Asia-Pacific
Economic Cooperation

Training Program to Promote Economic Competition in APEC Economies
Competition and Regulation in Regulated Sectors

Proceedings of four seminars

May 30-31, 2002; October 19-20, 2002; September 11-12, 2003; November 17-18, 2003

Part II: Transport Seminar Papers

Competition Policy and Deregulation Group
Committee on Trade and Investment
March 2004

Prepared for:

APEC Secretariat

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APEC#204-CT-04.2

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Home
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Energy
Transport
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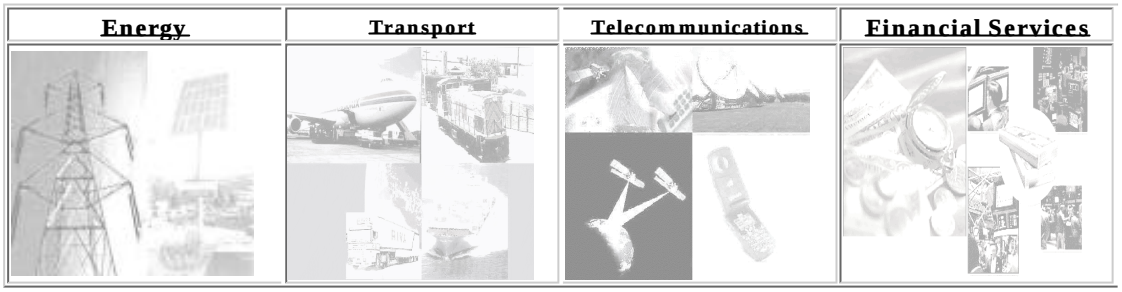

Training Program to Promote Economic Competition in APEC Economies

Regulation and Competition in Regulated Sectors

Sponsored by the Asia

Organized by the Mexican Federal Competition Commission

In 2001, Mexico submitted to the APEC Competition Policy and Deregulation Group a short-term training course to be developed during 2002 and 2003. The project entitled "Training Program to Promote Economic Competition in APEC economies", focused mainly on regulated sectors and complemented existing projects dealing with competition and regulation issues that were successful in building capacity among member economies while providing general guidelines. The project comprised four seminars on specific sectors: energy, transport, telecommunications and financial services.

The purpose of these seminars was to exchange experiences and best regulatory practices in enforcing regulation and competition policies, as well as promoting knowledge and implementation of the 1999 APEC *Principles for Improving Competition and Regulatory Reform* among its member economies. The seminars counted with the participation of high level and experienced speakers in these matters, and were addressed to officials from regulatory bodies and other offices of the Federal Government, legislators, entrepreneurs, advisors, and academics that participate in these sectors.

The first of these seminars focused on the **Energy** sector, and was jointly organized by the Mexico's Federal Competition Commission (CFC or the Commission) and the **Mexico's Energy Regulatory Commission**. It was held on the 30th and 31st of May 2002, at the Fiesta Americana Grand Chapultepec Hotel in Mexico City.

Subsequently, the Commission organized, in coordination with the **Ministry of Communications and Transport**, the Seminar on **Transport**. It was held on the 19th and 20th of October 2002, at the Camino Real Hotel in Mexico City.

The CFC organized the Seminar on **Telecommunications**, which was held on the 11th and 12th of September 2003, at the Sol-Meliá Hotel in Mexico City.

Finally, the Commission organized a Seminar on **Financial Services**, held on the 17th and 18th of November 2003, at the Fiesta Americana Grand Chapultepec Hotel in Mexico City.

This page contains the programs and documents presented at these seminars.

Up

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Transport

Seminar on Regulation and Competition in the Transport Sector

Camino Real Hotel
Mexico City

September 19th and 20th, 2002

This seminar presented international experiences in multi-modal transport and addressed general themes for the transport sector, such as infrastructure, interconnection, and access. Specific themes for transport sub-sectors were also discussed, such as railway, air and maritime transport.

The air transport sub-sector analyzed the particular characteristics of strategic alliances among airlines and of airport services. Themes for the railway sub-sector included trackage and haulage rights, and structural models. Finally, the session on maritime transport and ports discussed development perspectives for the shipping industry and issues related to port expansions.

Thursday, September 19th

Strategic Alliances

	Speaker	Topic
10:15 –10:40	**Fernando Flores** National Chamber of Air Transport (CANAERO) MEXICO	Vision and Future of Commercial Alliances in the Aviation Industry
10:40 –11:05	**Elias Mizrahi Alvo** Federal Competition Commission MEXICO	Competition Effects of Airline International Alliances
11:05 –11:30	**Ma. Elena Estavillo** Ministry of Communications and Transport MEXICO	Efficiencies Savings Obtained from Air Transport Networks

Aviation Tendencies

	Speaker	Topic
12:00 – 12:25	**Fernando Antillon** Ministry of Communications and Transport MEXICO	Competition and Trends in Air Transport after September 11th, 2001
12:25 – 12:50	**Adalberto Garcia Rocha** Commissioner Federal Competition Commission MEXICO	The Air Transport Market in Mexico
12:50-13:15	**David Mc Allister** Competition Bureau CANADA	Mergers and Competition in the Canadian Airline Industry: Recent Experience

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Airport Services

	Speaker	Topic
15:30–15:55	**Enrique Martinez** Mexico City International Airport (MCIA) MEXICO	Mechanism for Allocating SLOTS in the MCIA and its Role in National Air Transport Competition
15:55–16:20	**Salvador Apodaca** General Director of Privatization and Tender Processes Federal Competition Commission MEXICO	SLOTS Allocation and Competition in Civil Aviation

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Railroads

Interconnection and Structure

	Speaker	Topic
16:30 –16:55	**Russell Pittman** Director of Economic Research Department of Justice USA	Restructuring the Railroad Sector for Competition: The International Experience
16:55 –17:20	**Oscar Corzo** General Director of Tariffs, Railroad and Multi-modal Transport Ministry of Communications and Transport MEXICO	Access to Railway Facilities: Trackage and Haulage Rights and Interconnection Services
17:20 –17:45	**Ian Thompson**	Mergers in the Railroad Sector:

	ECLAC	Limitation and Scope of Competition

Friday, September 20th

Maritime and Ports

Maritime Transport

	Speaker	Topic
8:30 –8:50	**Rodrigo Chavez** General Director Mercantile Marine MEXICO	Perspectives of a Legal Framework in Navigation
8:55 –9:20	**Leon Fregoso** CEMEX, Shipping MEXICO	Development Perspectives of the Maritime Industry

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Infrastructure and Access

	Speaker	Topic
9:45 –10:10	**Hugo Cruz Valdez** Ministry of Communications and Transport MEXICO	The Logistic Platforms in Mexican Ports
10:10 –10:35	**Carlos Cabanillas** Director of Manzanillo's Integral Port Administration MEXICO	Port Expansions / International Alliances
10:35 –11:00	**Victor Paredes** Federal Competition Commission MEXICO	Regulation and Competition in Port Facilities, Mexico

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Multi-modal Transport

	Speaker	Topic
11:30 –12:00	**T.R. Lakshmanan** Boston University USA	Techno-Institutional Innovations in Transport and Trade Expansion: The Case of NAFTA
	Eduardo Escamilla	

12:00 –12:30	Ministry of Communications and Transport MEXICO	Multi-modal Transport
12:30 -13:00	**Jorge Kogan** Former Minister of Transport, Consultant ARGENTINA	Multimodal Transport, Regulation and Competition in Latin America
13:00-13:30	**Jose Maria Rubiato** UNCTAD	Multimodal Transport Benefits

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Challenges in the Transportation Sector

	Speaker	Topic
16:00 –16:25	**Fernando Avila Camberos** General Coordinator of Ports and Mercantile Marine Ministry of Communications and Transport MEXICO	Challenges Facing the Mercantile Marine and the Mexican Port System
16:25 –16:50	**Aaron Dychter** Deputy Minister of Transport Ministry of Communications and Transport MEXICO	Challenges in Railway and Air Transport
16:50 –17:15	**Fernando Sanchez Ugarte** President Federal Competition Commission MEXICO	Challenges of the Federal Competition Commission in the Transport sector

Closing Remarks

Aaron Dychter

Deputy Minister of Transport

Ministry of Communications and Transport

Vision and Future of Commercial Alliances in the Aviation Industry

MEXICANA DE AVIACIÓN

México City, September 19th
2002

Origin of Strategic Alliances

- In the current environment, the “evolution” of alliances has accelerated due to:
- Globalisation of the economy
- Deregulation of the aviation industry
- Privatisation of airlines
- Intensification of competition
- Multi-lateralism: emergence of regional blocks
- Evolution of information technology

Definition of Commercial Alliances

A series of trade agreements among airlines, with the purpose of increasing their network beyond their independent possibilities, thus generating increased traffic and income in their own network.

Definition of Commercial Alliances

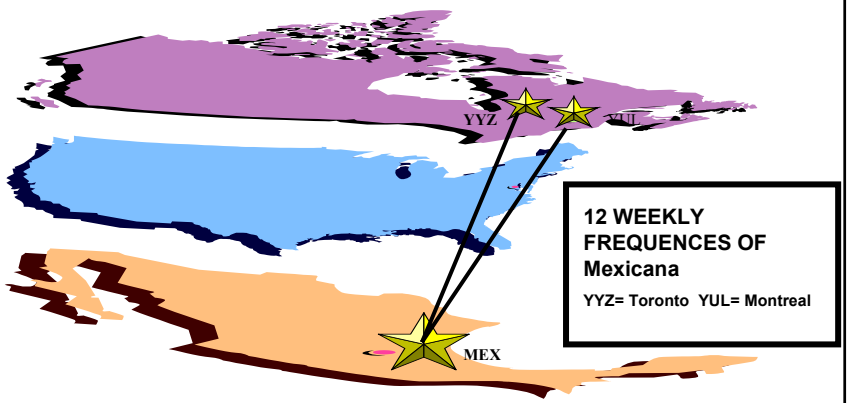
- Types of agreements that usually make up a commercial agreement
  - Frequent Flyer Programme (FFP)
  - Single Documentation (TCI).
  - Agreement on Preferential Fares (SPA)
  - "VIP" Rooms
  - Code Sharing (subject to appropriate bilateral framework and connectivity)

Code Sharing

"Display of airline identity code (e.g. "MX") in a flight operated by a commercial partner, so as to commercialise seats".

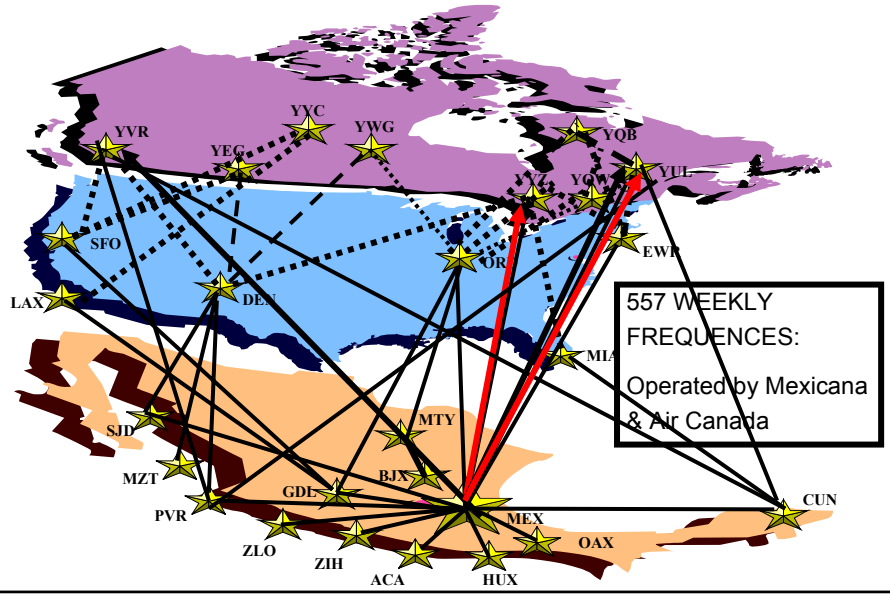
Multiplier Effect of Alliances

Mexicana coverage in the Mexico-Canada market before the alliance with Air Canada (Mar. 99)



Multiplier effect of alliances

Mexicana coverage after the alliance with Air Canada (Sept. 02)



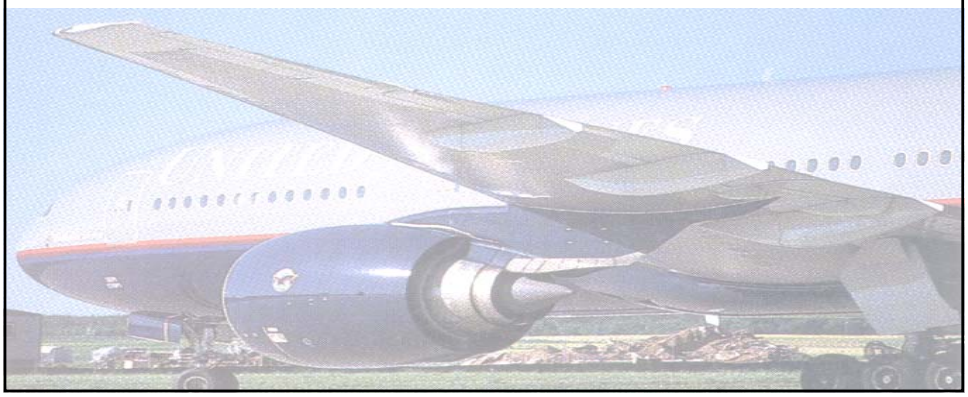
Benefits for the Airline

1. Greater competitiveness
2. Increased income
   - New passenger flows
   - Passenger mix
   - Income quality
3. Access to technology and better practices of the industry
   - Systems
   - “know-how”
4. Potential for cost reductions
   - Common purchases

Benefits for Passengers

"Value added"

Global route net, with more destinations, better schedules, better connections and better fares.



Benefits for Passengers

- Greater possibilities to accumulate and redeem mileage
- Wider range of destinations to choose from

Benefits for Passengers

- Single documentation
- "Status" acknowledgement
  - Access to more rooms
  - Priority documentation
  - Priority boarding
  - Priority luggage delivery

Origin of Stategic Alliances

1. There ara about 600 agreements among more than 200 airlines
2. Most of them were implemented in the last 5 years at a bilateral level
3. Almost 75 % of those agreements refer to code sharing

Source: Airline Business

Origin of Strategic Alliances

1. As a logical consequence, blocks of airlines have started to emerge
2. Currently, five alliances are responsible for about 60% of world traffic
3. Three of the five offer a global network coverage

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SKYTEAM

oneworld

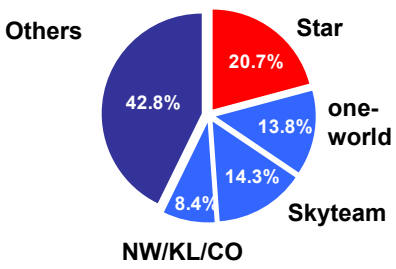
Main Airline Alliances

Air Canada All Nippon Air New Zealand Asiana (nuevo) Austrian Airlines Grp. BMI British Midland LOT (nuevo) Lufthansa Mexicana SAS Singapore Airlines Spanair (nuevo) Thai Airways Int'l United Airlines Varig	Aer Lingus American Airlines British Airways Cathay Pacific Finnair Iberia LAN-Chile Qantas	Aeromexico Air France Alitalia CSA - Czech Delta Air Lines Korean Air Lines	Continental ? KLM ? Northwest ?

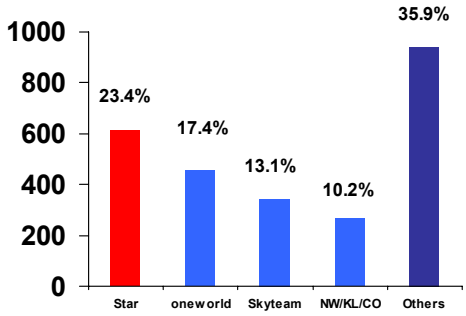
US Airways ?

Comparative of the Main Alliances

IATA Global Passengers' Participation 2001



IATA Global Participation of RPK's 2001



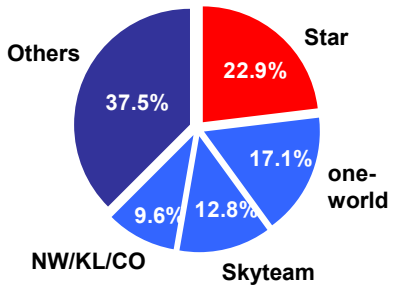
	Star	oneworld	Skyteam	NW/CO/KL
Passengers 2001 (m)	280	187	194	113

	Star	oneworld	Skyteam	NW/CO/KL
RPK 2001 (bil)	613	457	344	268

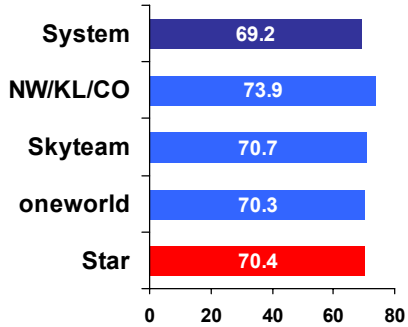
Source: IATA, 2001

Comparativo de las principales alianzas

IATA Global Participation of ASK's 2001



IATA Occupation factor At the System level 2001



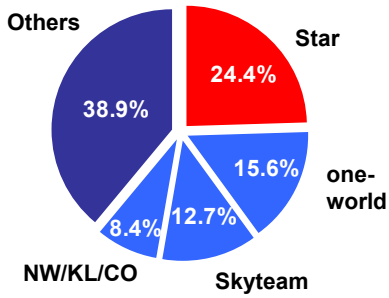
	Star	oneworld	Skyteam	NW/CO/KL
ASK's 2001 (m)	870	650	487	363

	Star	oneworld	Skyteam	NW/CO/KL
Load Factor 2001 (%)	70.4	70.3	70.7	73.9

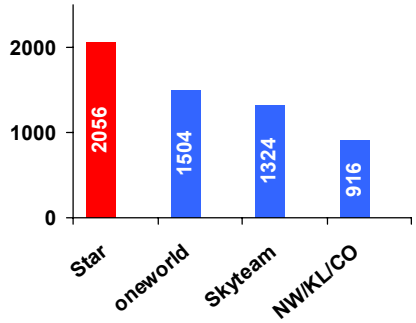
Source: IATA, 2001

Comparative of the Main Alliances

IATA Global Participation for Income 2001



IATA Global Participation For Jet Aircraft in Service 2001



	Star	oneworld	Skyteam	NW/CO/KL
Revenues 2001 (bil)	**70.1**	**44.9**	**36.4**	**24.2**

	Star	oneworld	Skyteam	NW/CO/KL
Jet Aircraft 2001	**2056**	**1504**	**1324**	**916**

Source: IATA, 2001

Trends in the Industry

Those airlines that are marginal to the blocks of alliances will hardly be able to compete successfully.

Unless they have a particularly differentiated competitive product or niche.

Mexicana in Alliances

Mexicana de Aviación's incursion in alliances is due to its vision regarding modernization, maintaining itself competitive, and offering added value to its passengers, employees, and investors.

Towards Alliances

In 1995, a 5-year strategic plan was designed. It included alliances to foster growth.

Primary Objectives

- Project MX beyond its "regional" scope to a "continental" scope
- Development of the concept of "hub", or flight and connection distribution center in Mexico
- Greater emphasis on business markets

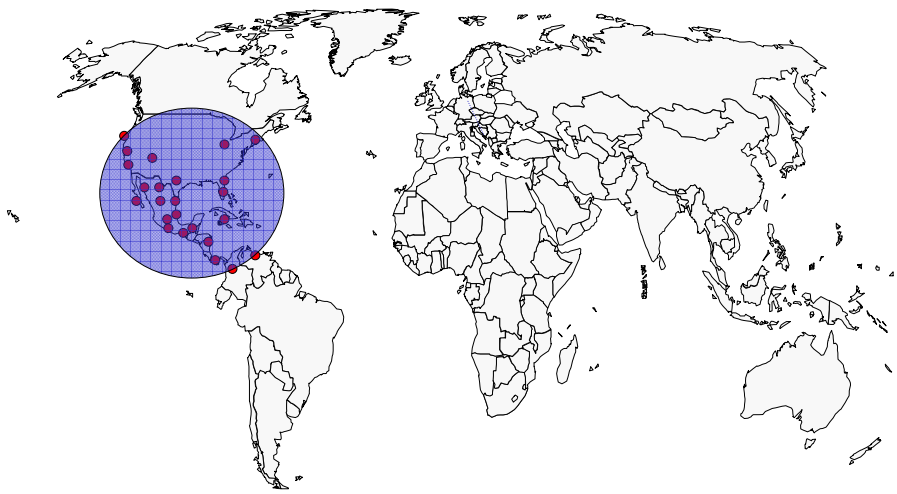
Towards the Big Leagues

January 1999
Mexicana is officially invited to be part of

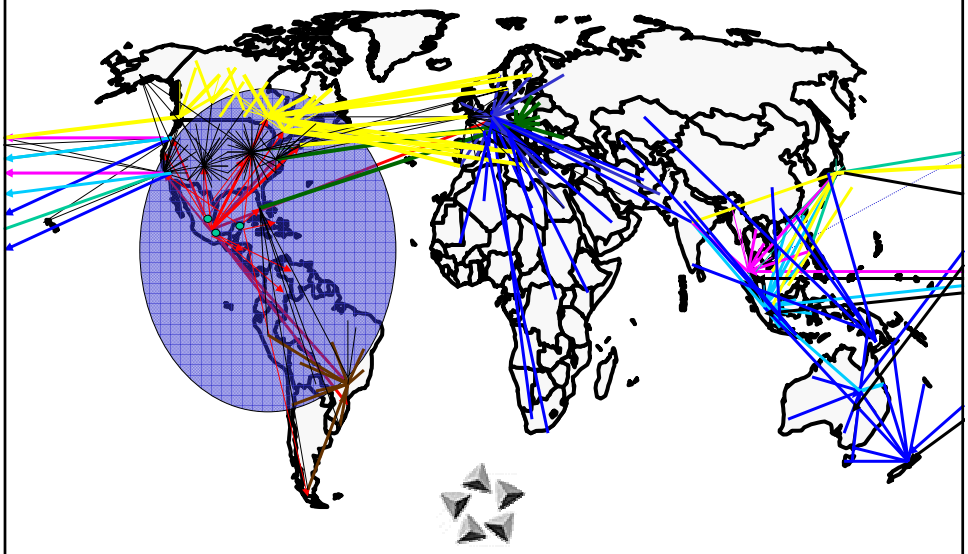
STAR ALLIANCE™
The airline network for Earth.

As of July 2000
We started as “Full Member”

From a Regional Presence ..... (1995)



To a Global Presence (2002)



Trends in the Industry

- The Aviation Industry is facing the worst crisis in its history, with losses in millions and several airlines filing for bankruptcy, or on their way to do so
- Terrorism has discouraged flying by plane, and different alternatives such as cars, trains, and videoconferences have become more attractive
- The operative design of important “network” airlines –“Hub and spoke” system- has been severely damaged by the new security measures in airports

Trends in the Industry

- The trend towards smaller yield is accelerating because of low-cost airlines
- The philosophy of the traditional model of airline income optimization is being questioned
- The e-commerce revolution transforms purchase patterns.
- Regional jets are becoming more common in the industry

Trends in Alliances

- Few non-allied “players” remain in the industry
- The integration into alliances of those non-aligned airlines becomes more complex and costly
- Alliances must comply with the promise to cut costs due to the low probability of generating more income in a depressed environment
- Alliances in the current environment (bankruptcies, consolidation, etc.)

Conclusions

There are diverse opinions about the future of alliances

1. ¿Evolution of commercial agreements towards more mergers?
   - Recent Cases:
     - Air Canada/Canadian Airlines
     - American Airlines/Trans World Airlines
     - Avianca/Aces
     - Easy Jet/Go

... Conclusions

There are diverse opinions about the future of alliances

2. ¿ Will the trend towards consolidation and global blocks continue?
   - United/ US Airways ⟶ STAR?
   - Continental/Delta/Northwest ⟶ Skyteam?

... Conclusions

There are diverse opinions about the future of alliances

3. Subordination, or even disappearance of individual brands towards a single “global” one?

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SKYTEAM

oneworld

... Conclusions

In brief:

- Alliances are here to stay
- They will continue to evolve
- They provide benefits to passengers and airlines
- They become necessary in a dynamic and highly competitive environment such as aviation
- The most successful alliances are non-equity

APEC and the Federal Competition Commission, Mexico

Seminar on Regulation and Competition in the Transport Sector

Competition effects of airline international alliances

Elías Mizrahi Alvo

Federal Competition Commission, Mexico

Mexico City, September 2002

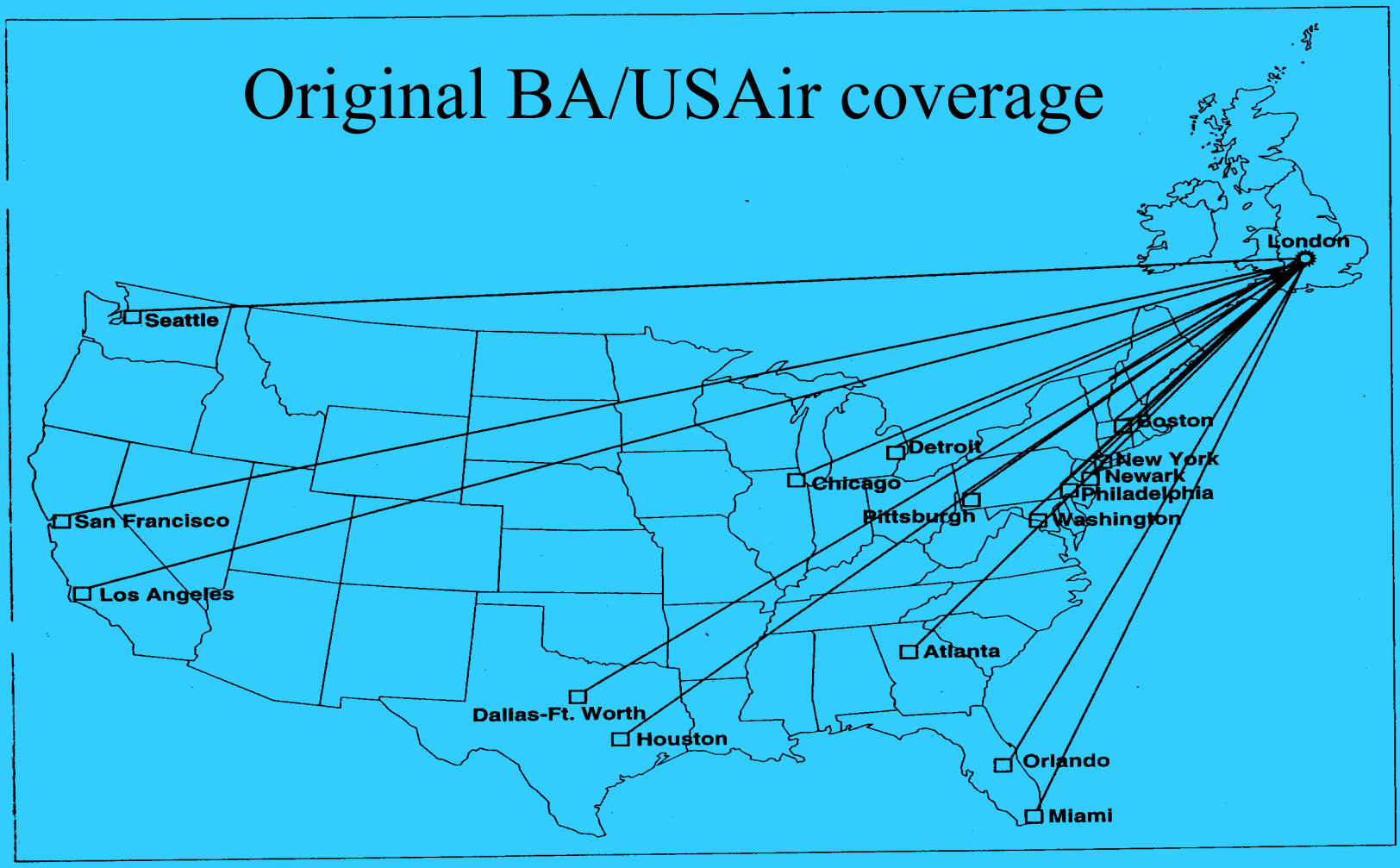
Strategic alliances´s origin and justification

- Closer partnerships between airlines to overcome restrictions of bilateral agreements
- Increase the offer of online services between city pairs that a single airline could not provide
- Operational through code share agreements

Strategic alliances and code share agreements

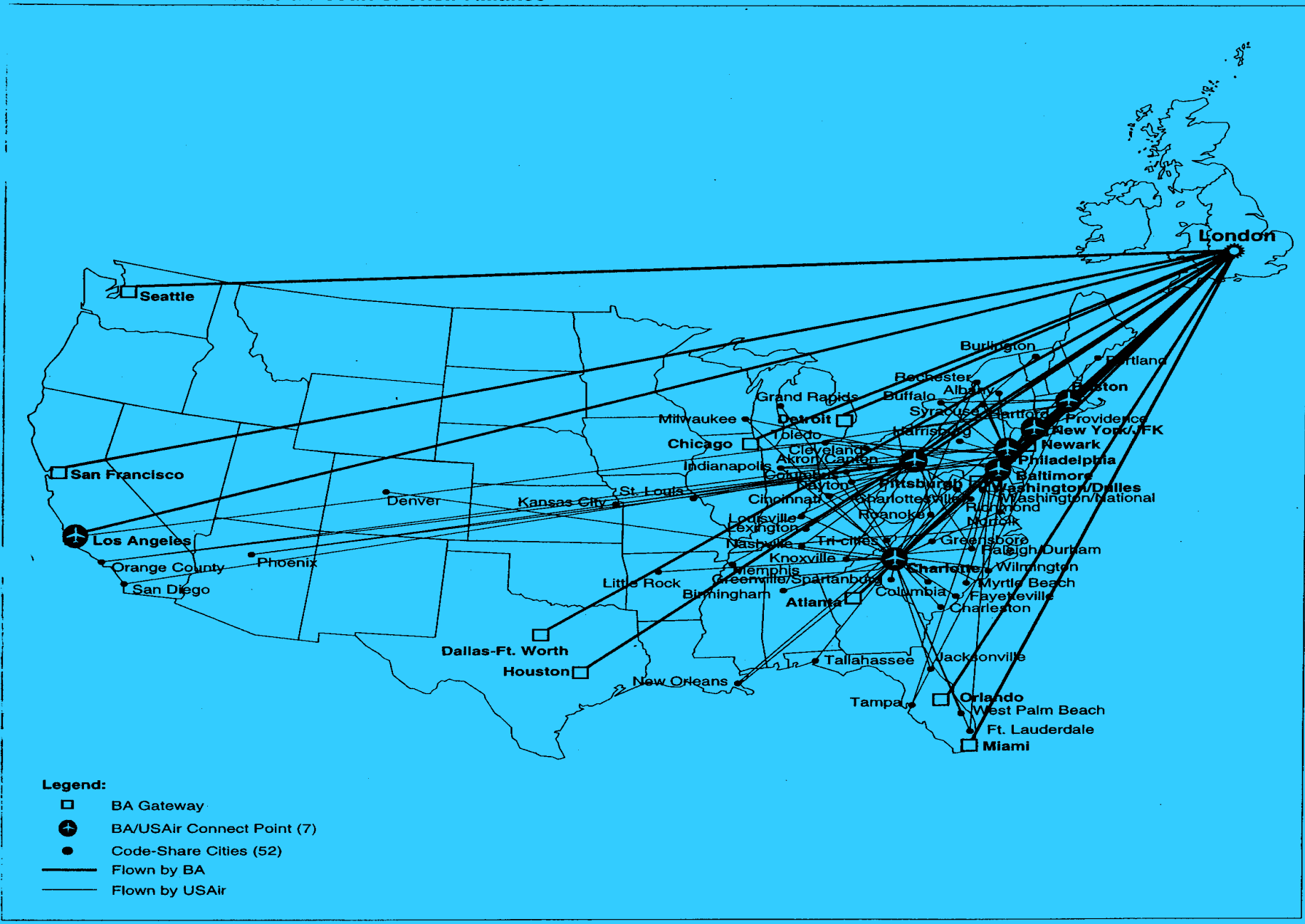
- Alliances link an entire group of cities in the country of each partner
- Involve greater integration from marketing agreements and complementary investments
- Standardization of service

Figure 1.4: British Airways' Flights Between London and the United States Prior to Alliance With USAir



Source: GAO's illustration of information provided by British Airways.

Figure 1.5: British Airways' Flights Between London and the United States and Code-Share Flights Operated by USAir Within the United States as a Result of Their Alliance



Source: GAO's illustration of information provided by USAir.

The first international alliances

- Northwest/KLM (1992)
- British Airways /USAir (1993)
- United /Lufthansa (1994)

Effects: Northwest/KLM

- Increased its annual ridership by 350,000 between 1991 and 1994.
- Increased their transatlantic combined market share from 7 to 11.5 percent between 1991 and 1994
- Increased market share in new linked city pairs from 1.2 percent in 1991 to 3.3 in 1993
- Increased revenues between 125 and 175 U.S. million

Effects: BA/USAir

- Passengers increase from 14,300 in May 1993 to 47,749 between April and December 1994.

Benefits distribution among partners

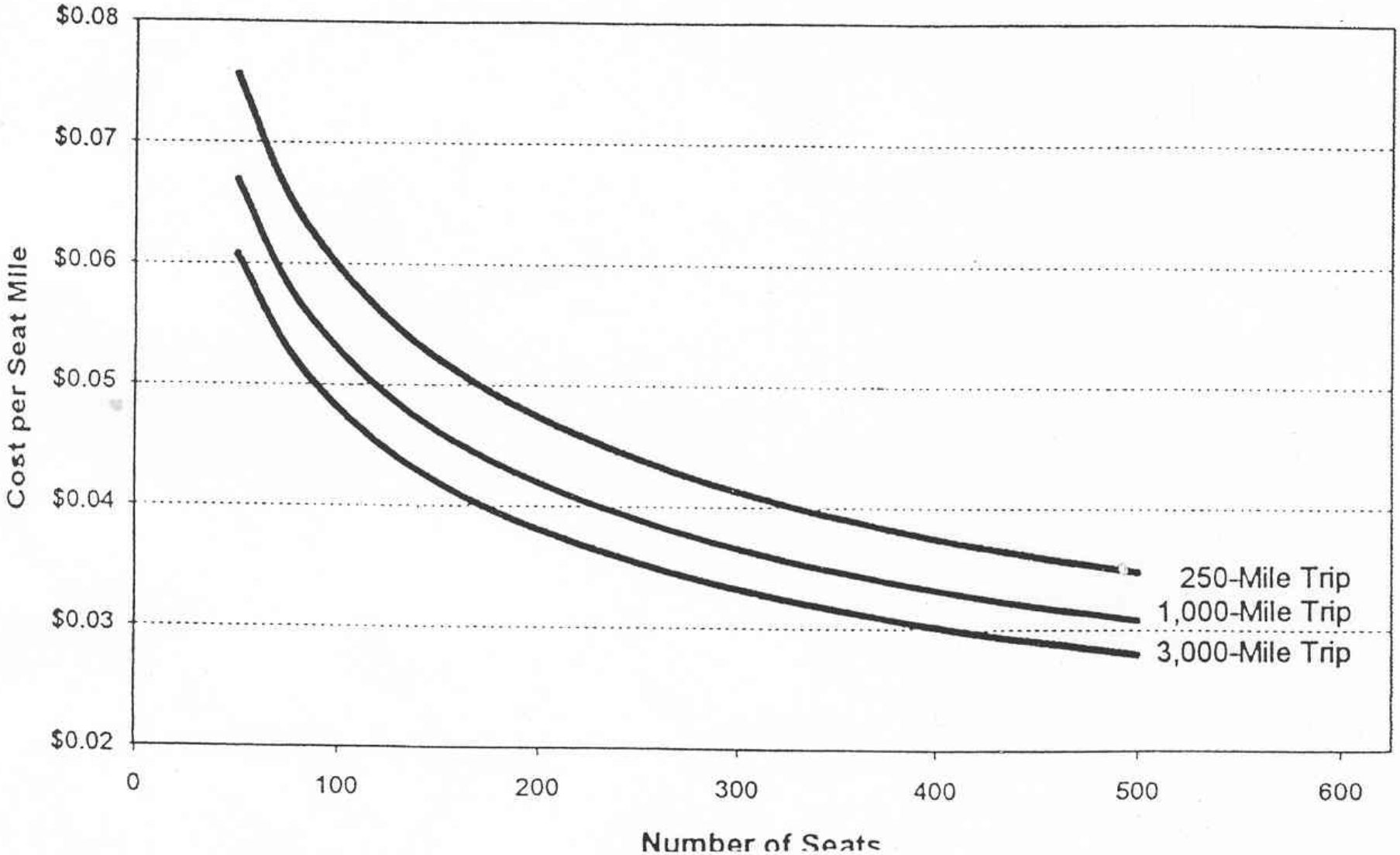
- Geographic scope of code sharing arrangement
- Level of operating and marketing integration
- Revenue distribution

Revenue gains distribution vary

- NW/KLM distributed revenues evenly at the expense of both foreign and U.S. Airlines
- BA/USAir increased revenues accrued only at the expense of airlines in the U.S.

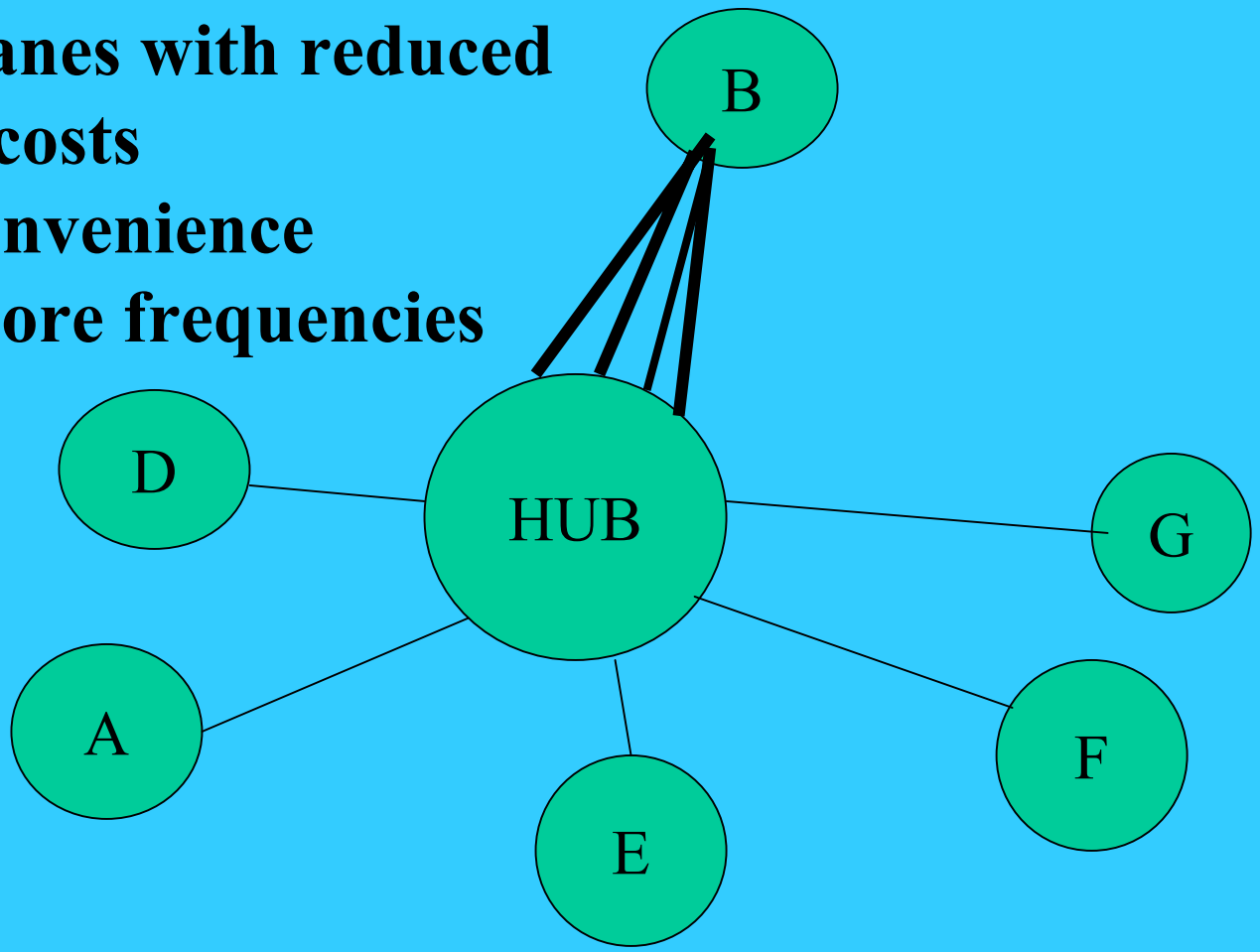
A common trade-off in thin airline markets

- **A daily flight in small airplanes with higher operating costs**
- **A every next day flight with bigger airplanes and lower operating costs**


$0.08
$0.07
$0.06
$0.05
$0.04
$0.03
$0.02
Cost per Seat Mile
0
100
200
300
400
500
600
Number of Seats
250-Mile Trip
1,000-Mile Trip
3,000-Mile Trip

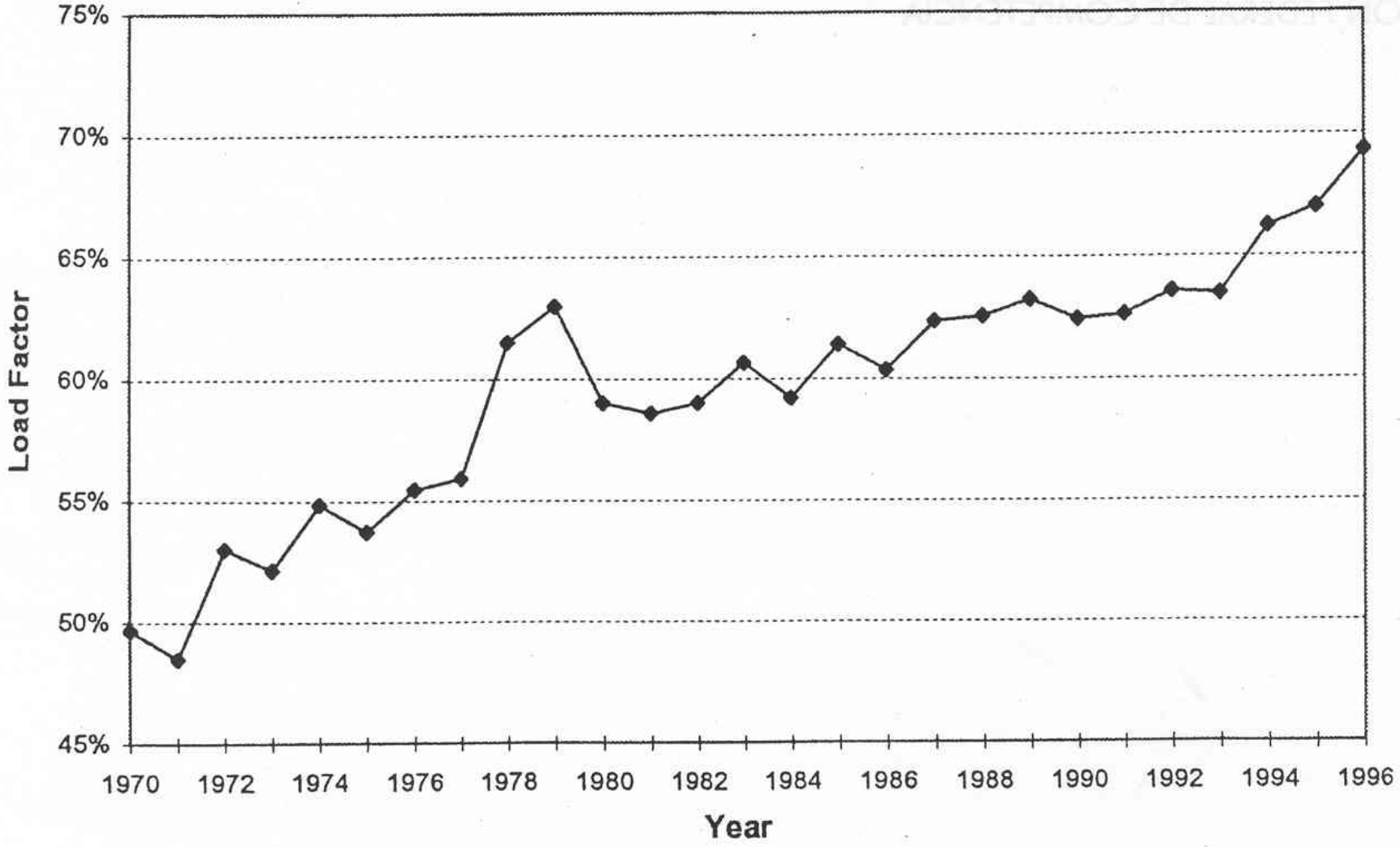
Hub and spoke route organization

- **Bigger planes with reduced operating costs**
- **Higher convenience through more frequencies**



Advantages resulting from the hub and spoke system

- Density economies
- Reduced operating costs by the incumbent hub airline through scale economies
- Reduced connection time and better convenience through more frequencies
- Lower operational connection costs



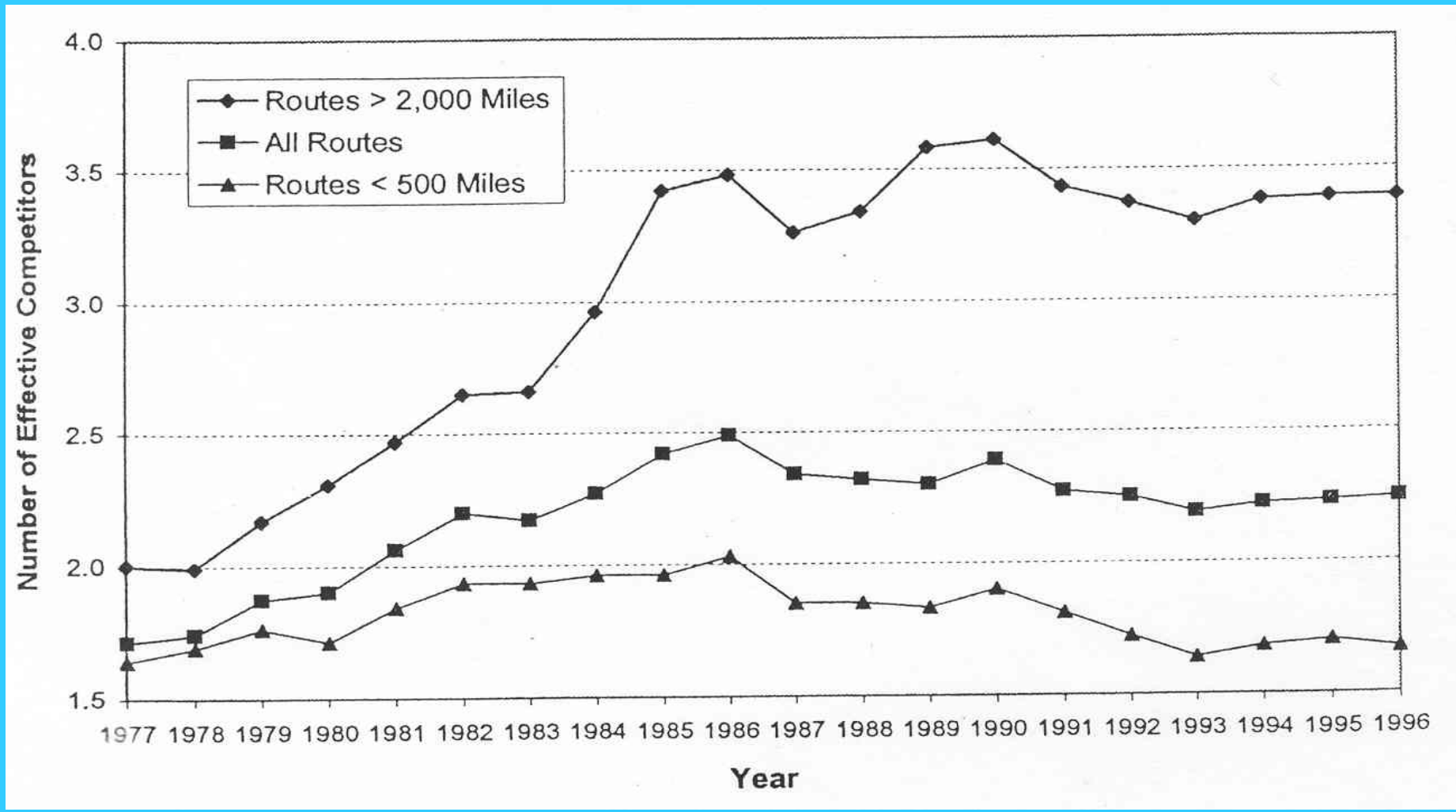
Source: Air Transport Association.

Hubs and barriers to entry

- Oversuply of hub to point city pairs in domestic markets
- Reinforcement of origin-point presence
- Strategic response to entrants through flexible utilization of capacity

Trends on airport concentration between 1977 and 1996 in the U.S.

- Dallas Forth Worth 27.3 to 50.7 %
- Minneapolis- St. Paul 37.8 to 77.9 %
- Miami 38.3 to 59.0 %
- San Francisco 39.4 to 58.8 %


Routes > 2,000 Miles
All Routes
Routes < 500 Miles
Number of Effective Competitors
4.0
3.5
3.0
2.5
2.0
1.5
1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996
Year

Effects of airport concentration on fares in the U.S.

- GAO studies showed that fares at concentrated airports were 22 percent higher in 1992

Competition evaluation criteria

- Consumer benefits created by new online services
- Loss of competition in non stop routes connecting hubs
- Foreclosed domestic markets in hub to point routes

The BA/AA alliance appraisal by the U.S. Antitrust Division

- Small passengers benefit from new online service
- Considerable loss of competition in non stop gateway routes between London and the U.S.specially when gateways are AA hubs in the U.S. (Dallas)
- The new service do not compensate the loss of competition since overlap markets are significantly larger than newly connected routes

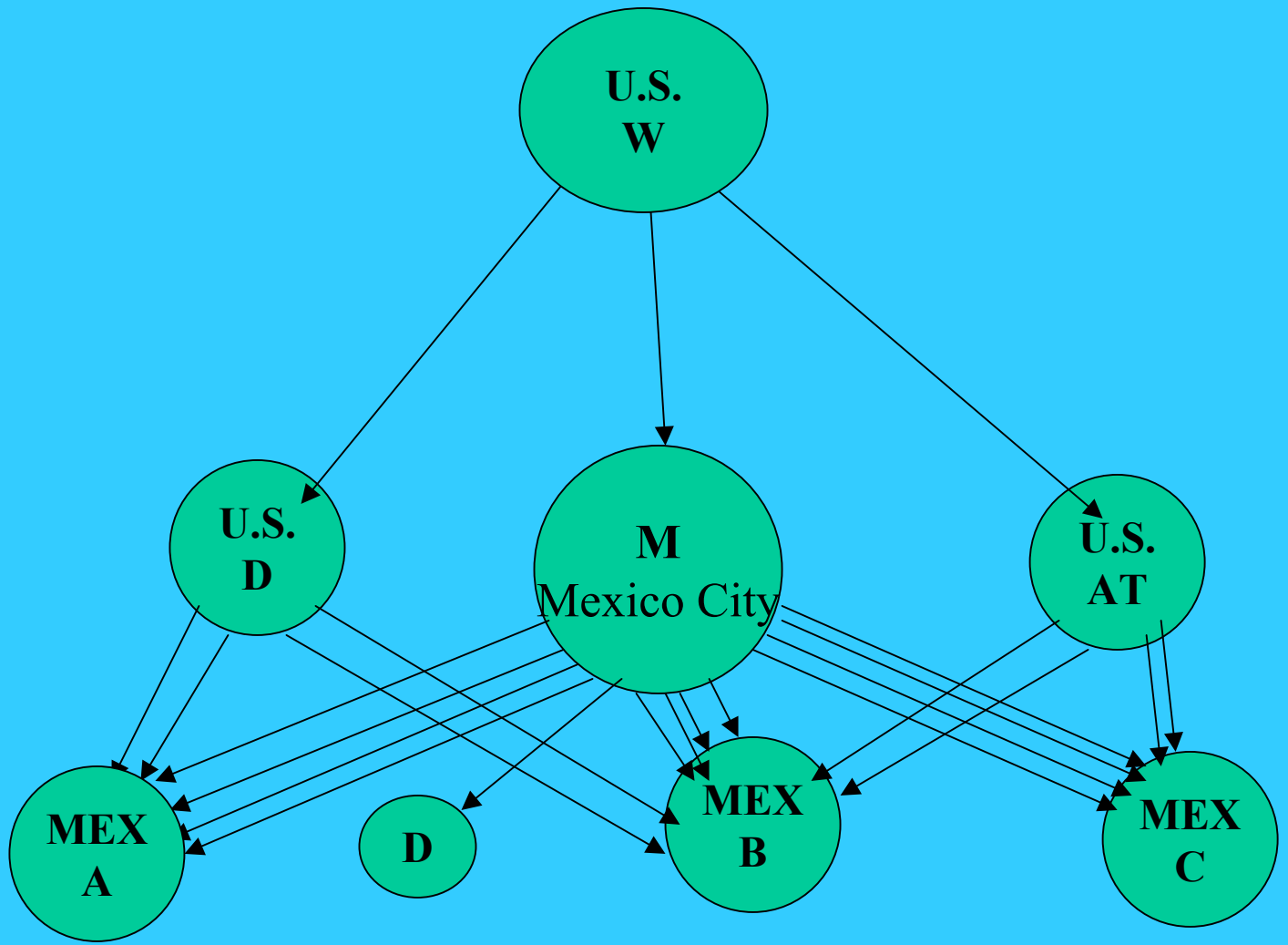
Mexico - U.S. Markets and alliances

- Mexico-U.S. bilateral agreement allows a reasonable number of authorizations in non stop routes
- International city pairs markets are competitive through non stop and connecting flights

Non neutral effects on some Mexican domestic markets

- Mexico city airport is a traffic intensive connecting point for Aero Mexico and Mexicana airlines
- Barriers to entry in domestic city pairs that include Mexico City may increase as a result of some agreements

Features of a hipothetical international alliance agreement in Mexico



Some policy recommendations

- **Appraisal of an alliance agreed non stop routes between hubs abroad and Mexico city**
- **Frequency reduction in alliance agreed domestic high frequency routes considering Mexico City and appraisal of alternative connecting points in Mexico**
- **Slot and other facilities divestitures in high frequency routes considering Mexico City where an alliance participates**

Efficiency Savings Obtained from Air Transport Networks

Dr. Maria Elena Estavillo F.
September 19, 2002

Efficiency Savings

- Central efficiency savings concept for economic policies: produce more with the same resources
- Used to measure efficiency savings:

  economies of scale, scope, network, density
- Air transport is organized in a network

  --conventional interpretation of economies of scale is inadequate

  --Simple cost analysis does not determine the market's structure

  --behaviour of demand must be considered

Types of efficiency savings

- In costs

  Scale economies: the average cost falls with greater production levels (decreasing marginal cost)

  Scope economies: the cost of producing a basket of goods simultaneously is less than producing them separately

- In the demand (network economies):

  Scale economies: demand and earnings increase with greater production levels

  Scope economies: demand and earnings for a group of products is greater than the sum of individual demands for each product

Types...(cont.)

- In air transport networks, the network product increases when:

  - The density of traffic in established routes increases, using equipment with greater capacity
  - The frequency of established routes increases
  - The size of the network increases (number of points attended) maintaining the same density per segment

Air Transport Networks

- The airlines tend to be organized in feeder-distributor networks (hub-and-spoke)
- Direct flights are preferred to flights with stops, so airlines generally offer a mixture of hub-and-spoke with point to point

Generation of distributor networks

Larger planes show lower unit costs

Attractive routes that do not generate sufficient traffic for minimum operation scale

Air transport requires a minimum efficient scale of operation

Possibility of reducing total unitary costs if density of network traffic is increased

Scale and scope economies

Possibility of increasing traffic on most popular routes if frequency of routes is increased

In medium and short distances, the only way to efficiently use equipment is in dense routes when the frequency can be increased or the plane can return to a hub to serve other routes on the same day

Point to point	**Feed-distribution (Hub and Spoke)**
6 nodes	6 nodes
15 segments	5 segments
15 point to point routes	15 routes (5 point to point and 10 with stops)

N destinations are interconnected with only N-1 routes (connection costs for the user should not be too high)

Network Conformations

- **Feeder-Distribution networks can be formed:**
  - From growth and reorganization of a same network
  - By acquisitions among airlines
  - Through alliances and agreements among airlines
- **Forms of alliances and agreements**
  - shared codes
  - blocking space
  - joint marketing
  - franchises
  - cooperation in frequent-flyer programs, maintenance, ticketing recognition, etc.

Benefits of distribution networks

- Achieving scale, scope and network economies
- Attention to thin markets that are not viable in point-to-point networks
- Local users: new destinations, more frequency
- Users of feeder cities: new indirect destinations and greater frequency
- Users of new destinations: connection to the network

Benefits...(cont.)

- Rationalization of the fleet: fewer larger aircraft
- If a connection is assured at lower cost among various airlines in the hub, entry possibilities increase
- On long routes, networks introduce a new type of competition among networks that serve the same origin-destination pair economies
- Economies in maintenance and other ground services, by taking aircraft to the distributor airport more frequently

Benefits of alliances

- Allow realization of efficiencies when established networks cannot merge
- Alliances between regional-trunk or national-international airlines: one single procedure for passenger check-in and baggage documentation: better scheduling coordination
- Alliances between new airlines or small ones with established networks, facilitate entry of small airlines into new markets, with the possibility of attracting business passengers

Benefits...(cont.)

- Allow joint investments for efficient management of connections (example: baggage handling in the hub)
- Expansion of single-window service for the user
- Experience of international alliances: more efficiency and quality in the service
- Important economies in the services offered in the hub

Sources of efficiency savings in costs

- Sections of the network are complementary segments of each origin-destination service

Integration complementary segments (vertical integration) → Eliminates double marginalization

- Over-booking, delay or cancellation of a segment complicates the connection with other segments

Integral planning/operation of services → Minimization of costs of over-booking, delays and cancellations

Sources...(cont.)

- Fixed costs are generally covered in main route flights

Additional passengers from feeder routes → High percentage of the airlines' income

Sources...(cont.)

- Increase occupation factor — Economies of density
- Utilize larger aircraft with lower cost per passenger or cargo unit
- More routes or greater frequency with same equipment — Economies of scope
- Attention to more users and aircraft with same capacity installed in hub
- Increase density of thin routes making them feeders — Scale of minimum operation

User preferences

more alternatives in schedule and destinations in case of last-minute changes

less probability of losing baggage

making transfer less probable

extensive network = more value for user

one single check-in and baggage check

less probability of missing connecting flights

information and search costs decrease when one single airline can be chosen for all trips

Effects on the demand

Effects on the demand = network economies

utility for one passenger depends on how many other passengers participate in the network and the amount consumed by all of them

Effects on the demand

- direct effect
  - the size of the network benefits the passenger directly; greater number of alternate destinations and greater frequency derived from an increase in traffic density
- indirect effects
  - greater density and size of the network makes new points attended viable
  - feedback of effects makes the network grow, since the marginal income of a new passenger is greater than the marginal cost of attending him/her

Sources of network economies

- Extensive networks have fewer cancellations so do not affect their interconnections and because they have more airplanes available in the hub to make substitutions
- Greater frequency in main route flights and new feeder routes attract more users
- Coordination of networks allows decreasing connection time and risk of missing the connection
- Airports with more extensive networks have fewer delays, since the dominant airlines internalize a greater proportion of the delays
- Reduction in transaction costs and risks incurred by the user stimulate demand
- New feeder routes have more potential to stimulate demand if more connections are possible (highest N)

Empirical evidence

Efficiencies in costs:

Caves, Christensen and Tretheway (1983)

-Significant savings in density (1.196>1), in long-term cost per passenger-mile

-Constant returns to scale in the size of the network; costs are not reduced when operating larger networks

- Kumbhakar (1990)

-Increasing returns in density

-Increasing returns in size

Evidence (cont.)

- **Gillen, Oum and Tretheway (1990**)
  -Constant returns in size
  -Increasing returns in density
  -Complementarity between regular and charter services (indicative of network economies)
- **Keeler and Formby (1994)**
  -Constant returns in size
  -Increasing returns in density
  -Counter-complementarity between passengers and cargo (marginal cost of one service increases when the other grows)

Evidence (cont.)

Network savings:

- **McShan and Windle (1989)**
  - economies in network design: reduction of costs when feeder-distribution scheme is intensified
- **Oum and Tretheway (1990)**
  - less lag relative to most-desired schedules
  - better route time in flights with stops
  - positive net effect for the passenger with 160 minutes saved: 120 additional route minutes, minus 280 minutes of less lag due to greater frequency of flights
  - Airports with more extensive networks have fewer delays: increase of 20% in concentration reduces from 0.3 to 1.2 minutes average route time for all the flights in the airport.

Evidence (cont.)

- **Brueckner and Whalen (1998)**
  - transatlantic routes with various segments are 18 to 28% more economical when offered by one single network than when different airlines are involved
- **Gonenc and Nicoletti (2000)**
  - strong scale economies when market size increases
  - economies of density when the average aircraft size increases
  - economies in the use of capital as the average size of market and aircraft increases
- **Mayer and Sinai (2002)**
  - feeder-distributor networks have fewer cancellations than point-to-point networks.

Conclusions

- In transportation networks, conventional interpretation of scale economies used in the manufacturing industry is not adequate
- Empirical evidence shows:
  - Economies of density in costs
  - Economies in feeder-distributor scheme
  - Economies of scale in demand
  - Economies of scale in use of capital
  - Other benefits: fewer cancellations, fewer delays, net earnings in time

Conclusions...(cont.)

- Network economies in enforce costs efficiencies: when the demand for the network is increased, traffic is increased and greater density and scope economies can be achieved

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SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

Seminar on Competition in the Transport Sector

Competition and Trends in air transport after September 11th, 2001

Fernando Antillón Valenzuela

September, 2002

SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

Air transport is dynamic, with international competition, which is currently going through difficult times and has shown to be

efficient and safe transport

Authority's role:

Support its performance regarding safety, efficiency and quality of service to the benefit of users.

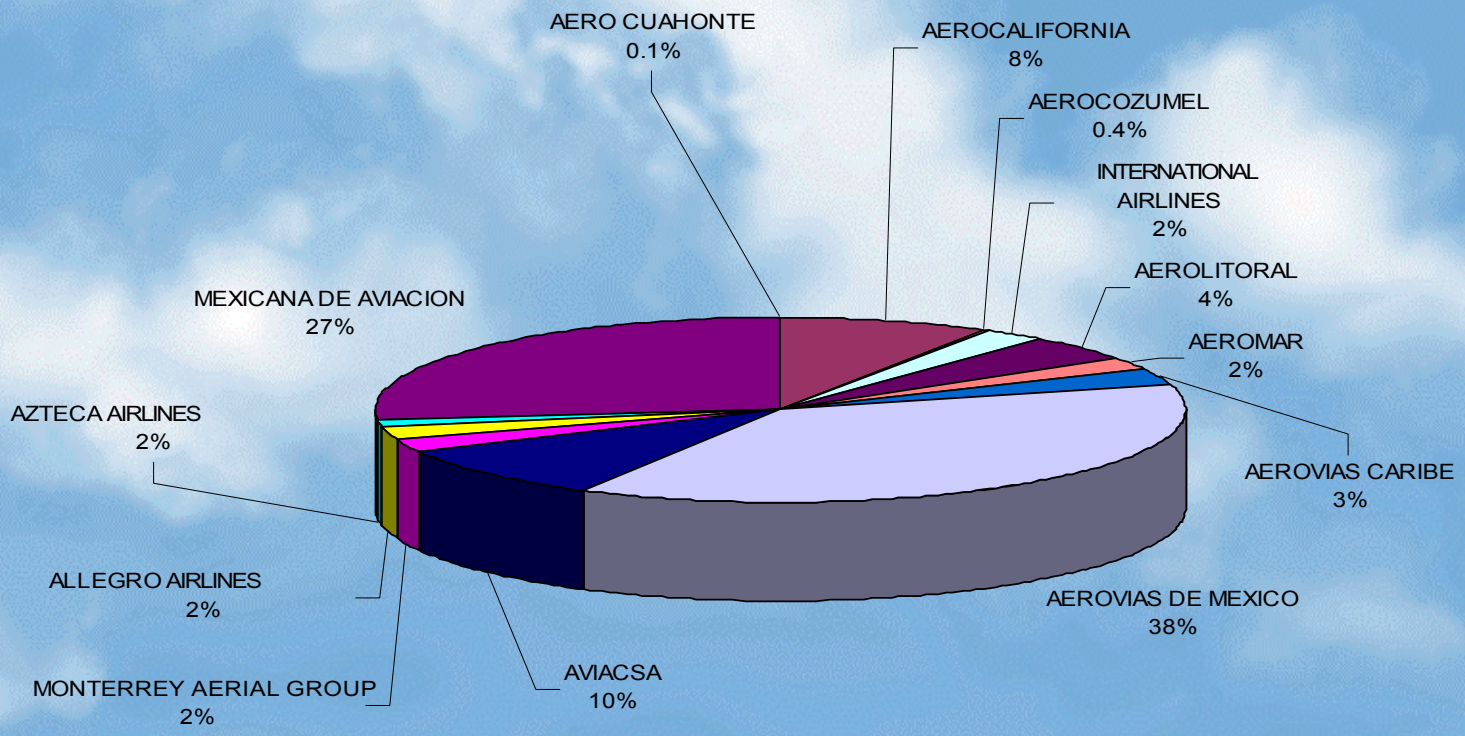
Organization of Airline Industry in Mexico

The airline industry in Mexico is made up of:

- **13 companies that regularly transport passenger by air**
  - **These are classified as follows**
    - **5 main**
    - **8 regional**
- **6 exclusively cargo**

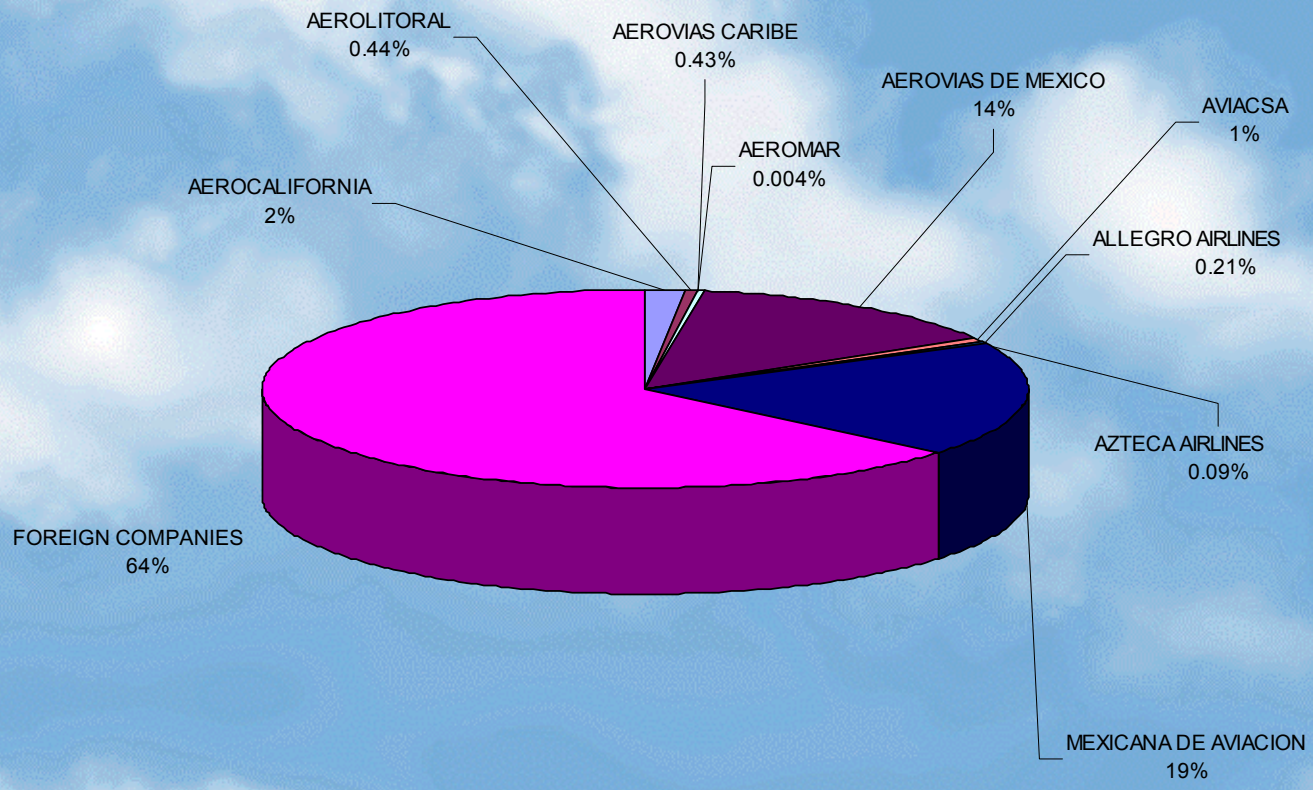
Organization of Airline Industry in Mexico

Share in the Regular Domestic Market



Organization of Airline Industry in Mexico

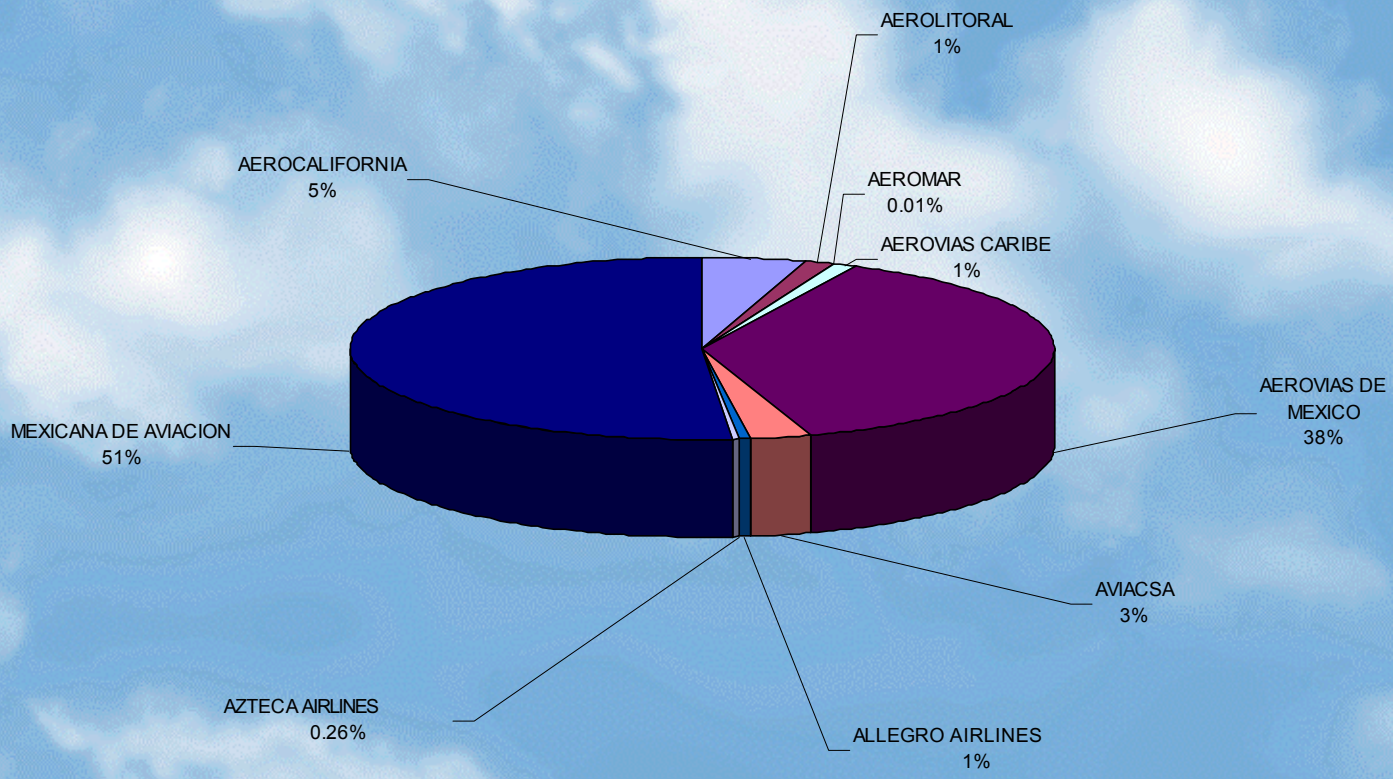
Share in the Regular International Market



Organization of Airline Industry in Mexico

Domestic Companies' share in the Regular International Market

(Out of the 36% of the Regular International Market)



Behavior of the Airline Sector

- From 1996 to 2000 commercial air transport maintained a constant and sustained growth, averaging a 6.9% annual growth rate.

- Quality of service regarding delay reduction also improved, Domestic Airlines increased punctuality by 3% and foreign companies by 1.3%

- For the first 8 months of 2001 passengers traffic increased by 5% with respect to the same period of 2000, reaching its peak in July. Nevertheless, the September 11th events had a strong impact on the industry, which will be analyzed later.

Behavior of the Airline Sector

- **Despite the reduction of the sector's dynamism, due to the world's economic slow-down and September 11th events, the fleet modernization program continues:**

- Mexicana de Aviacion continues the replacement of Boeing 727 for Airbus A320 and A319

- Azteca Airlines, of new creation, enters the market with new generation aircrafts Boeing 737- 300 and 700

- Aeromexico has recently announced the replacement of DC-9 equipments, for new generation 737 –700

Behavior of the Airline Sector

- The aeronautic authority intensifies technical verifications to domestic airines, in order to maintain Operational Security levels.

- Derived from the reforms to the Civil Aviation Act at the end of 2001, the review process for the aviation legal framework began with different industry actors participating

Aeronautical Policy

- **The Federal Government establishes a National Aeronautical Policy with the participation of sectoral representatives and legislators. This is published in the Official Gazette October 29th, 2001.**

- **In the drafting of the National Aeronautic Policy diverse industry actors pariticipated and commented of: Companies, Legislators, Users, Chambers and Unions.**

- **The National Areonautic Policy is regulated and ruled by the Civil Aviation Law and its code of regulations**

Aeronautical Policy

➢**The objectives of the National Areonautical Policy are to guarantee:**

- ✓ **Operational Safety.**
- ✓ **Legal certainty and fairness.**
- ✓ **National coverage and Regional integration.**
- ✓ **Wider population access to air transport.**
- ✓ **Increase services quality towards world standards.**
- ✓ **Just and fair competition in services**
- ✓ **Training for technical aeronautical personnel.**
- ✓ **International Relations under criteria of:**

EFFECTIVE RECIPROCITY and EQUIVALENT MARKETS.

Aeronautical Policy

- **AREAS:**
  - ✓ **Security and Efficiency.**
  - ✓ **Regulation.**
  - ✓ **Prices and tariffs.**
  - ✓ **Commercial Aviation.**
  - ✓ **General Aviation.**
  - ✓ **Technical aeronautical personnel.**
  - ✓ **International agreements.**
  - ✓ **Technological development.**

Aeronautical Policy

- ✓ **Regulation.**

Keeping legislation and rulings updated.

Bringing legal certainty through clear and transparent rules and

Guaranteing corporate governance of domestic companies controlled by Mexicans.

Aeronautical Policy

✓ **Prices and tariffs.**

Structure and maintain prices and tariffs that recognize services and infrastructure costs, foster growth and companies' financial health

To benefit an increasing number of Mexicans.

1. **Air transport:**

   Assesing tariff levels in order to prevent predatory and monopolistic practices, as well as market dominance, strengthening healthy competition in air transport services.

2. **Airports**

   Oversee compliance with tariff regulation, especially in complementary airport services where effective competition does not exist, thus avoiding monopolistic practices.

Aeronautical Policy

- ✓ **Commercial aviation.**

Strengthening it amid an equitable competition environment,

Financial and operationally sustainable

Broad coverage and

Growing participation in the international market.

Aeronautical Policy

- ✓ **International agreements.**

To negotiate international agreements under effective reciprocity and equivalent markets criteria.

1. **Negotiations according to the needs of the country.**

2. **Since unexercised air traffic rights exist, air transport liberalization or open skies are not foreseen.**

3. **Fostering the presence of domestic airlines.**

4. **Promoting mechanisms to strengthen operational safety.**

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September 11th events

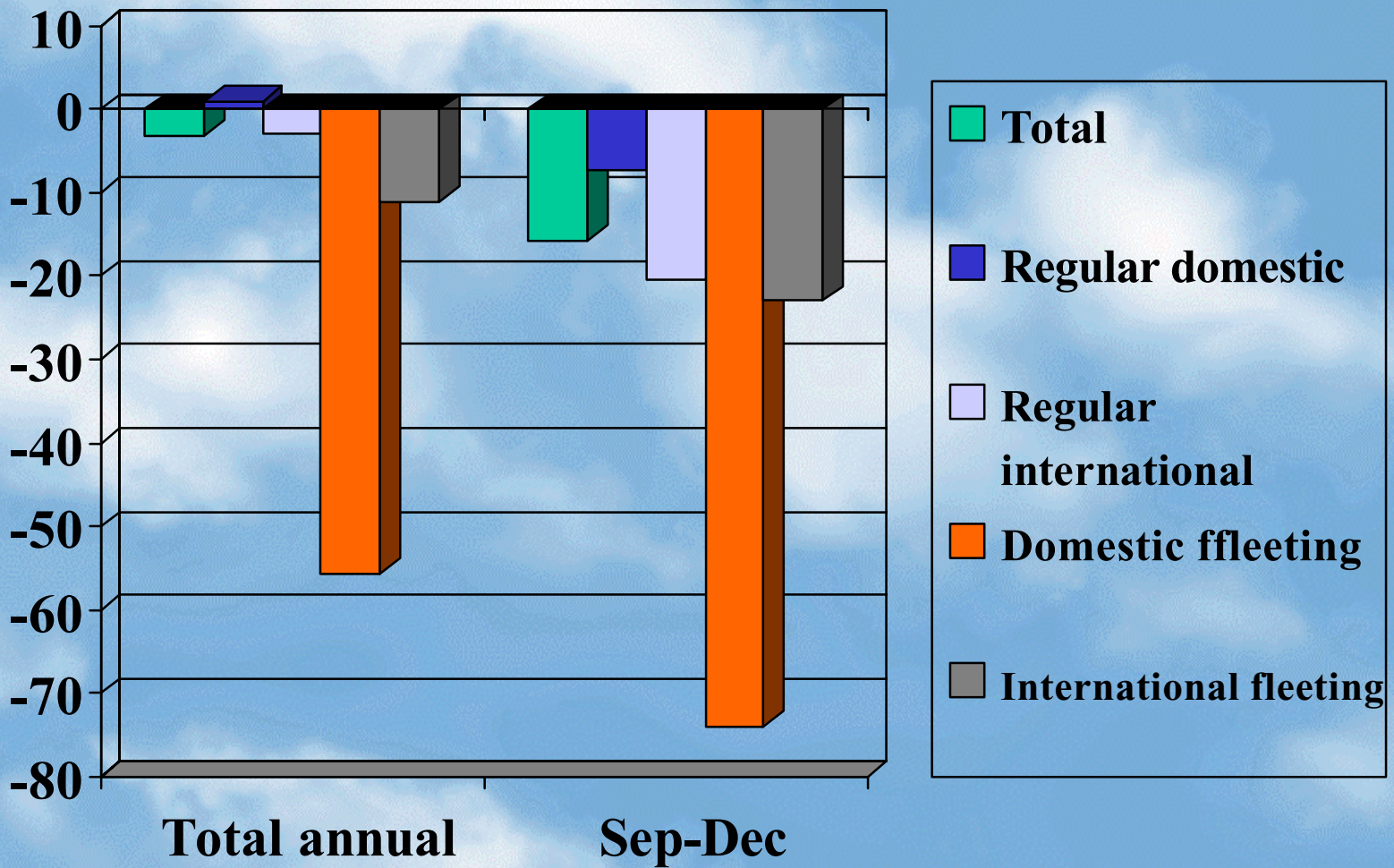
“NO OTHER INDUSTRY HAS EVER FACED SUCH A SUDDEN CRISIS, NOR SUCH AN UNCERTAIN PERSPECTIVE.”

The Economist

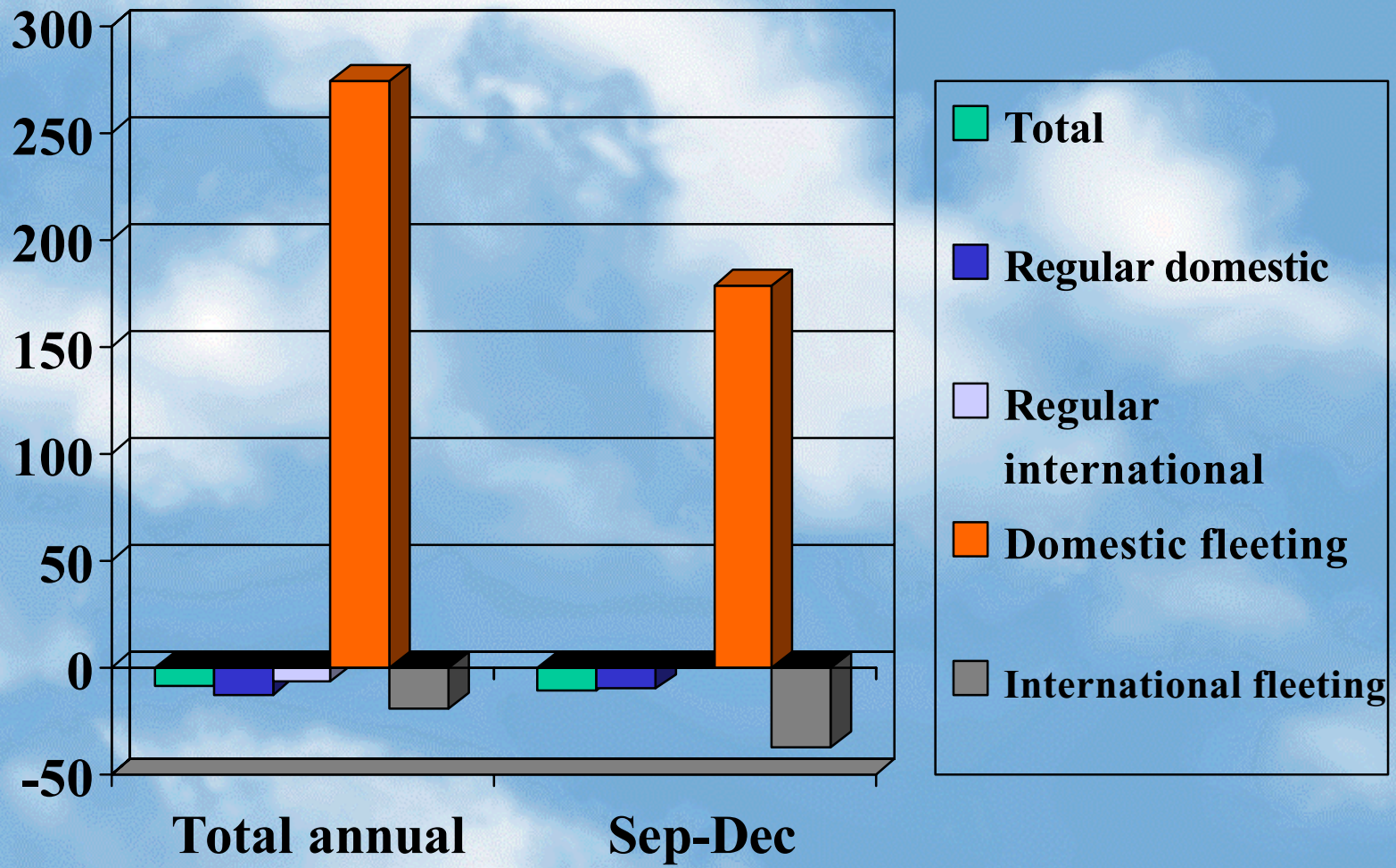
SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

1. Impact of September 11th events on the Mexican airline sector

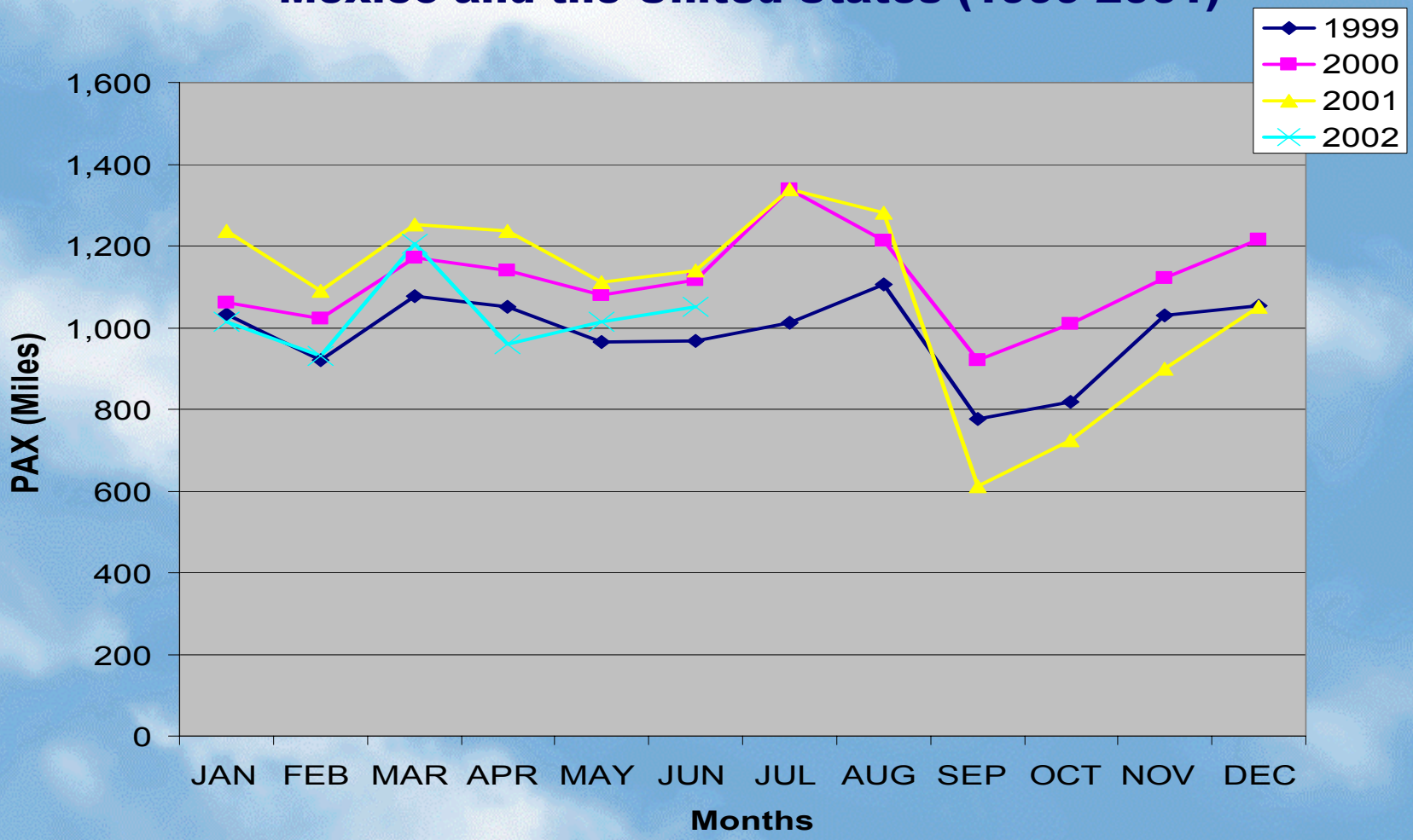
Annual PAX % and Sep-Dec 2000-2001



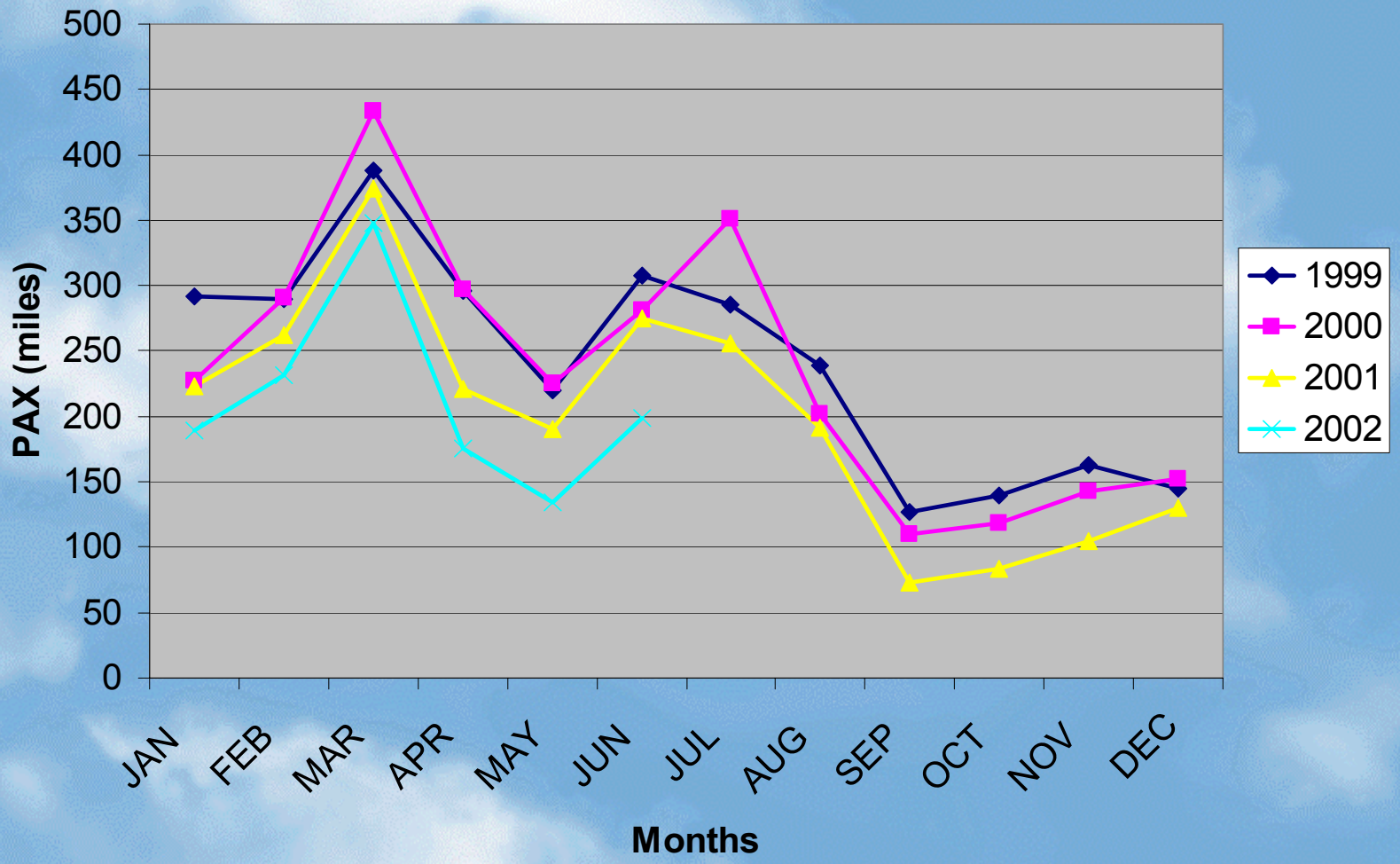
Annual CARGO % and Sep-Dec 200-2001



Transported passengers in regular service between Mexico and the United States (1999-2001)



Transported passengers in fleet service between Mexico and the United States.



Strong impact on insurance and coverage:

September 11th events had a negative impact on the insurance market, among them:

1. **Substantial increase in insurance premium costs: 400% or more**
2. **Aircraft fusselage and war and terrorism endorsement, AVN52D, marginal costs before September 11th, are nowadays substantial.**
3. **Coverage reduction from USD 1,500 million to 50 million**

Government aids to airline sector

Authorization to airlines of a USD $50 payment per passenger, for a single trip, to cover expenses that the increasing airline security measures imply.

Fuel cost reduction)(2%), airport tariff increase cancellation in ASA and AICM, as well as granting a subsidy for aerial navigation services.

Swift attention to proceedings and authorizations according to market

The Congress enacted a Law and the Federal Government issued a support program. The law was published in the Daily Official Gazette on December 29th, 2001.

Law and support program of December 29th, 2001

The law establishes a trust for credit granting at preferential rates.

The objective of the resourses is the payment of insurance premiums.

The period for credit payment is four years.

Currency: Mexican Pesos.

Interest rate: Cetes to 28 days plus 100 base points

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2. Impact of September 11th events on insurance costs

Until now the Technical Committee of the Support for Saving National Air Transport Services Trust has authorized credits to National Airlines for the amount of $352,318,542 Mexican Pesos (USD $38,101,533)

Prospectives of Civil Aviation in Mexico

- ✓ **Mexican aviation has been experiencing a recovery in passenger transportation. From October 2001 to June 2002, the industry has recovered 19%, by passing from a monthly average of 2.25 million passengers in October to 2.7 million in June 2002.**

- ✓ **Thsidered jointly with an economic recovery of the USA and Mexico, could mean that in 2003 we would have the same passenger levels of 2001 and, in terms of market value it would happen until 2004.**

The Air Transport Market in Mexico

Adalberto García Rocha

The Air Transport Market in Mexico

- **Internal Market**
  - Closed Market
  - 25% of foreign direct investment of 25%
  - Free Tariffs
- **International Market**
  - Bilateral agreements (closed skies)
  - Alliances

Internal Market

- Route is the relevant market
- Competition depends on the number of operators and on the airports system
- Aviation is not a natural monopoly
- Airports are regional monopolies

High market concentration

Cintra's market participation in the aerial market, April 2000					
		Class		Class	
Cintra's		Participarion		participation in	
Participation %	# of routes	in Cintra's Total	Accumulated	market's total	Accumulated
100	108	23.8%	23.8%	18.2%	18.2%
90-100	11	23.2%	47.0%	18.9%	37.1%
80-90	16	31.4%	78.5%	28.8%	65.9%
70-80	8	11.0%	89.5%	11.7%	77.6%
60-70	10	4.5%	94.0%	5.3%	82.9%
50-60	7	2.3%	96.3%	3.2%	86.1%
40-50	6	2.4%	98.8%	4.0%	90.1%
30-40	5	1.0%	99.7%	1.9%	92.1%
<30	7	0.3%	100.0%	1.4%	93.5%
Total	178				
Total market	304				
Source: Information supplied by Airline Companies					

Concentration in the AEE

COMPANIES	ROUTES Number	%	SEATS Number (Millions)	%
1 (Monopoly)	3,445	73.2	3.6	41.7
2 (Duopoly)	1,056	22.4	4.0	45.2
3 or more	177	4.4	1.1	13.1
Total	4,706	100.0	8.7	100.0

Source: Report from the Nordic Competition Authorities No. 1/2002

Air Transport Economics

- Scale Economies

  Company: Fleet size
  Route: Aircraft size

In commercial aviation scale economies are rapidly exhausted

Networks Economies

- Network size
- Density
- Product variety (*scope*): Cargo, Fleet, Complementary Routes

Some of these economies have anticompetitive effects

Competition Issues

Air transport

- Merger control
- Oversight of predatory behavior
- Analysis of frequent traveler programs
- Price collusion through tariff searches
- Non-discriminatory treatment to travel agencies through airline reservation systems
- Discount plans

Competition Issues

Airports

- Non-discriminatory treatment in ground services
- Slots allocation and airport spaces

Demand for Transport

- The average consumer is price-sensitive:

  A 10% price reduction raises volume by 14%. Some estimations reach 40%

- Business travellers are less price sensitive

In 1994:

When the market opened to new companies a "price war" ensued:

Year	Millions of Passengers	Difference
1993	15.0	---
1994	18.4	3.4
1995	14.8	-3.6

Aviation: present situation

- Thanks to competition and deregulation, the main aviation markets are no longer an elite service, and are now a mass industry
- Most profitable companies are smaller in size and operate point to point

Low cost carriers

	Southwest	Ryanair	EasyJet
Aircrafts	332	31	18
Routes	280	43	28
Daily take-offs	2,548	217	144
Profit before taxes	18.0	24.3	8.3

Passengers/Population 1999

	Population	Passengers	Pass/Pop %
Mexico	96.1	38.9	40.5
Spain	39.0	50.8	130.1
France	58.1	26.1	45.0
Norway	4.4	10.5	238.6
US	278.0	596.8	214.7

* Domestic flights

Why competition?

- The goal of competition is to benefit consumers: raise their real income through lower prices
- During the “price war” maybe millons of travellers had access to the air transportation for a short period of time
- Competition will lead companies to find profitability in volume
- Consumers will pay low prices, as in countries whith more competition
- The national route consumer should not subidize the international routes one

Government of Canada | Gouvernement du Canada

Mergers and Competition in the Canadian Airline Industry Recent Experience

David McAllister
Competition Bureau
Industry Canada

Seminar on Regulation and Competition
in the Transportation Sector
Mexico City, September 19, 2002

Canada

Overview

- The *Competition Act* – its administration and enforcement
- Evolution of competition in the Canadian airline industry
- The Air Canada-Canadian Airlines merger
- Government response to the merger
- The post-merger situation
- Conclusions and observations

The *Competition Act*

- Federal competition law statute with both civil and criminal provisions
- The Commissioner of Competition (Competition Bureau) is responsible for investigation and enforcement
- The Commissioner also has the role of competition policy advocate
- The Bureau resides within the Industry Department, but Commissioner is independent

The *Competition Act* (cont'd)

- Criminal cases are adjudicated by the Courts
- Civil cases are adjudicated by a specialized Competition Tribunal
- Cornerstone provisions dealing with merger review and abuse of a dominant market position are both civil and share the same market test of a 'substantial prevention or lessening of competition'

Evolution of Competition in the Canadian Airline Industry

- Began as a virtual Air Canada monopoly in the 1930's
- Over the years some entry was permitted but in a highly regulated 'duopoly' environment
- 1984 Airline Policy further eased entry conditions
- 1987 saw the deregulation of fares, entry and exit via the *National Transportation Act*
- 1988 Air Canada was privatized
- 1995 'open skies' agreement with the U.S.

Evolution of Competition in the Canadian Airline Industry (cont'd)

- Consolidation occurred over many years as Air Canada acquired regional carriers
- Canadian Airlines arose out of a series of mergers involving carriers such as CP Air, Pacific Western, Wardair and others
- WestJet entered in 1996 using the low-cost carrier model

The Merger of Air Canada and Canadian

- 1999 Canadian Airlines faced a financial crisis
- The impending failure of Canadian and the consequent impact on competition, service and employment became a political concern
- The Government sought to achieve an ‘orderly restructuring’ of the industry
- Air Canada emerged as the only option

Policy Advice to the Government

- The Competition Bureau recommended liberalizing foreign competition rules by:
  - Increasing foreign ownership limits from 25% to 49%
  - Modified 6th Freedom - allowing foreign carriers to carry passengers from one Canadian city to another via a foreign hub
  - Establish a new class of ‘Canada-only’ carrier
  - Subsequently advocated reciprocal cabotage

Bureau Review of the Merger

- The Bureau was satisfied that by December 1999 Canadian was a failing firm on the brink of financial insolvency
- There were no alternative purchasers prepared to acquire Canadian
- However, a merger with Air Canada would create a dominant carrier with 90% of domestic revenues and 80% of passengers

Bureau Merger Review (cont'd)

- The issue for the Bureau was whether to challenge the merger and allow Canadian to fail, or to negotiate concessions from Air Canada to mitigate the effects on competition
- The Bureau concluded that liquidation through bankruptcy was unlikely to be a more pro-competitive outcome than allowing the merger with undertakings from Air Canada
- Recognized that undertakings alone would not be sufficient to alleviate serious competition concerns

Government Response to the Merger

- The government declined to accept the Bureau's policy recommendations to allow for greater foreign competition
- Instead, it chose to rely on (a) undertakings obtained by the Commissioner from Air Canada and (b) strengthened provisions in the *Competition Act* to foster competition
- The government obtained employment and service guarantees from Air Canada
- It also implemented a new merger review process giving the Governor in Council final authority on airline mergers, with input from the Commissioner

Key Merger Review Undertakings

Air Canada was required to:

- surrender peak hour slots at Toronto's Pearson airport
- sell gates/loading bridges/counters at facilities constrained airports
- make frequent flyer points available to other Canadian Carriers
- offer interline and joint fares to other Canadian Carriers
- delay commencing 'Air Canada Lite' in Eastern Canada

Airline Amendments to the *Competition Act*

- Statutory cease and desist powers for the Commissioner to halt anti-competitive conduct
  - extraordinary temporary order power
  - maximum 80 days, subject to judicial review and extension
  - to date, used only once
  - authority upheld by the Courts, but is under appeal by Air Canada

Airline Amendments to the *Competition Act* (con'd)

- new regulations defining anti-competitive acts by a dominant carrier in the airline industry:
  - Predation - avoidable cost test
  - Exclusion - essential facilities and services
  - Contributory - strategic use of travel agent commission overrides and FFP's
- Administrative monetary penalties – up to$15 million

Post Merger - Entry & Exit

- Royal Airlines expanded domestic service July 2000, was acquired by Canada 3000 in January 2001
- CanJet launched September 2000, was acquired by Canada 3000 in March 2001
- Roots commenced scheduled domestic service March 2001, terminated May 2001
- Canada 3000 failed November 2001

Post Merger - Entry & Exit (cont'd)

- WestJet continues to solidify its position in Western Canada with more gradual expansion in the East
- Summer 2002 two small entrants, CanJet II and Jetsgo, offering service mainly in Eastern Canada
- Air Canada launches a multi-brand discount strategy - 'Tango' November 2001, Zip in the fall of 2002

Current Litigation

- Application by the Commissioner filed March 5, 2001, alleging predatory conduct against Air Canada
- Case based on Air Canada's response to WestJet's eastern expansion and the entry of CanJet in 2000

Current Litigation (cont'd)

- Commissioner must satisfy the Tribunal that:
  1. Air Canada is dominant,
  2. That its conduct constitutes a 'practice of anti-competitive acts'
  3. Resulting in a substantial lessening of competition

- Core issue is whether Air Canada has operated or added capacity at fares 'below the avoidable cost of providing the service'

Tribunal Hearing Phase I

- Commenced August 29, 2001 adjourned post September 11, to resume November 25, 2002
- Economists agree that avoidable cost is an appropriate test for predation
- Disagree on how the test should be applied

Tribunal Hearing Phase I (cont'd)

- Tribunal asked to focus on four questions:
  - What costs are avoidable and when do they become avoidable?
  - What is the relevant unit of capacity to consider?
  - What is the appropriate time period to consider?
  - What consideration on the revenue side, if any, should be accorded to system contribution?

Current Domestic Market Situation

- 2 ½ years after the merger, Air Canada still has about 85% of domestic revenues and over 70% of passengers
- Strong competition from WestJet on short haul routes in Western Canada
- Competition in Eastern Canada and on trans-continental routes weak or non-existent
- Air Canada dominates time sensitive business sector with superior frequencies

Current Situation (continued)

- Air Canada facing challenges
  - post-merger integration proved difficult
  - last quarter profitable, but debt over $10 billion
  - needs to reduce costs in the new environment
- Public opinion
  – only 15% of Canadians feel the industry is working well
  – 84% of Canadian's favour a North American 'open skies' arrangement

Conclusions and Observations

- Although Governments may move to privatize and 'deregulate' airline services, they never completely give up custody of the industry

- The regime of bilateral agreements that governs international air service, domestic ownership requirements and factors such as employment, service to small communities and national pride frequently collide with competition objectives

Conclusions and Observations (cont'd)

- It appears that the industry world wide is undergoing a period of fundamental change
  - high-cost, full-service network carriers are losing money
  - low-cost carriers are expanding
  - consumers view air travel as a commodity and are willing to accept reduced levels of service in return for low fares
  - full service network carriers are under great pressure to reduce costs, gear their service toward the new realities of the market

Conclusions and Observations (cont'd)

- These pressures may lead to more mergers and increased concentration
- Once a dominant carrier emerges, the challenge for competition authorities is to define the limit to which dominant incumbents can respond to LCC entry
- However, this is easier said than done

Conclusions and Observations (cont'd)

- The outcome of current anti-trust cases in Canada, the U.S. and Australia will help to demonstrate the extent to which framework competition law can be used to foster and protect competition in the airline industry

- Actions such as these should not be a substitute for market based solutions such as removing regulatory barriers to foreign competition - 'real open skies'

More Information

- Bureau's website for background, legislation and enforcement guidelines:
  competition.ic.gc.ca

- Tribunal's website for pleadings, orders and decisions:
  www.ct-tc.gc.ca

Mexico City's International Airport.

Mechanism for Allocating the Landing and Take-off Schedules (SLOTS) in the MCIA, and its role in national air transport competition.

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Escritorio Particular

The growth of goods and services markets in the international environment requires mechanisms that foster the development of commercial alliances. These mechanisms must consolidate foundations that contribute to certainty and clarity to investments. For that reason, the main purpose of the mexican air legislation is to encourage an agile and safe airtransport that satisfies the trend of the airport services demand, promoting at the same time an equitative competition which enables the Mexican airport system development, so as to take advantage of its great infraestructure potential.

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The MCIA is the main airport in Mexico and it offers several services. In order to provide them in a timely fashion services must be planned in advance according to the requirements of the different airlines. Under this basis, the operation schedules (SLOTS) are assigned to the intended flights.

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The SLOT is defined as the programed available time for arrival or departure assigned in an ariport for maneuvers of a particular aircraft during a specific date. An assigned SLOT considers the whole airport installed capacity, for instance, lanes, terminals, etc.

SLOTS are allocated according to the flight characteristics, considering permanence, temporary and occasional factors.

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The industry of commercial passengers air transport is distributed according the type of travel:

Business 50%,

Tourism 30%

And others 20%.

The type of SLOT that the MCIA must program is determined considering these demand indicators and the underlying passengers requirements. While the needs of business travelers are the day, hour, frequency and periodicity of transport, tourists, and other travelers seek comfort and flexibility of the available services during their origin –destiny and will thus adapt to the existing supply to travel.

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Due to operations constant growth, it is crucial that SLOTS allocation is done in such manner as to allow the prompt demand satisfaction. **Thus, current airports provisions set elemental criteria, which consider that this allocation must be done in a clear, equitative and expeditious manner, giving all the service demanders the same possibility of satisfying their SLOTS needs.**

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CRITERIA

a)The following flights will have precedence:

i) Regular Passengers,

ii) non-regular passengers in the chartering modality

iii) regular weight,

and iv) non-regular weight in the chartering modality;

b)The air carrier using one schedule during the previous period, will have priority over it for a given period;

I. The operation schedule of the airdrome;

II. The definition of lapses in platform, according to the clasification of aircrafts fuselage sizes;

III. The operation capacity of suppliers of airport and interrelated services;

IV. The availability of non-used schedule, and

V. Fulfilling requirements for processing the schedule application.

The Airport Law published on December 14, 1995 empowers the MCIA manager (Art. 63) to assign SLOTS and the turn priorities for the aircrafts operating in the terminal, according to non-discriminatory equitative criteria, based on the corresponding Regulation published on 17 february, 2000.

"Re-allocation process of timetable (SLOTS)".

The planning of MCIA operations is a key factor to provide airport services of the quality and quantity demanded by airlines of this air terminal. Thus, it is essential to perform this planning according to real schedules, which must be based on representative statistical data, so as to be useful for the commercial and operational areas.

On the other hand timetables reflect excess demand in MCIA peak operation hours which have revealed saturation situations in certain hours, during the past three years.

Also the administration and the airlines associated to CANAERO, (national chamber of airtransport) participated in the "Re-allocation process of landing and take-off hours".

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The statistical analysis of the past three years shows peak-hour indexes caused by the airtransporters demand for services.

These facts made us rethink a process that could order and regulate operation, which was formalized through the re-arrengement of the landing and take-off timetable and the establishment of allocation guidelines.

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We thus seek to maximize the use of insfrastructure capacity, making the assignments more efficient through an homogeneous distribution and avoiding constant increases in rush hours, since this means an unbalance among components generating operations delays and inconveniences.

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One of the fundamental issues to re-arrange the operation schedule, was to establish the capacity of the MCIA infraestructure, which was calculated based on the documents AC-150/5060-5 (FAA) and the Airport Terminals Reference Handbook. (IATA).

" THE SLOTS CONTROL SYSTEM" was thus developed and implemented since july 2000. The MCIA administration has assigned operation schedules to flights taking place in this terminal according to airlines requests.

This control system compelled the airlines to change their flight planninng, tò match the available schedule.

Thus, the lack of observance of the allocated schedules increased, causing delays in operations performed within their assigned operations hours.

Capacity, measured in terms of the number of air traffic operations that can be handled in the MCIA, is specified by the SENEAM according to the following data:

54 Operations per hour and

9 operations every 10 minutes.

According to the number of times these 54 operations have been outnumbered and analyzing the observance of the assigned schedule, it is crucial to establish strict order in the allocation of the landing and take-off schedule.

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That is why, both the airlines and administration of the MCIA, conciliated the schedules, enabling the development of a new allocation process based on fixing windows and rilles for their operations.

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This new procedure simplifies schedule allocation and adds transparency and versatility to operations, leading to a more certain planning horizon for the airlines.

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To continue providing timely, safe, permanent, secure, homologous and impartial airport services, this administration began the proccess of re-assigning the landing and take-off schedule by matching the requests of each airline.

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This procedure took place during 2001, and the airlines involvement was a main variable, since they managed to match their operations schedule demand with the supply previously defined by the MCIA, according to the installed infraestructure capacity.

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This agreement, was based on average real operation schedules from 1998 to 2001, leaving out those operations where the difference between their authorized hour and the real operations was more than 60 minutes.

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Variables other than the analysis of operation schedules accomplishment were considered. These included environmental factors characterizing the operations routes, aircrafts models, lapse of permanence by operation kind national, international, mixed,

origin-destiny type, origin-hangar, origin-destiny or hangar-destiny, aircraft sequencies and the bottlenecks characteristical of the wheels and platforms, according with the hour operation to determine the gaps between landing-position and position-take-off, and changes in wind direction for using the lanes.

To define the combination of airlines operating in each 10 minute-blocks, real operation was analyzed for 1998, 1999, 2000 and 2001.

Several operation mixtures were generated under these circumstances that allowed setting correct parameters to perform the statistical analysis and the new operations schedule was agreed with the different airlines.

This process of schedule allocation benefits the MCIA and the airlines as well, since;

1.- It simplifies the schedule allocation process.

2.- A unique schedule was assigned according to the number of flight-operation, facilitating the conciliation of requested schedules.

3.-Schedules were allocated indefinitely.

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4.- It grants the airlines greater certainty in commercial planning, since they have assigned schedules without requiring further authorization.

5.- It favors the logistics of operative areas since they can program their services for specific operation schedules in advance.

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6.- The observance of assigned schedules increases, since these are based on real operation and schedule accomplishment is graded, not the flight number.

7.- Airlines can make use of their assigned schedules for different operations, independently of the number of flights, destinies and equipment by informing these changes to the Operative Control Center (OCC) and to the Services for Navigations in Mexican Aerial Space, (NSMAS). There is therefore no further need to request a new schedule assignment.

8.- In high seasons, the airlines are allowed to make use of their assigned schedules for temporary flights.

9.- To rate performance a tolerance interval of (+,-) 15 minutes is considered, this gives the airlines a 30 minutes margin in their authorized spaces to locate their commercial schedules.

The constant growth of the operations in this air terminal makes the strict control of assigned schedules, a key issue. For that reason, a joint effort of airlines, authorities,

Service suppliers and the MCIA administration becomes crucial if the current security and efficiency standards are to be preserved.

The central airport, out of a total of 60 conforming the airports network of this country, is the main origin-destiny of the domestic-commercial passenger air transport market. Indexes show an increase in the passenger volume from 49.3 to 59.1 millions in the 1997-2001 period, which represents increase of almost 20%.

During the current year, demand has become steady, and a recovery is foreseen by the end of 2002.

STRENGTHENING OF THE REGULATION AND COMPETITION MECANISMS

The growth in MCIA operations during 1999, 2000 and 2001, has lead operation capacity to be exceeded in peak hours of the schedule (54 per hour) more than 52 times a year. According to the Airports Law and its Regulations, this is enough reason to declare a schedule glut.

However, this pronouncement is not enough to solve the saturation of the most demanded hours, since this is caused by the lack of observance of the assigned schedules. This leads to flight delays, and a lower quality passenger transportation service, higher incidents and accident risks due to greater aircraft and land support vehicles maneuvers in the operational areas and to greater crowding of passengers in the main building.

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After conciliating the allocated timetable, it was fixed (historical basis) and airlines were allowed to use them irrespectively for arrivals-departures, origin-destiny, flight number or aircraft model.

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This gives the airlines a greater freedom to use the assigned schedules to match them with their demand. Conciliation enabled a better operations distribution for non-crowded hours.

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MCIA operations are planned since June 25th 2002 based on this new schedule allocation. The observance of these schedules has been 19% higher compared to the same period in the previous year,

increasing certainty in airport and complementary services logistics of MCIA aerial operations. Consequently, operation costs of the service suppliers, airlines and the airport itself have decreased. At the same time, service quality has improved.

The influence of the MCIA on supply and demand of airport and complementary services of the national airport system is decisive. During 1999, 2000 and 2001, it accounted for around 36% of the passengers transport regarding national and international arrivals and departures.

This is an influence of 72% on arrivals and departures of the origin and destiny airports.

The observance of air operations schedules arriving at and departing from the MCIA, can aid to increase the number of timely incoming and outcoming flights along all the national system, with the corresponding gain for passengers.

Airport legislation empowers the MCIA manager to remove SLOTS of airlines that do not fullfill international observance standards, stressing that competitive non-discriminatory conditions

give certainty to the investor through a clear framework for airshippers participation. These measures thus become regulatory mechanisms of the air transport service supply.

The re-allocation process follows the standards used by the IATA to clasify third level airports (totally controlled airport). It is therefore considered that this procedure must contribute to the development of a national SLOTS allocation system.

This implies, given prevailing conditions, that MCIA must be considered the moderator of the timetable allocation for the airport network operations within country.

The joint actions that the aiport, authorities, airlines and suppliers have implemented in the past months are aimed at quality service expectations and to adjust to the growing demand waiting just around the corner.

Thank you for you kind attention.

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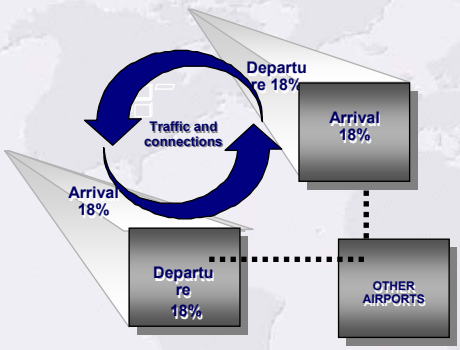
The demand and supply of airport and complementary services for passenger transport provided by the MCIA,accounts for around of the 36% of the total national market which directly influences the airport system in about 72%.



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SLOTS ALLOCATION AND COMPETITION IN CIVIL AVIATION

Salvador Apodaca Sarabia

Seminar on Regulation and Competition

Mexico, September 19th, 2002

1. Legal Framework

- Federal Law of Economic Competition and its Rulings
- Aviation Law
- Airports Law
  - Rulings of the Airports Law
  - Concession Titles

2

2. Aims of the Legal Framework

- **Final users welfare**
  - Prices
  - Options
- **Economic efficiency**
  - Production
  - Allocation
- **Efficient markets**
  - Competition
  - Access

3

3. Capabilities of the Legal Framework

- **Competition defense**
  - **AL**. Favors structural conditions of competition.
  - **CL**. Avoids restraints to markets functioning.
  - **AL+CL**. Establishes markets conditions.
    - ➠ Regulation in any case.
- **Regulation or Ad Hoc measures when:**
  - There are no “reasonable” competition conditions
  - Saturation conditions are determined

4

4. Mexican Airport System

- **Vertical separation airlines-airport**
- **Only one airport per origin-destination site**
  - Substantial market power of airport firms
  - Possible competition among “hubs”
- **Emphasizing regulation on:**
  - Prices and tariffs of airport services
  - Quality
  - Facilities

5

5. Vertical and Horizontal Separation in Airports

- **Airport services**
  - Originally to concessionaires
  - Through third parties
- **Complementary services**
  - By concessionaire
  - By airlines or third parties
- **Slots**

6

6. Productive efficiency

- Usage of airport facilities
- Hourly tariffs
- Rents
  - Airlines
  - Airports

7

7. Hourly Tariffs in the Aiport System

- 27 airports without hourly tariffs
- 7 airports with hourly tariffs

Airport	A	B	C	D
MCIA		8-8:59 y 10-10:59	9-9:59 y 18:18-59	23-6:59
Guadalajara		21-22:59		23-6:59
Monterrey		8-9:59 y 18-21:59		23-6:59
Mérida		10-12		
Tijuana		9-9:59		23-6:59
Puerto Vallarta		13-17:59		23-6:59
Cancún		13-15:59		23-6:59
Acapulco		13-14:59		23-6:59
A: Normal;**B:** Critical; **C:** Extracritical; **D:** Night				

Tariffs apply to landing services, platform parking boarding/unloading, mechanical boarders, platform parking prolonged stay and passengers and luggage inspection.

- MCIA controlled airport

8

8. Slots Administration

➡**Airports**: Exploitation rights

➡**Airlines**: Usage rights

- Historical
- Exchange and cession

➡Regulation under saturation conditions

- Allocation by biddings
- Extension of airport facilities

9

9. Conclusions

- **Airport System Privatization**
  - Regulation
  - Competition promotion
- **More consideration to competition issues**
  - Alternate airports
  - Vertical and horizontal separation
  - Slots cession and bidding
- **Controversies solution regarding competition issues in regulation**

10

Restructuring the Railroad Sector for Competition: The International Experience

Russell Pittman[1]
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The railway sector of economies around the world is in a state of flux. While the electricity and telecommunications sectors receive all the media attention, the railway sector is quietly being transformed in ways that will have profound effects on economic efficiency, growth, and income distribution. It may not be exaggerating to say that the decisions made and the steps taken to reform and restructure the rail sectors of different countries will be among the primary determinants of which economies prosper and which stagnate in the first quarter of the twenty-first century. This is especially true for countries in the developing world, still heavily dependent on the movement of bulk commodities like coal, minerals, grains, and wood products for their economic vitality.

These reforms that are taking place in railway sectors throughout the world are largely driven by economic necessity. The traditional state-owned, state-operated, vertically integrated, monopoly railroad has not performed well. Overmanning, politically determined prices and investments, and monopoly inefficiencies have resulted in large and increasingly unaffordable government budget deficits at the same time that they have retarded the maintenance and improvement of these systems on which entire economies depend. Most governments and most policy makers have now accepted the necessity of certain basic reforms, including significant private sector involvement in both infrastructure and operations and the separation of the government's role as owner/operator (to the extent that this role remains at all) from its role as policy maker and regulator. Although many, many details remain to be worked out in particular situations, most of the broad questions in these areas may be said to be largely answered.

At least one broad and important question remains very much a matter of question, contention, and discussion, however: how–if at all–is it possible to create competition in the railroad sector? Replacing a state-owned monopoly by a private monopoly may in some cases result in improvements in efficiency, but it is hardly a satisfactory policy recommendation. For some shippers under some circumstances, competition from carriers using other transport modes may constrain any monopoly power possessed by the railroad–this is especially the case for shippers of manufactured goods in countries with good highway systems–but many shippers, again especially in developing countries, are going to be dependent on rail transport for the foreseeable future. Can we create competitive options that displace, at least to some degree, both the inefficiencies and abuses of monopoly and the heavy hand of state regulation?

Railway Reform: The Menu of Options

In considering the various alternatives available for railway reform and liberalization, let us begin by distinguishing between arrangements that rely fundamentally upon single companies maintaining control of both railroad track and the trains running over the track–vertical integration–and arrangements that rely fundamentally upon competition among different train operating enterprises over a single set of track–partial or complete vertical

[1] The author is Director of Economic Research and Director of International Technical Assistance in the Economic Analysis Group, Antitrust Division, U.S. Department of Justice. These remarks are prepared for the Seminar on Regulation and Competition in the Transportation Sector, sponsored by APEC and held in Mexico City in September 2002. The author is grateful to Pascual Garcia de Alba, Rebeca Escobar, and Elias Mizrahi for many helpful discussions on the issues discussed here. The views expressed are those of the author alone, and do not necessarily reflect those of the U.S. Department of Justice or the U.S. Government.

separation. The former arrangements generally characterize railroad operation and reform in North and South America, while the latter are associated, though so far as much in design as experience, with European railroads. I will describe in more detail several specific variations of these arrangements that have been implemented or proposed, and then consider the circumstances under which particular reform models seem most promising.

Systems Maintaining Vertical Integration

The US System. In the US, as in England for the first century or so of rail operation there, private railroad companies own both tracks and the trains that run over them. A particular location may be served by one or more than one railroad, and it is common for a pair of major cities to have two or sometimes three "parallel" railroads operating between them, competing for customers.[2] Furthermore, it is not always necessary for one railroad to serve a shipper "directly" to provide service, or to provide competition to a second railroad; depending on the characteristics of the commodity, shippers may send their goods many kilometers by truck or water to or from a second rail line.[3] For many commodities (especially manufactured goods) over many routes (especially shorter ones), motor carriers provide intense competition to rail carriers for the entire haul, or indeed may have already taken most of the business away from the railroads. In some locations, water carriers provide strong competition to rail. The majority of tariffs have been deregulated, and the majority of goods travel under contracts between railroads and shippers. At particular bcations with multiple shippers–such as a city–the individual railroads may agree among each other to form a "switching area", where each railroad may run its train on each other railroad's track to reach shippers located there (or the switching area track may be jointly owned by the local government, or by the railroads that use it, or a local "switch railroad" may hand off traffic to the long-haul carriers).

However, it is an important part of the US system that most such arrangements for "trackage rights" by one railroad company over another company's tracks are voluntary and mutually agreed upon. "Compulsory" trackage rights, that is, access mandated by a government regulatory agency, are less common. When they do occur, they do so typically either a) as a competitive condition placed upon the merger of two railroad companies, as the regulator seeks to maintain competitive options for particular shippers, or, even more rarely, b) if a particular shipper can satisfy the difficult regulatory requirements necessary to prove that it is economically "captive" to a single railroad -- that is, that it has no economic alternative, via either rail or other transport mode, to that railroad for the haulage of its inputs and/or outputs. Even in those unusual cases where competitive access is mandated, there may be lengthy regulatory or court proceedings to arrive at the price to be paid for access.[4]

The Canadian System. Most rail traffic in Canada travels over one of only two major privately owned carriers, the Canadian National Railway and the Canadian Pacific Railway.[5] As in the US, each railroad runs its own trains over its own track. A large amount of rail traffic flows between Canada and the US, and each Canadian railroad has various connections with US railroads for interlining traffic. Furthermore, both major Canadian railroads own significant amounts of track in the US, and two US carriers have track networks that extend into Canada. Perhaps the most important difference between the Canadian and the American systems regarding competition is that in Canada, shippers located on one of the railroads but within 30 km of the other are automatically eligible to receive either service by the

[2] In railroad parlance, the word "parallel" is not to be taken literally. Routes that are called "parallel" may be quite different and more or less direct. The important point is that they are economic alternatives for enterprises wishing to ship commodities from point A to point B.
[3] See the discussion of different commodity classes in Pittman (1990), at 30-32.
[4] Kahn (2000); Massa (2000).
[5] For a historical discussion, see Cruikshank (1991)

second railroad over the tracks of the first or service by the first that interlines with the second, both at regulated rates.[6]

So, to be clear, what I am calling "the Canadian system" is the US system of competing, vertically integrated railroad enterprises with the addition of automatic compulsory trackage rights or interconnection for a significant number of shippers directly served by only one railroad. There have been legislative proposals to establish a similar system of compulsory competitive access to captive shippers in the US, in order to obviate the need for the lengthy regulatory processes of the Surface Transportation Board, but thus far the railroads have fought them successfully.[7]

The Mexican System. When the Mexican railway system was transformed from a government owned monopoly in the period 1997-1999, it was divided into three major regional franchises -- privately owned companies, each with a monopoly in its own region -- along with one company controlling traffic between the Atlantic and Pacific ports in the South and several smaller local railroads. As in the US and Canada, each of the three main rail enterprises runs its own trains over its own (in this case, franchised) track. However, unlike in the US and Canada, in Mexico there is not much "parallel" domestic competition between different railroads: with two exceptions, there are no pairs of major cities or other economic areas where two railroad companies offer competing domestic origin-to-destination service.

What is relied upon in Mexico more than in other countries is what is called "source" or "geographic" competition. The way this works is as follows. Consider the manufacturing company that desires to send commodity X from its plant at point A to a customer at point B. Even if railroad 1 has a monopoly on rail shipments from point A to point B, and even if commodity X cannot be shipped economically by another mode from point A to point B, the shipper at A may be able to use railroads 2 and 3 to ship commodity X to other destinations, and the customer at B may be able to use railroads 4 and 5 to receive commodity X from other origins. In many circumstances – though certainly not all – the very fact of having these imperfect alternatives protects the shipper at A and the customer at B from monopoly abuses by railroad 1.

As the Mexican system was restructured, each of the three principal daughter corporations received as part of her dowry access to Mexico City:

- the Northeastern railroad (Transportación Ferroviaria Mexicana, or TFM), connecting Mexico City with the US border at Laredo, with the ports of Tampico and Veracruz, and the city of Monterrey;
- the North Pacific railroad (Ferrocarril Mexicano, or Ferromex), connecting Mexico City with several other US border points west of Laredo and with the cities of Guadalajara and Monterrey; and
- the Gulf railroad (Ferrocarril del Sureste, or FerroSur), connecting Mexico City with the Mexican Gulf Coast, including the Gulf port cities of Coatzacoalcos and Veracruz.[8]

Thus shippers in Mexico City – which, as in the US model, is a jointly operated "switching area" – can choose among three different rail carriers for either sending or receiving freight. This choice is especially meaningful because so much of the rail traffic in Mexico is international traffic, and different railroads leave Mexico City to serve different ports and

[6] Winston, *et al.* (1990), at 57; Ouellet (2000)

[7] "Past captive-shipper objectives -- none successful -- have included repealing the railroads' extensive antitrust immunity, requiring railroads to open certain single-served routes to competition and having Congress instruct the Surface Transportation Board to be more aggressive in diluting rail market power." Frank Wilner, "'We'll Work Our Tails Off,'" *Traffic World*, April 30, 2001. See also John Gallagher, "Service, Not Retaliation," *Traffic Word*, August 12, 2002.

[8] OECD (1998), at 109-112; Toby Gooley, "Mexican Railroads Face a Long, Uphill Climb," *Logistics Management Distribution Report*, May 31, 1999; Garcia de Alba (2000)

different US connecting railroads. Thus if one railroad charges excessive rates to a US border crossing, a Mexico City shipper may be able to use another railroad to reach a Gulf port, since the ultimate destination was Atlanta or New York or São Paulo anyway. For example, one commentator notes that "Ferromex's route from Eagle Pass [Texas] to central Mexico provides significant competition to TFM's route from Laredo."[9]

It is clear that source competition is not a perfect substitute for parallel competition. As noted, a significant portion of Mexican rail traffic is import/export traffic, where the shipper and receiver of freight may be able to choose among several different ports and border points; viewing such routes in their entirety, the Mexican portions of the trips are really portions of "parallel" route competition. But domestic shippers of domestic products presumably place a higher value on getting their product to or from a particular location. On the other hand, there is very little disagreement that in practice in the US and other countries, source competition significantly limits the monopoly power of a railroad, even for domestic shippers of domestic products.[10] The very fact that railroad 2 can offer to carry a shipper's traffic provides that shipper with leverage in dealing with railroad 1, even if the two railroads go to different places. Correspondingly, the very fact that railroad 4 can offer to deliver a particular good to a customer provides that customer with leverage in dealing with railroad 3, even if the two railroads originate in different places.

The Federal Competition Commission in Mexico has turned down proposals for both TFM and Ferromex to merge with Ferrosur. One complainant noted that a Ferromex/Merrosur merger would "contradict the fundamental purpose of privatising the railroads."[11]
Again, to be clear, what I am calling the "Mexican system" is the US system but with a principal reliance on source competition rather than parallel competition to provide shippers with economic alternatives.

The railroads of the principal other large North and South American economies were restructured without competition high on the list of priorities. The restructured Argentine and Brazilian rail systems are made up of vertically integrated rail enterprises, as usual for countries in the Americas, but these are not structured in such a way as to create much parallel competition; nor do they protect shippers served by single railroads to the degree that the Canadian system does, at least not as so far implemented; nor do they contain the potential for source competition to the degree that the Mexican system does. To a large extent the enterprises that make up these two railroad systems are more accurately called vertically integrated regional monopolists.[12]

Systems Using Partial or Complete Vertical Separation

Let us now consider two models of railroad restructuring that provide for competing train operators on a monopoly track. This model of creating competition "on the rails" has broad conceptual appeal, and it is under serious consideration in a number of countries. It is identical conceptually to the "unbundling" of the natural monopoly bottleneck from related competitive markets that has taken place or been proposed in the electricity and telecommunications (and other) sectors throughout the world.[13] As in these sectors, however, the idea of unbundling raises many complex issues, and in particular one difficult decision:

[9] Allen (2001)
[10] See, *e.g.*, MacDonald (1989)
[11] John Authers, "Mexican Regulators Block Rail Merger," *Financial Times*, May 17, 2002; David Luhnow, "Mexican Regulators Reject Big Railroad Merger," *Wall Street Journal*, May 17, 2002; William Vantuono, "Mexican Merger Fever," *Railway Age*, June 2002
[12] For Argentina, see Kohon (1995) and Kogan (2002). For Brazil, see Estache, *et al.* (2001)
[13] Newbery (1999). I discuss some of these common issues in Pittman (2001a)

whether the owner/controller of the natural monopoly bottleneck – in this case, the track – is to be permitted to operate in the competitive sector of the market – in this case, the trains.

If the answer is yes -- if nonintegrated train operators are to compete with a vertically integrated train and track enterprise – there may be a serious problem of favoritism and discriminatory access (as well as cost shifting to evade any remaining rate regulation). Preventing the track owner from providing more favorable access terms – regarding either price or quality – to its own, integrated train operation than to competing train operators may require both more knowledge than the regulator is likely to have and more extensive intervention in the day-to-day operations of the railroad than the policy maker is likely to desire.[14] Furthermore, if favoritism cannot be effectively prevented, it will be that much more difficult to create effective competition in the "competitive" sector. One US example that suggests caution is the trackage rights arrangement imposed by the Surface Transportation Board on the merger of the Union Pacific and Southern Pacific Railroads, whereby the Burlington Northern/Santa Fe line was given access over the merged railroad's lengthy "central corridor" route from the Midwest to California. As of this writing, the "tenant" railroad, the BNSF, carries only about five percent of the traffic on this route.

On the other hand, if the answer is no – if the track owner/operator is *not* permitted to be vertically integrated into the business of running trains – there are other problems raised. First, there is the loss of economies of scope.[15] These may have partly to do with train scheduling and coordination, but just as important may be the question of investment incentives. Serious questions are being raised, not only in the railroad sector but also in other sectors where unbundling is a possible reform option, as to whether the owner/operator of the remaining monopoly asset – in this case the rail infrastructure – will receive the proper signals and incentives for investments if it does not also participate in the competitive sector – in this case the trains. If not, the network may be slow to respond to opportunities for growth, and maintenance may not be directed to the most appropriate locations or equipment (leading in the rail sector to the possibility of increased accidents).[16]

Second, there is the problem of economies of scale (density) in the train operating sector. Both the experience and the econometric results suggest that in most cases a single, first-mover train operator will enjoy sufficient scale economies as to make successful entry by additional train operators unlikely.[17] This means that, in addition to the monopoly power which we assume accrues to the owner/operator of the track, there may be monopoly (or oligopoly) power enjoyed by the train operator as well. Economic theory suggests that the result of a monopoly downstream firm paying a monopoly price for the upstream product and setting its own monopoly price on the final product will be a higher price than that which would be set by an integrated monopolist. Even without this conclusion, if structural

[14] The most recent World Development Report of the World Bank, *World Development Report 2002: Building Institutions for Markets*, discusses the importance of limited regulatory capacities when designing policies for infrastructure reform in developing economies. See also Pittman (2001a), *ibid*

[15] Ivaldi and McCullough (2001) find significant cost complementarities between track ownership and train operation, as do Bitzan (1999) and Bitzan (2000)

[16] After the most recent fatal rail accident in Britain, the *Financial Times* expressed the editorial opinion that "the structure of British rail privatisation was ill-designed for a safety-critical industry. As public inquiries after the Paddington and Southall crashes found, the industry has been fragmented with the loss of clear lines of responsibility." (May 12, 2002)

[17] The econometric results of Ivaldi and McCullough (2001) lead them to conclude that "even if railroads were separated into operational and infrastructure entities, the firms would still experience operational returns to density and (like airlines) would enjoy large market shares....An open access regime would not necessarily lead to competitive outcomes." Freebairn (1998) reaches the same conclusion in his study of Australian railroads: "Given likely scale economies associated with maintaining a range of services, with marketing, and the size of trains relative to current and prospective demands, it seems likely that a few operators, rather than many, will dominate most lines, and in many of the intrastate lines there may be just one train operator."

separation does not create competition among train operators, one may ask what is the point of the whole, complex, and expensive exercise.

Finally, either of these models will require a complex operating agreement between the track owner/operator and whichever train operators it does not control. The terms of service required by a train operator desiring track usage – like those of an electricity generator requiring access to long- distance transmission lines – are multifaceted and complex. The contractual relations between the two enterprises are likely to be correspondingly multifaceted and complex. An entire set of transactions that takes place *within the enterprise* in the US, Canadian, and Mexican systems must take place *between two independent enterprises* under this type of system. It is not completely clear how workable such a system will be, especially in those countries where the legal institutions for the support of private contractual relationships are still being developed.[18] An example of the possible difficulties created comes from the UK, where a serious accident followed vertical separation, and a controversy developed as to whether the problem was the state of the track in that area or the state of the wheels on the train.[19]

Let us consider separately two real-world models.

The First EU Reform System: Partial Vertical Separation. The countries of the European Union traditionally had unitary, monopoly, state-owned railroads. However, EU Directives 91/440, 95/18, and 95/19, required each member country to a) separate the cost accounting records of the track and other infrastructure from that of the train service, and b) allow use of the infrastructure by "international groupings of railway undertakings" and "railway undertakings engaged in international combined transport of goods throughout the [EU]." The hope was to further unify the market, by providing "seamless" transborder rail shipments within the Union -- in much the same way that the railways are relied upon to facilitate economic integration in the large territories of China, India, and Russia -- while still enjoying the benefits of vertically integrated rail enterprise operation.

This system never really had much of a trial. Most EU countries lagged in adopting the reforms, though Germany and Portugal got as far as setting up independent rail regulators. Those countries that did try opening up the track to competition from train companies, like the Netherlands, found that the integrated incumbent operator was sufficiently entrenched to prevent the development of effective competition. In the case of the integrated national operator NS in the Netherlands, the *Financial Times* reports of "years in which attempts to introduce competition led only to a sharp deterioration in the train service," and notes that "as rival regional train operators came and went, establishing no strong presence, the NS was left with a virtual monopoly."[20] Perkins (2002), writing before the abandonment of the experiment, writes of "the current crisis (deteriorating punctuality, overcrowding, delays in rolling-stock procurement, maintenance backlogs, inability to manage industry interfaces) in the vertically separated and fragmented Netherlands railway system."

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[18] Chris Nash made this point regarding rail reform in Eastern Europe at an OECD Conference on Competition and Regulation in Network Infrastructure Industries in Budapest in 1994. As recorded in the conference volume, Professor Nash argued that "the operation of the new system requires good contract law and a huge amount of legal effort. One hundred new companies are being created that must interact intimately with each other. Nash wondered if even the United Kingdom -- much less Eastern Europe -- is ready to run its railways as a laboratory test of Oliver Williamson's *Markets and Hierarchies."*

[19] Preston (2002). Recent trade journal articles demonstrate some of the complexities involved in this vertical interface, as potential improvements in efficiency and safety are shown to be most easily and economically achieved by adjustments to the train wheels or the track, or both, depending on a variety of factors. Kevin Sawley, "Refining the wheel/rail interface," *Railway Age*, April 2002; Tom Judge, "Where Steel Meets Steel," *Railway Age*, May 2002; Eric Magel, Joe Kalousek, and Mike Roney, "Stress Reduction, Railroad Style," *Railway Age*, July 2002.

[20] Gordon Cramb, "Netherlands Abandons Rail Competition," *Financial Times*, January 3, 2002

The broader intent of those who seek to implement an EU-style system in other countries is typically to provide shippers with competitive rail service while not losing the economies of scope that come from joint operation of the train and the track. Many supporters of this system believe that the mere *potential* for (for example) shippers of large volumes to provide their own train service over the monopoly track will be enough to force the rates of the integrated enterprise down to a workably competitive level. Regulation would then be required for terms of access to the infrastructure but not for train service itself.

The Second EU System, a.k.a. the UK System: Complete Vertical Separation. The UK has chosen the second version of the "many trains, one track" model: it has separated the ownership and control of the track and the operation of the trains into two completely independent enterprises, with the intention of encouraging competitive train operators to enter the market. The track company, Railtrack, provides access to both freight and passenger trains at a regulated tariff level. This model of complete vertical separation has more recently been adopted by the EU as well, which in Directives 2001/12, 2001/13, and 2001/14 has set a deadline for complete vertical separation of train and track ownership in member countries of March 2003 and for completely open train access to track infrastructure by March 2006. The EU has backed up its directives with enforcement threats under both its competition law and under the rail directives themselves.[21]

Again to be clear, the difference between what I am calling the first EU system and what I am calling the second EU system or UK system is that in the former the track owner/operator is permitted to be a train owner/operator as well, while in the latter it is not. Otherwise the intention of those who support these models is usually the same: to allow for competition among different train-operating enterprises over a single monopoly track.

Choosing among Alternative Models

As noted earlier, most analysts would probably agree on a certain bare minimum set of requirements for a liberalized former state railway system to operate in a more efficient and productive manner: complete separation of passenger from freight operations (including an end to cross-subsidization of passenger operations by freight operations), complete separation of the ownership and regulatory functions, flexible local or regional setting of tariffs, and flexible local or regional train scheduling. Beyond these -- which certainly merit discussion on their own -- let us consider how the systems that just described for creating railroad competition may be evaluated and applied in particular circumstances.

Let us note first of all that intermodal competition, wherever it can be economical, provides clear protection to shippers from monopolistic behavior by a railroad. Both road freight transport and river freight transport tend to be industries that can be structured as reasonably competitive,[22] so that where they are economically feasible they can by themselves provide competitive transport alternatives to shippers and obviate the need for regulation. Governments should do everything possible to encourage the development of intermodal competition, for example by

- liberalizing private entry into motor and water carriage,
- providing the necessary road and water infrastructure for the use of private operators,

[21] Mario Monti, "Effective Competition in the Railway Sector: A Big Challenge," speech at the UNIFE Annual Reception, Brussels, May 2002; Steve Bennett, "EU Plans Radical New Laws to Encourage Open Access," *International Railway Journal*, September 2002

[22] This is more true for truckload road haulage than it is for less-than-truckload road haulage, where the creation of a hub-and-spoke network may yield significant economies. But truckload road haulage is the more relevant of the two as a competitor for rail.

- protecting competition in the procurement policies of governments at all levels, to ensure that infrastructure investments get the best results possible, and
- insuring that tax policies – for example on fuel use – do not discriminate against particular transport modes.

Countries where most shippers can economically ship their cargoes by alternative modes – for example, small countries with good highway systems, or countries with extensive river and/or coastal water transport systems – may have little need to provide regulatory protection to shippers from the abuses of a monopoly railroad, because the monopoly railroad will have no true monopoly power. For countries not in such fortunate circumstances, however, competition *among railroads* must be created if most rail shippers are to have competitive choices. Let us consider the possibilities.

The US, Canadian, and Mexican systems constitute the three principal methods that have been used to provide freight shippers with competitive rail options while still maintaining a system whereby most rail traffic consists of a particular company running its own trains over its own (or franchised) tracks. In all three countries there is some regulatory protection available for "captive" shippers; nevertheless, in all three countries most traffic moves on non-regulated tariffs using non-regulated shipping arrangements. Competition is not perfect, but it is "workable". This has resulted in a much reduced presence for the rail regulators of these countries. At the same time, railroad sector reform has been accompanied by falling real tariffs and increasing rail sector profitability. Broad deregulation of the US rail sector has resulted in sizable welfare gains to shippers, railroad companies, and the overall economy.[23] The reorganized Mexican rail sector has moved swiftly from receiving government subsidies of US$400 million every year to paying taxes of US$24 million every year. A recent trade journal article notes that "Mexico's railroads continue to prosper and regain market share lost to trucks."[24] Just as important for developing countries with dilapidated railroad systems, the three private concessionaires in Mexico are investing hundreds of millions of dollars each year in their systems, substantially increasing their capacities.[25]

Some form of the first EU system -- that calling for partial vertical separation -- is widely advocated in current railroad policy debates around the world, and for good reasons. Increased transparency, which it provides, has benefits both economic and political. Potential or even actual intramodal competition, which it also provides, can in general be a powerful force to prevent monopoly abuses. It seems a perfectly good idea to require the reorganized railways to keep separate accounts for their track and train operations, and to require them to "charge" themselves a reasonable, regulated tariff for track access, so that it may be possible in the future for shippers of large volumes either to supply their own long-distance rail transport, or to threaten to do so. This will also be important for those countries that are projected to be a part of new international rail transport routes, such as the various EU Rail Transport Corridors or the various Trans Asian Railway proposals.

However, it is important to keep in mind the limitations of new regulatory agencies in developing countries. As in other infrastructure sectors where some version of unbundling is under consideration, in the railway sector the charge for access to the network must vary a good deal by time, place, and customer if economic efficiency is to be served while the network covers its costs. A well functioning vertically integrated rail enterprise will impose this variation internally, and often implicitly, but with unbundling these charges must be set explicitly, and subject to regulatory oversight to control or prevent discrimination. A new

[23] Barnekov and Kleit (1990); Winston (1993); MacDonald and Cavalluzzo (1996). Organized labor may have been a loser in the process, both in the rail sector and in the competing long-haul trucking sector.
[24] "Mexican Merger Fever," *supra*.
[25] Gooley, *supra*; Garcia de Alba (2000). The private concessionaires in Brazil are similarly investing heavily in their infrastructure (Estache, *et al.* [2001]).

regulatory body -- specific to rail or with broader jurisdiction -- is not likely to have the knowledge or enforcement capability necessary to ensure that a tariff for access to rail infrastructure is set at the correct, efficient level in hundreds of different situations around the country -- even assuming there were agreement among economists on the appropriate conceptual framework.[26] Nor is it likely to have the political power to match that of a single, nation-wide rail infrastructure monopolist -- what we might call, in the Russian context, the GAZPROM problem. The first EU system of partial vertical separation may provide *some* protection for *some* large shippers, but it seems clearly to require much too much regulatory knowledge, enforcement, and intrusion into day-to-day enterprise management to be relied upon as the primary source of rail competition for shippers in many developing countries.

The same issues arise in the context of the UK and second EU systems, which require complete enterprise separation between the track owner/operator and all train operators. It is true that such a system would seem to require less strict regulation of access terms than the first EU system, since there should be no reason for the track owner to discriminate among different train operators. To the degree that the former monopoly train operator maintains market power, however, it may be able to demand and achieve access terms better than those available to market newcomers, and thus vigilant regulation remains important. Furthermore, even to the degree that demands on regulators are reduced, this advantage may be outweighed by the additional contract negotiation and enforcement that a system of complete separation requires, in legal systems which may not be prepared for this burden. Finally, of course, there is a complete loss of economies of scope between train and track operators.

Like the first EU system, the UK and second EU systems of full vertical separation are at this point essentially experiments. There are some early positive signs in the UK itself, such as the real benefits of the introduction of competition into the markets for maintenance, equipment, and supplies, some indications of reduced operating costs, and continuing increases in freight and passenger traffic levels.[27] Similar reorganization plans in Sweden and Romania have shown some promising signs as well, though a) the Swedish system sets infrastructure access charges at marginal cost, thus making no attempt to recover from users the full cost of providing the network, and b) the Romanian system is still quite new, with a small number of market entrants accounting for a very small share of traffic so far.[28] Overall, however, the experience to date with this system in the UK is one of controversy, confusion, and failed hopes. There have been several serious accidents, and Railtrack recently declared bankruptcy, admitting that successful reorganization would not come any time soon.[29] Attempts to encourage private investment in the UK rail infrastructure have so

[26] Compare the "global price caps" solution of Laffont and Tirole (1994) with the "efficient component pricing rule" of Baumol, *et al.* (1997)

[27] Pollitt and Smith (2001); Preston (2002); "Britain Announces £67 Billion 10-Year Rail Investment," *International Railway Journal*, January 17, 2002

[28] For Sweden, see Ekström (2002). For Romania, see Ioan Mihaila and Ileana Statie, "Interests in Making Railway Traffic More Efficient," *Railway Journal* (Bucharest), April 2001, and Oana Bran, "Harmonization of the Railway Transport to the Current Requirements," *Railway Journal* (Bucharest), September 2001.

[29] Rosemary Bennett and Juliette Jowit, "UK Railways Face Further Year of Troubles," *Financial Times*, January 10, 2002. They report the estimate of the German-backed company bidding to take over Railtrack that "it would be August 2003 before the company could be taken out of administration." More recently, the newspaper reports that "Railtrack managers believe the company could need another £6bn or more to maintain and renew the network up to 2006 because track and signalling are in much worse condition than previously thought." Juliette Jowit and Chris Giles, "Byers faces £10bn railways shortfall," *Financial Times*, March 4, 2002. See also "Railtrack Collapses," *International Railway Journal*, October 8, 2001, and David Pringle, Masayoshi Kanabayashi, and William Boston, "Experience of British Rail System Serves as Cautionary Tale," *Wall Street Journal*, October 17, 2001.

far failed.[30] At this point the UK, "open access" system seems even less promising as the foundation for competition on the railways of most developing countries than is the EU system.

I believe that the policy implications of our current state of knowledge, based on our current experience, are fairly clear.

First, and most important and most basic, complete vertical separation of train and track operations in the rail system can simply not be recommended with any confidence. I must admit that I seem to be in the minority of economists with this conclusion, but I believe it is the right one. I must admit also that complete vertical separation has shown some promise in some other infrastructure sectors, but even in these -- for example, in electricity, gas, and telecommunications -- I believe the experience is mixed at best. And it is not at all clear that the conditions that might make vertical separation successful under some circumstances in these other sectors are typically present in the rail sector.[31] As noted above, one important factor is the economies of scale in train operations that seem to persist into high levels of density over particular sections of track, thus making the development of a competitive train sector unlikely; a second is the economies of scope in operation, maintenance, and investment between train operation and infrastructure management.

For "large" countries with "large" rail systems, what I have called the Mexican system of vertically integrated regional monopolies competing with each other for traffic at jointly served major concentrations of shippers seems best to combine economies of scope, economies of scale, a reliance on the forces of competition, and an avoidance of close regulatory supervision over the day-to-day operations of the rail system. How large is large? John Preston's analyses of Western European rail systems (Preston 1996; Preston 2001) suggest that overall system operating costs reach their minimum at a network size of about 3,000 to 4,000 km. John Bitzan's analyses of the US experience (Bitzen 1999; Bitzen 2000) suggests that minimum costs are reached at a much higher system size, perhaps 7,000 km. To put these numbers in perspective, China has a rail system of almost 70,000 km and India a system of over 62,000 km; Kazakhstan has a system of just over 13,500 km and Turkey just over 11,000 km; while Thailand has a system of about 4,000 km and Vietnam about 2,600 km. Certainly China, India, and Russia are large enough to consider creating competition among vertically integrated regional rail monopolists.[32] It may be that medium sized countries like Kazakhstan and Turkey are large enough as well.

So it is the medium-to-small and small countries that face the most difficult choices. Creating regional vertically integrated rail monopolists of sub-optimal size within a single country seems needlessly inefficient. Requiring complete vertical separation seems to invite system breakdown (unless and until the world learns how to do this better). The remaining option seems the best of a bad lot: partial vertical separation -- that is, maintaining vertical integration while opening up the track to entry by competing train operators -- what I called earlier the first EU system. These competing train operators could be large commodity shippers running (or threatening to run) their own trains to supply their processing plants or ship their final products; they could be transnational companies offering regional train service, as we have already seen in southern Africa; they could be long-distance "landbridge" carriers connecting Vladivostok with Warsaw or Shanghai with Bucharest and mostly "just passing through" the Mongolias and Turkeys of the world. In any of these cases, specialized

[30] Juliette Jowit, "First Private Rail Project is Halted," *Financial Times*, March 31, 2002: "The first of a new generation of private rail infrastructure projects has been disbanded, in an embarrassing blow to government hopes they would deliver billions of pounds of investment in the industry over 10 years."

[31] Newbery (1999); Pittman (2001a)

[32] I have argued this for these three countries respectively in Pittman (2002a), Pittman (2002b), and Pittman (2001b).

or generalized regulators will seek to insure transparency and nondiscrimination with regard to the terms of access to the track, and they can be expected to do a very imperfect job. With our current state of knowledge, however, this alternative of partial vertical separation seems the most likely to offer at least some competition to rail shippers without imposing serious inefficiencies or even possible system meltdowns.

In regulation, deregulation, and infrastructure reform as in other areas, it is an imperfect world that we live in. Competition is imperfect; regulation is imperfect; government ownership is very imperfect. Models that look very promising in the PowerPoint presentations may not be so easy to implement in the real world. If we acknowledge the very binding constraints under which we are maximizing, we are likely to reach a more satisfactory outcome.

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ACCESS TO RAILWAY FACILITIES: TRACKAGE AND HAULAGE RIGHTS, AND INTERCONNECTION SERVICES

PPRESENTATION FOR THE SEMINAR ON REGULATION AND COMPETITION IN THE TRANSPORT SECTOR

Organized by

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SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

September, 2002

RESTRUCTURING THE MEXICAN RAILWAY SYSTEM

- The restructuring process of the Mexican Railway System considered as essential the following objectives:

  - Shaping a safer, more competitive, modern and efficient railway system.
  - Encouraging private investment in railway transport.
  - Strengthening the State's governance and authority.
  - Ensuring workers' rights.
  - Generating well paid jobs.
  - Promoting the development of railway facilities.
  - Ensuring the State an appropriate payment in the process.
  - Promoting the economy's competitiveness and development.
  - Contributing to regional development and markets' integration.
  - Having a railway system that works as an Integral Network.
  - Serving users' needs.
  - Increasing railway's share in the transport system.
  - Transfering productivity and efficiency gains in railways to the rest of the economy

- These objectives are still valid given that they can be considered as permanent goals of railway services.

REESTRUCTURING THE MEXICAN RAILWAY SYSTEM

- The restructuring scheme of the Mexican Railway System consisted in shaping:
  - Three main vertically integrated railways.
  - One terminal for operations and interconnection in the Valley of Mexico
  - Several short lines.
- A regional separation scheme was chosen in order to:
  - Preserve operative economies.
  - Serve regional markets with several service options.
  - Have an optimal number of interconnection points.
  - A System that worked as an Integral Network with continuous services.
  - Continuity in the system through interconnection and terminal services.
  - Healthy and equitable competition.

LEGAL FRAMERWORK FOR RESTRUCTURING

- New Legal Framework for Restructuring the Mexican Railway System

• Amendment to Article 28 of the Constitution	27/February/1995
• Law of Railway Service	28/April/1995
• General Guidelines for Investment Openness in the Mexican Railway System	9/November/1995
• Rulings of Railway Service	27/September/1996
• Concession Tiltle. TFM	2/December/1996
• Concession Title. Railway Terminal of the Valley of Mexico	2/December/1996
• Concession Title. Ferromex	22/June/1997
• Concession Title. Coahuila-Durango Line	14/November/1997
• Concession Title. Ferrosur	29/June/1998
• Concession Title. Chiapas-Mayab Railway	26/August/1999
• Concession Title. Isthmus of Tehuantepec Railway	23/December/1999
• Assignment Title. Tijuana-Tecate Line	1/April/2000
• Mexican Official Standards. (22 issued, 8 in process of issuing and 78 prepared).	108

RESTRUCTURING OF THE MEXICAN RAILWAY SYSTEM

- **Exclusivity of Concessions**
  - There is no exclusivity in concessioned markets.
  - There is exclusivity for a 30 year period in tracks, except those where trackage rights have been granted.
- Serving Markets
  - Since the beginning attention to main markets by two railways was foreseen:
    - More important cities
    - Main Ports
    - In Cities and Ports where two railways have access, said concessionaires will have to offer service in a competitive fashion.
  - The system must work as an INTEGRAL NETWORK

REESTRUCTURING THE MEXICAN RAILWAY SYSTEM

- **COMPETITION**
  - 64 Trackage Rights.

    To serve the main cities, ports, markets and industries.
  - 2 Long Trackage Rights in the main corridors and towards the main cities.
    - Queretaro and Mexico City.

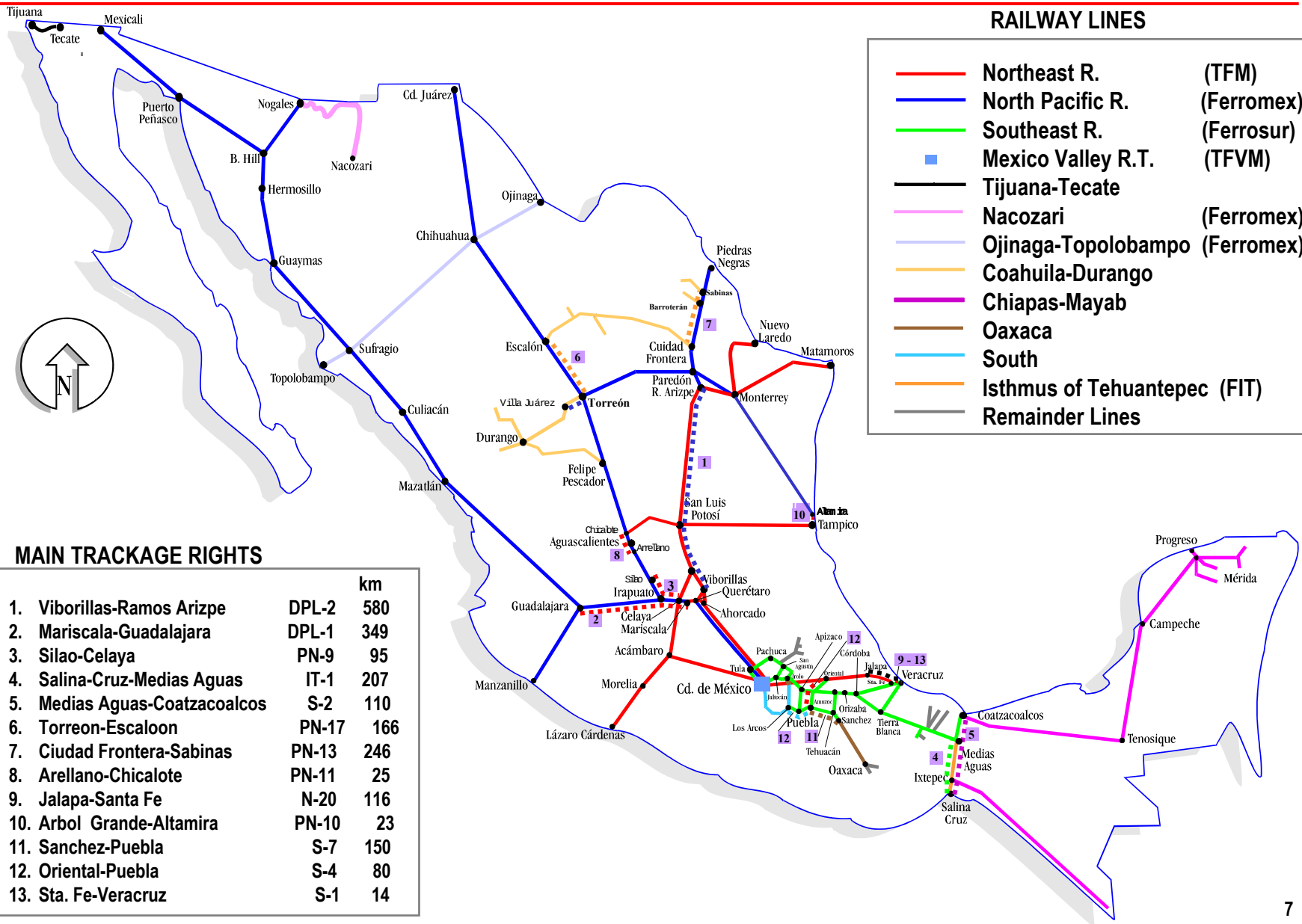
      Trackage Right: Viborillas-Ramos Arizpe (509 km)
    - Guadalajara

      Trackage Right: Mariscala-Guadalajara (355 km)
  - Interconnection services

    Interline Freight, using the integrated facilities of two or more railways as a continuous railway network.

    Terminal Services, to serve industry and industrial areas.

MEXICAN RAILWAY SYSTEM



RAILWAY LINES

- Northeast R. (TFM)
- North Pacific R. (Ferromex)
- Southeast R. (Ferrosur)
- Mexico Valley R.T. (TFVM)
- Tijuana-Tecate
- Nacozari (Ferromex)
- Ojinaga-Topolobampo (Ferromex)
- Coahuila-Durango
- Chiapas-Mayab
- Oaxaca
- South
- Isthmus of Tehuantepec (FIT)
- Remainder Lines

MAIN TRACKAGE RIGHTS

			km
1.	Viborillas-Ramos Arizpe	DPL-2	580
2.	Mariscala-Guadalajara	DPL-1	349
3.	Silao-Celaya	PN-9	95
4.	Salina-Cruz-Medias Aguas	IT-1	207
5.	Medias Aguas-Coatzacoalcos	S-2	110
6.	Torreon-Escaloon	PN-17	166
7.	Ciudad Frontera-Sabinas	PN-13	246
8.	Arellano-Chicalote	PN-11	25
9.	Jalapa-Santa Fe	N-20	116
10.	Arbol Grande-Altamira	PN-10	23
11.	Sanchez-Puebla	S-7	150
12.	Oriental-Puebla	S-4	80
13.	Sta. Fe-Veracruz	S-1	14

REGULATORY ISSUES

- **Bases**
  - Railway Service Law.
  - Railway Service Rulings.
  - Concession Titles of Railway Firms
  - Mexican Official Standards

  - **Agreements between concessionaires are preferred**
  - **SCT can resolve controversies**

- **Regulation**
  - Agreements among Concessionaires
    - Agreements between Concessionaires are preferred.
    - The SCT has always encouraged and promoted the signing of Agreements between Concessionaires, acting as a conciliatory party.
  - Solution of controversies
    - Articles 35 and 36 of the Law, as well as Articles 112 and 113 of the Rulings establish the procedure.
    - The concessionaire must solicit it.
    - It implies a compulsory solution for concessionaires.

ADDITIONAL NORMATIVE ACTIONS TAKEN BY THE SCT

- Lack of Agreements between Concessionaires for years.
- Issuing of 5 Resolutions by the SCT
  - 2 Resolutions notified to concessionaires on March 14.
    - Conditions and fees for using Trackage Rights
    - Trackage right PN-9 between Silao and Celaya
  - 3 Resolutions notified to concessionaires on August 8.
    - Conditions and fees for Interconnection and Terminal Services
    - Trackage Right N-1 in Monterrey
    - Trackage Right PN-10 in Altamira
- Sending to the Federal Regulatory Improvement Commission 2 NOM´s for publication (23/Aug/2002)
  - Guidelines for using compulsory Trackage Rights among Mexican railway concessionaires.
  - Guidelines for using Interconnection and Terminal Services among Mexican railway concessionaires.

1) RESOLUTION ON CONDITIONS AND FEES FOR USING COMPULSORY TRACKAGE RIGHTS

Methodology for establishing Trackage Rights' fees.

- Tariffs charged by concessionaires in an effective manner include all costs incurred in the service and established in Art. 114 of the Rulings.
- Costs established in Art. 114 of the Ruilings are: maintenance of facilities and traffic control; costs increases caused by interference in operation; repayment of investments related to the refered section; including the concession payment; and a reasonable profit.
- The afore mentioned costs were obtanied for all the Mexican Railway System (SFM), as well as revenues for the SFM.
- The percentage of costs in Art.114 in the firms' revenues was determined, it is representative of the SFM.
- The average tariffs effectively charged by concessionaires were obtanied from information given by TFM and Ferromex.
- Such tariffs were multiplied by the percentage of costs (Art. 114) and used to determine fees for commercial (with investment repayment and reasonable profit) and operative trackage rights (without investment repaymentt).

  .
- Validity is for 2002, and are updated with the INPP excluding Petroleum, in 2003 and 2004.

1) RESOLUTION ON CONDITIONS AND FEES FOR USING COMPULSORY TRACKAGE RIGHTS

- It establishes fees for using trackage rights, both commercial and operational for TFM and FXE, for 2002, 2003 and 2004.
  - Commercial trackage rights: during 2002 TFM will charge FXE, $ 4.42 /car-km loaded or empty, and will pay FXE, $ 3.38/car-km.
  - Operational trackage rights, during 2002, TFM will charge FXE $ 0.83/ car-km loaded or empty, and will pay FXE $ 0.67/car-km.
- Fees will be adjusted over time:
  - By efficiency and investment repayment.
  - By new investments or higher maintenance works; as long as SCT's building criteria and quality standards are fulfilled.
- Security standards will be applied to the tracks' maintenance and preservation in Class 1 Tracks (both long trackage rights) and in Class II Tracks (remaining trackage rights), with sanctions for non-compliance.
  .
- Fees for trackage rights won't generate additional charges in tariffs.
  .
- Locomotives are counted as 2 cars, the cabus as one, and multilevel cars as well as overdimensioned flatbeds as two cars.

2) RESOLUTION ON CONDITIONS AND FEES FOR INTERCONNECTION AND TERMINAL SERVICES.

- The Law and its Rulings for Railway Service establish that interconnection services between concessionaires include, among others, the following:
  - Interline traffic.
  - Terminal services.
- **Interline Traffic,** according to this resolution, may be offered through two different services:
  - Interline traffic on distances greater than 30 km, from the interconnection point. (estimation of the fee through a formula)
  - Interline traffic on distances greater than 30 km, from the interconnection point. (estimation of the fee through cost incurred). In this case one may choose:
    - A related service for an integrated train with less than 25 cars.
    - A service offered by an integrated train for more than 25 cars. The granting concessionaire may grant a reduction of 50%.

- According to this resolution, **terminal services** allow a railway **having Trackage Rights** to serve an industry or industrial area, to ask the granting concessionaire freight transportation by paying the corresponding fee.

2) RESOLUTION ON CONDITIONS AND FEES FOR INTERCONNECTION AND TERMINAL SERVICES

- The railway service must be provided in a continuous, uniform, an equitable manner regarding opportunity, quality and price, in accordance with Article 24 of the Law. Interline traffic is a railway service.

Methodology for calculation of fees.

- **Establishment of Discounts for Interlinear traffic.-**Calculation of discounts effectively granted by concessionaires to their clients.
  - Discounts are diferences between registered and charged tariffs, for more important products transported by both concessionaires.
  - Due to the large diversity in the average discounts charged to products, and to attain a more simplified administration, commercial and operational products were grouped into three A (25%), B (15%) and C (5%) according their level of average discount.
  - In the case of products not included in the proposed sets, concessionaires will ask the SCT to establish the corresponding discount.
- **Fee for Interline Traffic on distances greater than 30 km.-** The fee for distances greater than 30 km, will be calculated according to the formula that includes fixed and variable factors of registered tariffs, understanding that such a fee will apply to the products at issue, according to:

2) RESOLUTION ON CONDITIONS AND FEES FOR INTERCONNECTION AND TERMINAL SERVICES.

(i) The fixed factor of the tariff registered by the concessionaire that begin the service, divided by two given that are two concessionaires, plus,

(ii) The variable factor of the tariff of each connecting concessionaire, multiplied by the distance travelled by each, between the interconnection point to the final destination or next interconnection point.

(iii) The sum of previous points (i) and (ii), is multiplied by the transported freight and discounted by the corresponding discount (D) of the product at issue.

$$\text{Fee} = \left(\left(\frac{\text{Fixed Factor}}{2} \right)_{\text{Initial conces.}} + \left((\text{Variable Factor x distance})_1 + (\text{Variable Factor x distance})_2 \right) \right) \text{X Freight x D}$$

- **Lock 1**.- In case of increases in registered tariffs (TUCE) before the SCT, discounts will be adjusted to maintain the same relationship, unless it is demonstrated to the SCT's satisfaction, that the tariffs' increase is due to a cost increase or inflationary pressure.

- **Lock 2.-** If the concessionaire is applying a lower discount than that established by the SCT and demonstrates it, then the concessionaire's discount will be applied. Example: if the discount proposed by the SCT is 25% and the concessionaire demonstrates that it is 18%, the latter will be applied.

2) RESOLUTION ON CONDITIONS AND FEES FOR INTERCONNECTION AND TERMINAL SERVICES.

- **Fee for Interline Traffic on distances shorter than 30 km**.- A unique fee is established for both concessionaires, estimating the costs incured by concessionaires, plus a reasonable profit applying the registered tariffs and the proposed discounts to a sample of the more important products and for a distance up to 30 km. This methodology results in an average fee for several products of $1,400/car valid until 30/Apr/2004, adjusted to reflect inflation.

- **Fee for Interline Shipment on less than 30 km and for Unitary Trains.-**
  .- A concessionaire may solicit interline traffic service in distances shorter than 30 kms, with unitary trains or consolidated trains of 25 or more cars, and the other concessionaire might choose between granting him direct access for delivery or taking away its cars, or providing the service. This, applying a 50% discount of the aforementioned fee. The objective is providing greater competitiveness and efficiency to the railway system.

- **Fee for Terminal Services**.- When a concessionaire has a trackage right to a certain area or industry, within a maximum distance of 30 kms on the track, he will be able to ask the other concessionaire to move its cars to the industry where it has access through trackage rights, by a unique fee of $600/car for both concessionaires, for several products. It will be valid until 30/Apr/2004, with adjustment to reflect inflation.

3) RESOLUTION ON THE TRACKAGE RIGHT PN-9 (SILAO-CELAYA)

This resolution for using the trackage right PN-9 between Celaya and Silao, which FXE must grant to TFM, establishes the following:

- Unitary automotive trains must be used between Celaya and Silao, to provide service to General Motors.
- Automotive trains are shaped, not only of finished vehicles, but also car parts or any input required by the automotive plant.
- TFM may use the neccesary auxiliary tracks, to connect its "NB" line with the "A" line of Ferromex, in the same way that such auxiliary tracks are used in all yards to do the required operations
  .
- FXE cannot refuse to allow the use of said trackage right and if it does it will be sanctioned accordingly.
- The public service of freight railway transportation must be provided in a permanent, uniform and equitable fashion regarding opportunity, quality and price, according to that established in Article 24 of the Railway Service Law.

4) RESOLUTION ON THE TRACKAGE RIGHT PN-10 IN ALTAMIRA (THAT FXE GRANTS TO TFM)

- The Port of Altamira is one of the main marine ports of the country and contributes importantly to the economic and social development of the region, as well as to the consolidation of the domestic economy as a whole.
- The trackage right establishes that it is meant for access to Altamira, and that it includes both the Station and the Port, so this trackage right refers without distinction to:
  - The Altamira Station
  - The Port of Altamira
- Likewise, its establishes access to the Port of Altamira as a continuous service, including the section of the “MB” line, without limiting said access to a specific purpose.
- Because of this, TFM has the right and obligation of providing the public service of freight railway transport, having as origin or destination the Station, the “MB” line and the Port of Altamira, in accordance with:
  - Art.105 section II of the Railway Service Ruling.
  - Tenth, Twelfth and Thirteenth Law Considerations of the resolution of the Federal Competition Commission.

5) RESOLUTION ON THE TRACKAGE RIGHT N-1 IN MONTERREY (THAT TFM GRANTS TO FXE)

This resolution for the use of the trackage right N-1 for access to Monterrey, that TFM must grant to Ferromex establishes the following:

- Monterrey is an industrial area essential for the domestic economy and, due to its industrial production and strategic position, it represents one of the main markets for freight railway transport.
- This trackage right has two distinct objectives:

  (i) First, is access to the Monterrey Yard. This access is not limited to specific purposes, but applies to:

  - Freight exchange.
  - Making operational maneuvers.
  - Directly serving specific industries or industrial areas.
  - Transporting a specific product or products.
  - Handling traffic with origin or destination in that yard.

  (ii) Second, is allowing the connection of Ferromex lines that run to Torreon and Tampico.

- FXE has the right and obligation to provide the public service of freight transport, to the industry that directly connects with the Monterrey yard and the "M" trunk line which is FXE's access to that yard.

RELEVANT ISSUES OF NOM-075

DRAFT OF THE STANDARD NOM-075 "GUIDELINES FOR THE USE OF COMPULSORY TRACKAGE AND HAULAGE RIGHTS BETWEEN MEXICAN RAILWAY CONCESSIONAIRES".

The aim of this compulsory standard for concessionaires and assignees in the railway service is:

NOM 075.- To establish the guidelines, criteria, specifications and uniform rules for granting and receiving compulsory trackage and haulage rights, required to provide the public service of freight railway transport, as well as security issues for transportation of dangerous materials, residue, remains and waste, according to the Railway Service Law, its Rulings and what is established in the concession titles of the railway firms.

RELEVANT ISSUES OF THE NOM-075

Statistical Information on operations

- The unit of measurement for the use of trackage and haulage rights will be cars-kilometer.
- Concessionaires will develop a system that establishes a counting mechanism for cars-kilometers and compute these statistics, which will be notified monthly to the SCT.

Trains Dispatch

- The granting concessionaire will be in charge of dispatching in all tracks located within their concession and will not refuse to receive trains.
- In the excersise of its dispatch duties, the granting concessionaire, will not favor its trains or employees, nor discriminate against the trains or employees of the soliciting concessionaire.

Use of trackage rights

- In case of compulsory trackage rights, the granting concessionaire will give the soliciting concessionaire a copy of its Internal Transport Rulings, schedule and other operational rules.
- Operators of the soliciting concessionaires will have to be familiarized with the operative rules, providing them the neccesary training, if needed. Otherwise, the granting concessionaire will assign a pilot, charging the corresponding costs to the soliciting concessionaire.
- In case of any change to such rules, notification to the soliciting concessionaire will be done in writing with 30 days anticipation.

RELEVANT ISSUESS OF THE NOM-075

- The oliciting concessionaire will fulfill the following dispositions:
  - Observe and abide the program of train movements of the granting concessionaire.
  - Will not store cars and equipment on routes of trackage rights, except for driving equipment in poor condition that is located on the route.
  - Will not allow a third party to use trackage rights without consent of the granting concessionaire.

Facilities maintenance and improvements

The granting concessionaire will be responsible for:

- Preserving and maintening tracks, and carrying out additions and improvements.
- Notifying 30 days in advance about track maintenance or construction works in lines that interfere with trackage and haulage rights.
- Fulfill security and quality standards included in the concession titles and according to the standards issued by the Ministry.
- Fulfill investment and maintenance programs included in the concession titles and the corresponding standards.

RELEVANT ISSUES OF THE NOM-075

Equipment in bad condition

- When the soliciting concessionaire's equipment does not fullfil indispensable security requirements the following provision will be observed:
  - The Standards establish cases where equipment in bad condition will be fixed by the granting concessionaire.
  - Reparations must not take more than 16 hours, unless the owner approves it.

Continuity of service

- The public service of railway transport must not be interrupted due to controversies between concessionaires.
- In order to ensure continuity of the trackage rights, concessionaires will have to establish a guarantee to ensure payment.

Service interruption

- When the equipment of the receiving concessionaire does not maintain the required velocity or is forced to stop on the track and cannot continue, the granting concessionaire will provide him with the neccesary help.
- Costs and expenses incurred when providing that help will have to be the minimal and will be repayed by the soliciting concessionaire.

RELEVANT ISSUES OF THE NOM-075

Fees

- Fee for using trackage rights must be agreed upon among concessionaires.
- Increments to fees cannot be charged in a retroactive way.
- In the case of mandatory haulage rights, inherent costs in pulling will be additionally considered, that is direct costs of the locomotive and its crew.
- Fees for trackage and haulage rights should be included in the tariff structure and will not generate an additional charge for the user.
- In case the involved concessionaires fail to reach an agreement regarding the fees and ask for the SCT's mediation, the latter will resolve as appropriate, considering the costs established in Article 114 of the Railway Service Rulings:

  - Facilities maintenance
  - Traffic control
  - Costs increases caused by operation interference.
  - Investments repayment related to the track at issue, taking into account the payment made for acquiring the concession title, as long as it does not represent a monopoly rent.
  - A reasonable profit, which must be comparable to the average profitability of the Mexican Railway Industry.

RELEVANT ISSUES OF THE NOM-076

DRAFT OF THE NOM-076 STANDARD "GUIDELINES FOR USING INTERCONNECTION AND TERMINAL SERVICES BETWEEN MEXICAN RAILWAY CONCESSIONAIRES".

This Standard is compulsory for concessionaires and assignees of the railway service, and its main objective is:

NOM Num-076.- To establish guidelines, criteria, specifications and uniform rules for granting interconnection and terminal services required for providing the public service of railway freight transport, as well as security issues for transportation of dangerous materials, residues, remains and waste, according to the Railway Service Law, its Rulings and Concession Titles of the railway firms.

RELEVANT ISSUES OF THE NOM-076

Interconnection Points

- SFM's interconnection points are physical limits where one concessionaire's railway tracks are connected to other's, and points where trackage rights begin or end. Additionally, points agreed between concessionaires will be provided to users by the SCT for their assesment.

Service continuity

- Concessionaires must refrain from impeding, restraining or interrupting the railway transport service provided by other concessionaires, even when there are no controversies between them.

Agreements on Interconnection Services

- Concessionaires must agree terms and conditions for providing interconnection and terminal services, which must be adapted to this Standard's contents and will send copy to the SCT within 15 working days from the date they are formalized.

Fees

- Fee for interline traffic services must be agreed upon between concessionaires.
- In controversial cases, the SCT will calculate the fee from the tariffs registered by concessionaires, with discounts granted to their clients, in two different cases:
  - When providing interline traffic services, on distances longer than 30 kms., taking into account fixed and variable factors, and applying the corresponding formula.
  - A single fee for interline traffic shorter than 30kms, considering incurred costs, and applying registered tariffs and discounts, for the most important products.

RELEVANT ISSUES OF NOM-076

In this last case, for distances shorter than 30 km, the SCT would establish that a granting concessionaire of interline traffic service, lowers the aforementioned fee by 50% when the service involves trains integrated by more than 25 cars.

Validity

- In the controversial cases mentioned before, the average fee for several products would be based on the aforementioned methodology and it would be valid for a year, adjusted by inflation. In later years, if controversy persisted, the SCT would be able to use said methology or develop a new one based on the compiled experience.

Terminal Services

- Fee for terminal services must also be agreed upon between concessionaires.
- In controversial cases in terminal services, the SCT would establish a single fee for both concessionaires, estimating the costs incurred when providing the service, plus a reasonable profit.
- The SCT would establish an average fee so that the concessionaire who has a trackage right to an industry or industrial area, requests the terminal service, paying to the granting concessionaire a fee based on the costs incurred plus a reasonable profit.

RELEVANT ISSUES OF THE NOM-076

Distances for interline traffic

- Concessionaires will provide the SCT a description of the foreseen sections for interline traffics, specifying distances for each, from the origin or destination to the interconnection point, these distances must be consistent with the schedule registered before the SCT.

Information system for interline traffic

- The connecting concessionaire must provide information to the origin concessionaire, that allows him to know the different routes and conditions where interline traffic is provided, and the location of mobilized cars, so that the latter informs the user.

Cars kept in yards due to exchange failures

- Exchange will be done when cars have been placed on the tracks of the terminal or interconnection point agreed, and locomotives have been separated from such cars, as well as when the concessionaire delivers to other the corresponding documentation.

Tariffs

- Tariffs presented by concessionaires before the SCT for registration, must allow the service provision under satisfactory conditions of quality, competitiveness, security, and permanence, according to that established in the Art. 46 of the Law.

Route

- The user has the right to choose the route by which its freight will be transported.

RELEVANT ISSUES OF THE NOM-076

Free period

- The free period for users will be 24 hrs., and for unitary trains will be 48 hrs., with the right of two location movements. In border ports and areas 48 additional hrs. for free period will be granted accordingly.
- Concessionaires may agree with users increasing the free period. In any case, concessionaires will inform users the free period that they have.
- The free period to concessionaires will be 12 hrs., and begin from the time the exchange is done.

Declared Capacity

- The user must notify in writting the declared capacity of the private tracks at the origin and destination, to the concessionaires that provide the freight railway transport service

Car Hire

- Car hire will be a charge that will take place exclusively between concessionaires and must not be charged as and additional tariff.
- Users that provide equipment for transporting their freight, will have the right to make concessionaires pay the corresponding car hire, considering the staying time on tracks of each concessionaire and the distance traveled in them.
- The form of payment, distance establishment and time calculation, will be established in the agreements undertaken between concessionaires and users, providing a copy to the SCT.

RELEVANT ISSUES OF THE NOM-076

Charge for Delays or Floor Rights

The Standard describes causes for delay, the moment when the count begins, when it finishes and who will pay charges, taking into consideration the following cases and reciprocity criteria:

- Cars located for loading and unloading.
- Cars received in the destination station or terminal at the same date, exceeding the capacity declared by the user.
- When it is not possible to place the quantity of cars according to the declared capacity.
- For not loaded or unloaded cars within the free period to users.
- When cars are liberated for removal by the concessionaire from its private track.
- Charges for delays will only apply to effectively incurred delays.
- Concessionaires must prepare a Manual for calculating delays where users and the SCT have participated.
- The SCT will establish a Consultive Committee with the participation of users and concessionaires in order to resolve matters related to the interpretation of charges for delays.

Service Hold up.

- In case of accidents or natural disasters, and when the connecting concessionaire believes that the cars traffic will be held up for more than 72 hours, he will notify the origin concessionaire and users in order to plan the delivery of equipment or freight, and to avoid registering more units on that route.

BENEFITS OF REGULATORY MEASURES

Public Interest

- In all cases, public interest has been privileged over private interests.
- A healthy development of the railway transport is promoted.
- Necessary measures are applied in order for the system to work as an Integral Network, with continuous services without junctions, to the benefit of users.

Competititon

- A framework for healthy competition among concessionaires is established, allowing them to compete in terms of services quality, preventing discriminatory practices that hinder competition and free market access.
- Two service options are offered in all cities, ports and markets where two railways participate.

Multimodal Services.

- Establishment of bases allowing each transportation mode to be used in the segment where it is most efficient according to its comparative advantages.
- Establishment of conditions to integrate railways into the transportation logistic chains.
- Competition will emerge among several multimodal transport corridors, enabling them to be more efficient and not be disarticulated transportation modes.

CONCLUSIONS

The SCT considers that the activities undertaken regarding economic regulation of the railway transport, through the issuing of 5 resolutions and two NOM's, the following outcomes will be achieved:

- Benefit for users due to lower costs.
- Oberving users' rights.
- Provision of continuous railway services without junctions.
- Application of policies and strategies more suitable for users' needs.
- Healthy development of the Mexican Railway System as a whole, so that it works as an Integral Network.
- Competititon among concessionaires to offer more quality in services.
- Trust for concessionaires in applying commercial development programs.
- Always favoring public interest over private interests.
- Greater certainty to concessionaires for undertaking their investments.
- Incorporating railway transport into multimodal transport corridors.
- Intensive appication of maintenance programs, to the benefit of operational security and efficiency.
- Transferring productivity and efficiency gained in railways to the rest of the economy.
- Attending public interest through the establishment of continuity of railway services by using trunk network tracks, trackage rights, interconnection services, interline traffic and terminal services in a coordinated fashion.

Seminar on regulation and competition in the transportation sector
APEC, México D.F., 19 y 20 de septiembre del 2002

MERGERS IN THE RAILROAD SECTOR: LIMITATIONS AND SCOPE OF COMPETITION

Ian Thomson, Jefe, Unidad de Transporte
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Seminar on regulation and competition in the transportation sector

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APEC, México D.F., 19 y 20 de septiembre del 2002

WHAT WE SHALL BE TALKING ABOUT

- Some salient points from the economic history of railways.
- The privatization of railways in Latin América.
- Privatization models.
- Mergers between Latin American railway concessionaires, and their consequences.
- Conclusions.

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SOME SALIENT POINTS FROM THE ECONOMIC HISTORY OF RAILWAYS

- The first public service railways were built by private sector companies interested in making money by placing on the market a product for which a commercial market was perceived to exist.
- The coming of railways meant a quantum leap in terms of carrying capacity and transport costs, especially where no water transport option existed.
- In the rainless north of Chile, for instance, railways produced a decline of around 62% in the ton-km costs of transporting nitrates, also making possible carrying to the ports volumes way beyond the scope of carts hauled by mules or oxen. (7)

- Since the railways were so much more efficient than their competitors, they could charge rates very much greater than marginal costs, often sufficient to not only cover their (intrinsically high) fixed costs but also yield good dividends for shareholders. Early mineral carrying railways in Chile often had operating ratios of less than 50%. (4)
- In 1886, it was observed that "All the railways in the world have accepted differentiated tariffs, since otherwise low-value goods could not pay the high transport charges for long distances". (3)
- The railway companies could apply Ramsey pricing principles. The main companies had no problems in financing their activities or maintaining high levels of investment.

- **Right from the start, even though shippers gained from the coming of the railways, as well as railway company shareholders, concern was expressed about the companies´ monopolistic powers, and attempts were made to curb them, e.g.:**
  - **The statutes of early railways in England adhered to the principle of open access, making railways akin to turnpike roads. (6) But for reasons of traffic control, this did not work well on primitive single track lines, where some trains were hauled by locomotives, some by horses, with power/weight ratios which varied from train to train.**
  - **As early as the case of the Liverpool and Manchester Railway (1830), governments tried to cap rates and make sure shippers shared gains with shareholders. (1)**
  - **In the USA, the ICC, founded in 1887, had as its main object the protection of shippers against the monopoly power of railway companies. (2)**

- **The rise of automotive transport eroded the railway companies´ ability to cover fixed costs and generate attractive returns for their shareholders. The problem was compounded by the worldwide recession of the 1930s, which caused traffic to plummet.**
- **The case of companies in Argentina is depicted below.**

RATE OF RETURN ON CAPITAL OF PRIVATELY OWNED RAILWAY COMPANIES IN ARGENTINA, 1927-1937

Año	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	193
Tasa	6.0%	5.7%	4.7%	2.8%	2.5%	2.2%	1.7%	1.5%	1.5%	1.7%	1.9

Fuente: H. Stones, ***British railways in Argentina, 1860-1946***, P. Waters, Inglaterra, 1993

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- **Short haul truck, and bus/car, transport enabled railways previously confined to different geographic market segments to compete with each other, worsening the economic plight of some of them.**
- **As from the early 20th century, the ICC was also empowered to set minimum rates, to protect railways from themselves, or from their most powerful clients.**
- **Governments started to intervene by forcing mergers of private railway companies (e.g. Great Britain in 1921-23), or more often taking over and merging private railway companies (e.g. Argentina, 1948; Bolivia, 1964; Brazil, 1957; Colombia, 1954; France, 1938; Germany, 1924; Great Britain, 1948; Ireland, 1945; Perú, 1972).**

- In many cases, potential scale economies were more than compensated by the costs of political meddling and inefficient administration.
- Such was the case in Argentina, where between 1965 and 1976, railway traffic fell by 27%, but route length by only 5%, with the probable result that unit costs increased. In that period 2% of all economically active Argentinian males worked on the Railway, and staff costs exceeded total revenues by 100%.
- Governments failed to appreciate the changing role of railways, from common carriers to bulk transporters.
- Almost the only railways in Latin America which carried increasing volumes and whose economic and technical efficiency ratios were more or less acceptable were those carrying minerals.

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RAILWAY PRIVATIZATION IN LATIN AMERICA

- Governments asked themselves why they were spending so much money (sometimes more than USD 2 millions per day, in the case of Argentina) in subsidizing railways whose role in the economy was steadily declining, and started transferring them back to the private sector, normally vía concession.
- In 1990, in Latin América only one railway trading its services on the open market was privately owned (FCAB), with a total route kilometerage of 850.
- By 2000, the privatized route kilometerage had increased by more than 10 000%, and exceeded the route length of privatized roads. See table 2.
- Latin América has been a world leader in railway privatization.

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TABLE 2: PRIVATIZED RAILWAYS IN LATIN AMERICA, 1990 AND 2000

Country	Km privatized		Observations
	1990	2000	
Argentina	0	30 000	The entire network had been concessioned.
Bolivia	0	3 300	The entire network had been concessioned.
Brasil	0	28 500	The entre network had been concessioned or sold
Colombia	0	2 000	
Chile	850	4 950	
Guatemala	0	800	The entire metwork had been concessioned. Concessionaire reactivated railway previously abandoned.
México	0	20 500	Concesioning required constitutional change.
Panamá	0	80	
Perú	0	1 450	

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- The privatization process was initiated in Colombia, using the principle of separation of infrastructure administration (placed in the hands of a State owned company) from train operation (transferred to mixed capital or private companies). But this did not work well, due to internal and external causes.
- The first substantial progress in privatization was made in Argentina, where the model adopted for freight railways was the vertically integrated concession, by geographic sector, for a 30 to 40 year period, which later came to be adapted for use in much of Latin America.
- Bolivia was the first country to complete the privatization process, in 1996.

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- In general, railway privatization has been successful in Latin América, especially compared with an extrapolation of preexisting trends.
- Traffic has usually increased, subsidies have been largely eliminated, labor and capital productivity has increased and there has been some technical and marketing innovation. The railway has basically found the role that best suits it, as a bulk carrier, of people in and near cities and elsewhere of freight, between well defined origin and destination points.
- However: (i) relatively little traffic has so far been regained – see table 3; (ii) productivity increases are partly due to the abandonment passenger and local freight services; (iii) contract terms have not always been respected; etc..

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TABLE 3: TRAFFIC TRENDS (ton-km in 10^6) ON RAILWAYS IN ARGENTINA AND BRAZIL, BEFORE AND AFTER PRIVATIZATION

Year	Argentina (FA, ex FA)	Brazil (RFFSA, ex RFFSA)
1965	14 186	
1975	10 659	
1983		29 633
1984	9 104	33 540
1991	7 880	
1993		39 803
1995		36 388
1996		33 497
1998	9 835	39 077
2001	9 340	

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PRIVATIZATION MODELS

- Two conceptually differing privatization models have been applied in Latin América:
  - The vertically integrated "Argentinian" model, and;
  - The "British" model, involving the separate concessioning or sale of, on the one hand, infrastructure services and, on the other, train operation.
- In most cases, the long term concessioning was preferred to outright sale, but this was the option used in the cases of CVRD railways and Ferronor.
- In Bolivia, the sums tendered by concessionaires were invested in the railway (capitalization), as can be (and are) annual fees paid by Peruvian concessionaires, for the first 5 years.

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- The Argentinian model is preferred by managers and directors of railway operators, who do not like having to depend on somebody else for the track services.
- They also fear that infrastructure companies could up track use charges to internalize profits, unless these charges are fixed.
- But the Argentinian model does leave captive clients (such as mining companies) or semi-captive ones (such as grain producers) at the mercy of railway companies.
- For this reason, in Perú a pseudo British model was formally applied, in the interests of the mining sector.

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- **Under the Argentinian model, investment in productive activities needing rail transport depends on long term contracts, covering the economic life of the plant.**
- **The same can be true under the British model if track use fees are not controlled by a regulator.**
- **An example of how, even under the British model, insufficient regulation might deter production, is that of Ferrovías/Drummond Coal in Colombia:**
  - **The two parties negotiated track use fees for Drummond´s trains over Ferrovía´s tracks;**
  - **Drummond insisted that, should any other coal producer be charged lower fees, these would also be applied to it;**
  - **¿The result? Quite possibly a disincentive to new coal mining operations able to cover long run marginal costs.**

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MERGERS, TAKOVERS AND OVERLAPPING SHAREHOLDINGS BETWEEN LATIN AMERICAN RAILWAY CONCESIONAIRES

- **Significant cases to date include:**
  1. **Takeover by the Brazilian "Ferrovia Sul Atlântico" of the Argentinian "Ferrocarril Mesopotámico General Urquiza" (FMGU) and "Ferrocarril Buenos Aires al Pacífico" (BAP), to form "América Latina Logística" (ALL).**
  2. **The acquisition by Antofagasta Holdings of a controlling interest in the "Empresa Ferroviaria Andina" in Bolivia.**
  3. **Operating agreements between "Ferroban" and ALL and "Ferrovia Centro Atlântica" (FCA), in Brazil.**
  4. **The merging of "Novoeste" "Ferronorte" and "Ferroban" in Brazil.**
  5. **The takeover by "Ferronor", in Chile, of railway operations serving mining activities.**

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- Case 1 can hardly be expected to restrain competition, since in neither country does it unite previously separate railway companies. Moreover, by reducing transaction costs, it promotes international transit by rail.
- Case 2 is interesting, and will be analyzed later.
- In Cases 3 and 4, the major objectives were to reduce transaction and operating costs, although there may have been a restriction on shipper choice in some cases.
- In Case 5, efficiency gains would have resulted from the placing in the hands of a specialized railway operator rail services operated by companies specialized in mining.

- In Case 2, Antofagasta Holdings PLC, owner of the main FCAB line from Antofagasta to the Chile/Bolivia frontier, gained a controlling interest in the continuation on the Bolivian side of the border, to Oruro, Cochabamba and El Elto de La Paz. Transaction costs were reduced for international transit, although few operating economies seem to have resulted.
- Pacific coast bound traffic generated in Bolivia can pass through Antofagasta or Arica (or Matarani in Perú). The renting of Chilean section of the Arica - La Paz Railway was tendered, and let to a Bolivian based consortium, which is in a difficult negotiating position with the FCA, the controlling interest of which is held by the owners of the FCAB.

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CONCLUSIONS

- Since rail networks in Latin American countries are so sparse, mergers are unlikely to reduce shippers´ rail transportation options, since few have more than one anyway. Their alternative is normally truck transport, rather than another railway.
- Gains in terms of scale economies, reduced transaction costs and operating convenience are unlikely to be offset by extra rates charged to clients. The latter could gain by better service from increased investment made possible by the improved credit worthiness of the concessionaires.
- Even if mergers were to reduce options to clients, these are often protected by long term contracts which limit the rates which can be charged.

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- **Clients might benefit potentially in the short term by rail concessionaires being required to allow third parties to use their tracks, paying regulated track use fees. However, this would need a renegotiation of contracts, would be opposed by concessionaires and could pose operational problems. And by reducing rail company profitability, their ability to invest could be impaired.**

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- **However, cases do exist in which mergers would be likely to raise costs for users, and possibly lose traffic to competing modes:**
  - **Any merger between the Ferrocarril Méxicano and Transportación Ferroviaria Mexicana, would reduce transport options between central México and USA.**
  - **Any merger between certain concessionaires in Argentina and Brazil, that would reduce options for transporting farm products between inland zones and Atlantic coast ports, e.g. between Belgrano Cargas and the Nuevo Central Argentino.**
  - **A merger between the FCAB and AFCALP would tend to reduce options for shippers and importers in Bolivia.**

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Seminar on regulation and competition in the transportation sector

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APEC, México D.F., 19 y 20 de septiembre del 2002

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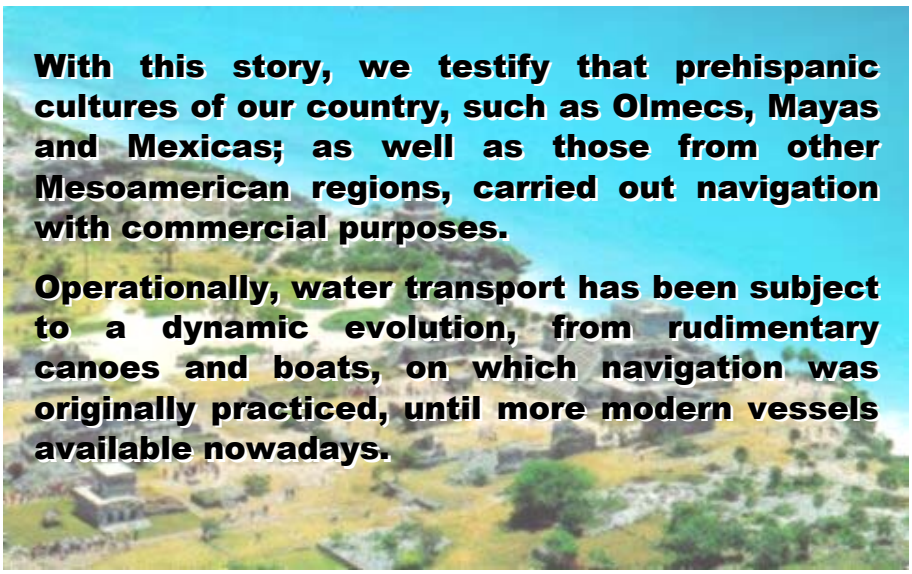
We are gathered here in Mexico City, built on the place that used to be the lacustrine zone of the "Great Tenochtitlan", which the chronicler Bernal Díaz del Castillo in his historical work "The Conquest of Mexico" described as a great city established in the middle of the water, surrounded by other cities with which it was communicated by means of the Iztapalapa, Tlacopan and Tepeaquilla roads; all endowed with bridges, under which the lagoon waters flowed, and through which a multitude of canoes traveled, carrying the transport of people and goods.

1



With this story, we testify that prehispanic cultures of our country, such as Olmecs, Mayas and Mexicas; as well as those from other Mesoamerican regions, carried out navigation with commercial purposes.

Operationally, water transport has been subject to a dynamic evolution, from rudimentary canoes and boats, on which navigation was originally practiced, until more modern vessels available nowadays.

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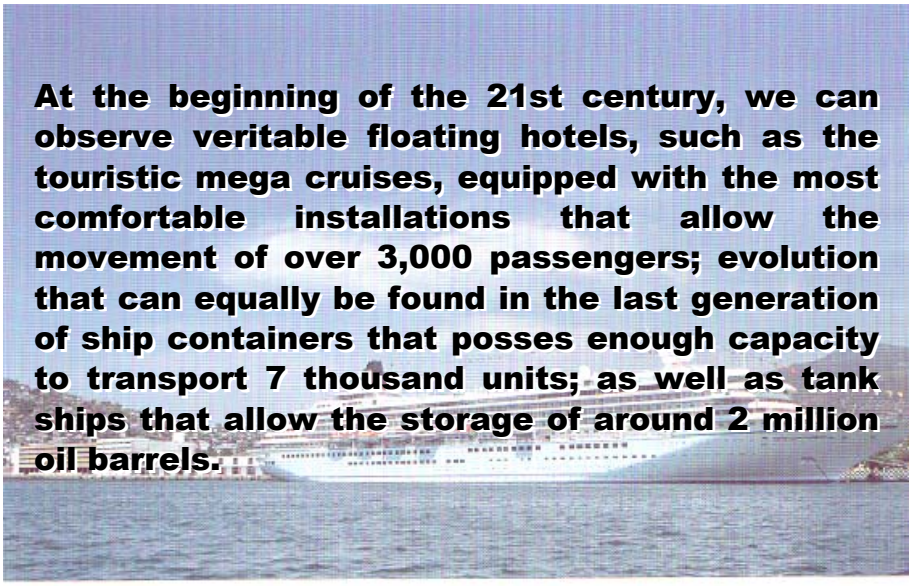

At the beginning of the 21st century, we can observe veritable floating hotels, such as the touristic mega cruises, equipped with the most comfortable installations that allow the movement of over 3,000 passengers; evolution that can equally be found in the last generation of ship containers that posses enough capacity to transport 7 thousand units; as well as tank ships that allow the storage of around 2 million oil barrels.

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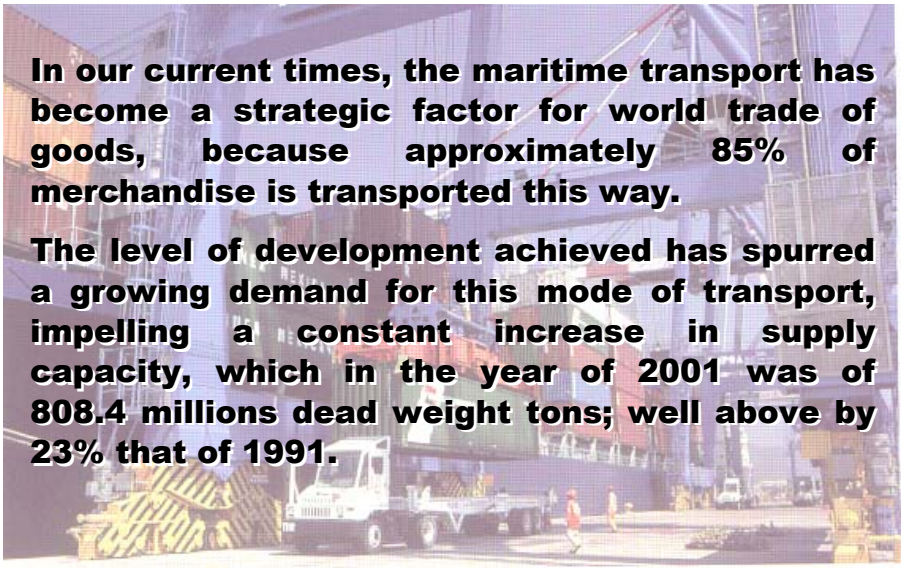

In our current times, the maritime transport has become a strategic factor for world trade of goods, because approximately 85% of merchandise is transported this way.

The level of development achieved has spurred a growing demand for this mode of transport, impelling a constant increase in supply capacity, which in the year of 2001 was of 808.4 millions dead weight tons; well above by 23% that of 1991.

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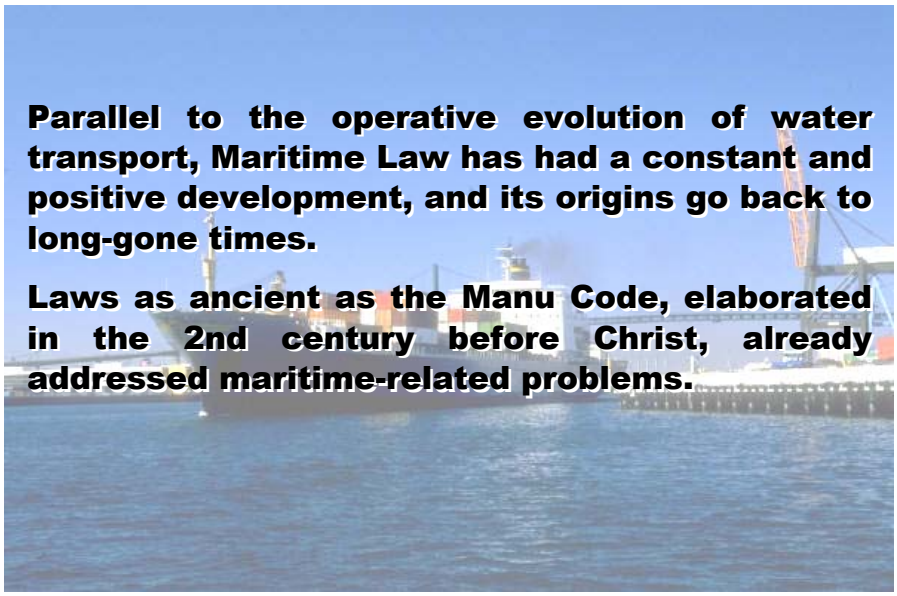

Parallel to the operative evolution of water transport, Maritime Law has had a constant and positive development, and its origins go back to long-gone times.

Laws as ancient as the Manu Code, elaborated in the 2nd century before Christ, already addressed maritime-related problems.

5

The aforementioned code, establishes a special treatment for the sales of overseas goods.

The first nation from antiquity that produced written maritime law was Rhodes.

Rhodes was known for the famous colossus that guarded the entrance to the public bay located in that place, as well for the prestige of its maritime laws, which were imposed throughout the Mediterranean basin; and some of its dispositions, later adapted to the Roman law, were transmitted to modern nations and are still in force.

6

Rhodes law regulated diverse institutions such as: certain types of maritime loans, crimes committed among sailors, crimes related to ship ad cargo, provisions related to naval policy, types of payment for freight, cases about goods' transfer and others; but maybe, the most notable item of this body of law, is the first regulation of a form of society that is the most legitimate precedent of our partnership contract and itself precedes our commercial society, and the principles about deep damages, taken by the Roman Digest and still present in modern laws such as our current Navigation Law.

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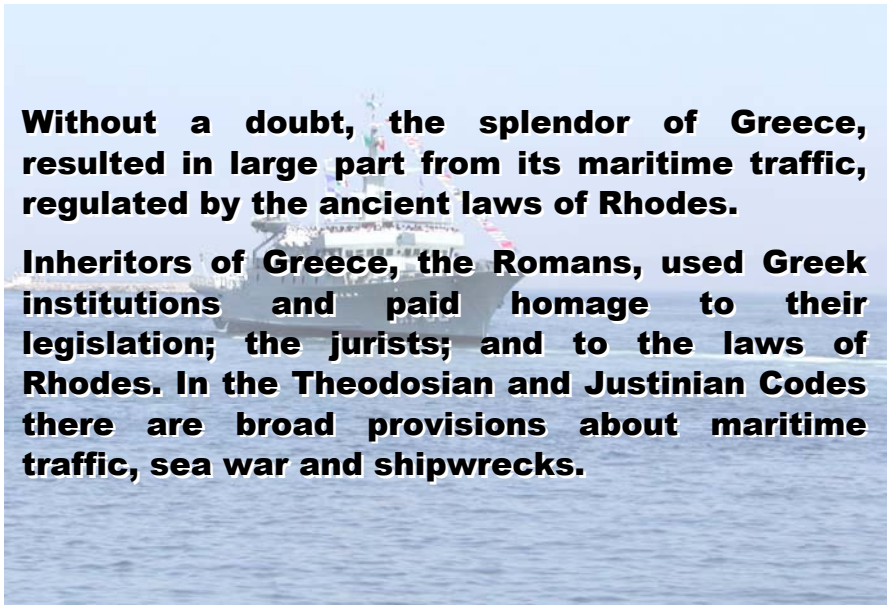
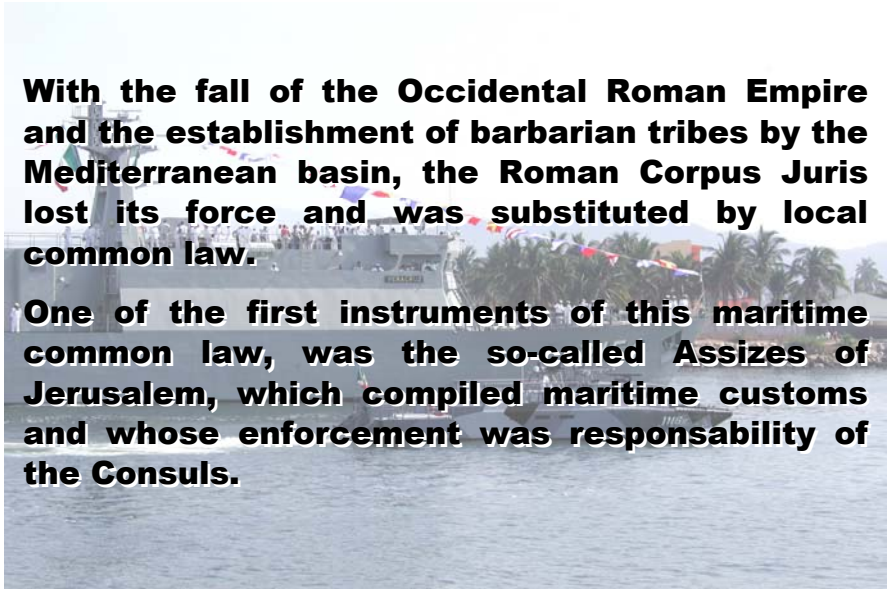


Without a doubt, the splendor of Greece, resulted in large part from its maritime traffic, regulated by the ancient laws of Rhodes.

Inheritors of Greece, the Romans, used Greek institutions and paid homage to their legislation; the jurists; and to the laws of Rhodes. In the Theodosian and Justinian Codes there are broad provisions about maritime traffic, sea war and shipwrecks.



With the fall of the Occidental Roman Empire and the establishment of barbarian tribes by the Mediterranean basin, the Roman Corpus Juris lost its force and was substituted by local common law.

One of the first instruments of this maritime common law, was the so-called Assizes of Jerusalem, which compiled maritime customs and whose enforcement was responsability of the Consuls.

In Amalfi, a small Italian republic that dominated commerce with the East for a time, since the 10th century, a famous Maritime Court was established and in the year 1135 its decisions were compiled in a collection named Amalfitane Table or Tavole Amalfitane, and were applied throughout the Mediterranean basin.

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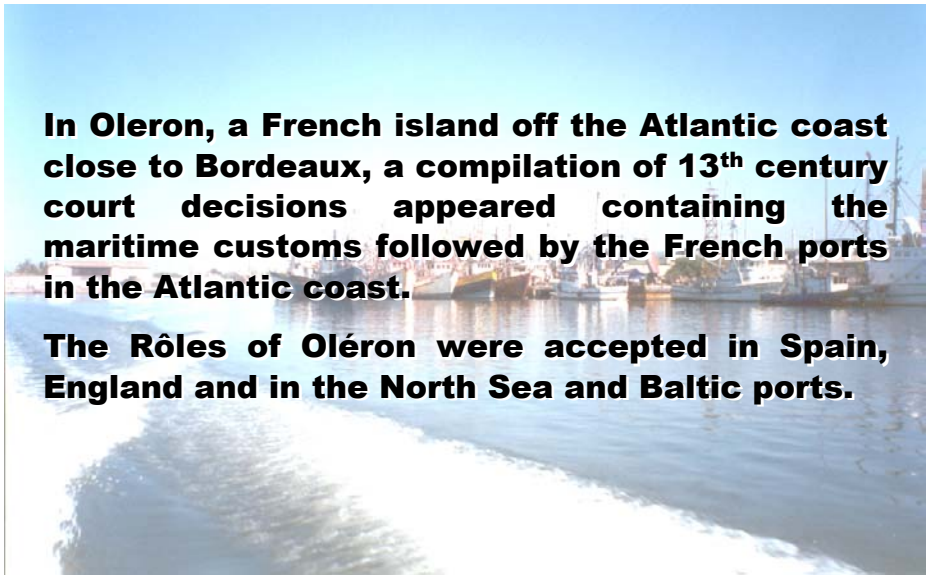

In Oleron, a French island off the Atlantic coast close to Bordeaux, a compilation of 13th century court decisions appeared containing the maritime customs followed by the French ports in the Atlantic coast.

The Rôles of Oléron were accepted in Spain, England and in the North Sea and Baltic ports.

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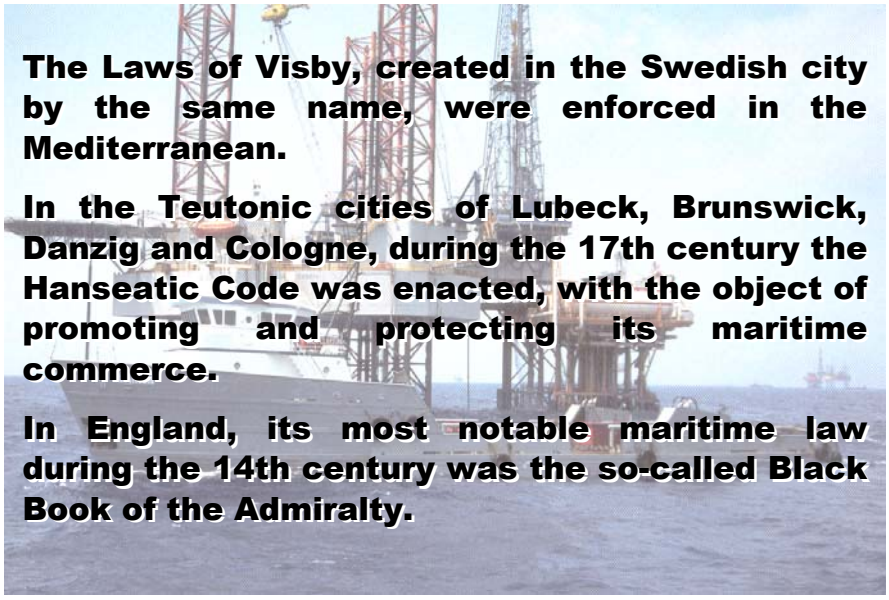

The Laws of Visby, created in the Swedish city by the same name, were enforced in the Mediterranean.

In the Teutonic cities of Lubeck, Brunswick, Danzig and Cologne, during the 17th century the Hanseatic Code was enacted, with the object of promoting and protecting its maritime commerce.

In England, its most notable maritime law during the 14th century was the so-called Black Book of the Admiralty.

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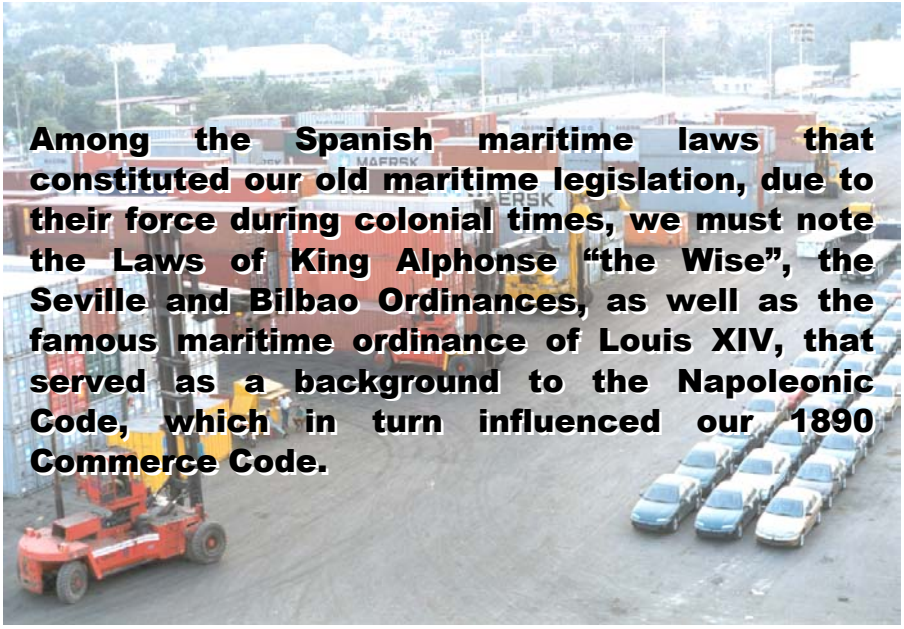

Among the Spanish maritime laws that constituted our old maritime legislation, due to their force during colonial times, we must note the Laws of King Alphonse "the Wise", the Seville and Bilbao Ordinances, as well as the famous maritime ordinance of Louis XIV, that served as a background to the Napoleonic Code, which in turn influenced our 1890 Commerce Code.

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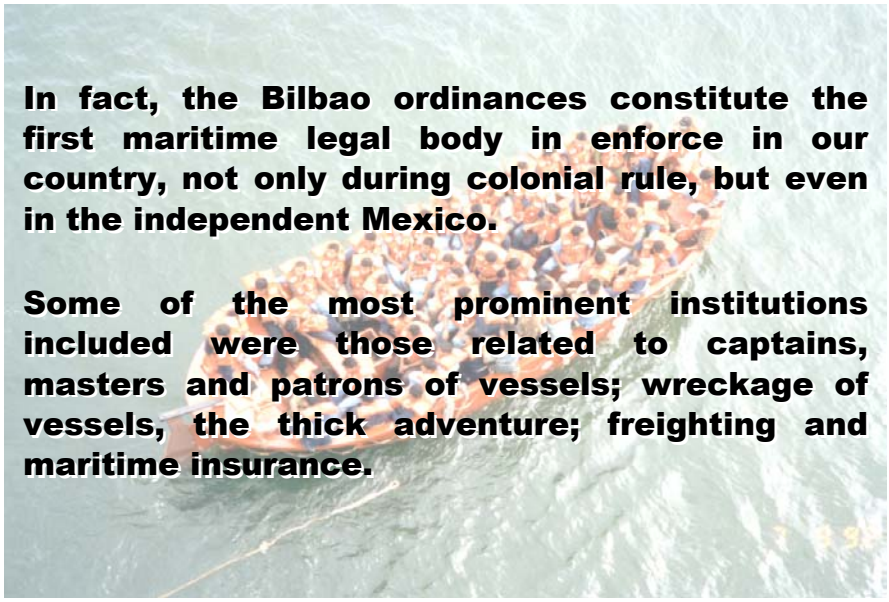

In fact, the Bilbao ordinances constitute the first maritime legal body in enforce in our country, not only during colonial rule, but even in the independent Mexico.

Some of the most prominent institutions included were those related to captains, masters and patrons of vessels; wreckage of vessels, the thick adventure; freighting and maritime insurance.

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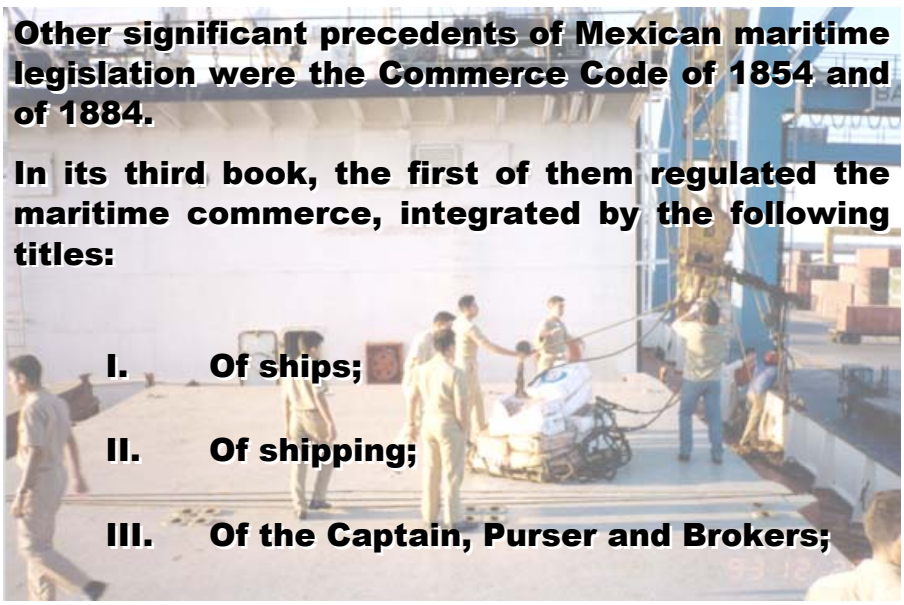

Other significant precedents of Mexican maritime legislation were the Commerce Code of 1854 and of 1884.

In its third book, the first of them regulated the maritime commerce, integrated by the following titles:

I. Of ships;

II. Of shipping;

III. Of the Captain, Purser and Brokers;

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IV. Of the special contracts of maritime commerce;

V. Of risk and damages of maritime commerce;

VI. Obligations prescription in maritime commerce; and

VII. Of knowledge in maritime business.

16

The 1884 Code was more advanced and in its third book integrated the following titles:

I. Of the vessels;

II. Of persons that participate in maritime commerce;

III. Of special contracts in maritime commerce;

IV. Of risks and damages in maritime commerce;

V. Of the naval mortgage.

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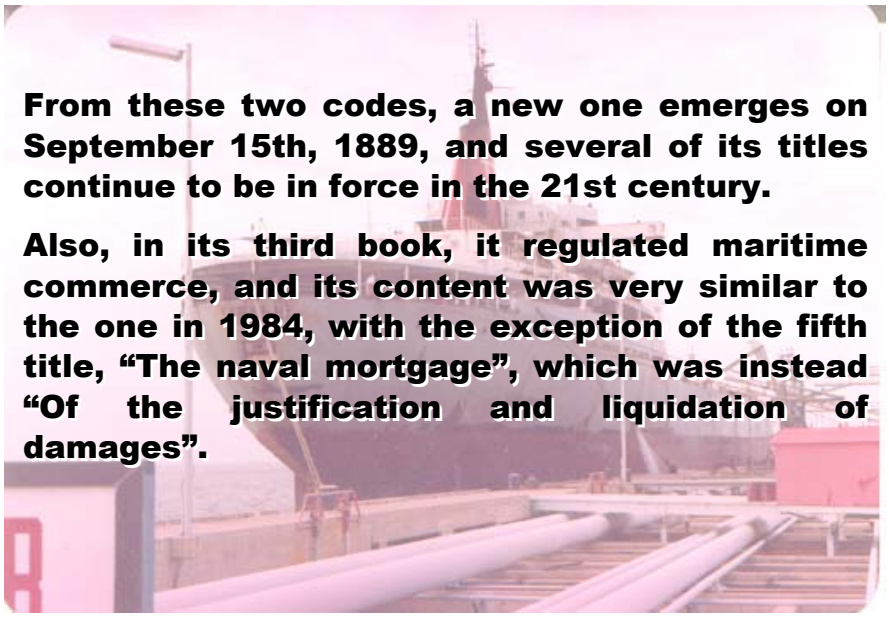

From these two codes, a new one emerges on September 15th, 1889, and several of its titles continue to be in force in the 21st century.

Also, in its third book, it regulated maritime commerce, and its content was very similar to the one in 1984, with the exception of the fifth title, “The naval mortgage”, which was instead “Of the justification and liquidation of damages”.

18

Simultaneously, in the Law of General Means of Communications enacted on May 28th, 1888, the territorial seas and estuary and lagoons lying by the beach recognized as such; channels built by the Federation; interior lakes and rivers if they were navigable were acknowledge as such.

In the years 1931 and 1932, respectively, the Laws of General Means of Communication and Modes of Transport, and the Law of General Means of Communication were enacted.

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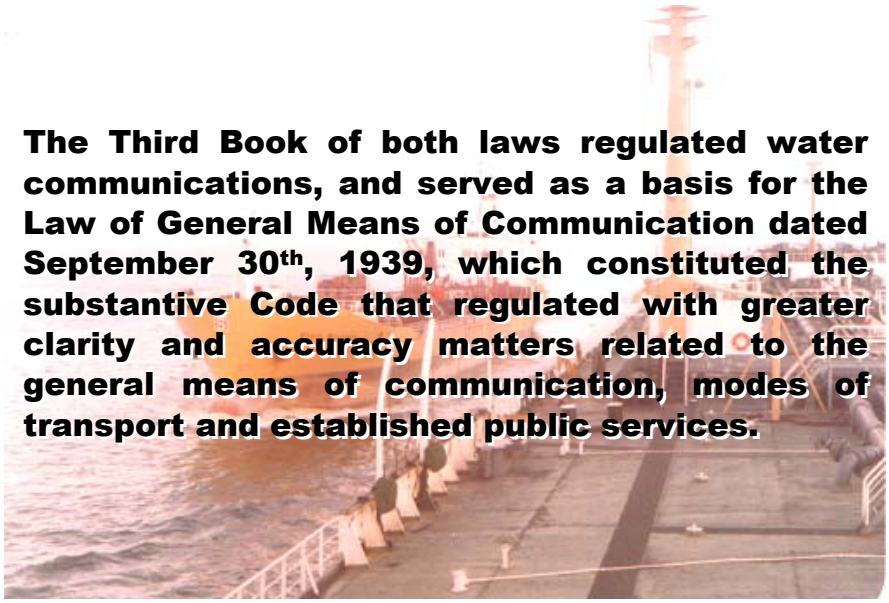

The Third Book of both laws regulated water communications, and served as a basis for the Law of General Means of Communication dated September 30th, 1939, which constituted the substantive Code that regulated with greater clarity and accuracy matters related to the general means of communication, modes of transport and established public services.

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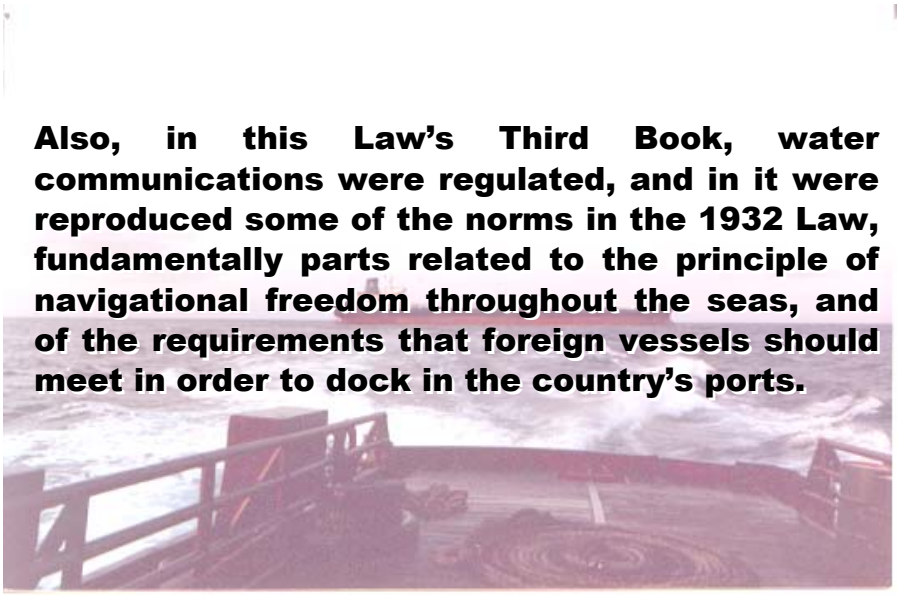

Also, in this Law's Third Book, water communications were regulated, and in it were reproduced some of the norms in the 1932 Law, fundamentally parts related to the principle of navigational freedom throughout the seas, and of the requirements that foreign vessels should meet in order to dock in the country's ports.

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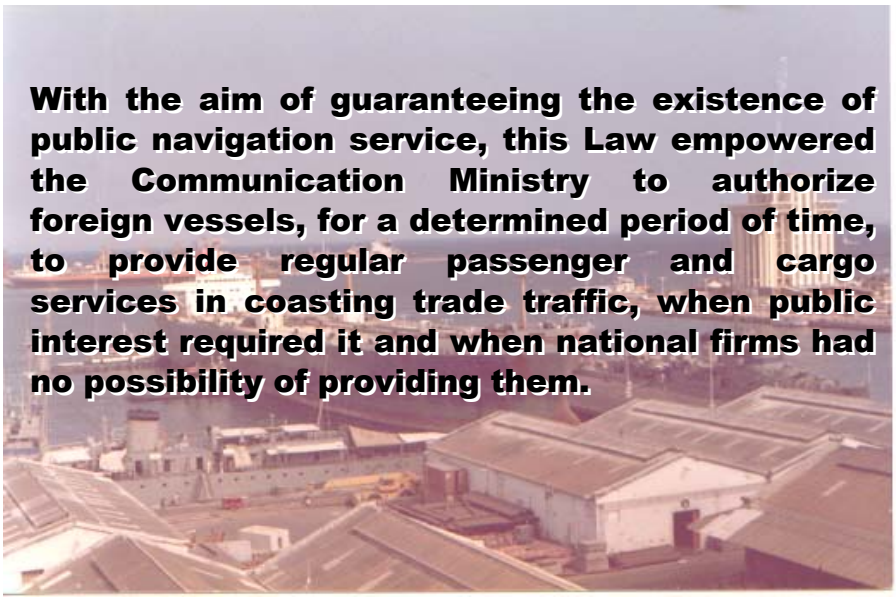

With the aim of guaranteeing the existence of public navigation service, this Law empowered the Communication Ministry to authorize foreign vessels, for a determined period of time, to provide regular passenger and cargo services in coasting trade traffic, when public interest required it and when national firms had no possibility of providing them.

22

The Third Book of this Law was integrated by the following chapters:

I. Of maritime authority;

II. Works in federal jurisdiction, in ports and the federal zone;

III. On navigation;

IV. Of arrivals and landfall;

V. Of the sojourn in port;

23

VI. Of mooring and forlornness of vessels;

VII. Of vessel dispatch;

VIII. Of the service of naval inspection;

IX. Of piling service and complementary maneuvers;

X. Of maritime accidents;

XI. Of the ports police;

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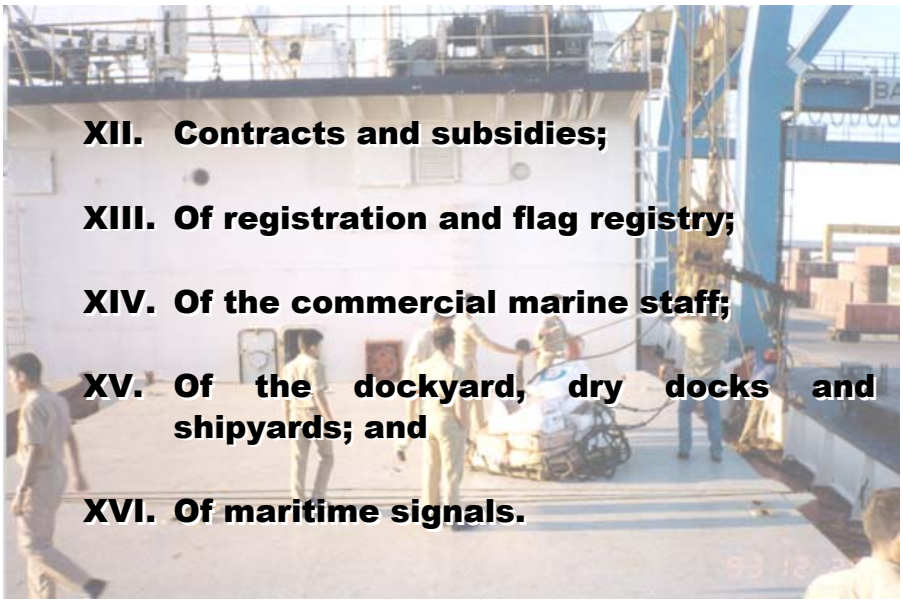

XII. Contracts and subsidies;

XIII. Of registration and flag registry;

XIV. Of the commercial marine staff;

XV. Of the dockyard, dry docks and shipyards; and

XVI. Of maritime signals.

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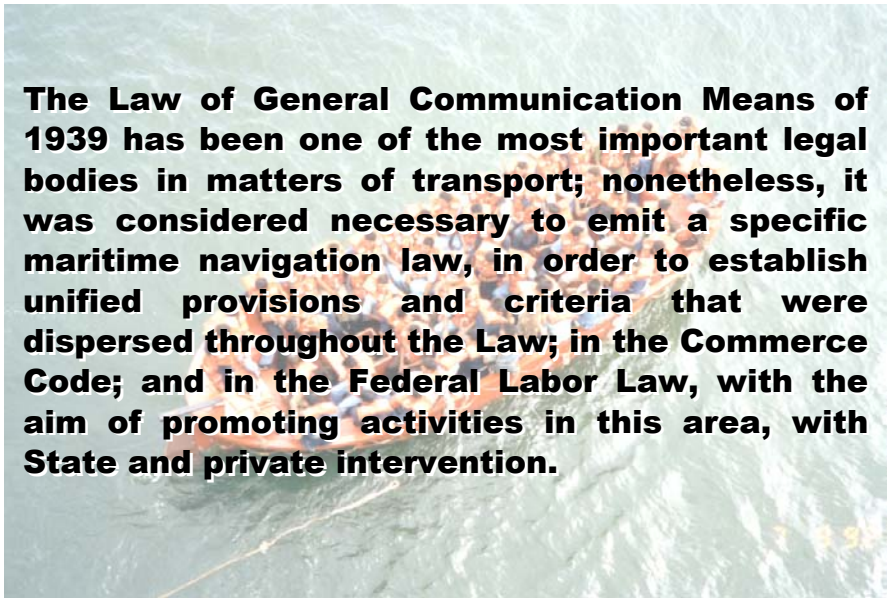

The Law of General Communication Means of 1939 has been one of the most important legal bodies in matters of transport; nonetheless, it was considered necessary to emit a specific maritime navigation law, in order to establish unified provisions and criteria that were dispersed throughout the Law; in the Commerce Code; and in the Federal Labor Law, with the aim of promoting activities in this area, with State and private intervention.

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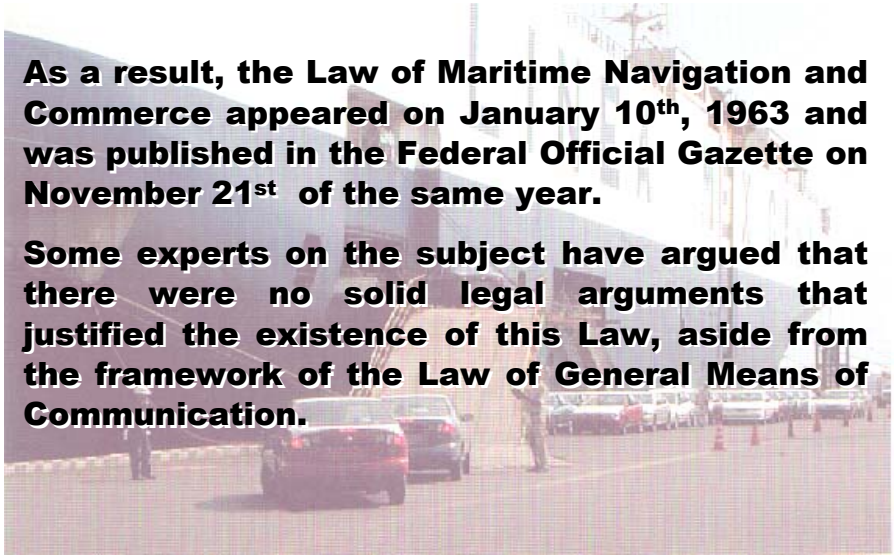

As a result, the Law of Maritime Navigation and Commerce appeared on January 10th, 1963 and was published in the Federal Official Gazette on November 21st of the same year.

Some experts on the subject have argued that there were no solid legal arguments that justified the existence of this Law, aside from the framework of the Law of General Means of Communication.

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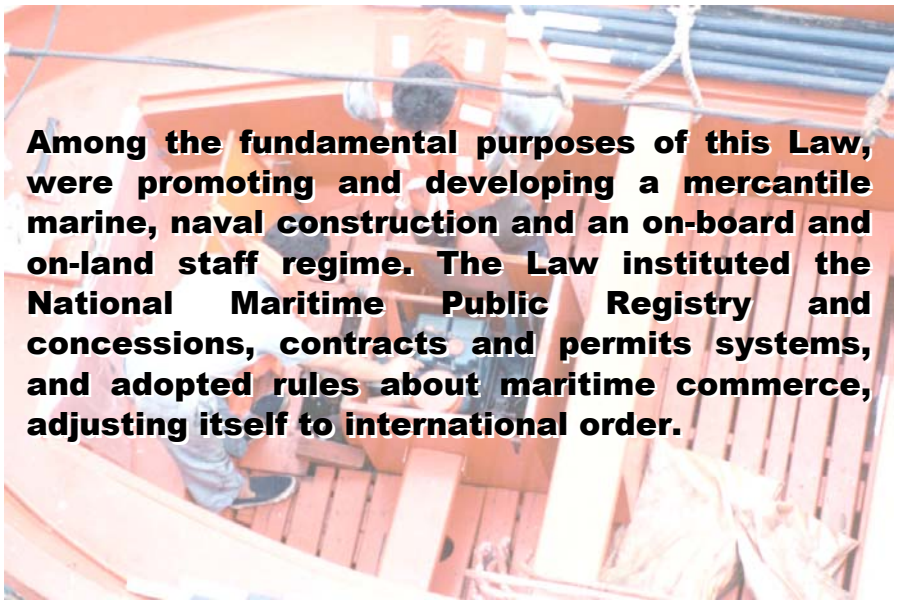

Among the fundamental purposes of this Law, were promoting and developing a mercantile marine, naval construction and an on-board and on-land staff regime. The Law instituted the National Maritime Public Registry and concessions, contracts and permits systems, and adopted rules about maritime commerce, adjusting itself to international order.

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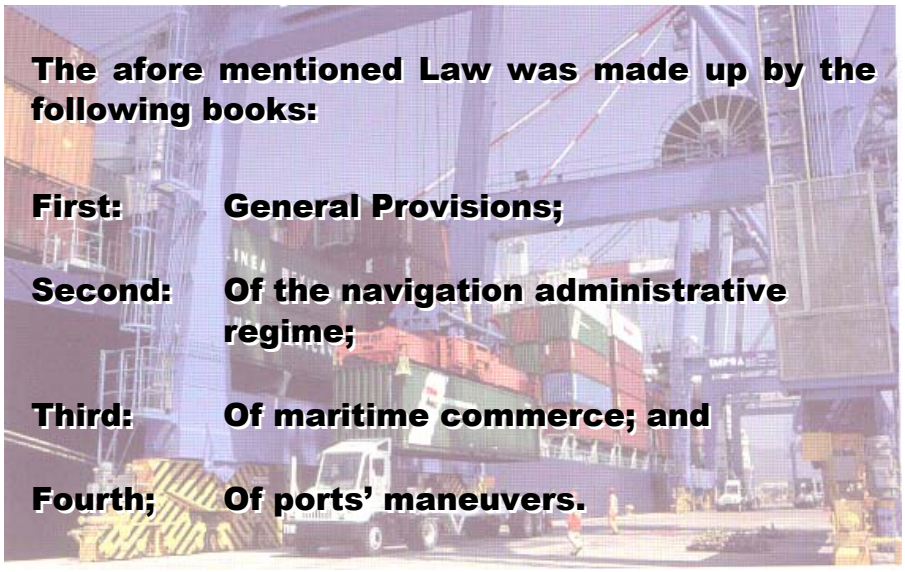

The afore mentioned Law was made up by the following books:

First: General Provisions;

Second: Of the navigation administrative regime;

Third: Of maritime commerce; and

Fourth; Of ports' maneuvers.

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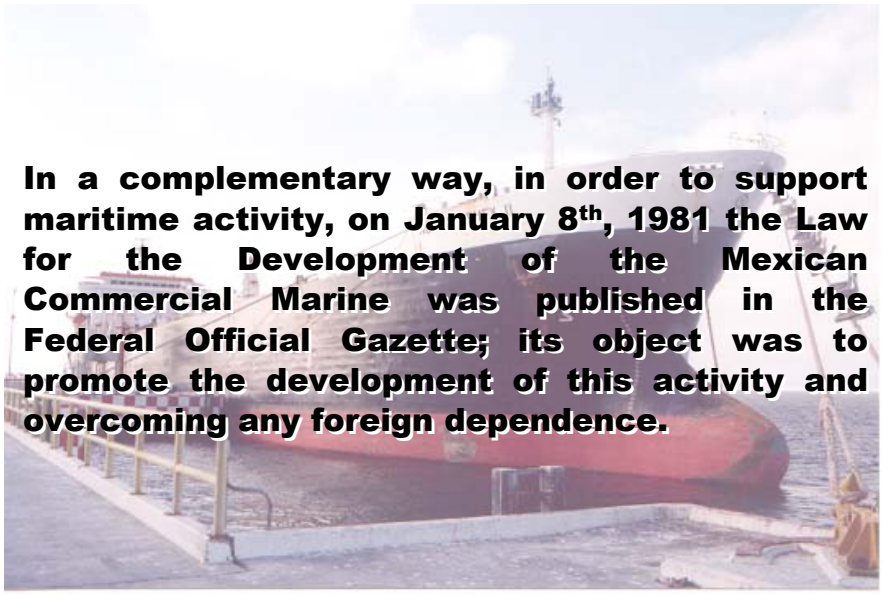

In a complementary way, in order to support maritime activity, on January 8th, 1981 the Law for the Development of the Mexican Commercial Marine was published in the Federal Official Gazette; its object was to promote the development of this activity and overcoming any foreign dependence.

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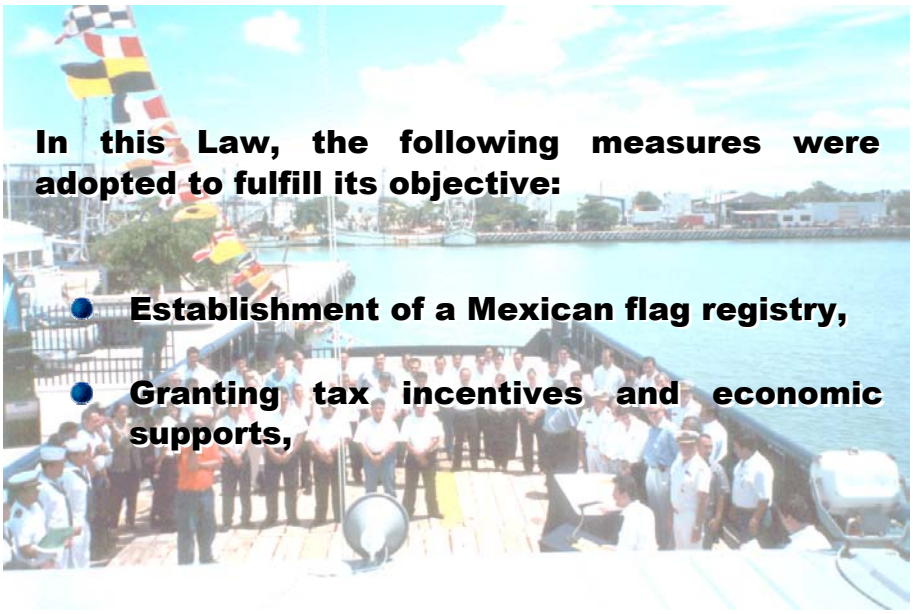

In this Law, the following measures were adopted to fulfill its objective:

- Establishment of a Mexican flag registry,
- Granting tax incentives and economic supports,

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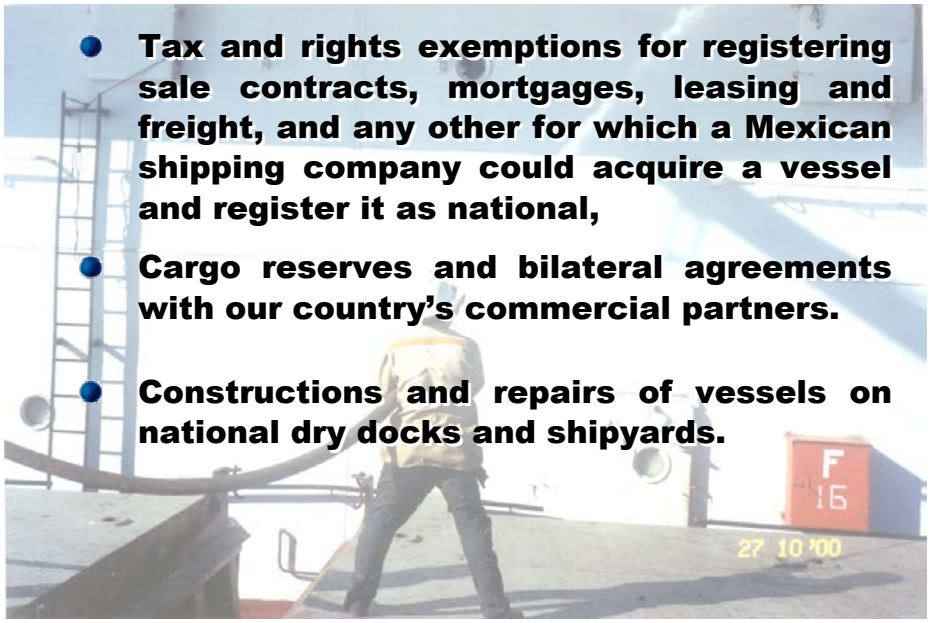
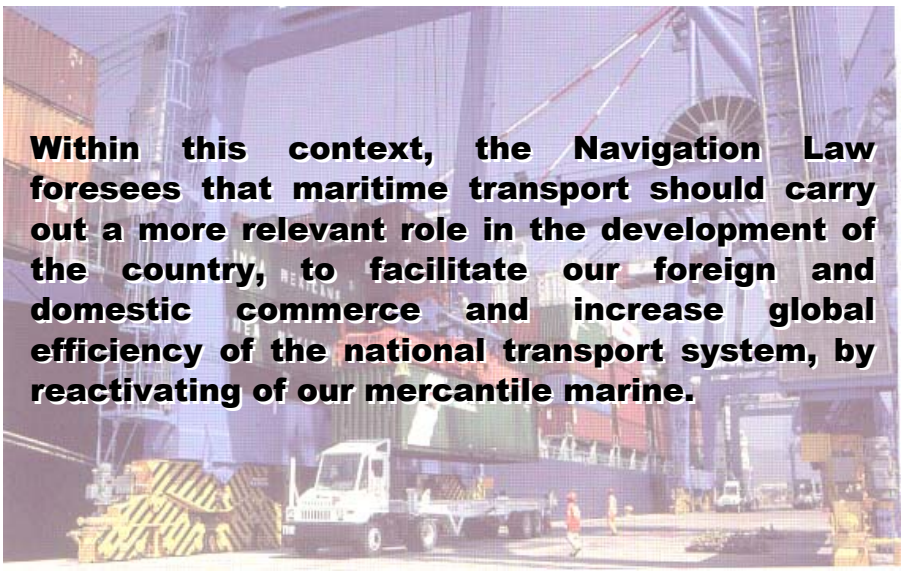


- **Tax and rights exemptions for registering sale contracts, mortgages, leasing and freight, and any other for which a Mexican shipping company could acquire a vessel and register it as national,**
- **Cargo reserves and bilateral agreements with our country's commercial partners.**
- **Constructions and repairs of vessels on national dry docks and shipyards.**

32

Finally, on January 4th, 1994 the Navigation Law currently in force was published as part of the modernization strategy that seeks economic openness to commercial competition, based on a platform that strengthens our commercial relationships with different markets in the world and increases competitiveness of our productive system, to take advantage of world transformation to the benefit of our social and economic development.

33



Within this context, the Navigation Law foresees that maritime transport should carry out a more relevant role in the development of the country, to facilitate our foreign and domestic commerce and increase global efficiency of the national transport system, by reactivating of our mercantile marine.

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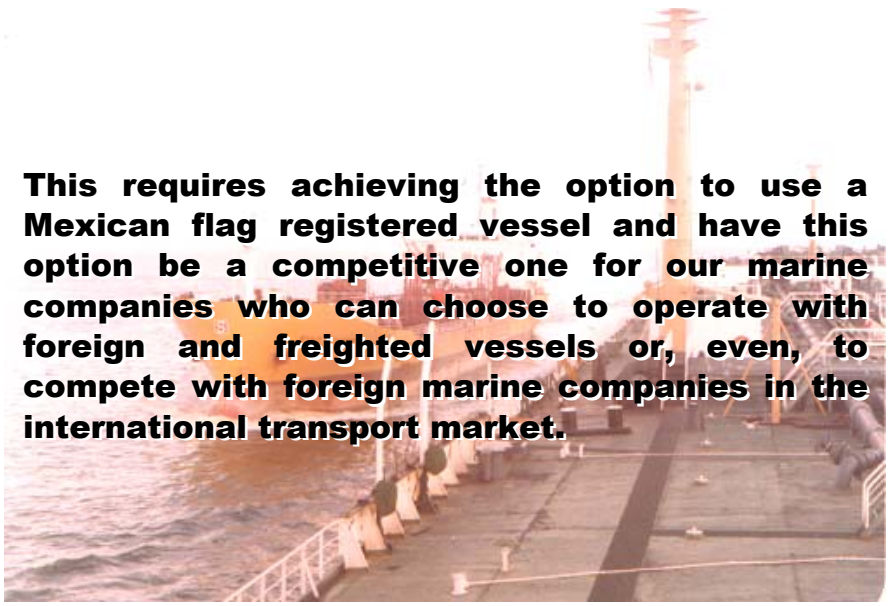
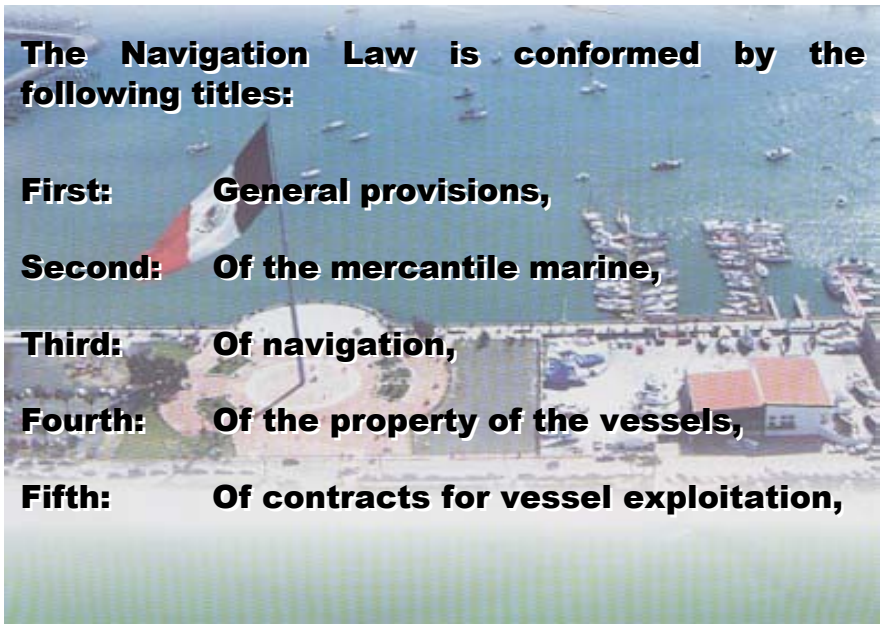


This requires achieving the option to use a Mexican flag registered vessel and have this option be a competitive one for our marine companies who can choose to operate with foreign and freighted vessels or, even, to compete with foreign marine companies in the international transport market.

35



The Navigation Law is conformed by the following titles:

First: General provisions,

Second: Of the mercantile marine,

Third: Of navigation,

Fourth: Of the property of the vessels,

Fifth: Of contracts for vessel exploitation,

36

Sixth: Of risks and accidents in navigation, and

Seventh: Sanctions.

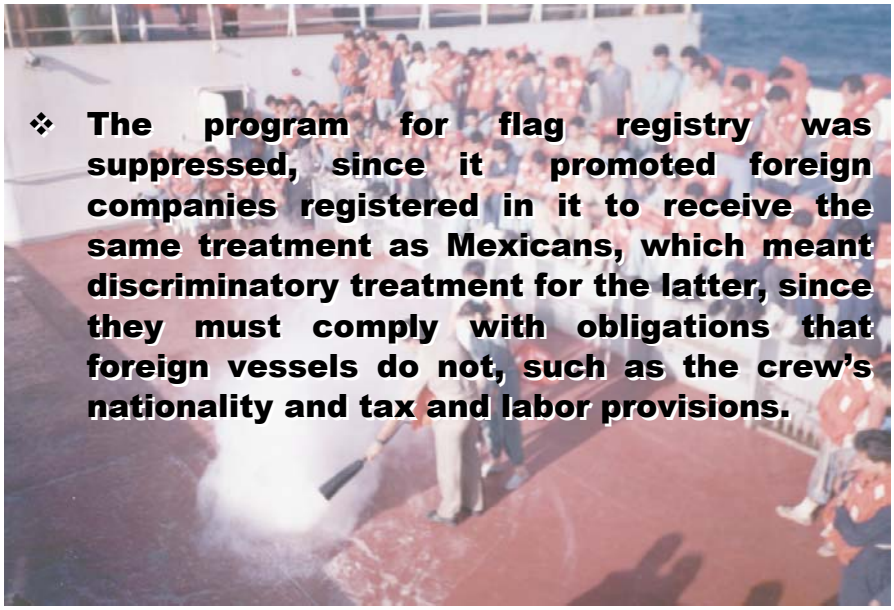
In recent years, as a result of a broad consultation with different sectors involved in the maritime transport industry, and of several work meetings promoted by Senators from different parliamentary groups, it was deemed necessary to modify some provisions in the Law of Navigation, so on May 26th, 2000, the Decree that reforms and adds to the Law of Navigation was published in the Federal Official Gazette.

37

Among the most important reforms contained in this decree, are the following:

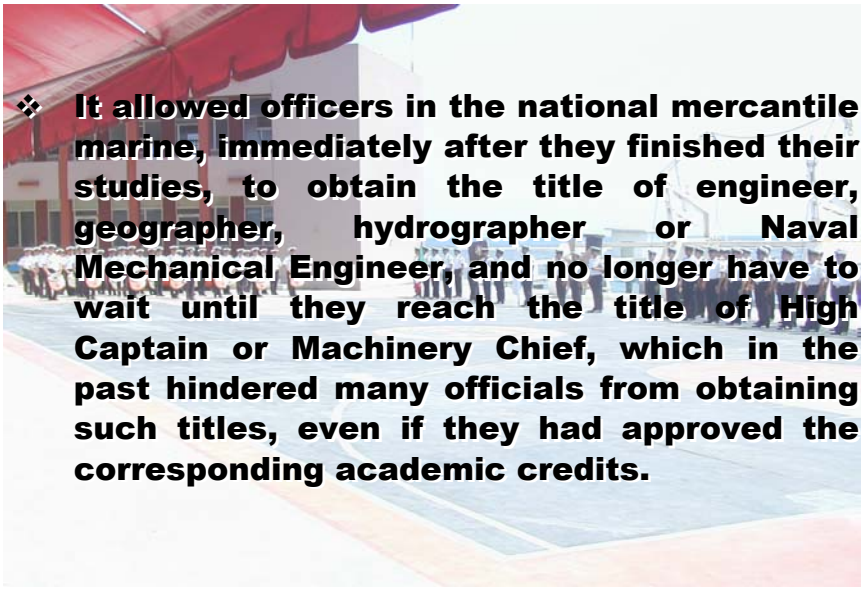
- **To speed up and simplify the proceedings that take place before the maritime authority, as well as to give more certainty to the procedures, the Law of Federal Administrative Procedure was incorporated among the legal instruments of suppletory enforcement to the Law of Navigation.**

38



- **The program for flag registry was suppressed, since it promoted foreign companies registered in it to receive the same treatment as Mexicans, which meant discriminatory treatment for the latter, since they must comply with obligations that foreign vessels do not, such as the crew's nationality and tax and labor provisions.**

39

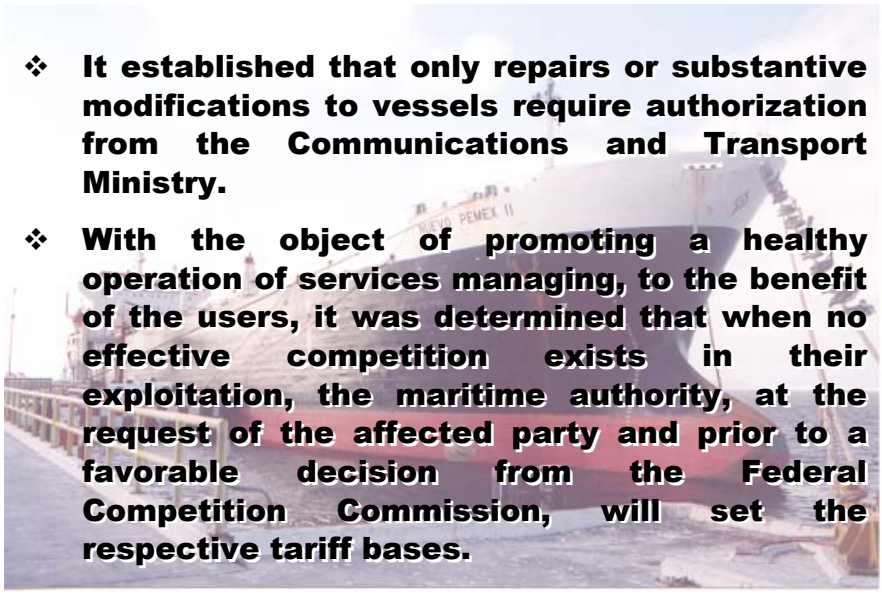


- It allowed officers in the national mercantile marine, immediately after they finished their studies, to obtain the title of engineer, geographer, hydrographer or Naval Mechanical Engineer, and no longer have to wait until they reach the title of High Captain or Machinery Chief, which in the past hindered many officials from obtaining such titles, even if they had approved the corresponding academic credits.

40

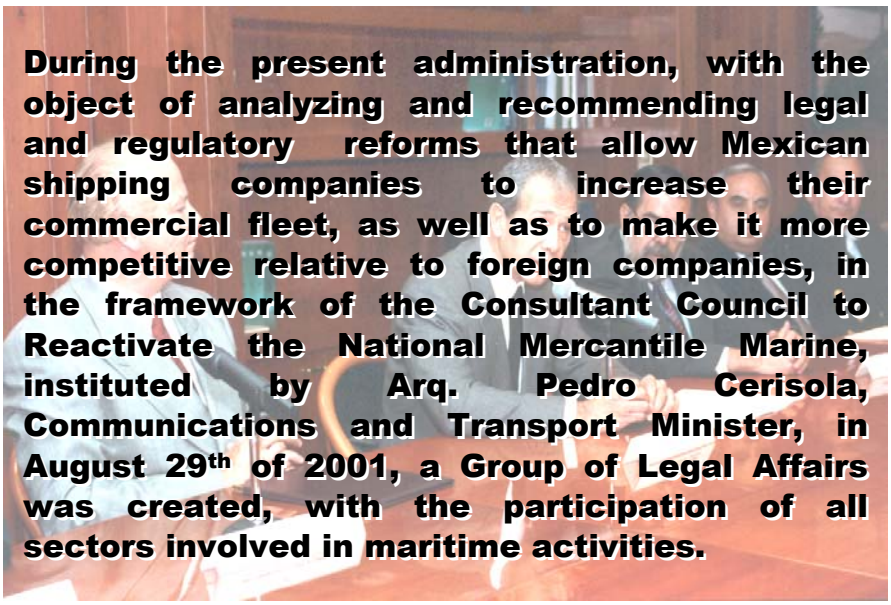
- It determined that coasting trade is reserved for Mexican shipping companies on Mexican ships; and that only when these are absent, temporary permits would be granted, according to a scheme that gave preference to Mexican companies.
- It simplified the procedure to issue dispatches to fisher boats to enter into high seas.

41



- It established that only repairs or substantive modifications to vessels require authorization from the Communications and Transport Ministry.
- With the object of promoting a healthy operation of services managing, to the benefit of the users, it was determined that when no effective competition exists in their exploitation, the maritime authority, at the request of the affected party and prior to a favorable decision from the Federal Competition Commission, will set the respective tariff bases.

42



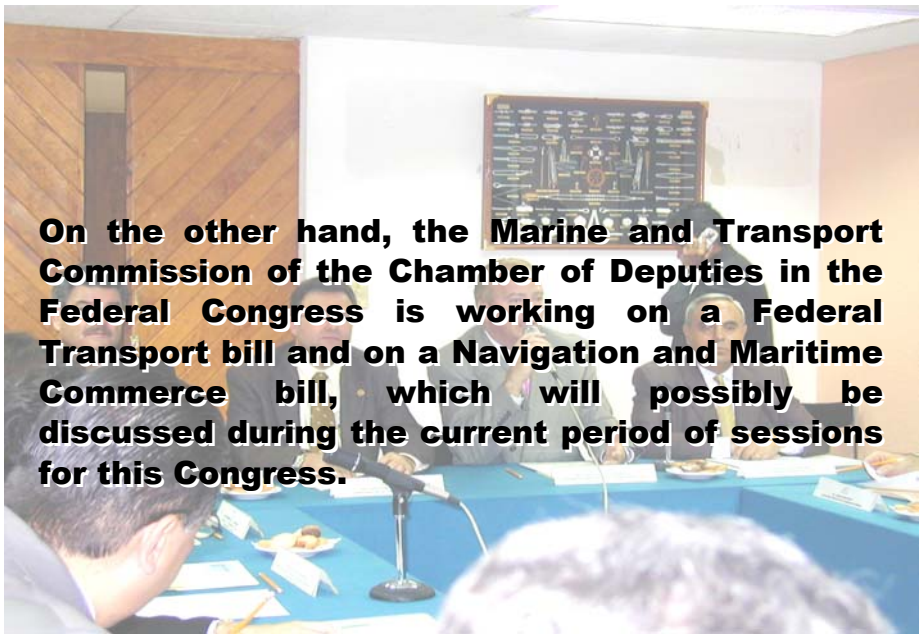
During the present administration, with the object of analyzing and recommending legal and regulatory reforms that allow Mexican shipping companies to increase their commercial fleet, as well as to make it more competitive relative to foreign companies, in the framework of the Consultant Council to Reactivate the National Mercantile Marine, instituted by Arq. Pedro Cerisola, Communications and Transport Minister, in August 29th of 2001, a Group of Legal Affairs was created, with the participation of all sectors involved in maritime activities.

43

This group reviewed the current legal regime regarding coast trading navigation, and concluded with a proposed reform bill to article 34 of the Law of Navigation, focused at decreasing to the minimum the granting of permits and promoting the flag registration of Mexican vessels.

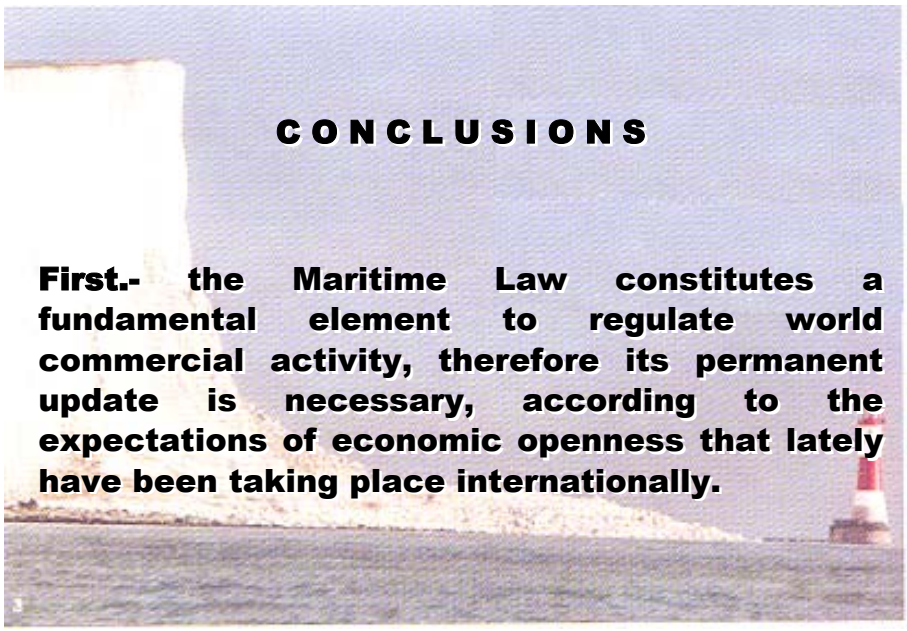
Likewise, it concluded a project of additions to the Law of Navigation on insurance matters and maritime commerce, and is about to conclude a bill for the reactivation of the national mercantile marine.

44



On the other hand, the Marine and Transport Commission of the Chamber of Deputies in the Federal Congress is working on a Federal Transport bill and on a Navigation and Maritime Commerce bill, which will possibly be discussed during the current period of sessions for this Congress.

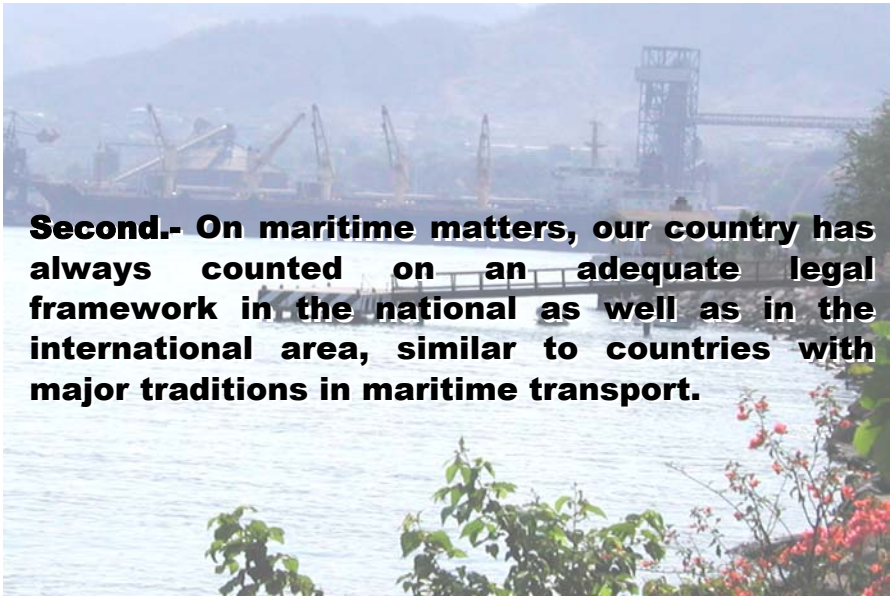
45



C O N C L U S I O N S

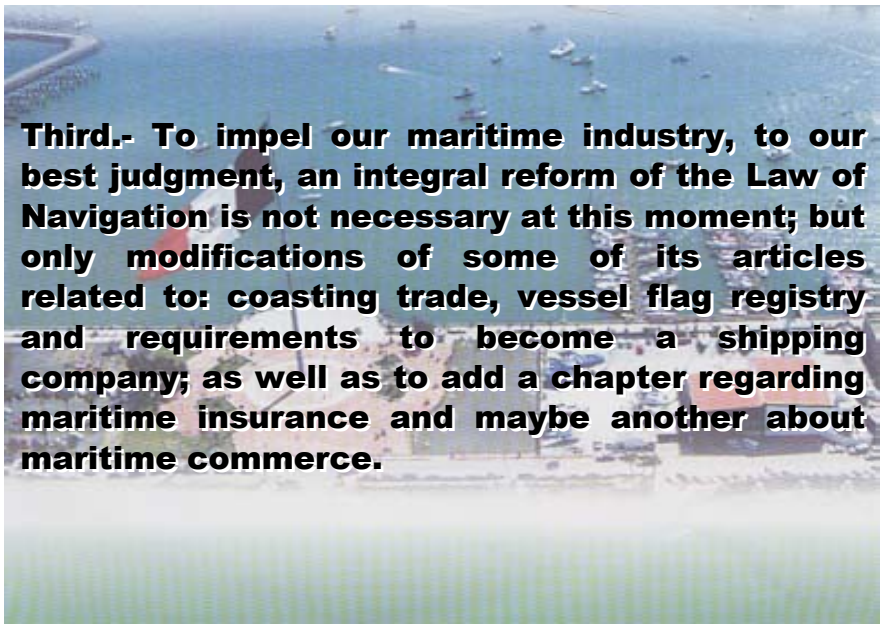
First.- the Maritime Law constitutes a fundamental element to regulate world commercial activity, therefore its permanent update is necessary, according to the expectations of economic openness that lately have been taking place internationally.

46



Second.- On maritime matters, our country has always counted on an adequate legal framework in the national as well as in the international area, similar to countries with major traditions in maritime transport.

47



Third.- To impel our maritime industry, to our best judgment, an integral reform of the Law of Navigation is not necessary at this moment; but only modifications of some of its articles related to: coasting trade, vessel flag registry and requirements to become a shipping company; as well as to add a chapter regarding maritime insurance and maybe another about maritime commerce.

48

Fourth.- What is imperative at this moment is to reactivate the national mercantile marine and the naval construction industry, new tax and labor regulations, similar to those instrumented in other countries to support their mercantile marines; thus be able to confront under equal conditions the mercantile marines that operate with competitors' flags or open registry.

49


Fifth.- In any case, for any reform that seeks to change the Law of Navigation, the points of view of the Mexican shipping companies should be considered, since they are risking their investments; also those of the major maritime service users; as well as those from central and other federal governmental offices that are in charge of the Economy, Energy, Competition, Regulatory Improvement, Tourism and Transport.

50

DEVELOPMENT PERSPECTIVES OF THE MARITIME INDUSTRY

Factors for development

In Mexico, development of Maritime Commerce depends on many factors, domestic as well as external

- External factors
  - Growth of world economy.
  - Free Trade Agreements

External Factors

Mexico is the country with most Free Trade Agreements in the world

ECA Mexico-Uruguay
FTA Mexico-EFTA (Switzerland, Norway, Iceland, Liechtenstein)
FTA Mexico-North America (USA, Canada)
FTA Mexico-Bolivia
FTA Mexico-Chile
FTA Mexico-Costa Rica
FTA Mexico-The group of three (Mexico, Colombia and Venezuela)
FTA Mexico-Israel
FTA Mexico- Nicaragua
FTA Mexico-North Triangle (Salvador, Honduras and Nicaragua)
FTA Mexico- European Union

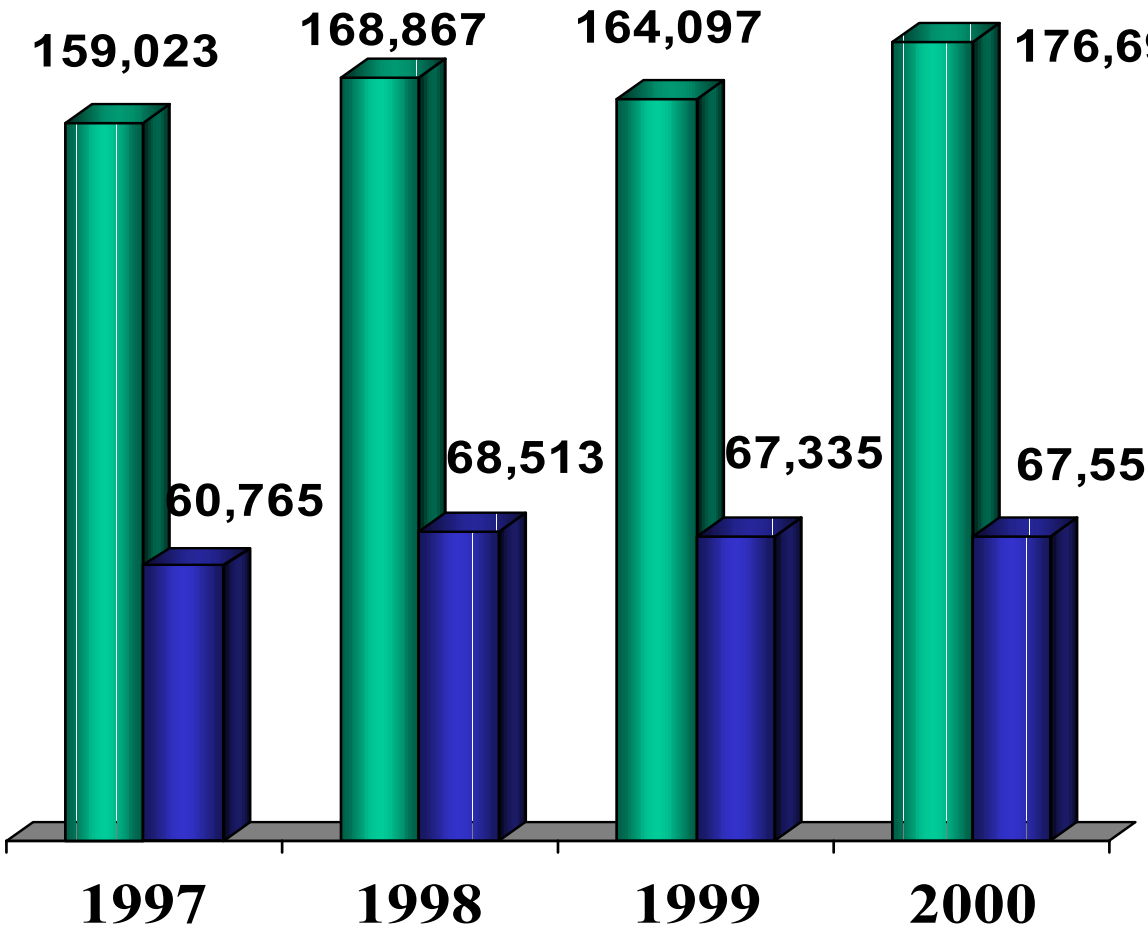
Domestic Factors

- **Connectivity of Mexican ports with highway and railway systems**

Movement of Freight in Mexican Ports

Port Freight Movement

Thousands of tons



11% In the period

TMCA = 2.75%

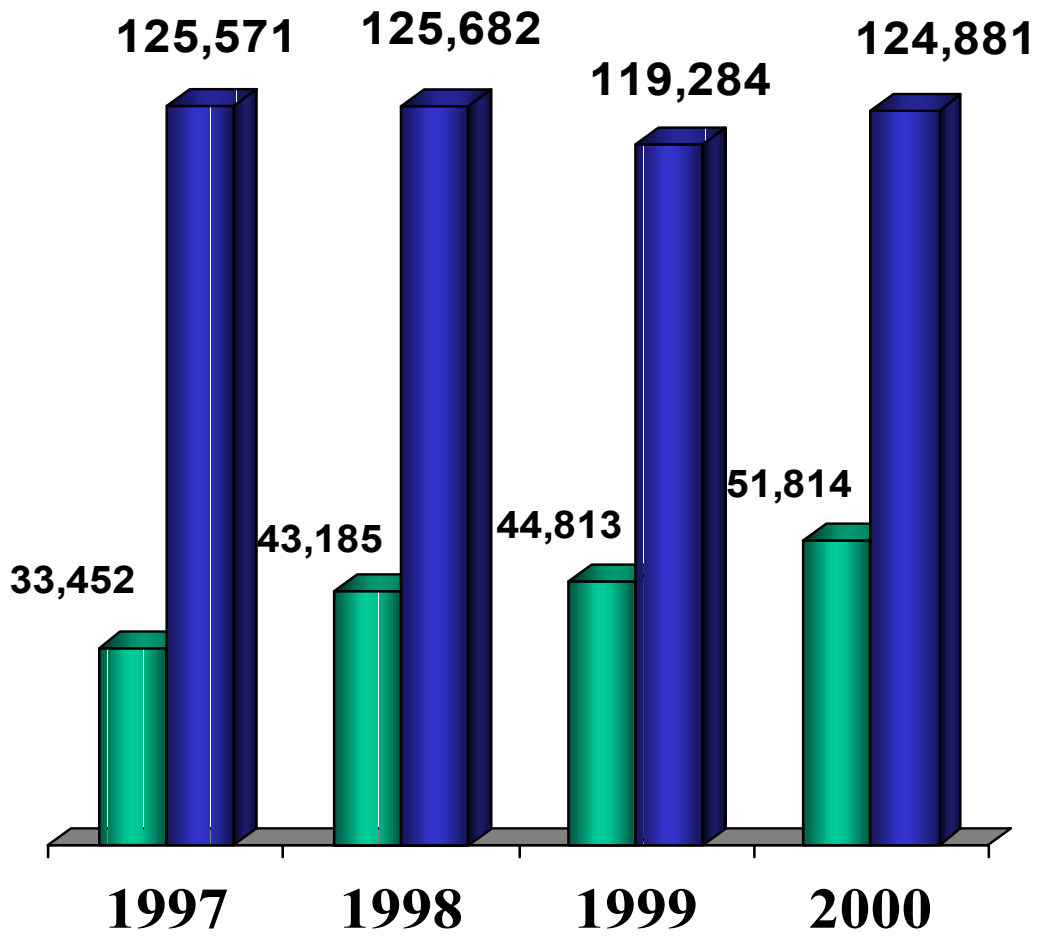
11% In the period

TMCA = 2.75 %

Source: Mexican Ports in numbers, 1996-2000. SCT

Freight Movement in Linner Traffic

Thousands of tons



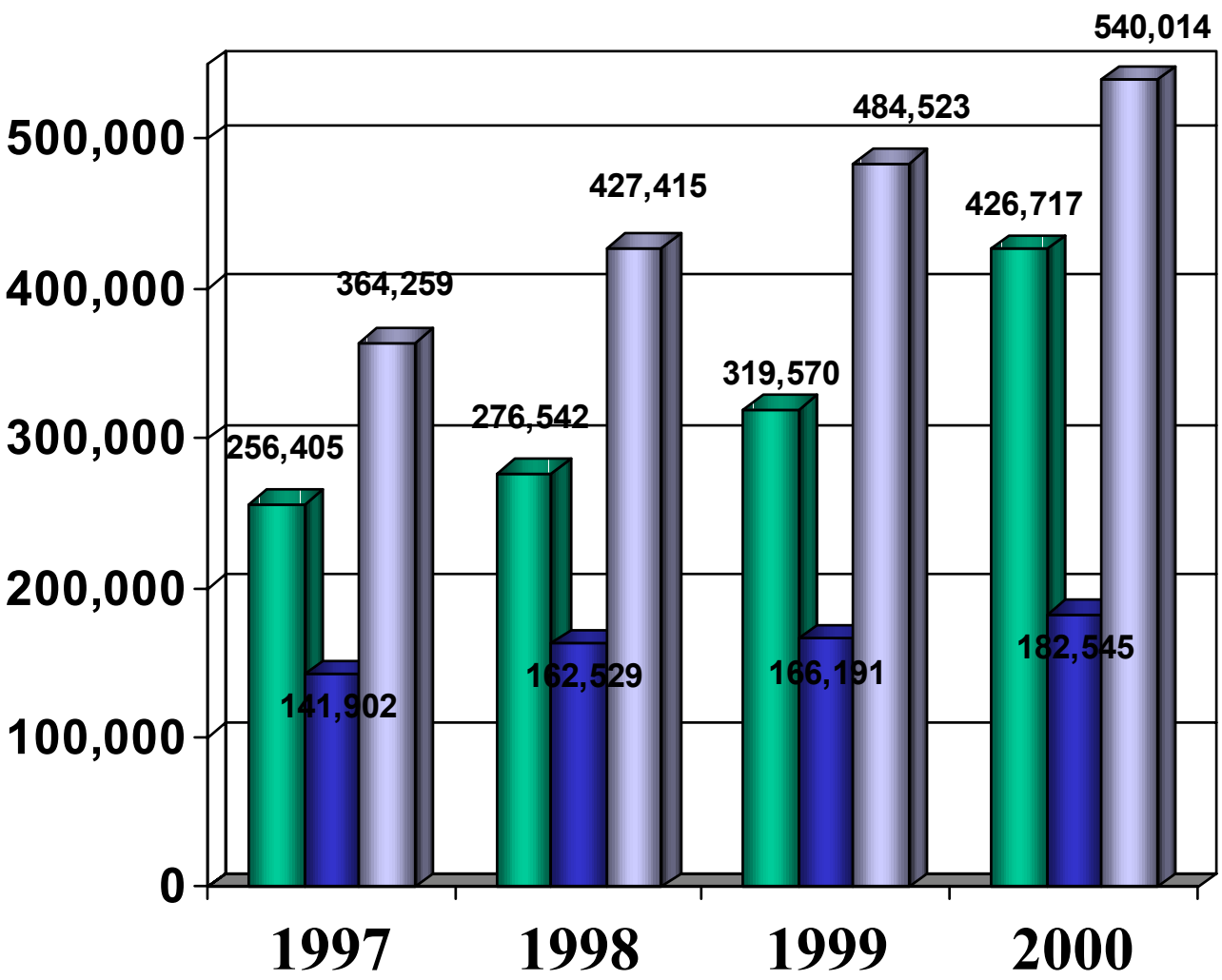
0.5% In the period

55% In the period

TMCA = 13.7 %

Source: Mexican Ports in numbers, 1996-2000. SCT

Container Movement



48% In the period

TMCA = 12 %

66% In the period

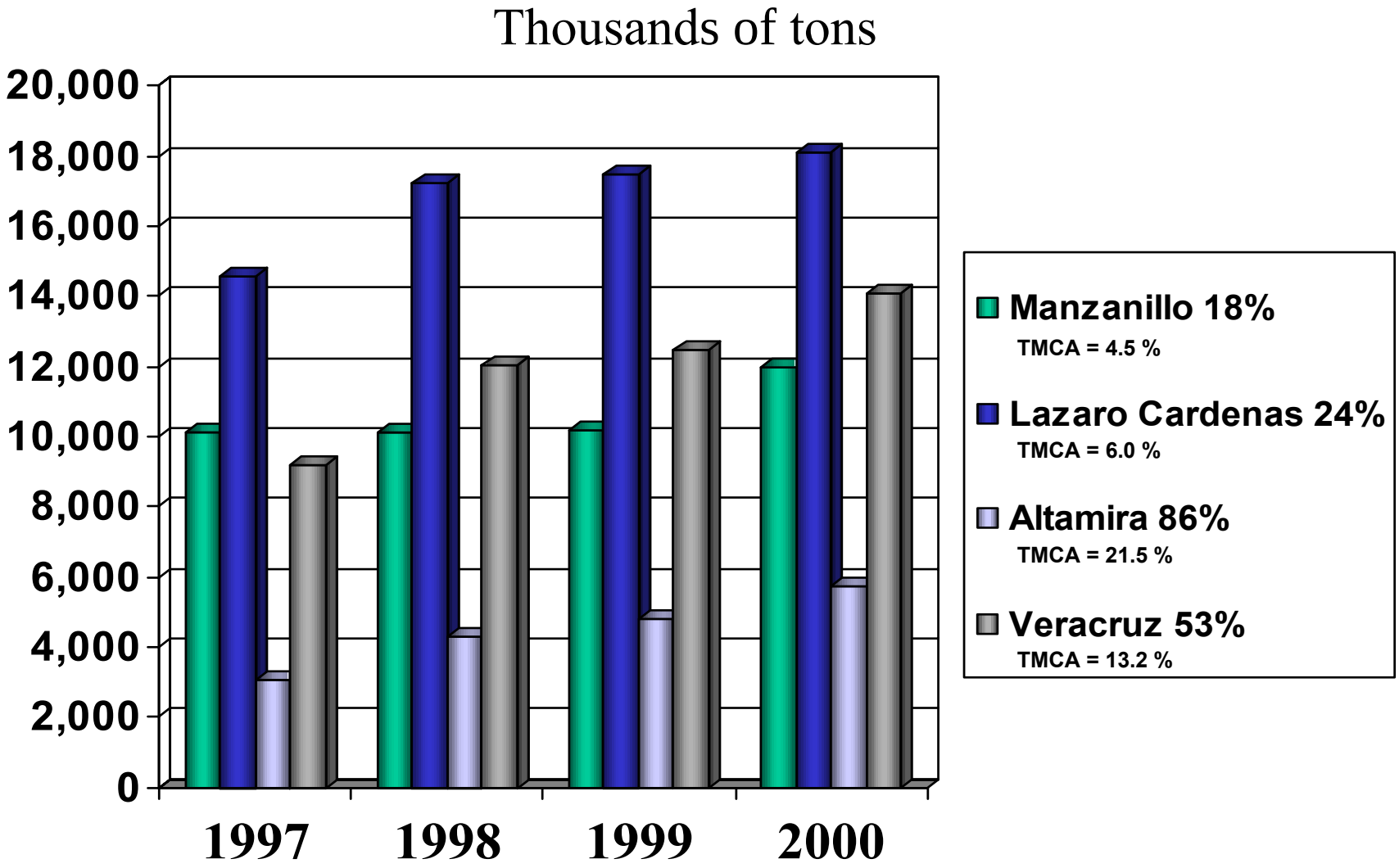
TMCA = 16.5 %

28% In the period

TMCA = 7 %

Source: Mexican Ports in numbers, 1996-2000. SCT

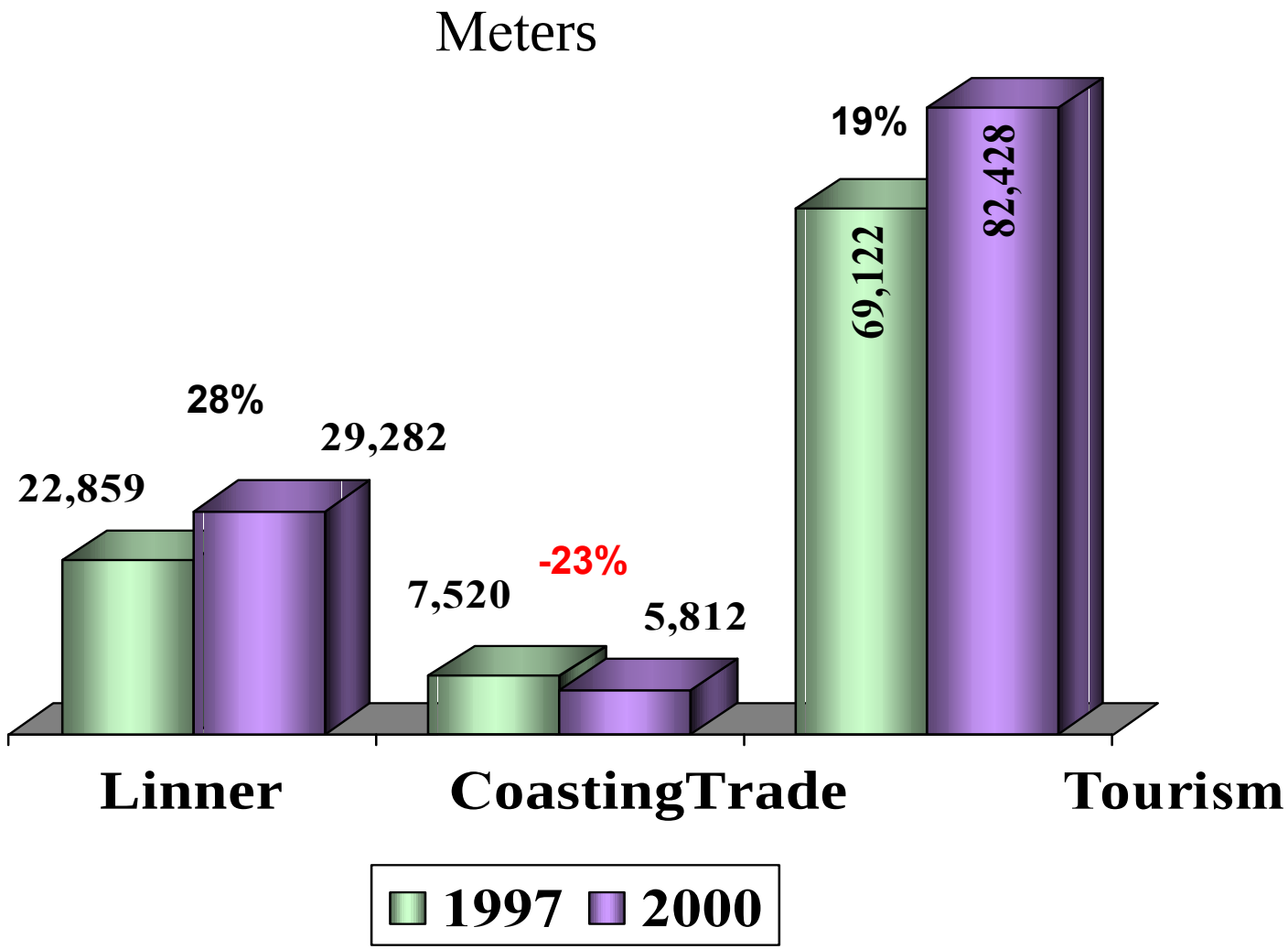
Comparative of Freight Movements Mexican Ports



Source: Mexican Ports in numbers, 1996-2000. SCT

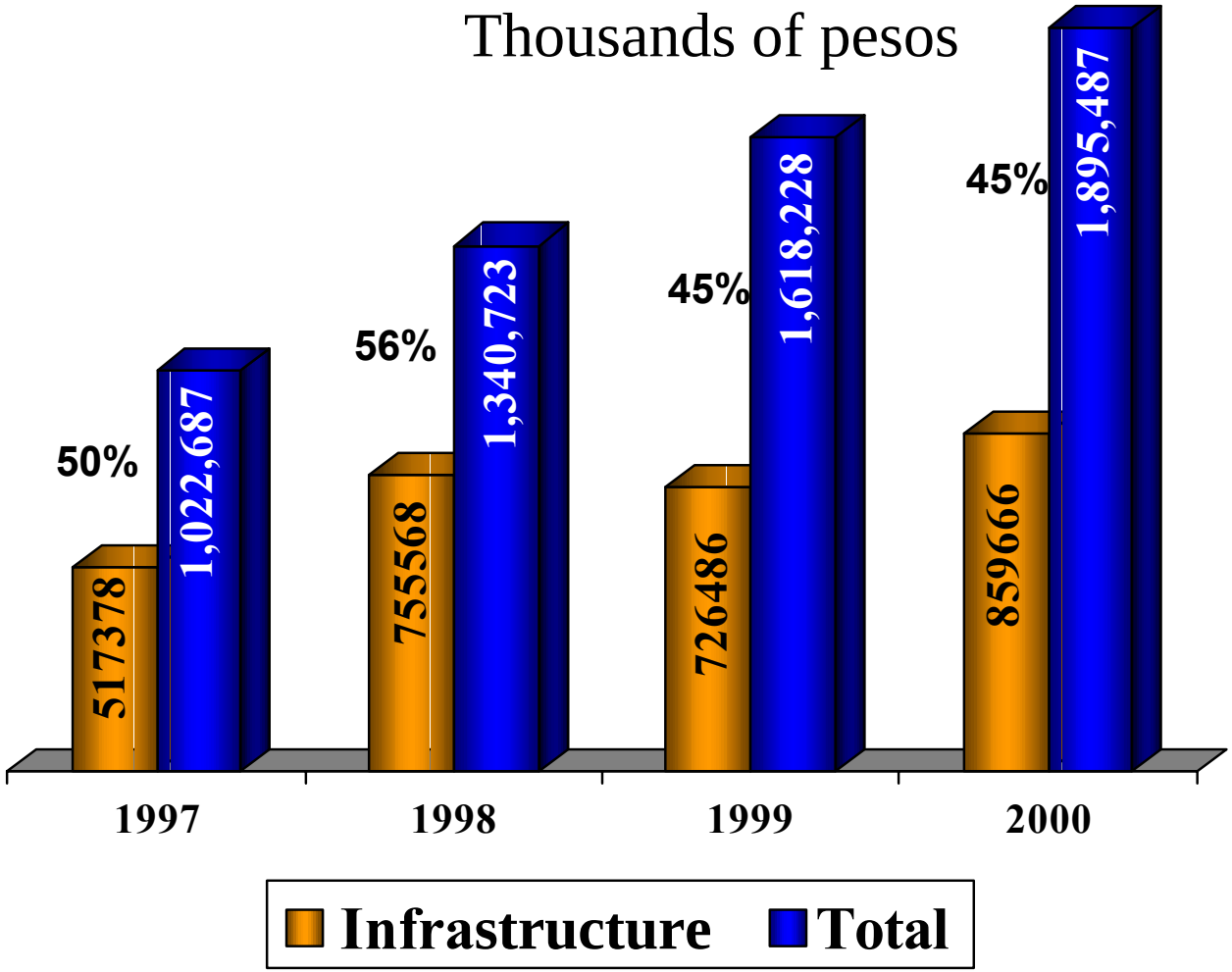
Infrastructure in Mexican Ports

Length of Total berthing



Source: Mexican Ports in numbers, 1996-2000. SCT

Expenses of Port Administration



Source: Mexican Ports in numbers, 1996-2000. SCT

- An important market exists with great potential.
- Port infrastructure has been developing.

However....

Connectivity of Mexican ports with highways and railway systems

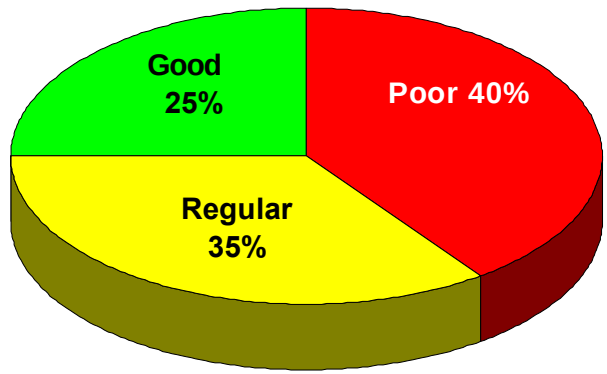
MEXICAN RAILWAY

FREIGHT CAPACITY OF RAILWAY LINES IN 2000

August, 2000

Current distribution of road trunk axes

Physical state of the free federal network
(41,659 Km.)



Fuente: M

Conclusion

We can't foresee the process of development of maritime commerce as something isolated and totally dependant on port development.

It is necessary, together with other maritime-port topics, to resolve the connectivity problem between Mexican ports, highway and railway systems.

.

This allow us to exploit the competitive advantage confered to us by our geographic location and take advantage in a more efficient way of the closeness with our principal commercial partner.

An other aspect that we should take advantage of is the economic openness policy of Mexico.

Therefore it is essential to improve multimodal connectivity between maritime, railway and road transport.

Seminar on Regulation and Competition in the Transport Sector

The Logistic Platforms in Mexican Ports

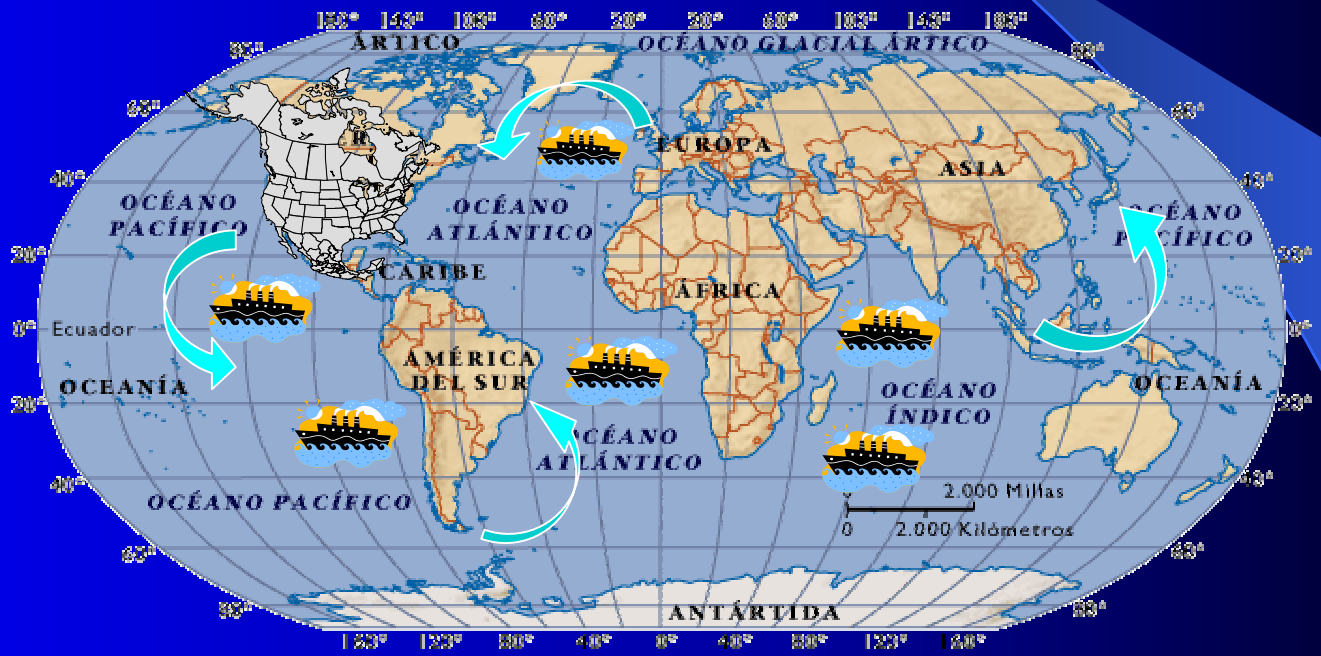
Lic. Hugo Cruz Valdés

Globalized Economy

Logistic and Tansport Activities

Competitiveness

Production Costs ⇒ Distribution Costs

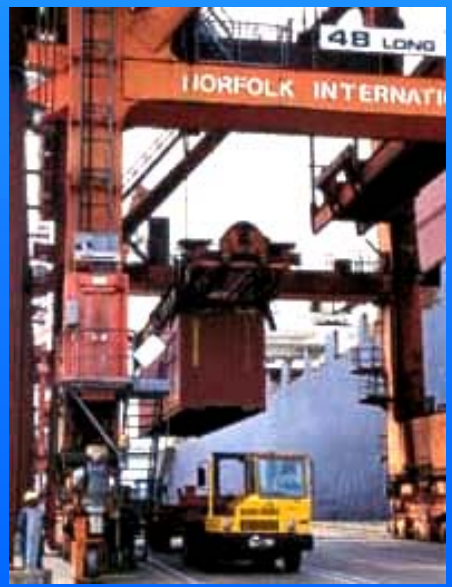


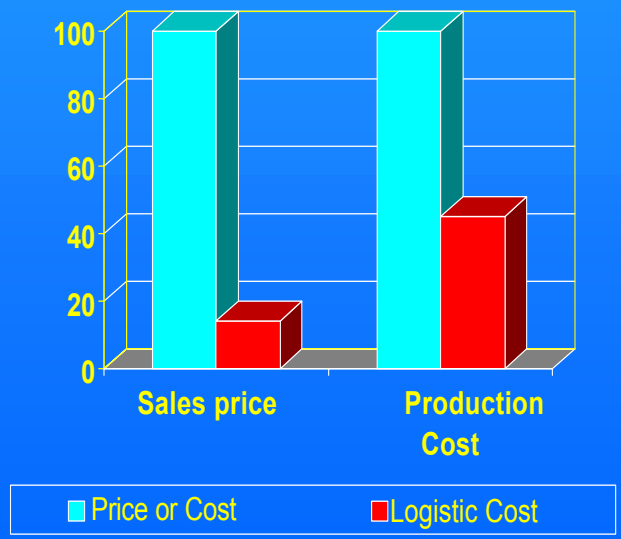
Maritime Transport ⇒ Exporting Strategy

Logistic and transport costs.

Products in the market at the right time.

Logistic costs: estimated at 14% of the sales price, and between 30% and 60% of the production costs.





Trend

Development of logistic platforms

Lowering implicit costs in the logistic chain.

Greater number of firms dedicated to logistic activities are set up in a logistic zone or platform.

Transport

+

Logistics

=

Circulatory System

of

Economic Activity

A logistic platform or activity logistic zone is defined as:

Nodal points or areas of transport and logistic chains that concentrate technical and added value activities and functions.

The main features are:

- Defined area for activities related to transport, logistics and commodities' distribution.
- Operators may be owners or lessees of the facilities.
- It allows access to firms with logistic activities.
- Public or private management

Logistic Platforms

- From Transport and Loading

- From Logistics

Logistic Platform

- From Transport and Loading

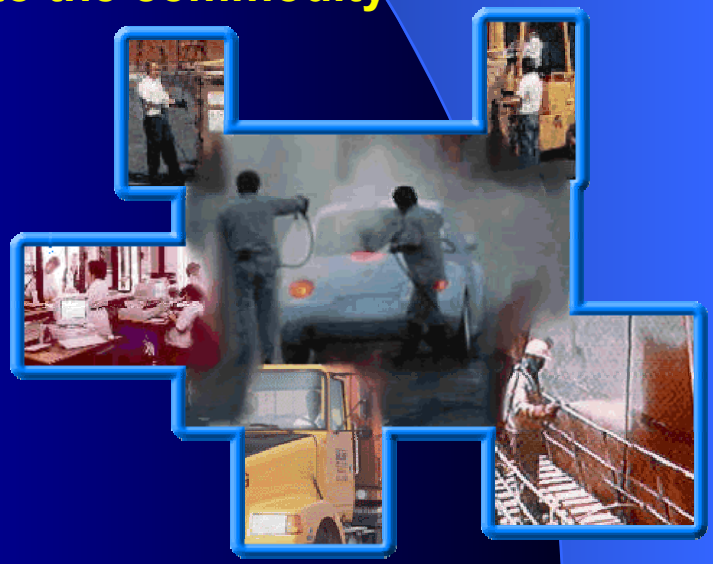
- **A point of traffic concentration.**
- **Equipment allows productivity improvement.**
- **It allows capturing important freight volumes.**
- **It organizes shipments with combined cargo for different clients.**
- It becomes a meeting point between transportation modes.




Logistic Platforms

- From Transport and Loading

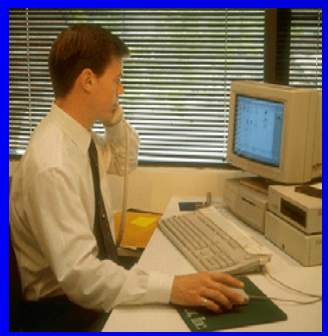
- **Point of "traction breaking" (switching transportation unit)**
- **Point "freight breaking" (freight consolidation or deconsolidation)**
- **It allows developing activities joined to transport**
- **It makes possible incorporating added value to the commodity**
- **It promotes approaching the final consumer.**

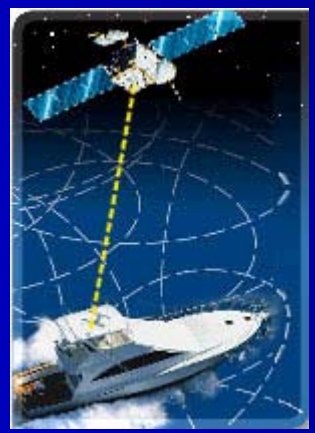


Logistics Platforms

- From Logistics

Logistics = planning, establishing and controling the efficient flow of commodities, services and timely information to regulate supply processes, transport, inventory, production and distribution.





THE PORT AS LOGISTIC PLATFORM

The port is by definition an intermodal logistic platform.

Areas of Port Logistic Activities

- Located adjacent to Maritime Terminals of Containers.
- Include activities of second and third port line.
- Their establishment corresponds to requests for commodity handling and distribution to and from port hinterland.

SPACE SORTING PORT FUNCTIONS

LOCATION	ACTIVITIES	AREA
1st LINE	SEASIDE ACCESS/ LOADING/UNLOADING/ EARTHSIDE ACCESS	WHARF/TERMINAL
2nd LINE	ADDITIONAL SERVICES TO PASSENGERS, COMMODITIES AND SHIPS	INTRAPORT SPACE
3rd LINE	PORT SERVICES AND TRAFFIC FLOWS (INDUSTRY AND DISTRIB. CENTERS)	EXTRA-PORT SPACE

FUNCTIONAL UNITS OF A TYPICAL PORT LOGISTIC PLATFORM

SERVICE AREAS OR CENTERS:

-SPECIALIZED AND CUSTOMS SERVICES

-SERVICES TO FIRMS , CARRIERS AND VEHICLES

LOGISTIC AREAS

- TRANSFERING AND DISTRIBUTION

-AREAS OF URBAN LOGISTICS AND D

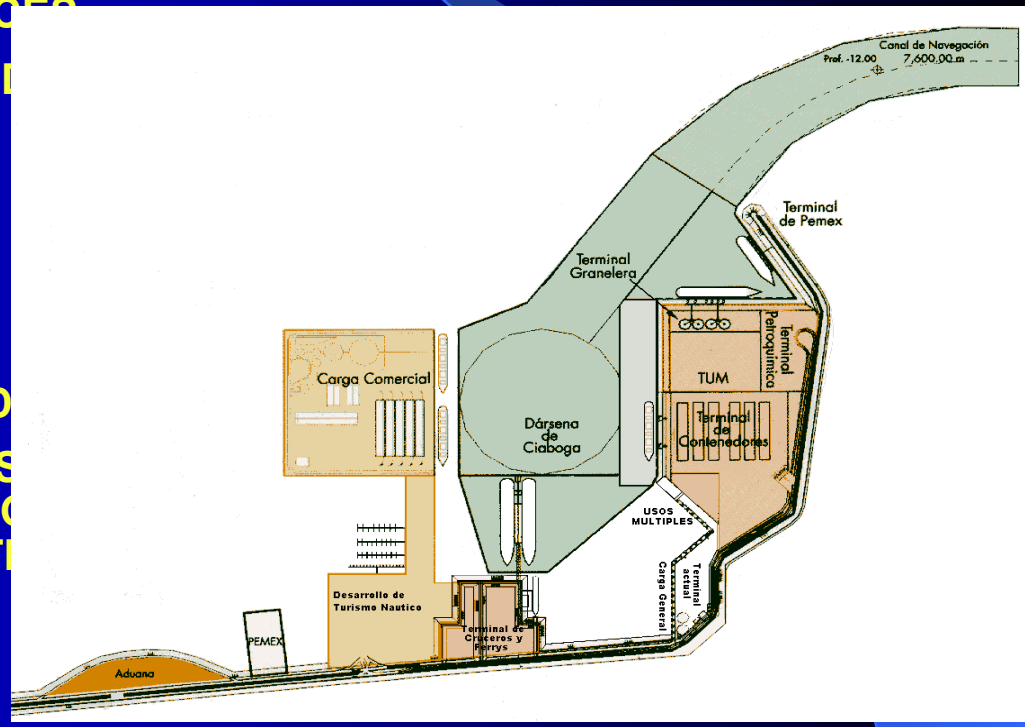
-MONOFUNCTIONAL LOGISTIC AREAS FOOD AGRICULTURAL PLATFORMS, C LOGISTICS, DANGEROUS COMMODITI CARS

INTERMODAL AREAS

-RAILWAY/ROAD,

- AIR/GROUND

- MARITIME/GROUND



INTEGRAL LOGISTIC SERVICES

- STORAGE
- DISTRIBUTION
- INVENTORY **MANAGEMENT**
- TRANSPORT
- CUSTOMS

FACILITIES TO CLIENT

DOOR TO DOOR SERVICE:

***EFFICIENT**
***SAFE**
***QUALITY**

SPEEDY PROCEDURES

TIMELY DELIVERY OF YOUR COMMODITIES

...Software

EDI

OPERATIONS

INVOICING

STORAGE

FINANCES

SECURITY

SHIPPING LINES

YARDS CONTROL

AGENTS

OPERATORS

CUSTOMS

EXPORTERS

BANK

IMPORTERS

Advantages of the Logistic platforms

- Physical facilities specifically designed.
- Handling areas and access roadways with enough extent.
- Strategic location.
- Infrastructure and telecommunications.
- Supervision and security.
- Colective services of maintenance, lighting, cleaning, etc. and therefore lower cost.
- Availability of complementary services.

Advantages of the Logistic platforms

Joint location to the sector's firms which allows interaction among them.

Achieving economies of scale in service provision.

Serving demand through the use of efficient modes of integrated transport.

Markets penetration through service quality for creating niches.

Lower staying time of commodities, especially containers in domestic port terminals.

PLANS AND STRATEGIES OF THE MEXICAN PORT SECTORS

STRATEGIC LINES IN PORT MATTERS

- Transforming integral port managers from facilities manager entities, to business centers.
- Establishing a coordination framework among users, authorities and services providers.
- Promoting the participation of private investment in service provision.
- Investing in dry ports to integrate tranportation chains and lower ground shipment costs.
- Promoting the establishment of added value firms in ports .
- Increasing direct services to shipping lines.
- Promoting better railway and road links to ports.

PLANS AND STRATEGIES OF THE MEXICAN PORT SECTOR

ACTION LINES IN THE SHORT AND MEDIUM TERM FOR LOGISTIC PLATFORM DEVELOPMENT

- **Building a port alternative to Veracruz and extending the ports of Manzanillo, Altamira, Lazaro Cardenas, Dos Bocas; reactivating Puerto Madero, and encouraging the expansion of port Progreso.**
- Motivating dry ports construction and **operation to favor transport chains' integration between production and consumption centers and agree railway firms the establishment of trains with predetermined quality standards in Altamira, Manzanillo and Veracruz.**
- **Elaborating proyects for improving the road links to the main ports.**
- **Preparing and applying improvement actions for services quality and improving supply.**
- Encouraging ports finaces through increase in **traffic, lowering operation costs, maximizing the use of their facilities, promoting competition and a tariff policy that makes commercial sense.**
- **Promoting investments in the multimodal facilities development and port services provision.**
- **Establishing international co-operation agreements to promote logistic activity of the Mexican ports.**

PLANS AND STRATEGIES OF THE MEXICAN PORT SECTOR

ACTION LINES IN THE SHORT AND MEDIUM TERM

- **Implementing quality systems and processes and reengineering in the APIS and promoting the certification of private firms that operate terminals and provide port services.**

- **Obtaining ISO 9000 and 14000 certification for APIS and promoting such certifications among the firms that provide port services.**

- Creating a computer communication **network in all ports that serves all firms and authorities that participate in the operation and management of ports, through electronic exchange of data within the E-MAR framework.**

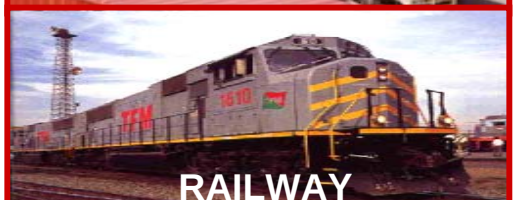
SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

PORT EXPANSIONS/

INTERNACIONAL ALLIANCES

September 2002

CHAIN OF MARITIME MULTIMODAL TRANSPORT



SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

GENERAL FREIGHT SHIPS

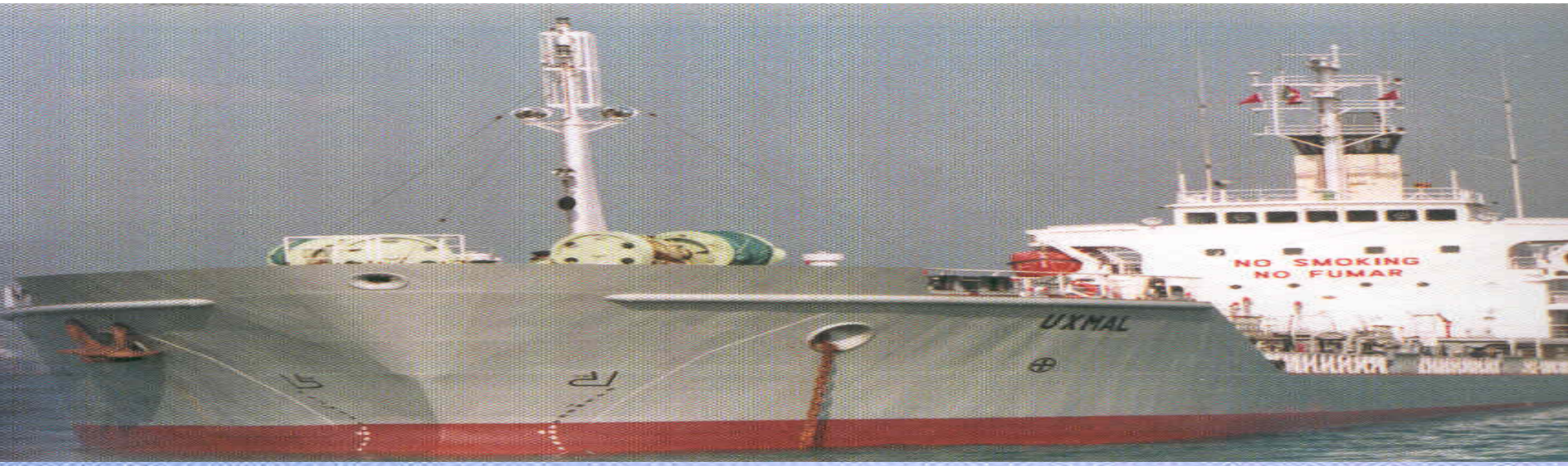
api administración portuaria integral de manzanillo, s.a. de c.v.

GRAIN SHIPS

SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

TANKERS

administración portuaria integral de manzanillo, s.a. de c.v.

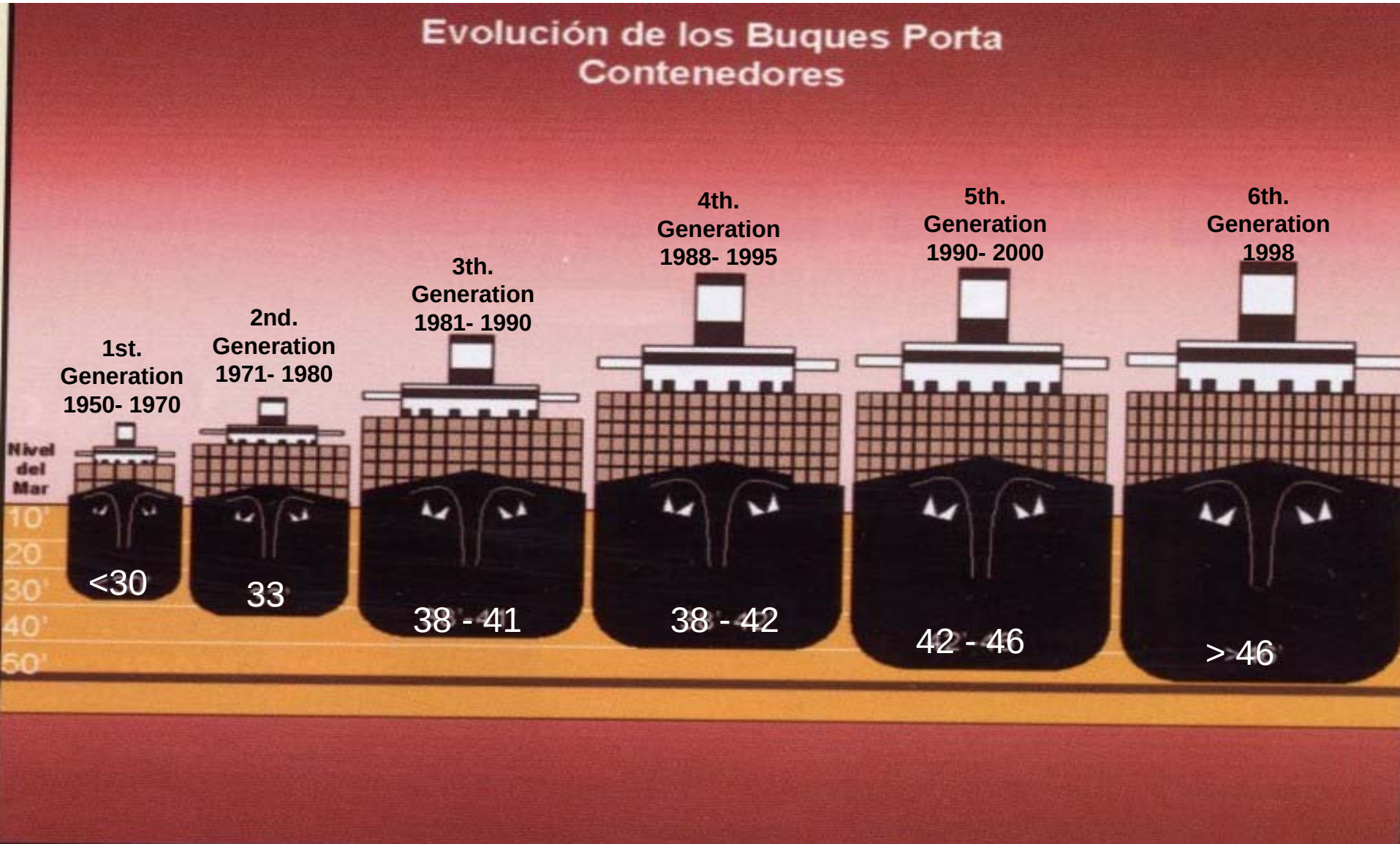


SECRETARÍA DE COMUNICACIONES Y TRANSPORTES | SCT

CONTAINER SHIPS

api administración portuaria integral de manzanillo, s.a. de c.v.

EVOLUTION OF CONTAINER SHIPS



CONTAINER EVOLUTION

- During World War II the USA started to use containers to transport armaments
- 1959 First test transport using containers in maritime traffic between Houston and New Orleans, to New York and New Port.
- The New York-West Coast USA traffic began soon, via the Panama Canal
- 1964 began the USA - Europe route, with the shipping line “Sealand”
- 1968 began the regular route between USA Pacific Coast and Asia (Japan, China, Taiwan, Hong Kong)
- Advantages
  - Substantial savings in maneuvers
  - Lower damage to freight
  - Lower robbery index
  - Not polluting
  - Easy to handle

Standard Measures

- **Height: 8 ft**
- **Width: 8 ft**
- **Length: 20-40 ft**

DRY CARGO STANDARD CONTAINERS, 20 AND 40 FEET

External dimensions

Length	Width	Height
6.05 mts	2.43 mts	2.59 mts
19' 10" 1/2	8'	8' 6"

Internal Dimensions

Length	Width	Height
5 mts	2.35 mts	2.39 mts
19' 4" 3/16	7' 8" 33/64	7' 10" 11/64

Cubic

33.2 Cubic meters
1170 Cubic feet

Freight capacity from 21,750 to 28,280 kg.

External dimensions

Length	Width	Height
12.19 mts	2.43 mts	2.59 mts
40 '	8'	8' 6"

Internal Dimensions

Length	Width	Height
12.03 mtts	2.35 mts	2.39 mts
39' 5" 43/64	7' 8" 33/64	7' 10" 11/64

Cubic

67.7 Cubic meters
2390 cubic feet

Freight capacity from 26,640 to 28,500 kg.

40 FEET REFRIGERATED STANDARD CONTAINERS

External Dimensions

Length	Width	Height
12.19 mts	2.43 mts	2.59 mts
40 '	8'	8' 6"

Internal Dimensions

Length	Width	Height
11.56 mtts	2.26 mts	2.23 mts
37' 11"	7' 5"	7' 3"

Cubic

58.4 Cubic meters
2039 Cubic feet

Freight capacity from 26,130 to 28,784 kg.

TANK CONTAINERS FOR LIQUID TRANSPORT

20 FEET FLAT RACK CONTAINERS

External dimensions

Length	Width	Height
12.19 mts	2.43 mts	2.59 mts
40'	8'	8' 6"

Internal dimensions

Length	Width	Height
12.06 mts	2.22 mts	1.94 mts
39'6 15/16"	7' 3 1/2"	6'4 1/2"

Lateral Access : 11.6 mts. 38'3 1/8"

Height collapsed : 0.64 mts.

Cubic

51.9Cubic meterss

Freight capacity from 25,845 **to** 40,050**kg.**

20 FEET OPEN TOP CONTAINERS

External Dimensions

Length	Width	Height
6.05 mts	2.43 mts	2.59 mts
19' 102 1/2	8'	8' 6"

Internal Dimensions

Length	Width	Height
5.88 mts	2.33 mts	2.31 mts
19' 3" 3/4	7' 7" 3/4	7' 7"

Cubic

31.8 Cubic meters
1122 Cubic feet

Freight capacity from 21,640 to 28,250kg.

EVOLUTION OF CONTAINER SHIPS

TYPE	INTRODUCTION	CAPACITY TEU	LENGTH (M)	MOULDED BREADTH (M)	DRAUGHT (M)
1st. Generation conversion to container carrier	1960	750	180.0	25.0	9.0
2nd. Cellular ships specially for containers	1970	1,500	225.0	29.0	11.5
3th. PANAMAX	1980	3,000	275.0	32.0	12.5
4th. POSTPANAMAX	1988	5,000	290.0	34.0	13.5
5th. Generation	1997	6,600	340.0	42.8	14.5

Source: Port Sizing SCT

EVOLUTION OF CONTAINER SHIPS

	EUs	LENGTH	DRAUGHT
1960	1,000	180 m	-9 m
1970	1,600	225 m	-10 m
1980	4,000	275 m	- 12 m
1988	5,000	290 m	-13 m
1997	6,600	340 m	-14 m

MAIN CONTAINER CARRIER SHIPPING LINES

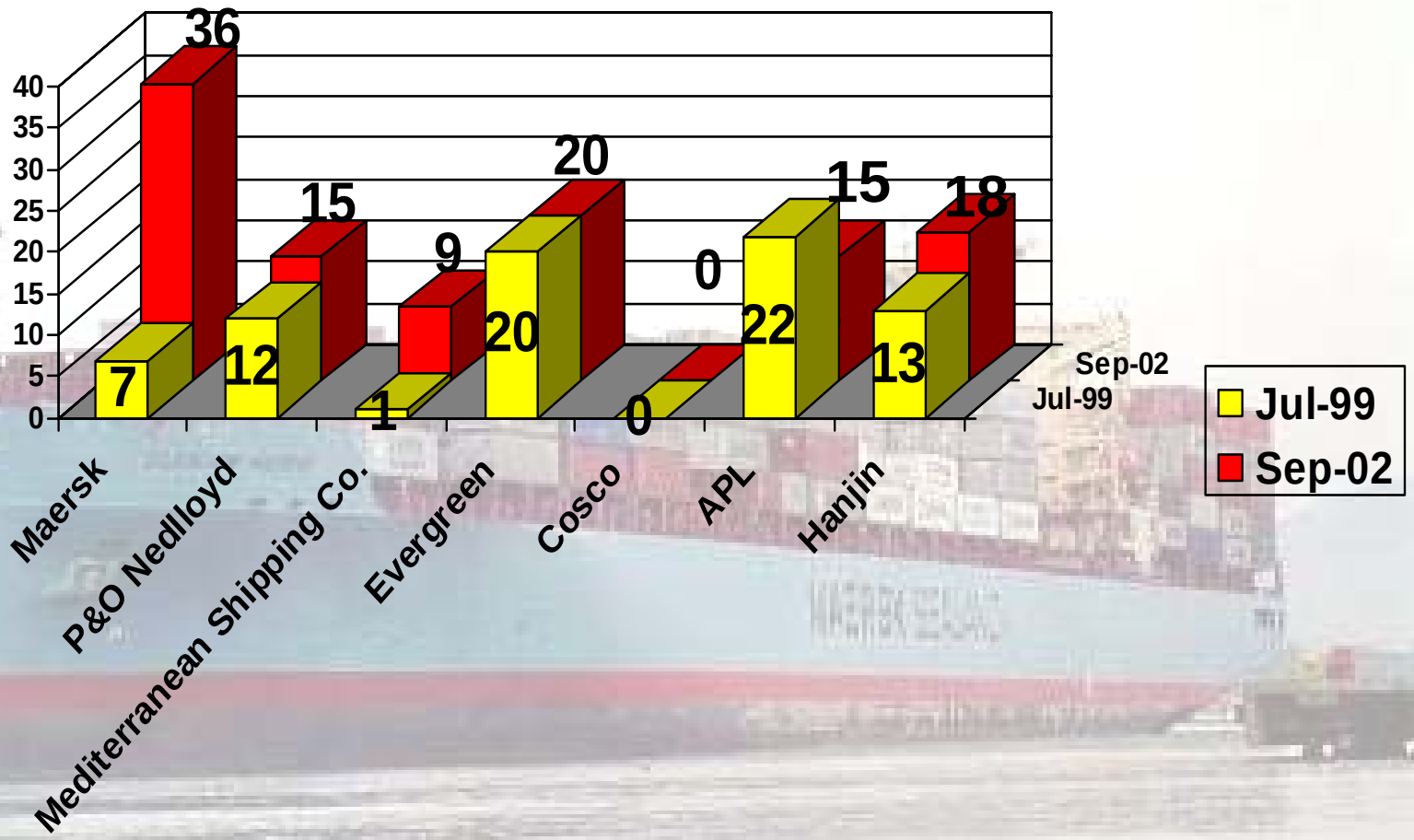
	LINEA	CAPACIDAD TEU	%
☑	Maersk/Sealand	700,304	9.16%
☑	MSC	397,940	5.20%
☑	PONL	396,182	5.18%
☑	Evergreen	285,890	3.74%
☑	Cosco Container Lines	255,937	3.35%
☑	APL	239,285	3.13%
☑	Hanjin	206,671	2.70%
☑	Mitsui OSK Lines Ltd	186,006	2.43%
☑	CMA CGM	182,724	2.39%
☐	K Line	168,413	2.20%
☑	NYK	167,782	2.19%
☐	OOCL	154,647	2.02%
	SUMA	3,341,781	43.70%
	OTROS	4,305,238	56.30%
	TOTAL MUNDIAL	7,647,019	100.00%

☑ = Reach Mexico

Source Containerization International

EVOLUTION OF SHIPS WITH 4,000-4,999 TEUs

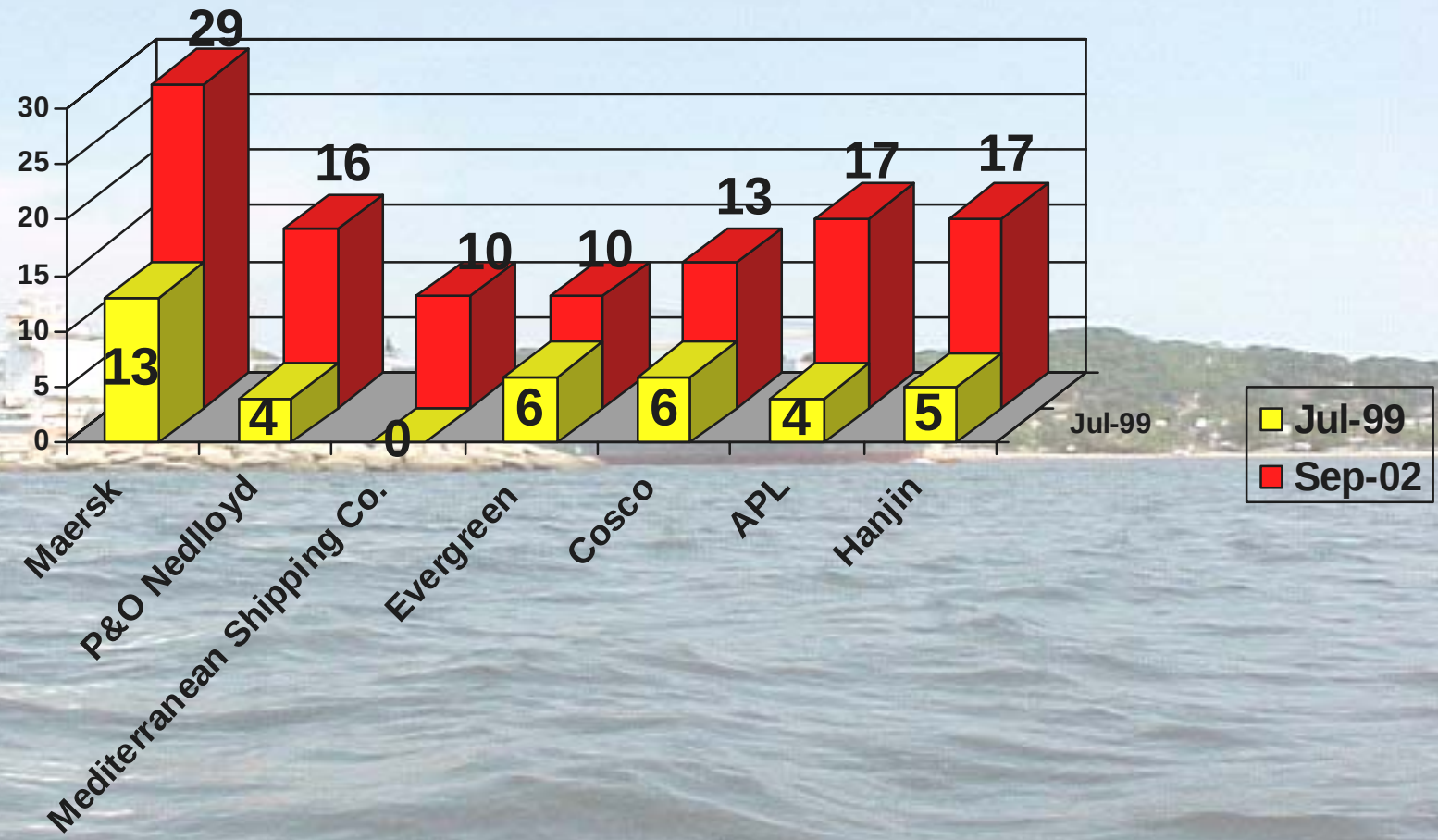
July 1999- September 2002



Source: Containerization International

EVOLUTION OF SHIPS WITH MORE THAN 5,000 TEUs

July1999- September 2002



Source: Containerization International

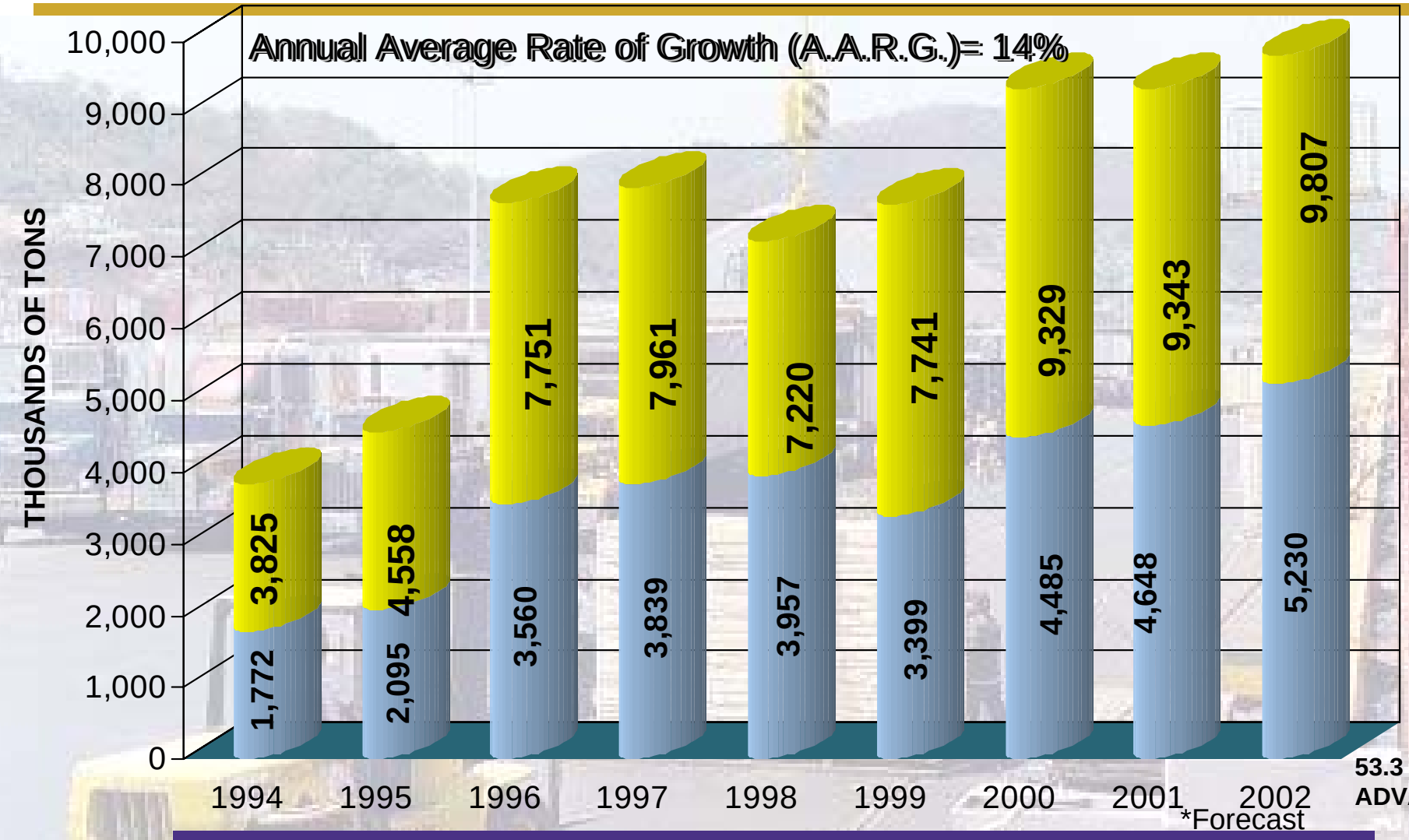
LEGAL FRAMEWORK

1.-	PORT LAW	JULY 1993
2.-	API MANZANILLO CONSTITUTION	DEC. 1993
3.-	API MANZANILLO INSTALLATION	FEB. 1994
4.-	CONCESSION TITLE	FEB. 1994
5.-	RULINGS OF THE PORT LAW	NOV. 1994
6.-	OPERATIVE RULES	JUNE 1995
7.-	MASTER SCHEDULE	MAY 1995
	MASTER SCHEDULE 2000-2010	
8.-	CONCESSIONS SUSTITUTION BY PARTIAL RIGHTS CESSION CONTRACTS	1995 - 1996
9.-	FACILITIES AND TERMINALS CESSION TO PRIVATE FIRMS FOR OPERATION	JUNE 1995 UNTIL NOW
10.-	SERVICES PRIVATIZATION	
11.-	FOREIGN INVESTMENT UP TO 100% IN MEXICAN FIRMS IS ALLOWED	JULY 1995

EVOLUTION OF SERVICES

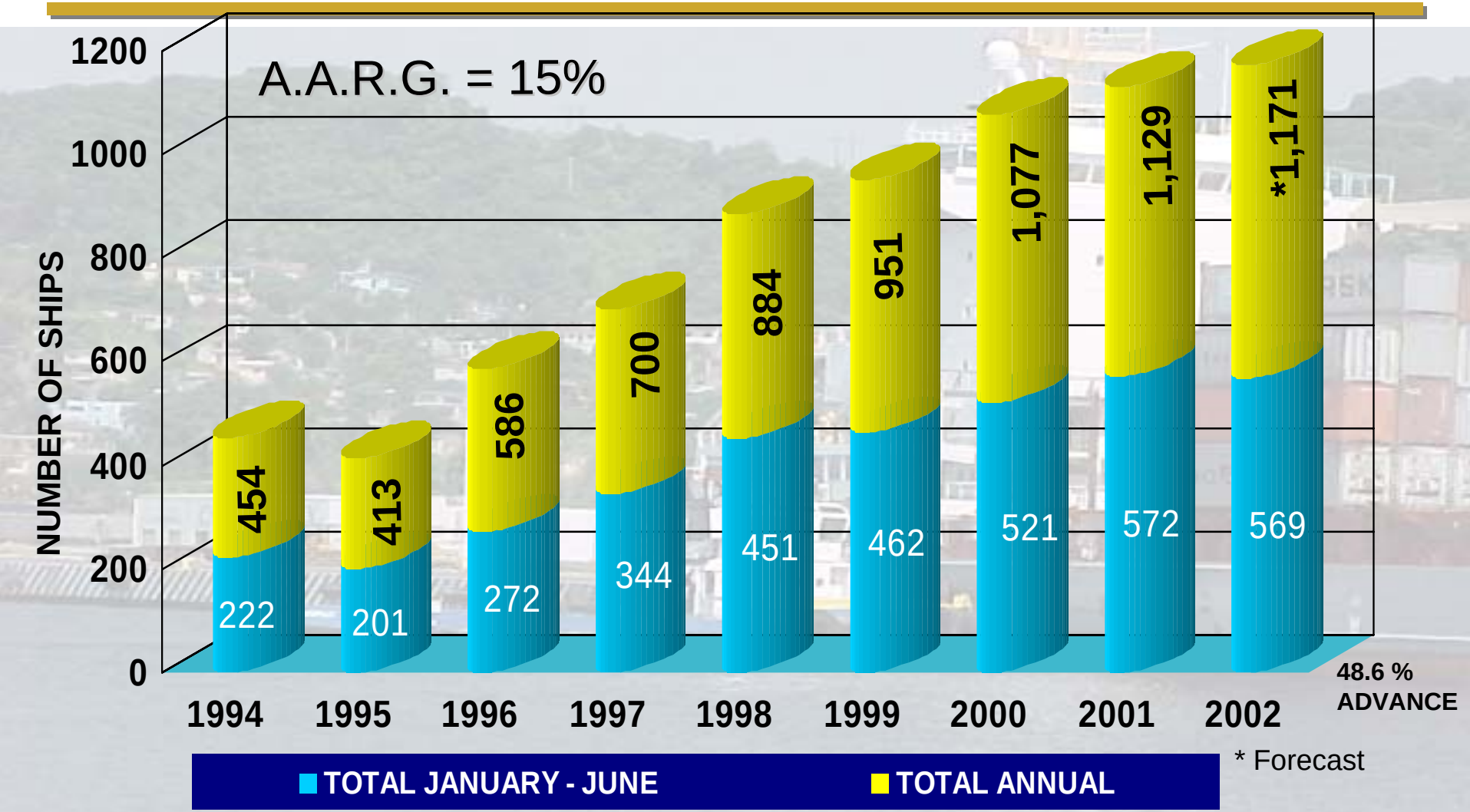
CONCEPT	1994	1996	1998	2000	2001
HANDLING FIRMS	1	5	7	8	8
TERMINALS AND FACILITIES OPERATORS	4	9	10	14	15
SERVICE PROVIDER	21	28	44	49	52
SHIPPING AGENCIES	10	14	20	22	24
CUSTOM AGENCIES	24	30	80	90	105
SHIPPING LINES	6	14	19	25	26
RECEIVED SHIPS	454	586	884	1,077	1,129
SHIP DIMENSION (MTS. /LENGTH)	261	249	276	294	294
SHIP DRAUGHT	12	12	12	12	13
ROAD TRANSPORT SERVICE (TRUCKS PER DAY)	260	499	531	604	652

HISTORICAL FREIGHT TRANSPORTATION
(Thousands of Tons)



OIL PRODUCTS NOT INCLUDED

SERVED SHIPS

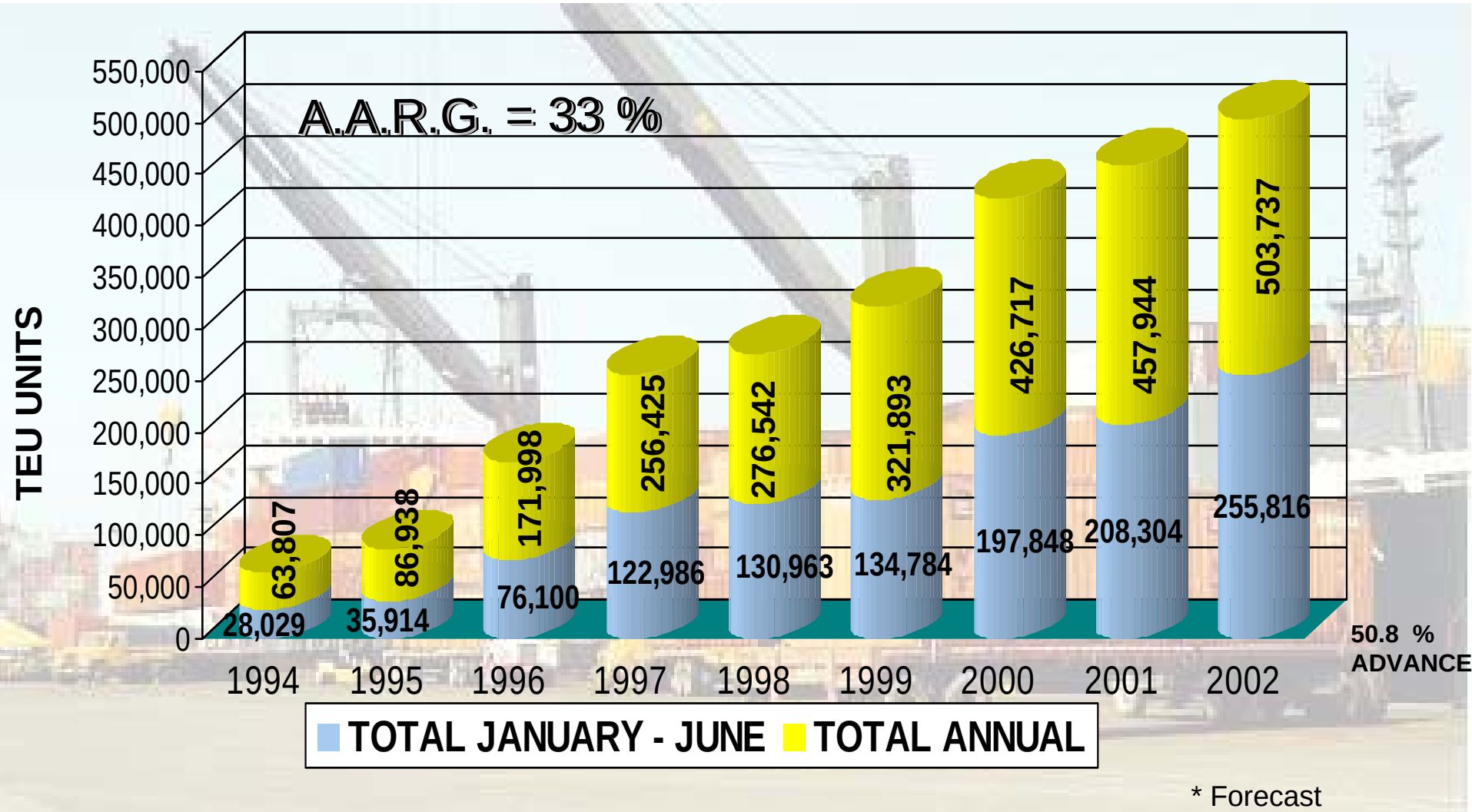


* Forecast

OIL TANKERS NOT INCLUDED

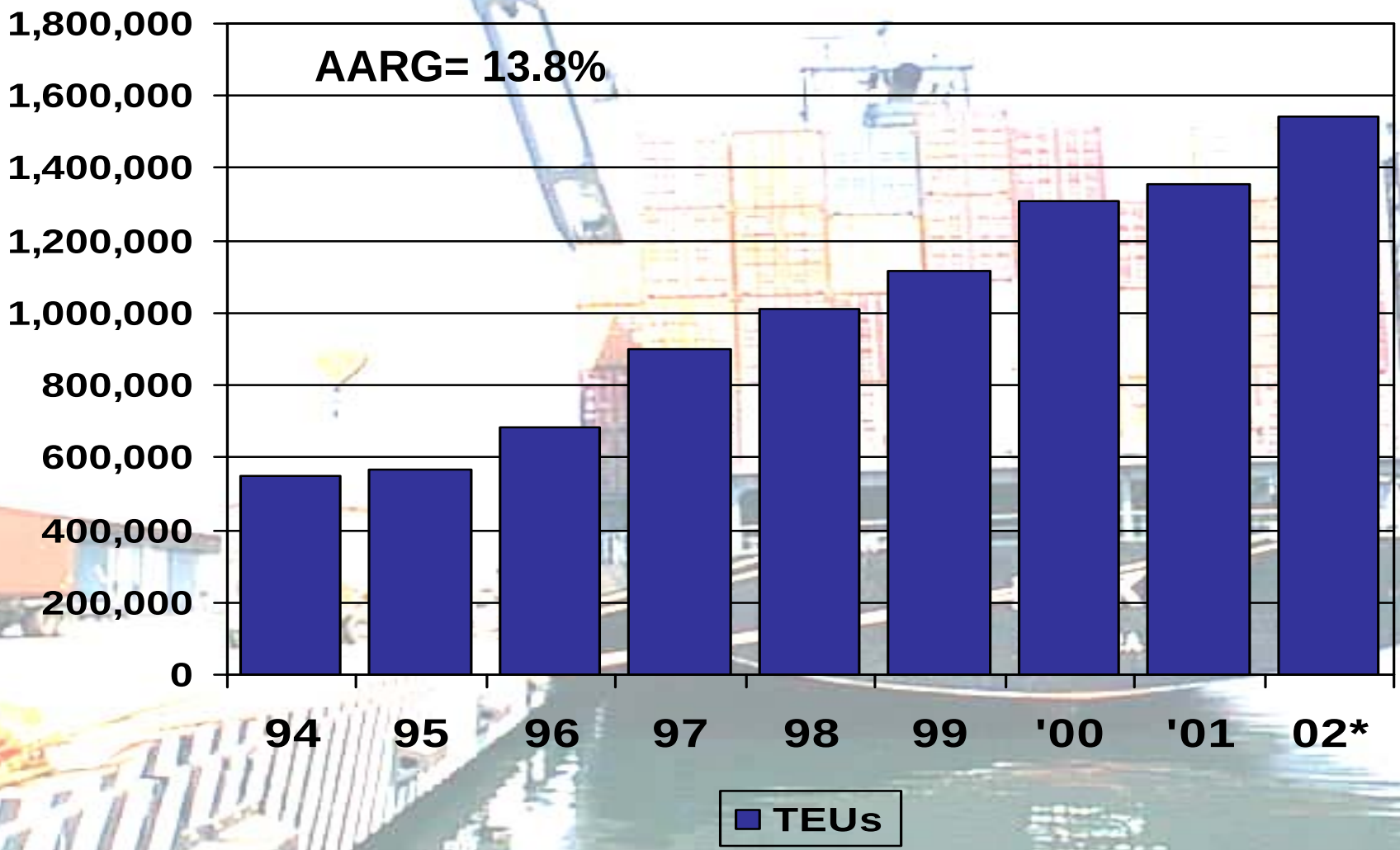
1994 - 152, 1995 - 102, 1996 - 116, 1997 - 131, 1998 - 161, 1999 - 161, 2000 - 124, 2001- 128, 2002 (JAN - MAR) - 33

HISTORICAL TRANSPORTATION OF CONTAINERS



* Forecast

EVOLUTION OF DOMESTIC CONTAINERIZED FREIGHT (teus)

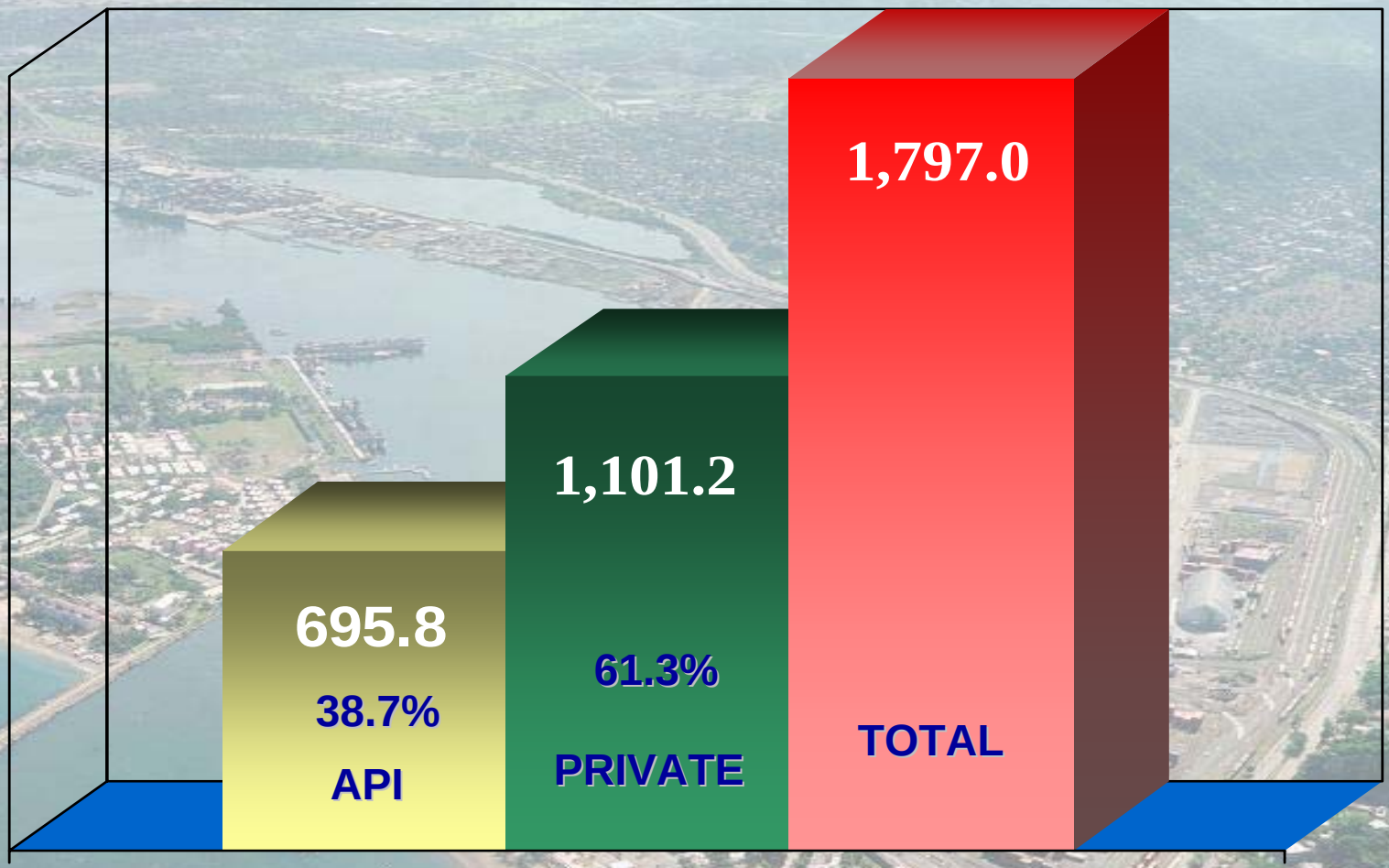


*Forecast

INTERNATIONAL POSITION

PORT	Total TEU 1995	PLACE 1995	Total TEU 2001	PLACE 2001
Hong Kong	12,549,746	1	17,900,000	1
Singapore	11,845,600	2	15,520,000	2
Busan	4,502,596	5	7,906,807	3
Kaohsiung	5,232,000	3	7,540,000	4
Shanghai	1,527,000	19	6,340,000	5
Long Beach	2,389,533	9	4,462,971	10
Antwerp	2,329,135	10	4,218,000	11
Dubai	2,073,081	14	3,501,820	13
Veracruz	224,579	112	543,327	**80**
Manzanillo	86,938	195	457,946	**94**

TOTAL INVESTMENT
API AND PRIVATE FIRMS 1994 - 2001
(MILLIONS OF PESOS)



1994 - 2001

FREIGHT PROJECTIONS

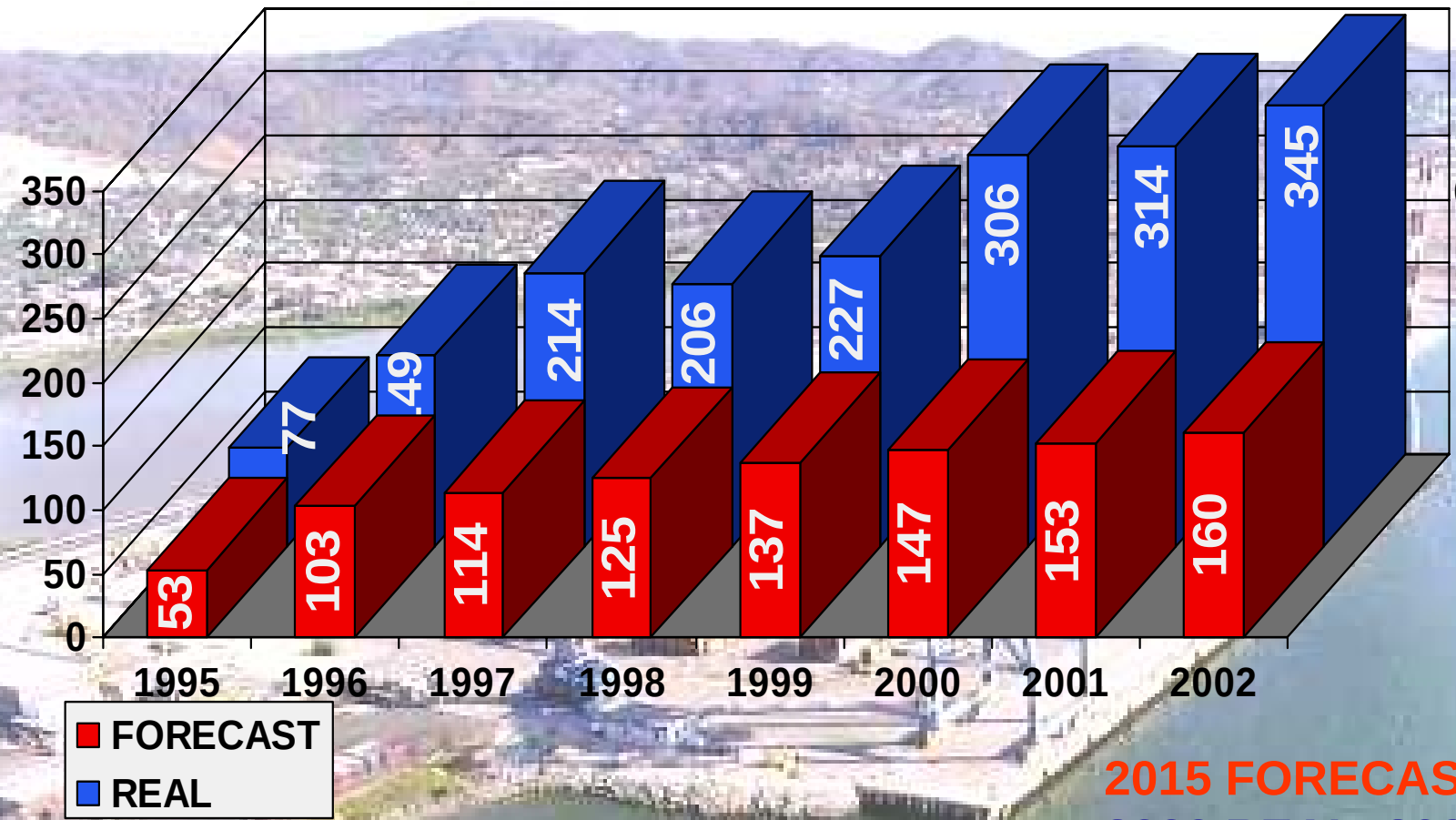
	1995	1996	1997	1998	1999	2000	2001	2002
TEC forecast	52,860	103,386	113,507	124,569	136,522	146,681	153,282	160,180
PTO. REAL	86,938	171,998	256,425	276,542	321,893	426,717	457,944	503,737
TEC real	77,498	148,957	214,021	206,038	226,619	306,110	313,583	
OTHERS rea	9,440	23,041	42,404	70,504	95,274	120,607	144,361	

	2003	2004	2005	2006	2007	2008	2009
TEC forecas	167,388	174,920	182,792	191,017	199,613	208,596	217,982

	2010	2011	2012	2013	2014	2015
TEC foreca	227,792	238,042	248,754	259,948	271,646	283,870

TEC FREIGHT TRANSPORTATION FORECAST VS. REAL

THOUSAND TEUs



2015 FORECAST 283,870

2000 REAL 306,110

EVOLUTION TEC I

YEAR	WHARF				CRANE		
	AMOUNT	LONG	Water front		PANAMAX	POST	TOTAL
95/99	1	250	250		2	0	2
00/02	2	250	500		2	2	4

FUTURE TEC II

YEAR	WHARF				CRANE
	AMOUNT	LONG	Water Front		POST PANAMAX
1st	1	300	300		2
2nd	1	300	300		2
3th	2	300	600		4
4th	2	300	600		4
5th	3	300	900		6
6th	3	300	900		6
10th	4	300	1200		8

EQUIPMENT EVOLUTION

CRANE EVOLUTION

PANAMAX

SCOPE 38.1 m 125 ft
CAP. 40.6 tons (Spreader)
44.3 tons (Hook)
CAPACITY 28/30 boxes p/h

POST-PANAMAX

SCOPE 46.2 m 155 ft
CAP. 50 tons (Spreader)
60 tons (Hook)
CAPACITY 28/30 boxes p/h

SUPER POST-PANAMAX

Increase capacity 40%
It uses 2 hooks simultaneously
CAPACITY 40/42 boxes p/h

CRANE EVOLUTION
TRANSTAINER OR GROUND

Top Loader

6x3+1
1993
Cap. 40 tons

6x5+1
1997
Cap. 40 tons

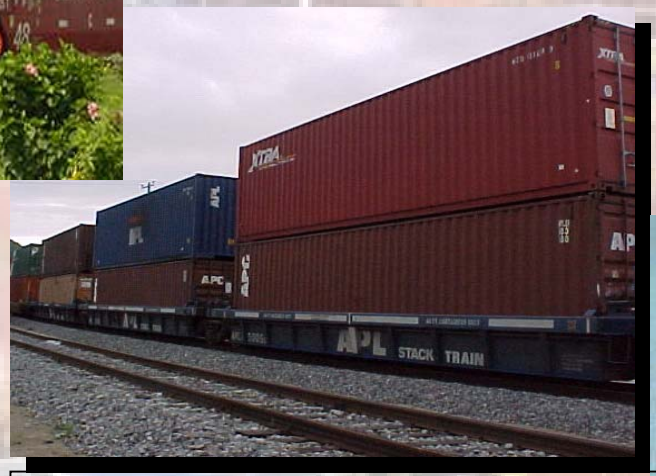
EQUIPMENT EVOLUTION

TRUCK EVOLUTION

EQUIPMENT EVOLUTION

RAILWAY EVOLUTION

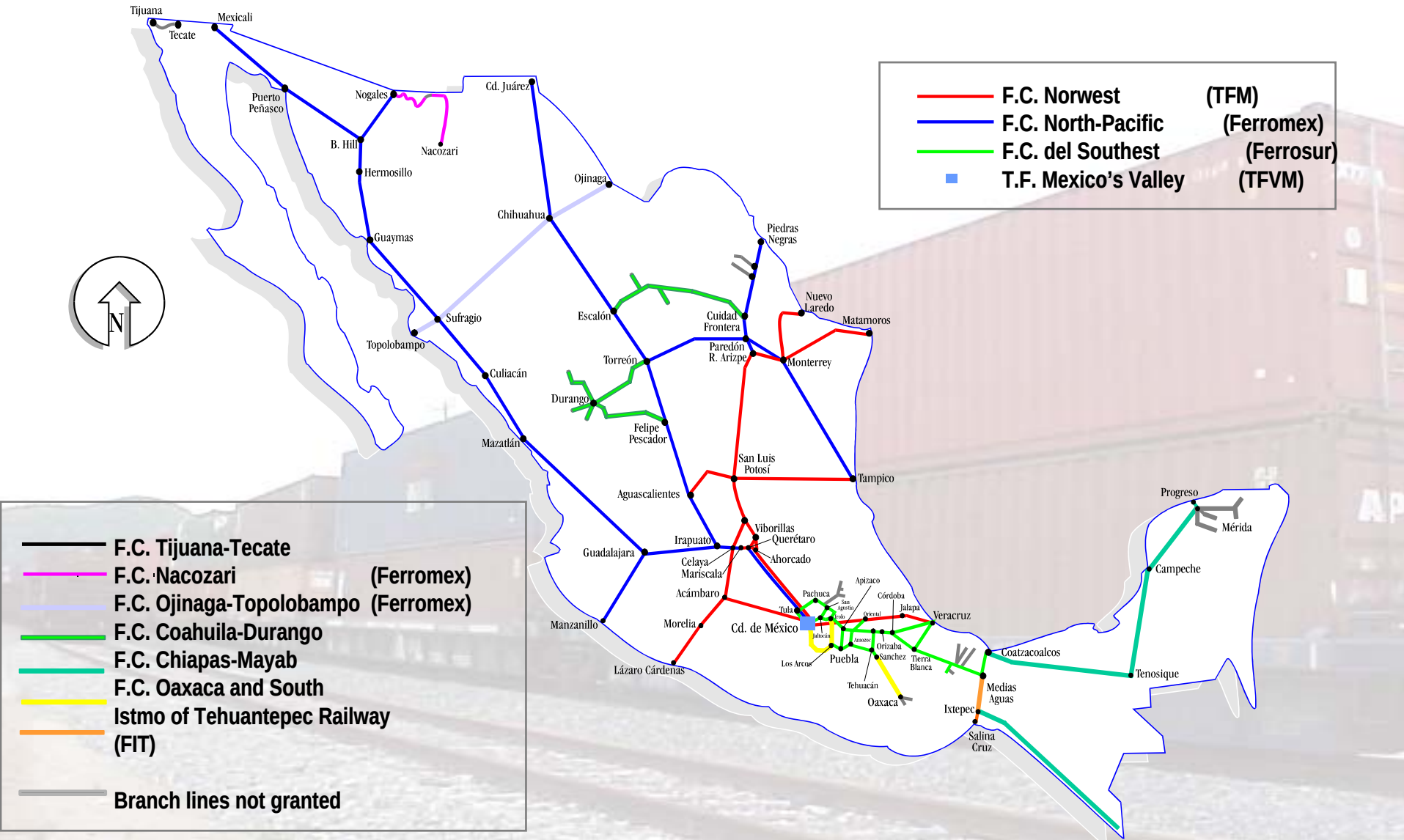
SIMPLE WAGON



DOUBLE STOWAGE

AUTOMAX

MEXICAN RAILWAY SYSTEM



MEXICAN RAILWAY SYSTEM

ORIGIN	DESTINATION	DISTANCE KMS	AVERAGE WEIGHT	PRICE X HOPPER	PRICE TON/KMS
Manzanillo	Guadalajara	355	90	$9,450.00	$0.296
Laredo	Guadalajara	1,300	82	$18,050.00	$0.169
P. Negras	Sn J de los Lagos	1,112	90	$17,869.00	$0.179
P. Negras	Querétaro	1,600	90	$17,114.00	$0.119

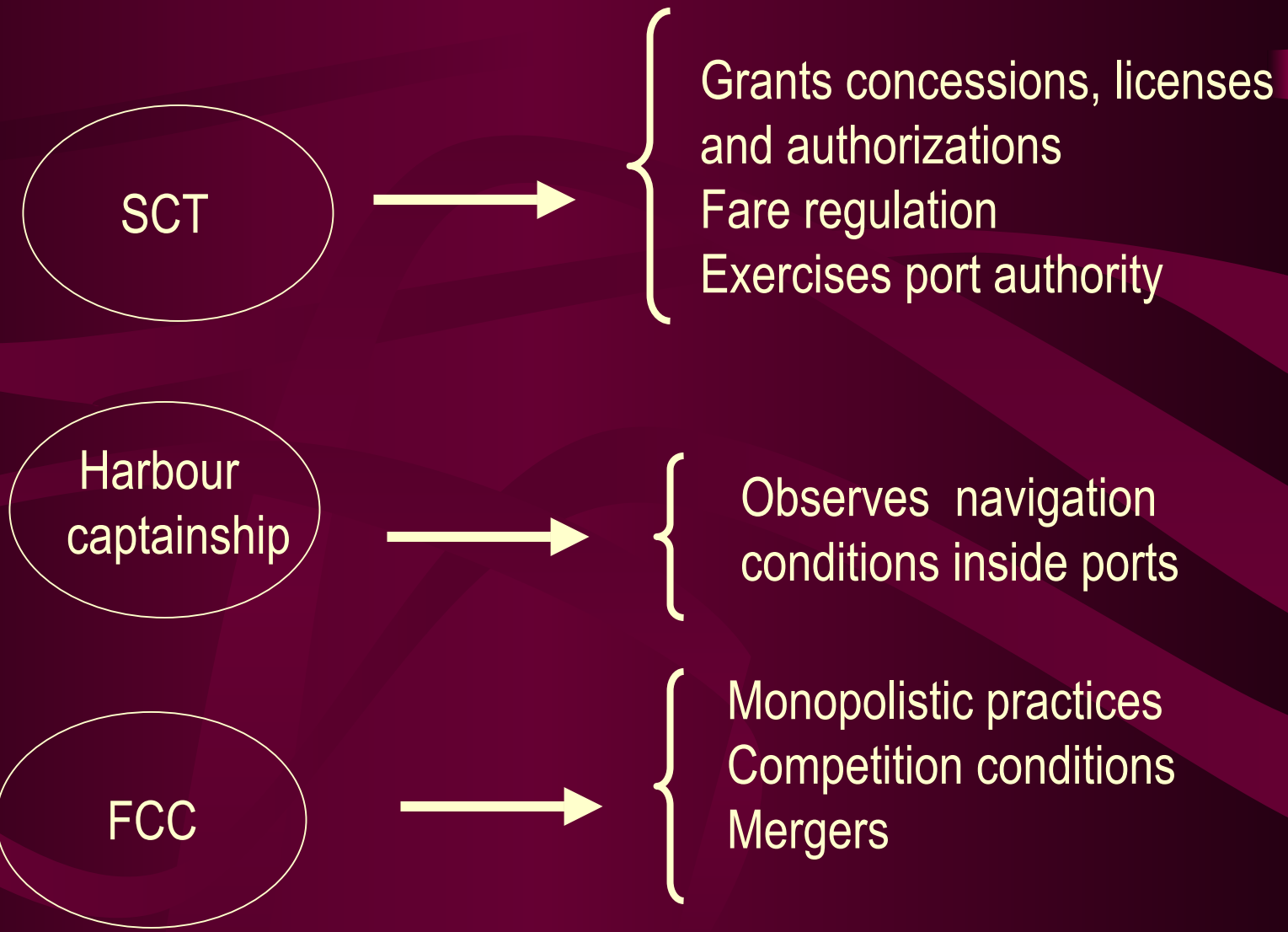
Regulation and Competition in Port Facilities, Mexico

Víctor R. Paredes Perez
Federal Competition Commission

Restructuration and Privatization

- Decentralization: Port Authority independent and self-sustainable
- Privatization: Private agent operators of port facilities and harbours
- Competition: Promotion of competition among and within ports

Regulatory Institutions



Regulation

- Purpose: Reproduce the outcomes regarding allocative and production efficiency generated by a competitive market.
- Types of regulation: structural (market structure) and conducts (behavior)
- Information asymmetry: Granting of licenses, potential competition, competition by reference.

Integral Port Administration (IPA)

✓Planning, programming, development, and other acts related to the goods and servicies of the port.

Port

Public Service Facilities

Private Facilites

Access channel Infrastructure

Property

Limited liability private company

100% state-owned

100% Private

Harbour Services

- Third parties provide port services
- Public and private terminals
- Access by tender
- Contracts to provide port services

Outcomes 1: IPA and Tenders

- 5 IPA to state government
- 18 IPA are from the Federal Government
- 1 IPA is private

Between 1995-2001

- 11 terminals containers-cg
- 13 specialized terminals
- 13 sales of towropes and contracts
- 9 tourist marines
- 9 fuel instalation

Source: Own calculations, Annual Report FCC – Mexican ports in numbers, SCT

Outcomes 2: Port services (year 2000)

Services to vessels

- Pilotage : In each port 1 firm operates from a sample of 21.
- Lighterage: In each port 1 firm operates from a sample of 14.
- Towing: In each port 1 firm operates from a sample of 13.
- Stubs mooring and unmooring: In each port 1 firm operates from a sample of 16 ports.

General services to vessels

- Victualling: In each port 1 firm operates from a sample of 8
- Drinking water: In each port 1 firms operates from a sample of 15.
- Waste management: In each port 1 firm operates from a sample of 14 ports

...Outcomes 2: Port services (year 2000)

Maneuver services for transferring merchandises

- In each port 1 firm operates from a sample of 11
- In each port 2 firms operate from a sample of 3 ports
- In 1 port 3 firms operate (Dos Bocas)
- In 1 port 6 firms operate (Ensenada)
- In each port 5 firms operate from a sample of 2 ports (Tuxpan and Veracruz)
- In each port 8 firms operate from a sample of 2 ports (Manzanillo and Lazaro Cardenas)

Source: Mexican Ports in numbers, 1994-2000

Outcomes 3: Competition for the market (1995-2001)

Ports: tenders

- Veracruz: 14
- Ensenada: 12
- Manzanillo:9
- Guaymas: 8
- Coatzacoalcos: 5
- Lazaro C. : 4
- Altamira: 3
- Others: 2 by each port

Number of participants

- 28 tenders: 1 participant
- 17 tenders: 2 participants
- 12 tenders: 3 participants
- 7 tenders: 4 participants
- 2 tenders: 5 participants
- 1 tenders: 7 participants
- 1 tenders: 8 paticipants

Source: Own calculations, Annual Report FCC

Competition: Port services (maneuver of merchandises)

- Competition among ports:

  -Veracruz-Tuxpan in general load

  -Manzanillo-Lazaro Cardenas in containers?

- Competition in the port:

  -Among terminals: Altamira Port and Manzanillo

  -In the terminal: Port of Veracruz

Competition: other port services

- Absence of competition in services to vessels: pilotage, lighterage, towing, stubs mooring.
- Relative competition in general services to vessels: victualling, water, electicity,waste management, etc.

Regulation

- Maximum tariffs when there is no port opposition, regulation by costs
- In Containers Specialized Terminals (CST) integrated maneuvers are regulated
- Infrastructure tariffs: SCT-SHCP, maximum tariffs

Evolution (1995-2000)

- Movement of commercial load: 5.5% TMCA (average annual growth rate)
- Performance of containers: Veracruz went from 43 to 84 HBO containers, Manzanillo and Altamira between 60 and 65 HBO containers
- General cargo: Manzanillo, Altamira and Veracruz have terminals with unload capacity of more than 20 thousand tons per day each one
- During 1995-2000 there were investments for 17,286 million pesos (55% private and 45% IPA and Federal Government)
- Maneuvers tariffs for the majority of cargo have decreased in real terms

Technical Efficiency

Year	Maximum	Minimum
1996	Salina Cruz, Tuxpan, Tampico, Manzanillo	Ensenada, Coatz., Altamira, Manzatlán
1997	Salina Cruz, Tuxpan, Manzanillo, Lazaro C.	Ensenada, Coatz., Mazatlan, Altamira
1998	Lazaro C., Manzanillo, Tuxpan, Veracruz	Ensenada, Coatz., Manzatlan, Altamira
1999	Manzanillo, Tuxpan, Topolobampo, Veracruz	Ensenada, Coatz., Mazatlan, Guaymas

Source: Estache-M.González- L. Trujillo, July 2001

Behavior Outcomes

- Partial data (by port) is enough to detect improvement in ports' performances
- A general valuation (among ports) shows that ports' performance, measured in terms of technical efficiency, is different
- There are ports with better performance than others: leaders and stragglers

Future Tasks

- ✓ Extension of privatization towards IPA
- ✓ Increase competition in port services
- ✓ Ensure that regulated tariffs reflect the gains from competition: competition by comparison

Techno-Institutional Innovations in Transport and Trade Expansion: The Case of NAFTA

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Boston University

Center for Transportation Studies

Paper prepared for presentation at

The Seminar on Regulation and Competition

Training Program on Economic Competition in the APEC Economy

Mexico City

September 19th and 20th, 2002

I. INTRODUCTION AND OVERVIEW[1]

While international trade and the movement of economic activities across national borders have been increasing for a century or more, the spurt of international trade since World War II has been remarkable. In the 1990s, trade in goods and services has grown twice as fast as global GDP. In an affluent economy such as U.S., trade has grown three times as fast as GDP in the last quarter century. In developing economies, in the decade of the 90s, the share of trade attributable to the developing countries has climbed from 23% to 29% (World Bank, 1999).

The common explanation for this explosive growth of merchandise trade in recent times emphasizes the creation of a free trade regime, and a set of new incentives for trade expansion which were embodied in new trade institutions. Indeed, such institutions—IMF, The General Agreement on Tariffs and Trade(GATT), World trade Organization (WTO), etc.,-- have greatly succeeded in lowering tariffs and a variety of other barriers to cross-border trade. Consequently, the scale, composition, and spatial reach of international goods trade have vastly increased. It is in this context that there has been a surge in the formation of regional trading blocks, such as NAFTA, EU, Mercosur, etc. Each trade bloc represents a cluster of neighboring countries, which link their economies and seek to create dynamic comparative advantages to facilitate their insertion in the global economy on favorable terms.

While the role these institutions in lowering of tariff barriers and trade promotion has been widely noted, the role of *two other* factors underlying the explosion of international trade appears to be less visible. *Technological changes and institutional reforms in the transport sector* are these two other factors, which have expanded the scale and spatial reach of merchandise trade, and are the focus of this paper

Technological change in the transport sector has arrived in two forms. First, transport innovations in the — the Jet Aircraft, Containers, The Interstate Highway System, The 'Megaship' — have sharply improved the quality of service, and lowered the costs of

[1] The authors gratefully acknowledge partial financial support from the World Bank, and from the U.S. Department of Transportation in the preparation of this paper.

international transportation. Second, the performance of transport vehicles and infrastructure is greatly increased by developments in the *complementary* Information Technologies. Information technologies (IT) — representing a confluence of computer and communication technologies – are improving the responsiveness and efficiency of vehicles and their operators and making possible other transport innovations—in the process transforming both the technologies of transport and communications and the technologies of products and processes. The notion that recent developments in these *enabling and space-shrinking technologies of* transportation and communication are fundamentally transforming the space-time relationships between all parts of the world is widely acknowledged. These technologies make possible the management and coordination of globally distributed set of diverse economic activities. They permit increasing division of labor in the production processes as the component activities are further disaggregated and spatially reallocated. This partition of production processes (or the slicing the 'production value chain') across national borders results in different stages of production being carried out in many countries — raw materials and components coming from two different countries, with assembly in a third, and marketing from yet other countries in response to consumer signals from around the world. Parts and components are 'sourced' internationally accounting for a $800 billion trade (World Bank, 2000); and the whole process is globally coordinated.

The advent of this globally distributed production value chain has pushed the need for and in turn has been made possible by *increased intermodalism*. By intermodalism is meant f*ully coordinated* and *continuous* transport of door-to-door freight delivery using two or more *dissimilar* modes of transport. (The often used word seamless can only be a long term goal as we the issue facing us is how to *bind the seams* i.e. reduce transaction costs at transfer points between the modes due to the legacy of a modal competition).

However, intermodalism is not new – the modalities in which it is unfolding is new. All ocean going trade involved intermodalism, and ports were intermodal terminals. However, globalization and Just-in Time have compelled the transport sector to make intermodalism more efficient than the earlier model of modal competition

However, in spite of the trade regime reforms and transport technology changes (which have removed institutional and physical barriers to trade), a variety of nontariff barriers to free trade remain. A major class of such nontariff barriers derive from the institutions governing

transport, which embody a variety of incentives appropriate to an earlier era characterized by modal transport, regulated services, and restricted cross-border trade. Even as the tariff and other barriers have fallen under the impetus of Free Trade Areas (FTAs), trade within an FTA is still not completely "free", in the sense that cross-border movement of goods is no more costly than the movement of the same goods over the same distance within a country. Such institutional characteristics, inherited from the era of closed trade regimes act as non-tariff barriers hindering free cross-border goods flows.

As trading regimes have become progressively more open in recent decades, the traditional transport institutions governing international goods flow have been required to reinvent themselves in order to service the emerging global economy. The purpose of this institutional reform is to change the economic incentives in a way that minimize the consequent costs of cross-border goods flow. As a consequence, there has been a recent spurt of *reform of the transport institutions governing international trade.*

The aim of this paper is to identify the transport institutions critical to cross-border trade, trace their recent evolution towards forms more consistent with the demands of free trade, and to trace the interplay between technical and institutional innovations in this evolution. and, illustrating the NAFTA experience in this regard

A transport governance system, or a trade and transport facilitation system, is a combination of two major cross-border goods flow facilitation components, which jointly influence the speed, ease, and costs of cross-border freight flows. The first component of this trade and transport facilitation system reduces the prevalent physical barriers to transport and cross-border transit by appropriate *physical infrastructure* -- such as transport infrastructure and facilities, and communication infrastructure that complements transport infrastructure. The second major component can be termed as *non-physical infrastructure or transport institutions*. Transport institutions embody knowledge and competencies about how to transport and communicate in specific legal, economic, financial, and governance frameworks in various parts of the world, and how such frameworks may be changed (under rapidly evolving technical and economic conditions) to facilitate improved transport and trade facilitation.

Such *institutional and organizational capabilities applied* to the cross-border goods traffic embrace:

* the economic institutions governing transport (economic regulation, privatization of transport assets, etc.),
* rules governing cross-border physical flows (customs and other border inspections, rules for size and weight of vehicles, etc.),
* mechanisms for financial coordination across economies scattered over the globe ,
* business logistical practices, and
*intermodal practices

This paper on transport technical-institutional innovations, which facilitate international trade has three objectives. First, it aims to characterize the cross-border transport governance system, evolving in response to the demands of international trading system and the mutual stimulas between new institutions and, new technologies. It identifies the various elements of this transport governance system and the role of each in facilitating efficient cross-border goods flow as illustrated by the NAFTA experience (Lakshmanan and Anderson, 2002; Lakshmanan, Subramanian, Anderson and Leautier, 2001). American and European FTAs and which may help developing countries as they upgrade their transport and trade facilitation systems.

Section II of the paper describes the institutions of transport governance and how they evolve in the context of technical innovations in transport and the structural changes in the global and regional organization of economic activities.

II. INSTITUTIONS OF TRANSPORT GOVERNANCE

A transport governance system refers here to the specific economic, financial, legal and political frameworks which define the environment or the conditions under which goods can be transported across national borders. The frameworks relate to regulations governing transport services, rules of cabotage, privatization of infrastructure, banking practices and payment systems, the nature of customs and other goods inspection, and harmonization of vehicle standards, and trade practices. As merchandise trade grows over time, these frameworks have evolved to facilitate trade, in the process transforming the environment for goods flow in affluent industrialized countries. In these countries, in the *best practice* characterizing this environment,

transport is becoming increasingly faster, more flexible and (with jet transport, fast container ships, container handling practices, and intermodal systems) more predictable within a narrow time range; Transport and Information Industries are being privatized, and (along with banking) deregulated. New logistical innovations such as just-in-time and quick-response are reengineering business systems, as well as production and commodity flow systems; Containers and cargoes are continually tracked around the world by automatic identification devices and are continually 'visible' in transit to shippers and carriers; The traditional slow and tedious paper trail that accompanies goods to secure clearances across borders from Customs, Revenue agencies and Financial intermediaries is being replaced by Electronic Data Interchange(EDI) and e-commerce. Customs Agencies, Finance ministries and Regulators are beginning to reinvent their practices in this new environment.

The Components of an Advanced Transport Governance System

As noted above, an advanced transport governance system oriented to trade facilitation (See Table 1) reduces the barriers to transport and cross-border transit through the use of *knowledge and competencies applied* to the transport vehicles and infrastructure. Such knowledge and competencies are embodied in the reformed institutions and private organizations. These institutions and organizations incorporate knowledge about how to transport and communicate in specific legal, economic, financial, and governance frameworks, which are operative in different countries. Further, these institutions and organizations are learning systems that develop adaptive knowledge relating to how such frameworks may be changed over time to facilitate continual improvement of transport and trade.

Table 1: Components of A Transport Governance System Facilitating Trade

Transport Institutions (Knowledge and Competencies in Transport And Trade Facilitation)
1. Overall Governance of the Transport and Trade Facilitation
2. Systems of Governance of Physical Flows ***Market Organizations*** 1. Business Logistical Systems
2. Financial Coordination Systems
3. Intermodal Practices

1. *Overall governance of transport and trade facilitation*. This defines the economic, institutional, legal, and administrative frameworks within which cross-border transport activities are carried out. Examples of recent reform of these frameworks in order to promote trade include: deregulation of transport services in North America, and Europe; Progressive removal of cabotage restrictions and other residual economic regulations; privatization of transport infrastructures, etc.

2. *Governance of Physical flows.* Goods moving from one side of a national border to the other are normally subject to a variety of processes governed by a multiplicity of rules. Examples of such rules pertain to the size and weight of vehicles permitted in freight across borders, customs inspection practices, forms of other border inspection relating to agricultural products, drugs, etc. To promote seamless intermodal freight flows across borders, knowledge and competencies related to such governance systems (that vary across borders) and ways of reforming them are crucial.

3. *Business Logistical Systems.* Business capabilities are enhanced by new logistical systems that offer fast, reliable, and low-cost service. Logistical systems represent an integrated analysis and active management of a production firm's overall supply chain, from the spatially far-flung sources of inputs to delivery of finished products (Chatterjee, 2000). These systems also can provide competitive advantage by slashing costs (minimum inventory), quickening market feedback, and expanding market reach.

4. *Financial Coordination System.* Since money is exchanged for the transfer of property rights to the goods at the time of goods delivery, financial coordination across different economies in a vast global economy is crucial. Financial instruments help pool and diversify risk. Financial coordination is improved by trade-friendly banking practices and new payment systems. Risk-reduction innovations can reduce the costs of linking the shipper and the customer. Organizational innovations can create efficient entities for marketing and distribution in the rapidly evolving marketplace.

5. *Intermodal Practices.* As the horizontally organized globally distributed production systems increase, the demand for more efficient intermodal transport organization increases. Improved intermodal practices develop through a combination of technological improvements involved in business logistics and intermode organizational coordination.

The rest of the paper will focus on this process of reform of transport governance in NAFTA. Specifically, the paper concentrates on three components (listed below) of the transport and trade facilitation which require *considerable institutional reform* by public sector agents.

A. Overall governance of transport and trade facilitation, and
B. Governance of physical flows
C. Intermodal practices

III. NAFTA: SCOPE AND EVOLUTION OF TRADE INTEGRATION

The three NAFTA partners are a diverse group in terms of size, level of development, and the role of trade in their economies. While Canada and the U.S. both rank among the highest income countries in the world, Canada is dwarfed by the U.S. in terms of population and GNP (See Table 1). International trade is more critical to the Canadian economy, as indicated by the ratio of total trade to GDP. Thus the U.S. and Canada roughly fit the classic "large country / small country" case of international trade theory.

Mexico is a relatively low-income country that has been experiencing rapid economic growth in recent years. Given its large population, rapid economic growth, and opportunities for economic integration with its richer neighbors, Mexico could potentially be one of the most important international markets in the twenty-first century.

Figure 1 traces the growth of the three economies in the 1993-97 period, and the growing importance of trade in all the economies.

Canada and the U.S. now have the largest bilateral trade relationship in the world, but this was not always the case. Between the time US became an independent country in 1776 and mid-19th century, the US-Canadian Colony commercial relations were strained. After a short thaw between 1846 (when Britain adopted a policy of free trade) and the American Civil War (when Britain was suspected of helping the Southern states) US-Canadian trade was open and unrestrained. After the Civil War, the US abrogated this free trade regime unilaterally. Later in 1879, the then autonomous Canadian Government instituted a policy of tariff barriers -- partly to protect its nascent manufacturing industries (against a more robust US production sector) and partly to unify a geographically vast country by diverting north-south international trade flows to east-west domestic trade. Over time this policy led to an expansion of interprovincial trade,

large and efficient industries (steel, agricultural machinery, and other key sectors), and a 'branch plant' economy with US interests owning half or more of Canadian manufacturing capacity.

Figure 1

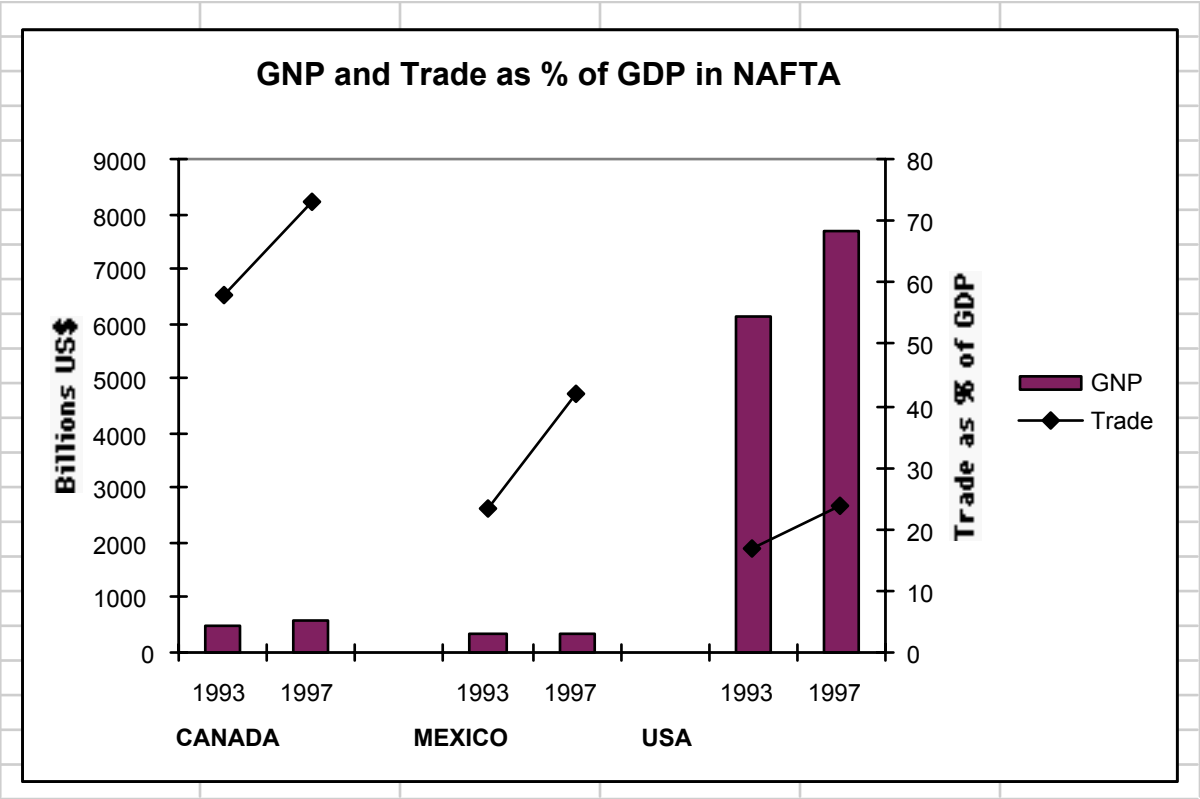


Table 1: Statistical Comparison of the NAFTA Partners, 1998			
	Canada	Mexico	U.S.A.
GNP 1998 (billions U.S. dollars)	612.2	380.9	7921.3
Avg. GNP Growth Rate 90-98	2.2	2.5	2.9
GNP Per Capita (U.S. dollars)*	24,050	8,190	29,340
Total Trade as % of GDP, 1996	73	42	24
Population, 1998 (millions)	31	96	270
Avg. % Population Growth 90-98	1.4	2.0	1.1
* adjusted for purchasing power parity			
Source: World Bank, World Development Report 1999/2000			

Tariff barriers have declined through time, due partly to the GATT, but more significantly to the U.S.- Canada Auto Pact of 1965. This was an agreement to eliminate all tariffs on automotive products and components, thus allowing Ford, Chrysler, and General Motors to rationalize their North American production system. The agreement included

provisions to ensure an equitable market share for Canadian production plants. The importance of Auto Pact in shaping U.S. Canada trade relations is evident in the fact that automotive products now dominate U.S – Canada trade. More generally, a trade regime in which intra-industry trade and trade in intermediate goods play prominent roles emerged as a result of that agreement.

More comprehensive trade liberalization was achieved under another NAFTA precursor, the 1988 Canada - U.S. Free Trade Agreement (CUSFTA), which was to phase out by 1998 all Canada – U.S. tariffs. While CUSFTA served as a model for the removal of barriers to trade in services, transportation services, however, were not covered under CUSFTA because the U.S. was still implementing a broad program of transportation deregulation and Canada was just beginning a similar program at the time under CUSFTA.

Even before CUSFTA, Canada's international trade had come to be dominated by its relationship with the United States. By 1998, the United States was the destination of 84% of Canada's exports (by value) and the origin of 77% of Canada's imports. This fact, coupled with Canada's high ratio of trade to GDP, indicates the extraordinary degree to which the Canadian economy is dependent upon the U.S. economy.

Table 2, which breaks out Canada – U.S. trade by broad commodity groups, is quite different from the historical patterns of the late 19th and early 20th century, when Canada exported primary commodities and its industrial sector was poorly developed. At present over 70% of Canada's exports to the U.S. are manufactured goods, of which most are machinery and transportation equipment coming largely from the industrial provinces of Ontario and Quebec.

U.S. – Mexican relations are based on shaky historical foundations. Mexico lost roughly half of its territories (including California) to the U.S. as the outcome of a war fought between the two countries in the 1840's. Subsequent U.S. intervention (sometimes of a military nature) in Mexican affairs led a successions of Mexican governments to be highly suspicious of their northern neighbor.

Table 2: U.S. Trade with Canada 1993 and 1997 (millions of dollars)				
U.S. Exports	**1993**	**%**	**1997**	**%**
0. Food and Live Animals	5,573	5.5	6,879	4.5
1. Beverages and Tobacco	148	0.1	320	0.2
2. Crude materials, inedible, except fuels	3,144	3.1	4,453	3.0
3. Mineral, fuels, Lubricants, and Related Materials	1,257	1.2	2,420	1.6
4. Animal and Vegetable Oils, Fats, Waxes	89	0.1	229	0.1
5. Chemical and Related Products N.E.S.	8,419	8.4	13,093	8.7
6. Manufactured goods Classified chiefly by Material	12,431	12.4	19,652	13.1
7. Machinery and Transport Equipment	54,273	54.2	82,961	55.3
8. Miscellaneous Manufactured Articles	10,458	10.4	14,773	9.8
9. Other	4,397	4.4	5,344	3.6
Total	100,190	100	150,124	100
U.S. Imports				
0. Food and Live Animals	4,899	4.4	7,434	4.4
1. Beverages and Tobacco	1,138	1.0	823	0.5
2. Crude materials, inedible, except fuels	8,417	7.6	11,983	7.1
3. Mineral, fuels, Lubricants, and Related Materials	11,772	10.6	17,908	10.7
4. Animal and Vegetable Oils, Fats, Waxes	219	0.2	379	0.2
5. Chemical and Related Products N.E.S.	5,499	5.0	9,514	5.7
6. Manufactured goods Classified chiefly by Material	17,765	16.0	27,336	16.3
7. Machinery and Transport Equipment	48,999	44.1	72,101	42.9
8. Miscellaneous Manufactured Articles	5,255	4.7	10,306	6.1
9. Other	6,958	6.3	10,266	6.1
Total	110,921	100	168,051	100
source: U.S. Department of Commerce, *U.S. Foreign Trade Highlights*				

Nevertheless, the Mexican economy is highly dependent on the U.S., not only because of the size of the American market, but also because the American earnings of Mexican emigrants – both permanent and temporary – contribute significantly to Mexico's aggregate income.

The most important pre-NAFTA development in Mexico – U.S. trade relations has been the creation of "Maquiladora" assembly plants, located in Mexico but using mostly U.S. components and producing almost exclusively for the U.S. market. They permit American manufacturers to use low-wage Mexican labor in the assembly phases of production that require relatively low skill levels.

Under the customs provisions enacted by the U.S. and Mexican governments, Mexico allows U.S. components to enter duty-free and be held in-bond at the Maquiladora site, so long

as the finished products are re-exported. Upon shipment from the Maquiladora, U.S. customs charge duty only on the Mexican value-added content of the assembled product.

From the Mexican perspective, this system generates employment and income. From the U.S. perspective, it makes U.S. producers more competitive while preserving jobs in component manufacturing. Thus, despite the absence of any formal treaty, complementary U.S. and Mexican policy measures have created a mutually beneficial trade relationship.

Due in large part to this system of production, exports from Mexico are largely in the manufacturing categories (See table 3). Thus, despite the extreme economic differences between Canada and Mexico, the U.S. – Canada and U.S. – Mexico trade profiles are relatively similar. Both are dominated by intra-industry trade of manufactured goods arising from a high degree of integration with U.S. production systems. There is a fundamental difference, however, between these two bilateral trade relationships. U.S. - Canada trade is between two highly developed countries, and is therefore comparable to the intra-industry trade between members of the EC. By contrast, economic integration between the U.S. and Mexico is of a specific form dictated by the large differences in wage and skills levels between the two countries.

Table 3: U.S. Trade with Mexico 1993 and 1997 (millions of dollars)				
U.S. Exports	**1993**	**%**	**1997**	**%**
0. Food and Live Animals	2,460	5.9	3,074	4.3
1. Beverages and Tobacco	150	0.4	82	0.1
2. Crude materials, inedible, except fuels	1,808	4.3	2,956	4.1
3. Mineral, fuels, Lubricants, and Related Materials	1,044	2.5	2,006	2.8
4. Animal and Vegetable Oils, Fats, Waxes	212	0.5	375	0.5
5. Chemical and Related Products N.E.S.	3,470	8.3	6,343	8.9
6. Manufactured goods Classified chiefly by Material	5,529	13.3	9,319	13.1
7. Machinery and Transport Equipment	19,760	47.5	35,810	50.2
8. Miscellaneous Manufactured Articles	5,361	12.9	8,394	11.8
9. Other	1,843	4.4	3,019	4.2
Total	41,635	100	71,378	100
U.S. Imports				
0. Food and Live Animals	2,680	6.7	3,917	4.6
1. Beverages and Tobacco	320	0.8	704	0.8
2. Crude materials, inedible, except fuels	652	1.6	978	1.1
3. Mineral, fuels, Lubricants, and Related Materials	4,869	12.2	8,449	9.8
4. Animal and Vegetable Oils, Fats, Waxes	27	0.0	29	0.0
5. Chemical and Related Products N.E.S.	772	1.9	1,551	1.8
6. Manufactured goods Classified chiefly by Material	2,903	7.3	6,642	7.7
7. Machinery and Transport Equipment	20,732	51.9	47,312	55.1
8. Miscellaneous Manufactured Articles	5,245	13.1	12,953	15.1
9. Other	1,730	4.3	3,337	3.9
Total	39,930	100	85,872	100
source: U.S. Department of Commerce, *U.S. Foreign Trade Highlights*				

In assessing the potential and progress of NAFTA, it is important to keep in mind that it was introduced at a time when a particular form of trade involving industrial complexes which span the borders between the United States and its two neighbors had already evolved over a period of decades. (Trade between Canada and Mexico is still very small.) Thus NAFTA creates an opportunity to expand and extend trade relationships that are already well established.

OVERVIEW OF NAFTA

NAFTA is a highly comprehensive trade area agreement, covering not only tariff elimination, but a number of highly contentious issues including non-tariff barriers, direct foreign investment, trade and services, government procurement, and intellectual property rights.

Despite the broad scope of the agreement, it contains a variety of exceptions and safeguard measures. One of the most important aspects of NAFTA is its provisions for dispute resolution.

Tariff elimination. NAFTA requires all tariffs on industrial goods to be eliminated within ten years of its implementation date (i.e. by 2004). A few Mexican tariffs on agricultural goods will be eliminated over a fifteen-year period.

Since NAFTA does not impose common external tariffs, transparent rules of origin prevent any fourth country from reducing tariff burdens by exporting to one NAFTA partner and then re-exporting to another partner with a higher external tariff. NAFTA content rules prevent transshipment of goods after only minor processing. Despite the basic principle that all tariffs should be eliminated, safeguard provisions allow any NAFTA partner to reinstate its tariffs if imports cause serious injury to a domestic industry.

Non-tariff Barriers. Administrative non-tariff barriers, such as the issuing of import licenses which can effectively act as quotas, are eliminated under NAFTA. While accepting that technical product standards may vary across countries, NAFTA stipulates that they not be used as obstacles to trade. Specific provisions include the right of firms in one country to participate in the standard setting procedures of another, and appointment of a committee to promote standards harmonization.

Trade in Services. NAFTA allows free trade in the majority of service sectors. Major exclusions include marine and air transportation and basic telecommunications.

The fact that services are "covered" under NAFTA does not mean that all restrictions to trade have been eliminated. For example, as explained in detail below, the definition of land transportation as a tradable service under NAFTA does not mean that all restrictions to cross-border truck and rail operation have been removed.

Investment. Under NAFTA, foreign and domestic investors have the same rights in most cases. Certain sectors are exempt, including maritime and telecommunications and each country may prohibit foreign investment in specific activities based on national security. Also, due to provisions in the Mexican constitution, the energy sector and railroads are exempt in that country.

Government Procurement. NAFTA significantly expands the opportunities for firms in one country to bid on government contracts in another. Significantly, Mexico's state controlled

industries (oil and gas, electricity) are opened up to foreign procurement. A variety of restrictions, such as small and minority business set-asides in U.S. government contracts, remain.

Personnel. NAFTA does not provide for free movement of labor across borders. It does, however, make it easier for business people to move between countries, so long as it is on a temporary basis.

Dispute Resolution. One of the most important features of NAFTA is the establishment of fair, transparent, and timely resolution of disputes. For example, NAFTA panels can be convened to settle disagreements in the application of rules of origin, NAFTA content rules, or the application of anti-dumping measures. NAFTA panels also have authority over disputes related to environmental practices in border areas.

IV. OVERALL GOVERNANCE OF TRANSPORTATION AND TRADE FACILITATION UNDER NAFTA

As trade barriers fall off with NAFTA, the production and transportation firms in all three countries begin to rationalize their production and logistical systems as appropriate to a single North American market. This drive for rationalization and increasing trade generate in turn the demand for more economic harmonization and an interest in the removal of remaining obstacles to free trade. Some aspects of transportation, however, appear to constitute part of these remnant obstacles.

In transportation NAFTA sought to equalize the US-Mexico transborder operations to those practiced between Canada and US. Reciprocal entry in the trucking industry was to be permitted initially to zones in border states, later to border states, and in seven years to all states and all over Mexico. Yet half a decade into NAFTA, in transborder traffic there remain many subtle and not so subtle barriers which translate into higher costs. Why is this so given the convergence over the last two decades in economic regulation and liberalized environment for transport in the three countries--particularly between US and Canada where the business practices are similar and the infrastructures are compatible?

It is worth noting that the three countries have come to NAFTA after a long divergent history of public policy and regulatory regimes as applied to domestic transportation systems, *and* to other non-transportation matters that turn out to have subtle unintended consequences on transport operations. Thus the variety of technical and safety-related regulations (e.g. vehicle

size and weight standards) that have developed in each country over the years to govern domestic transportation are divergent enough to provide barriers to transborder traffic. Many of these standards are complex and multidimensional so that considerable effort is involved in resolving inconsistencies as in the work of the Land Transportation Standards Subcommittee (LTSS).

Further, the reform of the elaborate and divergent economic regulations governing transport in the three countries was a prerequisite for the promotion of a seamless cross-border freight flow. In North America, processes of transport deregulation and privatization have played complementary roles with trade liberalization to promote transport integration. After all the economic regulatory reform that has occurred in Canada, Mexico, and the U.S., there is still remnant economic regulation in the form of cabotage rules that hinder efficient transborder operations. Again, activities in non-transport matters such as interdiction of drugs pests and diseases, and illegal immigration lead to time consuming border inspections.

The rest of the chapter explores these non-tariff barriers – detailing their nature and complexity, their current status and steps being taken to lower the barriers and mitigate their effects. The lowering of the barriers

TRANSPORT ECONOMIC DEREGULATION AS PREPARATION FOR TRADE PROMOTION

The public policy regimes in transport in North America have included a high level of economic regulation for nearly a century. This derived from the fact that transportation carriers, which are integrated with fixed facilities and vehicles and enjoy network economies, were able to engage in monopoly pricing, market segmentation pricing and similar actions that seriously disadvantaged shippers and communities.

Since 1887 the US instituted economic regulation of railroads that allowed the Interstate Commerce Commission (ICC) to assure a normal rate of return for railroads' assets while balancing the advantages of shippers and equity of service to communities. To this end ICC engaged in elaborate control of investment, pricing, and operations in the railroad industry by specifying the conditions of entry, exit, the creation of complex rate structure, and even rules of operations--without the ability to compute costs effectively. During the 1930s similar economic regulation was extended to motor carriers and airlines. Canadian carriers have also been subject to economic regulation, though more lightly than in the US and predominantly at the provincial

level. Mexico also regulated through the award of transport concessions, the grant of route capacity and freight rate structures.

The adverse effects of such intrusive regulation became very evident by the 1970s in the poor financial performance of US railroads and high truck rates in the LTL (less than truckload) sector. Economic analyses have shown that the price and entry regulations introduce inefficiency by creating a vicious cycle of artificially high prices, high service quality competition and the resultant losses due to raised costs (Douglas and Miller, 1974). Three sets of such regulatory distortions have proved costly. First, in both road and rail, rates were set above marginal costs--costing the economy $1 billion annually (Winston, 1985). Second, the entry and exit regulations cost the carriers dearly--the prohibition on railroads on exiting from poorly performing lines leading to annual production cost inefficiencies of $2.5 billions (Winston, 1985). Third, restrictions such as disallowing backhauls, designation of routes, etc. led to X-inefficiency costs of several billion dollars (Winston, *et al.,* 1990)--besides hindering productivity growth, technical change, and service quality.

The resulting drive for deregulation led in short order to regulatory reform of airlines (1978), railroads (1980), and motor carriers (1980) first in the US. Entry conditions were eased; freedom to price was promoted; reliance on the market and competition was encouraged. Canada followed suit through the *National Transportation Act (NTA, 1987), the Shipping Conferences Exemption Act (SCEA), the Motor Vehicle Transport Act* together with the amendments to other legislation such as *the Railway Act.*

Transport deregulation came to Mexico as part of the late 1980s economic restructuring intended to promote domestic investment-friendly policies. Liberalization of the motor carrier industry occurred in 1989--permitting greater pricing freedom, opening the market to private carriers, and allowing Maquiladora operators to use their own fleets to move goods in both directions.

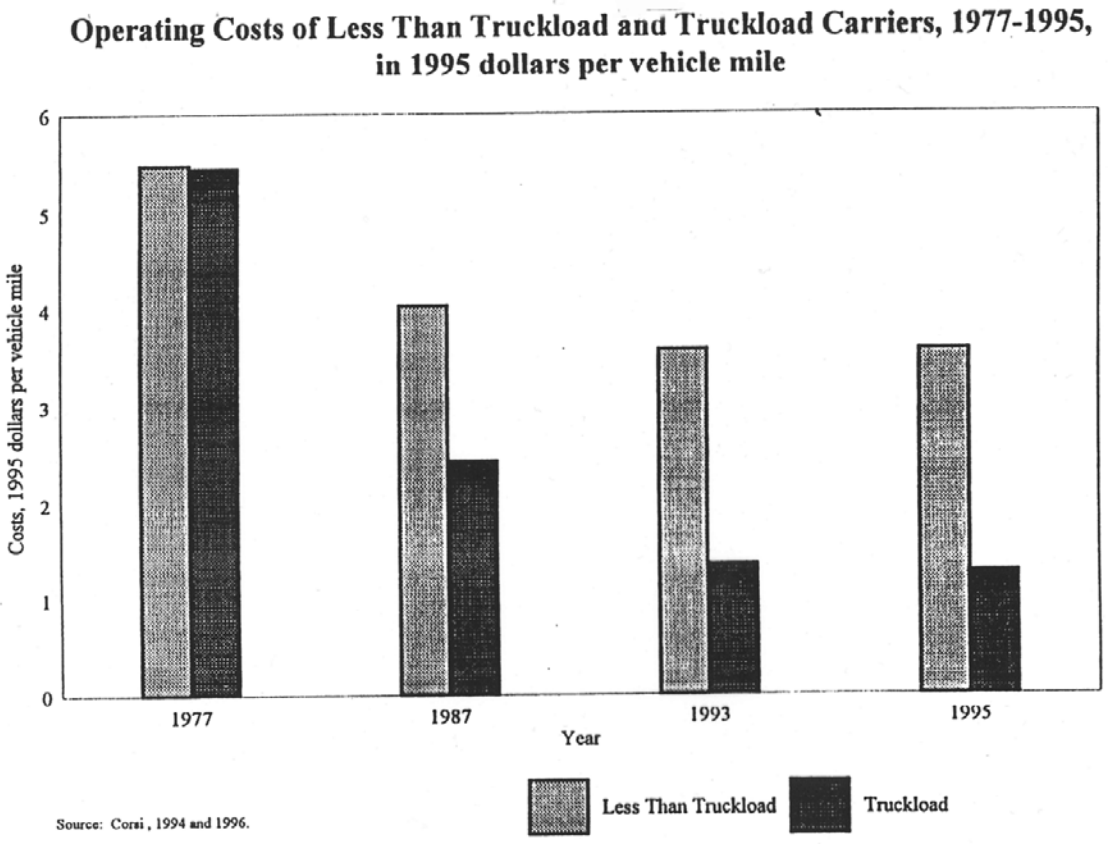
Major changes occurred in the US in the conduct, performance, and structure of airlines, trucking and railroads after deregulation--more competition among all modal carriers, lower prices, wider set of service offerings, and new entry into most geographic and product markets (Figures 2 & 3). Carriers have been able to rationalize their networks, improve the efficiency of their operations, and set rates in line with competitive market conditions. There was a significant

change in the cost structure of the railroad industry following deregulation with productivity growing at well over 2% a year (Bereskin, 1996).

Several studies have shown that average airfares (in constant dollars) have fallen since 1978 and competition stays rigorous on most city-pair routes, though concentration has gone up in the industry (US GAO, 1990; NRC, 1991). U.S. domestic airfares adjusted for distance have been consistently lower in the last two decades than in Europe, Asia or the world.

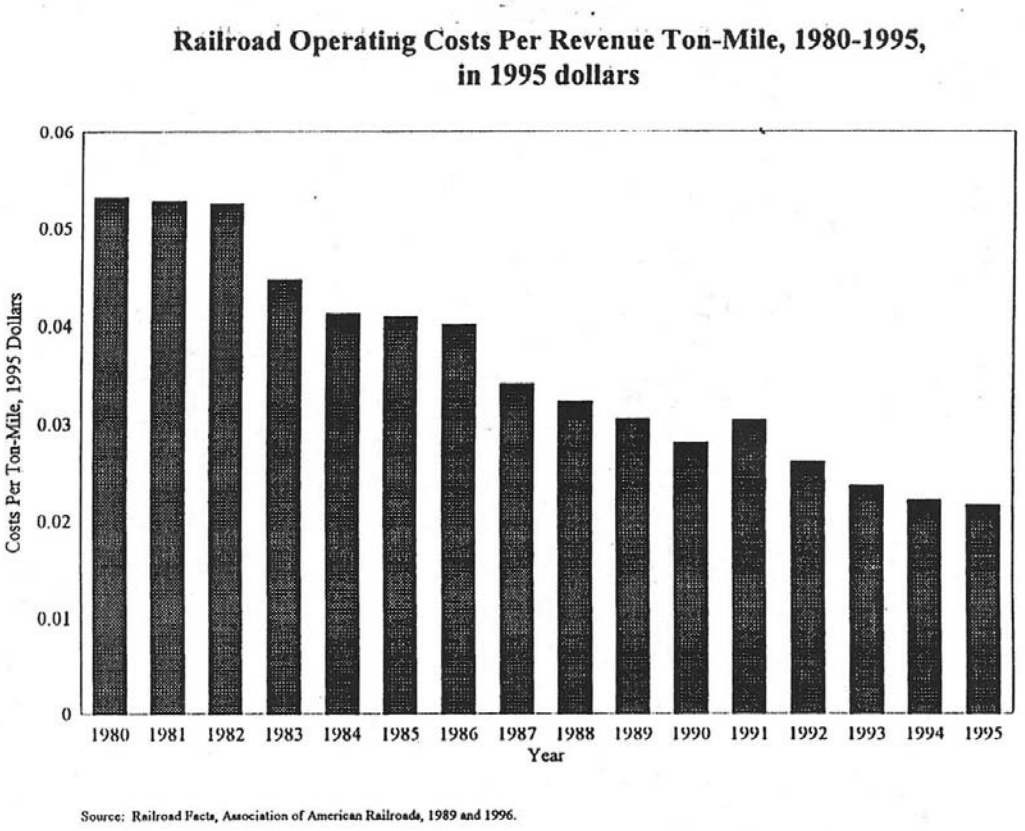
Shippers, confronting technological change and globalization, have begun to coordinate their production activities more effectively with their transportation services--with consequent productivity gains. The experience in Canada since 1987 has been broadly similar, with competitive pressures lowering rates in international air traffic, railroads and trucking (Fig 5.) Trucking deregulation in Mexico in 1989 increased competition and lowered rates--29% lower a few years later (Strah, 1995). It also promoted expansion of intercity routes and the vehicle fleet.

Figure 2



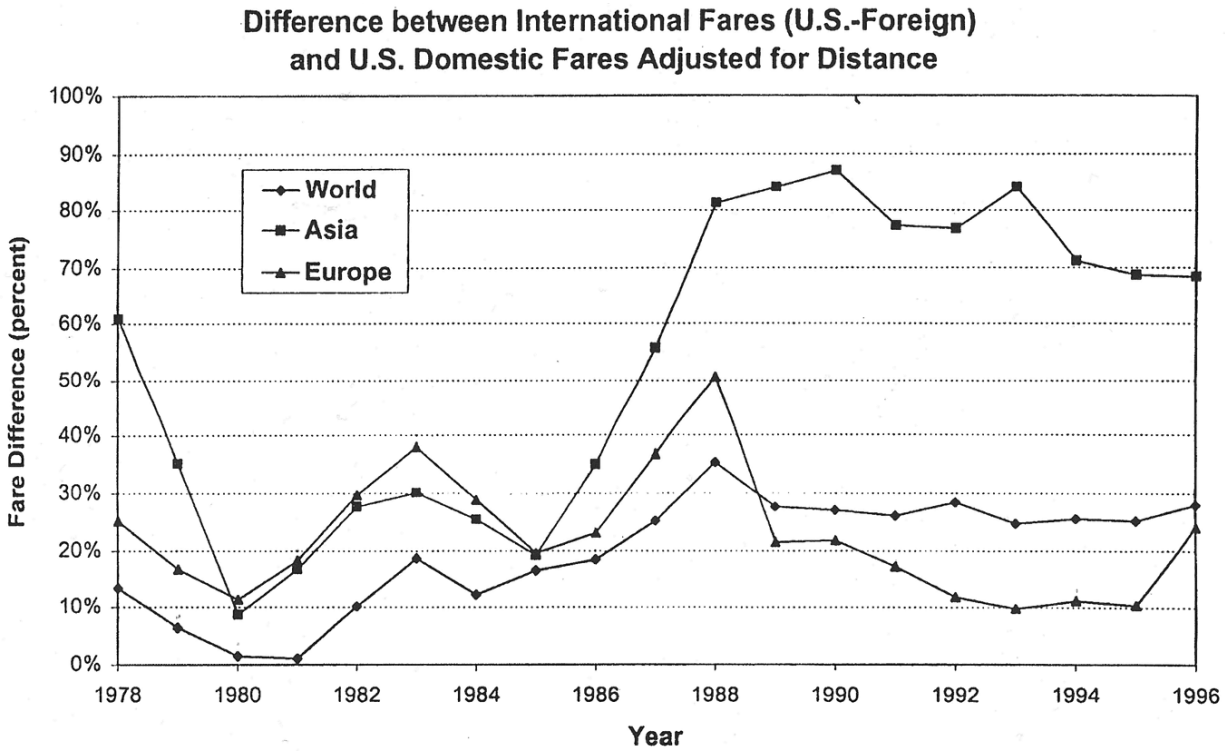
Source: Morrison and Winston, 1997

Figure 3



Source: Morrison and Winston, 1997

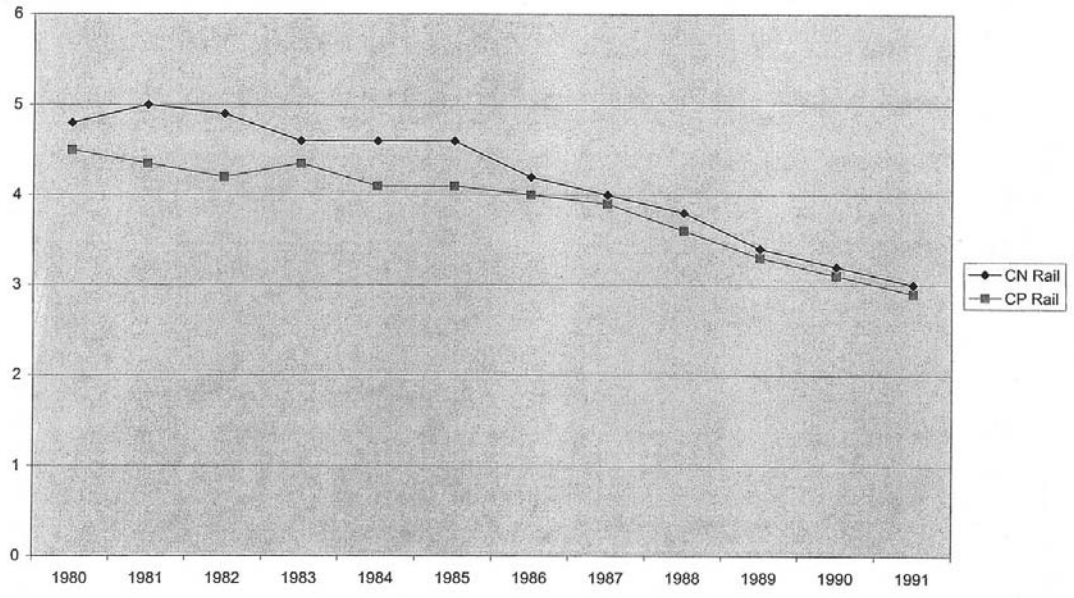
Figure 4



Source: Morrison and Winston, 1997

Figure 5 Canadian Railroad costs in 1980-91 (in 1986 cents per revenue ton-mile)

Source: IBI



Cabotage

One class of these barriers pertains to the remaining economic regulation, in particular, cabotage. Cabotage refers to the ability of foreign vehicles and labor to transport goods within a country. The cabotage rules and regulations that limit the freedom of foreign transportation carriers instituted by Customs and Immigration Departments are typically symmetric. Such rules involve the use of labor and equipment of one country in the other--e.g. foreign drivers cannot carry domestic freight and the use of foreign equipment is restricted to domestic movements that are incidental to international movements. The existence of these cabotage-rule barriers increases the cost of transborder transport. Railroads are less affected by cabotage restrictions, though they too incur additional costs because of the need to change crews at the border.

Another major remaining cabotage barrier is the existing US restrictions on trade in domestic water transportation. In the large, multi-coastal US economy, foreign participation in its intercoastal trade is restricted by the 1920 Jones Act. The Jones Act--justified by the need to secure a sufficient merchant marine capacity for US defense needs -- reserves the shipping cabotage traffic to US built and registered ships that are predominantly owned and crewed by US nationals. The US maritime carriers and other stakeholders have excluded these provisions from the GATT and NAFTA. The Jones Act permits domestic shippers to levy rates substantially above comparable world prices, effecting thereby a massive transfer from US users of water transport users to US maritime carriers-- a welfare cost around $3 billion in 1989 according to a recent analysis of the Jones Act (Francois *et.al*.,1996).

Aviation is an important component of foreign trade, for example accounting for $355 billion or 27% of US trade in 1995--60% of which is hauled in US carriers (US GAO, 1996). The rapid growth in international air freight services reflect the emergence of global systems of producing and distributing goods and the associated 'just-in-time' inventory and supply chain management systems. Such services are handicapped, however, by the bilateral international aviation agreements that specify traffic rights – the routes, the number of flights on each route and the number of airlines that can fly them. Such restrictions on transborder airline traffic have been recently relaxed by the US negotiations on 'open skies' agreements with many European countries such as Germany and Netherlands. In 1995 the U.S. and Canada signed the Open Skies Agreement, under which carriers in each country were given full access to destinations in the other, procedures for international fare approval were streamlined, and gates at some of the

busiest U.S. airports were dedicated to Canadian flights. The agreement extended both to passenger and all-cargo air services. The agreement with Mexico (1991) is not 'open' but liberalized to include open routes, no capacity restrictions, freedom to transfer cargo for 'onward flights', and operational flexibility but restricted in the number of airlines allowed to operate (one on any city pair segment), and double approval pricing.

As economic regulatory barriers fall, cabotage and other barriers in the form of safety and technical regulations in such areas as vehicle size and weights, driver certification and hours of service, and safety remain. As the rules governing these matters diverge in the different countries, because of past national decisions on bridges, infrastructure, or social and political issues governing transport, the resulting inefficiencies in transborder areas will spur the demand for uniformity and harmonization.

The overall message is that inconsistencies in transport regulations between countries that are part of a Free Trade Area will generate economic inefficiencies and disparate opportunities, thereby generating demand for harmonization. As both production and transportation firms in all three countries rationalize their operations across the NAFTA region, the transport non-tariff barriers noted in this section as well as in the rest of the paper cause inefficiencies and generate the political demand for their relaxation. The direct effect of these barriers--as the transportation carriers are required to operate around these restrictions--would be higher costs; the longer term indirect effect would be less competitive and efficient activities in the logistics industry and the consequent loss of productivity in the NAFTA region.

SYSTEMS OF GOVERNANCE OF PHYSICAL FLOWS

In addition to economic regulation, transportation is subject to a host of technical regulations and standards. These include:

- size and weight regulations for trucks
- size, weight and other technical standards for locomotives and other railroad stock
- age, language, licensing and health regulations for vehicle operators
- conventions for road signs and traffic signals
- procedures for ensuring vehicle safety
- procedures of transportation of hazardous goods

In all of these cases, somewhat different regulations, standards, and procedures have evolved over many years in the three NAFTA partners and increase the cost of moving goods across borders, as compared with moving the some goods the same distance domestically--constituting a form of non-tariff barrier.

Inconsistencies in truck size and weight regulations are a good example. These regulations are imposed for two reasons. The first is that excessively large vehicles will not operate effectively in mixed traffic streams, resulting in congestion, delays, and accidents. The second is that oversized vehicles result in accelerated wear and damage to road infrastructure, and may result in the failure of bridges.

Truck size and weight regulations can be complex. For example, not only the gross weight of the truck, but also the weight per axle, the way the weight is distributed to the front and back axles, and the distance between the axles, may be included in the regulations. Truck length regulations may be defined on overall length, on the length of tractor and trailer independently or even on the length of the trailer beyond the back-most axle.

Unfortunately, there are some significant inconsistencies between these regulations in the three NAFTA partners. Even on the most basic dimension – gross truck weight – there is no consistency. As Table 4 indicates, the United States limits all trucks to a gross weight of 36,288 kg (80,000 lbs.). Both Mexico and Canada allow higher weights for all categories of trucks and increases the weight limit for trucks with more than the standard 5 axles. This inconsistency is due mainly to conservative assumptions by U.S. officials about the maximum weight that can be supported by bridges.

Table 4: Maximum Gross Vehicle Weights in the NAFTA Countries (in kg)

Truck Type	U.S.	Canada*	Mexico
Tractor – Semitrailer (5 axles)	36,288	39,500 – 41,500	44,000
Tractor – Semitrailer (6 axles)	36,288	46,500 – 53,000	48,500
Double Trailer (6 axles)	36,288	47,600 – 43,500	47,500
* range of provincial regulations			
Source: North American Free Trade Agreement Land Transportation Standards Subcommittee, October 1997.			

To make matters worse, different regulations may apply in different places. For example, Canadian regulations are set at the provincial level, and despite recent efforts at standardization some variation remains across provinces. There are also some state level variations in the United

States and different regulations apply on different parts of the highway network. (This is especially true for regulations applying to trucks hauling more than one trailer.)

These inconsistencies have the potential to add significantly to the cost of cross-border transportation. For example, it is already the case that some Canadian trucking firms must maintain separate fleets of trucks for shipments into the U.S. and for domestic shipments (Prentice and Wilson, 1998). Also, given these inconsistencies, each country must take measures that trucks entering their territory are not in violation of its rules. This implies border inspections, which add to the cost of border operations and may contribute to costly border delays (see below.)

Recognizing the potential problems arising from inconsistencies in technical regulation of transportation, a provision of NAFTA established the Land Transportation Standards Subcommittee with responsibility for harmonization in all of the categories of technical regulation listed above. To date, significant progress has been made in the regulation of vehicle operators and in harmonization of road signs and signals. The issue of safety compliance, especially with reference to Mexican trucks coming into the U.S., still presents problems (See below).

A special working group has concluded that complete harmonization is probably an unrealistic goal, but that it may be possible to eliminate some of the most onerous inconsistencies. Complete harmonization will be difficult for a number of reasons. For one thing, carriers in all three countries have considerable investments in fleets designed for compliance with national regulations. Also, in each country infrastructure design and construction has been done based on assumptions that embody the national regulations. Finally, as with any question of harmonization, there is an important political dimension. Since international freight accounts for a relatively small percentage of trucking activity in the U.S., it is unlikely it to change its regulations substantially. The other two partners, however, may see the adoption of U.S. rules as tantamount to sacrificing their political autonomy.

BORDERS AS BARRIERS

Border crossing areas may be subject to long delays. This is partly because most national frontiers are crossed by a relatively small number of road and rail links, resulting in traffic bottlenecks. Furthermore inspection and documentation activities that must occur as vehicles

cross the border are time consuming. If delays at borders are long enough they can to add significantly to transport costs. Labor must be paid and valuable vehicle capital must sit idle while waiting at border crossing.

Canada and the U.S. have traded large volumes of goods for a number of decades, and in the process both governments have worked cooperatively to develop relatively efficient border crossing routines. The border crossings along the U.S.- Mexican frontier is plagued by long delays and many Mexican trucks must be sent back due to violations of various U.S. regulations.

Large volumes of freight movement at the U.S. Mexican border are a more recent development, so there has been less time to work out the kinks. Also, the issues of illegal immigration and transport of drugs in commercial vehicles is a major concern. Finally, the Mexican truck fleet is in a relatively poor state and Mexican carriers and drivers are not well informed on U.S regulation, so many trucks fail inspection.

The situation along the Mexican border has presented a major impediment to full implementation of NAFTA provisions. NAFTA specifies a timetable for providing full freedom of truck movement across the U.S. – Mexico border. Initially, Mexican trucks were only allowed to operate in a relatively small commercial zone extending only a few miles into the territory of the four states that border Mexico. (Mexican goods bound for destinations outside this zone must be transferred to American trucks.) The NAFTA December 1995 deadline for Mexican trucks to be allowed to make deliveries throughout the territories of the border states and U.S. trucks to have similar access to Mexican border states has been delayed. By 2000, Mexican trucks should be able to travel throughout the U.S. and American trucks should be able to travel throughout Mexico. Thus, cabotage restrictions notwithstanding, Mexico and the U.S were to have a similar arrangement to the one that now exists between Canada and the U.S.

At the time of this writing, the access for Mexican trucks that was planned for 2000 has not yet been granted. The main reason for this delay is that the U.S. government and especially the governments of the bordering states fear that Mexican trucks will not meet U.S. regulations and may therefore cause accidents and damage infrastructure.

This would not be a problem if effective surveillance could be applied to prevent non-compliant trucks from entering the U.S. The inspection process, however, must necessarily be highly complex because various federal agencies (Customs, Immigration and Naturalization, Department of Agriculture, Food and Drug Administration) all have concerns about what may

cross the border in trucks. Inspection of the trucks themselves (as opposed to their contents of personnel) comes under the jurisdiction of state Departments of Transportation, who receive some limited assistance from the U.S Department of Transportation.

The checking by border states of trucks for size and weight violations and for safety violations such as worn tires, improperly secured loads, inadequate brakes etc. is handicapped by a relatively small number of inspectors assigned, and by the limited facilities it is only possible to conduct spot inspections. In these spot checks, roughly 50% of the trucks inspected have been put out of service due to some violation. It is not surprising therefore that state officials are reluctant to allow Mexican trucks to travel further into their territories until either a more stringent inspection process can be put in place or a much lower rate of violation can be observed in spot checks.

There is considerable potential for new information and communication technologies that come under the general heading of Intelligent Transportation Systems (ITS) to speed border crossings by eliminating much of the need for paper handling, remotely reading truck identification and cargo information, and conducting certain basic checks on weight, length, height, and width while the truck is in motion. Also, electronic databases can be used to identify trucks and drivers with previous violation histories so that inspection efforts can be concentrated on them.

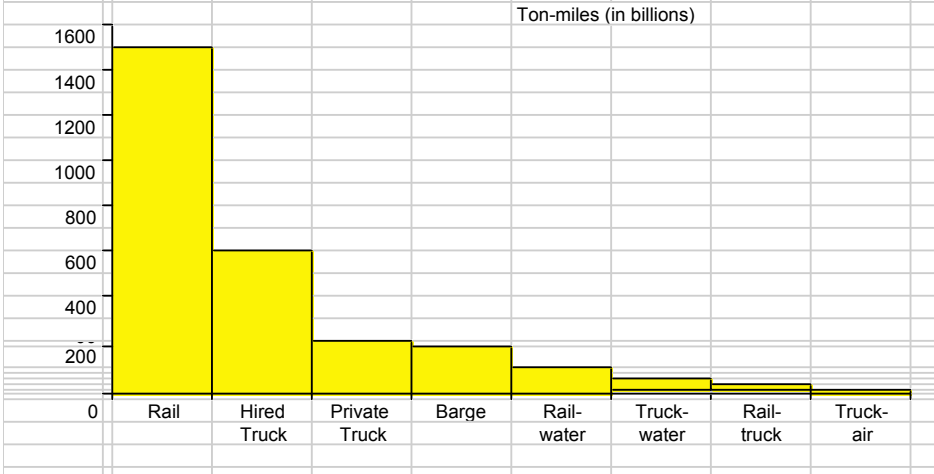
In the long run, probably the most important measure to deal with the current problems will be cooperative efforts that are now under way to encourage the Mexican government to follow domestic inspection procedures that are more consistent with U.S. procedures. The objectives of these efforts is to bring the general condition of the Mexican fleet up to a level where U.S. officials will permit them to have broader access to U.S. highways.

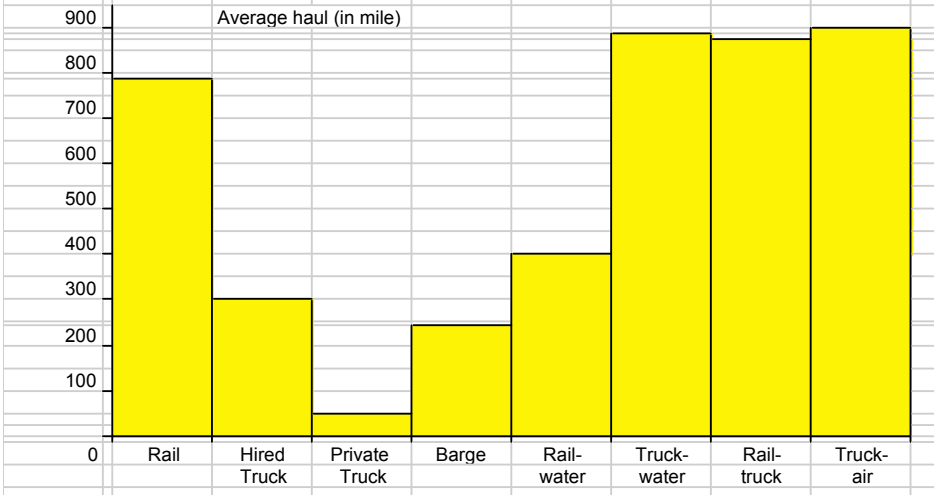
INTERMODAL PRACTICES

Intermodalism is an ongoing process. Some modes have cooperative relationships such as between the railroads and ocean-going international or maritime carriers . Others have virtually no interaction such h as between rail and air freight. Modes vary in their average haul distances due to cost advantages. Trucks have the potential for generating freight for the railroads and can be their intermodal business partners as depicted in Figure 6. However, the

rail-truck intermodal transport has not exploited the full potentials of their complementarities (Eno, 19987). Road congestion could be significantly reduced if trucks provide the short haul connections between shippers, the railroad and consumers. A number of IT innovations have been adopted by the public sector in all modes, highways, railways, ocean fright, and airports - as well as by the private sector shippers, carriers and logistics firms. The net result has been an increase in time and cost efficiencies in the transportation sector through intermodalism.

Figure 6: Freight Shipment Characteristics





Source: Eno Transportation Foundation, 1997

Figure 4: Forms of Freight Intermodalism by Commodities

	Air	Truck	Rail	Pipe	Barge	Ship
Air						
Truck	Express containers, JIT recovery					
Rail	NONE	Domestic intermodal DST and TOFC				
Pipe	NONE	Petroleum, gasoline	NONE			
Barge	NONE	Coal, grain, chemicals	Coal, grain, ore	Petroleum, chemicals		
Ship	Express containers, JIT recovery	International containers, automobiles	Containers, grain automobiles, chemicals	Petroleum, gasoline	Coal, petroleum, containers	

Source: Eno Transportation Foundation, 1997

Table 5. Supply Chain & Intermodal Transport: Case Study

Company	Road	Rail	Sea	Comments
Braun	Private Truck fleets serve Mexico City. Third party carriers to the rest of Mexico. Trucks to US border crossing	Experimenting with double-stacked rail shipment from Mexico city to Boston		It takes longer than over the road but labor and transportation costs are 40% lower. Rail containers are more secure and less likely to damage the contents.
Chrysler	LTL pickups from suppliers to a consolidation center. Drayage to plants. Trucks direct shipments of parts.	Double stacked rail shipment to a central warehouse in Detroit.		
Eastman Kodak	Trailers and refrigerated trucks			
Kraft de Mexico	Tractor Trailers and Tandem Trailers			
Mattel	Full truckload from ports and distribution centers, LTL to consolidation centers		Containers to Long Beach Port	
Phillips	Tractor Trailers and Tandem Trailers	Double stacked from rail movement from ports to plants	Containers to ports	

CONCLUSION AND LESSONS LEARNED

There are several lessons to be learned from the NAFTA experience. The first is that the high volumes of trade in North America are not simply the outcome of a single free trade agreement. Rather, they have evolved over a period of three decades due in large part to policies that have promoted the development of border-spanning industrial complexes, resulting in intra-industry trade of high value added goods. In the case of Canada and the U.S. this is the outcome of a sectoral trade agreement, the Auto Pact of 1965, while in the case of Mexico and the U.S. it is the outcome of policies by both governments facilitating the development of the Maquiladora systems. Agricultural and resource commodities, which often figure prominently in public discussions of North American trade, make up relatively small proportions of the overall trade picture in the NAFTA area.

In light of this, it would be a mistake to imagine that the level of economic integration observed in North America will arise swiftly when tariff barriers are eliminated in some other part of the world. NAFTA is essentially a means of eliminating remaining trade barriers to create opportunities to expand and extend already well established trade relations.

The second category of lessons relate to the fact that despite the elimination of tariffs truly 'free' movement of goods across international frontiers is not a realty. Even if administrative non-tariff barriers such as import licenses are removed and product standards are harmonized, a number of factors that are not normally associated with trade policy can create non-tariff barriers that retard the cross-border flow of goods and prevent the full benefits of trade liberalization from being realized. In particular, factors that retard the integration of freight transportation systems within the free trade area and cause major delays in cross-border freight movements can serve as significant barriers to trade.

The removal of these barriers have arrived in the In North America, processes of transport deregulation and privatization have played complementary roles with trade liberalization to promote transport integration, but significant impediments to cross border movement still remain. Also, many areas of public policy that relate to border security (such as drugs and illegal immigration) may pose major impediment to free movement across borders.
Among specific lessons are the following:

 Some of the greatest potential for trade within a free trade area lies in intra-industry trade in high value added goods arising from cross-border integration of manufacturing industries. This type of integration may take decades to be achieved, and may involve more than just the elimination of tariffs. It requires the development of an effective cross-border transit facilitation system.

 Inconsistencies in the economic regulation of transportation can impede the free movement of goods across borders. While in North America deregulation and privatization occurred in the years leading up to NAFTA, some forms of residual regulation – especially in the form of cabotage rules or restrictions on the movement of certain goods – still increase the costs of cross-border shipment.

 Harmonization of technical standards such as truck size and weight regulation is a mundane issue that may not command much attention while the free trade treaty is being negotiated. The complexity of such issues, however, means that they may take a long time to sort out once the agreement has been made. This should at least be recognized when implementation timetables are drawn up.

 Agreement of such standards is not enough. Methods of inspection and enforcement must ensure that each partner in the agreement adheres to the standards. This implies that sufficient resources must be devoted to inspection activities at the border and elsewhere.

 The need to prevent undesired movements across borders – as in the case of drugs or illegal immigrants – can result in long delays that add significantly to the costs of international shipments, and therefore constitute one of the most important barriers to trade. Coordination between different government agencies to speed up border movements is therefore critical.

 Factors that that lead to delays at borders not only increase transportation costs, they also make it impossible to reap the productivity benefits associated with timely delivery services, as in the case of just-in-time inventories.

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Seminar in Competiton and Regulation in Transportation Sector

Multimodal Transport

Eduardo Escamilla Castillo

20/septiembre/2002

In the traditional systems for the cargo management, trade commerce merchandise have been transported in a segmented form and have been shipped with diverse types of packing, using multplies and diverse equipments and instalation, converting the international transport in a complex network of operations techiniques and administrative.

Such problem began to be resolve with the incorporation of the unilaterals methods, the one´s that used pallets and more recentliy containers.

This frame work of new concerns that penetrated each country in the world, presented conditions not only of physical transformation, but of control in the organization, operation and administration of transport companies.

This forced developing countries to revise their operational structures and infrastructures and to perform diagnostics on each of their possibility, in order to accept the introduction of a different mode of transport.

The natural evolution of intermodal coordination, by including the international arena and being directly influenced by foreign trade, resulted in the implementation of a new system of transport labeled "Internantional Multimodal Transport".

In the international arena, the first attempts to create a legal regime for the Multimodal Transport, known as combined transport, were undertaken by the International Institute for the Unification Private Law - UNIDROIT- goes back to the 1930´s.

At the time these attempts were considered more theoricals rather than practicals, but when the unitarization of the cointainer was introduced and was developed in cargo management, mainly in maritime transport, there was a need to resolve the lack of regulation in the multimodal transport.

Once the need to establish an international ordinance became apparente, the Economic and Social Council of the United Nations, constituted in 1973, within the framework of the Board of Commerce and Development –UNCTAD- a intergovernmental preparatory group in charge to elaborataing an agreement about international multimodal transport.

This group met during six periods of sessions in Geneva, between 1973 and 1979, concluding its works with an proposed text for an agreement, for this reason why it was summoned to a conference of fully empowered to review it and, in its case, to approve it.

After two periods of sessions of this conference, in May 24 of 1980 the Agreement for the Multimodal Transport of merchandise was adopted, and was submitted for its ratification in the headquarters of the United Nations of New York.

United Nations International Multimodal Transport Merchandise Agreement establishes

The International Multimodal Transport is the bearing of merchandise in at least two differente transport ways, by behalf of a Multimodal Transport agreement, from a place located in a country in which the operator of Multimodal Transport takes the merchandise under his safekeeping until another place designated for its deliver located in a different country.

United Nations International Multimodal Transport Merchandise Agreement establishes:

- The figure of a Multimodal Transport Operator (MTO)
- The issuing of a multimodal transport contract and document
- Responsabilities of the MTO and of the Senders
- Limit responsability of a MTO
- Perjury causes imputable to the MTO and to the Sender
- Special norms relative to dangerous merchandise.
- Claims procedures for merchandise lost, damage or delayed

The operation of the United Nations Agreement was conditioned for to 12 months following the date in which the Governments of 30 States had signed it without ratification reserves.

Among the signatory countries are:

Chile	Mexico
Georgia	Ruanda
Malawi	Senegal
Morroco	Venezuela
Zambia	

The United Nations Multimodal Transport Agreement establishes the faculty that the contracting States have to regulate the subject in their territory in the following way:

- **The dispositions established in the Agreement will not affect the application of any international treaty or national law concerning the regulation and control of transport operations.**
- **Will not afectted the right of any State to regulate and control, in its domestic area, multimodal transport operations as well as MTO´s.**
- **MTO will obey the applicable laws of the country where it operates and the dispositions of the Agreement.**

Multimodal Transport in Mexico

In 1973

- Several studies were made regarding the operation of combined transport; its effects on Mexican transport, and the problematic of the national transport.
- A working group was created, with the participation of governmen agencies, maneuverers, carriers, users, insurance companies and deposit warehouses.
- It was considered necessary to counter act the influence of transnational companies of combined transport, by implementing structures that would protect the interests of national transport and avoid their dependence on foreign operators.

In 1979

- On July 6, 1979 saw the publication of the Regulation of the International Multimidoal Transport by means of Containers, which obeyed to the necessity that our country have a legal instrument that safeguard the nationalization of the Mexican transport, given the imminence of the implantation of the multimodal system, and as a result of it, the penetration of Foreign Operators of Multimodal Transport.
- A company with majority state participation entitled "Mexican Company of Multimodal Transport" was created, it integrated the diverse sectors of national transport and their connected services.

In 1982

On August 16 1982 the Regulation for the International Multimodal Transport publised this:

Regulated the use of diverse modes of transport in integrated traffic, through a single operator of multimodal transport and by issuing a single document of transport, based on the United Nations Agreement.

It included the necessary reforms to adjust operation systems to the international uses, in order to preserve the Mexican nationality of service providers in the national territory.

In 1985

In this year the Communications and Transport Ministry, tooked the determinaned to open the granting of authorizations to all the multimodal transport operators who fulfilled the requirements outlined in the 1982 Regulation.

In 1986

During this year a company of multimodal transport was created, entitled "Mexican Multimodal Transportation, S.A. de C.V., and authorization was granted.

1989

During this year a new Regulation for International Multimodal Transport was published, it considered the following modifications:

- Eliminated the obligation that transport of unitized merchandise, that originated or destiny abroad, were made under the protection of a multimodal transport agreement.
- Establises the users right to choose between multimodal or segmented tranport.
- Suppressed some for the granting of authorizations to operate multimodal transport, such as: members of a company, that were interested in operating multimodal transport ought to be holders of concessions or permits in one mode of transport.

1990-1996

As a result of changes the legal frameword in 1989, during this period 20 authorizations were granted to operate multimodal transport.

Multimodal transport did not developed due to lack of knowledge on the part of users regarding its advantages.

1997- 2000

The structural change of the transport sector was consolidate, this allowed that the different transport modes of could rely on a legal frame worknormative frame that positioned them in a same develop and competetition platform.

The development of services focused on to articulating diverse modes of transport was accelerated (Intermodalism, use of infrastructure and specialized transport equipment to make the movement of merchandise more.

Present Situation

To date, 26 operators of multimodal transport have been autorized by the Communications and Transports Ministry however, multimodal transport has not been developed in suitable form, even though the service is provided in an integral or combined form, this one is not made under the responsibility of an multimodal transport operator, under the shelter of a single agreement, as it conceives in the subject Regulation and in the United Nations Agreement.

In this context, in Mexico great amount of companies with different figures exists that offer integral transport services, that the only thing that they do is to contract on behalf of the user the different services and ways of transport so that the merchandise arrives at the destiny place. The figures that appear in the market offering integral transport services are denominated Cargo Agents, Shipping, Customs and Logistic Companies, among others.

Problems

The principal obstacules for the development of the Multimodal Transport in Mexico can be translated into the following problems:

- **There are multiple revisions done to transit merchandise in a same place, both by the Customs Offices as well asby the General Attorney´s Office, they lead to longer stays at the terminals, abandoned containers, and robberies, which also cause deteriorated merchandise and increasing costs, making it impossible to provide disabling the integrated services.**

- **Lack of information on the part of exporters and importers, of the advantages that multimodal transport offer and of the existence of multimodalism in Mexico among the potential users.**

- **The numerous agents that provide integral services similar to those offered by multimodal transport operators, receive merchandise in ports, carry out customs proceeding and contract transport services a very favorable form for them, lowering costs for the client and causing to be shut out of the market.**

- **Foreign agents carry out transport in the origen and destination point. They register their truck on both sides of the border and work under a protected maquiladora regime, causing disloyal competition, by reducing costs, below domestic ones.**

- **Uncertainty in the merchandise offices by the different criterias applied by each custom officer.**
- **Lack of homologation between the American and mexican legislation what causes serious problems with the legal limits.**
- **The continue change of Acces Ports to the United States, what causes long distances trips, elevated costs, and delay in the merchandise deliver.**
- **Lack of a responsability insurance scheme that can agreed with the necessities of the multimodal transport.**

UNDERTAKEN ACTIONS

In order to create an articulated and integrated transport system, both in infrastructure as well in services, the Comunications and Transport Sector is promoting changes to the regulatory frame work of multimodal transport, seeking to foster the supply of integrated sevices providers as one looks for to just foment the benefit of integrated on the international movement of mecjhandise from their point of orign to their final destination, through a responsible professional persona in charge of organising and directing their movement.

Likewise, during recent years the Federal Goverment has increased basic transport infrastructure; through private investment participation, having obtained:

- Reconstruction of each mode of transport
- Consolidation and Modernization of the Transport Subsector
- Receipt up of important investment flows in equipment and infrastructure
- Strategic positioning amaid the challenge of globalization
- Same Plane of intermodal competition
- Increase in the competitiveness of the different transport modalities

At present, the followings actions are being undertaken

- Promoting Multimodal transport services among:
  - Service Providers
  - Users
  - Investors
  - Specialists and Academics
  - Organizations and Institutions
- Settling out the need to coordinate authorities involved
- Fostering of the multimodal projects among:
  - Transport Companies
  - Maneuvers Permit holders
  - Retailers and producers
  - Investors

- Reformating the International Multimodal Transport regulation.
- Promoting for the development of multimodals corridors in the National Transport System
- Promotiong strategic alliances among the different service providers.
- Creating a Multimodal Transport Facilitation Comitter.

Conclusions

- **Changes to the legal framework since 1979 to the present have been the result a search to regulate multimodal transport domestically, since international competition increasing forces the use of integrated services, that reduce costs and time taken to distributer chandise.**

  Since 1979 to the present, the legal frame work modification obeyed to search for an adecuated regulation of the multimodal transport operations in the national territory, derivated of the international competition this integrated services , dado que la competencia internacional obligaba cada vez más a utilizar este tipo de servicios integrados, que disminuyen costos y tiempo en la distribución de las mercancías.

PRESENTATION

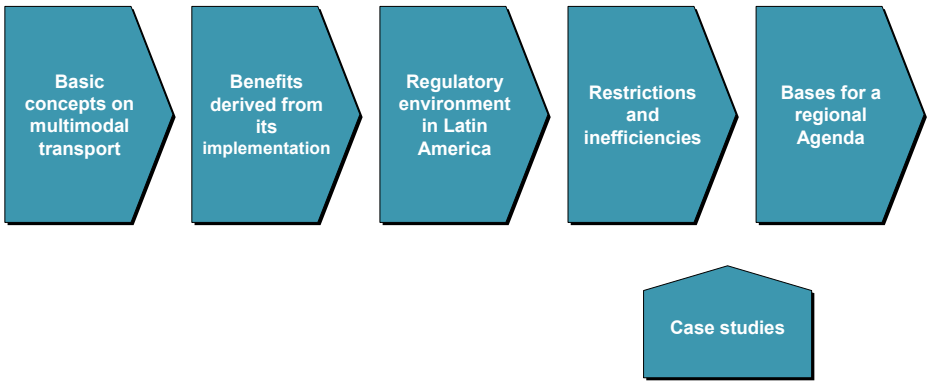
Multimodal Transport Regulation and Competition in Latin America

Eng. Jorge Kogan

Mexico City
September 20th, 2002

Objectives and structure of the presentation

The main goals of this presentation are exposing the multimodal transport situation in Latin America, identifying its benefits and limitations, as well as to outline a regional agenda.



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Contents of the presentation

- **Basic concepts**
- Benefits derived from adopting multimodal transport
- Regulatory environment in Latin America
- Restrictions and inefficiencies
- Bases for a regional agenda

Review of basic concepts

It is necessary to review a series of frequently accepted concepts that may lead to a partial view of the freight transport sector

Concept	From a conventional point of view …	… to a more completed and up-dated one
Basic components for the sector's performance	Infrastructure alone	Infrastructure Operators and brokers Regulations Institutions
Relations between the modes of transport	Modes are independent Operate in separate markets and their policies are not related	Modes as alternative supply in the same market *Multimodalism* Intermodal relations in infrastructure programs Relations among regulatory frameworks
Objectives pursued by freight transport users	Minimize (generalized) cargo costs	Minimize total logistic costs Optimize the supply chain administration

3

Basic concepts

Some definitions necessary to understand multimodal transport of merchandise

Multimodal Transport	Performed through a multimodal transport contract using at least two different modes of transport with a single operator, who issues only one document for the whole operation, receiving only one freight and assuming responsibility for the fulfillment of such contract.
Multimodal Transport Operator (MTO)	Any person who, on his own behalf or through another person acting on his behalf, concludes a multimodal transport contract and who acts as a principal, not as an agent, assuming responsibility for the fulfillment of the contract.
Multimodal Transport Contract (MTC)	Voluntary agreement between parties whereby a (MTO) takes goods into his custody and obliges himself to deliver them to the consignee, against payment of freight. The MTO assumes responsibility for the fulfillment of the contract, which has the characteristics of being bilateral, remunerative, consensual, and cumulative.
Multimodal Transport Document (MTD)	Document that the MTO must issue, which evidences his obligation to take charge of the goods, and is valid until the delivery of goods. It is proof of the existence of a contract.
Interfaces or Transference Station	Facilities where different modes of transport converge, adequately equipped with infrastructure and equipment to handle cargo from one mode to another in an efficient and safe fashion.

4

Basic Concepts

Three basic elements differentiate multimodal from inter-modal transport

Significant differences …

	OPERATOR	CONTRACT	LIABILITY
INTER-MODAL	Same number of operators as modes of transport employed	Individual contracts, limited to the segment in which one mode operates	Discrimination between modes of transport regarding the operator's liability limitations
MULTIMODAL	One MTO regardless the number of modes of transport employed	Unified contract (MTC) for the whole transport chain	Integral, sole and full liability, reflected in the MTD

… that evidence the potential benefits of multimodal transport

5

- Basic Concepts
- Benefits derived from adopting multimodal transport
- Regulatory environment in Latin America
- Restrictions and inefficiencies
- Bases for a regional agenda

Benefits from adoption

The multimodal transport model brings a series of benefits such as a better use of available infrastructure and transport costs reduction, furthermore it fosters regional integration processes

BENEFITS DERIVED FROM ADOPTING MULTIMODAL TRANSPORT
Higher product competitiveness in international markets
Reduction of operative transport costs
Reduction of capital costs due to a more efficient use of transport equipment and facilities
Reduction of inventory costs due to a faster movement of goods
Reduction of distribution and storage costs
Increased certainty in the collection of different taxes
One intermediary with full liability for operations
Reduction of proceedings and documents
Reduction of transport-associated risks
Adequate management of compensation loads
De-congestion of ports

7

- Basic concepts
- Benefits derived from adopting multimodal transport
- **Regulatory environment Latin America**
- Restrictions and inefficiencies
- Bases for a regional agenda

Regulatory environment in Latin America

Nevertheless, regulatory conditions in Latin America do not encompass the supposed advantages associated with *multimodalism*

- Regional and sub-regional organizations in Latin America have member countries that belong to more than one of them.
- These organizations have produced for their member countries multimodal transport regulations that are not completely uniform but vary their approach according to fundamental aspects, such as liabilities, limits, period expiration, etc.
- Some countries belonging to more than one organization, have also issued legislation that differs from that established by the organizations they belong to.
- This situation, where there is no uniform regime of liabilities and a diversity of different national laws and rulings are enforced, generates a high level of uncertainty that makes it difficult for the parties to evaluate associated risks beforehand.
- The legislative situation definitively generates excessive costs reflected in higher insurance premia to cover the lack of certainty in risk assessment.
- The dissimilar enforcement of norms, sanctions, etc. generates asymmetries in individual markets.
- National, provincial or state norms are favored over international agreements.

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Regulatory environment in Latin America

It is necessary to have a common framework in the region. The complexity and obsolescence of current norms are factors that deter commerce and transport.

- The United Nations Convention on International Multimodal Transport of Goods of 1980 did not receive the necessary ratifications to enter into force.
- UNCTAD/CCI norms for multimodal transport documents (MTD), in force since January 1992, are not binding because they are contracts. They would not enter into force in case of conflict with a binding legal provision.
- The Latin American Integration Association (LAIA) has endorsed a common legal framework.
- MERCOSUR members have a unified framework[1] that has been legally questioned and has not yet been legally ratified by members. This agreement has the inconvenience of assessing different liability limits for each country.
- Brazil adopted a law[2] and has enacted a corresponding code of regulations.
- Argentina enacted a law whose code of regulations has not been enacted . Issues in this norm have been questioned, for example the regime for importing containers.
- Chile adopted the United Nations Convention on International Multimodal Transport of Goods of 1980.
- Andean Community members have endorsed a common legal framework.
- In Central American countries components of the multimodal transport operator (MTO) are not recognized by their legislations.

(1) Endorsed in Ouro Preto on December 16, 1994
(2) Enacted February 20, 1998

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- Basic concepts
- Benefits derived from the adoption of multimodal transport
- Regulatory environment Latin America
- **Restrictions and inefficiencies**
- Bases for a regional agenda

Restrictions and inefficiencies: Role of the State

Despite positive changes during the 90's, States have not redefined their role to support the development of multimodal transport

CHARACTERISTICS OF THE 90's

- Privatizations and concessions
- Deregulation of economic activities
- Private sector access to infrastructure
- Redesign of market-functioning rules
- Weakening of the concept of public service

ROLE OF THE STATE

- Re-positioning the role of the State regarding planning, organization and financing
- To move from operator to a facilitation, promotion and regulating role in order to achieve higher competitiveness

REGIONAL VIEWS OF TRANSPORT FRAGMENTED

- Local socio-economic environment
- Large territorial extension
- Different degrees of sub-regional integration
- Predominant modal approach
- Insufficiency of judicial means, institutions and infrastructure
- Low penetration of transport services and transport infrastructure in the integrated and modern view of physical mobility as a subsystem of logistics. (Exceptions are attributable to transformation in port facilities and contributions of private operators)

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Restrictions and inefficiencies

Furthermore, there are other restrictions to an adequate operation that should be previously solved

MAIN RESTRICTIONS AND INEFFICIENCIES

- Lack of implementation of trade facilitating systems
- Large differences in regional economies and macro-economic policies that lead to asymmetries for transport service providers
- Many customs regimes suffer from a lack of adequacy and obsolescence
- Excessive border congestion and bureaucracy
- Inadequate tax treatment given by some countries to containers
- Civil liability regime in road transport
- Insecurity in road transport
- Restrictions to freely hire maritime and fluvial freight
- Incompatibility of technical norms
- Lack of a common statistical and information system in transport and infrastructure matters

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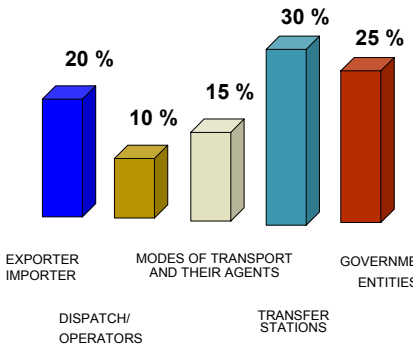
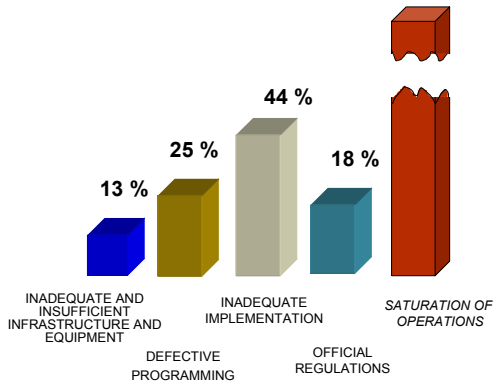
Restrictions and inefficiencies

The adequate articulation of physical, operative, legal and institutional factors, as well as coordinating acting agents would make it possible to increase benefits derived from multimodal transport

SECTORS AFFECTED BY FACTORS OF IMBALANCE



IMBALANCE FACTORS



SOURCE: International container freight traffic survey

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Case studies

In the port of Santos, Brazil was able to reduce the average idle time of wagons from 100 to 24 hours through the management of rail-port operations by a consortium of rail companies.

- In the year 2000, the port of Santos began a public-private participation project, that in its first phase, has led to an important increase in the volume of rail participation from 4 to 7% in only two years.
- The present agreement establishes that the three rail companies that operate in this port will manage rail-port operations, which represented a bottleneck to the rail and port operations.
- Based on this agreement, the consortium will invest nearly 11 million Reales in a three-year period, in rails, rolling stock and maneuver yard remodeling.
- With this operational framework, the port of Santos reduced the wagons average idle time from 100 to less than 24 hours, increasing rail convoy rotation significantly.
- This process has interesting characteristics worth considering in other ports.
- On the one hand, they were able to consolidate rail operators to enable them to coordinate operations with the port authority. On the other, regarding tariffs, it was possible to integrate transference costs to rail freight, avoiding the imposition of additional charges to users.

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Illustrative cases

Logistic excess-costs for containerized import and export loads in Argentina, through vessels reach 400 USD per TEU

- Despite improvements in the port of Buenos Aires, a series of regulatory, institutional and infrastructure problems neutralize the potential benefits of multimodal transport. Total estimated excess-costs for year 2000 reach 268 million dollars. Here, we analyze those generated in the port environment, through customs services and due to the insecurity in road transport. (Note that only one segment and not all the transport chain is under analysis).

	CONCEPT	DESCRIPTION	PRESENT COST	POSSIBLE REDUCTION	EXCESS-COST PER TEU
OVER-COSTS	Port fees	Excessive fees imposed on goods	42.76	75%	32.07
	Lack of dredging	Neither the 32 feet nor 120 meters wide have been reached	56.34	100%	56.34
	Low ground accessibility	Lack of rail connectivity	7.04	100%	7.04
	Insecurity in road transport	Nearly 60% of ground transport hires security	63.38	50%	31.69
	Customs	Excessive customs bureaucracy	102.00	50%	51.00
	Night security services for vessels	Existence of norms requiring night security services for vessels	148.24	100%	148.24
	Delays in freighter entrance proceedings	Clearance operations are not allowed until the entrance proceedings is finalized	0.56	100%	0.56
	Temporary importation of an empty container	Containers are considered as merchandise, implying the need for a caution policy	0.35	100%	0.35
	Bilateral agreement with Brazil	Current access restrictions, are reflected in a higher market price	28.17	100%	28.17
			41.09	100%	41.09

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Illustrative cases

The customs system in Peru and the rail-port interface project in Panama are other cases worth analyzing

PERU

- Peru has a particular outlook. The interior cargo terminals in this country are under Customs' legal framework.
- The current and applicable legal framework, classifies interior cargo terminals under the specific legal figure of customs warehouse, that are legally defined as storage terminals, authorized customs warehouses, interior cargo terminals, aeronautical material warehouses and on board supplies warehouses.
- Their operation is authorized by the Customs Directorate, prior fulfillment of requisites and conditions established in the enforceable Code of Regulations.

PANAMA

- Without a doubt, the most important on-going rail-port interface project in Latin America, linking terminals in both coasts of Panama.
- The implementation of this system integrated by terminals together with railroads and its interfaces, is creating a "Mega-Transfer Port".
- This project is generating an alternative to the land-bridges in the United States and to the linkage of the Panama Canal.
- The bi-oceanic railroad already facilitates the transfer of containers from coast-to-coast (yard-to-yard in terminals) over a period that goes from 03:15 to 04:30 hours.

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- Basic concepts
- Benefits derived from the adoption of multimodal transport
- Regulatory environment in Latin America
- Restrictions and inefficiencies
- **Bases for a regional agenda**

Bases for the agenda

Bases for a Latin American regional agenda: actions tending to improve supply chain management

Types of actions	Main actions
ACTIONS TENDING TO IMPROVE SUPPLY CHAIN MANAGEMENT	• Increase the scope and scale of the effective market. – Local markets can significantly increase competitiveness and assist in obtaining economies of scale in the creation of regional cargo centrals, freighters consolidation and developing large scale service networks. – In supply chains "bigger" is, in general, "better". • Improve the distribution networks' connectivity – Development of logistic information services – Development of inter-modal transport services – Investment in customs stations infrastructure, multimodal transference facilities, storage and warehouses • Improve transport networks' connectivity – Development of "door to door" or "dock to door" inter-modal services • Facilitating competition within and among supply chains • Developing professionalism and improving aptitudes in logistic management – Multinational companies bring significant value regarding best practices – Professional associations and academic institutions should underpin such capacities

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Bases for a Latin American regional agenda: actions that favor the general organization of multimodal transport

Types of actions	Main actions
ACTIONS THA FAVOR THE GENERAL ARRANGEMENT	• Facilitating the movement of goods over national boundaries – Goods that move through national boundaries are directly affected by government agencies – In the process of collecting customs taxes and services as well as value added taxes, excessive costs are normally imposed • Developing a regional infrastructure and transport statistics information system – An indispensable tool would be obtained for establishing policies and definitions based on planning, investment -public and private-, system operation and tendencies assessment scheme • Conceptualization of logistics management – Development of transport-applied information technologies – Standardization in the exchange of protocol information and contractual documents • Container standardization. No longer considered them as temporary imports, as some current norms establish it

20

Bases for a Latin American regional agenda: legal and normative actions

Types of actions	Main actions
LEGAL AND NORMATIVE ACTIONS	• Elaborating a diagnosis of the current inter-modal and multimodal application conditions in regional transport and assessing barriers that deter its development • Establishing a discussion arena to generate the exchange of ideas and opinions that foster the development and deepening of these kind of operations in the region's transport • Analyzing regulations in the regional and sub-regional levels in order to assess the situation of the degree of internalization of adopted international multimodal transport-facilitation agreements • Identifying the fundamental bases for a new proposal for a Regional Agreement, that considers worldwide tendencies regarding modal liability limitations, and considers norms that have proved to be inefficient or been surpassed by the new tendencies • Establishing a common regional transport policy . Determine public and private incumbencies for modal integration, both in the harmonization of legal aspects and in the development of infrastructure, as well as in the generation of interface equipment and transference facilities for regional and extra-regional commerce.

21

Multimodal Transport Benefits

Presentation

- General Concepts
- Social and Private Perspectives
- Respectives Rolls

Guidelines

- International Commerce operation
- International Commerce transport
- Multimodal Transport
- Multimodal Tranport Characteristics
- Fundamental Facts

International Operation

- Phisicall Flow
- Documental Flow
- Financial Flow

Chain of

- Supplier.Manufacturer.Distributor.Detailler. Consumer

- Supplier Manufacture Distributor. Detailer.
- Consumer

Fundamenta Facts

- Product modes complementation is superior to the sum of the contributions of each one.
- Productivity integration superior in relation with its parts when they reach their articulation best.
- Multimodal chain optimation not depends in its link.

Main Policies

- USA: intermodality is born with the cointanerization and was developed before the railroad and highway deregulation.
- Europe: intermodality is born by public politics motives, that can be define in the colaboration promotion between modes and operators competition.

Differents Perspectives

- Users
- Operators
- Autjorities
- Community

Private Benefits: Users

- **Benefits**
- Productive process integration.
- Operator Partner.
- Delivery security.
- Management and pursuit of supplying and distribution
- **Demands on:**
- Information Delivery.
- Delegate desición and Estable Relation.
- Trust and Transparency
- Continuos Interaction

-

Private Benefits: Operators

- **Benefits**
- Long term contracts and Equpment Inverntment.
- Networks insertation and extended markets.
- Negotation Power and Investment Return.
- Means Programming
- **Demands on:**
- Acomplishmente of results
- Modern Technolgies and Systems on:
- Operation.
- Clients
- Service suppliers

Public Benefits: Authorities

- **Benefits**
- Planification:
- External positive consecuences and comparative adventages
- Infrastructure Resources allocation
- Sector competition contribution
- **Demands**
- Opinion of the affected private an public sector.
- Foster and take advantage of regional development

Publics Benfits: Community

- Benefits
- Local, regional and national planification
- Reduce extenal negatives
- Contribute to the local and regional development
- **Demands**
- Citizen participation
- Institucional Capacity
- Community Capacity

Respective rolls

- Users
- Operators
- Authorities
- Community

Role of each one

- Users: to demand multimodals services and to offer estable relations to their service suppliers.
- Providers: to adopted operation systems to the clients needs and to integrated service networks.

Role of each one

Authorities: establish institutional and operative frame works that foster trasnport service integration

Comunity: participate in desicions in order to obtain positeve external.

In Summary

Multimodal Transport it´s link to the development of the international commerce

Private and Social benefitts that depend in the fullfilment of every sector

Development and construction of the multimodal transport

General Coordination of Ports and Merchant Marine

COMMUNICATIONS
AND TRANSPORT
SECRETARIAT

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

September 2002

- (photos)

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

Mexico stands out in international commerce for:

- **Its dynamism in Latin America**
- **Being the country that handles the most commerce in the region**
- **Its growing participation at the international level**

Characteristics of Maritime Transport

- Shipping lines globalize, establish strategic alliances and have advanced technology and logistic systems that allow them to serve the main centers of production and world consumption.

- Offer advantages to users in terms of quality, frequency and availability

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

Maritime Transport in Mexico

106 shipping lines

102 international

Unite Mexico with 340 ports
in 100 countries

80% of the total volume of worldwide exports moves through Maritime Transport

CONSULTING BODY TO REACTIVATE THE MERCHANT MARINE

Objective:

Formulate proposals that contribute to integrally promote development of our merchant marine, so that our Country has a profitable, efficient and competitive maritime transport.

CONSULTING BODY TO REACTIVATE THE MERCHANT MARINE

9 Groups that have proposed solutions to various issues:

-Fiscal Issues
-Financing and Development
-Labor Aspects
-Legal Issues
-Nautical Education
-Market Evaluation and Analysis
-Naval Construction and Repairs
-Link with Legislative Commissions

National Merchant Marine

- **Intense campaign to flag vessels as nationals.**
- **Important Mexican investment in cabotage traffic.**
- **The number of Mexican vessels in 2002 increased 37.5% over the previous year.**

National Merchant Marine

- Support to Mexican businessmen from maritime transport with instrumentation of an IEPS accreditation system paid by marine diesel, against VAT, ISR (Income Tax) or I.A.

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

National Merchant Marine

- New legal framework
- Participation of everyone involved in the sector is necessary

CHALLENGES FACING THE MEXICAN PORT SYSTEM

INTEGRAL PORT ADMINISTRATION

V O C A T I O N

COMMERCIAL
INDUSTRIAL
TURISTIC
PETROLEUM

(See map in the Spanish version)

ACTIONS:

- Continue the system of partial transfer of rights for provision of port services and secondary infrastructure construction.
- Promote multi-modal transportation
- Implement “one-time review”
- Update legal framework

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

ACTIONS:

- Continue reinvesting APIS earnings
- Promote private national and international investment
- Attain more security in ports

CHALLENGES FACING THE PORT SYSTEM

- Expand and maintain port infrastructure
- Promote installations in the ports of companies that give added value to products

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

CHALLENGES FACING THE PORT SYSTEM

- Modernize the equipment and technologies utilized
- Promote multi-modal transportation systems

CHALLENGES FACING THE PORT SYSTEM

- Transform the APIS into Business Centers
- Make our system of revisions more efficient

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

CHALLENGES FACING THE PORT SYSTEM

- Support ports within the framework of the Puebla-Panama plan
- Maintain financial self-sufficiency

CHALLENGES FACING THE PORT SYSTEM

- Consolidate the competition environment
- Promote training and motivation of port workers

CHALLENGES FACING THE MERCHANT MARINE AND THE MEXICAN PORT SYSTEM

MEXICAN PORT SYSTEM

STRONG, EFFICIENT, COMPETITIVE, RELIABLE AND SAFE

“DOOR TO DOOR” “JUST IN TIME”

STRENGTHS

- **11,500 kilometers of shoreline**
- **We have commercial agreements with the largest markets in the world, 860 million consumers.**
- **Important point of attraction for direct foreign investment.**
- **We are a country with social peace and economic stability.**

Seminar on Regulation and Competition
in the Transport Sector

Challenges in Railway and Air Transport

September, 2002

Challenges in Railway Transport

Progress in Regulation and Competition

After the railway restructuring process, regulation and competition conditions have improved:

Before	Now
One operator (FNM)	Several operators: 6 concessionaires & 2 asignees
No competition	Effective competition
Regulated tariffs	Free tariffs
The federal government regulates and operates	The Federal government regulates, the private sector operates
Regulation and rectory functions are underestimated	Regulation and rectory function becomes relevant
Verification and supervision are ineffective	Reinforcement of verification and supervision

3

Benefits of Railway Restructuring

Economic & Social benefits	**More and better infrastructure**	**More and better services**
Railway revitalizing	Better efficiency standards	Oriented to client
More investment, mainly private (18.5 MMP in 1997-2002)	New systems and technologies	Services diversification
Higher growth (5.9% annual in 1995-2001) and more participation of land transportation (between 12.5% to 15.3% in 1995-2001)	Infraestructure and equipment modernization	**Safer services**: accident reduction (-95%) and incidents (-68%)
New industry of parts and services	Professional management	More efficient services
Efficiency gains for the rest of the economy	Advanced logistic	Time savings
Respect of labor rights		Competitive services in price and quality
Goverment savings		

4

2001, Indicators for the railway system

Indicators	Units	FNM 1995	TFM 2001	FXE 2001	FSE 2001	C-D 2001	CH-M 2001
SAFETY INDICATORS							
Raiway safety index	Total accidents./Millions of trains / km -	167.5	26.5	22.2	19.1	11.1	27.4
Freight service safety index	Freight trains accidents / thousand of millions of ton -Km.	34.0	15.1	6.9	13.7	5.1	14.3
INDICATORS FOR OPERATIVE EFFICIENCY							
Index of engine availability	Available engines / Total engines	81.3	96.3	91.7	91.6	92.6	83.3
Infraestructure maintenance index	Maintenance costs. Infraestructure / Km. track	6,923.30	15,172.8	11,401.9	10,449.6	32,548.9	22,857.9
Staff training index	Annual staff trainning hours / No. employee	101.1	67.9	24.9	28.9	33.8	11.9
Operative index	Operation costs / operation revenues	1.32	0.75	0.83	0.83	0.87	0.85
Locomotive power efficiency index	Millions of gross Ton - Km. / Total engine units	55.5	59.8	86.5	59.4	71.9	52.1
Quality service index	Claims and lossess $ / ton km -.	0.0044	0.0023	0.0010	0.0007	0.001	0.004

Source: CLASS I: BTS transportation Statistics Annual Report 2000 & Railroad Facts 2000 Edition.

5

Challenges in Railway Transport

- Reinforce the regulatory frame and goverment rectory
- Promote new railway transport projects
- Consolidate the Railway System and create multimodal networks

6

Challenges in Railway Transport

Regulatory framework and goverment rectory	New railway projects	Consolidation and development of a multimodal network
Fortify goverment rectory.	Construction projects for new infrastructure (portafolio of 11)	Forge a competitive merchandise transportation system
Emit Resolutions and norms (NOM's) in issues of coexistence	Railway projects for passengers (portafolio of 7)	Promote the construction of multimodal terminals and corridors
Issue norms for technical and safety standards	Pending concessions for Short Lines	Incorporate railway in the logistic multimodal transport network
Homologation of standars (NOM's) in the NAFTA framework	Urban railway coexistence program	
Reinforcement of verification and supervision		

7

Challenges in Air Transport

Regulation and Competition Progress in Airports

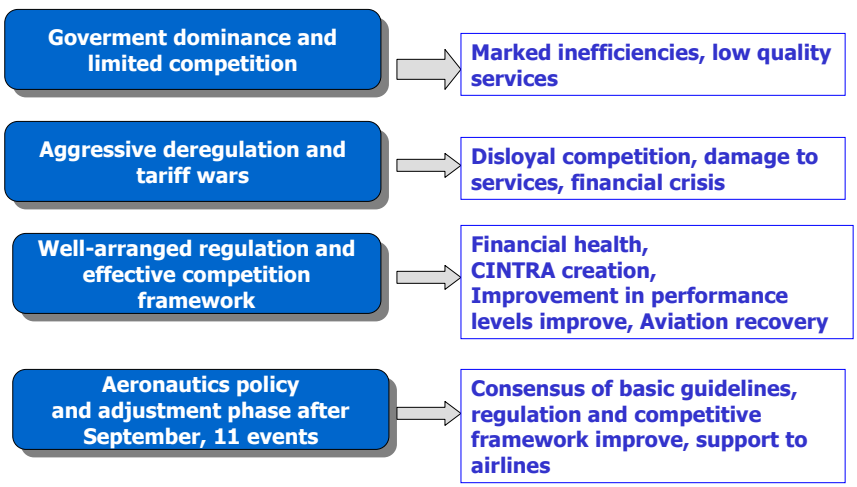
❑ **After the airport network rearrangement process, regulation and competition conditions have improved**

Before	Now
Only one operator (ASA)	Several operators: 4 airport groups, ASA network and others.
No competition	Competition limited by natural restrictions; more competition in provision of diverse services
Regulated tariffs	Rational regulation of tariffs in airport services
Federal goverment regulates and operates	Federal goverment regulates, private sector operates the principal network
Regulation and rectory functions are underestimated	Rectory and regulation become relevant
Supervision and verification are ineffective	Reinforcement of supervision and verification

9

Progress in regulation and competition in air transport

❑ **Aviation has gone through diverse stages in the last decades:**



10

Benefits of Policy Reorientation

Economic and social benefits	More and better infraestructure	More and better services
High growth of sector (7.7% in 1995-2001)	Airports' modernization	Client reorientation and service diversification
Investment in airports	Gradual renewal of fleet	Safer services: decline in accidents and incidents
Solid firms	Efficiency standars improve	More punctual services
Increased presence in internal and external markets	Professional management	More efficient services
Support for tourism and regional development	New systems and technology	More competitive services in price and quality
Efficiency gains for the rest of economy	Modern navegation and traffic control systems	
Government savings		

11

Challenges in Air Transport

- **Reinforce the regulatory framework and the State's rectory**
- **Foster an open and equal competition enviornment**
- **Reach international safety standards**
- **Promote staff training and technological development**
- **Take advantage of bilateral agreement opportunities**
- **Improve coverage and quality of airport network**
- **Uncertain international outlook**

12

Challenges in Air Transport

Legal framework and State rectory	Economic competition	Safety
Fortify the rectory of the State	Strengthen commercial aviation and promote general aviation	Renew fleet
Reforms to Aviation Law and its rulings	Facilitate participation of new operators	Modernise SENEAM systems
Issuing standards (NOM's) for technical and safety matters	Realign tariff levels	Prevent ilegal acts in airport network
Reinforce verification and supervision	Implement the sale of CINTRA	Reinforce verification and supervision

13

Challenges in Air Transport

Staff training and technological development	Bilateral agreements	Airport network
Review training programs	Criteria for effective reciprocity and equivalent markets	Consolidate airport groups
Restructure CIAAC	Full use of opportunities	Place stocks in goverment hands
Develop parts and services industries	Explore multilateral agreements with effective benefits	Promote new airport projects
Incorporate latest technology	Encourage commercial alliances	Modernize the airport network

14

Uncertain international outlook

Still uncertain consequences about September 11 events

Weakness in traditional aviation-strength of low cost carriers

Bilateralism-Multilateralism

Tendency for Megalliances

Hence, the great challenge is:

•Follow the International environment

• Take advantage of opportunities, handle risks

• Secure aeronautics policy and strengthen national aviation

15

Vision of the transport system

A system that encourages investment

A system with solid State rectory

A system efficiently regulated

A system that operates within an effective competition framework

A competitive system in its infraestructure and services

A system that supports the economic development of the country

16

Regulation and Competition in the Transport Sector

"Challenges of the Federal Competition Commission in the Transport Sector"

Fernando Sánchez Ugarte

September 20th, 2002

CFC Objetives

- To promote and develop competition in the Mexican economy, public sector included.
- To fight and prevent monopolitic practices and mergers.
- To Provide a regulatory framework favorable to competition and free access.
- To Guarantee equitative and non-discriminatory access to governmental concessions and permits needed to carry out an economic activity.

2

Importance of competition for economic development

- Promotes investment and employement, facilititates economic growth and flexibility to face national and international crisis.
- Encourages a higher quality and variety of goods and services, as well as lower consumer prices.

3

Importance of competition in economic development

- Promotes efficient resources allocation based on their relative scarcity.
- Maximazes social welfare.

Competition policy favors the good performance of markets and competitiveness of national industry.

4

Background

During the last decade, actions taken favored the development of competition in the transport sector:

- Transport services deregulation.
- Routes y air tariffs deregulation.
- Railway system privatization
- Port system privatization.
- Airport system privatization.

5

CFC activities in the transport sector

- To analize merger effects on competition and free access.
- To fight anti-competitive practices in the sector.
- To evaluate private agents interested in:
  - Obtaining licenses for construction and/or exploitation of terminals and ports facilities.
  - Participating in the Mexican Airport System privatization
  - Participating in the Mexican Railway System privatization.

6

CFC Powers in the transport sector:

According to competition and sectorial legislation, CFC has powers to:

- To issue opinion about competition aspects in the sector regulatory framework, including official norms.
- To declare the non-existence of competitive conditions with respect to:
  - Railway services.
  - Air transport services.
  - Airport and complementary services.
  - Maritime cabotage traffic.
  - Port services.
  - Federal passenger road transport services.

7

Transport Sector

- Transport markets are characterized as being highly concentrated
- There are practices that cause inefficiencies in the distribution stage that increase final consumer prices.
- Price increase faced by the users can be a result of scarce competition between means of transport or the use of market power by one of them.
- Public policies and sector regulation must favor competition, taking into account the strucuture and legal regulation of the sector.

8

Market Segments

- Existence of alternative transport services encourages competition. In this way, if there is an inefficient mean of transport and it has high prices, users can substitute this service using another means of transport.
- Nevertheless, some products require specific characteristics for their transportation, which limits or impedes the substitution between means of transport.
- The aforementioned statement supposes the existence of different market segments, some of which can be highly concentrated.

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Concentration and competition

- In spite of the presence of several competitiors, sector competition can be affected through transport associations aiming to constitute agreements to:
  - Fix prices.
  - Reduce output.
  - Distribute routes.
  - Exclude competitors or restrict market entry.
- The absence of competition can provoke negative effects on innovations, quality and services prices.

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Challenges for road transport

- To consolidate a clear and well-defined regulatory framework that allows competition strengthening.
- To monitor that technical and safety provisions do not harm competition.
- To promote a market structure with lower levels of concentration.
- To prevent agreements between agents that may be against the process of competition and free entrance.
- To prevent monopolistic practices that may damage domestic markets in face of its eventual openning within the NAFTA framework.

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Challenges for railway transport

- To consolidate competition between concessionaries.
- To promote impartial and non-discriminatory access to the infrastructure, promoting the establishment of a detailed, fair, cost-based payment scheme for trackage and haulage rights, interconnection services and the use of terminals.
- To issue with promptitude and efficacy declaratory statements when there are not effective competition conditions.

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Challenges in railway transport

- Prevent that consortia participating in railways carry out anti-competitive practices through their vertical integration.
- Prevent discriminatory actions on Mexico Valley Railway Terminus.
- Promote the setting of new mandatory trackage and haulage rights when there is no effective competition.

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Air transport Challenges

- To include competition principles in authorizations, permits and concessions that promote market entry under competitive conditions.
- To foster a competitive scheme on slot allocation, under fair, non-discriminatory and transparent criteria through acknowledgement of acquired rights and interests of new entrants.
- To promote decrease of general obstacles related to new routes pemitted and the expansion of flight frequency that work as entry barriers in domestic markets.

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Air Transport Challenges

- To make sure that international agreements in air transport matters include criteria favorable to healthy competition.
- To make sure that the acquisition process of Cintra's stock strengthens the competition process.
- To avoid collusive practices between the two main national airlines, once they are separated.
- To prevent destructive competition and predatory pricing practices.
- To promote more competition between airlines in airports land maneuver services.

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Air transport Challenges

- To prevent anticompetitive aspects of alliances between airlines or code sharing agreements, allowing the efficiency gains that such agreements offer benefit users.
- To prevent commission of monopolistic practices in airport services.
- Eliminate entry barriers to port installations for new land assistance service agents .
- Prevent monopolistic practices in ticket reservation computer systems.

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Maritime Transport Challenges

- To promote strengthening of competition between domestic ports, and between these and Northamerican ports.
- To guarantee the open and non-discriminatory access to infrastructure and port services.
- To prevent substantial market power situations in ports, due to vertical integration.
- To maintain transparency and competition criteria in public bidding processes regarding port facilities, services and activities, with the aim of preventing market power situations.

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Cargo Transport

- Intra-modal competition mainly develops on service prices.
- Long distance transport implies more transport options, and therefore, more inter-modal and multi-modal competition.
- Certain agents seek intra-modal agreements within associations or transport business chambers, with the aim of gaining more competitiveness regarding other transport means.
- Although these agreements can increase the level of inter or multi-modal competition, limiting the level of intra-modal competition must be avoided.

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Inter-modal Transport

- In intermodal competition, a means of transport has a competitive advantage if it is superior, at least in one aspect among the following: price, delivery time, capacity, quality or cargo care.
- One of the main obstacles for intermodal competition development is the lack of intermodal facilities, particularly in international traffic.
- The extent of competition that intermodal transport can imply depends, among others on:
- The type of transported goods.
- The route defined by the origin and destiny.
- The importance of timely delivery.

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Multimodal Transport Cargo

It is necessary to increase multi-modal competition through:

- Integration of transport means, which relies on facilitating the use of, and assuring the access to, essential facilities (ports and distribution centers).
  - Integration can imply significant efficiency gains, but can grant market power to the integrated agents.
- Non-discriminatory access and elimination of entry-barriers in cargo exchange services between means of transport.
- The promotion of use of advanced tecnology.

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Multimodal Cargo Transport

Competition created by multi-modal traffic will promote:

- Rational use of the available global transport capacity.
- Development of transport means (railway, maritime, air) that cannot individually offer a door-to-door service.
- Fair and efficient transport tariffs.
- Smaller operation and logistic costs for transport means.

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Institutional Cooperation

- To overcome these challenges, the CFC will procure cooperation and collaboration with the SCT.
- Sectorial policy will be enriched with efficient interinstitutional collaboration between the CFC and the SCT.
- It will seek to establish policies and mechanisms aimed to create incentives for economic efficiency through:
  - The creation of a competitive market structure and prevention of anticompetitive practices.
  - The establishment of clear definitions and fair access tariffs to essential facilities.

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CFC and SCT Challenges

- To exchange technical knowledge, principles and experiences to complement sector policies.
- To implement coordination measures for correct and timely fullfilment of their respective powers.
- To strenghten both institutions' participation in competition defense and promotion, mainly regarding equal access and market power.

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Conclusions

- Competition policies favor the efficient performance of transport sector, contributing to social welfare.
- Reforms that allowed private sector participation will be complemented with an effective application of the sectorial regulatory framework and competition legislation.
- The CFC has important challenges to consolidate competition in the transport sector, which requires an efficient access to the transport network physical infrastructure.
- Adequate cooperation between CFC and SCT will promote sector sustainable development.

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