits with in-bond goods; • The use of secure seals for rail cars or containers carrying transit cargo with very few or no inspections of cargo at the border, other than checking seals; • The Transports Internationaux Routiers (TIR) system for the carriage of goods approved by customs authorities from the transport of sealed containers using the TIR carnet; and • Common vehicle inspection and licensing procedures for trucks used to transport cargo across borders.
<p>8. Monitoring/tracking systems for cargo movement.</p>	<p>8. More effective mechanisms for monitoring the movement of the cargo, instead of the existing practice of using fixed routes and truck convoys. These could include:</p> <ul style="list-style-type: none"> • Joint checking of cargoes at the origin and destination; • Electronic data interchange (EDI) between customs facilities within the country and across borders; • Identification numbers, bar codes, or other forms of electronic identification for trucks and cargo containers; • The use of a freight operation information system for real-time monitoring of trains, rail cars, and cargo; and • Tracking systems for transit cargo carried by trucks.

(Table continues on the following page.)

TABLE 6.1 (continued)

National	Regional
9. Assignment of liability for the carriage of goods within the country to encourage more efficient multimodal transport.	9. Assignment of liability for the carriage of goods and harmonization of this liability scheme across regional and international borders.
10. Development of full rake sidings for rail, night unloading facilities, and terminal facilities at major loading and unloading points.	
11. Development of night navigation facilities on selected inland waterways in Bangladesh and in the waterways linking Northeast India and West Bengal.	
12. For Bangladesh, a cohesive plan identifying key bridges that need upgrading along high-traffic corridors, taking into account ongoing efforts to strengthen bridges on the Dhaka-Chittagong highway.	
<i>Medium and Long term</i>	
1. Investments in road network infrastructure, including widening roadways and constructing divided highways. Bangladesh would base this on a review and update of the existing road master plan. India would incorporate planned and ongoing road projects, including the Golden Quadrilateral and West Bengal north-south highway, and a medium-term plan for less congested road links to and among the Northeastern states.	1. Investments at border crossings to facilitate easier two-way flow of traffic.
2. Increased movement of containerized goods, particularly high-value commodities. It would be useful to review (a) the Container Corporation of India (CONCOR) experience and (b) the experience of Nepal ICDs, including efforts to integrate private sector operations and prepare recommendations for making the process more efficient, effective, and transparent.	2. Extend the movement of containerized goods, particularly high-value commodities such as yarn, across national and regional borders.
3. Strengthening and widening bridges where necessary, particularly along selected roadways for Bangladesh and Northeast India.	

National	Regional
<p>4. The TTTCs could oversee a review of the progress and plans for harmonization of rail networks to determine the likely impact on national traffic flows.</p> <p>Other items on the rail agenda would include proposing standards for rolling stock, such as the configuration of container rail cars, the identification system for rail cars, and the introduction of air brakes and semi-automatic couplers for the freight cars crossing the border between India and Bangladesh. Finally the review committee would look at increased private sector involvement in unit train operations, especially proposals for shipping lines and other logistic providers to operate trains for the movement of containers inland.</p>	<p>4. A review of the progress and plans for harmonization of rail networks to determine the likely impact on regional traffic flows. The review should include ways to introduce, expand, and improve block train operations and rail-based ICDs to serve landlocked areas; scope for private sector operations.</p>
<p>5. Modern laws and regulations covering clearer assignment of liabilities for the carriage of cargo, permitting tighter integration of intermodal movements and reducing barriers to entry for potential third-party logistic providers.</p>	<p>5. Harmonization of laws and regulations in the region to enable clear assignment of liabilities for the carriage of cargo and permit tighter integration of intermodal movements across national and international borders. (There is considerable international experience and legal precedence concerning this issue.)</p>
<p>6. Expand e-commerce opportunities more broadly to remote sectors, industries, and regions so that small and medium enterprises can market their products directly to businesses and markets. This would involve:</p> <ul style="list-style-type: none"> • Access to assured data communications and Internet services, • Supportive legislation to allow financial transactions over the Internet that are both secure and legally binding, • Increased privatization of telecommunications and Internet services, • Establishment of a public-private partnership to ensure a competitive environment for e-commerce services, and • Training for small- and medium-scale businesses for effective use and development of services. 	<p>6. New systems are needed for improving voice and data transmissions between customs checkpoints at the border crossings and between the checkpoints and central customs offices and seaports. Initially this could be accomplished through a value-added network used by customs. This could be expanded to the ICDs and other border crossings that would act as a center of efficient and effective communications for scheduling and coordinating movements with other activities on the logistics chain. Ultimately, it should allow the users to input data electronically through multiple ports and, eventually, through the Internet.</p>
<p>7. In the long term, systematically introduce measures to move toward offering shippers door-to-door economical just-in-time delivery service, which is important for the country to gain position in the global market.</p>	<p>7. In the long term, systematically introduce measures to move toward offering shippers door-to-door economical just-in-time delivery service, which is important for the region to gain position in the global market.</p>
	<p>8. Implementation of a smart card system for expediting all the transactions associated with cross-border movements.</p>

the need for such a forum that is not necessarily a permanent institution, but rather a flexible adaptable body that can bring together issues and suggest options for various stakeholders from the relevant countries, including the private and public sectors.

The subregion covered by this report has made a beginning in establishing regional dialogue. Under SAARC, a subregional grouping with representation from the four relevant countries (Bangladesh, Bhutan, India, and Nepal) has already been established. The private sector in the subregion (led by the chambers of commerce) has signed a memorandum of understanding. It has launched the Emerging East Initiative to promote investment and trade in the subregion. The private sector is in the process of formalizing the institution. To address cross-sectoral issues on transport, trade facilitation, and logistics, and to support continual private and public sector inputs, technical committees (Transport and Trade Facilitation Technical Committees or TTTCs) were formed in Bangladesh, Bhutan, and Nepal, after our national consultative workshops in July 1999. These committees consist of key governmental representatives from the ministries of commerce, transport, customs, and other agencies, and private sector representatives from the chambers of commerce, freight forwarders' associations, shippers' councils, and other organizations.

There is need for a regional public-private forum to identify methods for improving logistics for both intraregional and extraregional trade, set priorities and short-term targets to achieve the greatest benefits, and develop a forceful and sustainable program for improving logistics in the region. This forum or regional technical committee would have a tripartite representation:

- Government representatives from the relevant trade, transport, and customs agencies to provide the policy and public infrastructure perspective;
- Private sector representatives of the shippers, consignees, chambers of commerce, and logistics providers to provide a private sector and commercial perspective; and
- Specialists from international organizations, academia, and consulting organizations with detailed knowledge of trade facilitation, supply chain management, and logistics services to provide information on best practices, as well as on practical limitations of reforms experienced in other regional trade blocs.

The institutional form, mandate, and terms of reference of the regional technical committee would be examined in consultation with regional stakeholders as part of a process of discussing the findings of this report at national workshops and a regional conference. This chapter will present preliminary ideas for the range and scope of tasks that the regional technical committee would address. The committee would review ongoing efforts in the region and elsewhere and develop a time-bound action plan. The committee would coordinate with SAARC and the subregional quadrangle body, the private sector's Emerging East Initiative group, the national TTTCs, and other relevant public and private agencies mentioned earlier. The implementation of its recommendations would require domestic and bilateral initiatives and would be the responsibility of the TTTCs in each country.

PRELIMINARY AGENDA

It is important to point out that, in addition to several issues that require regional approaches and bilateral or multilateral agreements, there are some areas that can be more efficiently dealt with at a national level. There are three agendas to be addressed:

- Coordination of transport sector reform and investment, which would be addressed at a national level through the individual TTTCs,

- Trade facilitation, which would be addressed at a regional level through the regional technical committee, and
- The development of business-to-business e-commerce at both the national and local levels.

There would be need for both short- and long term improvements. The short-term improvements would address problems related to:

- The exchange of goods between East and Northeast India;
- Bhutan and Nepal trade with international markets and with regional markets (in the case of the latter, many commodities have short shelf lives); and
- The trade between Bangladesh and neighboring countries, including Northeastern Indian states, and strategic improvements for Bangladesh transport and logistics systems to improve global trade.

These would also have significant implications for improved logistics in the individual countries. The long-term improvements would focus on the region's capacity to meet the logistics requirements for trade in high-value goods.

Coordination of Transport Sector Reform and Investment

The key areas for attention would be the development or improvement of seaport and landport facilities to serve the foreign trade of all countries, including the landlocked ones; the coordination of the investment and maintenance of the transport linkages across borders; and the introduction of modern technology for monitoring the flow of cargo and vehicles across borders.

A priority area for attention that has direct implications for opportunities in the global markets

for the countries is the improvement of seaports. Efforts to reform the port sectors in India and Bangladesh are longstanding but have achieved relatively little, other than the recent private sector initiatives on the west coast of India and the private sector Patenga port that is being planned in Bangladesh. In contrast, East Asia has achieved rapid gains in port productivity and generated substantial investment in port infrastructure and equipment over the last three decades. The port sector has been rationalized, customs procedures have been automated, and the private sector has taken over operations of several ports. Although container traffic volumes have increased in South Asia, the time and costs for transferring containers has not declined substantially. Calcutta and Chittagong remain the most inefficient components of the logistics chain, with average vessel waiting times of several days and container handling rates of less than six boxes per hour per handling point.

Port reform is crucial for improved logistics. It is the subject of several ongoing efforts at port modernization. A key element is private terminal operations, which would expedite cargo handling. For foreign shipments, improvements in the logistics associated with port handling and ocean transport is critical because of the dominance of the costs and the time associated with port handling and ocean transport. A reduction in the time for ocean transport would have a marked impact on total travel time. This can be accomplished in two ways: by routing cargo through more efficient ports and by coordinating movements between feeder and mainline vessels. The first will become more attractive as the rail container movements to the Indian ports on the western coast improve. The second requires improvements in port performance in order for the feeder vessels to operate on a fixed schedule. This involves the establishment of dedicated privately operated terminals. The first approach will reduce travel time by about one week for movements to

Europe. The second approach will reduce travel time by about three to five days.

The road, rail, and inland water transport networks require substantial improvements. The current networks have low average travel speeds, limited hours of operation, and relatively high losses due to poor maintenance. Investment needs in network infrastructure include widening roadways, constructing dual carriageway roads, strengthening bridges, deepening and straightening navigational channels, harmonizing rail lines, double tracking high-density rail corridors, developing better rail terminals, standardizing rail car technology, installing systems to more closely monitor the movements of rolling stock, and providing better signaling systems. Improvements in operation should include providing larger-capacity, more powerful, and more reliable transport units, introducing private sector management; and making greater use of telecommunications and electronic data processing. All of these require careful study and planning at this stage if they are to be effectively implemented during this decade.

The physical design of the cross-border facilities needs to be dramatically improved. The services provided at these facilities will depend on the volume of cargo handled, as well as on the transport modes being served and the protocol governing the cross-border movements. Basic operational analysis should be applied to the capacity of processing gates, parking areas, and intermediate storage areas to determine the amount of investment required to avoid congestion and limit delays. Benapole is an example of ad hoc planning where there have been significant investments, but the investments were not well planned to fill gaps and inadequacies directed at the right components. As a result, the various components of the facility do not work well together. Many of the other border crossings have little or no investment, and transport

is delayed waiting for service to be brought to the site. One of the advantages of creating a limited number of border crossings is that investment can be concentrated and traffic levels will be sufficient to encourage private logistics service providers to locate offices there. Where possible, the private sector should finance the development of the superstructure at the border crossing.

Rail reform is important for the movement of goods over long distances and in areas not well served by the road network. At a national as well as a regional level, there would be a need to review the progress and plans for harmonization of rail networks to determine the likely impact on national and regional traffic flows. At the national level, the TTTC would be responsible for the review process, whereas at the regional level a regional committee would oversee the review process. The review should include ways to introduce, expand, and improve block train operations and rail-based ICDs to serve landlocked areas. There would be need to review the experience of Nepalese ICDs, including efforts to provide private sector operations and prepare recommendations for making the process more efficient, effective, and transparent. Other items on the agenda would include proposing standards for rolling stock, including the configuration of container wagons, the identification system for wagons, and the introduction of air brakes and semiautomatic couplers for the freight wagons crossing the border between India and Bangladesh. Finally the review committee would look at increased private sector involvement in unit train operations, especially proposals for shipping lines and other logistics providers to operate trains for the movement of containers inland.

Even as efforts are underway to undo the restrictive trade practices of earlier decades, it is important to look ahead to the fundamental ways

in which trade is changing and to develop strategies for creating or at least maintaining a competitive advantage. Two areas in which the region must catch up with the rest of the world are multimodal transport and the assignment of liability for carriage of goods. Although the freight transport in all four countries can accommodate intermodal movements, the operations of the individual modal services are not integrated. Despite the introduction of the multimodal transport act in India, there has been relatively little success in offering to shippers and consignees a door-to-door service that is both efficient and economical.

One of the constraints limiting multimodal transport is the lack of modern laws and regulations covering the assignment of liabilities for carriage of cargo. Clearer assignment of liabilities permits tighter integration of intermodal movements and reduces the barriers to entry for potential third-party logistic providers. It also makes railroads and trucking companies improve their quality of service to limit their exposure due to loss or damage of cargo. There is a considerable body of international experience and legal precedence in this issue. There is little reason for delaying the enactment of these laws and regulations.

Regional Trade Facilitation

The second agenda, regional trade facilitation, would cover protocols and procedures. In particular it would focus on the need for:

- Simplification and standardization of cross-border cargo clearance procedures, and
- Revision of bilateral transit protocols.

The cost and time for customs procedures at the land borders have been reduced through ongoing national efforts to reform customs procedures.

These include the simplification of documents, introduction of ASYCUDA documentation, and adoption of new technologies, including the electronic transfer of information using electronic data interchange for administration, commerce, and transport protocol. These reforms need to be applied more consistently at the seaports and border crossings across the region. The standardization and simplification of documents should be coordinated so that the same documents are used on both sides of a border. The procedures should be simplified to increase institutional efficiency and to reduce both formal and informal costs.

Improvements in communications and document transfer are required so that the agencies involved in monitoring border crossings are informed of upcoming movements and have the supporting documentation readily accessible, preferably in electronic form. Efficient exchange of information between shippers and customs officers, and shippers and shipping lines, as well as between the customs officers on both sides of a border crossing, can significantly reduce the time required for cargo movements as well as the uncertainty associated with these movements. This will be especially important for efficient operation of the ICDs at the Nepalese border, the major border crossings between India and Bangladesh, and the seaports handling imports, exports, and transit cargoes.

The existing bilateral transit protocols are a work in progress. They have been useful in opening borders that had been closed and creating opportunities for transit cargo to move from landlocked areas. They have not, however, provided efficient mechanisms for handling transit cargo, but treat them instead like import or export cargo. The first priority is to end the remaining prohibitions on cross-border movements of cargo for both regional and international trade. The next is to eliminate the remaining requirements for

transshipment of cargo between the vehicles at the border. After that, it will be necessary to introduce the various procedures used in different trading blocs for the efficient movement of transit cargo.

The elimination of transshipments for road transport is important because the cost and time for transport increases dramatically where cargo must be transferred between the trucks of each country.² The shipper incurs the additional cost for multiple handlings and is prevented from using the less costly of the two transport providers for the entire trip. This system limits the potential for backhaul cargoes, thereby increasing the cost of transport. New bilateral transit protocols should allow uninterrupted movement of transit goods in-bond. In particular, the protocols with Bangladesh need to be modified to allow trucks from other countries to operate in Bangladesh. This will not only improve Bangladesh's trade with its neighbors, but it would also attract transit traffic to use the logistics services in Bangladesh.

Some of the more important customs reforms that need to be introduced to facilitate cross-border movement of transit traffic, as well as reforms related to bilateral trade, include:

- Replacement of the movement of transit cargo in truck convoys to flexible movement against specified time limits.
- The use of secure seals for wagons or containers carrying transit cargo, along with the practice of conducting very few or no inspections of cargo at the border, other than checking the seals.

2. The railways and the inland waterways transportation networks already have protocols for the movement of vehicles and vessels across borders.

- Common vehicle inspections and licensing procedures for trucks used to transport cargo across borders.
- Automatic weighing of vehicles at border points.
- The TIR system for the carriage of goods approved by customs authorities from the transport of sealed containers using the TIR carnet.
- Simple procedures and risk-assessment strategies to replace current cargo inspection practices.
- Round-the-clock clearance of cargoes at high-density interchange points such as Petrapole-Benapole and Gede/Darsana.
- Development of full rake sidings, night unloading facilities, and terminal facilities at major loading and unloading points.

These reforms should be accomplished over the next three years. The regional technical committee would examine methods for expediting their implementation.

There is a need to modify the protocols to offer more routes and improve border crossings. It is important to identify specific border crossings where government officials intend to provide significant infrastructure and a larger customs presence. These crossings will handle a majority of the movements by road and rail. It is also important to identify minor border crossings that will have a lower level of service but will provide an outlet for areas that have relatively low volumes of trade and are far from the major crossings. The selection of routes is a more contentious issue. Any limitation on routes will create inefficiencies. The goal should be to give shippers free access to the transport network while

still keeping them accountable for safely moving cargo to its destination. Under this system, the market would decide the most effective route, depending on the type of commodity and the final destination.

The mechanism for monitoring the movement of the cargo would have to be more sophisticated than the use of fixed routes and truck convoys. A variety of ways to accomplish this were mentioned in the previous paragraph. Other innovations that could be introduced include:

- Joint checking of cargoes at the origin and destination;
- EDI between customs facilities within the country and across borders;
- Identification numbers, bar codes, or other forms of electronic identification for trucks and cargo containers;
- The use of freight operation information system for real-time monitoring of trains, wagons, and cargo; and
- Tracking systems for transit cargo carried by trucks.

The committee should evaluate the alternatives and select those that can be implemented in the next five years. The committee would also look at the longer-term implementation of a smart card system for expediting all the transactions associated with cross-border movements.

The committee would examine current regulations of the logistics industry and identify ways to foster greater competition while at the same time allowing for vertical integration through the introduction of full-service, third-party logistics providers. Logistics services were traditionally provided by a number of different actors, each

providing a specific service. In the 1970s, with the advent of multimodal transportation, shipping lines and freight forwarders sought to provide door-to-door movement of cargoes. However, existing regulations slowed the integration of transport services and protected the less efficient providers of individual logistics services. Nevertheless, consolidation did occur. The same companies now provide customs clearance and forwarding. Forwarding agents are able to contract directly with transport companies and form alliances with foreign forwarding agents to provide door-to-door services. Forwarders also sought to provide cargo consolidation. However, the ports are reluctant to give up this role, and they frequently require shippers and consignees to consolidate or deconsolidate their cargo within the port boundaries.

Modern integrated logistics service providers offer a full range of logistics services, including intermediate storage, consolidation, packaging, inventory control, customs clearance, and cargo tracking, as well as arranging for basic transport services. In some cases, they will also take responsibility for the inventories and sales of the cargoes. The development of these integrated services has yet to occur in South Asia. Third-party logistics will become more important, both as trade in high-value goods increases and as producers focus on their competitive advantage in research, production, and marketing, and rely on others to provide efficient logistics functions. For low-value goods, it will continue to be more efficient to negotiate individual services between the shippers and suppliers of the services.

Development of Business-to-Business e-Commerce

The third agenda would be the development of better trade communications. The rapid evolution of telecommunications services and the importance of those services to trade extends from creating more efficiency on the major trade routes

to providing service to the more remote, less-developed areas. The unprecedented accessibility provided by the Internet is matched by the scalability of its services. The first phase of electronic commerce was limited to proprietary systems developed by major transport companies and trading organizations. The second phase utilized value-added networks that provided EDI services developed by customs organizations, seaports, and other government agencies. The third phase is the ongoing development of Internet-based business-to-business transactions using Extensible Markup Language (XML) messaging. It is this latter system that offers the greatest opportunities for improvements in trade and logistics in areas located away from the major trade routes. These systems facilitate communication and coordination between importers/exporters and foreign markets, and between shippers and customs. It also creates opportunities for more efficient use of the available transport services. This can lead to a reduction in both the cost and time for transport of goods.

EDI and business-to-business e-commerce are two areas of increasing importance. Immediate attention should be given to implementing EDI services that are accessible to both regional customs authorities and logistics providers involved in regional trade.

Business-to-business e-commerce is a rapidly expanding area of trade that makes use of modern communications technologies to broaden the market in which buyers and sellers conduct business and to reduce the costs of the transactions in this market. This method of trade began with large companies that established proprietary communications and data management networks to facilitate the interaction between their production units and suppliers. In recent years, this effort has been expanded to external networks that accommodate bidding by multiple suppliers

against specifications and terms of tendering posted by buyers. Most recently, this has expanded into Web hosting of auction sites on the Internet. Within a few years, it is anticipated that this innovation, combined with simplified Web hosting and improved Web browsers, will allow small- and medium-scale enterprises to market their products directly to customers or, more importantly, to businesses through the Internet. If these enterprises are to succeed in this market, they will require access to good-quality data communications and Internet services. They will also require supporting legislation to allow financial transactions over the Internet that are both secure and legally binding.

Efforts to expand e-commerce have generally begun with the private sector, followed by academic and government attempts to provide broader access to this way of doing business. A private-public partnership should be established to ensure that a competitive environment is developed for providing e-commerce services and that publicly supported training and promotional efforts focus on small and medium businesses. Among the strategic partners to be included in this effort are the telecommunications companies, chambers of commerce, and industrial federations. Their focus would be to provide telecommunications access and Internet services for businesses at a reasonable cost, as well as providing training in the use of e-commerce and technical assistance for the creation of Web sites and Internet markets.

The potential to improve information services is constrained by two factors. The first is the quality and coverage of telecommunications services in the remote areas of the region. The second is the lack of private sector participation in the provision of these services, especially the Internet. Government regulation of Internet service providers prevents competition, thereby maintain-

ing relatively high prices and low quality of service. It also raises questions about the security of transmitted messages.

New systems are needed for improving voice and data transmission between customs checkpoints at the border crossings and between the checkpoints and central customs offices and seaports. Initially this could be accomplished through a value-added network used by customs. This could be expanded to the ICDs and other border crossings, which would act as a center of efficient and effective communications for scheduling and coordinating movements with other activities on the logistics chain. Ultimately, it should allow the users to input data electronically through multiple ports and eventually through the Internet.

REGIONAL CAPACITY BUILDING

As mentioned earlier, regional stakeholders will develop the exact structure of the regional committee, as well as its mode of working, coordination with existing regional and national entities involved in transport and logistics, and the participation of international agencies. It would be developed as a follow-up to this study and to subsequent discussions with these stakeholders in national workshops and a regional conference.

A separate effort is needed to develop the capacity within the public and private sectors to perform supply chain analysis. One of the diffi-

culties in reaching agreements on how to improve the efficiency of the shipment of goods within and beyond a region is that the discussion between the public and private sectors rarely rises above the level of anecdotes. Occasionally a detailed analysis will be performed of one component of the supply chain. Supply chain analysis allows public officials, shippers, consignees, and logistics providers to identify major bottlenecks and other inefficiencies in trade logistics and to assess the costs and benefits of initiatives to improve the performance of individual components of the supply chain. The analysis presented in this report suggests that improvements in seaports will offer the greatest return on investment followed by improvements in the cross-border procedures. However, these findings apply to specific combinations of cargoes and routes. The same type of analysis needs to be performed as part of any effort to increase the efficiency of trade for a specific commodity and origin/destination pair.

Technical assistance should be provided to assist transport and planning ministries, development banks, freight forwarders, major shippers, and experts in logistics in the techniques of supply chain analysis. Procedures should be developed for incorporating supply chain analysis into decisions regarding both investments in transport infrastructure and changes in procedures for cross-border movements. Workshops could be used to inform transport professions, shippers and consignees, and forwarders about the techniques used in supply chain management.

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