

## DAY 2: CONCURRENT PANEL SESSIONS (PANEL 1C)

# Implications of Trade Policy for Global Intermodal Development

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Tay Yoshitani, *Port of Oakland, Moderator*  
Jesse Browning, *University of Washington*  
Colleen Morton, *Institute of the Americas*  
Ronald Kopicki, *World Bank*  
Jay Winter, *Foreign Trade Association of Southern California*  
*and Steamship Association of Southern California*

### OVERVIEW

*Tay Yoshitani*

The focus of this session is very broad and establishes a very large framework within which this panel can move around. It will be interesting to hear the different perspectives on this topic. The panel was asked to focus on issues relating to trade policy, the increasing globalization of markets, and the economic interdependence resulting from multinational business activities and worldwide and multimodal transportation systems.

### INTERNATIONAL TRADE ORGANIZATIONS

*Jesse Browning*

*Jesse Browning is Director of Global Trade, Transportation and Logistics Studies at the University of Washington. He teaches courses and guides research at the university relating to international trade, logistics, transportation, and regional and economic development. He also serves as a U.S. delegate to the Asia-Pacific Economic Cooperation transportation working group and is the U.S. representative to its Human Resources Development Steering Committee. He is also a member of the Transportation Research Board's International Trade and Transportation Committee. Before his current posi-*

*tion at the university, he founded and was principal of a business producing material handling equipment and systems for domestic and international markets. He holds eight patents relating to environmental controls, material handling systems, and computers. Browning has an M.P.A. degree from the University of Southern California at Los Angeles and a Ph.D. in economic geography from the University of Washington.*

My presentation focuses on international trade organizations and how they facilitate intermodal transportation. I will focus mostly on the World Trade Organization (WTO), what is taking place in the European Union (EU) and the European Commission, and also what is happening in the Asia Pacific region, specifically the Asia-Pacific Economic Cooperation (APEC) organization that represents the Pacific Rim economies.

Global trade transportation and logistics studies at the University of Washington is a graduate interdisciplinary program that brings together students and faculty from 15 different departments on campus. The purpose of the program is to take students who are getting a degree in another discipline such as business, civil engineering, international studies, public affairs, geography, and tie them into what is going on in global commerce. The program was developed about 6 years ago, after a meeting with industry leaders and government leaders in the Seattle area—people from the ports, from the carriers, people like Boeing, Microsoft, Weyerhaeuser, and others—and listening to what they thought they

needed in the way of students coming out of the university. Their view is that, although research is important to them, they would really like to have people who understand what is happening in global commerce. The program was designed with that in mind and we are doing a number of things to make that happen. The reciprocal of that, of course, is the need to reach out, tie in, and network with people in industry and outside of academia.

In addition to getting a degree in their major program, students receive a formal certificate from this program. A post-bachelor student can come into the program as a nonmatriculated student and get a certificate on the way to another degree at some point in the future. We have a spring seminar series and an annual conference that provides networking opportunities for the students.

Our approach is to use a system's perspective to look at the socioeconomic systems, the markets, products, and infrastructure moving from the macro scale—what is happening at the global level—to the more specific issues of what is happening at the regional level. We look at political and technological changes taking place and the impact that has on the regions as well as the intermodal transportation system, supply-chain management, and electronic commerce. A lot of time is spent looking at what the customers' needs are, because that is what drives everything.

The program gets students involved with what is happening in the global scene, what is taking place with the world's structural change—the whole process of globalization. Although some out there are against globalization, it is nonetheless happening and we need to focus on how to explain it, address it, and take advantage of it. For example, we look at how political change is taking place in the former Soviet Union, how the Chinese economy is moving more and more to an open market system, and how technology change—the container revolution, the doublestack railcars, and so forth—is really facilitating the movement of goods and services in ways it did not do before. There are also new information technologies that are helping change take place. Much of this technology came about as a result of cooperation and coordination between the computer industry and the telecommunications industry, which brought a wide open area of new products—cell phones, the worldwide web, the Global Positioning System, intelligent transportation systems (ITS), and a number of others. All these things affect what is happening on a global scale as well as at the regional level, with changing manufacturing locations that in turn result in changing transportation patterns.

In the past, the back and forth Atlantic trade dominated a lot of what was going on in the world. Now, however, a lot of trade has shifted to the Asia Pacific region, in large part because of the manufacturing that is

occurring in east Asia. More recently, this manufacturing has been moving down to southeast Asia, and eventually it will probably move more into south Asia, India, and eventually into Africa, where manufacturing can take place, with lower costs and labor available. These shifting patterns have had a significant impact on ports, specifically those on the West Coast. They have also affected the East Coast ports and Atlantic trade, as they change. The cost of shipping goods from southeast Asia through the Suez Canal to Europe and to the East Coast are about the same as they are shipping from Singapore across the Pacific to the western United States. There is concern that West Coast ports could lose some of the future container traffic as it goes in the other direction, via the Atlantic instead of the Pacific. One big unknown in this regard is the impact China's ascension into WTO will have on the trade patterns. Their economy is expanding very rapidly and expectations are that it will continue to expand—a dynamic situation that we need to better understand.

The international organizations that are doing things to facilitate trade and intermodal transportation include the International Chamber of Commerce, the Organization for Economic Cooperation and Development, the United Nations Committee on Trade and Development, the World Bank, WTO, and the General Agreement on Trade and Services (GATS).

WTO is a rules-based trade organization that came out of the General Agreement on Trade and Tariffs (GATT), among those organizations formed toward the end of World War II to help economies that had been ravaged during the war achieve economic growth and to encourage economic development. There are 135 member economies in WTO and its objectives are to reduce tariffs and eliminate trade barriers.

During the recent WTO meeting in Seattle a lot of people, including nongovernmental organizations, who did not think their voices were being heard with WTO, came to town to express their concerns about issues such as human rights, the environment, and labor. There were a lot of protests, with these groups trying to get their message across. Mixed in with them were a number of irresponsible people promoting violence and mayhem and causing things to get really out of order. There was a lot of naivete within that group about what WTO is doing. After the meeting, Michael Moore, WTO Director General, presented a good summary of what happened and what is planned. He stated that, despite the temporary setback in Seattle, the organization's objectives continue to be to negotiate the progressive liberalization of international trade, to put trade at work more effectively for economic development and poverty elimination, to confirm the central role that the rules-based trading system plays for the member governments and to manage their economic affairs cooperatively, and to

organize WTO on the lines that more truly represent the needs of all the member economies. In short, he said the organization is trying to become more transparent and listen to the needs of those who are less advantaged than others. Moore stated that there is no less of a sense of urgency about these objectives now than there was before the ministerial meeting. Far too much is at stake and the longer we delay in launching negotiations, the more the poorest among us lose. Therefore, WTO is addressing the lesser developed economies in the process.

GATS is headed up in WTO by a Council for Trade and Services. The air service and land transport services are two areas that really have not been well addressed by WTO. A number of papers about land transport services have been put out for discussion and eventually they will get to that. With regard to the air services, this is something they have not paid too much attention to because the International Civil Aviation Organization and the International Air Transportation Association have formed bilateral and multilateral agreements among many of the carriers around the world. So, there is not a lot of concern about that.

There is also some concern in the marine services area. After the Uruguay Round, there were several years of negotiations that concluded in June 1996 and failed to agree on a package of commitments. More than 30 countries had made commitments, but a number of larger developed economies had not agreed to the terms, so the talks were suspended. In Seattle, they hoped to come up with an agenda for discussion and have now set a restart date in Geneva. It will be interesting to see what comes of that. The negotiations are intended to deal with four areas of maritime transport: international shipping, transporting passengers or freight between ports in different countries, dealing with auxiliary services such as cargo handling, and access to and use of port facilities.

EU is doing a number of things with regard to intermodal transportation. The director general for transport stated their motto as follows: "Transport unites people and makes regions and countries more affluent." One of their projects is called Infolog Martrans. Last June, in Seattle, the U.S. Department of Transportation (DOT) Office of Intermodalism, in cooperation with EU, brought together the Infolog Martrans project and ITS America to discuss what is going on and how new technologies can help improve intermodal freight transportation. The project is a global information network for intermodal transportation and supply chain, with the idea that transport and logistics are vital for trade, economic growth, and development. They are dealing with awareness—the use of information and communications technologies should enable transport and logistics; interconnectivity—the different information systems should be able to

communicate; interoperability—the communications should be based on agreed common languages; and accessibility—the services should be tailored to meet user requirements at low cost. They have developed a number of software programs to make this happen, including VITC (virtual intermodal transportation change) and EDI log-in, which is an intermodal tracing and tracking system.

APEC is made up of 21 economies that circle the Pacific Rim, all the way from Russia on the western side of the Pacific down through Korea, including Vietnam, Singapore, down to Australia, and then around through the Americas side, with Chile, Peru, Mexico, the United States, and Canada. APEC was established in 1989 in response to a growing interdependence among Asia Pacific economies. They are promoting business cooperation and have held a number of meetings over the years. Perhaps the most significant was in 1994 with the resulting declaration to have free and open trade investment by 2015 and 2020—among developing economies by 2015 and among the lesser developed economies by 2020. Over time, the leaders have held additional meetings on various themes. The next meeting will be in Brunei in late 2000, when they will continue to advance APEC's agenda on trade and investment, localization, and facilitation. The bottom line in APEC is doing things to facilitate trade, with the understanding that increased trade will improve prosperity and promote economic growth throughout the region. APEC has 10 working groups, one of which is focused on transportation and meets twice a year.

Leading up to a ministers' meeting in Victoria, British Columbia, in 1997, there was a study done within APEC called the congestion point study. It identified all the bottlenecks that exist in moving freight and goods throughout the Asia Pacific region. It identified the difficulties in Hong Kong and Taiwan; in the Pacific Northwest, in the corridor between Seattle and Tacoma; and in the Alameda Corridor here in the Long Beach–Los Angeles area. They also cited a number of best practices for marine ports and airports. At the ministers' meeting, they determined that the findings of the congestion point study warranted creation of an intermodal task force. The intermodal task force is cochaired by the United States—Gary Maring from the U.S. DOT Office of Freight Management is one of the current cochairs. At the most recent meeting in Hong Kong, there were reports from Japan on the intermodal freight survey and from Canada on a seamless passenger flow questionnaire. Another project is under way to identify intermodal skills within all the member economies—what the demand side is, what the supply side is, what is needed, and what kind of training is taking place.

Another area that is dealing with intermodal transportation is the support exports group within the APEC

transportation working group. They have completed six themes and are now at work looking at what they can do in the future. One consideration is the take-up of electronic commerce, benchmarking and performance measures, and landside intermodal connectors. I thank you for your attention.

## ROLE OF TRADE AGREEMENTS AND POLICIES

*Colleen Morton*

*Colleen Morton is Vice President and Director of Research for the Institute of the Americas. Her primary responsibilities include overseeing the institute programs, research, and outreach activities. Her areas of expertise include trade and the environment, trade liberalization, infrastructure finance, and the political economy. Before joining the institute, Morton was Executive Director of the U.S. Council of Mexico—U.S. Business Committee and Director of Mexico Programs for the Council of the Americas in Washington, D.C. At the Council, she was responsible for all North American Free Trade Agreement-related efforts, including extensive public speaking and coalition activities, congressional and federal government relations, environmental analysis, and analysis of the agreement; she also provided analysis of Mexican affairs to Rodman and David Rockefeller. Before joining the council, she held a number of trade-related positions as a trade policy analyst with a Washington, D.C., law firm. In 1990, she received the Woman of the Year Award from the Washington, D.C.-based Women in International Trade. She has an M.A. in international political economy from the University of Washington and a B.A. in international relations from Carlton College in Minnesota.*

There are a number of ways one can look at the topic of global intermodal development. What I will focus on today is the relationship between trade policy per se—the actual negotiations—and how that interrelates to the development of intermodal networks and either stymies or facilitates the development of intermodal networks. Clearly, the increase of global trade and globalization implies the need for a lot more transportation infrastructure—how do you plan that infrastructure, how do you make sure it actually makes your country or your system more competitive, how do you actually put in place systems that create greater efficiencies and lower costs?

I am going to focus on how trade agreements can skew the demand and supply of transportation services, with an emphasis on the western hemisphere, in part because

the Institute of the Americas focuses on the Americas. We try to facilitate investment in infrastructure in five different sectors—energy, health, telecommunications, transportation, and mining—with transportation.

The agreements that affect the western hemisphere include GATT and WTO, which have already been mentioned by Jesse. There are also the Free Trade Area of the Americas (FTAA), which is currently being negotiated; the North American Free Trade Agreement (NAFTA), which was completed in 1993 and went into effect in 1994; and MERCOSUR (Mercado Común del Cono Sur), which includes the southern cone countries of Argentina, Brazil, Paraguay, and Uruguay, with Chile and Bolivia as associate members. The Andean community includes the five countries of the Andean region. In the Central American and Caribbean community, there are a number of different agreements. There is also a proliferation of bilateral free trade and investment agreements, many of which deal tangentially with issues affecting the supply of intermodal services or the facilitation of delivery, particularly with respect to customs facilitation.

Generally speaking, trade negotiations are a response to business demands for better access, for exports, and countries' demands for a level playing field. However, in my research on this topic, it struck me as ironic how little trade negotiations in the past have dealt with transportation services and how little this part of negotiations has progressed when, in fact, it is transportation services that make trade and goods movement possible. In fact, what we see in multilateral, regional, and even bilateral forums is the systematic exclusion of many transportation services from the scope of the negotiations. There are a number of interesting reasons for this. In some cases, the sector is already significantly liberalized—for example, in the bulk commodity shipping sector, where there are no serious barriers to trade or transportation services. More importantly, there are serious barriers that countries find very difficult to address, particularly domestic opposition to liberalization of certain types of transportation services, where unions are very strong, where domestic interests are very strong, and where it has not been possible to politically balance those interests against the interests in favor of liberalization.

There are other kinds of agreements—shipping conferences, cargo sharing, bilateral agreements, aviation bilateral agreements. Again, there are domestic interests, which are usually encapsulated in law, such as the Jones Act domestic cabotage law in the United States, which require acts of Congress or acts of legislatures to repeal and which, generally speaking, are politically sensitive.

Another reason transportation services often have not been effectively addressed in the international trade forum is because of the close interrelationship between transportation services and basic infrastructure. Basic

infrastructure—roads, ports, airports—is, in the minds of many people, linked very closely with national security concerns and the ability to respond to threats and crises. For example, for many years in Latin America the military was in charge of different aspects of the transportation infrastructure, such as in Brazil, where the Air Force still runs all the country's airports. Another factor is that services in general have only recently begun to be taken up in international trade negotiations. Services per se are a relatively new feature and therefore not that much progress would have been made.

The most important factor may be that liberalization of transportation services would bring about very diffused benefits to the overall economy, but there are very concentrated costs. The people who would be put out of work or the people who would suddenly face a lot of international competition are very easily identified, whereas the people who would benefit are a much larger group of consumers and the political weight and negotiating strength of those two groups are not equal. Therefore, one has to expect that further negotiations to liberalize trade and transportation services are not going to be easy. This is particularly the case with the new structure of WTO, where you have basically a consensus-based negotiating structure where all countries of the world sit at the table—it is going to be very difficult.

When trade negotiations have tried to deal with transportation services, it has almost uniformly been in a mode-specific manner, with no overlap allowed among the negotiations in different modes or, for that matter, between transportation services and other types of services. This means there are very few trade negotiations specifically aimed at liberalizing intermodal services or facilitating multimodal shipments outside of some special cases such as EU and APEC.

A number of agreements have been drafted and signed by a few countries, such as the United Nations Multimodal Transport Convention, which was launched in the 1970s with only about six signatories; it never went into force. In 1989, there was a land transport convention signed in the southern cone, but it focused primarily on highways and, although it functions fairly well, it is not really intermodal.

Structured trade negotiations themselves militate against the facilitation of intermodal services, because the negotiations maintain an arbitrary division among the modes. There is some discussion within various groups—for example, the WTO Council on Services—and some private sector groups that are interested in influencing those negotiations. There needs to be a new approach to these types of negotiations at the multilateral level. To date, no one has been willing to step up to the plate to really force that through, least of all the United States.

I would like to offer a couple of remarks about the changes in the global supply-chain requirements and the

impact that has on infrastructure requirements, particularly in Latin America. If you look at the evolution of supply-chain models, you now have a case where customers expect to be able to order a product the same way they would order a car or a pizza. That car has to be delivered to them in about the same time they would expect to have a pizza. In other words, the compression of time frames and the degree of customization of products are having a huge impact on the way supply chains are structured. That has concrete and serious ramifications for what governments and countries are trying to do to respond to these new trade patterns.

To illustrate some of the growth in trade within the region, there was a 20 percent growth rate in 1995 and 18 percent growth in 1996 of intra-American exports as a percentage of total exports. In the Andean region, it was 12 percent in 1995 and 11 percent in 1996. For MERCOSUR, it was 20 percent in 1995 and 21 percent in 1996. These are astounding rates of growth and they are much, much higher than gross domestic product growth. They are reflective of these trade agreements that have been put in place to facilitate access to each other's markets. They are putting incredible pressure on very limited transportation infrastructure in these regions, because most of the countries of Latin America traditionally have been oriented toward transporting goods from their ports overseas to Europe or Asia. They have not been oriented toward exporting to each other, and their links between these countries are primarily highway links. Railroads are very neglected in most of Latin America. Basically it is a situation in which the weakest part of the infrastructure is where most of the growth is occurring. Within the NAFTA area, growth has been high for a long time, and it is likely to get higher in terms of the interpenetration of the countries of the North American region.

In a declaration from a ministerial meeting held in New Orleans in 1998, there was a stated commitment to improve the amount of coordination and information sharing, and there was a recognition of the need to develop an integrated transportation infrastructure in the region. But, as one Latin American transport minister pointed out, the Latin American ministers have a history of being great on rhetoric and short on delivery. There are a lot of obstacles to the development of more integrated transportation networks in Latin America, not the least of which are the Andes Mountains, which pose a major obstacle in terms of trans-Andean railroad connections. It would require either very deep or very high tunneling and is extremely expensive; to date little work has been done to move that process along.

The ministers and the governments of the region have been taking steps not just on the trade policy side but in a lot of different areas to try to respond to this trade growth. One step is in trying to reach out for other types

of financing for intermodal projects and for transportation projects in general. In most cases, the governments of Latin America have difficult physical and budgetary situations, so they have been forced to deregulate, to privatize, and to turn over most of these assets to the private sector. A lot of that has already happened. Argentina has completely privatized its railroad industry. The ports are pretty much privatized. Chile is in the process of selling off a number of ports. There are a lot of road concessions in most countries of the region, including Chile, Argentina, Brazil, and Mexico. Mexican road concessions and toll roads had a very rough period at the beginning, but now they are back on track. The Mexicans are privatizing their ports and have privatized their railroads. This process is expanding to the rest of the Andean countries as well. Peru is doing some of the same things, and so are Bolivia, Venezuela, and Ecuador. Colombia has also had quite a bit of success in privatization. This will help alleviate, to some extent, the financing pressures. However, the World Bank has estimated something like \$14 to \$18 billion needs to be spent per year just on basic transportation infrastructure, and that does not really get into all the bells and whistles of intermodal facilities. It is just the basic maintenance, basic expansion of the highway systems and networks, and some upgrading of ports. There are tremendous transportation challenges facing Latin America.

The problems with the rail system make the development of intermodal approaches very difficult. The connections between rail systems in Latin America are almost nonexistent, unlike in North America where there are common standards, with the same gauge in all three countries. There are a lot of cooperation and linkages between the railroads of Canada, Mexico, and the United States. In Latin America, that is not the case. Brazil and Argentina, for instance, use different gauges and the railroads do not necessarily meet where they are supposed to meet. There are bridges missing. Most of the railroads exist to carry products from the interior to the ports. They do not exist to connect countries in Latin America.

There needs to be massive investment made in the ports as well. The ports have been neglected, particularly during the 1980s when there was no money to spend on anything, and many of the ports are encumbered by very rigid labor laws and requirements. Labor liberalization is a major issue, because for private sector investors to be interested in taking over the ports, one of the first things they want to know is that they will have the right to fire people. In many of these countries, that has been very difficult to do. The governments have not been able to initiate this sort of privatization because of the strength of the unions and the strength of domestic interests. It has happened and is happening, but it has not been easy.

The river routes, which are extremely important in Brazil, are still really in their infancy. They could be a major focus of transportation between all the countries of MERCOSUR, but huge investments need to be made. The development of additional river ports, dredging, and expansion of the river system give rise to huge environmental concerns. For example, some of these rivers in Brazil require a lot of dredging, which would go through very sensitive ecological reserves; hence, the government of Brazil is facing enormous challenges in trying to get the approval of their own congress. The Brazilian Minister of Transportation has been frustrated because his own foreign ministry issued a declaration saying they were never going to develop the Parana and the Pantanow because of environmental considerations. He wants to be able to deliver soybeans from the interior of Brazil down to the port of Santos at the least cost. The most effective way to do that is with interconnections between the river system and the rail system.

Let me talk briefly about the adoption of new technologies. There are a lot of technologies out there to speed customs clearance processes and to track railcars, trucks, and so forth. Some are being put in place and deployed but generally only by companies that are already integrated. They are not being used to integrate various components of transportation systems that are not already under one corporate roof, so to speak. For instance, Federal Express and United Parcel Service, the major international players, already use all these technologies in Brazil, much as they do in the United States. However, the Brazilian companies are still extremely fragmented and the individual modes are not linked using these technologies. If there was a forum or a way to develop incentives to promote the adoption of these technologies among these modes in Latin America, you would see a huge boost in productivity in the region.

Between 1960 and 1990, the number of kilometers of paved highways in Brazil doubled, but the number of kilometers of rail declined. This is the pattern throughout the entire hemisphere—a decline in the number of kilometers served by rail. The only place where it began to go up, again toward the end of the 1980s and the beginning of the 1990s, was in Mexico. Almost everywhere else it has declined and they have been putting all their money into highways. In Brazil, they have gone from 12 000 km of paved highways in 1960 to 161 000 km of paved highways today—an enormous effort. However, the Brazilian minister acknowledges there has been overdevelopment of the highway system at the expense of the river ways, the ports, and the rail systems. In a sense, there is a built-in bias against intermodalism in Latin America, simply because the other modes are severely underdeveloped, inefficient, high cost, and not in the right place at the right time. One bright spot is that the railroads are in private hands almost everywhere in

the hemisphere now. This is a fairly recent development, with Mexico privatizing its railroads just last year. Huge investments in the railroad systems of Latin America are expected in the coming years, which should dramatically improve the productivity and the intermodal potential for the region.

Mexico is taking a very strategic position, trying to place itself as a hub, not only north–south between Canada and the United States and the rest of Latin America, but also east–west. It is part of NAFTA and a number of other trade agreements. Latin America also just signed an agreement with EU that will probably come into effect later this year or early next year. A number of agreements are under discussion with Asian countries. Mexico is putting an enormous amount of resources into transportation infrastructure and into trying to develop intermodal approaches. For example, in the port of Ensenada, they are developing a number of intermodal facilities and connections via rail into the United States. They already have very tight linkages with the North American rail system and the privatization of their airports is also going to be aimed at facilitating intermodal connections.

Trade negotiations in the region have dealt with transportation services in a number of ways. In NAFTA, the trucking sector was to be liberalized; before NAFTA, there were a number of barriers and the NAFTA negotiations opened up the trucking sector, particularly between the United States and Mexico, because Canada and the United States were already pretty open. However, the United States has chosen not to implement this part of the agreement and Mexico has taken the United States to dispute settlement. There is no resolution in sight and now Mexico has added the bus part of the agreement to the dispute. There was no rail under NAFTA, because by that time rail had pretty much been privatized—rail has been overtaken by events. In the maritime area, there was some liberalization in terms of the investment in dedicated port facilities; however, this has also been overtaken by the privatization of ports in Mexico, which has opened up opportunities for foreign investors. One issue relating to maritime is domestic cabotage—the Jones Act laws and restrictions still apply to Mexican domestic cabotage. With respect to air transport, Canada and the United States have an open skies agreement. There is a bilateral agreement between the United States and Mexico. In addition, under NAFTA there is an agreement on the delivery of specialty air services that went into effect in January 2000. In sum, there were minor liberalizations under NAFTA, but most have been overtaken by events with the privatization of various facilities.

Under the more recent FTAA, there were eight business facilitation measures signed, two of which applied to express shipments. They basically commit the 34 governments of the region to try to develop systems to expe-

dite customs clearance of express shipments and low-value shipments. The approach in these negotiations was to go after one focused problem at a time. The next issue that Federal Express and United Parcel Service would like to see addressed is ground delivery, because they would like to completely control the delivery of their shipments from client to client.

The other subregions in the area are basically all connected through highways, and within the region of Central America the highways are well integrated. Trucking is well integrated within MERCOSUR and the southern cone as well as within the Andean region. Trade between the regions is basically carried out through maritime shipping, again because the landside connections between the regions are very weak and very sporadic.

A range of things remain to be addressed in the Latin American and in the western hemisphere context. The minimum required infrastructure investment is estimated at \$14 to \$18 billion, under difficult financing conditions in Latin America. Private banks generally are not interested in providing long-term tenders to private transportation projects. A lot of work needs to be done on the regional harmonization of standards for vehicles, containers, safety, liability, and so forth. Labor liberalization still has a long way to go. Domestic cabotage remains, particularly between regions (within regions it has been opened up in MERCOSUR and the Andean region). Customs reform is probably one of the biggest issues, particularly for express shipments and simply to facilitate the rapid movement of land shipping. A new forum needs to be developed where governments of the region can specifically address intermodal issues. The deployment of advanced information systems across modes and between the public and private sectors is probably the factor that would result in the most dramatic increase in productivity in Latin America. Thank you.

## INTERNATIONAL INTERMODAL PROJECTS

*Ronald Kopicki*

*Ronald Kopicki is a principal privatization specialist with the World Bank in Washington, D.C., where he leads the bank's supply-chain development efforts and has worked on several intermodal projects in Mexico, China, Nepal, and Africa to develop intermodal service networks. Before joining the World Bank, he worked for CSX Corporation for 12 years, where he helped develop its intermodal surface network. He has written several books on railway privatization logistics and supply-chain development and is currently leading the bank's efforts to complete a port reform toolkit, which we will hear more*

*about. Kopicki is a graduate of Cornell University, where he earned undergraduate and master's degrees before going on to Stanford University for his M.B.A.*

There are some fundamental deficiencies and defects in most of the countries where the World Bank is active. Intermodal does not work equally well every place in the world; for example, there are no “best practices” in Benin. The countries the World Bank works with are stuck between a rock and a hard place. The problem they face in a globalized economy, where the developing countries must try to compete or keep up with the more advanced supply chains in developed countries as well as meet customer demands and standards that are becoming increasingly tight, is a service gap. Either that gap is filled with inventory at substantial cost or the logistics cycle time has collapsed. Part of the solution is accelerated intermodal development. There is a trade-off between the supply-chain visibilities on the one hand and intermodal quality service development on the other. Unfortunately, with respect to supply-chain efficiency, the gap is getting bigger and developing countries who want to sell their products into a global economy have to address that problem.

Intermodal transportation involves systems interactions and there are many elements in the intermodal transportation to make it work right. In the developing country context, addressing this pyramid of functionality is absolutely essential. You need a service culture. You need to have government officials who are predisposed to address problems, take action, and make things happen. You have to have a legal framework. You have to have freight processes that make borders ports. You need a fundamental infrastructure and, equally important, you also need a microinfrastructure. You have to have access to intermodal technology. You have to have an organizational framework, an organization model that encapsulates and can manage intermodal transactions, and you need corporate strategies developed by private firms that are intermodally oriented.

Some problems are small, and others are fundamental. For example, consider the legal framework—there are a whole set of issues with regard to instilling responsibility and end-to-end liability for handling the cargoes, insurance coverage, security, and action that the intermodal service provider can take against shippers or consignees who have not paid their freight bill. There are issues of price equalization. Equally important are trade process issues—interface with the international banking system, the issue of trade credits and ownership transfers, customs clearance issues, tax collection issues. Carriers in developing countries shoulder a lot of these responsibilities. For example, in Brazil, carriers are liable to pay taxes as well as to collect them. In other countries,

they are responsible for other aspects of how the government gets paid. Those obligations are assumed by intermodal carriers when they enter some of these markets. Hazardous material handling is another key aspect.

In some of these areas, government leverage and the definition of the rules under which intermodal service providers operate are absolutely essential. The intermodal challenge in going cross-border and opening these intermodal markets to new entrants is that it involves synchronizing and integrating a whole set of triangular issues across borders; a lot of policy alignment needs to be done. Who should do this work and how should it be done? These are fundamental issues and intermodal transportation per se is not the primary focus or among the issues on the table right now in many of the various forums.

Another important aspect to intermodal service is a service network development. The first aspect has to do with putting the service network in place. In a lot of the countries where the World Bank is active in Latin America and Africa, not much progress has been made in the underlying economics of a hub-spoke configuration of linking a different cargo-carrying capability in a particular way and configuring it to minimize handling cost. The next is development of the interior gateways to the network structure for movements between the ports of entry and interior points. Lowering transaction costs and increasing the cycle time are also critical. The next step has to do with putting together a door-to-door delivery service. There are relatively few countries in the world outside of North America and Europe that have those services available today. The next aspect involves putting in place systems that allow for the proactive, anticipatory, midcourse correction adjustment to these movements as they are taking place.

There are several different ways intermodal organizations can be configured and can do the work of providing intermodal services. The model sanctified in North America is what I call the vertically and horizontally integrated intermodal company—these are the Burlington Northern Santa Fe and United Parcel Services of the world. The work of managing those companies is done within a corporate shelter. The control systems or command and control systems are hierarchical and the ownership is single ownership under a single corporate entity. The sources of comparative advantages—local brand and economies of scale—are developed in these big networks.

At the other end of the spectrum is a model akin to the Internet—a loose network structure with affiliation and linkage either on movement-by-movement or some other basis. We have the benefit of very flexible and responsive linkages. We have partners that can be developed across borders. Ownership is diverse. The advantages are agility and quick responsiveness. Some of these other models of intermodal network development are worth exploring.

There is a role for an institution like the World Bank to begin the process of constructing intermodal services,



perhaps by developing an intermodal “pulpit.” Some donor countries have indicated their intention to help fund such an effort to be used in scouting out intermodal systems and how things are done in Australia, China, and so forth. On that basis, we can begin to address best practice, best policy, best foundation issues and come up with some templates for intermodal legislation. In terms of the rules under which the service is provided, such legislation is emerging. These things can be extracted to establish protocol standards and regulations, to recommend best practices, and hopefully encourage people to get involved in such projects. The goal is to find the microinfrastructure foundation for global intermodal networks. That foundation will involve a set of dry ports, which are intermodal bill-to points, akin to zip codes, of intermodalism for the 21st century. Information is fundamental—in fact, essential—and the architecture that connects all these dry ports must be open and competitive, allow brand new applications software to be bolted in place, and invite Standard & Poor’s and friends of the world to come and bolt their solution technology in place.

The idea is to have a flexible and globally aligned supply chain to address this issue of cross-border freight activity. What you need are integrated business processes, trade practices, and information systems standards that are global; access to information that is open; microinfrastructure; and some hooks for new private sector entry into this intermodal business. Thank you.

## TRADE GLOBALIZATION AND REGIONAL ECONOMIES

*Jay Winter*

*Jay Winter is President and owner of an association management company, International Association Services, Inc., located in the Los Angeles–Long Beach area. In that capacity, he is the Executive Secretary of the Steamship Association of Southern California, and they represent all the steamship lines that work in the port of Los Angeles and Long Beach. He is also Executive Secretary of the Foreign Trade Association of Southern California. Before these roles, he worked for Bulk Systems, for Transmarine Navigation, Automar, and Marine Terminals Corp. He received his B.A. degree from Stanford University as well as a graduate degree from the School of Business at Stanford.*

Southern California has been blessed with growth in trade since the end of World War II that has probably been unmatched in this country. There are a number of factors to this growth, although the popula-

tion growth here and the development of Asia have certainly been the two key factors. The liberalization of trade, initially under the Bretton Woods agreement, then the Kennedy Round, and more recently the GATT Round, has made this port complex today far and away the largest in the United States. The Japanese, in effect, became the mentor of the rest of Asia. The three “tigers” followed in the 1980s and 1990s, and then came the giant of them all, China.

Today, two-way trade between China and the two southern California ports represents in the neighborhood of 20 to 25 percent of our business. In terms of 20-ft equivalent units, that represents anywhere between 1.5 and 2.0 million units a year that are passing through these two ports. If China receives permanent normal trade relations this spring from the U.S. Congress, many people expect not only a continued surge on the import side but also significant growth in export trade.

The impact of this growth on southern California has been multifaceted. The challenge of building these port facilities has been tremendous. In the past few years, the two ports were spending in excess of a million dollars per day just on new projects. The area that has been the toughest in the past 10–15 years has been not the ports themselves but what lies behind the port—the roads, the rail, and the infrastructure.

Most of the audience are familiar with the Alameda Corridor project. That project was first conceived back in the early 1980s as a way to avoid aggravating the local communities with coal trains. With those days of the energy shortage, coal was going to be the savior of the world. Back then, management of the port of Long Beach said they would not be able to build coal terminals in the port with all the train traffic; therefore, an effort had to be made to consolidate rail traffic. Then they became aware of grade-crossing issues and they turned to a trench concept. About the time the energy crunch fell apart and oil was flowing again and reasonably expensive, along came doublestack trains. The Alameda Corridor is one of the most massive projects that has ever been undertaken as a public works project. It has cost of \$1.0 billion. It is well into construction. They are digging the trench now. They are meeting challenges that people did not expect.

The items that really challenge the region today relate to the impact this growth has on local communities. Not everybody views trade as a good thing or a wonderful thing for their community, particularly if all the local citizens sees is a lot of trucks, noisy trains, grade crossings where they have to wait 20 to 30 minutes for a mile-long stack train to go across, air pollution problems, and the list goes on. These are the real challenges of the future—to make sure remedies can be found so the citizens do not rebel against the growth of intermodalism. For example, here in southern California where expansion of the air-

port facilities is needed, it is being fought tooth and nail. They want us to expand the airport out in Palmdale, which is about 100 mi away, and they want to have a high-speed rail link—one of these ideas that falls into the category of “build it and they will come.” It is clear that most people do not want to go all the way to Palmdale to catch an airplane.

Along with these challenges has been the imposition of what amount to trade barriers by local and state governments. The result is a patchwork of environmental and other regulatory constraints, particularly here on the West Coast. California, in particular, has a history of not waiting for the federal government to act—on automobile emissions and other air-quality issues. That is certainly where it began. In the last decade, this has come to have an impact on ocean transportation, as the region is faced with stack emission issues from vessels—both particulate and nitrogen oxides. The state has imposed its own oil spill cleanup requirements as a result of the Exxon Valdez not only on tank vessels but also in the past year on nontank vessels.

Another challenge first faced several years ago was a plan by the state of California to mandate port working hours. The state saw this as a possible solution to congestion problems. Fortunately, the idea was defeated. Another example from several years ago was Proposition 65, which requires signage wherever there are carcinogenic substances present. Someone asked whether the emissions from vessel stacks were carcinogenic—at one point they wanted to see Proposition 65 signs on the stack funnels. Diesel exhaust is a huge issue out here. The trucking industry, the railroad industry, and the shipping industry are all faced with it. Right now, there are more restrictions being placed on the bulk handling and the dust emissions that come from the bulk facilities. You can no longer have an open pile—everything bulk is likely going to end up being covered here in the two ports in the future.

This past year, another issue came up out of the water, specifically ballast water. The federal government and International Maritime Organization have been tackling the handling of ballast water for some time, trying to find rules and regulations to control the introduction of invasive species. This, in part, grew out of the problems resulting from the zebra mussel infestation in the Great Lakes region. While this was being discussed, the San Francisco Bay area had an infestation of a little creature known as the Chinese mitten crab. No one knows for sure how it came into the Bay area. Those in the shipping industry think some restaurateurs brought it in because it is a delicacy in Asia. The environmentalists think it came in through ballast water. It is a very serious problem in the San Francisco Bay and the tributaries behind it. These little creatures multiply very quickly. They have burrowed into the levees in the Bay area. They have

clogged the water system for the whole state of California. As a result, this past year the state of California was not willing to wait for the federal government and the U.S. Coast Guard to come up with regulations—the state passed their own regulations. The state of Washington is about to adopt a set of ballast water regulations. It is troublesome to have this patchwork of regulations and laws coming down, and there are times when it would be preferable for the federal government to come in and unify the way some of these issues are addressed. The ports have also had to deal with stormwater drain-off, chassis licensing issues, and so forth.

In spite of these issues and challenges, today the economy of southern California is booming and, depending on which economist you talk to and how they count the jobs, international trade, with the activities related to it, is the largest employer in southern California. Southern California, with its two ports, has become the most massive public transportation logistics hub in the United States. Over 50 percent of the merchandise handled in this region either comes from or goes beyond the Rocky Mountains. The Alameda Corridor is a response to this demand for improved surface transportation. The railroads are facing challenges today, particularly as they expand passenger rail service on tracks that had not been used for passenger service for years. Suddenly, freight and passengers are starting to bump into each other.

In California, and more specifically here in southern California, there are also challenges from labor agreements and the labor force. Labor is still dealing with the issues of the 1950s and 1960s. Labor is going to have to come along to meet these demands and challenges, not so much from the carriers but from the communities. Facilities will have to be more fully and efficiently utilized and that is going to require more technological innovation. This is a concern for the unions, particularly the threat of job losses. It should be noted, however, that historically the growth with which this region has been blessed has more than offset any job losses.

In the future, we would like to see the federal government (a) identify the nation's vital transportation hubs, whether they be air, rail, or sea; and (b) work with local communities to facilitate trade growth and transportation efficiencies, so that projects such as the Alameda Corridor are not stymied by endless roadblocks that could ultimately harm the entire nation. The federal government and U.S. DOT can and should play a vital role in this area. This also applies to airport expansion, which is needed here and in other parts of the country.

Fortunately, in Los Angeles and Long Beach, the sea-ports had the foresight some time ago to put in place environmental impact reports and they have been able to follow them. There have been some hefty price tags on the work, but it has helped facilitate growth. Thank you.