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THE INTERNATIONAL COMMON-CARRIER TRANSPORTATION INDUSTRY AND THE COMPETITIVENESS OF THE FOREIGN TRADE OF THE COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN†

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Chapter I

STRUCTURAL CHANGES IN THE LINER SHIPPING INDUSTRY

Together with ports, Customs authorities, inland transport, banks, insurance companies and others, ocean-liner transport is part of a diverse group of services which support international trade. Before the advent of containerization in the late 1950s, these services were carried out in a largely independent and unco-ordinated manner. The persons providing such services were specialists and while aware of activities other than their own, almost no effort was made to ensure that the efficient carrying out of one group of activities contributed to that of another. Carriers, ports and others in the distribution chain were occupied with the efficiency of their individual endeavors, and not that of the overall system. For example, liner vessel operators would work diligently to unload their vessels without damaging cargoes, but if such goods remained 30, 60 or more days in port, or were exposed to inclement weather, it was considered a problem created by the stevedore, port or Customs, as such operators had complied fully with their obligations under the Hague Rules when the cargo was released from the ship's hook.[1]

In the years following the introduction of containers, liner vessel operators have come to offer transport services from origin to destination, with ocean freight rates often embracing the costs of not only ocean carriage and port charges but also those for inland transport services. The extension of ocean freight rates to include other services is understandable when one considers that the ever growing integration of vessels, ports, inland transport and other ancillary services has permitted the establishment of specialized intermodal transport systems which provide shippers with more-efficient, less-costly distribution services. In addition, a growing number of liner vessel operators provide computerized information to ports, Customs authorities, banks, insurance companies and others in order to facilitate the efficient handling of goods, as well as their rapid release to consignees and payments to exporters. This broadening of activities of liner vessel operators has led to numerous changes in the composition of the industry.

Some of the more important alterations in the composition of the liner shipping industry, which has come to include not only vessels and ports but also inland transport and ancillary services such as Customs and computerized information systems, would be the change from general cargo vessels to specialized container ships, from individualized cargo handling and stowage services to those which mirror the handling and stowage of homogeneous commodities, from an adequate supply of transport capacity to one of chronic overcapacity, from

freight rates subject to upward pressures in a seller's market to those of a declining nature in a buyer's market, from modal efficiency to intermodal systems optimization, from a regulated to an increasingly deregulated structure, from common carrier services to a growing use of contract transport arrangements, from mail, telex and voice communications to computer-based satellite systems and from ad hoc promotion to numerous forms and sources of institutional support. Each of these changes must be studied in the light of formulating new liner shipping policies and plans, but it must be recognized that, while important, they are impermanent way-stations in an evolutionary process which is continuous, efficient, comprehensively synergetic and irreversible.

The last 15 years provide clear evidence of the difficulties involved in trying to establish policies and plans for the liner shipping industry. Whether one looks to the industrialized north, the developing south or the centrally planned east, probably the most important lesson to be learned is that the liner shipping industry can no longer count upon either a positive cash flow or a favourable income statement at the end of an accounting period, just because there is general prosperity. Gone are the days when carriers and ports could rely on quasi-monopoly situations; there are no singular sources of raw materials, agricultural products or manufactured goods, there are no captive shippers, consignees or hinterlands, there are no economic impediments to utilizing land transport instead of ocean carriage via major canals for certain unitized and bulk cargoes, and there are no closed-loop liner transport systems.

One of the better examples in this region of a closed-loop liner operation being subsumed into a larger system would be that between Chile's principle port of Valparaiso and its port in the Straits of Magellan, Punta Arenas. Many of the cargoes in this service are transported to Valparaiso by deep-sea carriers and then transshipped to Chilean vessels for on-carriage to Punta Arenas. During March 1988 the services of Saguenay Shipping of Montreal (Canada, Colombia, Venezuela and various Caribbean countries, those of a separate chartered service northbound from Brazil to Canada) and its subsidiary Great Lakes Transcaribbean Line (Canada, Central American and the west coast of South America) were combined. The vessels of GLTL now pass through the Straits of Magellan and north to Brazil after discharging in Valparaiso. This joint service was started to eliminate the logistical problems of finding empty containers for Brazil and cargoes for those on the west coast of South America. The detour for GLTL vessels to call at Punta Arenas is no more than five nautical miles, so the most important factor to make its participation commercially attractive would be the volume of cargoes in the trade between Valparaiso and Punta Arenas.[2]

To formulate appropriate policies and plans for the liner shipping industry in an environment of constant change, vessel operators, land transport companies, ports, shippers, consignees, banks, insurance companies, Customs authorities and others must provide an equally diversified group of persons in numerous government ministries with information which permits them to understand not only the repetitive daily activities of that industry but also the directions in which it might be moving. The daily activities merit serious consideration because they point out the problems facing the execution of transport functions, while the direction aspects are even more important as they deal with forces which influence longer term decisions concerning national economic goals, trade relations, financial markets, legal regimes, technologies and many more.

Without a long-term directional orientation such policies and plans can become rigid structures which perpetuate historical practices, institutions and technologies, instead of providing needed flexibility and instruments to deal with the future.

A. INTERNATIONAL CONTAINER TRANSPORT

Some would suggest that the structural changes occurring in the liner shipping industry are merely a continuation of those which started with the introduction of containers in the late 1950s. It is true that containers have contributed to the current alterations, but so have the increasing deregulation of transport modes, use of computers and communications technologies, employment of contract carriage arrangements, establishment of liner consortia and utilization of intermodal landbridge systems. To equate the structural changes now occurring in the industry to a continuation of the "container revolution" is to miss the profound and permanent transformation which is taking place in transport as well as the trade flows it serves. For example, the integration of liner vessel operations, port and inland transport services was always a theoretical possibility, but there were numerous market, service, technological and legal restrictions which precluded it from happening. The removal of many of these restrictions has brought about a transformation of the characteristics of each component of the liner shipping industry, their fundamental purposes and even the goals sought.

During a period of structural change, traditional problems seem to defy customary solutions. Probably the best example of this would be the market control functions of liner conferences. Before containerization, conferences were able to control the offer of ocean-liner services and to stabilize freight rates. Today, ocean-liner transport has entered an era of chronic overcapacity and declining freight rates, and conferences seem unable to perform their historical functions.[3] To formulate policies and plans which respond to nontraditional problems, reliance must be placed on something more than historical trend analyses and projections, as the mechanical application of these tools can result in mere extrapolations of already fossilized events. This is not to say that such analyses and projections are not useful, but rather that they provide their greatest benefits when guided by an thorough understanding or strategic vision of the liner shipping industry and the market, service, technological and legal forces which are restructuring it.

The policies and plans that might be utilized by the liner shipping industry to remain viable in a time of structural change will be determined by a correct interpretation of the market, service, technological and legal forces which are bringing about those changes. While all of these forces contribute to a restructuring of the industry, some of the more important for this evaluation are related to (i) the introduction of containers into international trade, (ii) the impact of market forces on homogeneous liner cargoes, (iii) the interchangeable nature of container transport services and its impact on conferences, (iv) economies of scale and (v) computerized information processing and communications.

1. The introduction of containers into international trade

In the decade following World War II, international trade volumes were increasing rapidly, national economies were exhibiting sustained growth rates and workers in many industries were making demands for large wage increases. For port labour it was a most exceptional time—expanding volumes of goods had to be handled in a system that was labour-intensive, costly, inefficient and damage-prone. At that time, port workers played a pivotal role in international trade and directly influenced not only the condition and prices of goods but also the cost effectiveness of transport modes. To avoid ports, goods began to be carried by road and rail over long distances. One land transport operator, McLean Trucking, providing services between New York and Houston, Texas, took a revolutionary step when it recognized that, if the wheels were removed from the cargo compartments of trucks and corner fittings added to facilitate handling by capital-intensive techniques, they could be carried indiscriminately by liner vessels, trucks and railroads. These modifications permitted the carriage of the same sacks, crates and barrels in which goods had traditionally been transported, but rather than being handled individually, they were placed in reusable cargo grouping units which would come to be known as containers.

McLean Trucking modified a T-2 tanker, renamed the "Ideal X," to carry these reusable cargo grouping units, and on 26 April 1956 it departed on a voyage from New York to Houston carrying 58 containers. After 10 years of service between the U.S. east and Gulf coasts, as well as to Puerto Rico beginning in 1958, the first international voyage of a container vessel, the "S.S. Fairland" of Sea-Land Services, took place between the ports of New York and Bremen, Germany, arriving at the latter on 5 May 1966 with 226 Sea-Land Services standard 35′ x 8′ x 8′ (10.67 m x 2.44 m x 2.44 m) containers.

Even though the container had become the accepted liner transport unit by 1970, it was not until 1972 that the first cellular vessel, the "S.S. Galloway" of Sea-Land Services, was designed and constructed. In cellular container ships, cargo holds are fitted with guides to facilitate the loading, discharge and stowage of containers. Guides may also placed on top of cargo-hold hatch covers to eliminate the need for lashing containers transported on deck. These vessels may also have their own cranes for loading and discharge of containers.

Since the first cellular container ship made its appearance, ocean-liner transport has utilized specially designed and constructed vessels for the carriage of containers. These vessels form part of distribution systems that also include specialized port facilities and inland transport equipment. Furthermore, there is not only a specialized physical infrastructure for the transport and handling of containers but also a supporting institutional infrastructure, including the valuable experience of liner operators, port authorities, inland transport companies and many others.

For over 100 years, any attempt by operators of general cargo vessels to reflect the characteristics of trade demand and reach new scale economy levels was restricted by slow loading and discharge rates. As these rates limited the maximum size of general-cargo vessels, if more cargoes were to be moved on a particular route additional vessels had to be placed in service. Containerization did not eliminate this requirement, but it raised cargo-handling rates

enough to permit the size of ocean-liner vessels to be increased considerably. For example, most general cargo vessels spend about three days in port per call, or about 50% of the time for an entire round-trip voyage. In contrast, container ships have an average port-stay time of less than one day, which is 22-28% of the time for a round-trip voyage.[4]

A general cargo vessel of approximately 10 000 dwt would customarily require around 125 port workers during four to five days and nights to load all cargoes, and a similar number of workers and period to discharge them. The president of the International Longshoremen's & Warehousemen's Union recently reported that, in 1960, U.S. west coast longshoremen used 29 million work-hours to move 29 million tons of cargo. By 1980, they used 18 million work-hours to move 114 million tons of cargo, and in 1987, they used 16 million work-hours to move 158 million tons of cargo. Port labour accounted for some 50-60% of total ocean-liner transport costs with general cargo vessels.[5]

Containerization reversed the "more-with-more" requirement of general cargo vessels by permitting increases in productivity with fewer vessels. The "more-with-less" trend of containerization can be seen, for instance, from a declaration of Peninsular & Oriental Containers Limited (P&OCL) that it would need about 140 general-cargo vessels to transport the cargo now carried by its present fleet of 20 container ships.[6]

The speed with which containers were adopted by liner vessel operators varied from trade to trade. After an initial period of reluctance, most operators serving trades between industrialized countries began carrying containers as deck cargo on their general cargo vessels. When the advantages of cellular container vessels were inescapable, many of them made the necessary investments while others entered into joint operating schemes such as consortia to reduce the high cost of this new technology.[7] In the period 1966-1976, many Caribbean and Central American countries, which are predominately users of shipping services, began to make investments in their port infrastructures to facilitate the handling of such units. In contrast, it was not until the mid-1970s that South American countries began to make major investments in containerization. The reason for this difference is that the latter countries are not only users but also providers of liner shipping services. Many South American countries had made significant investments in their shipbuilding industries and relatively new fleets of general cargo vessels, and were understandably reticent to make additional expenditures which would render their fleets obsolete as well as add to their already high levels of unemployment.

Liner operators offer regular services on almost every conceivable route as well as multiple loading and discharge ports. This service pattern continues to be valid for operators of general cargo vessels. However, starting with the first international voyage of a container ship in 1966, and up until the early 1970s, the service pattern of vessels carrying traditional homogeneous cargoes, i.e., limited routes and ports of call, was utilized. With the ever-widening use of containers and the construction of appropriate port facilities, container ship operators began to increase the number of routes and ports served. However, the multiple-route, multiple-port service pattern appears to be changing. Since the mid-1970s operators of container vessels have begun to limit the number of ports served, making extensive use intermodal landbridge distribution

systems. For example, Cast Ltd. (1983) offers a weekly trans-Atlantic service only between Montreal and Antwerp, but reaches a large hinterland behind each of these ports through fully-integrated inland transport systems and door-to-door services.[8]

The use of intermodal landbridge distribution systems has not only reduced the number of ports of call for liner vessels but also increased the hinterlands of ports served. With the extension of port hinterlands, there has been an enormous increase in competition between ports which historically served different geographical areas. The ports of Houston and New Orleans, for instance, find that their major sources of competition are not each other but rather ports on the U.S. west coast (Los Angeles and Long Beach) and east coast (Charleston and Atlanta).[9] Railroads presently charge approximately US$850 for the movement of a 40' container from Los Angeles to Houston,[10] while shipping lines using the all-water route would charge around US$1 400 to US$1 500. The rail movement should take less than two days, while approximately seven days are required for the all-water route via the Panama Canal. According to one estimate, those ports are losing around 2.3 million tons of liner cargoes a year to intermodal landbridge operations, and the Port of New Orleans calculates that the twin effects of landbridges and transport deregulation have resulted in its losing approximately 1.4 million tons of general cargoes a year.[11]

2. The impact of market forces on homogeneous liner cargoes

Ocean transportation can be divided into two types of services—liner and tramp. Liner services are offered by vessels which sail fixed routes on preannounced schedules and transport general cargoes. Liner operators providing services within a defined geographic trade are organized into conferences, whose main purpose is to establish standard rates and limit competition. Tramp, contract or charter services are provided by vessels which offer their capacity for the carriage of cargoes such as grains, minerals, petroleum, lumber, paper, pipes, automobiles and sugar. Usually a liner vessel carries cargo belonging to many exporters and importers on each of its voyages, whereas it is more common for a tramp ship to carry cargo belonging to a single exporter or importer. With the growing use of time-volume rates, service contracts, and slot-charter arrangements in ocean-liner transport, the differences between liner and tramp carriage have become less distinct.

If one begins with the age of modern liner shipping, which started with the development of the steam engine and establishment of the liner conference system during the 1860s, the impact of market forces on homogeneous liner cargoes can be clearly seen. During the early history of ocean transportation, all cargoes were carried by liner vessels—whether they were grains, minerals, petroleum, passengers or what is today referred to as general cargoes. When these and other homogeneous cargoes such as automobiles, pipes, paper rolls and lumber reached appropriate volumes, they were spun off or separated from liner shipping and began to be carried in specialized vessels under contractual or charter arrangements.

The ocean carriage of petroleum is illustrative of the spin-off of homogeneous cargoes from liner transport. On 16 June 1886 the first ocean-going

vessel purpose-built for the carriage of bulk oil was launched, the "Gluckhauf," of 3 070 dwt. There were difficulties with early tankers, such as leaking from rivetted bulkheads, but the carriage of oil in bulk rapidly undercut the rates for its transportation in barrels and cans, and by 1889 over 40 tankers had been constructed. By 1890 there were two main routes: from Batum on the Black Sea to either Liverpool, Antwerp, Bremen, Hamburg or Amsterdam, and from either New York or Philadelphia to those same ports. With only very minor exceptions, since 1890 the transportation of this homogeneous cargo has been carried out in specialized vessels under charter arrangements.[12]

It is worth noting that vessel technologies which reduce labour requirements ashore are seldom immediately accepted by stevedores, and the "Gluckhauf" was no exception. Soon after her delivery on 9 July 1886 she arrived in Philadelphia to load 2 880 tons of petroleum. The stevedores at that port mounted a violent protest against her because there were no barrels or cases of oil for them to handle, and they tried to prevent her taking on any coal for the return voyage. It was well into the month of August before the "Gluckhauf" was able to sail for Europe. As a result, the vessel's owner had her bunker capacity enlarged to enable sufficient coal to be carried for the round voyage.[13]

General cargoes have resisted the separation trend due to their nonhomogeneous nature and the need to handle and stow each individual unit. However, with the carriage of general cargoes in standard containers, they now constitute a homogeneous transport unit. The homogeneity of containers leads certain industry leaders to consider that ocean-liner transport has evolved into a bulk market.[14] On the other hand, it could be argued that the trend towards the separation of homogeneous cargoes from liner shipping might not be applicable to containers, as they are homogeneous transport units rather than a homogeneous cargo. Another argument might be that homogeneous cargoes are usually carried for a relatively small number of shippers and consignees, while the goods in containers customarily belong to numerous shippers and consignees. It might also be argued that the liner shipping industry already utilizes specialized vessels, handling equipment and inland transport systems and has an extensive institutional infrastructure, whereas such infrastructures were nonexistent when the more traditional homogeneous cargoes separated from liner shipping.

During the era of general cargo vessels the separation trend led to the removal of homogeneous cargoes from liner transport, but a substantial and growing volume of heterogeneous cargoes always remained. If the historical trend were applicable to the container-intensive ocean-liner environment of today, for all practical purposes there would be very few remaining cargoes. The reason for this is that the ocean transport of containers commenced by grafting itself onto and then slowly taking control of—not separating from—an ailing general-cargo industry that was labour-intensive, costly, inefficient and damage-prone. From the earliest days of containerization lists have been prepared and continually modified of the growing volume of general cargoes which are compatible with this system. For example, a liner operator recently estimated that 80% of all Brazilian general cargo exports are capable of being carried in containers. However, even this percentage could be inaccurate, as manufactured goods are increasingly designed to ensure full use of the cubic capacity of containers, to fit into a container or a specific number of container spaces. It would thus appear that the historical trend is not applicable to ocean-liner transport

because the productivity and cost-effectiveness of bulk-carriage systems have already been attained.

3. The interchangeable nature of container transport services and its impact on conferences

For more than a century, liner conferences provided operators of general cargo vessels with market stability for investments and income security. However, due to structural changes in the industry they have become increasingly unresponsive to trade requirements. Symptoms of this unresponsiveness can be seen in a number of areas, such as the failure to deal satisfactorily with overtonnaging and freight-rate fluctuations. Liner conferences have been subject to increasing criticism by shippers. The chairman of the British Shippers' Council recently stated, "European shippers have already come to the conclusion that they no longer benefit from the [conference] system."[15]

Before goods began to be carried in containers, all ocean-liner companies offered a package of services with four common elements: technology, route, frequency and price. More important to shippers and consignees, however, were the service aspects involved in handling and stowing general cargoes. Handling and stowing were an art as well as a science, and great experience was required to place compatible cargoes in the same hold and to stow them appropriately for the rigors of ocean carriage. Shippers were known to forego vessels of one company specifically because they knew their cargoes would be better cared for by another.

With the growing use of containers in ocean-liner transport, most companies which operate cellular vessels are no longer involved in the handling and stowage of general cargoes. To an ever increasing extent these functions are carried out at interior cargo terminals and factories where containers are filled and emptied. Such a change might appear minimal, but its impact is enormous. Without the service aspects of cargo handling and stowage, ocean-liner services have become undifferentiated and substitutable. Containers have not only made ocean-liner services interchangeable but also largely deprived them of characteristics which would make them individually unique. Where different shipping companies offer similar vessel technologies, routes, frequencies and prices, ocean-liner services are identical. Probably the most important lesson to be learned from the interchangeable nature of ocean-liner services is that a shipping company no longer needs the 125 years of experience of Hapag-Lloyd to successfully engage in ocean-liner transport.

The loss of cargo handling and storage activities by liner vessel operators also has begun to alter their legal obligations towards the goods carried. As an instance of this, a recent decision of the Supreme Court of New South Wales, Australia, absolved an ocean carrier of any responsibility for the loss of goods, where the container into which they were loaded was sealed and locked at the shipper's warehouse, and held that the container, not its contents, is the subject of the statutory and contractual provisions which preclude shipowners from denying receipt of cargo acknowledged in a bill of lading.[16] This decision mirrors the operational reality of liner shipping; that is, not only are containers filled and emptied at factories and interior cargo terminals but

the speed with which vessels are loaded and discharged precludes any knowledge of their contents by ship operators. Indeed, ship operators are informed of the contents of containers only when they carry refrigerated or dangerous goods. It would appear, therefore, that there is a trend to define the container as the "cargo" of ocean-liner transport.

In response to these trends, many liner operators have followed the pattern found in uniform product industries by extending the scope of traditional services or offering new ones in an effort to create even a transitory degree of uniqueness. For example, certain liner operators offer a variety of services such as through bills of lading, interior point rates, harmonized inland transport systems, computerized cargo information systems, cargo consolidation and disconsolidation, pick up and final delivery of cargoes, and "just-in-time" deliveries. This last service is especially important for a growing number of clients, since it involves the integration of transport systems into production and distribution activities so that frequent and uninterrupted deliveries of goods can permit a reduction in the volume, the carrying costs, and the amount of capital tied up in inventories.

Notwithstanding the differential advantages these activities might provide a liner operator in the short term, it must be understood that the tendency of firms in uniform product industries to duplicate or competitively match the offerings of their rivals almost guarantees that liner services will become undifferentiated and substitutable once again. Where competing ocean-liner companies offer the same technology, route and frequency, price becomes the deciding factor in the selection of a carrier.

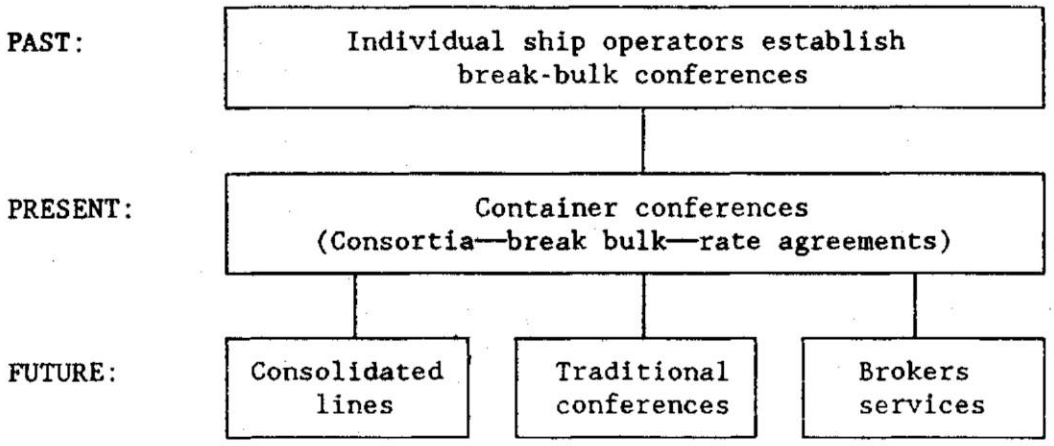
The growing influence of nonconference carriers and the weakening of the liner conference system are directly related to the interchangeable nature of ocean-liner services. When containers were introduced into Australian trades in the early 1970s, for instance, liner conferences were estimated to be carrying slightly in excess of 90% of all cargoes. By late 1986 that amount had fallen to 40% in the Australia-U.S. west coast trade.[17] In the westbound trans-Atlantic trade, the North Europe U.S. Atlantic Conference (NEAC) now controls less than 50% of the market. Non-NEAC members include major trans-Atlantic carriers such as Evergreen Line, Maersk Line, Mediterranean Shipping Company, Orient Overseas Container Line and a number of smaller independents. NEAC members are Atlantic Container Line, Compagnie Générale Maritime, Gulf Container Line, Hapag-Lloyd, Nedlloyd Lines, Sea-Land Services and Trans Freight Lines, and they have not made any larger commitment to the trade than the previously mentioned nonconference lines.[18]

Another example would be the April 1988 announcement of Maersk Line that it is to begin a nonconference service in the trade covered by the U.S. Pacific Coast European Conference (PCEC). This prompted Gearbulk Container Services (GCS) and Johnson ScanStar (JSS) to withdraw from the PCEC in early June 1988. Gearbulk Container Services not only withdrew from the PCEC but also terminated its operations.[19] In order to maintain its service, JSS is to slot charter a minimum of 300 spaces weekly with Evergreen Line's round-the-world service. The chairman of the PCEC indicated that, before these withdrawals, conference carriers controlled only 55% of the trade. In response to the Maersk, GCS and JSS decisions, Sea-Land Services has announced its own withdrawal from the PCEC.

With only Hapag-Lloyd and Pacific Europe Express remaining in the conference, and their overall share representing only 20-25% of the market, one might question the extent to which the PCEC will have an influence on the trade.

Sea-Land Services, Trans Freight Lines and Nedlloyd have entered into a three-year slot-charter agreement to jointly utilize the 12 ex-United States Lines' econoships in Europe-U.S. east coast trades. For U.S. west coast cargoes they offer a minibridge service through the port of Houston. Vessel and slot allocations are as follows: (i) four vessels to a weekly North Europe-U.S. North Atlantic service (SLS 55.3%, TFL 25.2% and Nedlloyd 19.2%); (ii) five vessels to a weekly North Europe-U.S. South Atlantic and Gulf Coast service (SLS 62%, TFL 24% and Nedlloyd 14%); and (iii) three vessels to a 10-day Mediterranean-U.S. North and South Atlantic service (SLS 60%, TFL 20% and Nedlloyd 20)%.[20] In early September 1988, those three carriers requested approval from the U.S. Federal Maritime Commission to enter into a another slot-charter arrangement for approximately 150 TEU (twenty-foot equivalent unit, a measure of volume equivalent to the space occupied by a 20' x 8' x 8' container) weekly with Hapag-Lloyd and Pacific Europe Express, who are the remaining members of the PCEC, so that they might also offer an all-water service to Europe from the U.S. west coast.[21] The Spanish liner operator Compañía Transatlántica Española announced in late September 1988 its plans to enter into a slot chartering arrangement with SLS, TFL and Nedlloyd in their Mediterranean-U.S. North and South Atlantic service.[22]

Liner conferences are composed of one or more of three distinct elements: consortia, the traditional breakbulk or general cargo functions, and rate agreements. However, this composition is evolving toward a new structure, as can be seen from the following diagram:



While the reasons for establishing general cargo conferences are well known and documented, most commentators consider the creation of consortia and rate agreements to be merely an extension of the original conference framework. However, these new arrangements have come about due to a myriad of factors such as the interchangeable or identical nature of container transport systems, new legal regimes such as the U.S. Shipping Act of 1984, intermodalism, large-scale vessels and overtonnaging, which are exogenous to and often in contradiction with the conference system.

In this most international of businesses, shipping lines without joint operating arrangements with other ocean carriers are the exception rather than the rule. Ship operators have gone from total independence and loose combinations in the form of general cargo conferences to tighter relationships such as consortia, slot chartering and joint marketing arrangements. A consortium allows individual liner companies from one or more countries to operate as though they were one line, with each member maintaining its identity and control over certain activities such as marketing, whereas in an consolidated line (CL), participants lose their identity and permit control over activities to be carried out by a new central organization. In order to establish consortia, CLs or joint operating agreements, there must be a willingness among participating liner companies to compromise in areas such as objectives, ownership of shares, investments (types, amounts and frequency), duration and financial compensation. The need to compromise does not necessarily mean that national interests will not be satisfied, because all arrangements should be evaluated in the light of these interests.

A fundamental corollary of the need to compromise in order to achieve common objectives is the requirement that participants utilize or combine the inherent advantages and least-cost factors available to each. The search for least-cost factors could give rise to CLs on a global scale. For example, the flag or even the ownership of a vessel could become meaningless when a ship is crewed in one country, managed from another, financed elsewhere and is part of an international distribution chain which might see the ship operating between two other countries for its entire economic life.[23] The question then becomes how to formulate national maritime policies and plans in order to take into account not only national interests but also the trend towards tighter and more extensive relationships between liner operators.

If the trend towards ever tighter and more extensive relationships between liner operators continues, Latin American liner companies run the very real risk of becoming part of large, extraregionally controlled CLs. Currently, vessel operators of this region are slowly being absorbed into extraregional consortia, with the attendant risk of becoming minority stockholders or single vessel operators in resulting CLs. This could mean a loss of control over their ocean-liner activities and over the important role of shipping in trade promotion. On the other hand, the establishment of regional consortia, which could include appropriate arrangements with extraregional consortia, should lessen the risk. However, the long-term impact of this trend should be studied in order to answer numerous questions, such as: What is an appropriate presence in ocean-liner transport for Latin American and Caribbean countries, and what would be the response of extraregional CLs to the individual transportation needs of this region? Responses to these and other questions will help shipping lines and governments of this region to elaborate common policies and plans for ocean-liner transport.

Rate agreements have replaced traditional conferences on numerous trade routes, especially those to and from the U.S. A major reason for this is that the U.S. Shipping Act of 1984 has given individual lines numerous new tools which enable them to respond more rapidly to shippers' requirements. These legislative tools include the right to quote independent freight rates, enter into service contracts and offer time/volume rates, all of which contradict the

traditional conference structure that allows competition between its members only on service activities, never on price. Service contracts are agreements by which a shipper or group of shippers offers a certain volume of cargo over a fixed period of time in exchange for a guaranteed rate and service commitment from a carrier or conference. The gains shippers derive from such contracts are lower administrative costs, reduced inventory levels, stabilized freight rates and a reduction of errors in trade and transport documentation. On the other hand, carriers find that service contracts have resulted in liner tariffs becoming increasingly meaningless. Without the traditional conference powers to ensure compliance with standard rates and to minimize competition, rate agreements have become "talking shops" for carriers. Rate agreements could evolve into meeting places for owners' and charterers' brokers to negotiate and formalize contractual arrangements for the carriage of containers.

4. Economies of scale

Economies of scale in manufacturing refer to a reduction of average production costs as the size of a plant increases. Applied to liner shipping this would mean increasing vessel sizes to lower average transport costs per container. Full exploitation of economies of scale in the liner shipping industry is limited by the size of the demand for transport services. For individual liner operators, this means that the overall demand in the trade routes served must be measured against factors such as competition, frequency requirements of shippers and consignees, balance and seasonality of cargo flows, etc. In this context, economies of scale in ocean-liner shipping can exist at almost any vessel capacity range. For example, short-sea transport operators might have economies of scale at a maximum of 250 TEU per ship, whereas for deep-sea operators in north-south trades the figure could be 1 500 TEU, and for those in east-west trades it might reach 4 000 TEU.

In general terms, when selecting a vessel for an ocean-liner service the following three areas are normally considered: (i) costs (operating, investment, charter, etc.), (ii) physical limits (ports, canals, etc.) and (iii) trade requirements (volumes and types of goods, degree of imbalance, seasonality, frequency needs of shippers and consignees, competition, etc.). To achieve the desired economies of scale, the now-bankrupt United States Lines, for instance, focused heavily on investment costs and physical limits in the trade route and constructed 12 large-scale 4 458 TEU vessels to a length of 949.8' (289.5 m) and a beam of 105.7' (32.2 m). These dimensions were selected to obtain a very low container transport cost per mile (US$0.034 at 100% utilization) while ensuring that the vessels could transit the Panama Canal in the company's round-the-world service. Based upon a crude petroleum price of US$30 and an estimated price of US$50 by 1990, these vessels were equipped with main propulsion diesel motors that would provide a maximum speed of 18.5 knots, which is 25% slower than the vessels of its major competitor Evergreen Line. With the reduction in the price of crude petroleum to between US$10 and US$18, this speed became uncompetitive.

The United States Lines operational strategy also contributed to its downfall. Of the three principal east-west container trades (Asia-U.S., Europe-U.S. and Asia-Europe), the eastbound-only round-the-world service of United States Lines permitted it to participate in the import demand of the U.S. from Asia but

excluded it from the demands of the U.S. from Europe and of Europe from Asia.[24] To avoid competition with its all-water service, United States Lines withdrew from five Far East-U.S. east coast conferences when they refused to set rates 15% lower than those of minibridge services via the U.S. west coast.[25]

Among other factors contributing to the failure of United States Lines were daily labour costs more than five times greater than those of Evergreen Line, and the focus of its service on ISO 40' containers where the traffic tendency was toward 20' units. Furthermore, the 12 ships previously mentioned were designed with an electrical generating capacity adequate for only 146 TEU each of refrigerated containers. Every 30 TEU by which this capacity was increased required the installation of a separate diesel generator and a tank container for fuel that together take up two TEU of cargo space.[26] The experience of United States Lines indicates that scale-economy vessels are those which lower the average transport cost per container and, at the same time, reflect trade characteristics in areas such as types and volumes of cargoes in movement, degree of imbalance, frequency requirements of shippers and consignees, actual and projected competition, etc.

That trade requirements and not technological possibilities determine vessel economies of scale was clearly demonstrated in 1858 by Isambard Kingdom Brunel, a British marine engineer, who constructed the 692' (210.9 m) "Great Eastern." This ship dwarfed every other vessel built before the twentieth century, but she was not a success because, apart from a lack of adequate main propulsion engines, she lacked ports and trade flows to match her capacity.[27]

Even though liner shipping companies dimension their fleets and utilize operational strategies which are appropriate for the trade requirements in the routes served, shippers and consignees might find that the economies of scale offered do not lower transport costs sufficiently to ensure the competitiveness of their goods in very demanding international markets. The reason for this is that, in the determination of appropriate scale economies, vessel operators must take into account the aforementioned factors not only on the trade routes in which they participate but also on the routes of the major competitors of the shippers and consignees served. For example, if leather shoes of the same quality and cost are manufactured in two distinct regions for export to the U.S., those shoes which must absorb higher ocean-liner freight rates will have a smaller market share. Although approximately 50% of such rates are related to port and land transport services, carriers can lower the portion corresponding to vessels by using larger ones to increase economies of scale, but only up to a point that reflects trade requirements. Further increases require that additional cargoes be obtained, either from the use of flexible vessel designs which permit the carriage of normally incompatible cargoes, or from neighboring countries which have similar origins and destinations.

To illustrate the relation between economies of scale and the competitiveness of goods in international markets, data were taken from the Containerisation International Yearbook, 1987, regarding (i) all liner shipping companies offering trans-Atlantic services between Canada and the U.S. on the one hand, and European countries on the other, and (ii) all liner shipping companies offering services between southern hemisphere countries of this region (Argentina, Bolivia, Brazil, Chile, Paraguay, Peru and Uruguay) and Canada, Europe, and the

U.S. From this survey it was found that there are 66 companies serving trans-Atlantic trades with 256 vessels of 309 342 TEU capacity. In contrast, there are 81 companies providing services between southern hemisphere countries of this region and Canada, Europe and the U.S. with 280 vessels of 146 965 TEU capacity. The average vessel sizes for east-west and north-south trades, respectively, are 1 208 TEU and 542 TEU. This difference in average vessel size clearly shows that ocean-liner transport between northern hemisphere countries achieve greater economies of scale, which contribute through lower freight rates to the competitiveness of goods manufactured in those countries as compared with southern hemisphere products.

Evidently, the carrying capacity of vessels to achieve economies of scale varies from trade to trade. For example, the Baltic Shipping Company is to lengthen six of its cellular container vessels to increase their capacity from 900 TEU to 1 200 TEU each. It was found that their original capacity was inefficient in the growing Asia-Baltic Sea trade, as the optimum is around 1 300 TEU per vessel.[28]

It was mentioned earlier that north-south economies of scale might result in a vessel of 1 500 TEU, but that size might be insufficient to provide freight rates low enough to make goods from this region competitive in the North American market with those from other regions. If compatible origin and destination cargoes of neighboring countries could be carried, the size might be increased to—for instance—2 000 TEU, which would contribute to the competitiveness of these goods in the North American market. Notwithstanding this gain, it must be recognized that, if such a 2 000 TEU vessel were to continue on to Asia or Europe after reaching North America, the scale economies of vessels on those routes is currently somewhere between 3 000 and 4 000 TEU. While numerous liner operators such as American President Lines, Maersk and Hapag-Lloyd are building vessels in this range, there is nothing immutable or sacrosanct about it. For example, plans were recently announced for a US$150 million vessel capable of transporting 12 000 TEU in six barges. Project designers estimate that two vessels could provide a weekly two-port service between Europe and the U.S. east coast with a cost reduction of 30% to 40%.[29]

The final objective of creating these economies of scale is to enhance the competitiveness of Latin American and Caribbean products in Asian, European and North American markets. In order to accomplish this, the differences between vessel scales in east-west and north-south trading must be reconciled, not only through the use of flexible designs but also by transporting the cargoes of neighboring countries and by offering cross-trader services between countries of the northern hemisphere.

5. Computerized information processing and communications

In 1966, the international transportation of containers was a visionary undertaking, but a mere four years later containers had become the basis of ocean-liner transport. Twenty years later, the use of computers in the liner shipping industry is likewise often a matter of vision, but within a very short period of time computers will become the basis for the operation and control of containers and their cargoes, charter arrangements, consortia, port operations,

Customs formalities, inland transport services and many other distribution chain activities. The liner shipping industry has been slow to see the advantages of computer applications in its daily activities, but the prospects of real commercial gains will be an important incentive for their utilization.

Computers are no longer just a "management aid," but rather a "production tool" that will accelerate the market, service, technological and legal forces now transforming the liner shipping industry. The computer as a production tool and as a means of accelerating change is so important that the impact of the silicon chip on the industry has been compared to that of the container in 1960: just as the container totally transformed ocean-liner transport, so also will computerized information processing and communications. The Port of Rotterdam considers computerized information processing and communications its "fifth mode of transport."[30] The areas in which computers find their greatest applications in the liner shipping industry are related to ship operations, container operations, communications between ships and ports, and between ports, inland transport modes, interior cargo terminals, national Customs authorities, shippers and consignees.

Computers and communications technology permit vessels to prepare and transmit to ports data regarding container stowage, tank contents, etc., so that port officials can prepare discharge and loading plans, determine equipment requirements and identify shoreside storage locations for incoming and departing containers. These communication links also provide information related to navigation and weather routing. In a like manner, the same technology permits ports to communicate with inland transport modes, interior cargo terminals and national Customs authorities. For example, Customs can receive information regarding goods which are to enter and leave the country many days before the vessel arrives. With such information containers can be preselected for inspection, while others can be precleared if all required documents have been filed. In addition to the rapid clearance of imports, the electronic handling of information has enabled the U.S. Customs Service to reduce its processing costs from US$28 per document to US$3.[31]

Computer-to-computer communications between vessel operators, ports, Customs authorities, land transport companies, shippers and consignees who use electronic versions of common business documents is referred to as electronic data interchange (EDI).[32] In effect, EDI is "paperless trading" by which commercial activities may be carried out on the basis of electronic documents. EDI is not just a convenient method of moving data but also a new form of management. On the Burlington Northern Railroad in the U.S., for example, before a train departs Chicago carrying containers bound for the port of Seattle, Washington, computers in Chicago automatically transmit data about the contents, destination and status of those containers to other computers in Seattle.[33]

The growth rate of this new industry has been estimated at 73% a year through 1992.[34] The major obstacle to even greater growth is the lack of data interchange standards, a subject that is now being addressed through development of the United Nations Rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT). This standardization effort is being carried out under the joint leadership of the Economic Commission for Europe and the United Nations Conference on Trade and Development (UNCTAD), whose Working Party 4 seeks to establish standards for data elements and automatic data inter-

change. The group is composed of three rapporteurs representing, respectively, the member countries of the European Economic Community and the European Free Trade Association, the member countries of the Council for Mutual Economic Assistance, and Canada and the United States.[35]

Electronic information systems already have transformed air transport, whether one looks at passenger or cargo movements, and the changes in that industry often provide a preview of what could take place in the liner shipping industry. For example, the national Customs authorities of many Latin American and Caribbean countries utilize the same regulations at airports and seaports. However, when one compares the different procedures employed to apply those regulations at each location, it become clear that enormous strides have been made to simplify them at airports so that passenger and cargo movements can be expedited. Freight forwarders working in air and ocean transport often refer to this anomaly in terms of, "One would think that they were in two different countries." Similarly, it is entirely conceivable that the liner shipping industry could follow its air counterpart and, in the not so distant future, begin to sell container slots and make cargo routings by computer.

Computerized information and communications systems are restructuring trade routes, decreasing the importance of certain ports and increasing traffic flows through others, lessening the cost implications of time and distance to markets, emphasizing the need for harmonization of all transport modes and leading the transportation industry towards a greater involvement in manufacturing and retailing.[36] Certain commentators even gone so far as to suggest that EDI will make a major contribution to the creation of a single European Community market (evaluated below in part III C) by the end of 1992.[37] The general manager of container control for Rotterdam's Europe Container Terminus has indicated that the introduction of EDI can lead to an average 7% decrease in the price of consumer goods, and the offer of such systems by liner vessel operators has become synonymous with service quality.[38] Ship-to-shore satellite links make it possible for data to be exchanged between shipboard and shoreside computers. One vessel operator has found that, by changing from telex to satellite data transmission, its annual communications costs were reduced from US$180 000 to US$30 000.[39]

Another example of the application of satellite communications technology is that of trucking company, which by this means can locate its trucks to within one-sixteenth of a mile and determine the exact condition of the goods carried. The company is so confident of its ability to make precise "just-in-time" deliveries that it offers to pay a US$30 000 penalty for each hour of delay.[40]

To take full advantage of intermodalism, all activities in the distribution chain must be co-ordinated. Only computers and modern communications technology can cope with the complexity of integrating an astronomical number of diverse activities in the distribution chain in order to create the necessary institutional and physical ties. Computers and communications technology not only place seemingly disparate elements of the distribution chain together in imaginative ways but also can permit a total, global dialogue between all such elements. As a result, computers and communications technology are making an important contribution to the modification of traditional industry concepts such as "acceptable times" for the movement of goods, "necessary space" for goods

handling and storage, "location" of the goods and "responsibility" for delays and damage to them. In effect, the integration of activities in the distribution chain by computers and communications technology precludes any consideration of them individually, as integration has changed such activities both in nature and scope.

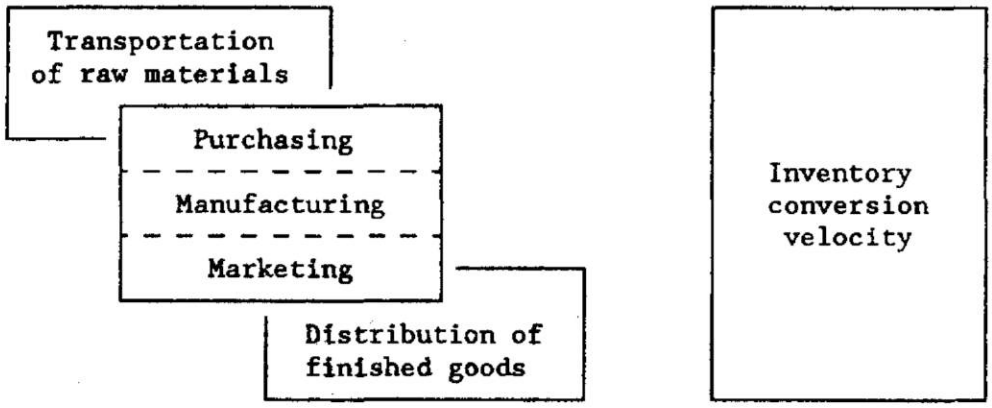
B. THE CREATION OF NEW RELATIONS BETWEEN PURCHASING, MARKETING AND DISTRIBUTION

Integration of the physical elements and institutional activities in a trade route to create an intermodal distribution system became an operational reality with the removal of numerous market, service, technological and legal obstacles. The initiative to eliminate such obstacles came from producers, who found themselves facing an increasing proliferation of goods in very competitive world markets. Producers customarily responded to such competition by increasing marketing efforts, manufacturing efficiency and labour productivity. However, the fruits of these measures decreased markedly in the years following the first oil crisis of October 1973. With producers unable to obtain a competitive advantage from the above measures and facing an uncertain commercial-monetary environment, they turned to logistics or physical distribution management.

The concept of logistics management has been described as the grouping together of all activities in a business that are related to product flows and associated services, so as to handle them collectively. In order to understand this concept it is essential to apply to logistics management what is called the "systems approach," which consists in optimizing the system as a whole rather than trying to optimize any isolated element or part of the system.[41]

Logistics or physical distribution management is the sum of inbound and outbound transportation plus inventory carrying costs, as well as the costs associated with measures utilized to specialize, integrate, improve, control and reduce those factors. For example, in the early 1980s a European automobile manufacturer found that, due to port congestion at a Middle East country, its deliveries were being delayed by as much as nine months. After failing to convince liner operators of the opportunities for action, it established a roll-on/roll-off service and spent US$8 million on terminal facilities in order to release US$100 million investment in inventory.[42] American President Companies, the parent of American President Lines, estimates that logistics can account for approximately 20% of the cost of manufactured products.[43] Once intermodal systems have been established, producers and sellers of industrial products move into the logistics intensive business which encompasses the transportation of raw materials, the distribution of finished goods and inventory control.

The logistics systems established to control such activities vary greatly between manufacturers, but most give consideration to the following overlapping activities:



The relevance of the intimate relation between transportation and purchasing, on the one hand, and marketing and distribution, on the other, can be seen from the importance given to inventory conversion velocity (ICV) during the last five years. ICV is usually defined as the time period from the purchase of raw materials until they are transformed into accounts receivable.[44] During this period, most manufacturers incur expenses for the acquisition, transportation and storage of raw materials in their plants, and the fabrication, storage and distribution of the finished goods. Logistics focuses on raw materials and finished goods inventories and their transport systems. It involves the use of computerized information and communication technologies to integrate activities in a distribution chain, as well as to time the arrival of raw materials and the departure of finished goods, so that carrying costs of and investment in inventories can be reduced.

In the past, transport services were considered consumer in nature, merely increasing the cost of the raw materials and manufactured goods carried. Today, however, the seamless integration of all activities in the distribution chain permits transportation to make a contribution to the value of the goods in movement. When the transportation of raw materials and the distribution of finished goods are incorporated into productive processes and supported by computerized information and communications systems, for instance, much greater control can be exercised over inventory levels and related costs. This control has two facets: first, the movement of raw materials and finished goods can be monitored so closely that they can be considered part of inventory even while in transit; and second, the reliability of transport systems is so high that inventory levels can be reduced. The reduction in inventory levels permits capital that would be tied up in them, or utilized to pay for storage, handling and insurance costs, to be employed in other remunerative activities.

Probably the best example of this would be automobile manufacturers which utilize computers to link up with all their subcontractors providing components. Both manufacturers and subcontractors establish quality control and ensure the flow of components for final assembly is continuous and in the right amounts, to eliminate the need for large inventories and equally large carrying costs. For carriers this process means that if they are not connected to manufacturers' and subcontractors' computer networks they would find themselves locked out of a market for their services. This is especially drastic for developing country

carriers who might lack the funds and critical mass of skills to purchase and utilize such systems. A similar instance of this would be the need to have access to global hotel and airlines computerized reservation systems in order to promote and attract tourists and tourism earnings.

When selecting a carrier, ocean-liner rates are important, but they are only one of the factors taken into consideration by shippers. Indeed, shippers and consignees have begun to utilize wider parameters such as total distribution costs for shipments and give considerable weight to the impact on inventory carrying cost if one carrier's frequency and transit time are more convenient than another's. To minimize inventory investment and holding costs cargo owners look for a continuous flow of goods which permits them to reduce the volume of goods held in inventory and, at the same time, ensures that their productive processes will not be interrupted due to a late delivery. The emphasis on precisely-timed deliveries could also lead to time limit guarantees and thus to basic changes in the contractual relationship between shippers and carriers.[45]

The increasing use of contract arrangements in the liner shipping industry should permit manufacturers, integrated trading companies and others to view transportation as part of their purchasing, marketing and stock departments, with shippers, consignees and carriers jointly devising systems and procedures to reduce cargo damage and ensure timely deliveries. With service contracts, public carriers have begun to look more and more like private carriers.[46] In fact, through service contracts public carriers become part of private logistics chains. Such chains are designed through the collaboration of carriers and shippers and seek to provide a high level of personalized service. Through service contracts, shippers and consignees have begun to seek creative and innovative transport partners who will share risks and rewards and offer total cooperation in order to obtain the objectives of safe product transportation, economy, forward planning, incorporation of new technologies and expanded use of computerized information processing and communications systems.[47]

Chapter II

STRUCTURAL CHANGES IN INLAND TRANSPORT

The profound structural changes being experienced by liner services affect what happens in the field of inland transport, and vice versa. As mentioned in chapter I, these changes are causing the activities of ocean shipping companies to be increasingly integrated with those of land transport modes. This is not merely a general consequence of change but, in many cases, comes about as a direct result of shipping lines' needs to increase their presence in and influence over markets for transport services from origin to destination. What happens today in one part of the world will affect transport decisions taken tomorrow in another, whether in the developed or in the developing countries.

Because ocean and land transport are inseparable, Latin American and the Caribbean are not isolated from structural changes occurring in the interior of countries with which they carry out their foreign trade. To ensure that its products remain competitive in world markets, the region must thoroughly understand such changes, especially those occurring in Europe and in North America, two areas which purchase the majority of this region's exports and are also large suppliers of its imports. At the same time, it must carefully study the best way to ensure its full insertion in new transport structures that emphasize a systems approach for the integration of all modes within a context of transport deregulation, changes in the dimensions of containers and the transfer of many port services to interior cargo terminals.

A. INTERMODALISM AS A SYSTEMS APPROACH

With the advent of containerization in the late 1950s, the terms combined transport, multimodal transport and intermodal transport came into use. These terms are often considered to be equivalent and thus employed interchangeably, yet in fact they represent distinct services. In the early years of containerization, the differences caused few difficulties. With the continuing evolution of liner services, however, it has now become useful to assign a precise meaning to each of these terms in order to clarify the fundamental difference between them.

1. Definitions

Combined transport involves the conveyance of one transport vehicle by another —for example, a semitrailer on a railway flatcar or a rail wagon on a ferry.[48] Combinations of this type permit the extension of one means of transportation

by another as a function of the best features of each, and offer advantages such as reductions in cargo handling operations and in port stay times for vessels.

Multimodal transport is an institutional concept that involves the carriage of goods by two or more modes while covered by a single bill of lading, which is issued by a multimodal transport operator (MTO) who assumes responsibility as a principal, not as an agent, for the entire operation from origin to destination. The United Nations Convention on International Multimodal Transport of Goods, although not yet in force, provides the institutional and legal structure for such operations.

Historically, intermodal transport was simply a transfer of goods between different modes. Today, this term implies a systems approach to all activities and functions in the distribution chain in order to reduce and, where possible, eliminate interruptions in the continuous movement of goods and transport equipment from origin to destination. No distribution chain activity can be treated in isolation, because each has interfaces with others that can increase or reduce system efficiencies.

While combined, multimodal and intermodal transport are different concepts, they can be utilized simultaneously. For example, an MTO can issue a single bill of lading for goods carried by a truck which will later be loaded on a rail wagon for part of the journey, in the interest of integrating distribution chain functions and optimizing the resulting system. The MTO is thus linking the multimodal institutional concept and a combined transport service with an intermodal systems approach.

2. The systems approach to transport services

Intermodalism marks a change in concept from "modal fragmentation" to "modal integration"—that is, from the independent optimization of each mode to the optimization of the entire system. This is not to say that the efficient operation of each separate mode is not important, only that it becomes necessary to define this importance in terms of overall system efficiency. Indeed, the relative inefficiency or lower productivity of one mode may be acceptable if it results in proportionately greater gains for the entire system. For example, in the transfer of containers between vessels and railway wagons, use of a temporary storage area may be preferable to direct transshipment if it reduces the overall investment in facilities and container handling equipment, even though it involves double handling of the containers. A systems approach eliminates the compartmentalization of individual activities in the distribution chain and joins them in new and more powerful combinations to achieve increased levels of efficiency. With system optimization, the challenge is no longer to design and construct vessels, rail wagons or trucks, but rather to design and construct distribution systems that include these as well as many other elements.

Due to the growing interdependence of all activities in the distribution chain, there is a need to create and strengthen structural ties between modes and functions to take advantage of the benefits of system optimization. Such structural ties, which are both institutional and physical, seek to ensure the continuous movement of goods and transport equipment from origin to destination.

Apart from containers themselves, probably the most common physical ties are computers and communications technology, which bring the diverse elements of a distribution chain together in order that they may function as a system. Some of the more important institutional ties include the reduction, simplification and harmonization of trade procedures and the requirements of national Customs authorities, banks and insurance companies, and an international regime to define the rights and obligations of all participants in the distribution chain.

The establishment of intermodal systems is not always attractive to traditional modal operators. Senator Linie, for instance, emphasizes that it will adhere to the port-to-port concept and provide only limited inland transport services within about 250 miles of the ports it utilizes. The major reason for such resistance is that liability levels for inland services exceed those established for maritime transport by the Hague Rules.[49] Some vessel operators who offer origin-to-destination services stipulate in their bills of lading that they will act only as agents for shippers in contracting inland transport services. Others who provide all-water services to two or more of the U.S. coasts consider that these services largely preclude the need to invest in land transport equipment or establish transcontinental double-stack train operations.[50] For liner vessel operators, inland services represent a radical shift of direction from—and often a negation of—their traditional operating procedures.

In spite of the resistance put up by some shipping firms, the ocean transport sector is leading the way in the introduction of intermodal services. One of the most important reasons for this is the cost of moving containers between the dockside and the forwarding or shipping agent in the interior of the country. Some liner services point out that land transport costs are four or five times higher per TEU-km than are ocean transport costs, which represent less than 30 to 35% of their overall costs. They have therefore been forced to explore the monitoring of inland operations as a measure necessary to keep their total costs under control.[51]

Cargo control is another matter of importance. In Europe, for example, unitarization and other changes in the management of physical distribution make it possible for freight to be moved door to door rather than only between ports. This has given rise to a large variety of transport conditions to which liner companies have had to respond by offering greater control along their entire routes, either by providing warehouses, fleets of trucks and boats, and facilities for the distribution, storage and packing of freight, or by working through designated agents. In some regions, highly organized networks of agencies are available, whose members have their own transshipment terminals and facilities that can be used along with other services they provide. Non-vessel operating common carriers (NVOCC) also often establish warehousing sysems for collecting and delivering less-than-container-load (LCL) traffic (goods in different lots within a single container) and full-container-load traffic (a container loaded with a single consignment of goods) as a means of maintaining control over freight whose transportation will later be entrusted to liner services.[52]

A similar trend is evident in North America. Although there are now ample opportunities for greater co-operation between railways and road transport companies, the ocean transport sector is still taking the lead in the move to intermodalism. Shipping lines that specialize in the carriage of containers

have been particularly active in promoting the use of direct port-to-port transportation covered by a single document and subject to a single tariff ("through transport") as a means of exercising control over all intermodal movements of containerized freight. Cast Line of Canada, for example, adopted this approach several years ago, but it could not be put into practice in the United States until transport deregulation was started in 1980.[53]

Another innovation favoured by shipping lines was the use of double-stack rail wagons for transporting containers. In 1972, Sea-Land collaborated with the Southern Pacific railway to initiate the carriage of containers between the U.S. west and Gulf coasts.[54] Since then, an ever-growing number of liner operators and railways have followed in their footsteps. In another pioneering move, Sea-Land and Southern Pacific introduced the double-stack rail wagon on services between Los Angeles and the U.S. Gulf coast in 1981. Going a step further, in April 1984 American President Lines established a regularly-scheduled double-stack block or unit train service after successfully testing the concept a year earlier.[55] Innovations such as these have been cited as evidence that intermodalism is the most recent step in the container revolution, which was originally instigated and is still promoted by the liner shipping industry.[56]

B. TRANSPORT DEREGULATION

It has always been theoretically possible to integrate liner shipping, ports, inland transport and their support activities. Nonetheless, the practical realization of this possibility could not occur without the removal of numerous restrictions, the most important of which were national regulatory regimes that prohibited not only the merger or consolidation of transport companies but also price competition between operators of the same mode.[57] The purpose of these regimes was to avoid the creation of monopolies, provide a basic remuneration to carriers and ensure services to small communities. They sought to achieve national objectives and were not unduly burdensome on international trade as long as domestic economies were largely self-sufficient. However, with the creation of a global economy in which countries must trade in very demanding international markets, such regulations burden exporters and importers with unnecessary costs that can reduce the competitiveness of their products.

In Europe, transportation has always been subject to strict government control. However, recent proposals for policies that would tend to liberalize at least international transport would probably diversify the offer of transport services. It may therefore be predicted that, in the European Economic Community (EEC), competition and intermodal co-operation will be promoted and a wider range of transport services will probably be available after 1993, when the Single European Act (which will be dealt with in greater detail in the next chapter) comes into full effect. In addition to pressures within the EEC itself, the increased flexibility and efficiency resulting from the deregulation of transportation in the United States have become too important to be ignored.

Prior to U.S. deregulation of rail and highway transportation, carriers were interested not so much in whether they used their equipment efficiently as in whether they could use it profitably. They made little effort to locate backhaul cargoes, and merely added the cost for the empty part of a trip to the

rate for the loaded portion. Any carrier desiring to operate in all 48 continental states was required to file 708 different annual reports and make payments to 76 government agencies with separate checks, which was estimated by the U.S. Department of Transportation to cost in excess of US$1 000 million each year.[58] If a trucking company had an Interstate Commerce Commission permit, it did not even have to own trucks to make a profit, since it could rent the permit to a second company for actual operations. So inflexible and costly was the U.S. regulatory scheme for land transportation that manufacturers were able to justify establishing their own private fleets of trucks, even though these were operating empty 30-40% of the time.[59]

This situation change dramatically in 1980 when the U.S. ended the regulation of inland transport by adopting the Staggers Rail Act and the Motor Carrier Act. In March 1981, the scope of the Staggers Act was extended to exempt from regulation rail and truck transportation provided by rail carriers in connection with highway trailer on railway flatcar (TOFC) and container on railway flatcar (COFC) services, including such services when performed with cargo having a prior or subsequent movement by ocean carrier.[60] These deregulatory measures, together with the Shipping Act of 1984, eliminated bureaucratic constraints on competition between modes of transportation and increased productivity through service and technological innovations. They have permitted carriers to compete with each other on price, extend the scope of their operations and make cross-modal mergers such as the acquisition of liner operator Sea-Land by the CSX Corporation, which has extensive interests in rail and barge transport.[61] Deregulation has also been the factor most responsible for the growing importance of intermodalism in the U.S., since carriers can now legally enter into joint transport arrangements and quote through intermodal rates.

C. CHANGES IN CONTAINER DIMENSIONS

The history of containerization during its first two decades shows that the technological changes it induced in other parts of the transport industry required a fairly long period for commercial, financial, legal and social acceptance. These changes rarely followed a straight path, often proceeding as part of a dynamic but erratic process. Recently, however, the pace of change has accelerated in response to the incentives of both the systems approach and transport deregulation, which may bring about significant increases in the dimensions of freight containers.

Since 1970, the dimensions of marine freight containers have been set by the International Organization for Standardization (ISO) at a width of 2.44 m (8'), heights of 2.44 m (8') and 2.59 m (8' 6"), and nominal lengths of 3.1 m, 6.1 m, 9.1 m and 12.2 m (10', 20', 30' and 40').[62] These standards have formed the foundation of the whole international system for container handling, including the construction of vessels, port equipment and inland transport vehicles. However, North America in recent years has seen the appearance of containers with different dimensions that might pose a dilemma for the countries of Latin America and the Caribbean, which would have to choose between (i) maintaining the present dimensions in order to avoid altering their equipment and infrastructure for container handling, or (ii) changing their equipment and infrastructure in order to increase the competitiveness of their exports.

The maximum dimensions permitted for land transport vehicles in the United States have always had a major influence on marine container sizes, due the broad trade relations of that nation and the pioneering status of its carriers in the field. In 1956, Sea-Land Services was the first shipping company to begin carrying containers, whose dimensions of 35' x 8' x 8' (10.67 m x 2.44 m x 2.44 m) were selected for two reasons: 35' was the maximum length permitted on the highways of New York, New Jersey and Texas, and 8' was the maximum height permissible on then-existing chassis for movements between New Jersey and New York via the Hudson Tunnel. Two years later, Matson Navigation Company began transporting containers with the same width and height but 24' (7.32 m) long on the U.S. west coast, for similar reasons.[63]

When ISO published its recommended dimensions for freight containers in 1977, it did not include either the 24' or the 35' lengths, considering that the range of sizes adopted was sufficiently flexible to encompass the trades served by Sea-Land and Matson. Nonetheless, the impact of the ISO dimensions on liner vessel operators was such that even Sea-Land, after 20 years of using 35' containers in its wholely-owned and operated highway services and container terminals, found it necessary to adopt the international standard. Approximately 10 years ago it began the costly conversion from 35' to ISO 40' lengths, a process that by the end of 1988 will still be only 98% complete.[64]

The growing use of intermodal systems makes it important for ocean-liner technologies to be compatible with inland transport systems. In 1979, Canada adopted domestic container dimensions of 44'3" (13.49 m) long by 9'6" high by 8'6" wide that permit the carriage of two units on an 89' (27.13 m) railway wagon.[65] Similar dimensions were adopted by the U.S. in the Surface Transportation Assistance Act (STAA) of 1982, which increased the maximum dimensions allowable on the national interstate highway system to a width of 8'6" and a single trailer length of 48' or two trailers of 28' (8.53 m).[66] The STAA also allowed the 27 states that had previously authorized trailers up to 53' (16.15 m) long to continue to use them.[67] This permitted American President Lines to put 53' containers into service on its domestic double-stack rail operations between Los Angeles and Chicago, with both pickup and delivery provided by AP Trucking.[68]

Approximately six years ago, American President Lines also began experimenting with non-ISO marine containers in its services between Asia and the United States. The dimensions tested were 45' and 48' lengths with 8' and 8'6" widths, respectively, and 9'6" heights. To ensure compatibility with existing container handling equipment, corner fittings were placed at the ISO 40' positions. The results of these experiments showed that 48' containers provide a substantial increase in productivity, leading a meeting of the U.S. National Railroads Intermodal Association to affirm in January 1986—just two months after the 48' units were introduced—that this dimension should become the national domestic container standard.[69] American President Lines is also testing 53' containers in its domestic services. Recognizing the added efficiencies of larger units, during January 1988 Mitsui-OSK Lines also introduced 45' units into its Far East-U.S. services. Numerous other lines such as Sea-Land, Maersk and Hapag-Lloyd have built vessels with cell structures capable of handling 45' containers.[70]

Table 1 summarizes recent developments in freight container dimensions.

Table 1

FREIGHT CONTAINER DIMENSIONS

<u>Containers for ocean/land transportation</u>

ISO-Series One:
- 10' X 8'(or 8'6") X 8'
- 3.1 m X 2.44 m (or 2.59) X 2.44 m
- 20' X 8'(or 8'6") X 8'
- 6.1 m X 2.44 m (or 2.59) X 2.44 m
- 30' X 8'(or 8'6") X 8'
- 9.1 m X 2.44 m (or 2.59) X 2.44 m
- 40' X 8'(or 8'6") X 8'
- 12.2 m X 2.44 m (or 2.59) X 2.44 m

Non-ISO:

Sea-Land Services
- 35' X 8' X 8'
- 10.67 m X 2.44 m X 2.44 m

Matson Navigation Company
- 24' X 8' X 8'
- 7.32 m X 2.44 m X 2.44 m

American President Lines
- 45' X 9'6" X 8'
- 13.72 m X 2.9 m X 2.44 m
- 48' X 9'6" X 8'6"
- 14.63 m X 2.9 m X 2.6 m

<u>Containers for land transportation only</u>

U.S.-STAA (1982):

Single trailer
- 48' X 9'6" X 8'6"
- 14.63 m X 2.9 m X 2.59 m
- 53' X 9'6" X 8'6"
- 16.15 m X 2.9 m X 2.59 m

Double trailers (each)
- 28' X 9'6" X 8'6"
- 8.53 m X 2.9 m X 2.59 m

Canada (1979):
- 44'3" X 9'6" X 8'6"
- 13.49 m X 2.9 m X 2.59 m

European swap-bodies:

Currently not standardized, but the common size is
- 23' 5.5" X 8' 2.4"
- 7.15 m X 2.5 m

<u>Source</u>: ECLAC.

It would appear that tendencies toward the use of non-ISO dimensions for marine containers could provide an important incentive for the adoption of new international standards. At present, only some 12 000 of the 45', 48' and 53' units are being utilized by a limited number of carriers, compared with over four million standard ISO containers.[71] Nonetheless, a new ISO standard has been proposed that would take full advantage of highway width limits of 2.59 m (8' 6"), permit heights of up to 2.9 m (9' 6"), and increase lengths to between 48' and 49' (14.63-14.94 m), while remaining compatible with present container handling equipment.[72]

A tendency toward larger dimensions has also appeared in Europe. Swap-bodies, which are a type of inland container peculiar to Europe, are not now standardized but are often 2.5 m (8' 2.4") wide. A swap-body of this width that is 40' long will accommodate 24 pallets of 1.0 m X 1.2 m or 30 of 0.8 m X 1.2 m,

whereas only 21 or 24 of these pallets, respectively, will fit in an ISO 40' standard container.[73] The European Committee for Standardization, which is composed of national standards bodies from 16 EEC and European Free Trade Association member states, has agreed on 2.6 m (8' 6.4") as a basis for discussions of swap-body widths.[74] EEC directive 88/218 increased the maximum width of refrigerated swap-bodies from 2.5 m to 2.6 m. This same width has also been adopted by important non-EEC markets such as Sweden. The United Kingdom maximum width for swap-bodies is 2.58 m.[75] Swap-body dimensions in themselves have little relevance to international trade, but the fact that they are becoming wider indicates that Europe is also subject to the same influences toward increased productivity that are expanding the dimensions of marine freight containers.

Initiatives to increase container dimensions may create problems for some countries but not for others. Japan, with an average inland haul for containers of only some 40 km,[76] could fill and empty these units in or near ports without greatly increasing overall distribution costs, and most Japanese ports already have the warehouse and distribution facilities required for these operations.[77] In Europe, as noted, greater widths are already appearing in swap-bodies, but 45' and 48' lengths would not presently be permitted on most highways. Nonetheless, exporters in both Europe and Japan may well come to see the use of these lengths as a means of taking greater advantage of highway and rail transport economies. It appears likely that any large-scale move by either of those regions to adopt one or both of the new dimensions would probably oblige the other region to do the same. Wide-spread acceptance of these dimensions in the industrialized countries would then put pressure on Latin American and Caribbean exporters also to ship their products in larger units, to remain competitive.

D. INTERIOR CARGO TERMINALS[78]

Interior cargo terminals (ITCs) in industrialized countries are of particular importance to exporters in Latin America and the Caribbean. It has been noted that liner services have increasingly become synonymous with the carriage of containers, and the region thus cannot avoid dependence on this technology for its external trade. It will not be sufficient, however, for containers to arrive at ports in importing countries, since both in Europe and in North America their final destinations are for the most part located at some distance from the coast. The systems approach, together with considerations of economic and operational efficiency, have been largely responsible for containers not being emptied in ports as was originally the practice, but rather continuing on to their final destination (or very close to it) unopened. A similar procedure is followed in the case of containers carrying goods for export.

Interior cargo terminals play a key role in this process of bringing containers close to the origin or destination of the freight they carry. Such terminals also make it possible to take advantage of intermodalism in a "hub-and-spoke" systems configuration. This approach combines the economy and speed of long-distance rail transportation with the economy and flexibility of local truck transportation, through the hub formed by the ITC. In some cases, a container will begin or end its journey in one of these terminals, while the goods it contains are picked up or delivered separately. In other cases, the terminal serves as a centre where services of various kinds are provided to containers

in transit to of from the shipper's or consignee's premises. Although all terminals share certain general characteristics, others vary considerably depending not only on the specific purpose of the terminal, but also on differences prevailing in the transport systems of the European Economic Community on the one hand and North America on the other.

1. General characteristics of interior cargo terminals

It should be noted that there is no universally acceptable definition of what constitutes an interior cargo terminal. Indeed, the very concept of a "terminal" may be misleading, since it suggests the end of a shipment when what is really meant is a place where transshipment may be made between two links in a transport chain. Terminology was one of the main topics dealt with at the sixth seminar on Transport Terminals and Interchanges held in Paris in 1987, whose participants concluded that there is no exhaustive definition but that the following is relatively complete: cargo terminals and interchanges are those locations and facilities specifically provided for the transfer of goods either within a single mode or between two or more modes.

Interior cargo terminals are created either because an opportunity is perceived for promoting certain kinds of transport activities and increasing their efficiency, or as a means of surmounting problems such as labour difficulties or operational delays experienced in other places on the route. Such problems and opportunities tend to vary considerably depending on location or circumstances, and thus may result in different types of development. Similarly, an interior cargo terminal may perform a large variety of functions ranging from the simplest modal interchange to the most complex set of intergrated services for the transshipment, distribution, handling and repair of containers, Customs control, and storage and distribution of freight. As a result of this variety, few ITCs are identical with regard to services offered, methods of operation, physical layout or history of development, but many of them share certain common characteristics as regards the basic services they provide and the modes of transportation they serve.

a) Services offered

The principal function of an interior cargo terminal is to serve as a location for transshipping freight from one carrier to another of the same mode of transportation (unimodal), or to a carrier of another mode (intermodal).

The second important service provided by these terminals is freight storage. Freight in transit may be stored briefly while awaiting reshipment, or it may be stored in custody, in which case it remains in the terminal longer and the entire shipment is not necessarily transferred at one time.

A third important service is the concentration and deconcentration of shipments by filling and emptying ("stuffing and stripping") LCL containers.

Recently, other related services have been gaining importance as a result of innovations in logistics and physical distribution. As interest has grown

in inventory management with respect to the costs of storing, shipping and distributing goods, firms are increasingly contracting out not only storage but also packing, labelling, invoicing and insurance. All these services may be carried out in an interior cargo terminal, where independent companies are often set up to offer them.

It is even possible to provide still more services, such as repair, cleaning, and rental of transport equipment, financial services and even food services for vehicle crews. Services may also be performed in connection with the importation or exportation of goods, such as Customs and sanitary inspections, that require government offices to be located within the terminal itself.

b) Modes of transportation

Modes of transportation are intimately related to the services provided them by interior cargo terminals. Modal interchange may involve solely the cargo unit—i.e., the container or highway trailer—without the handling of its contents, or it may involve the goods themselves. Aside from airports and seaports, modal interchange may be (i) highway to highway (interchange between long and short haul shipping), (ii) railway to highway, (iii) inland waterway to highway, or (iv) inland waterway to railway.

Unimodal transshipment is well-known and is extensively practiced at seaports, airports, rail classification yards and other facilities. In the case of highway transportation, transshipment is effected in the place where freight is concentrated and deconcentrated, which is traditionally known as a freight station. A carrier or industrial company that handles its own transportation might establish a terminal of this kind.

With respect to intermodal transshipment, a number of terms are used that refer to the modes participating in the operation, including rail terminal, inland waterway terminal and air terminal. These are terminals in the strictest sense of the word in that they constitute the end point for shipment by train, barge or aircraft, and freight is transferred to another mode which in nearly all cases will be the final one used in the transport chain—i.e., a truck. However, sometimes no final mode of transportation is necessary, because the consignee is located within the terminal area itself.

Rail terminals are important links in the combined railway-highway transport chain. This term covers transportation on railway flatcars of road tractors with trailer attached, trailers alone and swap-bodies, as well as containers. Such units comprise the majority of transshipments made at rail terminals. Since special handling facilities are required both for containers and for the other types of equipment, rail terminals may be subdivided according to the installations they offer.

Inland waterway terminals are attracting increasing attention in Europe. Barges have traditionally been used for transporting goods of little value or great weight, and for that reason inland waterway ports are fairly common. In recent times, however, unitarization has been stimulating the construction of special facilities for handling container and roll-on/roll-off traffic in these

ports, with the result that their role as a link in the transport chain is becoming increasingly important.

2. Interior cargo terminals in the European Economic Community

There are some problems, such as those posed by labour practices or delays due to paperwork, which are difficult to solve in ports but can often be dealt with more easily in inland terminals. Such factors tend to determine the role these terminals play in the Community.

a) Labour practices

European seaports often suffer from labour practices and agreements that are inefficient when it comes to container handling, which tends to make their operation inflexible and expensive. These difficulties arise especially in places where containerization has been regarded as a threat to traditional labour systems and where organized labour is strong. What usually happens is that stevedores in the port and adjacent areas acquire "rights" over work with containers often has a decided effect on costs. For example, in the United Kingdom, the very high costs charged by the National Dock Labour Scheme for the handling of containerzied freight constitute one particularly important reason for the creation of inland depots, where costs have decreased to slightly more than one-fourth of what is charged in a Scheme port.

Another problem deriving from port labour practices is related to cargo safety. Freight under the control of dock workers is subject to more instances of damage, loss and theft. At inland centres not controlled by dock worker unions, containers may be loaded and unloaded under the supervision of the shipping company or its agent, with a substantial increase in security.

b) Delays due to formalities

Delays in ports may also provide an incentive for transferring some operations to interior terminals. For example, Customs dispatch formalities are often cumbersome as a result partly of procedural problems and party of heavier workloads imposed by growing volumes of traffic. Some countries and ports are worse than others, and in these cases the possibiity of handling Customs formalities at interior terminals may be important. The transfer of these procedures to interior cargo terminals is especially desirable in cases where there is a high proportion of LCL freight or where the goods originate in trade zones to which complex quotas or tariffs are applied.

The establishment of an extensive network of interior Customs depots in the United Kingdom was motivated in part to delays in Customs formalities in ports. In other countries, such as Spain and Portugal, it has been mandatory for all international transport units to carry out Customs formalities at interior terminals. It should be noted that Customs regulations vary greatly from country to country and that factors which cause delays in one country may not do so in another.

c) The role of interior cargo terminals

No single set of reliable data exists for use in evaluating the role of interior cargo terminals on the basis of the traffic they handle. All that can be done is to make an estimate on the basis of data taken from a study carried out in 1983 regarding the total volume of traffic handled in ports in terms of the mode used for interior transportation (see table 2).

Table 2

DISTRIBUTION OF PORT TRAFFIC BY MODE IN 1983

Country	LCL traffic as a percentage of port traffic served	Inland mode used (%)		
		high-way	rail-way	inland waterway
Belgium	16	70	24	6
Denmark	8	88	12	-
Federal Republic of Germany	15	48	50	2
France	15	63	36	1
Italy	13	74	26	-
Netherlands	12	77	13	10
Portugal	2	89	11	-
Spain	8	64	36	-
United Kingdom	2	63	37	-
Average	11	69	27	4

Source: Netherlands Economic Institute.

In 1986, the total traffic served in the ports of the countries referred to in table 2 amounted to some 13.9 million TEU. This figure includes direct transshipments between ocean vessels for feeder or combined-route services, for which the same operation was counted twice in approximately 8% of the cases. If this 8% and the 11% represented by LCL traffic were deducted from the total traffic, total inland FCL movements would be approximately 11.26 million TEU.

The proportion of FCL traffic is greater in the cases of inland waterways and railways. Both modes thus require the use of at least one terminal for one transfer operation. In addition, some containers are moved to another terminal for additional cargo handling, temporary storage, repairs, etc. It is estimated that total FCL traffic through such terminals in 1986 was:

	TEU (millions)
By railway and inland waterways	3.49
Thus, transfers movements through ITCs	3.49
Plus, movements through additional ITC	0.38
Total estimated ITC traffic	3.87

As for containers shipped by road, the overall average in respect of those handled in intermediate depots is 38%. However, not all these depots may be classified as interior cargo terminals. It is estimated that about 4% of them are nearly relief stations where drivers on long-distance hauls between ports and the interior change tractor units. Even so, the volume of traffic served by ITCs in 1986 was 2.64 million TEU.

Summing highway, railway and inland waterway traffic, the aggregate number of marine freight containers using interior cargo terminals in western Europe amounts to approxmately 58% of the total inland flow, or some 6.51 million TEU in 1986. Any increase in the proportion of inland traffic moving by rail or inland waterway will result in a direct increase in traffic through interior cargo terminals used as modal transfer points. On the other hand, the extent to which traffic moving inland by highway passes through such terminals is related to the proportion of LCL traffic in the overall flow, as well as to the transport practices adopted for serving more distant inland markets.

Each port has its own hinterland, in which the population and industrial activities generate a high demand for pick-up and delivery services that may be difficult to meet from the port. This is particularly true when there is an imbalance between export and import cargoes that produces a large number of empty containers. In such circumstances, a terminal established in a strategic location may offer substantial advantages as a deposit for empty containers, so that the trips required to collect or return them or to perform maintenance or repair work on them are kept to a minimum.

In addition, freight often requires storage services, and distribution to regional markets that are not easily accessible from the port and are better served from a depot close to the principal areas of origin or destination. The transport profile of pick-up and delivery is very different from that of long distance trunk service. Therefore, once a centralized interior terminal or a network of such terminals has been established, it may prove more efficient to separate long distance transportation from local distribution services. An integrated system is thus formed that allows optimal use of available transport resources.

3. Interior cargo terminals in Canada and the United States

Most of the remarks made with regard to the role played by interior cargo terminals in the EEC also apply to Canada and the United States. However, the physical extent of these two countries has a special impact on some aspects of ITC development, through its effect on the transport systems. The growing importance of railways in intermodal transport in these countries has already been referred to, in particular as regards double-stack rail wagons. The high level of efficiency of these wagons, due to the fact that they weigh much less than conventional wagons, has done much to promote the implementation of the "hub-and-spoke" distribution concept previously mentioned, in which terminals constitute hubs in the interior of the country.

Although there are numerous variations in their design, double-stack container wagons tend to be approximately 280' (85.34 m) long and consist of five

articulated platforms, each of which carries four TEU. A train will be composed of 20 to 28 of these wagons with a total capacity of 400 to 560 TEU. However, American President Lines places one 48' X 9'6" X 8'6" container on the second tier of each platform, permitting a 20-wagon train to carry 490 TEU. A standard railway flatcar weighs approximately 31.9 metric tons, whereas the double-stack platform weighs only 14.6 metric tons.[79] Furthermore, a five-platform wagon has 80% fewer couplers and 40% fewer wheels and brakes than the equivalent five conventional flatcars.[80] A train composed entirely of these double-stack wagons can thus accommodate more than twice as many containers as a conventional train, with little increase in locomotive power and no increase in crew size.[81]

It has been estimated that locomotives pulling double-stack container wagons will consume only 60-67% as much fuel per container as conventional container-on-flatcar and trailer-on-flatcar operations. One U.S. railway has indicated that double-stack container wagons will average 225 000 miles per year, instead of about 80 000 for standard flatcars, with maintenance costs per container as low as 12% of those for conventional equipment.[82] Line-haul cost savings of double-stack trains over conventional COFC and TOFC operations are estimated to be approximately 40%, and actual costs may be as low as US$0.40 per container mile.[83] This may be less than half as much as comparable costs for highway transportation.[84]

As may be seen, the use of double-stack wagons offers the possibility of achieving sizeable economies in transportation with far-reaching repercussions for the entire distribution chain. In order to make better use of the productive advantages offered by these wagons they should be operated in block trains, which means they cannot be uncoupled to drop off one or two containers along the way. In order to operate in this manner, pick-up or delivery of individual containers or their contents must be made at a location intended for consolidation and deconsolidation of freight—i.e., an interior cargo terminal.

The task of consolidating and deconsolidating freight has always been performed in railway terminals. Interior cargo terminals differ from railway terminals, however, in that the focus of their operations is on intermodalism and involves the transfer of containers between long-distance trains that carry them to and from ports, and trucks that perform local pick-up and delivery. In this context, "local" is relative in meaning, since theoretically the distance between terminals should depend on the differences in costs between rail and highway services. It may be said that, on the average, the competitive radius of truck operations is about 500 km, which would imply that terminals should be about 1 000 km apart.[85] Although in actual practice this distance is much shorter, a tendency to reduce the number of interior terminals is beginning to appear. Canada is more advanced than the United States in this respect, although the spacial distribution of interior terminals has started to become more rational in the United States as well, especially since deregulation.

The most important conclusion that can be derived from the preceding analysis is that, both in Canada and the United States and in the countries of the European Economic Community, the distribution chain is increasingly oriented towards intermodalism and the use of interior cargo terminals as interchange points. This situation means that there are two options open to exporters in Latin America and the Caribbean. On the one hand, they can ignore the trend and

rely on the original procedures whereby containers are emptied in ports. On the other hand, they can make a special effort to take full advantage of this modern approach to the distribution chain, knowing that in the years to come it will be the predominant form of transportation in Europe, Canada and the United States. The first option would probably be very convenient for exporters, since to a large extent it amounts to a continuation of present practices. It could also be risky for them, since their goods might lose commercial viability in the market due to the high cost this option entails.

To take the second option would require a radical change in the way exporters use containers. They would have to regard them as integral to the process of marketing their products, like other forms of packaging that reach the very doors of their clients. This option would also require the liner shipping industry of Latin America and the Caribbean to change its attitude, since it would be forced to promote the transportation of containers to the final destination of the cargo rather than emptying them in port. Such changes would allow this region's exports to be fully incorporated into the distribution systems of the purchasing countries, so that they could compete for markets on equal terms with other suppliers.

Chapter III

STRUCTURAL CHANGES IN INTERNATIONAL COMMERCIAL RELATIONS AND THE IMPACT OF CHANGES IN TRANSPORT

The fundamental objective of economic geography is to provide an understanding of and insights into the spatial distribution of economic activities. It might be thought that economic geographers limit their investigations of a region to, for instance, its resources, climate and topography, but such is not the case. Economic geography deals not only with the aforementioned physical characteristics of our environment but also man as a member of a community. How man in society interacts with his physical environment creates a need to understand his productive activities and the distribution of output. The link between physical and human geography brings together natural resources, industry, economics and transportation, as well as urban, social and political themes. Economic geographers seek to treat these and other topics in relational terms so that they will be better understood individually as well as collectively.[86]

In this part, an evaluation will be made of certain trends in economic geography which might have an impact on policies and plans of the liner shipping industry. Within such trends there are many aspects that should be considered to establish policies which might orient future decisions of shipping lines, ports and land transport enterprises. Some of the more important for this investigation are (i) population, industry and purchasing power, (ii) multiple sources for the principal exports of Latin America, (iii) trading blocs and the European Community in 1992 and (iv) the impact of changes in transport on commercial relations.

A. POPULATION, INDUSTRY AND PURCHASING POWER

With the exception of demographers, social scientists and a few strategic thinkers, the birth of a child on 12 July 1987 in Zagreb, Yugoslavia, probably went unnoticed. For those in the liner shipping industry, this child simply was not part of their structured, repetitive daily activities of loading and discharging trucks, trains and ships, preparing trade and transport documentation, requesting cargo insurance policies and filing claims thereon, as well as of the thousands of conversations, telexes, agreements and disagreements which contribute to the flow of manufactured goods between countries. Nonetheless, the birth of this child has important implications for the international commercial exchanges of southern hemisphere countries and their liner shipping industries.

The importance of this child lies in what his birth means for world population growth. He represents a milestone in growth of the world population to 5 000 million. This figure seems relatively inconsequential until it is related to location. It has been estimated that approximately 90% of the world's inhabitants live in countries located north of the equator, with the remaining 10% in those not just south of but very close to the equator.[87] When it is taken into account that around 77% of the land mass of the world, 95% of the purchasing power and 95% of the industrial capacity are located in the northern hemisphere,[88] it can be seen that trade patterns and ocean-liner services already reflect this locational reality. Probably the most explicit example of this would be the 23 vessel round-the-world service of Evergreen Line, which commenced in July 1984. The vessels of that line call at 18 ports eastbound and 19 westbound, and not one of them is in a southern hemisphere country.[89]

The relevance of these global population trends for Latin American and Caribbean shipping lines, ports and land transport operators should not be underestimated. Just as world population, industry and purchasing power could become even more concentrated in the northern hemisphere in the future, so also could liner shipping services. Policy makers at all levels must understand that man, in the sociological sense, is a "northerner." The importance of "northern man" in the formulation of policies and plans for the liner shipping industry relates to not only where he lives but also what he produces and consumes. The assumption that the industrialized world is dependent upon this region's exports has gone from a fact to only a partial truth, taking with it a major source of income. Given the choice between northern and southern hemisphere suppliers available to industrialized countries, Latin American and Caribbean countries must ensure that their liner transport systems—vessels, ports and inland transport—are cost-effective, efficient and technologically appropriate.

B. MULTIPLE SOURCES FOR THE PRINCIPAL EXPORTS OF LATIN AMERICA

Liner shipping services, as well as other maritime transport activities, exist to serve international trade, and when changes occur in the direction, level or composition of trade, these services must change as well. In turn, all countries are concerned to maintain and expand the markets for their exports in order to be able to import the goods and commodities which they require or desire. As markets for a country's traditional exports cease to expand adequately because of lack of increasing global demand for them, or because of protectionism in importing countries or the incursion in their markets by new suppliers, the country turns to new products to increase its export earnings. For a country to maintain traditional markets and create new ones, as well as expand and diversify exports, it must have transport services which are competitive with those of other countries which supply the same products; but to obtain adequate transport services it must offer a sufficient volume of traffic to justify them. It is thus useful to examine the evolution of the exports of Latin America and the Caribbean in relation to world trade, and in particular the exports of products which utilize liner services.

The increase in global world trade since 1970 has been dramatic: from US$312 000 million in 1970 to US$1 930 000 million in 1985, an average annual growth rate over the period of 12.9%.[90] This increase, however, is influenced

by the sharp rises in the price of fuels during the decade of 1970, which led to an annual growth rate of fuel exports in dollar terms of 18.2% over the entire period 1970-1985. World trade in manufactured goods (which excludes iron and steel) also increased at a slightly higher annual growth rate than that for all trade: 13.2%. Annual rates of growth for exports of the other three major categories of products in which UNCTAD classifies exports were each lower than the global rate: 10.3% for all food items, 8.5% for agricultural raw materials, and 8.5% for ores and metals. In addition to manufactured goods, many individual products in the latter three categories of products are also heavy users of liner services, as is the case with copper, steel, coffee, tobacco, wool, cotton, alcoholic beverages, etc.

Exports of manufactures are of special interest due to their dynamic and catalytic role in the development process, and their evolution in relation to other categories of products can be better seen if the effect on the value of world trade introduced by the increased price of fuels is eliminated. For this reason, the percentages for different categories of products in world trade, as shown in table 3, have been calculated excluding fuels.

Table 3

WORLD TRADE
(Millions of US$ and percentages)

	1970		1985	
	Value	%	Value	%
All food items	45 850	16.6	198 742	13.3
Agricultural raw materials	18 090	6.5	61 745	4.1
Ores and metals	39 924	14.4	136 997	9.1
Manufactured goods	172 795	62.5	1 103 695	73.5
Subtotal	276 659	100.0	1 501 179	100.0
Fuels	28 695		355 035	
Total	311 905		1 929 537	

Source: UNCTAD, Handbook of international trade and development statistics: 1987 supplement, table 3.3.
Note: Columns do not sum in the source, in some instances, due to lack of information on breakdown by product category.

The greatly increased demand for the transportation of manufactured goods between 1970 and 1985 has been met by liner services, in particular through the use of highly efficient container services. In turn, the high volumes of manufactured goods traded (as well as of goods in other product categories that utilize liner services and containers) has led to enormous investments in container ships, containers, specialized ports, and inland transport infrastructure and equipment, principally in the industrialized countries.

The trading structure for manufactured goods among the developed market economy countries, the developing countries and the socialist countries has not changed significantly during the period 1970 to 1985. As can be appreciated from table 4, world trade in manufactures is still dominated by the developed countries, to the extent that 61% of trade in these products is carried out among themselves. This high percentage over 16 years supports the assertion made earlier in this document that industrialized countries are neither tied to nor dependent upon the exports of manufactured goods from developing countries. Nevertheless, during the period the exports of manufactured products from developing countries to developed market economy countries increased from 3.5% of the total to 8.8%, i.e., from US$5 900 million in 1970 to US$93 700 million in 1985.

Table 4

TRADE IN MANUFACTURED GOODS
(Millions of US$ and percentages)

	1970		1985	
	Valor	%	Valor	%
Trade among developing countries	3 136	1.8	41 704	3.9
Exports from developing countries to developed market-economy countries	5 906	3.5	93 669	8.8
Exports from developed market-economy countries to developing countries	30 848	18.1	189 063	17.7
Trade among developed market-economy countries	109 305	64.2	648 390	60.7
Trade of socialist countries with each other and with other groups of countries	20 981	12.4	95 693	8.9
Total	170 176	100.0	1 068 519	100.0

Source: UNCTAD, Handbook of international trade and development statistics, 1987 Supplement, table 3.3.

During the period 1970 to 1986, the rate of growth of the value of all exports of Latin America and the Caribbean closely followed that for global world trade. This evolution contrasts with prior periods, when the region lagged far behind the rest of the world, and even behind the other developing countries (see table 5).

Table 5

ANNUAL AVERAGE GROWTH RATES OF EXPORTS, FOB
(Percentages)

	1950-1960	1960-1970	1970-1975	1975-1986
World	6.5	9.2	25.9	7.7
Developing countries	3.1	7.3	36.0	6.6
Latin America and the Caribbean	2.4	5.0	26.7	7.7
Brazil	-2.0	7.2	30.2	10.4
Japan	15.9	17.5	26.0	11.6

Source: UNCTAD, Handbook of international trade and development statistics, 1987 Supplement, table 1.5.

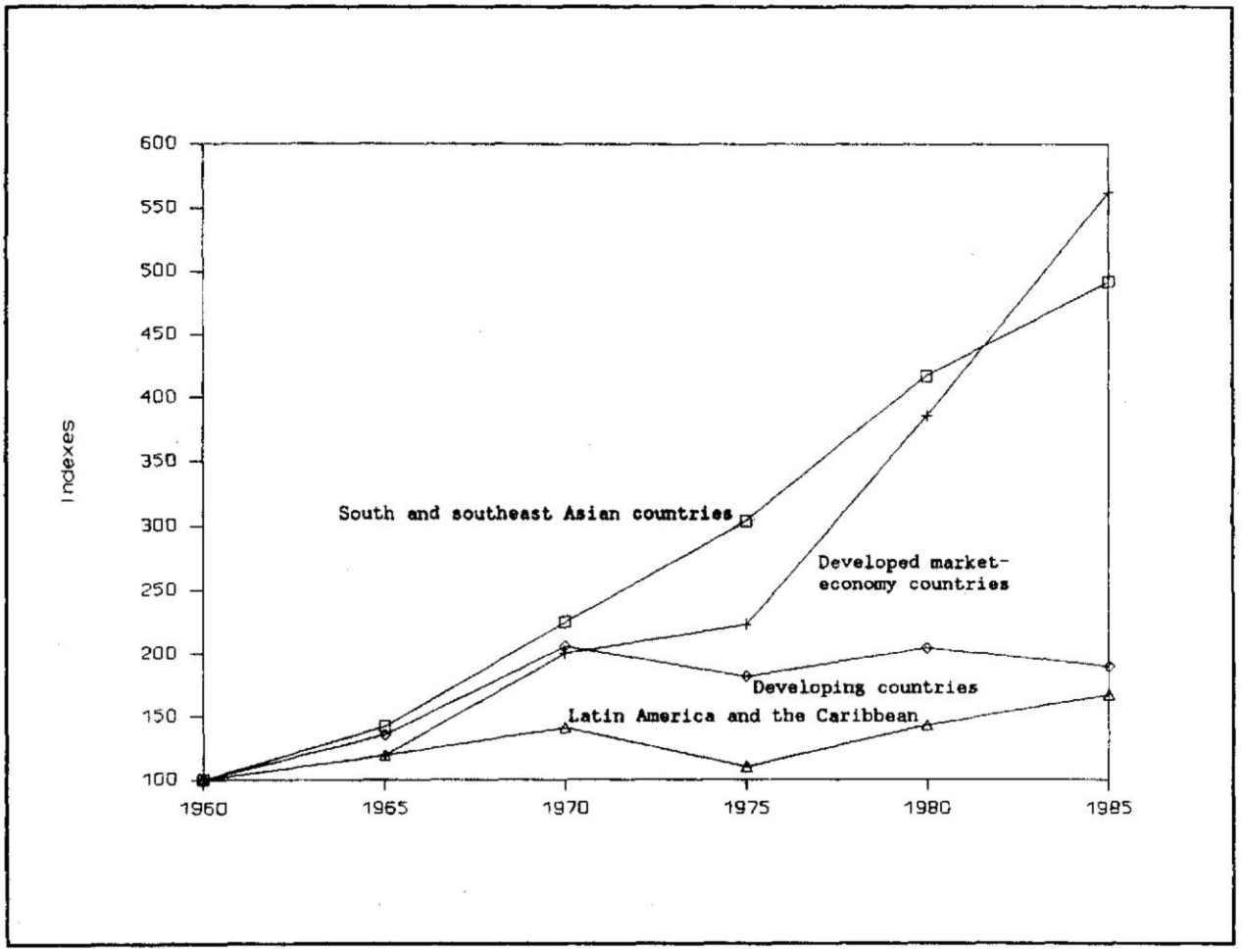
The lack of dynamism in the exports of Latin America and the Caribbean between 1960 and 1987 in relation to the rest of the world can be appreciated in figure 1, which presents export quantity indices for several of the world's regions.

The provision of transport services along the world's trading routes is guided essentially by changes in the physical quantities of goods traded rather than their value. Despite the pitfalls inherent in using quantity indices, and the fact that the indices presented in the graph include all products traded, which utilize both maritime liner services and chartered ships to transport bulk commodities, it can reasonably be concluded that Latin America and the Caribbean were not offering volumes of cargo which would lead to greatly improved liner transport services when compared with other regions of the world.

In the particularly important area of manufactured goods, for which the world annual average growth rate for the value of exports between 1970 and 1985 was 13.2%, the rate for Latin America and the Caribbean was 18.1%, which still lagged behind the rate for all the developing countries of 19.9%. During this period the performance of the group of ALADI countries, led in particular by Brazil, was more favourable, as this group had an annual average growth rate for the export of manufactured goods of 20.6%, well above the average growth rate for all ALADI exports of 13.5%. As a consequence, Latin America and the Caribbean increased its share of world exports of manufactured goods from 1% in 1970 to 1.8% in 1985. During the same period, South and South-East Asia increased its share from 3.5% to 9.9%. Even though the participation of exports of manufactured goods within total exports of Latin American and Caribbean countries increased from 9.5% to 18.9% during the period, it is clear that the region has not adequately taken advantage of the great growth in world trade in manufactured products during the last decades.

Figure 1

INDEXES OF EXPORT VOLUMES
(1960 = 100)



Source: UNCTAD, Handbook of International Trade and Development Statistics: 1987 Supplement, table 2.1.

A similar conclusion can be reached by an evaluation of maritime transport statistics. Table 6 presents the volume of dry general cargo—i.e., cargo that utilizes liner services—traded between the United States, South America, and far east Asia (Hong Kong, Macao, Japan and Korea) in 1978 and 1985. The tonnages transported between the United States and far east Asia in 1978 greatly exceeded those traded between the United States and South America (16.2 million tons versus 4.8 million tons). Moreover, the gap between Asia and Latin America increased dramatically by 1985: tonnages moved between the United States and the west coast of South America actually fell slightly during the period, while trade to and from the east coast of South America increased only 600 000 tons. In contrast, trade between the United States and far east Asia increased by 12.6 million tons, reaching a total of 26.8 million tons in 1985 as compared with only 5.4 million tons with the combined east and west Coasts of South America.

Table 6

MOVEMENT OF GENERAL CARGO
(Thousands of metric tons)

Port ranges	West coast of South America		East coast of South America		Far east Asia	
	1978	1985	1978	1985	1978	1985
U.S. North Atlantic:						
As destination	182	193	500	1 365	2 210	2 208
As origin	144	86	232	141	508	518
U.S. South Atlantic:						
As destination	41	105	175	500	622	913
As origin	127	114	117	32	287	839
U.S. Gulf of Mexico						
As destination	124	98	373	1 132	561	286
As origin	470	520	1 419	384	1 413	2 695
Subtotal	1 088	1 116	2 816	3 554	5 601	7 459
North American North Pacific:						
As destination	12	23	27	28	2 431	3 014
As origin	94	76	229	197	2 041	4 126
U.S. South Pacific:						
As destination	80	67	81	157	3 045	7 303
As origin	112	44	253	89	3 100	4 925
Subtotal	298	210	590	47	10 617	19 368
Total	1 386	1 326	3 406	4 025	16 218	26 827

Source: United Nations, Maritime Transport Study: Commodity Trade (by Sea) Statistics, 1981; United Nations, International Sea-Borne Trade Statistics Yearbook, 1984-1985.
Notes: West coast of South America—Pacific ports of Colombia, Ecuador, Peru and Chile; east coast of South America—Brazil, Uruguay and Argentina; far east Asia—Hong Kong, Macao, Japan and Korea.

As has been pointed out in earlier parts of this document, there are important economies of scale associated with liner transport, and in particular with cellular container ships. The enormous quantities of general cargo traded between the United States and far east Asia permit the use of large and efficient ships which can offer frequent low-cost services to far east Asian exporters, giving them an important competitive advantage in the key U.S. market over their present or potential competitors on the east and west coasts of South America. This competitive advantage can only be overcome by increasing exports from the latter region, but to increase their exports, the Latin American countries must have liner transport services which are comparable to those of their competitors.

The basic issue for Latin America and the Caribbean is that it is not sufficient merely to have liner services linking the region with markets in other regions: rather, the cost and quality of these services must not leave the region at a disadvantage in relation to its competitors in the developed countries and in other developing regions. To be competitive, Latin America and the Caribbean must be efficient not only in producing goods, but also in getting them to buyers at prices competitive with alternative sources of supply. The quantities of products traded which utilize liner services will be a key factor in determining whether the region can count on liner services which permit them to compete on equal terms with competitors from other regions. In addition, they must make much stronger efforts to reduce the cost of getting their products onto the ships through major improvements in land transport and ports in Latin America. Even though Latin America can take advantage of several of the minibridges for distribution within Europe and North America, the competitiveness of the region's exports will depend heavily on transport improvements made within the Latin American region.

This conclusion is reinforced by the fact that not only does the Latin American and Caribbean region face strong competition as it attempts to diversify its traditional exports in an increasingly global world economy, but the traditional exports are also subjected to increasing competition from alternative sources of supply. While the region has maintained its share of world markets for some products that utilize liner transport services, such as coffee, bananas and cacao, shares of other products, such as meat, tin, copper, and hides fell between 1970 and 1985. The general tendency in Latin America and the Caribbean during this period was for traditional exports to reduce their incidence within the value of a country's exports as exports of manufactured goods increased and new products entered the export market or increased their importance. Argentinean meat exports, for example, fell from 10.2% of world meat exports in 1970 to 4% in 1985, at the same time that the incidence of this export in total Argentinean exports fell from 24.7% to 4.4%. Brazilian coffee exports went down from 30.6% of world coffee exports in 1970 to 27.5% in 1985, but during the same period the incidence within total Brazilian exports dropped far more dramatically from 34.3% to 9.2%. Chile's share of world copper exports dipped slightly from 16.7% in 1970 to 14.9% in 1985, but as a percentage of total Chilean exports copper represented only 46.1% in 1985, down from 67.3% in 1970.[91] Frequently, however, the products which took on more importance within Latin American and Caribbean exports are those that do not utilize liner services, such as soya, iron ore, logs, and petroleum.

In table 7, the competitive pressure on Latin American and Caribbean exports can easily be appreciated. No longer are there captive markets for traditional exports, and the region must constantly improve the efficiency of its production, marketing and distribution in order to obtain and maintain market shares. Maritime liner services and, in particular, container services will frequently be the key variable which will determine whether the Latin American and Caribbean region is successful or not.

Table 7

PARTICIPATION OF LATIN AMERICA AND THE CARIBBEAN IN EXPORTS OF SELECTED PRODUCTS, 1983-1984
(Number of countries, millions of US$ and percentages)

Product	Latin America & the Caribbean			Developed market-economy countries		Other developing countries		
	N	Value	%	Value	%	N	Value	%
Meat fresh, chilled, and frozen	9	1 190	8.7	11 630	85.0	7	472	3.5
Fruit preserved, prepared	4	1 203	27.1	2 367	53.3	10	534	12.0
Coffee	11	6 400	58.6	1 029	9.4	16	3 210	29.9
Leather	5	510	13.7	2 551	68.6	9	559	15.0
Textile yarn and thread	4	519	4.2	8 953	72.5	14	2 061	16.7
Cotton fabrics, woven	3	242	3.6	4 138	62.2	16	1 756	26.4
Copper	4	1 501	15.5	6 433	66.5	9	1 326	13.7
Tin	2	329	16.0	294	14.3	6	1 418	68.8
Telecommunications equipment	2	872	2.7	24 657	75.4	5	4 271	13.1
Office machines	3	505	1.3	35 482	89.9	5	2 255	5.7
Travel goods, handbags	3	115	3.8	1 072	35.8	7	795	26.6
Footwear	2	884	7.1	6 523	52.3	8	2 192	17.6
Toys, sporting goods, etc.	2	139	1.6	4 477	50.7	7	2 178	24.6

Source: UNCTAD, Handbook of International Trade and Development Statistics: 1987 Supplement, table 4.4.

C. TRADING BLOCS: THE EUROPEAN COMMUNITY IN 1992

The EEC was set up in 1958 with the entry into force of the Treaties Establishing the European Communities (Treaty of Rome). The continuing importance of this economic integration initiative can be seen from, for instance, the increase in the number of member States from the original six—Belgium, Federal Republic of Germany, France, Italy, Luxembourg and the Netherlands—to include Denmark, Ireland and the United Kingdom (which became members in 1973), Greece (1980), and Portugal and Spain (1986). It can also be seen in the establishment of a European Parliament, the central role of the EEC in world trade, and the ever-widening range of Community activities which come within the jurisdiction of its many directorates.

Probably the greatest source of current uncertainty regarding the EEC relates to the Single European Act, which was approved in Luxembourg on 17 February 1986 and ratified by the 12 EEC member States 11 days later in The Hague. Its entry into force, originally planned for 1 January 1987, had to be

postponed due to the need for a referendum on the matter in Ireland. The act was approved in that country during June 1987 and entered into force on 1 July 1987. It is divided into four titles which seek to develop the internal Community market and strengthen the economic and social ties between member States.[92] The Single European Act requires the progressive elimination of all physical, technical and fiscal barriers to trade in goods and services between member States by 31 December 1992. When fully implemented, the single EEC market will embrace 12 countries with an area of 2.3 million km^2 and approximately 322 million inhabitants who have an estimated purchasing power of US$4 trillion.[93]

The establishment of one market represents an evolution from economic integration, directed at eliminating intermember trade obstacles, towards a more positive phase based on a common economic and financial policy. This constitutes a fundamental change in the economic geography of a region and will accelerate the movement of capital and labour between member States, create a new basis from which to judge the efficiency of both the manufacturing and service sectors, permit the EEC to be self-sufficient in a larger number of products, and alter the nature of the EEC import demand. For example, EEC manufacturers of trucks, chemicals, machinery and a wide range of other goods already are making massive capital investments in new plants and equipment in order to meet an increase in demand which is projected to arise from the single market.[94]

The EEC recently published a report listing the advantages that will flow from the single market. It estimates that the 12 member States could collectively be about 200 000 million European Currency Units (ECU) (US$240 000 million) richer by the late 1990s. Gross domestic product of the Community could rise by at least 4.5%, consumer prices might fall by 6% and nearly two million jobs would be created.[95] The EEC nations will eliminate trade restrictions among themselves over the next four years, and it is important to follow these events closely in order to determine if such restrictions might be transferred to other countries. It is still unclear what effect the Act will have, when fully implemented, on trade and transport not only within the EEC but also between the EEC and other countries.[96]

The principle question facing non-EEC manufacturers and service enterprises is whether and to what extent their access to the EEC might be restricted when it becomes a single market. In other words, will EEC manufacturers and service enterprises be given priority over their non-EEC counterparts? Even non-EEC enterprises which have production facilities in the Community must seek answers to these questions. For example, the cars Nissan produces in the United Kingdom have a local content of 70%, but the Government of France claims that with less than 80% they cannot be considered European. France treats these cars as part of Japan's import quota, which is 3% of its car market, so the United Kingdom has asked the European Commission to intervene in the dispute.[97]

A partial response to these questions was given at a meeting in February 1988 between representatives of the EEC and the European Free Trade Association, which is comprised of Austria, Finland, Iceland, Norway, Sweden and Switzerland. At that meeting, the EEC Trade Commissioner declared: "... only [EEC] member States can fully participate in this internal market."[98]

Whether this declaration will be translated into commercial policy is open to question, but subsidy and/or market reservation measures utilized by the EEC for its agricultural, textile, steel and shipbuilding industries might provide useful insights.[99] For example, in response to pressure of EEC producers, the Commission of the European Community decided on 20 April 1988 to limit import quotas for apples to 521 731 tons. Of this total, the five leading southern hemisphere producers were assigned the following amounts: Argentina 79 000 tons, Australia 11 000 tons, Chile 142 131 tons, New Zealand 115 000 tons, and South Africa 166 000 tons.[100] In this context, numerous Caribbean countries have expressed concern about the possible impact of the single market on their exports of bananas to EEC member States, and especially to the United Kingdom.[101]

The success of an economic integration scheme is usually measured by the degree to which trade between its members has increased, but this does not mean that commercial activities between them and other countries should necessarily decline. Notwithstanding the special treatment given by the EEC to certain industries, and the ever-present possibility of an extension of such measures into other areas, the growth of trade between EEC member States should lead to its increase between them and the rest of the world. The EEC has always exercised an important influence on world trade because of the openness of its member States.[102] That influence can be seen from, for instance, the fines it imposed on 26 non-EEC wood pulp producers for price-fixing activities which restricted free competition within the common market,[103] and the agreements of West German industries which permit their capital goods to contain more local manufacturing content from importing countries.[104] A single market can create a basis for taking better advantage of natural resources, making labour more productive and enhancing the competitiveness of certain products, but it cannot create such resources nor reduce wage rates. The preferences which EEC manufacturers and service enterprises probably will enjoy in the single market could alter Community demand for certain products of this region, but it should create opportunities for others.

Governments, carriers and ports both within and outside of the EEC are trying to formulate appropriate policies and plans which will prepare them for the coming of the single Community market. Before the Single European Act was adopted the ministries of transport of EEC member States largely carried out their activities in national settings, even though co-ordinating certain programs with each other, but now will begin to view themselves in a more united European context and to consolidate such activities. For example, the West German Ministry of Transport recently informed its shipowners that they would have to compete as best they could without subsidies after 1992, when the current financial assistance program expires, and make full use of the possibilities of rationalization to increase productivity and cost effectiveness of their operations.[105] The single market could lead to a reduction in the number of European liner vessel operators and create a basis for multinational ownership among the EEC member States, as well as the establishment of a common Community vessel registration regime.[106]

Probably the most important consideration for carriers will be the impact of the single market on vessel routings, port and inland transport services, and on transport economies of scale. With national market restrictions removed, ocean and land carriers from each EEC country should be able to participate on

an equal basis in the trade flows of all 12 member States. As a consequence, they may have access to cargoes on their routes which were historically unavailable,[107] utilize ports which have greater inland transport connections,[108] and find themselves becoming part of specific transport systems. This could lead to greater competition among EEC ports and to increasing scrutiny by the Community with regard to the need for as well as the amount of subsidies given them by their governments.[109] It should be noted in this respect that approximately two years ago the Chairman of Associated British Ports called for an end to port subsidies by both United Kingdom and Continental governments.[110]

The Group of Twelve Railways of the EEC will have to deal with many implications of the single market, such as altered trade routes, increased competition from road carriers and government subsidies, so that its members can better assume their modal functions by 1992.[111] As instances of this, the Government of Italy has made numerous proposals for extensive state-sector reform, one of which is to reduce the work force at the state railroad by 25%,[112] and British Rail is consolidating all of its nonbulk intermodal activities in order to be better able to compete after 1992.[113]

The establishment of a single market should accelerate the growing use of intermodal minibridge movements. This might result in the ports of the Mediterranean becoming the focal point for Asian-European trades through the Suez Canal. Other factors which should contribute to this trend are the Channel Tunnel and dispersion of the EEC's industrial center. That center was located relatively close to major ports in an area encompassing parts of Belgium, northern Germany, and the Netherlands, but it has gradually expanded into southern Germany.[114] Indeed, the single market could accelerate the relocation of labour-intensive industries to lower wage Mediterranean countries. The impact of this southward movement can be seen from the establishment of Netrail by the port of Rotterdam in order to organize the rail movement of containers and swap bodies between the port and the rest of Europe.[115] Whether vessel operators in Asian-European trades will utilize Mediterranean ports to avoid making an additional 2 000 nautical mile voyage to north Europe depends on the efficiency of those ports, their prices, reliability, as well as the availability, frequency and cost of inland transport services, but there does appear to be a definite trend in that direction.[116]

EEC liner operators have already begun to alter their policies and plans in anticipation of the single Community market. In essence, they seek to strengthen their participation in land transport and to extend the coverage of their services throughout the entire Community. To do this, shipping lines are combining not only with land transport companies but also with freight forwarders and port terminal operators. The resulting company can then offer an integrated intermodal service which includes logistics or physical distribution management, rather than simple port-to-port services which may not be competitive in the single market.[117] For example, CMB Transport of Belgium recently purchased a terminal operator at the port of Antwerp, adopted measures to strengthen its European agency network, indicated that it must increase its presence in Europe-South American trades, and announced that it will start an all-water nonconference service between the U.S. west coast and Brazil,[118] while Nedlloyd of the Netherlands has purchased a large European road transport company and started a nonconference service between the east and Gulf coasts of the U.S. and

the west coast of South America.[119] Even European short-sea operators, such as Seacon Limited of the United Kingdom, are evaluating the possibility of expanding operations to countries which are outside their customary trading boundaries.[120]

Non-EEC liner operators have begun to take steps to strengthen their competitive positions in the EEC in relation to large, vertically-integrated European companies. These steps will not only create needed links with the EEC prior to 1992, but will also respond to commercial opportunities. For example, Sweden's position as a major trade partner of the Community probably was taken into account by its conglomerate group of transport companies, Bilspedition, when it acquired the Dutch liner operator Incotrans.[121] The Japanese liner operator Kawasaki Kisen Kaisha has expanded the activities of Kawasaki (London) Ltd. to act as owners' representative for all of Europe, and established K-Line (Europe) Ltd. to act as European general agent.[122] Another Far East liner vessel operator, Evergreen Line, believes that the single market will have an immediate impact on its choices of European ports and inland distribution systems, and considers that the effect on Far Eastern-EEC trade will be positive.[123]

There are a number of other enterprises which have adopted measures to safeguard their viability in the single Community market. For example, the Swedish Club, a Gothenburg-based protection and indemnity insurer, announced the establishment of a subsidiary in Luxembourg that is to begin operations on 1 January 1989 in an effort to ensure its presence in the EEC prior to 1992.[124] In a similar manner, Swissair of Switzerland seeks to ensure its access to the single market through joint operating arrangements with and partial ownership of EEC airlines.[125]

In an effort to meet the challenges which will arise from a single EEC market, the policies and plans of liner vessel operators of the Latin American and Caribbean region should take into account not only the single market but also the structural transformation now taking place in ocean-liner transport and the new requirements placed on them by major alterations in macroeconomic policies. Liner vessel operators of this region have numerous courses of action open to them. First, they can structure their scale of operations, and offer routes, frequencies, prices and technologies in order to respond to the trade needs of the country in which their vessels are registered. Second, they can increase their participation in extraregional consortia which offer services to this region. Finally, they can combine cargo bases with other Latin American and Caribbean countries, and establish regional consortia which respond to the major north-south and east-west trade requirements of those countries. At the conclusion to this document these courses of action will be considered in greater depth, but it is important at this point to highlight that any workable policy must be based upon co-operation among Latin American and Caribbean liner vessel operators and will include elements from each course of action.

D. THE IMPACT OF CHANGES IN TRANSPORT ON COMMERCIAL RELATIONS

The liner shipping industry is directly influenced by the needs of cargo owners and by changes in economic geography of our planet. Trade partners utilize the industry not only for moving goods but also for many other services which range

from special handling and care to precisely timed arrivals and deliveries. In a similar manner, changes in economic geography which shorten distances between markets, reduce freight costs or increase transport efficiency will have implications for both trade and transportation. Such changes in economic geography can be seen from (i) major interocean canals, (ii) the growing use of landbridges and (iii) tunnels and bridges which are to provide links between transport systems of different countries.

1. Interocean canals

While the changes which led to mechanical traction in land transport, steam propulsion for vessels, containerization and to intermodal transport services have made a fundamental contribution to world economic growth, so have the major interocean canals. The Suez Canal was inaugurated 17 November 1869 with the transit of the royal yacht "Aigle" of the Empress Eugénie of France.[126] Compared to the route via the Cape of Good Hope, the voyage from London to Bombay was shortened by 51%, to Calcutta by 32% and to Singapore by 29%. Prior to opening of the Suez Canal, the fastest passages from London to Singapore in 1867 was made by the "Eileen Radford" in 116 days, while a mere three years later the steamship "Shantung" took 42 days from Glasgow to Singapore with three intermediate ports of call.[127] The cost of shipping a ton of cargo from Bombay to the United Kingdom fell from 10 or 12 pounds sterling in 1869 to 20 or 30 shillings by 1893, a 90% decrease. It has been estimated that the time goods were in transit was reduced by 10 weeks. This period represents:

> "... a savings in interest on capital involved of 2-1/2 percent, which was itself important. More important still was the fact that money tied up in goods in transit was earning nothing. In effect, the changeover from sail via the Cape to steam via Suez more than doubled the earning capacity of a Singapore merchant's capital."[128]

The Panama Canal was inaugurated on 15 August 1914 with the transit of the "S.S. Ancón." The Panama Canal considerably shortened the distances between countries on the Atlantic and Pacific Oceans. Compared to the route via Cape Horn the voyage between New York and San Francisco was reduced by 8 000 nautical miles (1 nautical mile = 1.852 km), with other notable decreases of as much as 3 500 nautical miles for voyages between the U.S. east coast and the west coast of South America and 2 000 nautical miles between northern Europe and southeast Asia and Australia.

The economic impact of the Panama Canal on international trade is similar to that of the Suez Canal. To appreciate the benefits gained by shippers and consignees from the shorter distances involved in their transport operations, as well as the reductions in time required, a number of detailed studies have been prepared by ECLAC. One estimates that, for the period 1960-1970, direct savings of cargo owners or the difference in cost between using the Canal and alternative routes amounted to approximately seven times the total revenue received by the Panama Canal from ship transits. During 1970, for instance, transit revenue amounted to US$100.9 million and the direct savings for cargo owners were estimated to be US$620 million.[129]

With the dynamic growth in the volume of containers utilizing North American intermodal landbridge services, the cost savings normally enjoyed by that specific sector might be placed in question. However, according to the Panama Canal Commission's Economic Research and Marketing Development Division, during the six year period 1982-1986, containerized cargoes passing through the Panama Canal have increased at a rate of 8.4% annually.[130] This figure must be interpreted with care, as it indicates an increase in containerized transit traffic and not that it originated in or is destined for the U.S. In addition, it must be kept in mind that American President Lines has constructed five post-PANAMAX vessels (those with dimensions which exceed the maximum for transitting the Panama Canal), and others are giving serious thought to doing the same.[131]

The relation between the level of tolls and the demand for transit services was demonstrated in two toll-sensitivity studies carried out by consultants in 1976 and 1986 for the Panama Canal Commission. Both of these studies concluded that transit traffic is sensitive to the level of tolls and that such sensitivity will increase over time if the cost competitiveness of alternative routes is greater. The most recent study estimates that the volume of cargoes in transit through the Panama Canal can be expected to decline by a percentage equivalent to about one-fourth the toll increase, and that Canal revenues would increase by a percentage of about two-thirds of the toll increase.[132] Applying these study results to the 1 October 1989 toll increase of approximately 10% being considered by the Panama Canal Commission suggests that there could be a decline in transit traffic of 2.5% and an increase in Canal revenue of 6.7%.[133] Faced with a similar toll sensitivity, the Suez Canal Authority announced on 27 October 1988 that it was to raise tolls by up to 8% for 1989 after no increase for the last two years.[134] The Chairman and Managing Director of the Suez Canal Authority indicated that they seek to lower costs so that tolls can be equated with vessel operating expenses via the Cape of Good Hope, thereby permitting shippers and consignees to benefit from the savings of time which results from Canal usage.[135]

2. Landbridges

A landbridge permits the substitution of land transport for part of an all-water carriage operation. There are three types of landbridges: (i) a microbridge involves ocean and land carriage operations to an interior point, (ii) a minibridge consists of ocean and land carriage operations which terminate in another costal area, and (iii) a landbridge encompasses two ocean movements joined by a transcontinental land transport operation. There are numerous microbridges, which are merely extensions of a port's traditional hinterland, and minibridges, but the use of landbridges is limited by port costs. As an illustration, Asian cargoes which enter the U.S. at Los Angeles destined for Chicago or New York would entail microbridge and minibridge movements respectively, while the same cargoes destined for Europe would be an instance of a landbridge operation. A landbridge requires the use of four ports—one at the country of origin, another at destination and two in the transit country. Presently, the major landbridges are the U.S. for western Europe, the Soviet Union for western Europe and the Far East, the United Kingdom for Ireland, and Hamburg-Lubeck for Scandinavia. In this part only the first two will be discussed.

American President Lines, Atlantic Container Line and Gulf Container Lines have begun to offer a joint Asia-Europe service via the U.S. landbridge, which they claim is competitive with the all-water route.[136] This initiative could prove viable, but it must be evaluated in the light of numerous factors such as the extra port and land transport costs involved, and the competitive reaction of all-water carriers and the trans-Siberian landbridge. At the same time, the demand for cargo by American President Lines has increased due to its recent introduction into the very competitive trans-Pacific trade of five 4 340 TEU vessels whose dimensions exceed the maximum for transit of the Panama Canal. These vessels have a length of 896' (273.1 m) and a width of 129' (39.3 m), while the maximum dimensions for transit of the Panama Canal are 950' (298.6 m) and 106' (32.3 m).[137] Nonetheless, American President Lines announced lower profits for the second and third quarters of 1988.[138]

With regard to competition from all-water carriers, it has been estimated that those belonging to the Asia North America Eastbound Rate Agreement will add nearly 40% more capacity during the next 18 months.[139] The excess offer of transport services in trans-Pacific trades and the desire to avoid a rate war have both conferences and nonconference operators to establish the Transpacific Discussion Agreement in mid-October 1988.[140]

In analyzing the costs and benefits of intermodal microbridge and minibridge services in the U.S., the experiences of certain liner vessel operators is illustrative. American President Lines offers Asian and U.S. shippers an intermodal system which utilizes those landbridges and articulated railway wagons that permit the carriage of containers stacked two-high. This arrangement allows containers to be delivered to U.S. east coast destinations 87 hours after being discharged from vessels on the west coast,[141] which is seven days faster and US$100-200 less costly than the all-water route.[142] As early as mid-1985, American President Lines indicated that stack-train services had reduced its origin-to-destination costs by 40% and Far East-U.S. east coast transit times by at least seven days.[143]

Nippon Yusen Kaisha (NYK) Line of Japan found that not only do all-water services generally lose money, but they require twice as much capital investment in vessels than those which utilize U.S. west coast ports and inland rail transport.[144] The Australia-New Zealand Direct Line analyzed the same matter and concluded that it would need only three vessels for a twice monthly intermodal service to the U.S. east coast via west coast ports, while a direct service to U.S. east coast ports would require 5.2 vessels. The analysis showed that, once vessel productivity was taken into account, the intermodal minibridge service via U.S. west coast ports provided a greater margin of profit.[145]

Use of the North American continent for microbridge and minibridge cargo movements is growing rapidly. By January 1988, there were 67 double-stack container trains, each carrying from 100 to 600 TEU, departing on a weekly basis from the U.S. Pacific ports of 28 Seattle and Tacoma, Washington, and Portland, Oregon (28 trains total), Oakland (2 trains), and Los Angeles and Long Beach, California (37 trains total).[146] The quantity of containers filled with imports moving eastbound from those ports has been estimated at 29 000 TEU per week on double-stack container trains, which is approximately 25% of all U.S. intermodal movements.

One of the largest intermodal carriers in trans-Pacific trades, American President Lines, recently indicated that about 30% of its containers discharged at U.S. west coast ports are destined for New York.[147] As large as these volumes of intermodal movements might seem, they account for only 3% of the total cargo base in the U.S.[148] With reference to the future growth of double-stack train departures from the neighboring ports of Long Beach and Los Angeles, Wharton Econometrics of Philadelphia, Pennsylvania, predicted an increase to 37 by 1990, which has already been attained, and thereafter to 71 departures in the year 2 000 and to 146 in 2 020.[149]

The other major landbridge is the trans-Siberian (TSL), whose operations are co-ordinated by Soyuztransit (SOTRA), an agency of the Ministry of Foreign Trade of the Soviet Union. The TSL presently carries about 10% of Japanese and South Korean trade to Europe on block trains of 104 TEU with an average transit time of 30-35 days. Due to the different railway gauges of the TSL and of western Europe, containers are normally transferred between railway wagons at Terespol, Poland, or between the TSL and vessels of the Latvian Shipping Company or United Baltic Corporation at Riga, Russia, for on-carriage to western European destinations. SOTRA recently changed from Leningrad to Riga not only to take advantage of lower port costs, but also because it wishes to consolidate cargoes at the latter port for transportation on the TSL from western Europe to the Soviet Union.[150]

The volume of traffic using the TSL has varied greatly in the 21 years since the first containers started moving between the Far East and Europe. From a high of 127 305 TEU in 1983, for instance, there has been a steady decline to 93 643 TEU in 1987. The four-year decrease has been attributed to factors which range from a lack of railway flatcars to facilities at the port of Vostochny, and from excessive delays to a lack of information concerning the location of goods.[151] Other factors which no doubt contributed to the decline in TSL traffic have been the low freight rates being offered by all-water carriers, and the appreciation of the Japanese yen.[152] The decrease in TSL traffic is considered temporary by Intercontainer, which co-ordinates TSL container movements in western Europe.[153] With completion of the second trans-Siberian line (the Baikal-Amur Magistral) in 1990,[154] and improvements in the port of Vostochny that permit it to handle 130 000 TEU annually,[155] not only will the capacity of the TSL be increased to around four times that of the original line, but also the possibility exists for substantially reducing transit times.

During September 1982, SOTRA decided to demonstrate the potential of the TSL and made the 11 000 km trip from the Far East port of Vostochny to Brest, Poland, in 12 days. For passengers trains, the same distance is covered regularly in just seven days. The transit time for freight trains should be compared with 24 days for the all-water route between Europe and the Far East,[156] which is approximately 22 000 km or twice the land transport distance. With reference to rates, the TSL costs 10-20%—and in some cases 30-40%—less than conference carriers. As a partial response, conference members grant reductions of between 10% and 30% to shippers of certain commodities who provide a regular volume of traffic.

The long-term impact of intermodal landbridge movements of containerized cargoes is difficult to accurately access, but numerous questions come to mind.

What impact will landbridges have on the fleet development programs and trading economics of Latin American and Caribbean countries? What organizational and operational changes are needed for Latin American and Caribbean shipping lines to make use of these landbridges? Could U.S. landbridge services include Latin American and Caribbean cargoes which now utilize the Panama Canal? Are these long-distance inland movements merely a prelude to the use of the North American continent as a landbridge between two ocean transport operations for Asia-Europe cargoes, such as that now offered jointly by American President Lines, Atlantic Container Line and Gulf Container Lines? Will the need for greater cost effectiveness, efficiency and economies of scale lead Latin American and Caribbean liner operators to establish regional consortia and construct post-PANAMAX vessels? Until these and many other questions are answered, liner shipping companies of this region will be compelled to operate in a commercial environment so disperse that they literally cannot tell from one day to the next what policies and plans are most appropriate.

3. International bridges and tunnels

For transportation, the 1990s could easily be referred to as the decade of international fixed links or connections between domestic transport systems. These links, via bridges or tunnels or a combination of both, have been completed or are under construction in many parts of the world. For example, work has begun in the English Channel to link France and the United Kingdom, and plans are being made for such a connection between Sweden and Denmark, to join the Scandinavian transport infrastructure with that of continental Europe by 1995.[157] Connections across the Bosporus and between Morocco and Spain are also being contemplated.[158]

A tunnel across the English Channel between the United Kingdom and France was an early dream. Feasibility studies were been carried out as early as 1802, and a certain amount of digging actually took place in 1874.[159] With increasing trade flows between the United Kingdom and continental Europe since 1 January 1973, when the United Kingdom became a member of the EEC, the role of that country's east coast ports has become dominant for both deep-sea and short-sea trades. This change in trade flows has resulted in a significant increase in the transshipment of United Kingdom goods via continental ports—especially those of Antwerp and Rotterdam—and a dynamic expansion in United Kingdom short-sea trades with Europe, both of which prepared the basis for the Channel Tunnel.

The Channel Tunnel is scheduled to be open for traffic on 15 May 1993, at an estimated total cost of US$8 200 million,[160] and many speculate on its impact for European deep-sea liner cargoes.[161] That impact will arise not only from the Tunnel itself but also from the network of routes foreseen by Intercontainer, which are to emanate from the French terminal at Lille and reach destinations as far away as Italy, Spain and parts of eastern Europe. Freightliner, the container handling operation of British Rail, does not see cargoes destined for the United Kingdom being discharged at either Antwerp or Rotterdam, as the distances are too short to justify rail transport.[162] The reverse probably will not happen either: unloading containers in the United Kingdom for movement by rail to continental European destinations. It is a foregone conclusion that the Channel Tunnel will change commercial routes and trade economics, but this does

not mean there will not be a role for both continental European and United Kingdom ports. Most likely, deep-sea liner operators will call at two or three continental ports before making a last call in the United Kingdom. The reason liner operators would offer a port rotation such as this is that it would give shippers an additional two or three days to get their cargoes to vessels in the United Kingdom via a Channel Tunnel rail movement, before these vessels depart on another voyage.

Of even greater interest for Latin American and Caribbean countries than the port rotation offered by liner shipping companies would be the changes in commercial relationships brought about by the Tunnel and related European railway network. Events such as the United Kingdom becoming a member of the EEC, the governments of France and the United Kingdom agreeing to build the Channel Tunnel, the Japanese using the TSL and becoming a major investor in the Tunnel,[163] the Narodny Bank of the Soviet Union investing in the tunnel,[164] and the plan to create a network of rail routes from the French terminal of the tunnel to numerous European destinations were undertaken independently but are not unrelated. Together they constitute a pattern that could result in, for instance, Eastern Europe and the Soviet Union playing an even greater role in Western European markets. With each change in transportation, trade relationships are permanently altered. Such alterations are an inevitable part of the Channel Tunnel, and their meaning for the competitiveness of Latin American and Caribbean goods in those markets must be determined.

In summary, whether one looks at interocean canals or the growing use of landbridges, both seem to have a similar impact on trade. They have brought about enormous changes in locational linkages between production and consumption, united geographically distant markets, required manufacturers to continually redefine production economies of scale and cost-effective distribution systems, led to the unitization of cargoes, modified the cost structure of transportation, influenced the maximum dimensions of vessels, and greatly reduced the volume of shipping services utilizing trade routes via Cape Horn and the Cape of Good Hope. For the future, it is not difficult to foresee that international fixed links such as the Channel Tunnel will permit liner vessel operators to call at fewer ports and intensify their use of land transport services. The new dimension given to land transport by intermodal landbridge services and fixed links should favour Latin American and Caribbean countries, as they will not have to pay high freight rates for vessels to call at many individual ports but instead can utilize highly efficient European and North American inland transport systems to reach desired destinations.

Chapter IV

STRUCTURAL CHANGES IN LATIN AMERICAN ECONOMIC POLICIES AND THEIR RELATIONS WITH THE LINER SHIPPING INDUSTRY

Operators of liner vessels, ports, trucks and railways have always had to evaluate the needs of other sectors when formulating their operating and investment strategies, but during a time of monetary and commercial uncertainty they must be especially receptive and make every effort to correctly interpret the ideas, changes, events, trends, circumstances and challenges facing the global economy and the international markets they serve. Some of the more important factors which must be considered to formulate appropriate strategies are (i) the monetary-commercial environment which gave rise to current macroeconomic policies and (ii) the role of the liner shipping industry therein.

A. THE MONETARY-COMMERCIAL ENVIRONMENT THAT GAVE RISE TO CURRENT MACROECONOMIC POLICIES

The microfoundations of macroeconomics are usually presented in generic terms of households, firms and governments, with evaluations directed toward their aggregate consumption, saving, investment activities. In this part, an effort will be made to look more closely at one specific microfoundation—the liner shipping industry—in order to identify the contributions it can make to the achievement of macroeconomic objectives. Latin American and Caribbean countries currently focus the objectives of their macroeconomic policies on expanding exports, increasing investment, creating employment opportunities and generating a positive trade balance.

To accomplish these objectives, numerous "transmission mechanisms", as they are referred to in macroeconomics, are utilized by each country. They include (i) monetary mechanisms which encompass the purchase and sale of financial instruments to control the stock of money in the economy, (ii) fiscal mechanisms that involve government taxation and spending to guide the demand for goods and savings as well as investments and (iii) general policy measures such as import tariffs, quantity and exchange restrictions, export financing, loans from international agencies and currency valuations. Each macroeconomic "transmission mechanism" permits a response to specific circumstances and they are usually employed jointly to achieve policy objectives. To understand how countries of this region arrived at export oriented macroeconomic policies and what they mean for the liner shipping industry, it is necessary to briefly consider the changes in Latin American and Caribbean economies which began with the oil crises.

It will be recalled that, in October 1973, the Organization of Petroleum Exporting Countries (OPEC) decided to raise the price of crude oil from US$1.88 to US$3.15 per barrel, and on 1 December of the same year to US$11.65 per barrel.[165] These price increases were followed by others, ultimately reaching US$34.00 per barrel in January 1982.[166] Even though the price of oil has since decreased from that high, and in September 1988 was only US$11.78 per barrel,[167] increases in the price of crude oil during the 1970s brought about a massive transfer of income from oil importing countries to oil exporters. As a consequence, the treasuries of OPEC member nations, as well as their accounts with banks in Europe and North America, began to swell with petrodollars from sales of crude oil. These banks found themselves in the position of having to find persons, enterprises and governments wishing to borrow money.

The economic environment for Latin America during the 1970s was one of positive economic growth and most opportune for undertaking desired national projects. As can be seen from table 8, with the exception of 1975, which had an annual economic growth rate of 3.6%, from 1971 to 1980 such rates remained between 4.5 and 7.7%. To better understand such rates for Latin America, a comparison with those of developed countries in the same table will disclose the strong growth environment in which countries of this region found themselves during each year of that period.

Table 8

RATE OF GROWTH IN REAL GROSS DOMESTIC PRODUCT, 1971-1985
(Percentage)

Year	World	Developed countries	Developing countries	Latin America and the Caribbean
1971	3.7	3.3	6.0	6.6
1972	5.2	5.0	5.6	6.7
1973	5.8	5.7	6.4	7.7
1974	1.8	0.7	6.6	7.0
1975	0.5	-0.4	4.0	3.6
1976	5.1	4.7	6.9	6.1
1977	4.1	3.7	5.7	4.5
1978	4.0	4.1	3.6	4.5
1979	3.5	3.2	4.5	6.6
1980	2.0	1.3	4.4	5.7
1981	1.6	1.5	2.2	-0.2
1982	-	-0.2	0.9	-1.2
1983	2.2	2.6	0.5	-2.5
1984	4.1	4.5	2.8	3.5
1985	2.8	3.1	1.7	2.5

Source: International Monetary Fund, Estadísticas Financieras Internacionales, Anuario 1987, pp. 159 a 161.
Note: In the column World in 1982, "-" means that the figure is zero, close to zero or that data were not available.

From the viewpoint of the international banking community with excess liquidity, countries of this region were extremely good candidates for loans; that is, they had higher economic growth rates during the 1971-1980 period than did their developed counterparts, they were relatively unaffected by the world recession of 1974-1975 and the prices of their traditional primary product exports had risen with increases in the price of crude oil. In this high-growth environment, Latin American countries began to adopt expansive economic policies. These policies permitted them to supplement domestic savings with funds obtained from external borrowing and to invest in capital improvement projects, thereby maintaining and even raising their rates of economic growth.

As can be seen from table 9, the global debt of Latin America and the Caribbean increased US$157 247.3 million or 64.9% during a seven-year period. Preliminary estimates prepared by ECLAC show the global debt has increased to approximately to US$420 000 million in 1987, or a 5.3% increase over 1986.

Table 9

GLOBAL DEBT OF LATIN AMERICA AND THE CARIBBEAN, 1980-1986
(Millions of US$ and percentages)

Year	Amount	Increment over prior period
1980	242 176.3	--
1981	295 501.6	22.0
1982	332 029.2	12.4
1983	359 650.3	8.3
1984	376 902.4	4.8
1985	386 437.6	2.5
1986	399 423.6	3.4

Source: World Bank, World Debt Tables, "External Debt of Developing Countries," p. 18, 1987-1988 edition, vol. 1, Washington, D.C.

The above tables show quite clearly that, in spite of macroeconomic policies focused on expanding exports and limiting imports, the overall indebtedness of Latin American and Caribbean countries has continued to grow since the onset of the debt crises in 1982, although the rate of increase has lessened. The large amount of external financing flowing to countries of this region during the 1970s was reversed in 1982. Between that year and 1985 they transferred to creditors more than US$26 000 million each year, which represents more than 25% of their exports. Indeed, for the period 1983-1985, the average increase in real resource transfers from countries of this region to creditors increased by 5.3% of real gross domestic product (GDP). These transfers can be closely correlated to the average decrease of investment in the region, which amounted to 5.8% of GDP. This means that Latin American and Caribbean countries are postponing essential investments that are needed to generate new economic activities that can contribute to the servicing of their external debts.

Since 1870 the international monetary system has gone from the gold standard, in which the external sector of national economies was paramount, to internal sector domination brought about by the experience of the depression of 1929 and crystallized in the Bretton Woods Agreement of 1944 and, finally, to a resurgence of the external sector. However, supremacy of the external sector today is more far-reaching than earlier shifts in economic orientation: it is a fundamental and permanent transformation in the nature and scope of national economic activities. This transformation is due not only to the oil shock and debt crises but also to the internationalization of markets and trade patterns. The era of relatively isolated national economies is fading as enterprises and governments search globally for market-access advantages and least-cost inputs. This search has led to, for instance, the employment of construction workers from the Indian subcontinent in the Mid-East Gulf, Filipino crews on Norwegian vessels, registration of U.S. vessels in Liberia, and the assembly of Japanese electronic products in Mexico for the North American market. The implications of such changes are profound not only for buyers and sellers of liner shipping services but also for countries which have and do not have market-access advantages and low-cost inputs.

B. THE ROLE OF THE LINER SHIPPING INDUSTRY IN MACROECONOMIC POLICIES

Liner shipping is accorded, at best, only indirect attention in the formulation of national macroeconomic policies. The reason for this is that perfect ports and carriers are almost invisible; that is, if they are efficient, inexpensive and deliver goods on time and without damage they are not seen. On the other hand, they come into view when cargoes are damaged, costs are too high or delivery is delayed. With the burden of the external debt on many countries of this region, the objectives of macroeconomic policies are largely focused on expanding exports, increasing investments and generating employment, and the earlier mentioned "transmission mechanisms" have come to the forefront. As the liner shipping industry is linked by a multitude of ties to other sectors of the economy, this part will consider how that industry can strengthen the functioning of such "transmission mechanisms."

1. The "F" in CIF

That the demand for shipping services is totally dependent on the demand for the products of other sectors is probably the first commandment of ocean transport, which vessel operators have had to deal with since time immemorial. The generally accepted corollary to this commandment is that shipping lines have relatively little influence over the demand for those products. Nonetheless, along with the costs of production and insurance, transport costs are added to the delivered price of goods. Transport costs include not only freight rates paid by shippers but also those which arise from vessel technologies, routings and frequencies, as the latter contribute directly to the gain or loss of market opportunities for cargo owners. If transport costs are excessive, whether through unnecessarily high freight rates, or inappropriate vessel technologies, routings or frequencies, they will reduce the competitiveness of goods in world markets, limit sales, decrease foreign exchange earnings and diminish the effectiveness of macroeconomic policies.

Due to the inverse relation between foreign exchange earnings from exports and transport costs, if the latter are unnecessarily high they can weaken the effectiveness of "transmission mechanisms", or even render them impotent and frustrate macroeconomic goals. It is often considered that subsidies can compensate for excess transport costs, and this would be true if the national economy were relatively isolated and all direct and indirect expenses were paid in the national currency. From information provided by the Latin American Integration Association (ALADI), in 1983 the trade relations of its 11 member countries generated US$11 587 million in ocean freights. Based upon an earlier analysis,[168] it can be estimated that even with Latin American and Caribbean shipping lines earning a substantial proportion of those freights (as an example, see Brazil in the following paragraphs), the net foreign exchange effect of an investment in liner shipping ranges from 10% to 35% of gross revenues depending on a variety of factors. Thus, supposing average gross revenues of 20%, of which 30% corresponds to net foreign exchange earnings, it can be estimated that these countries probably reduced their outflows of foreign exchange by US$11 587 million x 20% x 30%, or approximately US$700 million.

The basis for this estimate can be found in the large number of vessel, cargo and crew expenses in foreign ports, the need to import equipment and spare parts produced outside the region, the chartering of foreign vessels, and the repair and maintenance of vessels in extraregional shipyards, all of which must be paid in foreign exchange. For example, during 1986, Lloyd Brasileiro time-chartered 79 foreign vessels and voyage-chartered another 141, at a cost of US$75.4 million,[169] while all national shipping lines of Brazil together incurred expenses of US$580.3 million in the same year for similar purposes.[170] In 1987, chartering expenses for Brazilian ship operators increased to approximately US$587 million.[171] According to the National Superintendency of the Merchant Marine (SUNAMAM), between January and July of 1988 total chartering expenses were US$387 million, which was an increase of 21.2% over the US$319.37 million spent during the same period in 1987,[172] and the figure could reach US$700 million for the entire year.[173] Notwithstanding such large amounts of foreign exchange that must be paid outside the region, vessel operators, ports and all those in the distribution chain can contribute to and strengthen the impact of macroeconomic "transmission mechanisms" through the "support mechanism" of cost control, as well as by selecting appropriate technologies, routes and frequencies.

The reasoning that there exists an inverse relation between foreign exchange earnings and transport costs is correct, but the magnitude of the latter must be understood to formulate appropriate policies for the liner shipping industry. With only minor exceptions, liner freight rates are ad valorem, calculated on the basis of the value of the goods carried. Further, liner conferences offer lower rates for nontraditional exports and imports in order to promote their transportation, as well as higher rates for dangerous, refrigerated and other cargoes requiring special care. Notwithstanding such diversity in the calculation of freight rates, from a survey of 174 Chilean exporters during 1987 it was determined that the freight rates charged by conference members for the carriage of their manufactured goods to the Far East reached an average of 21% of the CIF (cost, insurance and freight) value, while 42% by weight of those cargoes incurred rates of over 40% of the CIF value.[174] Even though cargo owners of all nations must pay transport costs to place their goods in world

markets, if those costs are unnecessarily high they constitute a leakage from the foreign exchange earnings a country would otherwise receive and a restraint on national investment spending.

2. Ports

As approximately 70-75% of liner freight rates are utilized for the payment of port and land transport expenses,[175] those activities represent an important focal point for the "support mechanism" of cost control. A closer look at these "shore-based costs" by the Government of New Zealand disclosed that 36.7%, or about half of the total, are port related; that is, stevedoring and terminal operations account for 29.7% and wharfage 7%.[176] The equal division of "shore-based costs" between inland distribution and ports is not unique to New Zealand, as a similar distribution of costs was found by P&OCL in its Europe-Far East service.[177]

Most Latin American and Caribbean ports have an acute labour problem in four interrelated areas—surplus, high remuneration, low productivity and lack of interchangeability of tasks—which increases the cost of imports and exports. This problem has reached such a magnitude that many port directors ask themselves if they are a commercial entity or one dedicated to providing work for the unemployed of the surrounding city.[178] One port director mentioned that he has 4 600 stevedores receiving wages but needs only 1 200. Another emphasized that he was required to find work for an additional 900 persons even though he already had a surplus of port labour.

Excess port labour is not unique to this region. As instances of this, Port Louis Harbour, Mauritius, has found that it requires only 410 port workers, but due to rigid job classifications it must permanently employ 997 men. The port of Southampton, United Kingdom, negotiated overall manning reductions of 900 persons to bring its total labour force down to 1 500.[179]

The cost of labour as a percentage of overall port operating expenses has been calculated by a number of port authorities. Due to the variety of generally accepted accounting practices which might be utilized for items such as depreciation, comparisons among ports must be treated with caution. Nonetheless, at the Fifteenth Conference of the International Association of Ports and Harbors, held in Seoul, Korea, in 1979, a group of port specialists headed by the executive director for the port of Houston estimated that labour costs for a container terminal should reach only 30% of overall operating expenses.[180] It is instructive to note that, in the port of Acajutla, El Salvador, they reach 76% of operating expenses, and in the port of Callao, Peru, they are 80%.[181] Container terminals in some developed countries also spend relatively large amounts on labour, as for example Australia, where this item accounts for more than 50% of all port costs.[182]

Most ports of this region operate in a quasi-monopoly environment, with captive shippers, consignees and hinterlands. In contrast, liner vessel operators and the exporters and importers who must use their services face fierce international competition. Many port authorities of this region must comply with legislation requiring that each stevedore be paid a minimum number of days

per month, whether worked or not.[183] Others find they have been transformed into a "no-man's-land" by unions that are overly strong or excessive in number, thereby reducing cargo handling efficiency and creating an incentive to transship cargoes at the ports of neighboring countries.[184] A noncompetitive port environment translates into higher ocean-liner rates, reduced competitiveness of exports in world markets, higher prices for imports, and a decrease in the overall volume of goods liner operators might transport. Ports cannot be viewed as if they were separate from the competitive environment in which ocean carriers, exporters and importers must operate. The need to create a competitive environment between ports and between terminals in the same port can no longer be avoided.

According to the Business Council of Australia, ocean-liner rates for that country could be reduced by approximately US$150 million if its ports were as productive as those of their industrial neighbors. Australian shippers contend that such rates cost the country's economy an estimated US$1 500 million per year. The source of the port problem in Australia is the same for many of those in this region, that is, the high cost of port labour, its low productivity and the lack of competition between ports and between terminal operators in the same port. In an effort to solve these problems, port workers' unions and terminal operating companies in Australia have begun to establish co-operatives in a limited but growing number of ports. These co-operatives have reduced the costs and times vessels spend in ports without reducing wages or ignoring established working conditions. Even though it was agreed that any benefits would be passed on to shipping lines, it was found that workers were performing the tasks with enthusiasm due to their involvement in such companies.[185] A similar co-operative system is utilized at the Mexican port of Tampico and has been suggested for the ports of Brazil by various commercial interests of that country.[186]

Another problem faced by liner shipping companies is the time their vessels sit idle in ports. It will be remembered that general cargo vessels spend around 50% of their time in ports. With the arrival of containerization, total vessel time in port was reduced to 22-28%, since capital-intensive loading and discharge systems for containerships are utilized. Even with this decrease, there are many periods of total inactivity when vessels wait for clearance (doctors, inspectors, fumigators, etc.), longshoremen, container handling equipment and cranes, and Customs officers, as well as for the resolution of labour disputes and the passing of inclement weather. A Swedish consulting firm has estimated that vessel idle time at berths is between 7 and 15% of total port time, or 25 to 40 days per year.[187] To place the 40 day time period in perspective, it is sufficient for a round voyage between Valparaiso and the U.S. east coast, with approximately seven ports of call. In other words, the earning capacity of vessels in that trade for one voyage per year is needlessly lost.

The president of the national shipowners' association (ANA) of Chile recently indicated that its members had good earnings for 1987 due to an improvement in the national economy, a realistic exchange rate, the simplification, reduction and elimination of many bureaucratic foreign-trade requirements, and the extraordinary increase in efficiency of their ports.[188] In contrast, a spokesman for the national shipowners' association of Peru (AAP), indicated that the ports of his country are among the most expensive in the world.[189] According to a joint news release of the AAP, the maritime association of Peru (AMP)

and the Peruvian association of shipping agents (APAM), Peru's principal port of Callao is 3.5 times more expensive than Guayaquil and seven times more than Buenaventura.[190] During the latter part of 1986, the national shipping line of Brazil, Lloyd Brasileiro, discontinued its roll-on/roll-off service to Montevideo because labour unions at that port required the employment of 20 stevedores each eight-hour shift, while the same ships in the port of Buenos Aires utilize only four.[191] Once the cost of low productivity, wages for persons not working, and excess wages of those working are taken into account, one can begin to translate the port labour problem into lost exports, reduced foreign exchange earnings and postponed capital investments.

In response to the labour problem, certain port authorities of this region have begun to consider the privatization of terminals, or their operation by both the public and private sectors.[192] Others have gone a step further and offered early retirement benefits to longshoremen and purchased their work permits through voluntary severance schemes.[193] Such efforts are being made not only to reduce the cost of labour and increase its productivity, but also to promote private-sector investments in ports. The union of shipping enterprises (SEN) of Brazil recently estimated that, due to inefficiencies in loading and discharging ships at Brazilian ports during 1987, approximately US$300 million were paid to the operators of vessel which suffered delays. The SEN recommended that international trade activities of Brazil be conducted through six ports instead of 40. This would permit needed investments to be channelled toward specific ports, and efficient operating systems to be developed.[194]

3. Vessels

Shipping lines can also contribute to a strengthening of macroeconomic "transmission mechanisms." The labour agreements under which national and private liner shipping companies of this region operate are a fruitful source of information concerning possible avenues which might be pursued to strengthen macroeconomic goals through the "support mechanism" of cost control. Certain liner shipping companies of this region have ships that can be operated safely and efficiently with crews of 20, for instance, but are nonetheless required by union agreements to employ 34. In many countries, the number of crew members is determined by the armed forces who wish to maintain pools of trained personnel in case of national emergency, or by legal dispositions adopted 25-30 years ago.[195] One liner operator finds itself bound by a historical union agreement that requires it not only to pay crew wages which are internationally competitive and in U.S. dollars, but also to differentiate salaries according to individual routes served. Another liner company finds itself with a labour agreement which grants crew members one day free with pay, in addition to vacation, for each day aboard ship. This problem is not unique to Latin American and the Caribbean, since the shipping lines of Finland, for instance, are required to operate with slightly more than two persons for each position on some of its cargo ferries.[196]

In an effort to ensure that national shipping lines more fully contribute to macroeconomic policies, the governments of Argentina, Brazil and Chile, among others, have begun to consider their privatization. With regard to ELMA, the national shipping line of Argentina, the government is studying proposals from

foreign shipping lines as well as the offer of five national ship operators.[197] The initiative to privatize national shipping lines is not limited to Latin American and the Caribbean. For example, the Government of New Zealand is in the process of selling the Shipping Corporation of New Zealand, and one of the six offers received is from Lloyd Brasileiro.[198]

The discussions of those involved in these matters seem to focus on three recurring themes -the commercial aspects of shipping, national defence and economic security. The policies and plans of most countries for their merchant fleets customarily require that national lines be structured so as to comply with many aspects of these three areas. There is a trend, however, in industrialized countries to utilize different means to satisfy each individually. In the U.S., for instance, national defence requirements are met with approximately 130 vessels of the Military Sealift Command and with its National Defense Reserve Fleet,[199] while economic security needs are considered adequately covered by vessels which are nationally owned and registered either in the U.S. or in other countries. In theory, this would free its merchant fleet from numerous nontrade obligations and permit it to better respond to the commercial aspects of shipping.

Other fruitful areas of "support mechanisms" for liner operators would be the selection of appropriate vessel technologies and the reduction of shoreside administrative costs. The selection of vessel technologies is a decision which directly influences the earning capacity of a shipping company for 20 years or more, and must be made with a strategic understanding of the trades one seeks to serve. For example, one major liner operator of this region has found that between the first semester of 1986 and 1987 its freight earnings had fallen from US$210 to US$120 million or 42.8%. This decrease in earnings was due not only to the freedom which liner operators were given to participate in the export trades of that country but also to the obsolete nature of its vessels, even though the average age of its fleet is only nine years.[200] With regard to administrative costs, one successful Latin American liner company carefully studied the functions carried out by shoreside personnel and found that, due to duplications in activities, 10% could be eliminated at its head office and almost 50% at its offices in foreign countries.[201]

Of the many problems involved in the operation of a liner shipping company, the most important relate to cargoes—types, volumes, units of presentation for carriage, origins and destinations, hauls, backhauls, and many others. If national cargo volumes are small and shippers demand a frequent service to a wide range of ports, a cost-effective operation might require complementary cargoes from other countries on the trade route so that partially loaded voyages could be avoided. With new levels of cost-effective operation and productivity resulting from the utilization of very large vessels and modern technologies, as well as "just-in-time" deliveries required by an ever growing number of shippers and consignees, the volume of cargoes required for the establishment of an efficient and economical service can be substantial.

In addition to cargo reservation regimes, numerous other measures such as combining parallel operations, contract carriage arrangements, slot-chartering, and carrying third-country cargoes ("cross trading") are used to obtain cargo volumes sufficient so that frequencies desired by shippers and economies of

scale required by the trade can be offered. To enlarge its cargo base, Transportación Marítima Mexicana (TMM), for instance, carries an increasing portion of the Asia/U.S. trade in its service between the west coasts of Mexico and the U.S., and numerous ports in Asia. The president of TMM indicated that its greatest growth in cargo volumes had been those carried between the Far East and the U.S. west coast. During 1984, TMM earned US$138.9 million of freight income from its liner operations (39.3% more than the previous year), of which US$67.7 million or 48.7% was earned as a cross trader carrying cargoes in its routes for other countries.[202] TMM is not the only cross trader in U.S. foreign commerce, as data compiled by the Federal Maritime Commission for 1987 indicate that approximately 54% of total U.S. liner traffic is carried by cross traders.

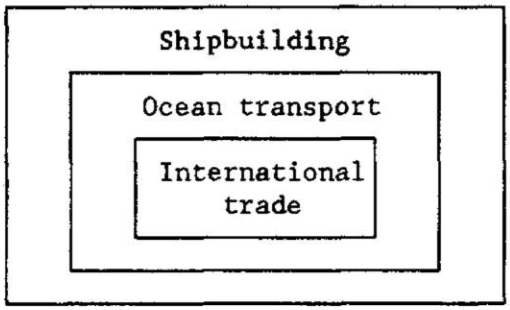
In a similar manner the national shipping line of Argentina, ELMA, takes advantage of SUNAMAM Resolution 8364 (evaluated in greater detail in subsequent paragraphs), which permits nonconference vessels to engage in the export trades of Brazil, and for 1987 approximately 23.9% of all cargoes transported by ELMA were between Brazil and third countries. During the first six months of 1988 that amount had increased to 25%.[203] Thus, combining cross trading with national services can provide liner shipping companies with a valuable source of both income and experience.

During 1986 the state-owned shipping line of Chile, EMPREMAR, discontinued its service between countries on the west coast of South America and the U.S. east coast when the Government of Peru, by means of Supreme Decree 9/86, increased its reservation regime to include all national cargoes. This increase was made in order to provide a broader national cargo base for the Peruvian national shipping line, CPV. Until that time, EMPREMAR had relied on Peruvian cargoes to obtain a large enough load factor to economically justify its service. Before the Peruvian decree was repealed in early 1988, EMPREMAR had negotiated a contract with the national copper company of Chile, CODELCO, to transport approximately 50% of the latter's products to the U.S., and during November 1987 had reestablished a service every 25 days to that country with two semicontainer vessels of 338 TEU each.[204]

4. Cargo reservation

Most European countries adopted cargo reservation regimes as early as the 15th century to facilitate the establishment of domestic fleets through the transportation of national cargoes.[205] Latin American countries began to adopt such regimes to accomplish comparable objectives in the years between the end of the Second World War and the start of the container revolution. What all cargo reservation regimes have in common, whether of industrialized or developing countries, is that they seek to direct the demand for ocean transport services to national carriers. The differences between cargo reservations regimes are largely centered on the cargoes or trades to which they are applicable. For example, numerous EEC-member states have eliminated such regimes in their deep-sea trades, but continue to reserve for national lines their domestic trade flows as well as those with island territories and former colonies.[206] The U.S. reserves for national vessels its coastal, military and economic assistance cargoes.[207]

The cargo reservation regimes of both developed and developing countries have been subject to increasing criticism from a variety of sources. The most outspoken are cargo owners, who claim that they increase freight rates and reduce the competitiveness of their goods in international markets. Probably the clearest example of the impact of a nation's export-oriented macroeconomic policy on its cargo reservation regime is that of Brazil. It will be recalled that, as early as 1958, the Government of Brazil adopted legislation which contemplated the establishment of a regulatory body to ensure the participation of Brazilian vessels in its deep-sea trades. These early dispositions were complemented by Decree Law 666 of 2 July 1969 and Decree Law 667 of the same month and year, which formally adopted a cargo reservation regime, created liner conferences for Brazilian trades and established SUNAMAM to regulate ocean transport. The cargo reservation regime of Brazil, except for bilateral agreements, applies the cargo division formula of 40% for importing and exporting countries and 20% for third country carriers (40/40/20). For a period of approximately 15 years, its national shipbuilding, ocean transport and international trade policies were economically interdependent, as show in the following diagram:

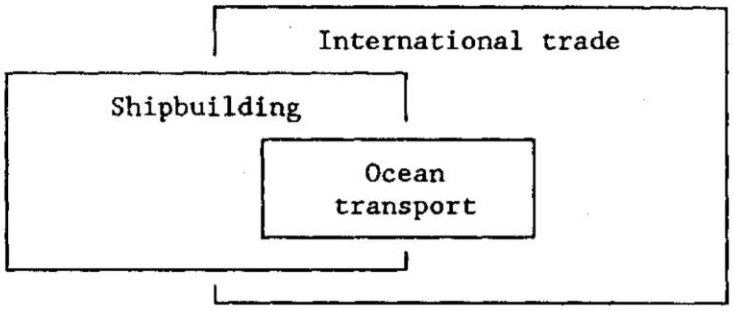


In this environment, ocean carriers were beneficiaries of the directed demand of exporters and importers, and shipbuilders received carriers' demands for vessels. As a result, a series of five-year shipbuilding programs were undertaken and shipping lines were established in an effort to satisfy at least part of the demand which arose from Brazil's international trade. During the period 1967-1984, tonnages of Brazilian international trade carried by national ship operators rose from 10% to 50%. The fundamental question to be dealt with here is not whether the policy of economic interdependence was correct, as it most certainly was under the macroeconomic circumstances of that time, but whether the new macroeconomic policies adopted by Brazil following the first debt crisis in mid-1982, whose part related to shipping is embodied in SUNAMAM Resolution 8364 of 30 July 1984, provide a useful experience for other countries of this region.

With the onset of the debt crises in mid-1982, Brazil had an external debt of US$91 304 million and by the end of 1987 it increased to about US$116 900 million.[208] In this context, the Government of Brazil sought to expand exports in order to earn sufficient foreign exchange for payment of external indebtedness and for investments in productive capacity, as well as to respond to the claims of exporters that the high cost of liner shipping was limiting the types and volumes of goods they could sell in international markets.[209] Resolution

8364 authorizes the participation of nonconference vessels—whether belonging to domestic or to foreign operators—in its export trades to Europe and the U.S. The purpose of Resolution 8364 was to provide Brazilian exporters with another ocean transport option, lower liner shipping costs through the insertion of a new competitive element in two important trades, and stimulate exports.[210]

This resolution partially eliminated the interdependent relation between international trade, on the one hand, and shipbuilding and ocean transport on the other. Of even greater importance for transport policy makers, however, is the implicit declaration of international trade's supremacy over the other two elements. This change in policy is shown schematically as follows:



The impact of SUNAMAM Resolution 8364 can be appreciated from the distribution of cargoes transported. During 1984, the international trade of Brazil transported by ocean carriers amounted to 182 million tons, of which 78 million tons or 42.9% were carried by national ship operators and 104 million tons or 57.1% by foreign operators. By the first half of 1985, foreign shipping lines were transporting 90% of exports and 52% of imports.[211] For all of 1985, the international commercial exchanges of Brazil generated US$1 912.8 million in ocean freights for the carriage of general cargoes, of which US$612.5 million or 32% were captured by shipping lines of that country.[212] In the period from 1977 to 1986, the participation of Brazilian lines in the freight revenue generated by the international carriage of general cargoes was reduced from 44.3% to 31.6%.[213]

It is most difficult to determine if Resolution 8364 contributed to an expansion in the types and volumes of exports. There are a multitude of factors that can encourage expansion, contraction and alteration of a country's exports, such as exchange rate modifications, changes in consumption patterns, government subsidies and market access agreements. Notwithstanding the diversity of such factors, the resolution's impact on freight rates was immediate. The superintendent of SUNAMAM declared that the average freight rates of conference carriers had been reduced by about 30%.[214] With reference to cacao, which was not included in the resolution, the president of the Brazilian Association of Cacao Exporters (ABEC) indicated in February 1987 that its members attempt to sell their products only on free-on-board (FOB) conditions in order to allow purchasers a choice between conference and nonconference carriers, and 90% is exported under those terms.[215] The ABEC has petitioned SUNAMAM to authorize the participation of nonconference carriers in the transportation of cacao.[216]

The experience of Colombia is similar to that of Brazil, although more recent. On 25 January 1988, Colombia adopted Decree Law 143 which confirms the provisions of earlier regimes to the extent that 50% of imports are reserved for national vessels, but permits the carriage of import "Plan Vallejo" cargoes —capital goods and raw materials which will be utilized to produce or be incorporated into manufactures for export—by any vessel.[217] With the exception of coffee, 50% of which is reserved for national vessels, all other exports may be carried by the vessels of other nations. Notwithstanding these provisions, national shipowners and operators have preference if they offer the same service conditions and freight rates. Control of this law is after the fact—shipowners and operators must file a complaint with the national maritime authority if cargo owners use a foreign shipping lines despite the offer of similar service conditions and freight rates by national shipping companies. Decree Law 143 was negotiated over a period of 18 months between representatives of the Government, shippers and national vessel operators and the latter are, according to the Colombian Council of Transport Users (CUTMA), in agreement with it.

In summary, faced with enormous external indebtedness, international monetary and commercial uncertainty, and an interdependent global economy, Latin American and Caribbean countries have sought to reformulate their macroeconomic policies in an effort to earn sufficient foreign exchange from exports so that they might make needed capital investments and create employment opportunities. Due to the dominance of the external sector and the increasing exposure of Latin America and the Caribbean to a global economy, the costs of transporting their products to numerous geographically separate and yet related international markets has come under growing scrutiny. Liner vessel operators can make an essential and important contribution to the achievement of macroeconomic policies through their "support mechanisms" of (i) cost control, (ii) selecting the most appropriate transport, administrative and cargo-handling technologies, and (iii) offering the routes and frequencies desired by shippers and consignees.

Chapter V

THE NEED FOR A RESPONSE BY LATIN AMERICA AND THE CARIBBEAN TO ENSURE THE COMPETITIVENESS OF THEIR EXPORTS

At the beginning of this document, it was stressed that transportation is one element within a vast range of services that support international trade. Due to the introduction of containers in the liner shipping industry, a series of changes have been observed that include the growing integration of those elements in the transportation chain, the substitution of land transportation for ocean carriage, and the establishment of intermodal distribution systems. These changes combine with the formation of trading blocs and with an increasing concentration of inhabitants, industrial capacity and purchasing power in the northern hemisphere to create a new reality in the international liner shipping industry. Currently, this industry functions in an economic environment in which the external sector of the Latin American and Caribbean countries predominates over their internal sectors and in which, due to the weakening of liner conferences and cargo reservation regimes, traditional institutions cannot ensure carriers a stable profit.

A new liner shipping industry policy that is responsive to these changes must meet national needs with respect to trade and to the industry itself, both of which form an important part of the macroeconomic and sectoral policies of each country. The most significant linkages between these two fields are freight rates, routes, technologies and frequencies offered by carriers. These four elements are the tools that the industry can use to fulfill its purposes and to improve and strengthen the transmission mechanisms of national macroeconomic policies. Correctly focussed, shipping services can add value to this region's exports and reduce the costs of its imports. For example, services offering adequate freight rates, routes, technologies and frequencies must provide consignees—among other advantages—with the opportunity to reduce inventories, thereby freeing part of their investments for use in other activities.

In Latin America and the Caribbean, the liner shipping industry—which has come to include not only vessels and ports but also inland transportation and ancillary services such as Customs and computerized information systems—has entered a decisive phase. The policies of the general cargo era, which were effective for more than 25 years, have to be adapted to the commercial and operational realities that the industry faces today. In order for the countries of this region to respond to the demands of their insertion in a world economy and compete in international markets, the frequencies and routes offered by shipping companies must be stable in the long term. Likewise, ocean freight rates and other related transportation costs must be stable and, at the same

time, as low as possible to ensure the broadest opportunities for competitiveness of exports and to minimize the prices of imports.

During a period of structural changes in transportation, trade relations and macroeconomic goals, the objectives of a policy for the liner shipping industry must not only reflect trade needs and strengthen its overall objectives, but also ensure the countries of the region a commercially viable and lasting presence in the industry itself. In order to formulate a policy of this sort, it is necessary to consider the policies of the liner shipping industry itself, the role of governments in the industry, and the international, regional and national aspects of a policy for co-operation on shipping issues among the countries of Latin America and the Caribbean.

A. THE POLICIES OF THE LINER SHIPPING INDUSTRY

Historically, the policies of the shipping industry have been established independently by country, mode of transportation, type of cargo and—at times—route. Such a procedure was adequate for the initial development of trade and transport activities, but the structural changes evaluated in chapters I to IV of this document have radically transformed the setting of the industry. In order to identify the factors that must be considered by the Latin American and Caribbean countries when modifying their current policies, it is necessary to evaluate the assumptions that formed the basis of the policies the countries adopted between 1960 and 1980, and the elements that should be taken into consideration with a view to formulating a policy of co-operation for the last years of this century.

1. The assumptions of policies adopted between 1960 and 1980

Between 1960 and 1980, the countries of the region based their shipping policies on the following four assumptions: the dominant role of current institutions, including liner conferences and national cargo reservation regimes; strong opposition by diverse interest groups in the region to applying certain technologies, principally containers; the belief that the independent functioning of each means of transportation and support activity would not increase the total cost of service; and the conviction that the industrialized countries would remain dependent on the region's exports. These assumptions were shared in each country by the government and by carriers, exporters and labour unions.

With the introduction of containerization, liner shipping companies lost control over the manipulation and stowage of general cargo, since these operations are carried out at factories and interior cargo terminals. With the growing and irreversible use of containers in the cargo throughput of this region, there will be strong pressure from exporters and importers to gradually impose the same operational guidelines. On routes where containers are used exclusively, liner shipping companies transport, stow and handle these units rather than the cargo they contain, thereby making liner services interchangeable. In this context, the liner conferences have much less control over shipping companies and shippers than they had during the times of general cargo ships, and non-conference liner operators have acquired an appreciable part of the trade on

important routes.[218] The supremacy of macroeconomic policies and the need to service the external debt of Latin America have created enormous incentives to use lower-cost shipping services in order to increase exports and receipts of foreign exchange. This has been possible owing to the wide availability of interchangeable liner services that can go anywhere there are opportunities to do business, and that are capable of meeting the needs of exporters by providing better quality and more efficient services than national lines. In some countries of the region, then, there is a clear trend toward subordinating cargo reservation regimes to the needs of the external sector.

The advantages of containers have reached the point that no one any longer disputes the need to use them to transport the region's general cargo. The integration of transportation services from origin to destination with other support activities has shown, through reductions in cost and time, that exporters need those distribution systems in order to compete successfully in international markets. Nonetheless, there persists a fragmentation of most transport operations in Latin American and Caribbean trades, so that when cargo is transferred among modes of transportation or other activities in the distribution chain, it is often necessary to change the transport unit and documentation, as well as to pay storage charges and to invest in cargo handling equipment. These costs, derived from fragmented operations, must be added to carriers' freight charges. However, the greatest costs come from loss of time while carrying out unnecessary activities during the transport of goods between origin and destination. Fragmentation of transport operations is also a stumbling block to gaining an overview of the industry and greatly impedes the formulation of a coherent policy, whether by individual countries or in an attempt at regional co-operation.

In terms of land transport, ports and other services related to international transport, most governments have based their policies on semi-isolated and highly protected economies. This may have been an appropriate criterion before the first oil crisis of October 1973, when the external sector was subordinated to the internal sector. Since then, however, the countries of this region have been increasingly exposed to a world economy with ever more demanding international markets. The foreign debt crisis of Latin America and, particularly, the problems of obtaining external investments have strengthened the role of foreign trade in financing the economic growth of each country. Traditionally, the costs of domestic land transport and of ports were considered to be purely national concerns. However, with the changes in the world economy, those costs—and many others—have come to have a direct impact of enormous importance on foreign trade. That impact causes a loss of competitiveness of a nation's foreign trade, since the price at which its goods can be placed in external markets increases with all the costs of both national and international movements from origin to destination.

2. Elements of a policy that would permit the countries of this region to reconcile their interests in the final years of this century

The evolution of the liner shipping industry and of the economies of the region has combined to create a reality different from that of the 1960-1980 period,

which requires the formulation of new policies appropriate for today's industry and capable of ensuring its survival tomorrow. For example, the preeminence of the external sector and the need for national products to compete in demanding international markets are some of the elements that have made the interests of shippers predominate over those of the liner shipping industry. In order to respond to this reality, an industry policy must consider the following elements: the internationalization of the shipping industry; the aggregate impact of individual decisions by governments, carriers and unions on all the countries of the region; the relationship between macroeconomic policy and liner shipping; the geographic spread of partial transport deregulation; and intermodalism and changes in the geographic dimensions of transport and market parameters.

a) Internationalization of the liner shipping industry

With the goal of reducing production costs, a growing number of manufacturers in industrialized countries have constructed factories in developing countries. These manufacturers produce their components in several places and assemble them at or relatively close to the final destination points in locations that present dynamic comparative advantages. Operations of this sort are carried out in many countries of Latin America and the Caribbean. For example, due to Mexico's lower labour costs and its easy access to the United States of America, such activities were initiated in the north of that country around 1965. The growth in the number of factories has been extraordinary, doubling in number between 1982 and 1987 to around 1 250, which now provide employment to approximately 300 000 people. Construction of an addition 250 factories was proposed for 1988.[219]

Producers in industrialized countries have internationalized their activities for economic reasons, and carriers have done the same for similar reasons. The widespread use of new technologies, the establishment of intermodal networks, and ship overcapacity, problems that have confronted shipping companies for quite some time, have generated enormous pressures to reduce operating costs by employing crews and flags of lesser cost and to limit risks by creating consortia, intermodal enterprises, space-charter agreements and others. The growing utilization of those technologies and operating systems is permanent rather than transitory, and constitutes a new economic base for the liner shipping industry. This base is composed of all the low-cost elements that shipowners can incorporate into their operations, such as ships and containers constructed in Asian shipyards, crews from developing countries, the "flagging-out" of ships to open-registry countries, and intermodal networks. If the total elimination of excess vessel capacity were assumed, the new base would not be affected because the technologies and operating systems that increase efficiency or reduce costs can be considered permanent until something better appears to replace it.

b) The regional consequences of individual decisions

The fragmentation of liner shipping industry policies during the period 1960-1980 caused the various activities that support the foreign trade of the Latin American and Caribbean countries to develop in isolation. Each participant in these activities tended to think that its own was the most important

and to work individually and not jointly with the others in the distribution chain. The lack of a common understanding among those participants and of harmony among their activities increased the cost of each. This situation can be seen in the measures adopted by governments, labour unions and carriers—whether from the same country or from the entire region—which may make sense individually but are often mutually contradictory when analyzed from an overall perspective.

Before containerization, the lack of co-ordination among foreign trade activities was accepted due to the nature of available technologies and the operating systems used. There was an enormous range of units in which cargo was presented for transportation, each of which had its own handling technology, documentation and operating demands. Each port had its warehouse that acted as a "waiting room" or "burying place" for both imports and exports, and Customs applied its legal procedures as if it were a sovereign state. However, the use of containers, computers and satellite communications has created a base upon which all the activities of the distribution chain can be co-ordinated. The application of macroeconomic policies stressing the promotion of exports demands that such co-ordination be carried out as a means to strengthen the ability of the products involved to compete in international markets.

In a global economy with highly competitive international markets, it is very difficult for a country acting alone to have efficient, low-cost transportation services. For example, the size of modern ships demands larger and more regular volumes of cargo, ports and terminals equipped with multiple gantry cranes, ample space for storing containers, computerized information systems, and land and water-borne feeder services integrated into deep-sea movements. All of these factors function on the basis of dynamic external sectors and require large investments.

If the countries of the region are to obtain sufficient volumes of cargo to warrant the establishment of scale-economy intermodal systems on each link of the distribution chain, they must consider the integration of their trade flows. The greatest obstacles for such integration are related to the nontrade objectives that the governments assign to their liner shipping industries, and to the individual interests of carriers and unions in each country. If countries are unable to perceive the progressive interdependence of their interests in the transportation of their extraregional trade, both the competitiveness of their exports and the viability of their own presence in the liner shipping industry could be adversely affected. In order to successfully confront their insertion into a global economy composed of highly demanding international markets, trading blocs, and scale-economy intermodal transport systems at the disposition of competing countries, the region must base its liner shipping policies on an understanding of the consequences of individual decisions by governments, carriers and unions.

The need for all countries of Latin America and the Caribbean to reinforce the competitiveness of exports takes precedence over any differences in their shipping policies. This presents governments with the difficult task of harmonizing their policies to eliminate existing barriers to the organization of shared regional intermodal networks capable of competing in terms of routes, frequencies, technology and prices with those available to their competitors of

other regions. For all elements of the distribution chain, it is vitally important to be able to take immediate advantage of the opportunities that harmonization grants them, and it would be beneficial for them to put the lasting foreign trade interests of their countries—which in the long run coincide fully with their own—before their short-term private interests, particularly if they consider how the liner shipping industry can survive in the hands of citizens of their own countries.

c) The relationship between macroeconomic policy and liner shipping

The capacity of the shipping industry either to neutralize or to actively support the "transmission mechanisms" of macroeconomic policies would seem to be little understood. Excessive transportation costs reduce the quantities of goods that can be exported and the amount of foreign exchange that can be earned. Decreases in foreign exchange receipts lead to lower investments in capital and intermediate goods necessary for domestic production. These concepts are a generalization, but it is still true that the results of macroeconomic policies are determined at the sectoral level, that liner shipping has many "support mechanisms" which can be used to strengthen the macroeconomic "transmission mechanisms," and that renewed and rigorous thinking is needed in order to further close the gap between sectoral and macroeconomic goals.

Probably the most important result of this evaluation is that a subordinated, derived-demand sector such as liner shipping can make an important contribution to the achievement of macroeconomic goals. This idea, despite its simplicity, can be used by governments to strengthen the efficiency of their macroeconomic policies. Therefore, the problem posed to the governments of Latin America and the Caribbean in the final years of the twentieth century is to focus—in a stable and long-term manner—the "support mechanisms" (freight rates, routes, frequencies and technologies) of liner shipping so that they strengthen macroeconomic "transmission mechanisms" and national economic goals.

d) The geographic spread of partial transport deregulation

The partial deregulation of transportation in some industrialized countries has proven to be beneficial for both the domestic and foreign trade of those countries. The deregulation by a country of its liner shipping industry, which provides international services, transmits trade benefits to shippers and consignees in other parts of the world. Upon receiving such benefits, those shippers and consignees request their governments to grant them the same conditions for their transport services, or the opportunity to use those of other nations. Governments that have adopted export-oriented macroeconomic policies are willing to consent to such requests, since they wish to increase the flow of foreign exchange generated by reduced freight charges and by all improvements in the productivity and efficiency of transport services in general. As a result, deregulation will spread geographically to gradually encompass many other countries. This phenomenon is observed not only in industrialized countries, but also through Resolution 8364 of the National Superintendency of the Merchant Marine (SUNAMAM) in Brazil, Decree Law 143 in Colombia and the application of the principle of reciprocity in Chile.

e) Intermodalism and changes in the geographic dimensions of transport and market parameters

The concept of intermodalism includes many activities that must be understood both globally and sectorally by each participant in the distribution chain in order to take advantage of its benefits. Intermodalism is not the mere integration of all the elements and activities which encompass the support that transport provides to the foreign trade of Latin America and the Caribbean, but rather a redimensioning of those elements and activities. These new dimensions can be seen from changes such as the uniting of a country's ports with its national railway system, the expansion of the hinterlands of ports, the purchase of a shipping company by a railway, the use of communications systems that continually report on the location of cargo, and the exploitation of land transport services by shipping companies as public carriers that do not operate trucks or trains.

These dimensions and others are striking, but they say very little about the most important change: the creation of distribution networks that permit a significant improvement in the quality of service. Intermodalism is rapidly eliminating the fragmentation of transport services and the isolation of markets. Before intermodalism, markets were served by ships that called directly at the port closest to the final destination of the cargo. Despite this closeness, movements from port to final destinations entailed two transportation operations—between the port and the warehouse and between the warehouse and the final destination—adding unnecessary costs. Intermodal transport systems have broadened market parameters, thus permitting the use of more distant ports and a cutback in the costs of both intermediate storage and transport operations. Today, shipping companies choose ports on the basis of factors such as speed of loading and unloading ships, size of hinterland served, and availability of land transport services to the final destinations desired by shippers.

The change in market parameters and services creates new sources of competition among manufacturers that can benefit consumers, among carriers that can benefit shippers, and among ports that can benefit consignees. Such competition comes from concentrating consumers, shippers and consignees that previously were served independently. Moreover, these new frontiers modify the factors that carriers must take into account in offering efficient, low-cost services, and could result in the use of different technologies and the creation of combined services through space-charter agreements and consortia.

B. THE ROLE OF GOVERNMENTS IN THE LINER SHIPPING INDUSTRY

The formulation of policies for national liner shipping industries has almost universally taken into account a combination of trade and nontrade goals. With the advent of modern technologies, intermodal networks, partial deregulation and the debt crisis, those policies now involve a choice between integrating cargo bases and merchant marines, and remaining isolated from the main routes and providing only feeder or coastal shipping services. In order to take full advantage of the benefits of integration, the governments of Latin America and the Caribbean might consider a policy which recognizes that national economic security has become increasingly dependent on the other countries of the region.

Such integration also increases the competitiveness of exports in regional and international markets, which links the liner shipping industry to macroeconomic policies balances the interests of all participants in the industry. Support for the liner shipping industry by the region's governments could come from the inclusion of appropriate elements in the policies of other sectors that affect it, and from the updating of shipping industry regulations.

1. Policies of other sectors that affect the liner shipping industry

In order to establish a policy to regulate the liner shipping industry, three elements are taken into account: the commercial aspects of transportation, national defense, and economic security. There is close relationship among these elements that allows their utilization to meet the needs of other sectors such as shipbuilding, labour unions and the navy. That relationship comes from the very nature of transportation—that is, ships, ports, trucks and trains can be used for trade, for national defense, or for both simultaneously. For example, shipbuilding is an appropriate activity for developing countries due to its employment of intermediate technology and its intensive use of labour for processing or assembling components, and it has a fundamental importance in national defense policies as well. The objective of unions is to protect the jobs and improve the benefits of their members, while governments try to create employment through an excess of personnel on board ships and in ports, and navies wish to maintain a reserve of trained manpower adequate to fulfill national defense goals. The commercial aspects of liner shipping are important, but the other two elements often create greater justification for investments and state subsidies in the industry.

When the liner shipping industry is used to meet nontrade goals such as reduction of unemployment and establishment of a critical mass of skills for strategic purposes, the cost of its services increases. Such increases affect the foreign trade of the countries of Latin America and the Caribbean, and must be evaluated from the standpoint of importers in other regions. In a world of highly competitive markets, importers must calculate the total delivered cost of each good before buying it. If calculations indicate that its cost would be so high as to endanger its market competitiveness, importers simply do not buy the good. Recognizing this situation, the U.S. Government has taken steps to separate the policies applied to its liner shipping industry from those that regulate its national defense and economic security. Thus, it has divided its fleets by function, so that one is dedicated to provisioning its armed forces, while the other is used for trade and is registered in third countries. In order to reduce liner shipping costs, the governments of this region should try to apply a similar procedure.

2. The updating of liner shipping industry regulations

Innovations such as containers, computers, intermodalism, landbridges and the partial deregulation of land and sea transportation by industrialized countries have changed the liner shipping industry worldwide. Despite a growing use of such innovations by the industry in Latin America and the Caribbean, however, many countries still apply regulations for shipping and related services that

date back to the last century or even to colonial times. Antiquated regulations strengthen the tendency to rely on institutions and types of services prevalent in the past, rather than to apply those innovations to solving problems in a totally new world where intermodalism and "just-in-time" delivery take on ever greater importance. It is necessary to update regulations in order to create a new shipping mentality. This task demands a careful review of not only national regulations, but also those of other countries that have succeeded in making their fleets viable.

In a world economy with highly competitive international markets, trading blocs and intermodal transport systems, regulations and procedures must recognize that the interests of the liner shipping industry are becoming increasingly subordinate to those of shippers, who play a significant role in the selection of routes, technologies and frequencies and in cost control. Regulations must stimulate carriers to use new technologies such as modern ships and information processing systems. In order to promote the establishment of intermodal systems, they must support the integration of all activities in national and international distribution chains through the use of intermodalism, consortia, combined enterprises, space charters and other joint operating agreements. Regulations must balance negotiating powers among unions, carriers and port authorities with a view not only to facilitating greater control of labour costs but also to permitting an increase in productivity. So that the region's products can compete in international markets, regulations must create conditions for establishing multimodal transport operators able to organize distribution systems between the point at which the cargo is received from the exporter and the place of delivery at the final destination.

With respect to international agreements and conventions, the countries of Latin America and the Caribbean must ensure that they respond to both national and regional needs. In this context, they must guarantee access to the distribution systems of other countries and regions, participation in the institutions and operations of liner transport, and national control over international activities that occur within a country. The fundamental principle is to ensure that the region's exporters enjoy regular services with characteristics which are not inferior to those of their competitors in other regions.

C. ASPECTS OF A POLICY FOR CO-OPERATION ON LINER SHIPPING ISSUES AMONG THE COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN

In the liner shipping industry, which is evolving at an ever more accelerated rate, it is not possible to formulate policies using the same assumptions employed during the period of general cargo ships. The evolution of the industry, from sailing ships and the first steam railways up to the present, indicates that technological and operational changes which increase competitiveness, efficiency and productivity or which reduce service costs are irreversible and will come to dominate the industry. It is thus less expensive to accept them from the start, since sooner or later they will have to be accepted in any event. Each country should evaluate new technologies and operating systems in the light of their applicability to its own trade flows. However, it can be said with great certainty that—in the near future—containers, large ships, intermodal networks, landbridges and computerization will dominate the industry worldwide.

If the countries of this region wish to maintain an operational presence in the industry, they must consider policies that take advantage of the opportunities presented by this situation while avoiding or minimizing risks. It is particularly vital that they join forces to co-operate at both the governmental and entrepreneurial levels, in order to confront future challenges through common positions.

In the past, carriers determined the scale economy of transport equipment based on the volume and frequency of the cargo offered by shippers for carriage on the routes served. Today, on the other hand, they must also consider aspects related to the scale economies of the transport systems used by their shippers' competitors. The structure of liner shipping costs is determined not only by cargo but also by the economies of scale and the efficiency of distribution networks. Although transport equipment is an important element in the efficiency of these networks, there are other elements of equal or greater importance. For example, ports may be very efficient for shipping companies and, in turn, very inefficient for importers and exporters; land transport services may be efficient nationally yet inefficient as part of a regional or international network; and human skills often determine the profitability of any technology. The ports that contribute most to the efficiency of intermodal networks have ceased to perform activities that can be conducted outside the port area, except for those directly related to the loading and discharge of ships. The use of scale-economy vessels, trains and trucks, ports that maximize their contribution to transport efficiency, and support services that are correctly focussed adds value both to the goods transported and to the activities of exporters and consignees.

In order to translate these elements into a co-ordinated policy that can help the region's liner shipping industries to successfully confront the challenges of the final years of this century, carriers, governments, maritime authorities, ports and Customs must consider expanding their bases of collaboration. The Latin American and Caribbean countries must be willing to abandon nationalistic definitions they apply to the liner shipping industry, systems that tend to fragment activities involved in transport operations, and traditional approaches that equate increases in registered tonnage with success. Before containerization, carriers structured their scales of operation, routes, frequencies, prices and technologies to meet the needs of trade in the countries where they established their businesses. Such structures were correct for the time, but the evolution of trade and transport has made them inadequate for solving current problems. With the advent of a world economy and highly demanding international markets, together with containers, intermodal networks, large-scale transport equipment and computers, the region's liner shipping industries should jointly consider other structures for their services.

In formulating a co-ordinated policy to establish a new structure for the industry that contributes to harmonizing all its activities and that is sufficiently flexible to take advantage of trade opportunities, the countries of Latin America and the Caribbean must consider integrating their cargo bases, forming consortia, employing technologies that provide economies of scale, and exploiting intermodal networks, as well as establishing support systems that include the use of computers, complementary maritime and land transport services, and facilitation of trade and transport procedures and documentation. This sort of policy would have international, regional and national aspects.

1. International aspects

During the last ten years, the countries of the region increased their participation in extraregional shipping consortia and have begun to act as terminal operators in ports located in other regions. These activities allow shipping companies to share needed investments, broaden their knowledge of the business through the experience of their partners from countries outside the region, and —what is more important—ensure their access to markets in those countries. With the growing trend among the industrialized countries to form trading blocs and adopt measures limiting the access of other nations to their domestic markets, international consortia in which extraregional shipping companies are partners tend to establish this region's presence in those markets and thus should support its participation in their foreign trade.

The trend to form trading blocs must be considered from the perspective of the internationalization of production and transportation. Modern transport technologies and operating systems have created a basis for the internationalization of production and transportation that has modified the dimensions of markets and the international competition between them. Furthermore, such technologies have transformed the character of each carrier's services from unique to more homogeneous, thereby creating a global competition that has replaced the previous competition based on routes. Global competition can be seen not only through the integration of all activities involved in moving cargo from origin to destination but also through new operating structures. For example, a shipping company that has dedicated its vessels to trans-Pacific routes now offers services to the U.S. east cost, as well as trans-Atlantic services to Europe via that country's landbridge and space charters on the ships of other companies. Feeder services, whether by sea or by land, permit shipowners to expand their access to new cargoes and extend the coverage of their main routes. Some ship operators establish very low freight charges for feeder services in order to attract more cargo to their main routes.

The internationalization of shipping means that, if a particular company is not part of a system which includes feeder and other support services, its access to cargo could be increasingly limited. For the moment, internationalization occurs principally on east-west routes among industrialized countries, but the activities of extraregional consortia in the trade flows of Latin America and the Caribbean have increased a great deal since the beginning of the foreign debt crisis. The operational participation of the region's shipowners in extraregional consortia ensures the acquisition of experience and access to trading blocs, and is thus an element of co-ordinated policy.

2. Regional aspects

Latin American and Caribbean countries share the same origins and destinations for their imports and exports. These countries also use the same technologies in their liner shipping systems and run the same risks for their economic security. Therefore, the region's liner shipping companies might consider the following elements for co-ordinating their policies: (i) establishment of subregional consortia that provide services between the countries of this region and the markets of North America, Europe and Asia—for example, one on the west

coast of Latin America, another on the east coast of Latin America and the Caribbean, and finally one covering the broader Caribbean basin; (ii) use of one transshipment port at an appropriate location on the Central American isthmus, and another in the Caribbean, to facilitate the interchange of containers between consortia; (iii) use of intermodal transport systems in Asia, Europe and North America to reduce the number of ports of call, and (iv) establishment of intermodal systems or networks to support the services mentioned in items (i) through (iii).

As an example of the way in which the above elements could function, the east-coast consortium would provide a single north-south service between the countries on that coast and North America, and then would continue in a east-west direction to and from European destinations. At the Caribbean transshipment center, this consortium would interchange containers with the Caribbean consortium, which would handle their pick-up and delivery for countries of the basin as well as interchange them with the west-coast consortium over a landbridge joining the Pacific coast with a port in the Caribbean. In a like manner, the west-coast consortium would have a single north-south service between the countries on that coast and North America, together with an east-west service to Asia. The west-coast consortium would interchange containers with the Caribbean consortium over the landbridge. Thus, in the same way as the east-coast consortium would provide the countries of the region with access to the east coast of North America and to Europe, the west-coast consortium would give access to the west coast of North America and to Asia.

Should cargo volumes not be sufficient to commercially justify the continuation of north-south services from North America to Asia or Europe, the consortia could act as carriers between third countries and participate in the trade between those regions, as authorized by section 19 of the U.S. Merchant Marine Act of 1920. The benefits that accrue from acting as a carrier between third countries should not be underestimated since, as previously noted, an appreciable part of Transportación Marítima Mexicana's annual income is generated by the traffic between the U.S. and third countries. Furthermore, if cargo volumes were insufficient to permit their transport by regional consortia, space could be chartered on ships of other companies. The control of cargo through space chartering offers flexibility to undertake new transport services and to call at new ports, provided cargo volumes so warrant.

As indicated, the interchange of containers between the east- and west-coast consortia could be handled by the Caribbean consortium. However, if this option proved not to be cost effective, interchange could still be made through feeder services between Valparaiso and Buenos Aires. Even if the latter option were chosen, however, there would still be a need for the Caribbean consortium to link the Caribbean and Central American countries and Mexico with the east-coast consortium. In addition, the east- and west-coast consortia could be linked over any of the land routes across South America, although any such route would be faced with numerous obstacles, including very irregular topography that enormously increases costs, the lack of modern infrastructure, and the scarcity of traffic, among others.

Taking into account that these consortia would together cover nearly all the ports of South America, Central America and the Caribbean, and that the

operating mechanisms described would permit them to combine their distribution networks for the interchange of containers with destinations in other regions, the system could also be used for the shipment of containers having both origin and destination within the region. It would thus be possible to significantly improve the supply of liner services among the countries of Latin America and the Caribbean, while increasing the cargo bases of the consortia to improve their viability.

Regional consortia form the second element of a co-ordinated policy, and can be distinguished from their extraregional counterparts by the objectives each seeks to accomplish. Extraregional consortia operate strictly to make a profit and have no obligation or loyalty to the countries of Latin America and the Caribbean. If, for example, the United States were to change the sources of its manufactured products by replacing Latin America with Asia, extraregional consortia might try to reduce their presence in the first region and increase it in the second. Regional consortia, on the other hand, would have to seek other cargoes or increase their activities in the traffic of third countries or both, but their commitment to the region's trade flows would be permanent.

3. National aspects

The national aspects of a co-ordinated shipping policy for Latin America and the Caribbean include international and regional considerations, since all elements of such policies—ships, regulations, ports, Customs and land transport—come from the countries. In this context, if the countries of the region wished to co-ordinate their policies, such action would be the result of closer co-operation in both the governmental and the entrepreneurial spheres. In this document, the intention has been to present certain ideas which could contribute to stimulating and supporting that co-operation, so as to be able to formulate a regional policy through an evaluation of the structural changes which are occurring in the liner shipping industry. This evaluation is the departure point for identifying goals to which the liner shipping industry of each country should aspire, so that through adequate harmonization it may be possible to translate them into a co-ordinated policy. From what has been expressed in this document, it would appear that these goals are to maximize the contributions of the liner shipping industry to the macroeconomic policy and economic security of each country. If the countries were to succeed in achieving these goals, the region would strengthen its trading presence in the liner shipping industry , thereby creating a long-lasting basis for its continued growth.

In order to attain these national goals in the framework of a co-ordinated regional policy, it is necessary for the Latin American and Caribbean countries to commit themselves to co-operating on both the national and regional levels. In the national setting, governments, maritime authorities, Customs, ports, carriers and labour unions must take into consideration the aspects evaluated in this document in order to structure their co-operation. These aspects are very broad, ranging from the internationalization of shipping to the regional impact of national decisions, and from the effect of partial deregulation of the industry to changes in the geographic dimensions of transport and market parameters. Today's liner shipping industry demands independence from other related sectors, together with up-to-date regulations. Moreover, all participants in

this industry must contribute to improving the competitiveness of exports in international markets. They must maintain a continuing dialogue with shippers and consignees when wishing to raise freight rates or when encountering difficulties in doing so, as well as with planning agencies in order to anticipate and avoid problems. In co-ordinating policies at the regional level, an important national aspect is foreseeing initiatives by competitors—whether exporters or carriers from other regions—for which consultations between shippers and carriers would be most useful.

A commitment to co-operation among the countries of the region demands a dedicated effort by well-trained individuals of each country to carry out an evaluation of shippers' needs with respect to trade flows, routes, frequencies and technologies, in order to orient the establishment of consortia and the harmonization of support services. If the countries of the region do not co-operate to integrate their cargo bases, to use modern technologies, and to organize their own intermodal networks, they run the risk that the role of Latin American and Caribbean liner shipping will be limited to minority participation in extraregional consortia, or simply to supplying feeder services to ports where cargo would be transshipped to larger vessels, and to providing land transport services within the region.

Notes

[1] Article 1 (e) of the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, commonly known as the Hague Rules. These Rules were adopted at a conference held in Brussels 25 August 1924 and entered into force on 2 June 1931. See Registro de textos de convenciones y otros instrumentos relativos al derecho mercantil internacional, Volume II, United Nations, New York, 1973, pp. 136-147.

[2] Fairplay International Shipping Weekly, 24 March 1988, p. 31.

[3] For an evaluation of overtonnaging and freight-rate fluctuations, see ECLAC, Structural changes in ocean-liner transport: Prospects and implications for policy formulation (LC/G.1463), 15 June 1987, pp. 23-26.

[4] Fairplay International Shipping Weekly, 8 July 1982, p. 12.

[5] The Journal of Commerce, 13 September 1988, p. 10B, Fairplay International Shipping Weekly, 18 June 1987, pp. 28 and 33, and 11 April 1985, p. 19, and Via Port of NY-NJ, April 1986, pp. 27-28.

[6] Cargo Systems, April 1985, p. 66.

[7] Transport 2000, May/June 1986, pp. 12 and 13.

[8] Fairplay International Shipping Weekly, 7 March 1985, p. 23, and Containerisation International Yearbook, 1988, p. 202.

[9] The Journal of Commerce, "Gulf Ports: Shipping and Trade Survey", 27 April 1988, pp. 1B-10B, 20 July 1988, p. 1B, and 28 September 1988, pp. 3B and 10B.

[10] The Journal of Commerce, 12 September 1988, p. 18B.

[11] Seatrade Business Review, January/February 1988, pp. 121-123.

[12] Seascape, Introductory Issue, May 1987, pp. 28-29. Passengers are also a homogeneous as well as time-sensitive cargo, and in 1887 the world's first cruise ship was constructed; see Fairplay International Shipping Weekly, 13 August 1987, p. 4.

[13] Seascape, Introductory Issue, May 1987, pp. 28-29.

[14] Containerisation International, September 1986, p. 55.

[15] The Journal of Commerce, 2 June 1988, p. 10B. See also Containerisation International, October 1987, p. 55, where the traffic manager of a major European shipper indicates that the conference system may have outlived its usefulness and doubts whether it can survive in the traditional sense.

[16] Fairplay International Shipping Weekly, 11 August 1988, p. 28, and 31 March 1988, p. 29.

[17] Containerisation International, September 1986, p. 34.

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[19] The Journal of Commerce, 5 August 1988, p. 1B, 20 July 1988, p. 3B, 14 July 1988, p. 1B, and 1 June 1988, p. 3B; and Containerisation International, August 1988, pp. 8-9.

[20] Fairplay International Shipping Weekly, 5 May 1988, p. 14, and 11 February 1988, p. 6, Seatrade Business Review, March/April 1988, p. 59, The Journal of Commerce, 14 April 1988, p. 10B, and 5 April 1988, pp. 1A and 12B, and Containerisation International, April 1988, pp. 31-35, and March 1988, p. 5.

[21] Fairplay International Shipping Weekly, 15 September 1988, p. 6.

[22] Containerisation International, October 1988, p. 5.

[23] Fairplay Ship Managers, August 1986, p. 2.

[24] Seatrade, May 1985, 103.

[25] Containerisation International, July 1985, pp. 11-12, and Fairplay International Shipping Weekly, 21 February 1985, p. 6.

[26] The Journal of Commerce, 21 September 1988, p. 10B. Fairplay International Shipping Weekly, 28 March 1985, pp. 2 and 32. Containerisation International, November 1984, p. 5.

[27] Daniel R. Headrick, The Tools of Empire, Oxford University Press, New York, 1981, pp. 143 and 167.

[28] Fairplay International Shipping Weekly, 6 October 1988, p. 8.

[29] Fairplay International Shipping Weekly, 27 October 1988, p. 6, The Journal of Commerce, 14 October 1988, 10B, and Containerisation International, October 1988, pp. 33-39.

[30] Port Development International, March 1987, p. 21.

[31] The Journal of Commerce, 21 October 1988, p. 4B, and Containerisation International, August 1988, pp. 40-45, and October 1986, pp. 14 and 25.

[32] The Journal of Commerce, 29 February 1988, p. 1C.

[33] Cargo Systems, January 1986, pp. 12-13, and December 1985, pp. 30, 31, 33 and 35.

[34] The Journal of Commerce, 12 September 1988, p. 4B.

[35] Economic Commission for Europe, Introduction to the United Nations rules for electronic data interchange for administration, commerce and transport (TRADE/WP.4/INF.105), 12 July 1988, p. 12.

[36] The Journal of Commerce, "Transportation and the Computer", 29 February 1988, pp. 1C-12C.

[37] The Journal of Commerce, 31 October 1988, p. 5B.

[38] The Journal of Commerce, 28 September 1988, pp. 9A and 13A, Fairplay International Shipping Weekly, 28 July 1988, p. 17, and Containerisation International, January 1987, p. 15.

[39] Fairplay International Shipping Weekly, 25 August 1988, p. 20.

[40] The Journal of Commerce, 19 October 1988, p. 2B.

[41] See Richard F. Poist, "Evolution of Conceptual Approaches to Designing Business Logistics Systems", Transportation Journal, Autumn 1986.

[42] Containerisation International, June 1983, pp. 37-39.

[43] Containerisation International, September 1988, p. 56.

[44] Logistics: Change and Synthesis, Results and proceedings of the Logistics Resource Forum 1984, sponsored by Leaseway Transportation, p. 8.

[45] Shipping World & Shipbuilder, December 1987, p. 423, and Cargo Systems, February 1987, pp. 40-41.

[46] Fairplay International Shipping Weekly, 24 July 1986, p. 32.

[47] Fairplay International Shipping Weekly, 5 November 1987, pp. 30 and 31.

[48] Cargo Systems, July 1988, p. 17.

[49] Atlantic Container Line, Hapag-Lloyd, Senator Linie and the now defunct United States Lines have all made such declarations. See Seatrade Business Review, July/August 1986, pp. 83-89; The Journal of Commerce, 10 August 1988, p. 10B; and Fairplay International Shipping Weekly, 10 July 1986, pp. 14-15, 1 October 1987, p. IV, and 30 June 1988, p. 35.

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[58] Cargo Systems, October 1987, p. 67.

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[73] Cargo Systems, October 1987, pp. 25 and 27.

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[83] Cargo Systems, May 1986, pp. 65 and 67, and Seatrade, May 1985, p. 101.

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[138] The Journal of Commerce, 7 October 1988, p. 16B, and 3 May 1988, p. 12B, and Fairplay International Shipping Weekly, 28 July 1988, p. 8.

[139] Seatrade Business Review, July/August 1988, pp. 91 and 95.

[140] The Journal of Commerce, 17 October 1988, p. 5B, and Containerisation International, October 1988, pp. 9 and 12.

[141] Cargo Systems, February 1985, p. 32.

[142] ALAMAR, Informativo, No. 555, 1-15 August 1988, p. 7.

[143] Seatrade, May 1985, p. 101, and Fairplay International Shipping Weekly, 11 April 1985, p. 12.

[144] The Journal of Commerce, 15 September 1988, p. 10B.

[145] The Journal of Commerce, 13 June 1988, p. 2B.

[146] Economic Commission for Europe, Operating experience in the field of combined transport (TRANS/WP24/R.10), 6 September 1988, p. 16, paragraph 90. Double-stack train departure locations are based on information provided by the Office of Port and Intermodal Development, U.S. Department of Transportation.

[147] The Journal of Commerce, 31 August 1988, p. 10B.

[148] Seatrade Business Review, July/August 1988, p. 93.

[149] The Journal of Commerce, 29 April 1988, p. 10B.

[150] Containerisation International, January 1988, p. 53, and December 1987, p. 43.

[151] Containerisation International, March 1988, pp. 47-49.

[152] Containerisation International, November 1986, p. 9.

[153] Containerisation International, March 1987, pp. 7-8, and Cargo Systems, March 1987, pp. 7 and 9.

[154] The completion of the Baikal-Amur Magistral (BAM) was announced by the Soviet State Railways and reported in the International Railway Journal, June 1986, p. 17. Due to difficulties in boring two major tunnels, which were described in International Railway Journal, January 1988, p. 14, inauguration of this line was delayed until 1990. However, the temporary 15 km bypass for the Severomuyskiy tunnel on the BAM could become permanent, as indicated in the International Railway Journal, August 1988, p. 8, because of highly complex and dangerous geological conditions which scientists and engineers say may preclude its completion.

[155] The Journal of Commerce, 20 April 1988, p. 9B.

[156] Fairplay International Shipping Weekly, 20 November 1986, p. 11.

[157] International Railway Journal, November 1987, p. 14, and February 1987, pp. 16-18. For truck and rail ferry links, see Fairplay International Shipping Weekly, 8 September 1988, pp. 26 and 27, and 10 March 1988, pp. 36, 37 and 39; Cargo Systems, February 1988, pp. 49 and 51; Port Development International, May 1987, pp. 44-45; Shipping World & Shipbuilder, November 1987, pp. 399 and 401; International Railway Journal, March 1987, p. 4, November 1986, p. 4, and November 1985, p. 34; and Container Management, November 1986, p. 22.

[158] International Railway Journal, October 1987, p. 4.

[159] Seascape, January 1988, pp. 31-33.

[160] Fairplay International Shipping Weekly, 1 September 1988, p. 8.

[161] Seatrade Business Review, January/February 1988, pp. 41-43.

[162] Cargo Systems, January 1988, p. 49, and Fairplay International Shipping Weekly, 24/31 December 1987. pp. 27-29.

[163] International Railway Journal, October 1987, p. 8.

[164] Fairplay International Shipping Weekly, 29 October 1987, p. 4.

[165] J.W. Mullen, World oil prices: Prospects and implications for energy policy-makers in Latin America's oil-deficit countries, "Cuadernos de la CEPAL", 1978, pp. 15-16.

[166] Official price of Saudi Arabian light. See, Petroleum Intelligence Weekly, 7 March 1983, p. 6.

[167] Petroleum Intelligence Weekly, "Special Supplement", 31 October 1988, p. 2. This is an estimate of the price at which Saudi Arabian light crude oil is being sold FOB on term sales. Spot prices can be much less. For example, Petroleum Intelligence Weekly, 10 October 1988, p. 6, reported that during early October 1988 the spot price for Oman crude oil was US$9.90 per barrel.

[168] D. Blumenhagen, Shipping and the Balance of Payments, Institute of Shipping Economics, Bremen, No. 32, 1981.

[169] Portos e Navios, February 1987, p. 9.

[170] ALAMAR, Informativo, No. 530, 1-15 July 1987, p. 3.

[171] ALAMAR, Informativo, No. 546, 1-15 March 1988, p. 2.

[172] Folha de São Paulo, "Portofolha", 29 September 1988, p. H-2.

[173] The Journal of Commerce, 8 September 1988, pp. 3B and 4B.

[174] El Mercurio, "Transporte Marítimo", 22 November 1987, p. 7.

[175] Cargo Systems, March 1985, p. 41.

[176] Fairplay International Shipping Weekly, 1 October 1987, p. XVIII.

[177] Fairplay International Shipping Weekly, 16 October 1986, p.6.

[178] The Journal of Commerce, 12 September 1988, pp. 5B, 9B and 10B. For a review of the same problems in the ports of France, Italy, the United Kingdom and the United States, see Fairplay International Shipping Weekly, 17 March 1988, p. 5, 19 November 1987, p. 13, 4 December 1986, p. 12, and 16 October 1986, p. 20, and Cargo Systems, October 1987, pp. 36, 37 and 39, September 1987, pp. 38 and 40, and January 1985, pp. 50-51.

[179] International Association of Ports and Harbors, Ports & Harbors, March 1985, p. 19, and Cargo Systems, March 1985, p. 57.

[180] The International Association of Ports and Harbors, Proceedings of the Fifteenth Conference, 25 April-1 May 1987, Seoul, Korea, p. 67.

[181] ALAMAR, Informativo, No. 545, 16-29 February 1988, p. 6. For an appraisal of this situation in two other Latin American countries see The Journal of Commerce, 7 April 1988, pp. 1B and 10B, and ALAMAR, Informativo, No. 480, 1-15 June 1985, p. 11.

[182] Fairplay International Shipping Weekly, 10 December 1987, p. XXXVII.

[183] ALAMAR, Informativo, No. 534, 1-15 September 1987, p. 5.

[184] ALAMAR, Informativo, No. 477, 16-30 April 1985, p. 10; No. 543, 16-31 January 1988, pp. 2-3; and No. 557, 1-15 September 1988, p. 6.

[185] The Journal of Commerce, 29 June 1988, p. 3B; Seatrade Business Review, November/December 1986, p. 99; The Journal of Commerce, 27 April 1988, p. 10B; Fairplay International Shipping Weekly, 9 October 1986, p. 34, 9 April 1987, p. XXIII, and 13 November 1986, pp. 4 and 46; Containerisation International, March 1985, p. 63 and January 1987, p. 55; and Cargo Systems, May 1987, pp. 33 and 39. For an evaluation of the same problem in the U.S. and New Zealand, see Fairplay International Shipping Weekly, 16 October 1986, p. 20, and 9 April 1987, p. XXX; and The Journal of Commerce, 26 August 1988, p. 3B.

[186] ALAMAR, Informativo, No. 560, 16-31 October 1988, pp. 6-7.

[187] Shipping World & Shipbuilder, January/February 1988, p. 27.

[188] ALAMAR, Informativo, No. 542, 1-15 January 1988, p. 5.

[189] ALAMAR, Informativo, No. 523, 16-31 March 1987, p. 6, and No. 518, 1-15 January 1987, p. 6.

[190] ALAMAR, Informativo, No. 522, 1-15 March 1987, p. 5. For a comparison with another South American country, see No. 545, 16-29 February 1988, p. 6.

[191] ALAMAR, Informativo, No. 526, 1-15 May 1987, p. 6, and No. 510, 1-15 September 1986, p. 3.

[192] The Journal of Commerce, 17 October 1988, pp. 5C, 7C and 9C, and 8 September 1988, p. 5B, ALAMAR, Informativo, No. 559, 1-15 October 1988, pp. 6-7, No. 558, 16-30 September 1988, p. 7, and No. 550, 16-31 May 1988, p. 11, and Folha de São Paulo, "Portofolha", 6 October 1988, p. H-1 and 29 September 1988, p. H-1. The port of Miami has entered into an agreement with the Government of Venezuela to provide its National Ports Institute (INP) with a wide range of technical assistance in areas that include labour requirements and the privatization of certain port services. See Cargo Systems, September 1988, p. 9. The initiative to privatize port facilities is not limited to Latin America. For an evaluation of such activities in New Zealand see Containerisation International, September 1988, p. 23, and Fairplay International Shipping Weekly, 7 January 1988, p. 8; for Malaysia and Thailand, see Cargo Systems, February 1985, pp. 51-53.

[193] For similar activities at the ports of Liverpool and London see Fairplay International Shipping Weekly, 4 June 1987, pp. 8 and 10, and 19 February 1987, p. 8.

[194] ALAMAR, Informativo, No. 556, 16-31 August 1988, pp. 4-5, and No. 526, 1-15 May 1987, p. 6.

[195] ALAMAR, Informativo, No. 545, 16-29 February 1988, p. 3, and Containerisation International, March 1987, p. 39. For coastal trades, see ALAMAR, Informativo, No. 553, 16-31 June 1988, p. 5.

[196] Cargo Systems, October 1985, p. 85.

[197] ALAMAR, Informativo, No. 558, 16-30 September 1988, p. 2, and No. 556, 16-31 August 1988, p.2. For Brazil and Chile, see ALAMAR, Informativo, No. 558, 16-31 August 1988, p. 3, No. 552, 16-30 June 1988, pp. 3 and 6, No. 536, 1-15 October 1987, p. 3, and No. 529, 16-30 June 1987, p. 4.

[198] Containerisation International, October 1988, p. 12.

[199] The Journal of Commerce, 20 June 1988, Special Report, "Containerization/Intermodalism", p. 1C, and Fairplay International Shipping Weekly, 14 August 1986, p. 6.

[200] Folha de São Paulo, "Portofolha", 4 August 1988, p. D10.

[201] ALAMAR, Informativo, No. 502, 1-15 May 1986, p. 2, and Containerisation International, April 1986, p. 11.

[202] ALAMAR, Informativo, No. 495, 16-31 January 1986, p. 2.

[203] ALAMAR, Informativo, No. 557, 1-15 September 1988, p. 2, and No. 545, 16-29 February 1988, p. 2, and Navitecnia y Comercio Marítimo, July 1988, p. 10.

[204] ALAMAR, Informativo, No. 548, 16-30 April 1988, p. 10, No. 538, 1-15 November 1987, p. 5, No. 536, 1-15 October 1987, p. 3, No. 529, 16-30 June 1987, pp. 6-7, No. 502, 1-15 May 1986, pp. 2-3, and Containerisation International Yearbook, 1988, p. 242.

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[207] U.S. Department of Transportation, Maritime Subsidies, June 1988, pp. 163-164, and Insight, 6 June 1988, pp. 8-15.

[208] CEPAL, Estudio económico de América Latina y el Caribe, 1987; Síntesis preliminar (LC/G.1511), 11 April 1988, p. 48.

[209] For a ship operators position on the claims of exporters, see ALAMAR, Informativo, No. 556, 16-31 August 1988, p.3.

[210] ALAMAR, Informativo, No. 524, 1-15 April 1987, p. 4, and Portos E Navios, February 1987, pp. 16-18.

[211] ALAMAR, Informativo, No. 487, 16-31 September 1985, p. 6.

[212] Ministry of Transport, National Superintendency of the Merchant Marine (SUNAMAM), Yearbook, 1985, p. 85.

[213] Portos e Navios, December 1987, p. 10.

[214] ALAMAR, Informativo, No. 524, 1-15 April 1987, p. 4.

[215] ALAMAR, Informativo, No. 546, 1-15 March 1988, p. 3.

[216] ALAMAR, Informativo, No. 558, 16-30 September 1988, p. 4, No. 546, 1-15 March 1988, p. 3, and No. 524, 1-15 April 1987, p. 4.

[217] For a summary of Decree Law 143, see ALAMAR, Informativo, No. 551, 1-15 June 1988, p. 3.

[218] The Journal of Commerce, 25 November 1988, pp. 1A and 10A, and Fairplay International Shipping Weekly, 24 November 1988, pp. 18-19.

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