

NACIONES UNIDAS

CONSEJO
ECONOMICO
Y SOCIAL



LIMITED

E/CEPAL/L.113
17 September 1974

ORIGINAL: ENGLISH/SPANISH

ECONOMIC COMMISSION FOR LATIN AMERICA

ECONOMIC AND INSTITUTIONAL IMPLICATIONS OF THE
NEW TRANSPORT TECHNOLOGIES IN LATIN AMERICA

This document was prepared for the meeting of the Latin American Governments on international intermodal transport (Mar del Plata, Argentina, 20-30 October 1974)

74-9-2220

Chapter I

INTRODUCTION

During the last few years, the Latin American Governments have analysed the implications for their countries of the proposals being made with regard to new "rules of the game" for international commerce and intermodal transport. They have noted that a close relationship has been asserted to exist between these rules and the introduction of new transport technologies, in particular cargo unitization, which like the new "rules of the game" has important implications for the social, economic and political objectives of their countries. These Governments further have noted that the relationship between the new rules and unitization of the cargo has not been carefully defined, but that uncontrolled introduction into the region either of unitization or of the new "rules of the game" could very well limit the options of the country with regard to the other of these initiatives.

In view of the foregoing, the Latin American Group of the Intergovernmental Preparatory Group on a Convention on International Intermodal Transport, during the first period of sessions (29 October-11 November 1973) requested that the Economic Commission for Latin America prepare a study on the economic and institutional implications of the new transport technologies, following up the work initiated by UNCTAD on cargo unitization and published on the unitization of cargo.^{1/}

As the Latin American Group was forewarned, the study would be carried out under severe restrictions of human resources, information and time. However, there have been some favourable factors. First, ECLA was already committed to carry out other studies,

^{1/} UNCTAD, Unitization of Cargo, United Nations, New York, 1970. TD/B/C.4/75.

some of which are very pertinent to this one, and the appropriate cross-references to these other relevant studies are made in this study. Second, national working groups, formed to study international intermodal transport questions,^{2/} or in some cases individual members of these groups, collaborated by sending data and comments which were very valuable. Third, the port authorities of many of the principal seaports of the Caribbean subregion contributed to a survey by ECLA of unitized cargo traffic. Finally, the following entities were most kind and co-operative on giving detailed answers to a long series of questions submitted by ECLA:

Administración Autónoma de Almacenes Aduaneros, Alto La Paz,
Bolivia

Companhia de Navegacao Maritima Netumar, Manaus, Brazil

Compañía SudAmericana de Vapores, Valparaiso, Chile

Delta Steamship Lines, New Orleans, United States of America

Wm. H. Kennedy & Co., Ltd., Port of Spain, Trinidad and Tobago

Office of Facilitation, Department of Transportation,

United States Government, Washington, U.S.A.

Overseas Containers Limited, London, United Kingdom

Port Contractors (Barbados) Limited, Bridgetown, Barbados

Port Contractors (Trinidad and Tobago) Limited, Port of Spain,
Trinidad and Tobago

Sea-Land Service, Inc., Edison, New Jersey, U.S.A.

Questionnaires submitted to other entities of a similar nature were not answered, or in some cases, the replies indicated a lack of activity related to international inter-modal transport.

There were some major conceptual problems in planning this study, largely since the distinction between unitization and institutional changes (or changes of the "rules of the game") is somewhat artificial. The distinction is necessary, however, since in practice we can identify two fairly distinct initiatives, very often but not necessarily inter-related.

^{2/} Economic Commission for Latin America, International Intermodal Transport; Statement of the immediate problems for Latin America and action programmes for affected institutions, E/CN.12/L.103, Santiago, 3 December 1973.

It is common to talk about "containerization", "palletization", etc., terms which imply more than the container, pallet or other transport instrument (or "hardware item"). Many of the additional elements ("software items" or complementary "hardware items") which are associated with the broader concept are quite separable from "containerization" or "palletization" or other broad concept. In effect, the container, or pallet, or barge-carrying vessel, or flat car adapted for carrying truck trailers, or roll-on/roll-off vessel, are not just instruments for more efficient transport, but also are symbols for a modernization of transport services which can take place in many cases without the need for these same transport items, even though these latter have appeared to be so basic to progress.

As far as the technologies are concerned, "transport instruments" are defined here as items which hold cargo but which are not self-propelled. Railway freight vehicles are excluded from this definition. These "transport instruments" include containers, pallets, LASH or SEABEE barges, and roll-on/roll-off or piggyback trailers.

"Transport technologies" are the complex of "hardware items" which are most directly associated with the movement of transport instruments.

"Institutional aspects" are the complex of procedures, documentation, conventions, charges for services, and in general the human activities which are essential for international intermodal transport services.

The terms "intermodal transport" and "combined transport" are used inter-changeably here, normally referring to all transport movements of cargo which involve the use of more than one mode of transport, unless specific reference is made that the concept is limited to unitized cargo. "Unitized cargo" is that contained in a transport instrument.

None of these definitions is meant to imply a preference as regards the judicial meaning which should be given to the terms, or as

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regards the scope of any legal instrument which might be drawn up on international intermodal transport. These definitions are set out only for convenience.

Beyond the problem of separating unitization and institutional aspects, there is the even more difficult problem of analytically separating the direct economic effects of the introduction of the use of transport instruments and the economic effects of institutional changes.

To some extent because of the categories of the available economic data, the definition of "direct economic effects" of the new transport technologies will be limited to those revenues and costs which are most closely associated with the handling and movement of the cargo by the transport operators, including the costs to the user, to the transporter and ports, and the balance of payments effects. The economic effects of institutional changes, by contrast, are the costs and revenues which are associated with the cargo movement, but are not reflected in the accounting sheets of the enterprises which are in charge of the physical handling of the cargo itself, or in those of the users.

It must be admitted at the outset that the available data do not permit a clear-cut division of economic effects according to these definitions (perhaps the most difficult sectors to categorize in this regard were transport labour and insurance), but these definitions do permit a clear picture to be developed of the separate sets of options which the Governments have with regard to cargo unitization or to institutional changes which facilitate cargo movements by international intermodal transport.

Air transport. This study of international intermodal transport deals almost exclusively with maritime and land transport. Little attention is given to air transport.

However, this near-exclusion of reference to air transport should not be construed to mean that this form of transport is actually or potentially unimportant as a participant in intermodal transport. On the contrary, the importance for air transport of many

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of the institutional problems which will be considered in this study appears to have generally been understated during the debates on international intermodal transport up until recently. In Latin America, for example, it is common that there is a "no-man's land" in air/land transport combinations, in which there is lack of clarity as to which carrier (or warehouse operator) is responsible in the case of certain damages to the cargo. This same problem is much less significant in the more industrialized countries where the air carrier has greater control over all aspects of the door-to-door operation.

Organization of this study. The next chapter summarizes the present state of the introduction of the new technologies - complete container systems, containers in a secondary role in general cargo service, LASH, palletization and pre-slung, roll-on/roll-off and piggyback - in different zones of the region. A conclusion is that the distribution of these technologies among the zones of the region is very uneven. The zones considered are the west coast of Latin America, the east coast of Central America, the north and east coasts of South America, the Caribbean and international inland transportation.

The third chapter considers the available data on the impact of the introduction in Latin America of these technologies on the expedite and secure movement of the cargo. A conclusion is that the specific major costs and benefits associated with these technologies may be quite different in Latin America than in other regions of the world, and that they differ considerably depending on the particular technology and specific commodity which are involved.

The fourth chapter considers the institutional changes which are commonly associated with the introduction of new transport technologies at the international level. A case study is presented of the impact of large-scale containerization of the traffic between Australia and Europe, indicating that the use of containers, along with certain institutional changes, have resulted in greater security and more rapid movement of the cargo susceptible to unitization, but has led to unforeseen detrimental effects for certain major

/Australian interests.

Australian interests. The chapter concludes that the relationship between the introduction of new transport technologies and institutional changes is very complex. There are certain economic advantages in linking technological with institutional changes, but the economic disadvantages may far outweigh the advantages in the developing countries. The institutional changes which are proposed should be evaluated on their own merits.

The fifth chapter surveys the relationship between the introduction of new transport technologies and the modification of institutional arrangements for international trade in Latin America. It is shown that Combined Transport Operators are already active in the region, this type of enterprise being introduced in different forms. There are other institutional changes which have taken place, including changes in customs' procedures, some of which have accompanied the introduction of new transport technologies and other which are independent of these technologies. It is concluded that thus far the countries of the region have generally been able to absorb the new technologies and institutional arrangements without compromising the ability of the governments to keep options open for future policy decisions or for the development of national institutions which provide services to international trade. However, there is a much greater momentum in the changes now, and the very link between the new technologies and the new institutions is creating situations in which control by the governments of their effects is likely to be diminished.

The sixth chapter describes three alternative international intermodal transport systems which have been proposed for the integration of the new institutional arrangements for international trade under a consistent set of rules. These alternative systems, which are still in process of being more sharply-defined and formalized, are called "the European system", "the United States system", and "the Latin American system".

The final chapter considers political-legal actions which are needed in order to assure the development of viable Latin American institutions for services to international trade, and to assure the protection of the regions' commercial and social interests. Restrictions or preconditions are set out for the introduction of Combined Transport Documents and/or unitization, in function of objectives which have been supported by the Latin American countries.

Chapter II

THE NEW TRANSPORT TECHNOLOGIES AND LATIN AMERICA

For ages it was customary to perform ocean transport of general cargo by so-called break-bulk ships. The goods were forwarded packed in bags, bales, cartons, drums or cases or without packing. The handling of shipments in this manner proved gradually to be too slow and too costly. The solution applied to-day can be described in one word: unitization. This is done in various ways: pre-strapping, pre-slinging, palletization, containerization, the use of roll-on/roll-off (ro/ro) or barge-carrying vessels. The different types of ships used nowadays for the carriage of unitized cargo are conventional, pallet, multi-purpose, container, ro/ro and barge-carrying vessels. The conventional vessel is mentioned here since it takes unitized cargo, although in fact, it is not built for it. Forklift trucks cannot work properly in the holds; hatch openings are generally too small; there is insufficient space for containers; too much space is lost when stowing palletized cargo due to the shape of the holds; the ship lacks appropriate loading gear; etc. This type of ship is actually being substituted but will call at Latin American ports for many more years.

The pallet vessel has been designed (with its side-ports, flush decks, square holds, etc.) in order to serve the completely palletized trade, with the reasoning that the pallet provides easier, less expensive handling and makes cargo less liable to damage, than in the case of break-bulk cargo. Notwithstanding the much cheaper solution offered by the pallet vessel, the container is having a large impact in the world, and on the international trade routes hardly any liner ship operator can refuse to provide the necessary space for the carriage of goods packed in containers.

In order to be able to accommodate satisfactorily palletized as well as containerized cargo, the multi-purpose vessel was introduced about eight years ago. This is a fast ship with one or two cellular

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hatches for containers and two or three square hatches, side ports, heavy cargo gear, while 2 to 4 forklift trucks are permanently stationed on board. This type of ship would seem to be the solution for those trades where the use of containers and the infrastructural development of the countries involved are still in an early stage.

The barge carrying vessel is also multi-purpose, in that it has space and loading equipment for both barges and containers, and space for liquid cargo as well, although the very high capital investment required has proved an obstacle for mass construction. Due to the extremely fast turn around of these ships, one of them can take the place of 3 to 5 conventional vessels, which makes the operation less costly than it would appear at first sight.

Roll-on/roll-off ships find evergrowing employment in the short sea trades; in addition, however, there are a number of shipping lines on transoceanic routes using big carriers which have ro/ro facilities. Ports of call should be fitted out with a specially adapted quay and parking lots for accommodating trucks, trailers, flats and other vehicles; there should be ample access roads also. The advantage of very quick and relatively cheap loading and discharge operations, the absence of costly loading gear and the fast round voyages, make these vessels more versatile economically than many other types, of course depending on conditions of the trade.

The full fledged container ship offers optimal protection to the cargo, fast transit, and is very suitable for intermodal and door-to-door transport. As in the case of barge-carrying vessels, it is extremely capital intensive, and each ship of this type can usually replace several conventional vessels. Not all cargo is containerizable, and one of the advantages of barge-carriers is that it can accommodate any cargo, be it break bulk, palletized, containerized, or of unusual size or shape. The container ship requires container terminals with excellent rail and road communications, is comparatively economic where there exists a two-way cargo traffic, as it is costly to carry empty containers in great numbers over large distances; and where there is containerizable cargo available in sufficient quantities in a limited number of ports.

/Unitization has

Unitization has resulted in significant changes in land transport, as well as maritime transport. This is especially the case where land transport by one mode is combined with other transport modes. If one is forced to choose exclusive use of one or another mode, the truck has offered the relative advantages of flexibility - providing door-to-door carriage without necessity of transshipment. Unitization - whether by container, roll-on/roll-off or piggy back (trailer on flat car) - enables other modes of transport to participate in this same advantage, and enables the shipper to benefit from the comparative advantages of other modes (rail, maritime, air) along with the flexibility of the truck.

Some general lines can be drawn regarding the application of the new transport technologies in Latin America, considering separately: the west coast of Latin America, the east coast of Central America, the north and east coast of South America, the Caribbean and international land carriage. Unfortunately, details available, although abundant, are not complete and for that reason, it is necessary to exercise some caution in depicting the present situation.

On the west coast, maritime developments have not been spectacular, so far. A few modern ports were built (Acajutla, Puerto Somoza, Corinto, Guayaquil, Matarani, Arica, Puerto Montt), and others were or are being modernized (Buenaventura, Callao). The conventional break-bulk carriers have in some cases been replaced by the kind of pallet ships which also take a limited number of containers, or by multi-purpose ships. Only a single line employs fullfledged container vessels in its service to the west coast, which is, undoubtedly, partly due to the absence of adequate container handling facilities in the ports. Unitization in this trade appears to be about 90 per cent palletized and pre-slung cargo and the remainder containerized. Roll-on/roll-off services do not exist. Bulk carriers and tankers have grown in size, as all over the world, and relatively large vessels are regularly calling at west coast ports.

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There are no sizable ports on the east coast of Central America, but Santo Tomás del Castillo (Guatemala) is a modern port and Puerto Cortés (Honduras) underwent modernization some years ago. Ro/ro services exist to and from Puerto de Rama (Nicaragua), Puerto Cortés and Santo Tomás. Almost all other general cargo traffic is maintained by pallet or multi-purpose carriers.

A somewhat different and more advanced situation is found on the north and east coast of South America, where a limited number of specialized container and barge-carrying (LASH) ships have entered the trade, although certain technological and institutional impediments are hampering optimal utilization. Container ports in the true sense of the word are non-existent, although some of the bigger ports do possess a container crane. Operating between the Mississippi River delta and the River Plate Basin, LASH is restricted mainly to the seaports, as navigation up-river is severely limited by Conference and government restrictions. The three LASH vessels on this route have a net carrying capacity of 40,850 cubic metres per ship. The port of Las Minas (Panama) disposes of ro/ro facilities. Some ports have been extended and modernized but congestion is a serious phenomenon at several of the main ports, like La Guaira and Buenos Aires. The bulk of commercial traffic is being conveyed by means of conventional, pallet or multi-purpose ships, by bulk carriers or specialized vessels such as tankers, fruit-ships, reefer vessels, etc.

It would seem that the Caribbean has been discovered to offer excellent conditions for modern techniques in shipping, since especially roll-on/roll-off and container ships have found ample application. The most spectacular development of the last 10 years has, no doubt, taken place in the trade from the United States to the main ports of Puerto Rico: San Juan, Ponce and Mayagüez. This traffic is reserved for United States and planned Puerto Rican shipping lines.

In Puerto Rican ports, huge ro/ro and container facilities are available where some 2,500 containers are handled weekly, including an intensive transshipment operation between pre- and on-carriers. Sea-Land Service Inc., alone has five container cranes. As for freight, the U.S. Federal Maritime Commission, in a study issued in 1970, concluded that Sea-Land, being by far the largest carrier in the trade from the United States to Puerto Rico, has been able, thanks to containerization, efficiency, competition, etc., to keep freight rates down.^{1/} A comparison with the trades to Haiti, Dominican Republic and Jamaica revealed that only one Conference rate of the 125 rates examined was lower than the New York-San Juan rates. Moreover, these rates had increased significantly during the past 5 to 8 years while those from United States mainland ports to Puerto Rico remained, for the most part, steady or declined during the same period.

Puerto Rico, which has no shipping company of its own, is now planning to develop a merchant marine, starting with three United States flag ships. Jamaica and Bermuda have ample container handling capacity. A recently built port in Jamaica is due to become a major point of transshipment for Far East and European lines, and Port-au-Prince, Haiti, has an active ro/ro terminal. So far, the barge-carrying vessel has had little impact in the Caribbean area but Delta Lines has sought to establish a service via Puerto Rico, and has sought maritime subsidies to establish mini-LASH services in the Caribbean. Pallets are used on a wide scale. European lines are now not only considering the flow of cargo to industrialized countries like Japan, United States, Australia and South Africa as apt for almost total containerization, but they have begun to include main Caribbean ports. Hapag-Lloyd, Harrison Line and Royal Netherlands SS Co., will start a full container service with five

^{1/} Federal Maritime Concession, Puerto Rican - Virgin Islands Trade Study, Washington, D.C., April 1970.

22 knot ships, carrying 1,200 containers of 20-ft, on a basis of one sailing every 10 days from Hamburg, Rotterdam, London and Antwerp to a number of Caribbean ports. A comparable service will be established by Hapag-Lloyd and some other European lines in close co-operation with the Transportación Marítima Mexicana (TMM). The latter will have 50 per cent of the traffic and own 50 per cent of the containers.

Port of Spain, which always was a major port of transshipment for break-bulk cargo to the lesser Antilles and for ores from the Orinoco district, is now becoming a point of on-carriage of containers, particularly to and from the north coastal countries of South America. For example, Sea-Land is regularly carrying liquid containers with rum from Guayana via Port of Spain to the United States.

A survey made in 23 Caribbean ports, including San Juan, Puerto Rico, Santo Domingo, Kingston, Port of Spain and Curaçao, revealed the share of containerized cargo to be 36.4 per cent of the total quantity of general cargo handled during 1973. Assuming that 80 per cent of all general (non bulk) cargo is susceptible of economical transport in containers, we arrive at a percentage of nearly 46 per cent of the potentially containerizable cargo that actually was carried in containers.^{2/}

Containerization has also had an impact on international land transport, especially in South America. The major flows are automobile parts between Argentina and Chile (Buenos Aires-Arica, via Bolivia, and Buenos Aires-Rancagua), and a variety of products between Argentina and Brazil. The use of containers permits door-to-door service without slow cargo handling at transshipment points, flexibility in routing depending on weather conditions in the Andean mountains, use of railways for long-distance movements and where roads are in poor condition, and use of the railroad where this mode has an advantage over trucking as regards frontier procedures.

^{2/} Carl H. Plumlee, Economic Commission for Latin America, Office for the Caribbean, "Intermodal Transport in the Caribbean - 1973", ECLA/POS.74/5, 27 May 1974.

A system of unitized, intermodal land transport, called "Piggyback", has found some application in Latin America and proved particularly successful in the daily traffic between Mexico and the United States of such perishables as tomatoes, cucumbers, red peppers, pumpkins, garlic, etc. It is a combination of road and rail transport in which the trains cover a distance of about 1,770 km in approximately 28 hours. The goods are packed in refrigerator trailers at the places where the produce is grown and subsequently hauled to the station, and moved onto railroad flatcars whereupon the tractor, which stays behind, is disconnected. At destination, other tractors haul the trailers to the warehouses of destinees. The whole process is cheaper and faster than if it were done by truck, thanks to efficient working of the railway and the co-operation of Customs. The trailer boxes are property of the railroad; the return trip is generally made empty. A similar operation takes place for traffic between Brazil and Argentina, placing the trailers on flatcars for rail haulage between the border and Buenos Aires. In that case the system presents the advantages of speed and economy over the through movement of trucks, but height limitations on the way require the use either of specially constructed flatcars or of low ceiling trailers.

In conclusion, it would seem that new technologies are finding application in Latin America, while the rate of application varies considerably among areas of the region. Especially in those ports where there is less container movement, palletization has become a common feature. In addition, for bagged goods and parcels of iron, copper, tubes, etc., pre-slung and pre-strapped methods are often applied. Since most Latin American ports and the inland infrastructure are not yet conditioned to handle sizeable quantities of containers of more than 20 ft length, it would seem that in the immediate future, general cargo movements to and from these ports will largely take place by multi-purpose vessels, allowing for palletization, pre-slinging and strapping, and for limited numbers of containers. Whether barge-carrying vessels will operate, in addition to the 3 LASH carriers operated by DELTA Line is problematic. Finally there seems to be a promising future for ample growth of unitization of international land transport movements.

Chapter III

THE IMPACT OF THE NEW TECHNOLOGIES ON THE EXPEDITE AND SECURE MOVEMENT OF THE CARGO

The new technologies described in the previous chapter have brought about impressive changes in port working systems, labour employed, cargo handling, costs of services, interface of inland transportation modes, etc., in different parts of the world. Generally speaking, it can be asserted that, in comparison with the old break-bulk methods, transportation has become speedier and safer as far as damage to cargo is concerned.

As to the direct economic effects of these new technologies, the following conclusions have become apparent from scattered materials. Unitization may bring about considerable savings for certain users. Overall packing costs can be reduced if forwarding takes place in container from door-to-door. Some economy can, in some cases, be achieved in the insurance premium, too, although there have been problems in evaluating the risk situation, given the relative concentration of risk in containers and container ships. Handling costs may be definitely lower for containerized and palletized cargo, especially if direct discharge is made from one ship or vehicle to another ship or vehicle. As seen earlier regarding the trade to Puerto Rico, freight rates can be lower if the traffic is such that container ships can be employed instead of conventional carriers; in the case of palletization small savings may be obtained thanks to Conference pallet reductions and, principally, through cheaper handling ashore.^{1/}

If ports allow for the use of container vessels, congestion of quays and warehouses can be reduced or eliminated. Capital investment in cranes, and other handling facilities will be heavy, while it will

^{1/} When comparing freight rates, it should be taken into account that as a rule container rent has to be paid separately with container shipment by conventional ships, which is not the case with fullfledged container vessels.

be necessary to adapt roads and railways where containerization results in the rechanneling of traffic through fewer ports, or where the capacity (dimensions and weight) is inadequate for the unit loads. Port adaptation to roll-on/roll-off vessels is generally less costly; by the same token, for a LASH service whereby the cargo is unloaded from the barges when these lay alongside the quay, capital investment is very moderate, since neither dredging nor special facilities are normally required, except where the ability to lift 2.5 ton barge hatch covers does not exist.

These potential advantages of unitization have been quantified in the already cited 1970 study by the United Nations' Conference on Trade and Development (UNCTAD), and updated as regards LASH by Delta Lines. These data are reproduced here in a number of tables. Table III-1 defines a hypothetical route situation for the comparison of the technologies, tables III-2 to III-6 show differences of direct economic costs. The relevance for the user of these hypothetical savings, in the case of containers, seems somewhat validated by a comparison made in 1965 of real costs to the user of North Atlantic shipments (table III-7).

As mentioned before, investments in Latin America as related to the introduction of new maritime technology have been very moderate but for a few exceptions, mainly in the Caribbean. Latin American shipping companies have purchased pallet and multi-purpose ships but so far have generally not committed themselves to container and barge-carrying vessels. There is no doubt that the tremendous investments required for the construction of the latter type of vessels (including the containers and barges) plus the heavy government subsidies to these vessels when purchased, by some merchant marines of more developed countries, have been a major cause of this.2/

2/ Delta Lines anticipated a Construction-Differential Subsidy factor of fifty (50) per cent of an "ultra-conservative" estimate of US\$ 27,750,000 per vessel, in its application to the Maritime Subsidy Board of the United States, dated 24 July 1970. Norwegian Shipping News (2 April 1971) later reported that Avondale Shipyard of the United States quoted a price of US\$ 29.5 million per vessel for three ships, estimating that European or Japanese yards would bill US\$ 14 to US\$ 18 million.

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With these ships, the increased number of voyages per annum or reduced number of ships needed to make the same number of port calls, and lower cargo handling costs may bring about more favourable net revenues for the ship owner than is the case with pallet or multi-purpose vessels. It would seem that as long as the Latin American shipping lines do not arrive at forms of collaboration (such as between Colombia and Venezuela, for example) which lead to a common policy in operation, ship-building, scheduling, cargo solicitation, agency matters, etc., there is less possibility of taking advantage of the economies offered by the modern technology. Also, there is need for complementary policies regarding maritime investments, port improvements and changes in land transport, since any of these can be held up by the lack of attention to the others. The Brazilian "export corridors" project has focused precisely on this problem.

The following tentative generalizations are offered regarding the direct economic effects of unitization in Latin America:

(a) Comparative figures on real savings through use of containers in Latin America are scarce. The results of two studies on costs to the user are presented here. The firm of Murchison S.A. of Buenos Aires recently made the comparison, in table III-8, between a shipment of motorparts from the United States to the Argentine, packed in cases (as break-bulk) and in containers. The differences in costs involved are impressive for these door-to-door consignments. The most important savings for the user are made in import duties, packing, freight and land transport in United States, sales tax and storage at both ends, and some of these savings might be directly related to the particular kind of cargo being shipped. Thus, a comparison of actual costs to the user in the case of Phillips' traffic of electronic parts (see table III-9) from the Netherlands to Chile shows that the benefits to this user appear to be more difficult to assess from direct costs alone, those benefits including better reliability and security, and more direct tie-ins with production.

The use of containers in some cases shifts costs from the shipowner directly to the exporter, where the former economizes on ship stowage costs and the exporter assumes the responsibility directly for stowage of goods in the container. However, total overall stowage costs, ultimately paid by the user, are likely to be reduced since usually there are lower costs of loading the land vehicles that connect with the ship when containers are used.

The use of the container or roll-on/roll-off depends largely on nature and quantity of the goods in both directions, and the lack of a balanced containerizable trade has been a major deterrent to the use of containers. The carriage of empty containers is unproductive, although there is the possibility of using folding containers.^{3/} At the present time, there are three South American countries (Argentina, Brazil, Colombia) in which studies have indicated a large national potential for export in containers, even exceeding containerizable imports.^{4/} Complementation with other countries with excess containerizable imports could be worked out.^{5/} Common container policies are needed for this on their manufacture, their testing and certification, their identification by codes, the manner by which their nationality is defined, leasing arrangements, programming of flows, tariffs on empty container movements, customs' guarantees and insurance.

Latin American users of containers appear to be in general as concerned to protect their cargo as to reduce freight and insurance

^{3/} Citroen Chile Inc. has constructed folding containers for international land transport, and is satisfied with their use after several years of experience. However, these are not 150 standard size and have not been submitted to testing for stress standards set out in the Convention on the Safety of Containers, of 1972.

^{4/} For data on containerizable trade between member countries of the Latin American Free Trade Association, see publication of that organization by Tomás Sepúlveda Whittle, Bases para el estudio sobre transporte en contenedores, Montevideo, June 1973 (ALALC/SOC/PA/44).

^{5/} Already such an arrangement is being negotiated between interested parties in Colombia and Venezuela.

costs. Loss and damage of cargo has always been inherent to break-bulk transportation and of great economic significance. Goods have to be repaired or re-ordered; sales or factory production are interrupted; insurance claims must be processed; in general, more foreign exchange is spent than would have been necessary. Naturally, these considerations are much more important for some "containerizable" goods than others.

The impact of unitization on cargo handling has not been as dramatic in Latin America as in other parts of the world. However, this is explained in part by the worldwide relationship between the efficiency of unit-load handling and the total cargo through-put in ports, whereby efficiency is more pronounced in larger volume ports. This can be tentatively concluded from the comparative data collected on a regular basis by Carl Plumlee for his Port Performance Index, most recently published in early 1974.^{6/}

A study of containers in Colombia in 1970 reported an unloading rate of 150 tons per hour of containerized cargo in Buenaventura, compared with 240 tons per hour estimated as feasible except for problems of space in the port, and compared with 40 tons per hour of conventional general cargo in the same port. 1,500 containers per month were being handled at that port.^{7/}

(b) Palletizing, which has spread rapidly in Latin America, offers less protection than the container, but its economic advantages are evident for the transporter as well as for the user. Faster and cheaper handling is offered and, apart from forklift trucks and pallets, no special equipment is required. It should be mentioned here that although in some cases palletizing increases transportation costs for the user, many maritime Conferences grant a so-called pallet reduction in the freight rate. On the other hand, the pre-palletization

^{6/} Carl Plumlee, Port Performance Index: Fourth Interim Report (Port Hueneme, California, 1974). The index is defined as the tons of cargo handled between ship and shores per hours of ship turnaround time.

^{7/} Instituto Nacional del Transporte, Subdirección Técnica, El contenedor en Colombia, Estudio Preliminar, Document INTRA S.T. 026, Bogotá, January 1970.

(palletization of goods at their point of origin or production) brings about important savings in handling costs and avoids pilferage or deterioration of the merchandise. Multimodal transport is very well possible with palletized cargo, provided the units are built up expertly and the pallets sufficiently strong.

(c) The barge-carrying vessel should have different direct economic repercussions in Latin America, depending on how the system is applied. One concept is for the mother ship to berth, in order for container loading and barge loading to take place at the same time, and in order to take advantage of the tank space which can be used for liquid cargoes. A different concept is for the mother ship to unload barges in protected waters, permitting more ports to be served in a given amount of time, but giving up the direct handling of containers from the ship. The relative emphasis on containers or on barges, and the nature of the ports to be served, are major determinants of which of these concepts is to be applied, with quite different vessel operating cost results.

Port calls involving docking are assumed in the projections made in 1970 by the present barge-carrying vessel operator on the route between East Coast of South America and the Gulf Coast of the United States. Table III-10 shows a model schedule of a LASH container vessel on a 42 day round-trip voyage on this route. A minimum of 25 sailings per annum (one each 14 days) is assumed using three LASH container vessels on this route (complemented by other vessels on a somewhat alternative route). In order to break-even, it was estimated that the vessels only needed to operate at approximately 30-35 per cent utilization of cargo space, assuming an average freight rate per ton of US\$ 50 per long ton, and manning of the new vessels based on the manning of the conventional vessels operated by the same line. Table III-11 indicates the operating cost differentials between the LASH container vessels and the conventional vessels operating on the basis of the above projections of sailings, and schedules, and apparently assuming no variations of costs due to different levels of utilization.

The movement of the barges themselves involves a number of direct costs, including barge fleeting (keeping the barge in a safe place when not used) harbour towing, and towing between ports. Nonetheless, data provided recently by the barge operator on these and other costs associated with LASH barge operations in several ports of the United States, indicate that the biggest factor remains labour costs. As compared to break-bulk or container operations, the separate movement of barges entails additional costs but these can be more than compensated by savings in ship operations, even more so when the mother ship does not dock. The data given here (table III-12) show the considerable influence of port pricing policies on the relative advantages and disadvantages for users of using the LASH system. LASH users in Mobile pay practically the same price for all barge operation costs, including towing of the barge to the mother ship at New Orleans, that the break-bulk cargo shipper in New Orleans pays solely for cost of labour for unloading or loading. These data sustain the premise that LASH enables shippers to enjoy more cost options regarding routing than is the case normally with break-bulk or containers.

Of course, the introduction of these types of barges on inland navigation costs can imply the need for reorganization of internal water transportation services, resulting in economic losses by some transporters.

(d) Latin American shipping companies have shown a certain reluctance in accepting modern technologies, although this is partly due to the capital investments required. The use of multi-purpose ships is very limited and break-bulk vessels are still abundant, although these latter are carrying much of their traffic as palletized, strapped and pre-slung cargo. On the whole it would seem that the possibilities to apply modern techniques by these companies require more intensive study and that close co-operation with other shipping lines of the region should be sought. It should be realized that one LASH carrier or one full fledged container ship can take the place of several conventional vessels, due to short

/portstays, much

portstays, much higher speed, and cargo deadweight cubic measurement; the same is true for the multi-purpose ship, be it to a somewhat lesser extent. Limiting the number of ports of call contributes considerably to attaining economies especially in zones where there is a balanced flow of inward and outward cargo of sufficient quantity to obtain an optimal use of the shipping space offered. Pallet ships can serve a larger range of ports but attain fewer economies of scale. Barge carrying vessels may go to many ports and drop the barges without major time loss for the mother ship, which can result in significant economies of scale.

(e) The balance of payments effects are of considerable importance to the Latin American countries, and it is appropriate here to call attention to the principal implications for this problem as unitization is introduced progressively.

First, there is the interest of the Latin American countries in the use of their own resources with regard to the capital investments made in new equipment, including ships, containers, and container-handling equipment. Undoubtedly, where progressive containerization is chosen, the possibilities of maximizing the value added in the region of the construction, installation or putting into operation of this equipment have often not been fully exploited. This is particularly the case of the containers themselves. ISO standard containers have been constructed in Argentina and Colombia and LASH barges have been constructed in Argentina and Brazil. Tables III-13 through III-15 summarize United Nations' estimates of international prices of containers, container-handling equipment and LASH and other barges. It should be noted that there exists much less expensive equipment than that shown here, for road/rail transfers of containers.

The design of mini-unitized (e.g., mini-LASH) cargo ships has been perfected, and these might not only be appropriate for some trades to Latin America, but also the possibilities of construction within the region might be much higher than in the case of the larger ships. Given the high subsidies on the construction of new container, barge-carrying or roll-on/roll-off vessels in some of the more industrialized

/countries, the

countries, the relatively high cost of each vessel, and the specialized design features, Latin American shipbuilders are at a disadvantage in competing with regard to these larger vessels.

Second, there could be some balance of payments effects with regard to the operating costs of the newer systems. This is especially the case where the development of new procedures and institutions accompany the new technology, as when combined transport operators assume responsibility for the entire movement of the cargo with certain liberty to subcontract or buy services. In this latter case, the nationality or real ownership of the ship, of the connecting land transport, of the container, of the insurer and other associated services could be significant. Unitization in and of itself would not have these effects, except to the degree that this implies more carriage by foreign vessels, and the leasing of foreign containers or other instruments of unitized cargo movement.

Naturally, the balance of payments is not affected by all operating costs, and thus the nationality or ownership of the ship or connecting land transport or other services is relevant only to a certain degree.

Insurance written in the developing country naturally favours the balance of payments, although re-insurance abroad reduces the importance of this. A much more important factor is the payment of the freight in the case of shipment by national line. Against the collection of the freight, however, is expenditure of foreign exchange by the line for harbour costs, cost of loading, commission to agents, payments of claims, Conference contribution, cost of fuel and provisions, maintenance of ships, P & I insurance, replacement and/or enlargement of its fleet, etc. The magnitude of the different cost items of a navigation company for the operation of a freighter becomes apparent when one notices the following percentages:^{8/}

^{8/} Fairplay International Shipping Journal, 11 March 1971.

	<u>Percentages</u>
Port charges	13.0
Amortization	10.0
Fuel	8.0
Insurance	5.5
Repairs	4.0
Miscellaneous	2.5
Wages and subsistence	20.5
Cargo handling	<u>36.5</u>
	100.0

It should be noted that foreign lines serving Latin America also contribute to foreign exchange, be it in a more limited way, as the part of the freight collected which is used for coverage of services required from the ports and from agents and for the payment of taxes, supplies, communications, etc. In other words, part of the freight paid to a foreign line flows back to the developing country.

Third, and perhaps most important, unitization and institutional developments could have an effect on the overall negotiating position of the developing country as regards its trade and the services associated with the movement of its international cargo. For example, a national line's significance for the country might be most important in that the country has more influence on freight rates, frequency and reliability of sailings, money pools and other matters of great interest to the foreign trade of the country, and even more crucial where container consortia and new intermodal systems develop. As another example, dependence on foreign containers can be disadvantageous for the trade itself when there is a shortage of standardized containers, a situation which presently exists, or when there are considerable fluctuations in the leasing prices in Latin America for a dependable supply of containers. The trading position of the country can be affected by this uncertainty. These indirect but important effects on the balance of payments are extremely difficult to estimate.

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Table III-1

DATA RELATING TO THE HYPOTHETICAL SHIPS AND USED FOR COST COMPARISONS

Type Item	Conventional ship 1968	Pallet ship 1968	Container ship 1968	Barge-carrying vessel (LASH) 1970	Delta LASH ^{a/} 1972
(A) Particulars of ships:					
Deadweight tons (1 000 kg)	11 000	11 000	15 000	43 000	41 660
Bale capacity ^{b/}					
per container or barge (M ³)	-	-	32	564	564
number of containers or barge loadable	-	-	700	73	74
per ship (M ³)	15 000	14 200	22 400	41 200	41 736
Speed (knots)	16.0	16.0	22.0	18.5	22.5
Main engine SHP	7 200	7 200	28 000	26 000	32 000
Bunker consumption (1 000 kg)					
in port	2.5	2.5	4.0	3.0	3.5
at sea	25.5	25.5	80.0	72.0	76.0
Cargo gear	5 hatches 8 cranes	3 pallet elevators 2 side doors	1 container crane ashore	1 ship-mounted gantry crane	2 cranes
Number of crew	36	30	30	30	33
Building cost (\$1 000)					
per ship	3 000	3 500	6 500	13 000	17 000
per container/barge	-	-	1.5	35	40
(B) Particulars of routes:					
Distance of round voyage (sea miles)	10 000	10 000	10 000	10 000	10 000
Number of calling ports per round voyage	6	6	4	4	4
Broken stowage factor ^{c/}	1.45	1.60	1.10	1.25	1.25
Cargo handling productivity ^{d/}	30 M ³ per gang hour	120 M ³ (60 units) per pallet elevator or side port per hour	20 container (20-foot) per hour	4 barges per hour	4 barges per hour

Source: UNCTAD, "Unitarization of cargo", TD/B/C.4/75, United Nations, New York, 1970, and Delta Line "Sistema LASH/Container", New Orleans, La., October, 1972.

Note: The particulars and performances of each model ship are estimated on the basis of actual figures relating to existing vessels of similar types as far as available.

^{a/} Excludes capacity for 288 containers, or tank space.

^{b/} Bale capacity is the total number of cubic metres or feet available for the stowage of bales or other packaged cargo.

^{c/} Broken stowage factor means ratio of measurement tons of occupied ship space against the total measurement tons of the loaded cargo.

^{d/} Estimated from various statistics in terms of long tons on the assumption that the density cargo is 0.5 long ton per cubic metre.

Table III-2

ESTIMATES OF CAPITAL COST PER FREIGHT TON OF ONE CUBIC METRE

(In \$1 000)

Item	Type	Conventional	Pallet	Container	Barge-carrying	Delta
		ship 1968	ship 1968	ship 1968	vessel (LASH) 1970	LASH 1972
(1) Building cost per ship <u>a/</u>		3 000	3 500	6 500	13 000	17 000
(2) Number of ships in service		7	5	4	4	3
(3) Total investments in ships (1) x (2)		21 000	17 500	26 000	52 000	51 000
(4) Total number of containers/barges		-	-	700 x 4 ships x2.5 sets = 7 000	73 x 4 ships x2 sets = 584	74 x 3 ships x1.12 sets = 250
(5) Total investment in barges/containers		-	-	10 500 (at 1.5 per container)	20 440 (at 35.0 per barge)	10 000 (at 40 per barge)
Annual capital costs on investments <u>b/</u>						
(6) Ships (3) x $\frac{1}{8.8513}$		2 370	1 980	2 940	5 880	5 762
(7) Container (5) x $\frac{1}{4.8684}$		-	-	2 160	-	-
(8) Barge (5) x $\frac{1}{8.8513}$		-	-	-	2 310	1 130
Total capital cost per year, per fleet (6) + (7) + (8)		2 370	1 980	5 100	8 190	6 892
Capital cost per freight ton of one cubic metre		\$ 2.30	\$ 2.22	\$ 2.50	\$ 2.48	\$ 2.06

Source: UNGTAD, "Unitarization of cargo", TD/B/C.4/75, United Nations, New York, 1970, and Delta Line, "Sistema LASH/Container", New Orleans, La., October, 1972.

a/ Estimated on basis of 1968 market price, except prices of Delta based on 1972 market prices.

b/ Equal annual amortization with interest at 8 per cent compounded annually over the next 16 years in the case of ships and barges, 10 per cent and 7 years in the case of containers.

Table III-3
ESTIMATES OF OPERATIONAL COST PER FREIGHT TON OF ONE CUBIC METRE
(In \$ 1 000)

Item	Type	Conventional ship 1968	Pallet ship 1968	Container ship 1968	Berge- carrying vessel (LASH) 1970	Delta LASH 1972
Crew cost per fleet <u>a/</u>		1 764	1 050	840	840	990
Maintenance, insurance and stores (3) of table III-1 x 2%		420	350	520	1 040	1 020
Maintenance and insurance of container/barge:						
Container (5) of table III-1 x 4%		-	-	420	-	-
Barge (5) of table III-1 x 2%		-	-	-	409	200
Fuel expenses <u>b/</u>		605	565	1 240	1 281	1 261
Port charges <u>c/</u>		550	399	335	458	458
Administration expenses <u>d/</u>		585	446	1 680	1 272	1 272
Total operational cost per year per fleet		3 924	2 810	5 035	5 300	5 201
Operational cost per freight ton of one cubic metre		\$ 3.81	\$ 3.16	\$ 2.47	\$ 1.61	\$ 1.56

Source: UNCTAD, "Unitarization of cargo", TD/B/C.4/75, United Nations, New York, 1970, and Delta Line, "Sistema LASH/Container", New Orleans, La., October, 1972.

a/ Crew cost is assumed as \$ 7 000 per year per man.

b/ Fuel expenses are calculated on the basis of the bunkering price at Singapore as of the end of March 1970, e.g. marine diesel oil at \$ 28.00, a bunker fuel oil at \$ 15.50.

c/ Port charges are assumed as follows: \$ 200 per day per 10 000 cwt, \$ 1 000 per call.

d/ Administration expenses are assumed as 10 per cent of the annual capital cost and the other operational costs in the cases of conventional ship, pallet ship, and barge-carrying vessels, and 20 per cent in the case of container ships.

Table III-4
 COMPARISON OF SPACE COSTS (M³), 1968
 (Dollars)

Item	Type	Conven- tional ship	Pallet ship	Container ship	Berge-carrying vessel 1970	Delta LASH 1972
Capital cost		2.30	2.22	2.50	2.48	2.06
Operational cost		3.81	3.16	2.47	1.61	1.56
<u>Total</u>		<u>6.11</u>	<u>5.38</u>	<u>4.97</u>	<u>4.09</u>	<u>3.62</u>

Source: UNCTAD, "Unitarization of cargo", TD/B/C.4/75, United Nations, New York, 1970, and Delta Line, "Sistema LASH/Containers", New Orleans, La., October, 1972.

Table III-5

ESTIMATES OF CARGO HANDLING CHARGES PER FREIGHT TON OF ONE CUBIC METRE

(In dollars)

Range of unitized transport	Type of ship and cargo Trades	Conventional ship	Pallet ship	Container ship	LASH	
		Break-bulk cargo	Palletized cargo	Containerized cargo	Break-bulk cargo	Palletized cargo
Door-to- door <u>a/</u>	Developed countries					
	highest-cost (a)	15.00	4.00	3.00	10.00	4.00
	lowest-cost (b)	4.00	2.00	1.50	2.70	2.00
	Developing countries					
	highest-cost (c)	6.00	4.00	3.00	4.00	4.00
	lowest-cost (d)	2.00	2.00	1.50	1.40	2.00
	Combination of:					
	(a) + (c) ... (A)	21.00	8.00	6.00	14.00	8.00
	(a) + (d) ... (B)	17.00	6.00	4.50	11.40	6.00
	(b) + (d) ... (C)	6.00	4.00	3.00	4.10	4.00
Door-to- quay <u>b/</u>	Developed countries					
	highest-cost (a)	15.00	4.00	3.00	10.00	4.00
	lowest-cost (b)	4.00	2.00	1.50	2.70	2.00
	Developing countries					
	highest-cost (c)	6.00	8.00	7.00	4.00	8.00
	lowest-cost (d)	2.00	3.40	2.90	1.40	3.40
	Combination of:					
	(a) + (c) ... (A)	21.00	12.00	10.00	14.00	12.00
	(a) + (d) ... (B)	17.00	7.40	5.90	11.40	7.40
	(b) + (d) ... (C)	6.00	5.40	4.40	4.10	5.40
Quay-to- quay <u>c/</u>	Developed countries					
	highest-cost (a)	15.00	14.00	13.00	10.00	14.00
	lowest-cost (b)	4.00	4.70	4.20	2.70	4.70
	Developing countries					
	highest-cost (c)	6.00	8.00	7.00	4.00	8.00
	lowest-cost (d)	2.00	3.40	2.90	1.40	3.40
	Combination of:					
	(a) + (c) ... (A)	21.00	22.00	20.00	14.00	22.00
	(a) + (d) ... (B)	17.00	17.40	15.90	11.40	17.40
	(b) + (d) ... (C)	6.00	8.10	7.10	4.10	8.10

Source: UNCTAD, "Unitarization of cargo" New York, 1970, TD/B/C.4/75.

a/ Cargo handling charges comprise stevedoring and terminal charges excluding wharfage.

b/ Door of developed countries and quay of developing countries are assumed. Cargo handling charges in developed countries comprise stevedoring and terminal charges excluding wharfage, and in developing countries charges are added for stuffing/unstuffing containers or palletizing/depalletizing cargo.

c/ Cargo handling charges comprise stevedoring and terminal charges excluding wharfage, and charges for stuffing/unstuffing containers or palletizing/depalletizing cargo.

Table III-6

COMPARISON OF ESTIMATED FUTURE COSTS BY TYPE OF VESSEL, 1968

(In \$ per freight ton of one cubic metre)

Type of vessel	Costs per cubic metre	Current	Ten years from now	Assumed growth rates (average per year)	\$
Conventional ship	Capital cost	2.30	2.30		0.0
	Operational cost	3.81	6.56	{ crew cost other costs	10.0
	Cargo handling cost	17.00	34.00		5.0
	<u>Total</u>	<u>23.11</u>	<u>42.86</u>		10.0
Pallet ship	Capital cost	2.22	2.22		0.0
	Operational cost	3.16	5.30	{ crew cost other costs	10.0
	Cargo handling cost	7.40	11.10		5.0
	<u>Total</u>	<u>12.78</u>	<u>18.62</u>		5.0
Container ship	Capital cost	2.50	2.50		0.0
	Operational cost	2.47	3.96	{ crew cost other costs	10.0
	Cargo handling cost	5.90	7.97		5.0
	<u>Total</u>	<u>10.87</u>	<u>14.43</u>		3.5
LASH vessel (1970)	Capital cost	2.48	2.48		0.0
	Operational cost	1.61	2.54	{ crew cost other cost	10.0
	Cargo handling cost (palletized cargo)	7.40	11.10		5.0
	<u>Total</u>	<u>11.49</u>	<u>16.12</u>		4.0

Source: UNCTAD, "Unitarization of cargo", New York, 1970, TD/B/C.4/75.

Note: Cargo handling costs are based on door (of developed countries with highest costs) to quay (of developing countries with lowest costs).

Table III-7

SHIPMENT OF OFFICE MACHINES FROM CHICAGO TO BREMEN
VIA NEW YORK (30 051 LBS), 1965

(Dollars)

<u>Costs for shipping in six 10 cubic meter containers</u>	
Inland freight	964.64
Ocean freight (including the 12 1/2 % reduction then allowed by conference lines for movements in shipper-provided containers)	1 792.81
Bill of lading, handling, postage, messenger	23.50
Insurance	223.12
Container rental	105.00
Handling and pickup charge, Chicago	78.00
Redelivery of empty containers, Bremen	36.00
<u>Total</u>	<u>3 223.07</u>
<u>Costs for same shipment, packed conventionally</u>	
Inland freight	995.81
Ocean freight	2 463.23
Bill of lading, handling, postage, messenger	23.50
Insurance	266.85
Cost of export packing, conventional method	272.68
<u>Total</u>	<u>4 022.07</u>

Source: Robert F. Church, "Background note on the development of containerized international shipping", (Study sponsored the Transportation Center at Northwestern University, USA), January, 1968.

Table III-8

SHIPMENT OF MOTOR-VEHICLE PARTS FROM USA TO ARGENTINA

Item	Cost in cases	Cost in containers	Difference
1. Value factory of origin	10 000	10 000	-
2. Value packing	2 800	1 700	1 100
3. Local freight	1 100	200	900
4. Warehouse-Port-etc.	650	300	350
5. Commission Agent FAS	101	85	16
	<u>14 651</u>	<u>12 285</u>	<u>2 366</u>
6. Consular expenses FOB	219	184	35
	<u>14 870</u>	<u>12 469</u>	<u>2 402</u>
7. Shipping freight C and F	2 590	2 119	471
	<u>17 462</u>	<u>14 579</u>	<u>2 883</u>
8. Insurance CIF	349	145	204
	<u>17 811</u>	<u>14 725</u>	<u>3 086</u>
9. Import duties	21 373	17 670	3 703
10. Sales tax	2 137	1 767	370
11. Statistics	267	220	47
12. Steel industry plan	1 424	1 178	246
13. Merchant navy	310	254	56
14. Hire and insurance of equipment	-	486	(486)
15. Port	105	90	15
16. Stowage	18	15	3
17. Overland freights	25	20	5
18. Customs custody	6	-	6
19. Expenditure Letter of Credit	267	224	43
20. Insurance tax	97	40	57
21. Bonded value	427	71	356
22. Despatchers	267	220	47
23. Rent of fiscal area	500	-	500
24. Costs loading/unloading packing	80	20	60
<u>Total cost</u>	<u>45 112</u>	<u>37 008</u>	<u>8 104</u>

Source: Murehison, S.A. Buenos Aires, 1974.

Table III-9

COMPARISON BETWEEN A PARCEL OF PHILIPS CARGO DESPATCHED FROM EINDHOVEN
(NETHERLANDS) TO SANTIAGO (CHILE) AS BREAK-BULK AND CONTAINERIZED

Break-bulk: 217 packages - 30 271 kg.

FOB-value	US\$ 42 810
Ocean freight (including surcharges)	9 661
Insurance (door-to-door)	1 051
Transportation after discharge	290
Warehouse charges (up to 20 days)	48
Weighing	33
Customhouse agent	2 115
Truckage	454
	US\$ <u>56 462</u>

In containers: 217 packages - 30 271 kg.

FOB-value	US\$ 42 810
Ocean freight (including surcharges)	9 661
Insurance (door-to-door)	1 051
Transportation after discharge	290
Use of forktrucks	60
Customhouse agent	2 115
Truckage (roundtrip)	704
Container rent (roundtrip)	200
Customs inspection (interior)	301
	US\$ <u>57 192</u>

Source: Philips Chilena S.A., Santiago, 1973-1974.

Note: Insurance premium for containerized shipment may be somewhat lower. Shipment effected by conventional carrier.

Table III-10

DETAIL OF TYPICAL SCHEDULE OF 22.5 KNOT COMBINATION LASH/CONTAINER VESSEL
ON A 42-DAY VOYAGE TRADE ROUTE 20, U.S. GULF-EAST COAST SOUTH AMERICAS/

Port	Arrive	Sail	Seatime	Port time
New Orleans 435 Mi		1/1 - 1700		
Houston 474 Mi	1/2 - 2000	1/4 - 0800	1 - 3	1 - 12
Mobile (Optional) b/ 1488 Mi	1/5 - 1500	1/6 - 1400	1 - 6	1 - 00
San Juan 1668 Mi	1/9 - 0900	1/10 - 0300	2 - 19	0 - 18
Belem 2174 Mi	1/13 - 0600	1/13 - 1800	3 - 03	0 - 12
Rio de Janeiro 213 Mi	1/17 - 1900	1/18 - 1900	4 - 01	1 - 00
Santos 893 Mi	1/19 - 0700	1/21 - 0700	0 - 12	2 - 00
Montevideo 124 Mi	1/22 - 2300	1/23 - 1100	1 - 16	0 - 12
Buenos Aires 897 Mi	1/23 - 2100	1/25 - 2100	0 - 10	2 - 00
Paranagua 167 Mi	1/27 - 1300	1/28 - 0100	1 - 16	0 - 12
Santos 2778 Mi	1/28 - 1100	1/29 - 1100	0 - 10	1 - 00
Belem 1623 Mi	2/3 - 1500	2/4 - 0000	5 - 04	0 - 09
Curacao 1678 Mi	2/7 - 0300	2/7 - 1500	3 - 03	0 - 12
New Orleans	2/10 - 1700	2/12 - 1700	3 - 02	2 - 00
			28 - 09	13 - 15

Note: In this itinerary two (2) days as reserve port time have been included.

a/ Application by Delta Lines to the U.S. Maritime subsidy board for construction - Differential subsidy, 24 July 1970.

b/ May call at substitute Gulf port, or call only at two Gulf ports - New Orleans and Houston.

Table III-11

ESTIMATED DIFFERENTIAL COSTS-LASH/CONTAINER VESSEL VS. CONVENTIONAL VESSEL, 1970^{a/}

The following listed items of vessel expenses have been escalated an average of 17% over current costs to provide a computation base for the new vessels projected to be in full operation in 1974. The estimated differential costs for specific items are:

- (a) Wages, including straight time, overtime and fringe benefits - \$ 62 per voyage day less for DELTA/LASH than conventional vessel (attributable to lesser overtime).
- (b) Subsistence - none.
- (c) Bunker costs - \$ 750 per voyage day more for DELTA/LASH than conventional vessel.
- (d) Stores, supplies and equipment - \$ 45 per voyage day less for DELTA/LASH than conventional vessel.
- (e) Maintenance and repairs - \$ 66 per voyage day more for DELTA/LASH than conventional vessel.
- (f) Insurance - \$ 225 per voyage day more for DELTA/LASH than conventional vessel.
- (g) Other vessel expense - \$ 48 per voyage day more for DELTA/LASH than conventional vessel.

Other costs with LASH/container vessel:

- (a) Agency fees and commissions are estimated at 3 1/2 % of revenue
- (b) Cargo handling cost on conventional vessels is projected at \$ 3.50 per ton over present cost. Conversely, DELTA/LASH cargo handling cost is projected at a reduction of \$ 5.65 per ton.
- (c) Leasing expense for DELTA/LASH barges and containers is estimated on the basis of current rates offered by lessors.
- (d) The brokerage rate currently in effect is applied to estimated revenues.
- (e) Other voyage expense is increased proportionately over current costs.
- (f) Depreciation is computed on the straight line method using a 25 - year economic life and 17 % residual value (17% of total domestic shipyard cost).
- (g) Interest is estimated at 9% rate (including Title XI insurance premiums) and computed at mid-life for DELTA/LASH vessels.
- (h) Overhead and administrative expenses, includes advertising, miscellaneous taxes other than Federal income tax, miscellaneous expenses, depreciation of other shipping property and equipment, and interest expense less interest income, agency fees, commissions and brokerage, etc. estimated at 10% increase over current levels.
- (i) United States' Federal income taxes are estimated at 50% of the tax rate, assuming that one-half of pre-tax profit will be placed in Reserve Fund.

^{a/} Application by Delta Lines to the U.S. Maritime Subsidy Board for Construction - Differential Subsidy, 24 July 1970.

Table III-12

I. LASH VESSEL OPERATION COSTS, 1973

- (1) Port charges (includes dockage, first call on berth privilege, line handling, pilotage, port and harbor dues, tonnage dues, tug hire, vessel watchmen, terminal charges, other miscellaneous charges against the LASH mother vessel)
- (2) Stevedoring (includes longshoremen and clerk costs)
- (3) Towboat charges (includes cost of tugboats used for working the mother vessel)

Summary:	<u>New Orleans a/</u>	<u>Houston a/</u>
(1)	\$ 1.18 per long ton	\$ 0.50 per long ton
(2)	1.95	2.15
(3)	0.44	0.39
<u>Total</u>	\$ <u>3.57</u> per long ton	\$ <u>3.04</u> per long ton

II. LASH BARGE OPERATION COST

- (1) Barge fleetng (means keeping barge in safe place when it is not being worked)
- (2) Dockage/sheddage (port charges against barge at dock)
- (3) Harbor towboat (moving barge by towboat to different places within a port)
- (4) Preferential (cost of having a dock used only by Delta)
- (5) Stevedoring/loading (cost of labor used to put cargo into barges)
- (6) Stevedoring/discharging (cost of labor used to take cargo out of barge)
- (7) Towing (cost of moving barge between port where mother vessel calls and port of destination of cargo)

<u>Item</u>	<u>New Orleans</u>	<u>Baton Rouge</u>	<u>Mobiles</u>	<u>Houston</u>	<u>Freeport</u>
(1)	0.31	0.27	0.10	0.13	-
(2)	0.11	0.93	0.07	0.12	0.13
(3)	1.07	0.49	0.10	0.26	-
(4)	0.53	-	-	-	-
(5)	7.85	13.70	4.86	12.42	10.38
(6)	8.00	9.55	4.86	7.36	-
(7)	-	1.28	2.94	-	1.99
Total cost per long ton:					
(A) Loading \$	9.87	16.67	8.07	12.93	12.50
(B) Disch. \$	10.02	12.52	8.07	7.87	- b/

All of the costs herein are estimated to be within \pm 3% of actual. They are operational costs and do not include such costs as depreciation, interest, agency fees, and other minor items, etc.

Source: Provided directly by Delta Steamship Lines.

a/ Mother vessel only calls at Houston and New Orleans. Barges are towed to other ports.

b/ No cargo discharged at Freeport.

Table III-13

COSTS OF CONTAINERS, DEPENDING ON MATERIAL AND TYPE

ISO container type	Initial costs (US\$)	Depreciation period (years)	Capital costs (US\$)	Operating and maintenance (US\$ per year)	Total costs per year (US\$)
All steel:					
1 A	2 500	5	625	325	950
1 B	2 000	5	500	325	825
1 C	1 100	5	275	205	480
Steel frame, aluminium cladding 1 C					
	1 450	6	313	183	496
Steel frame, plywood fibreglass cladding					
	1 650	6	356	133	489
Steel frame, stainless steel cladding 1 C					
	1 700	6	367	135	502
Refrigerated 1 C (excl. refr. unit)					
	3 750	5	938	338	1 276
Tank container 1 C					
	3 750	5	938	338	1 276
All stainless steel:					
1 A	3 500	10	522	225	747
1 B	2 800	10	417	178	595
1 C	2 000	10	298	125	423

Sources: United Nations, Physical requirements of transport systems for large freight containers; ST/ECA/170; 1973.

Table III-14

CARGO HANDLING AND CONVEYANCE EQUIPMENT USED IN THE LIFT ON - LIFT OFF SYSTEM

Type of equipment	Initial costs (US\$)	Depreciation (years)	Capital costs (US\$ per year)	Operating costs (US\$ per hour)
Heavy duty container crane (excl. foundation costs) 30 tons.	800 000	15	93 600	15.0
Trailer (excl. traction)	8 000	5	2 000	0.3
Yard trailer (idem)	4 000	5	1 000	0.3
Tractor, depending on size	7 000/ 15 000	5	1 750/ 3 750	5.0/ 7.0
Straddle carrier:				
Stacking type	160 000	7	30 720	20.0
Non-stacking type	80 000	7	15 360	12.0
Side transfer unit:				
20 foot	14 000	8	3 500	1.5
20-40 foot (any size)	20 000	8	5 000	2.0

Source: United Nations, Physical requirements of transport systems for large freight containers; ST/ECA/170; 1973.

Table III-15

COSTS FOR BARGES, DEPENDING ON SIZE

Type of equipment	Appr. initial costs (thousands of US\$)	Depreciation (years)	Capital costs per year (thousands of US\$)	Operating costs per year (thousands of US\$)
Type of barge:				
LASH type 950 dwt.	90	10	5	15
Barge 500 dwt.	110	10	16	6

Source: Physical requirements of transport systems for large freight containers ST/ECA/170; 1973

Chapter IV

INSTITUTIONAL ARRANGEMENTS WHICH HAVE COMMONLY ACCOMPANIED THE INTRODUCTION OF THE NEW TECHNOLOGIES

Pressures for a number of institutional changes generally follow the introduction of new transport technologies. These pressures are natural outgrowths of the technological changes, since the economies which are attributed to the technologies are in fact in great measure the result of institutional changes which enable the technologies to be taken advantage of to their fullest. That is to say, it is not the mere use of transport instruments, but rather of unitization in its broadest sense which produces the bulk of the economic benefits associated with that technology. Many of the benefits of unitization can be realized without the need for large-scale investments in equipment, these benefits resulting from the organizational or institutional changes identified with unitization. Once a commitment is made to make the investments in new equipment, the corresponding pressures for institutional changes are often combined with the argument that the hardware technology "requires" these changes. Of course, it is not a matter that the technology requires the institutional changes; rather, the institutional changes are preconditions for many of the benefits associated with the technology.

In this chapter, major institutional changes which have been associated commonly with the introduction of new transport technologies will be described. These include the consolidation or "packaging" of services to international trade, new liability regimes, modification of documentation requirements and processing, new forms of consolidation and inspections of cargo, agreements on interchange and handling of transport instruments, social effects of the new technologies, changes in procedures regarding charges and payments, and the changes in the effectiveness of governmental regulatory activities and shippers' representation. The extent to
/which these

which these institutional changes appear to be necessary repercussions of the adoption of new transport technologies will be indicated. Finally, a case study will be presented of the institutional changes which accompanied or followed the introduction of large-scale containerization on the trades between Australia and Europe.

The consolidation or "packaging" of services to international trade is one of the major institutional innovations which has been associated with the new transport technologies. New enterprises, called combined transport operators (CTO), are founded for the consolidation of services of carriers, brokers, forwarders, insurers, leasing companies, warehouses, etc., to the user. The creation of the "packages" of services results in alterations in the traditional terms of shipment (e.g. Ex-works instead of FOB) and in the arrangements for land transport services.

The combined transport operator (CTO) is an enterprise which undertakes to assure: (1) delivery of the cargo at the destination agreed upon with the shipper or consignee, (2) maintenance of the physical condition of the cargo while under the care of the CTO and (3) expedition of the cargo to the point of destination without undue delay. The CTO may assume responsibility for the cargo during the entire movement from origin to destination, or for part of this movement, even though this responsibility covers carriage by more than one mode of transport.

The CTO's liability is generally more ample than that which the transporters assume in the case of segmented traffic. Insurance terms and claim handling are adjusted to this new liability situation.

There are three types of enterprises which appear to be the most active in combined transport operations in Europe: (a) consortia of international container operators many with subsidiaries which specialize in non-unitized cargo; (b) freight forwarders which have reorganized considerably during the last

/years in

years in order to widen the range of their responsibilities and services 1/ and (c) transnational producers of certain commodities which are major users of their own combined transport operations. There are many restrictions on the activities of CTO in the United States at present, although this has not prevented United States enterprises from extending their range of services abroad in ways not yet permitted within their own country. Also, certain intermodal arrangements have evolved within the United States, including the well-known "land bridge" operations,2/ under the leadership of transport enterprises which are thus acting as CTO's.

There has been an important but not necessary connexion between the consolidation of services by the combined transport operator, and unitization of cargo. The alteration of liability arrangements and simplification of documentation, which are important factors to obtain the economies of unitization, are more easily carried out where the combined transport operator is able to control the different services which intervene in cargo movements.

The relationship between new liability arrangements and the new transport technologies is rather subtle. Unitization is attractive to users largely because of the greater security provided for the cargo, especially in the "no man's land" where no or little effective responsibility is assumed for the cargo handled by traditional methods. This "no man's land" includes warehouses, ports and other points of transshipment. While the use of unit-loads has generally resulted in more security for the cargo and less claims, it has created more difficulties to

1/ Jane R.C. Boyes, "Total package from Europe's Forwarders", Containerization International (March 1974), pp. 5-10. Note that many of these forwarders have entered directly into container leasing, and the operation of containers in large quantities on specific routes.

2/ "Land bridge" refers to transcontinental land transport of goods, with connecting maritime liner carriage.

pinpoint responsibility for whatever damages or losses take place. In this sense, the "no man's land" has been enlarged. The creation of the combined transport operator has often been justified mainly in terms of his assumption of the responsibility for the cargo in those cases when there is doubt which transporter is at fault or where no effective responsibility has been assumed. 3/

3/ As to premiums, the following summary is pertinent:
"Although in most container shipments neither the shipper nor the cargo underwriter knows beforehand the name of the ship that will carry the container, nor whether the container will be carried on or under deck, this has not presented any undue problems for insurers. Most shippers of goods hold open cargo insurance policies where the rate is mainly influenced by results, and in these cases it is not always necessary to list separate premiums for container goods. For some shipments, insurers deem it essential to stipulate that the container is carried either on or under deck, or they might consider it necessary to charge an additional premium if it is not known where in the ship the container is carried. This is based upon the fact that on modern container vessels one-third of the containers are carried on deck. The charging of premiums on containerized goods is also dependent upon whether they are carried in the same container from departure point to final destination."
"Despite the introduction of modern methods of protection of cargo and new forms of handling equipment, insufficient or unsuitable packing still gives rise to a predominant cause of loss with numerous types of shipment. Better results are generally obtained when it is possible for underwriters to stipulate that the insured interest is packed or carried in conformity with specified approved standards."
"Growing Threat to Traditional Insurance Markets", by a Special Correspondent. From Fairplay International Shipping Journal (5 July 1973).

/Among the

Among the pertinent institutional changes related to the introduction of new transport technologies are the modification of documentation and the investment in data communication and processing devices. These changes are associated with unitization of cargo, since cargo handling is accelerated and the speed of cargo through-put at the points of transshipment, including ports, becomes more dependent on the facilitation of information handling. The likelihood is greater than is the case with traditional cargo handling that cargo cannot be moved simply because of delays in the transmission of information. Lack of efficient co-ordination between cargo handling and documentation processing or transmission results in poor utilization of the transport instruments as well as delays of valuable cargo. Parallel to the systematization of intermodal cargo handling a single transport document is being introduced to cover door-to-door carriage. This transport document is labeled a combined transport document, through bill of lading, intermodal bill of lading, combined bill of lading, etc.

On some trades, even greater simplification of transport documentation is taking place, with an electronic freight documentation system providing for a non-negotiable receipt rather than the traditional bill of lading. The consignee and the ship's agents at the receiving and receive all cargo details by telecommunications. The receipt is not sent to the consignee. The CTO or shipping line retain the liability as set out in the company's Bill of Lading. In case shippers do require a negotiable document, it will be made out and the traditional procedure of airmailing documents will be followed.

To ease documentation processing, the alignment of commercial documents to internationally recognized formats is being undertaken. This involves the creation of one or two master documents from which all other documents can be reproduced; the master contains the information which is common to a complete

set of documents, necessary for the total commercial operation, plus space for additional data particular to each document.

Attempts to simplify documentation, or substitute the transmission of documentation by the direct transmission by telecommunications of the information, must come to terms with patterns and requirements which have been established regarding the distribution and circulation of specific data; the signatures, stamps and other annotations of approval or certification; and the legal authority of the documentation as regards content, negotiability, acceptance of liability in connexion with the cargo or with the accuracy of the data. The national and subregional facilitation groups which have worked on these problems have begun by setting out the basic elements of commercial information: what information is needed, where it is generated, who really needs it and when, what grade of accuracy is needed at each step, what standardized coding can be used to consolidate a proliferation of codes for similar data or to reduce problems of translation and meaning, etc. Efforts have been made, with considerable success in the case of some trades, to reduce the interdependence of transport documentation and financial transactions, in order for the former to be processed faster, or on the contrary to combine different documents into one, so less time is spent in copying data from one document to another.

Another institutional change refers to the consolidation and inspections of the cargo. For combining different parcels of goods in one container but also for general distribution purposes. Groupage Centres have been formed in ports and, in particular, at interior points in many industrialized countries. The inspection of cargo by governmental and other agencies may take place at such groupage centres or at the warehouse of the ultimate receiver, avoiding the necessity of opening the transport instrument at the points of entry or exit of the countries of importation and exportation, respectively. In case there is no Customs office at the interior groupage point, the transport from the port may

/have to

have to be accompanied by a Customs inspector. It is often required, moreover, to have a guarantee made with Customs, apart from other relative dispositions, for each container which is being moved inland after discharge at a port.

Although transport instruments used for unit-loads generally have circulated with less restrictions regarding certification, nationality, ownership, condition, etc., than has been the case of transport vehicles and ships, rules regarding the interchange, pooling and condition of the transport instruments have been developed in the form of agreements among the transporters which are not unlike the agreements on transport vehicles. In addition, there are intergovernmental agreements, including the Customs Convention on Containers of 1972, the Convention on the Safety of Containers of 1972, and the "Normas recomendables sobre el tratamiento aduanero aplicable a los contenedores" (Recommended norms on customs' treatment of containers) of the Latin American Free Trade Association, which deal with the certification, temporary admission and handling of containers. A parallel movement has taken place to standardize and simplify the customs' treatment of the cargo which is unitized, in the form of such agreements as the Customs' Convention on the International Transit of Goods (III Convention), and Decision 56 of the Commission of the Cartagena Agreement (Andean Group).

The institutional consequences, including the social implications for labour, of the rerouting of cargo and of new cargo handling methods at transshipment points (including ports) have been studied extensively.^{4/} It is very difficult to generalize regarding the amount of labour displaced by unitization. However,

^{4/} See especially International Transport Workers' Federation, Containerization, London, 1968; and a series of pertinent articles and discussions in Federación Latinoamericana de Trabajadores del Transporte, II Curso Seminario Latinoamericano de Trabajadores del Transporte, Caracas, Instituto Latinoamericano de Estudios Sociales "Humberto Valdez", May-June 1970.

one can safely consider a certain order of magnitude of work reduction depending on the technology adopted and means of transport. In shipping and ports or other transshipment points, by far the greatest amount of displacement takes place with roll-on/roll-off, then containerization, followed by palletization and LASH. In the case of LASH, the problem is not so much one of reduction of work, but rather displacement from one port to another. In the case of road transport workers, there is less waiting time normally (during loading or unloading of the vehicle) with roll-on/roll-off, somewhat less with containers, and reductions which can be insignificant in the case of palletization or LASH. In general, piggyback and containers signify less work in land transport.

In some cases, the problem of jurisdiction has been as much a problem as the displacement of labour. The diffusion of points of consolidation of cargo in unit loads has required new definitions of labour functions, and new boundaries between the activities of different organized labour groups.

Another institutional aspect refers to the nature, amount and transmission of charges and payments. Transport tariffs may change because in combined international traffic one rate covers carriage from door-to-door.

More secure packaging of goods has led in some cases to less discrimination of rates among products, (e.g. FAK, or freight-all-kinds rates). However, there is some concern that these tariff innovations could reduce the effectiveness of governmental regulation of freight tariffs, and this had led to resistance to accept these tariffs.

The effectiveness of governmental regulatory activities in respect of transport and related services can be affected by the consolidation of services, as well as by new rate structures.

The effectiveness of shippers' organizations could be similarly limited. On the other hand, the CTO could conceivably, under given circumstances, represent users' interests when these

/differ somewhat

differ somewhat from those of the transporters, as in the case of insurance claim handling. The presence of the CTO, representing the client, affects practices and regulations with regard to claims, jurisdiction for claims and the settlement of disputes and indemnifications in case of damages, loss, lack of delivery or delay.

In order to illustrate some of the above described effects brought about by the introduction of a large number of containerships on one of the world trade routes, a concise description is given of the first years of large-scale containerization in the United Kingdom/Australia trade.

CONTAINERIZATION: ITS IMPACT ON THE UNITED
KINGDOM/AUSTRALIA TRADE 5/

In this case study, we will describe the nature of the new international intermodal transport system in the United Kingdom/Australia trade and its effects on total transport costs, the documentation and liability system changes and the detrimental effects of this system on different institutions.

5/ Major sources of information for this case study include Unitization of cargo, United Nations, New York, 1970 (TD/B/C.4/75), and Economic implications, in particular for developing countries, of the proposed convention on international combined transport of goods, United Nations, New York, 1972 (ST/ECA/160). A questionnaire was sent to the Australian Government in order to obtain more information on this subject, especially as related to the proposals by that Government, and several others, of concepts for a convention on international intermodal transport (document TD/B/AC.15/L.3), UNCTAD, Geneva, 1973. Data on the documentation and liability arrangements was provided largely through the courtesy of Overseas Containers Limited.

1. The new system

The container system began being used on a large scale on the North Atlantic route (United States/Canada-Northern Europe) with ample participation of European shipping lines, in 1966 and in the United Kingdom/Australia trade in 1969. These two routes seemed particularly adequate for containerization as there existed a flow of high value cargo in both directions, generally suitable for shipment in containers. After several years of operating container vessels in the United Kingdom/Australia trade, over 70 per cent of the total movements were containerized and it may be safely assumed that by now this is the case with practically all cargo apt for it.

The United Kingdom/Australia service is provided by two consortia, or CTO: Overseas Containers Limited (O.C.L.) and Associated Container Transportation Limited (A.C.T.). Both operate within the regular liner conferences covering the routes between the United Kingdom and Australia and incorporate an Australian navigation company. Total duration of the round voyage has approximately halved as a consequence of a drastic cut in port stay (from 14-30 days before containerization to 5-7 days thereafter); the use of faster ships and a reduction in the number of ports called at. All this has led to a considerable decrease in the number of ships needed in the trade under review. At the same time, each consortia has formed a subsidiary to operate conventional cargo-ships, especially to take care of transportation of non-containerizable cargo. In the case of O.C.L., the Dolphin Line Ltd. has been set up to co-ordinate break-bulk services. A.C.T. founded a similar organization, ACTANZ Line.

A third consortium was organized in 1969 by five continental European lines with regular services to Australia. Together they pool and control container terminal and depot facilities on that trade. Later they formed, together with the British/Australian lines a joint marketing and operational organization (European Joint Organization [Administration] Ltd.) to co-ordinate the

use of all the 14 cellular container ships and 22,000 containers which were then (end of 1971) serving the Europe/Australia trade. It allocates space in scheduled ships, determines the container fleets' sailing schedules and seeks to correct imbalances of empty container movements.

Typical Australian export commodities to the United Kingdom, moving in full container loads, are: meat, dairy products, canned and dry fruits, apples and pears, wool. The stuffing of containers is usually performed by the producers at the factory or at packing plants, with the exception of wool which is packed in brokers' stores or at container depots. Imported products are in great measure manufactured or semi-manufactured.

The concentration of direct containership calls on a small number of ports implied the abandonment of other ports which were conveniently close to various buyers or suppliers. The consortia have designated Sydney, Melbourne and Fremantle as basic ports, in the sense that their containerships are limiting their calls to these ports, and Brisbane, Adelaide and Newcastle as feeder service ports.

On the view that the cost of centralizing cargo should be borne by the shipowners, the container service schemes includes measures of internal freight equalization in the United Kingdom and Australia. Wool, for instance, which had normally been carried direct to the ports of Hull or Liverpool, not very far from the mills, is now discharged at the port of Tilbury, some 200 miles away. Importers refused to pay higher inland transport charges than they were accustomed to and the shipping lines had, consequently, to absorb the difference.

As will have become clear, different modes of transport are being used in the United Kingdom/Australia container operations. Rail and road carriage tend to predominate at the United Kingdom end, with a certain amount of coastal shipping. At the Australian end, rail carriage tended to predominate at least in the first year of operation of the system, and is to some extent combined

/with coastal

with coastal feeder services. The overseas container shipping companies have become part or full owner of Australian trucking companies and awarded exclusive contracts. Most of the railways have closed confidential agreements with the overseas container operators covering the carriage of containers at special rates. Overseas shipping companies also have controlling interests in many of the Australian stevedoring companies.

The number of changes of transport made in the carriage of a container on average, are three, with a plausible upper limit of six which is reached when containers are carried from door-to-door and utilize coastal feeder vessels at both ends. The container operators, under their minimum service rules, control movements between container-bases which tend to involve up to four changes of modes. The use of transport provided by the operators beyond the deposits is optional: if elected by the customers it would add two road transport stages to the process organized by the operator.

Due to foreign trade being of great importance to Australia and the enormous size of the country, Australian road, rail and coastal shipping facilities developed quickly. Unitized rail operations had already been created on a network of rail lines, although these were convinced by the Consortia to make new investments and co-ordinate the rechanneling of foreign trade. The infrastructure needed for overseas container services has developed in an impressive manner. It has enabled door-to-door container systems to be operated without much difficulty.

The government of Australia has always shown much interest in the shipping part of the country's export trade, particularly so because until 1960 all regular lines were foreign and payment of the freight had a very unfavourable influence on the balance of payment. There was, moreover, the fact of declining export prices and sales with a steady increase of freight charges. A two-part incursion into overseas liner shipping matters was made by the government, one through legislative controls on conferences

/and representation

and representation at freight rate negotiations, and the other by establishing the government-owned Australian National Lines (A.N.L.). The government's objective is eventually to secure 50 per cent of overseas liner trade for Australian flag vessels.

The introduction of containerships into the Australian trades was, as said before, done by shipping lines which had set up consortia because these ships are a relatively high-cost investment compared with conventional carriers, while it was, moreover, necessary to invest in expensive container handling facilities. The investments required by the container services would seem better safeguarded by the consortia as it enables specialized port and terminal facilities to be shared and capital costs to be spread. In Australian ports, the port authority has in some cases undertaken special wharf construction for container handling and leased or rented the new berths and marshalling yards to container consortia. In other cases, the container consortia themselves have invested in mechanical equipment, and terminal sheds and depots.

Australian customhouse agents and freight forwarders having suffered the loss of much business because of door-to-door container transport, reacted joining hands in a consortium the previous system of selling cargo CIF or FOB sales was changed to a door-to-door system under the impact of container handling and the buyer paid a free-into-store or an ex-works price (customs clearance charges would be excluded from the door-to-door prices).

UNCTAD, in their booklet "Unitization of Cargo" 6/ made a few comparative through transport costs estimates for Australian canned fruit and meat shipments and for parcels of biscuits and whisky from United Kingdom-ports, summarized here in the following table:

6/ Op.cit.

Table IV-1

ESTIMATED COMPARATIVE THROUGH TRANSPORT COSTS
Australia to United Kingdom trade

Conventional costs	English pounds	Container costs	English pounds
<u>Canned fruit</u>			
Ocean freight	11.25	Basic service rate per ton	12.97
Australian wharfage	0.19		
Australian handling if applicable	0.60		
United Kingdom port charge	2.24		
Other charges	-		
Cost per ton	14.28	Saving per full container load	36.34
<u>Meat (cartons)</u>			
Ocean freight	32.39	Basic service rate per ton	36.40
Australian wharfage	0.20		
Australian handling if applicable	0.95		
United Kingdom port charge	3.64		
Other charges	0.19		
Cost per ton	37.37		

/Table IV-1 (continuation)

Table IV-1 (continuation)

Conventional costs	English pounds	Container costs	English pounds
Conventional costs calculated for average container load:			
Per ton cost	37.37	Per ton cost	36.40
Per ton cost 15 tons (container load)	560.55		
			546.00
		F.C.L. allowance (lump sum)	- 33.96
			512.04
		Saving per ton: less-than-container load basis (37.37 - 36.40)	0.97
		Saving per full container load: (560.55 - 512.04)	48.51

United Kingdom to Australia trade

Table IV-1 (conclusion)

Conventional costs	Australian dollars	Container costs	Australian dollars
<u>Biscuits</u>			
Ocean freight (23 tons)	890.10	Basic service rate	968.53
Australian wharfage	25.30	Less F.C.L. allowance	71.53
United Kingdom port charge	71.28		
Australian handling	37.80		
	<hr/> 1 024.48		<hr/> 897.00
		Saving: 127.48 Australian dollars per container	
<u>Whisky</u>			
Ocean freight (23 tons)	1 316.98	Basic service rate	1 409.67
Australian wharfage	25.30	Less F.C.L. allowance	71.53
Australian handling	48.30		
United Kingdom port charge	25.74		
	<hr/> 1 416.32		<hr/> 1 338.14
		Saving: 78.18 Australian dollars per container	

2. Documentation and liability system changes

For container traffic on this route, three different types of transit are offered by the CTO (container consortia) for which through documentation is issued.

First, between the UK and Australia themselves, there is the use of large container vessels calling at purpose built terminals, which may have associated grouping or package stations or may only provide an interchange point for road and rail movements to inland clearance depots and thence to and from customers' premises.

Full container loads (FCL), packed by shippers, are sometimes inspected to ensure that the goods have been safely secured and there are no hazards, but in the main, operators like OCL rely on a packing advisory service to ensure that the shipper carries out his task efficiently, and the container is sealed throughout the entire transit to the consignees premises. With a less than container load (LCL), this is packed under the supervision of the CTO or his agent at a groupage point sometimes known as a Container Freight Station (CFS) and unpacked at a similar CFS in the country of destination. In some cases local collection and delivery between the shippers' and consignees' premises is also carried out by the CTO as an ancillary service. Between the United Kingdom and Australia, Through Bills of Lading are offered for small consignments, on a door-to-door basis, as well as for full container loads.

The second type of operation is where the journey is extended at one end by using a feeder vessel which may also be a cellular containership but is much smaller than the main carrier. This service provide links with the smaller countries or areas who have insufficient volume of cargo to justify direct calls or alternatively may have restricted port facilities and cannot handle larger vessels. Both in the Far East and in Australia and between the United Kingdom and Ireland the container service is extended in this way and the same door-to-door concept is preserved.

/The container

The container is usually unpacked, and repacked with the return load, at the secondary port served by the feeder vessel. These feeder operations are closely supervised, and the quality and security from an operational point of view has been considered by the Consortia of a comparatively high standard.

The third type of operation is where either the first part or final part of the combined transit by sea involves the movement of loose goods out of the containers, by conventional vessels, usually where services are inadequate to handle full containers. This happens whenever the volume of traffic is so low as to make the groupage into container loads difficult or the time taken for the feeder leg is so long as to make the use of a container unattractive to the combined transport operator.

This type of operation involves greater delegation of responsibility to subcontractors. Once the goods have been unpacked and are on-carried to the final destination, or before the time they arrive at the CFS for consolidation into container loads, they are not subject to any form of operational supervision by the CTO. In some cases the break-bulk part of the combined transit is longer, in time, than the main transit whilst the goods are in a container.

At the consolidation or unpacking points the CTO is able to inspect the goods and in the event of loss or damage caused by the on-carrier may have some recourse, but because of the thorough documentation the liability to the owner of the goods still rests with the CTO.

The practice of these CTO is to issue a combined transport document only if satisfied that there are reasonable standards of cargo handling on the entire part of the movement covered by the document. Connecting transport or feeder services which do not meet these standards is made on conventional transshipment terms, where the CTO might act as agents and procure this on-carriage, but the contractual relationship is directly between the on-carriage vessels and the owner of the goods.

/The responsibility

The responsibility for the goods during movement under the combined transport document rests with the CTO, regardless of whether or not there is subcontracting, and is different from a conventional transshipment operation where the main sea carrier declines to accept responsibility.

With full container loads (FCL), providing that the seal is intact and there is no evidence of external damage, it is probable that the CTO will not have any liability if faulty packing is suspected as the cause, and in these cases the claim will lay with the cargo insurers. OCL offers a packing advisory service to its customers to ensure that they are competent to pack containers for themselves at their own premises.

With less-than-container-load (LCL) shipments, the CTO can refuse to accept parcels which appear likely to be damaged even when loaded into containers. Once LCL cargo is accepted and packed, and a clean combined transport document is issued, the CTO is not able to plead insufficiency of packing in defence of a claim for damage.

The CTO endeavours to establish where loss occurred, and it has the right in almost all cases to recover from the carrier, in some instances in excess of the mandatory or customary level of liability for that particular mode of transport.

The custom house agents and freight forwarders often work as Groupage Agents which issue their own combined transport documents, delivering full container loads of individual LCL consignments to the container consortia, these latter acting as "major CTO". The Groupage Agent takes advantage of the FCL tariff of the "major CTO". The latter requires that a neutral body, such as a sworn Surveyor, be present at the Groupage point to issue a certified load list, or for the "major CTO" to arrange for his own representative to be present, since it is not unusual for containers to be loaded at the Groupage point over a period of several days and the "major CTO" is concerned about accepting containers which had been susceptible to pilferage during that period. However, these cautionary measures are costly.

3. Detrimental effects

There are a number of effects of the implementation of this new system which one or another interested party has considered to be detrimental. Shippers with non-containerizable cargo have suffered a large reduction in the frequency of sailings which would accept their cargo. They have found that their total shipping costs have increased considerably, since a smaller share of the cargo must absorb the fixed costs at ports and terminal points of traditional handling of cargo.

Freight rates on the containerized cargo were never reduced but rather raised from time to time. The ships have generally been unable to achieve, at least during the first few years, the expected turn-round times, mainly because of labour disputes, breakdowns of mechanical equipment and inadequate shore facilities. Australian exporters have been criticizing the container services for deficiencies which seem to have arisen from labour problems and from congestions at terminals and depots.

The consortia are anxious to emphasize the door-to-door aspect of the container service. Although the shipper can use port-to-port facilities, the greatest concessions to container shippers are available only on a depot-to-depot basis. The centralization of packing at depots and the use of only a few ports with container facilities has led to lower handling costs for much of the cargo and to a tendency for containerized cargo to move only on certain well-defined routes. These advantages for certain shippers may be to the disadvantage of the small shippers not on these routes.

In the case of Tasmania, transshipment to ocean-going vessels is now required at a port on the mainland, whereas this was not necessary before.

It is understood that the Consortia have been pressing more recently for a renewal of differentiation of internal freight rate charges according to distance. This proposal has appeared prejudicial especially to those shippers who are near a port which was closed upon implementation of the new system.

/The effect

The effect on labour has been significant. During its first year of containerized of the United Kingdom/Australia trade, the resistance of dock workers at Tilbury caused the consortia to divert their ships to Continental ports and use cross channel feeder services.

As for port labour in Australia, it was to be expected that containerization would result in a smaller stevedoring force. In 1968, the chairman of the Australian Stevedoring Industry Authority estimated that of 20,000 port workers there would only be about 8,000 left over within a period of ten years, if all cargo capable of being containerized would, indeed, be shipped in that manner.

Despite their attempts to adapt to the new situation, it seems fairly clear that Australian forwarding companies are in danger of being squeezed out of business by containerization, which makes their intervention less required. Shippers can very well make arrangements directly with the container liners.

Despite the increases in freight rates, the Australian National Lines has suffered financial losses for the first time, a condition experienced by other lines on major containerized routes.

Finally, the relative bargaining position of the users and subcontractors in Australia weakened as the container consortia, together with their subsidiaries for break-bulk cargo, monopolized general cargo shipping. The railways which had made new investments in cargo-handling equipment faced sudden competition from trucking lines owned by the Consortia themselves. The Government faced a new power structure regarding the negotiation of freight rates, and as a practical problem, found its ability to oversee rate-making to be weakened since the rates of the different services, both in Australia and abroad, were now consolidated. However, the Australian Government has with some success promoted the formation of users' committees to counteract "the container operators' tendency to monopolize the offer of shipping services".^{7/} Also the producers of the major export products are relatively well organized.

^{7/} The quota is from UNCTAD report TD/B/C.4/75.

Chapter V

THE RELATIONSHIP BETWEEN THE INTRODUCTION OF NEW TRANSPORT
TECHNOLOGIES AND THE MODIFICATION OF INSTITUTIONAL
ARRANGEMENTS IN LATIN AMERICA

In earlier chapters it has been shown that the Latin American region has already accumulated a substantial and unevenly distributed experience with unitization. In this chapter, it will be demonstrated that the institutional changes which are generally associated with the introduction of unitization of cargo have taken place in Latin America in the following form:

(1) The recent development or introduction of combined transport operators in the region.

(2) Large-scale changes made and proposed with regard to customs' treatment of unitized cargo.

(3) New enterprises organized for the reception and handling of cargo at transshipment and destination points, with benefits for non-unitized as well as unitized cargo.

(4) Other institutional changes to accompany the introduction of the new technologies, but not at all comparable to the intensity of changes on major world trading routes.

(5) Measures to facilitate the movement of all general cargo, non-unitized as well as unitized cargo, in international trade.

(6) Key sectors in which there has been especially inadequate planning in the region for the consequences of unitization.

In general, it will be shown that the introduction of new transport technologies has not been accompanied by as dramatic a change in institutional arrangements as has occurred in more industrialized regions. However, there is a recent explosion of activities in the region, only some of which are directly related to cargo unitization, to elaborate new structures of services to the shipper. Thus far, the countries of the region have been able to absorb the new technologies without compromising the ability of the governments to keep options open for

/future policy

future policy decisions on transport technologies or for the development of national institutions which provide services to international trade. With less emphasis on institutional changes, there have been fewer direct economic benefits in Latin America from the introduction of new transport technologies. Nonetheless, the modification of the institutional arrangements themselves, apart from other technological innovations, can lead to the reduction of significant costs to the users, especially where exorbitant costs are being paid by the user for these services at the present time.

The institutional innovations in services to international trade and transport are now being introduced at an ever-increasing pace in the region, and are more often combined with new transport technologies. As a result, the governments are less likely to be able to control the introduction of these new transport technologies and institutional arrangements, and their effects as related to the commercial, economic and social objectives of the country. At least this will be the case should these tendencies be permitted to continue without controls and direction, requiring immediate planning and collaboration among the Latin American governments on this problem.

1. The combined transport operator in Latin America

The combined transport operator has arrived, in several different forms, to Latin America. At the present time, there are several different tendencies with regard to the implementation of this system in the region, generally controlled only partially by the Governments through mechanisms which were founded to deal with each mode of transport and each service as if these were totally separate activities. The bringing together of all of the transport and associated services into one package has produced a concentration of power and a change of procedures for handling international commerce which expose the structure of governmental regulation as inadequate to protect the interests of the region in the future.

In many instances, there has been an explicit connection between the introduction of unitization and the formation of combined transport operators (CTO) in Latin America. However, this is not always the case. In some cases, especially at the level of intraregional trade, the major impulse for the CTO has been the necessity to place agents in key transshipment and frontier locations to supervise the expedition of the traffic and assure that the national requirements are met in the different countries through which the cargo passes, all coordinated by an entity

/which issues a

which issues a single transport document and assumes responsibility for the entire movement. Most of the cargo in these cases is not unitized.

In the majority of the cases, the CTOs, while not limiting their activities to unitized cargo, have stated an interest that as much of the cargo be unitized as is feasible. For operators of containers, LASH, pallets and other transport instruments, the issuance of the combined transport document enhances the economies to be derived from the use of transport instruments and, at least in some cases, introduces a transport document which is not bound by the restrictions or conditions imposed by governments, maritime conferences and others on the use of modal transport documents (e.g. maritime bill of lading). In this way, the combined transport operator could avoid some of the very controls on the social effects of the introduction of new transport technologies.

Three tendencies in Latin America, with regard to the organization of enterprises as Combined Transport Operators, may be summarized as follows:

- (a) Contracting by transnational enterprises of the different elements which they need to be able eventually to operate as CTO in the region

Although the Latin American countries may consider their interests defended well because some of the key elements to the combined transport operation appear to be firmly regulated (particularly maritime transport and insurance), the transnational enterprises presently are formalizing links with many of the elements they need to be able to enter into this activity. In many cases, the strategy of the transnational enterprises appears to be like that which was applied to the total conversion of the Australian-European general cargo trade to the combined transport system, with the repercussions surveyed in the previous chapter.

The links with the Latin American elements which would be integrated into the combined transport operation are made by direct purchase, purchase through "ghost enterprises," by leasing or by long-term contracts. What is very important are the terms or conditions of these contracts, in some cases requiring exclusivity or discouraging links with national entities which could join to provide the same inter-connection of services, in some cases promoting the uneconomic use of unitization, in some cases permitting the transnational enterprise to make decisions on the routing and carriage of cargo which should be made by national entities, etc. In some cases, these enterprises have made important pioneer efforts to open up new trade and transport services possibilities, but the contracts between the transnational enterprises

/and the individual

and the individual services do not appear to be transitory measures leading to the eventual development of combined transport systems based entirely on national needs and resources ^{1/}.

(b) Contracting by Latin American enterprises of the different elements which they need to operate as CTO in the region

Much like the transnational enterprises described here, certain Latin American entrepreneurs have acted as pioneers in this field, organizing new combinations of services to international commerce as packages for exporters and importers. Some firms, such as COPAL of Brazil and Vidal-Murchison of Argentina, concentrate on trade within Latin America. Originally as truck operators or forwarders, these firms, and some customs* agents, such as Trans-oriental of Bolivia and Brazil, are offering a single transport contract to the user. They assume the difficult task of negotiating with customs*, banking, insurance, transport and other officials and functionaries to set up regular services.

^{1/} Based on scathered information, the following are examples of transnational enterprises which are entering into combined transport operations:

(a) United Fruit Company. The purchase of the Central American trucking firm Transporte Gash Limitada, along with other investments in line with vertical integration, are described in the Nacla Newsletter of October 1971.

(b) Pepsi Cola, and Thomas National Transport of Australia. The investments of these enterprises in transport in Brazil is described in Jornal do Brasil of 9 April 1974.

(c) Uni-flex Container Leasing. The activities of this enterprise are not limited to leasing of containers, but rather extend to the promotion and administration of packages of services including exclusive contracts on containers.

(d) Volkswagen. This firm organized the through transport of its own products between Germany and Mexico, much of the cargo being transshipped in Houston, Texas, United States.

/Other firms,

Other firms, like Lloydbrati of Brazil and Almacenar of Colombia, focus on intercontinental services, making contracts with services both inside and outside of Latin America. Almacenar advertises a most ample range of services, but is not able as yet to issue a combined transport document:

"Almacenar and its two share-holder banks are able to provide both importers and especially exporters with a complete service which would include financing by letters of credit, acquisition of markets abroad, storage, customs, financing of freights, insurance, transport, etc., and finally all aspects of the movement, handling and distribution of cargo in containers, and where this is not possible, the general movement of goods by conventional means, through the frequently-mentioned door-to-door service.

Lloydbrati similarly advertises a wide range of services:

"Lloydbrati will be organized for the progressive provision of a wide range of combined services to its users. These services will be executed by the enterprise itself or through the contracting and co-ordination of third parties, and will range from the preparation of export or import permits, the execution of foreign exchange transactions on behalf of the user, and the reservation of space with shipping agents or airlines, to the supervision of transport by road, rail, river or air from the factory or warehouse to the pier or airport. They will also cover the intermediate phases of containerization or unitization, supervision of loading, taking care of the issue of air or sea bills of lading and insurance policies, payment of charges, and other related services."

Finally, some shipping agents have expanded the range of services and responsibilities, including warehousing, subcontracting of land transport on a regular basis, and even purchasing and reselling of goods. Ultramar of Chile has increased its activities in this way, particularly with Bolivian imports.

(c) Invitation to Latin American national steamship lines to join new consortia arrangements

This is a variation of the first tendency mentioned here, but it justifies separate mention. Large container operators, like Sea-Land,

/or a group of

or a group of maritime operators like Hapag-Lloyd and Holland America Line, propose a partnership with a national steamship line in Latin America. 50 per cent of the general cargo on the route in question is assured to the national line. In addition, and in this way differentiating this from traditional joint service arrangements and pooling agreements, substantial financial and technical assistance is offered in order to assure that the national line has the capacity to meet its share of the traffic, and for the rationalization of procedures and improvements of port and other facilities which are the elements of intermodal transport to be organized by the consortia. Usually, it is presumed that there will be substantial unitization of the cargo, although the partnership may extend its activities to all general cargo.

It appears that either as a precondition or a matter-of-course, the foreign lines determine the general "rules of the game" surrounding the implementation of the new consortia arrangement. That is to say, the implications of the system for other national institutions, such as the users (particularly of non-containerizable cargo), insurance and land transport, are not studied carefully in order to assume that all the important national interests are taken into account.

It is not clear how the recently completed Code of Conduct for Maritime Conferences will be extended to these newer organizations 2/, especially in their operations beyond the maritime link of the door-to-door movement.

An important aspect of this tendency for Latin America is the explicit interest shown by foreign maritime operators and Caribbean port authorities in the development of large major container and cargo trans-shipment facilities in the Caribbean region for the transportation of cargo between South and Central America on the one hand and other regions of the World on the other. This could have an impact on the effectiveness of present conference agreements on the direct routes between South America and more industrialized regions.

2/ "Liner conference or conference: A group of two or more vessel-operating carriers which provides international liner services for the carriage of cargo on a particular route or routes within specified geographical limits and which has an agreement or arrangement, whatever its nature, within the framework of which they operate under uniform or common freight rates and any other agreed conditions with respect to the provision of liner services." Convention on a code of conduct for liner conference, UNCTAD, TD/CODE/11/Rev.1, Part One, Chapter I.

Special mention should be made here of the positive contribution that joint service arrangements have had in the past for the development of national merchant marines in Latin America. The strength of some of the lines of the region, such as Grancolombiana, may be due to a large extent to these arrangements. Such arrangements are still being promoted in countries which have only incipient development of their merchant marine, and should be evaluated on their own merits, including the real necessity and feasibility of such arrangements for the eventual development of strong and efficient national lines. What is new in the case of the foreign or transnational CTD or consortia is the amount of services which they wish to encompass under these arrangements. In this case, it appears to be particularly important that all the national interests which would be affected are duly informed and consulted prior to acceptance of these proposals.

2. Customs' treatment of unitized cargo

Customs' treatment of containers and containerized cargo has been a special concern of the customs' officials of the member countries of the Latin American Free Trade Association (LAFTA). Of these countries,

"Argentina, Brazil and Mexico have established a regime of temporary admission of the containers, without payment of duties or import taxes. Colombia has adopted more restricted norms by means of a regime of transit for containers ('recipients'), while Chile and Peru have set out some dispositions with the goal of facilitating the use of containers in foreign trade..."

"In LAFTA, the concern of the national customs' directors has been translated into the elaboration of a set of norms recommended for the customs' treatment of containers... The Permanent Executive Committee, during its session 600 on 20 December 1970, agreed to send these norms to the Governments of the member countries in the form of a recommendation that the relevant customs' regulations be formulated or improved, depending on the case." 3/

3/ Tomás Sepúlveda Whittle, Asociación Latinoamericana de Libre Comercio, Bases para el estudio sobre transporte en contenedores, Montevideo, June 1973, (ALALC/SEC/PA/44), pp. 48. See also Hugo Opazo Ramos, Implicancias de tipo aduanero en la utilización de containers y pallets (doc. 24), First Interamerican Port Seminar (Unitized cargo), Bogota, 25-30 March 1968, and Economic Commission for Latin America, El desarrollo latinoamericano y la Conferencia Naciones Unidas/OCMI sobre transporte internacional en contenedores, Santiago, 20 December 1971 (E/CN.12/912/Rev.1), Chapter III.

Many of the Central American and Caribbean countries have likewise modified their legislation and regulations to permit temporary entry of containers and roll-on/roll-off trailers whereby they are free of duties and import taxes.

Sealed containers and trailers are permitted in an increasing number of countries in Latin America to be carried between the frontier point or port and deposits in the interior of the countries authorized by Customs¹ for inspections, without necessity of being checked at the points of entry or exit, or en route. There is substantial variation among the countries as to requirements, as to the physical conditions of the transport instrument for sealing, of customs¹ guarantees, of special documents and fees, and of escorts by customs¹ officials, but at least in the Andean Group some uniformity is promised by the application of the relevant clauses of the Decision 56 of the Commission of the Cartagena Agreement. Generally, the requirements are less strict when railway transport rather than truck-haulage is used. In most cases, the option is explicitly maintained whereby the Customs¹ may open a sealed container or trailer if there is suspicion of possible tampering with the transport instrument or its contents.

3. Enterprises specialized in the reception and handling of international cargo

With the recent attention focused on the combined transport operators (CTO), and especially the possibilities that Latin American transport companies could expand their activities and assume the responsibilities of CTO, it is important to consider public, mixed and private enterprises which have been experimenting with new cargo handling procedures and which offer an interesting experience in intermodal systems. This experience should not be overlooked, because the innovations adopted in one case might be instructive for future combined transport operations which are organized, whatever type of enterprise takes this initiative, and because these same enterprises might in some cases provide an ideal base for the formation of combined transport operators.

Among the enterprises to be considered here is one that greatly expands on the traditional services offered by the customhouse broker, one formed in part by stevedores to meet the challenge of unitization, one that takes responsibility for the cargo at transshipment points, and several that specialize in the programming and handling of cargo movements of determined products.

/In Brazil, the

In Brazil, the modern version of the customhouse broker is the "Comissária de Despachos," (Clearance House), 200 of which are already organized in the Sao Paulo area alone. These agencies have been described as follows:

"At the present time, an efficient Clearance House could take charge of the following tasks for other enterprises and for government bodies: shipment abroad of imported goods, by sea or air; external financing; customs treatment in the country of the goods exported or imported by sea or air; parcel-post service, exports and imports; tariff classification of goods (exports and imports); Preparation and inclusion, in CADEX and other agencies, of the export and import forms; request for the certificate of non-existence of a similar local product; market research; contracting of local goods transport (imports and exports); reservation of cargo space in ships or planes for exportable products; operations for financing exports; opening of credit and permission to use foreign exchange (exports and imports); legal action, especially insurance writs for cases of fiscal conflicts generated by imports and exports; industrial projects for the Conselho de Desenvolvimento Industrial (Industrial Development Council); projects for the Programa de Beneficios Especiais para Exportação (BEFIEIX) (Programme of Special benefits for exports); projects for the Conselho de Politica Aduaneira (CPA) (Customs policy council); projects for special customs insurance; export and import insurance in general; transport in 'containers' and co-ordination and administration of cargo in general." 4/

These agencies, and the Brazilian trading companies which organize the commercialization of Brazilian products abroad, take advantage of the services of the Companhia Brasileira de Entrepósitos e Comércio (COBEC), which has established warehouses and demonstration areas for Brazilian exports in several key foreign locations, including San Francisco and Panama.

An interesting adaptation to large-scale unitization of cargo, mostly with the use of containers and roll-on/roll-off, has been made in Trinidad and Tobago and in Barbados by the creation of Port Contractors Limited, largely through the efforts and under the control of the port

4/ Carlos Tavares, "Importancia das empresas de serviços de comércio exterior," Comercio e Mercados (November 1973), pp. 2-3.

authorities and stevedores themselves. In effect, the stevedores have met the challenge of unitization by reorganizing the port-handling of the cargo and by expanding the range of their own activities. These firms undertake not only the discharge, loading and storage of general cargo in the ports, including the packing and unpacking of containers, but also have a monopoly on the transportation of sealed containers to and from inland points. They assume liability for the cargo from ship-side and the delivery door of the port warehouses, but not for cargo in sealed containers. In Trinidad, the land transport of sealed containers by Port Contractors Limited is billed to the shipping agent or to the shipper/consignee. The firm does not engage in land transport of break bulk cargo.

There is a Bolivian public enterprise which specializes in the reception and handling of international cargo, Administración Autónoma de Almacenes Aduaneros (AADAA). AADAA was organized, with financial assistance from the Agency for International Development of the United States of America, for the purpose of receiving, storage, custody and delivery of goods in Bolivia's international trade. AADAA has a programme of establishing centers of operation in key cities of Bolivia, and in other South American points, including ports in Chile and Peru, where Bolivian cargo is transshipped. To some extent, AADAA has taken on the functions of customhouse agent, and is studying the best manner to assure that the users' interests are safeguarded during the handling of the cargo.

As an example of the responsibilities of AADAA, the following tasks are carried out with regard to Bolivian imports which pass through the Chilean ports: reception and storage of the cargo in the port; arrangement of inland transport and documentation required for transit; payment of land transport and port fees; overseeing other customhouse brokers which arrange for transit and land transport; delivery to the land carrier; reception of cargo from the land carrier in Bolivia; storage of the cargo in the Bolivian customs' zone; and delivery of the cargo to the client after release by customs.

There are other State enterprises in Latin America which include among their functions the reception and handling of international cargo, especially with regard to grains and other agricultural products. The State agricultural commercialization agencies include among their functions the following activities, depending on the country, the agency and the product: 5/

5/ See Latin American Free Trade Association, Los Organismos Estatales y Paraestatales de Comercialización Agropecuaria en los Países de la ALALC, ALALC/SEC/PA/26, June 1973.

- (a) Programming of imports or exports of agricultural products;
- (b) Checking of pertinent trade documents prior to shipment;
- (c) Authorization of import or export;
- (d) Negotiation of quantity, price, origin, quality, etc. of agricultural product import or export with buyer or seller abroad, including financing, terms of transport, freight and insurance, and terms of sell;
- (e) Arrangement, or contracting, of ocean carriage;
- (f) Monopoly purchasing power of specific product from abroad;
- (g) Coordination of use of ports for imports and exports, especially of grains;
- (h) Supervision of the reception and transshipment of product in ports;
- (i) Coordination, contracting or operation of internal transport of product;
- (j) Quality control of product;
- (k) Storage of stock of exportable agricultural product and of import;
- (l) Control of prices paid to producers of exports.

These functions are distributed among different agencies, in some cases the Central Bank instead of the commercialization agency in different countries.

Except for the Caribbean case (Port Contractors Limited), only a very small part of the cargo received and handled by the enterprises mentioned here is unitized. However, since the advantages of these services are not limited to unitized cargo, the improvement in cargo reception and handling provides a base for the use or non-use of unitization depending on the economic advantages or disadvantages of each form of cargo treatment. The cases cited here of Port Contractors Ltd. (Trinidad) and AADAA (Bolivia) are particularly instructive in that the motivation to modify the cargo

/handling system

handling system has come from unit-load operators in the one case and the attractiveness of combined transport operations in the other case, but the solutions are being applied to the handling of all general cargo.

While the enterprises described here are not, as such, Combined Transport Operators, their activities would undoubtedly be directly affected by any international or national legislation on the institutional aspects of international intermodal transport. In fact, the Latin American countries may wish to favor the development of these enterprises or subsidiaries of them, into combined transport operators, at least for predetermined trades and/or products.

4. Other institutional changes which accompany unitization

For the most part, except where combined transport operators have intervened, the introduction of new transport technologies in Latin America has taken place without a direct immediate impact on the institutions which intervene in cargo-handling. In some cases, considerable investments have been made in ^{the existing fleet} new equipment for the carrying and transshipment of unit-loads, but these have not been accompanied by dramatic institutional alterations. Rather they have been accompanied by and given rise gradually to pressures to modify customs' procedures and regulations, to modify the procedures for the reception and handling of cargo at transshipment and destination points, and for other institutional changes which will be mentioned here.

As compared to other areas of the world, institutional modifications have not been made a precondition of investments in new transport technologies. There has been at least one instance of a shipping line abandoning plans to introduce one new technology due to resistance by important groups in affected countries. However, it is actually surprising to what extent large-scale investments in new transport technologies are still being committed by shipping lines and other enterprises wishing to create unitized cargo operations in Latin America without assurances of the acceptability of the institutional modifications generally associated with these technologies.

At the present time, LASH operations in South America take place with little alteration of procedures which apply in the case of conference liner movements of traditional cargo. The conference does not permit the LASH operator to issue the through Bill of Lading from point of origin to point of destination with the operator collecting the appropriate inland navigation transportation charges, or for truck or railway movements to

/be included on

be included on through Bills of Lading. However, the operator does negotiate provisions and rates with contract towing carriers in the United States under conditions set out under national regulations, when these carriers rather than common carriers are used for barge movements in coastal traffic 6/.

Banks have begun to accept "received for shipment onboard LASH vessel or barge" Bills of Lading on the basis of previous understanding regarding the wording of the Letters of Credit. For FOB sales, loading in the LASH barge is considered equivalent to delivery aboard ship. The tariff rates of the conference are applied for the shipping leg of the movement. Finally, the Argentine Government has intervened to limit the movement of LASH barges in competition with existing barge operations 7/. In spite of these limitations, early data show a very strong impact of LASH on the shipping market on the affected routes.

6/ Delta Line explains that, "Towboat operators contract to push LASH barges and will assume little, if any, responsibilities for the barge and/or the cargo. No Bill of Lading is required or is issued by the tower to the LASH barge owner. The "barge operator" is the LASH barge owner, and it is that person that issues the Bill of Lading to the shipper, but, not for just the interim movement. Definitions and terms must be carefully defined since the semantics involved in this operation can cause a great deal of misunderstanding. The normal thinking of a "barge operator" cannot be applied to the LASH system. At the present time, all common carriage from port to port under tow is carried out by certificated carriers operating under ICC authority. However, there is some question on this matter and it is presently under consideration in the United States Court as to whether the FMC or the ICC should regulate interim port movement of LASH barges."

7/ The agreement between the Argentine Maritime Federation and Delta Line, signed on 9 October, 1973 sponsored by the Subsecretary of the Merchant Marine is included in Marino Dolce, "Problemas económicos y jurídicos que plantean los buques-lanchas," Revista de Estudios Marítimos (January 1974), pp. 51-58. Dolce suggests this agreement might be reconsidered to consider formulas permitting Argentine shippers upriver to have direct access to the LASH system, while protecting the investments by traditional barge operators.

/As for container

As for container operations, the impact on documentation and other institutional arrangements has generally been negligible 8/. Some additional paperwork is required usually in Latin America for foreign containers, including equipment exchange agreements between steamship lines and the inland carriers which handle containers and chassis of the steamship lines, authorization by customs for temporary entry of the container, and/or a guarantee (in the form of a proforma invoice in Mexico) for the value of the container. Since several shipments can be packed in a single container, container manifests and stickers on the container showing the number of pieces and other information are used in some cases.

Steamship lines operating in South America and which responded to the ECLA questionnaire do not operate inland consolidation centers or operate or arrange inland carriage. The shipper designates the inland carrier, and all inland expenses and responsibilities are for account of and at risk of the cargo. South American lines, but not all foreign lines operating in the region, generally carry containers owned or leased by shippers, as well as those owned by the carrier. Bills of Lading are usually limited to the sea leg, even though the containers may be sealed for the entire door-to-door movement. Lines that accept sealed containers, and not all do so, assume more limited liability for the cargo, as opposed to when they can inspect it. There has been very limited experience in the region with "hidden damage" claims.

There are exceptions to the above generalizations. A steamship line assumes responsibility for international cargo carried in its containers by the Colombian railroads. For a combined transport service between the United States and certain Costa Rican and Nicaraguan ports, involving road haulage from Balboa, Panama to those ports, Sea-Land publishes a joint through rate, pays a proportion of the rate to the motor carrier and issues its bill of lading for the through movement.

In the Caribbean region, there has likewise been less institutional change than has taken place elsewhere with large-scale containerization. In some Caribbean localities, the steamship line does provide or arrange local transport of containers, and assumes responsibility for the entire movement. This is more often the case with roll-on/roll-off. The overall

8/ See Economic Commission for Latin America, Transport and Communications Division, "Transporto intermodal: Resumen de un caso concreto: El transporte de la carga de Philips de los Países Bajos a Chile," Draft, 9 July 1974.

moderate institutional changes help account for the relatively small increases of efficiency of cargo-handling with containerization in the Caribbean, cited in Chapter III.

Use of containers in South American international intermodal land transport has not greatly altered documentation requirements, except for additional documents required regarding the containers themselves.

Where a significant innovation has been made in this respect, along with the introduction of unitization, is in Mexico. The Ferrocarril del Pacífico, upon establishing regular piggyback services between Mexico and the United States, adopted the sending of pertinent data by telex, using Bill of Lading formats, in order to have the necessary documentation and authorizations ready for rapid inspection and dispatch of the cargo at the frontier. Also, the major transport documentation (freight receipt, cash memorandum, warehouse advice, waybill, and advice to customhouse agent) is aligned according to a common format with that used for the telegraphic transmission of the Bill of Lading.

Finally, an institutional innovation in Argentina which has proven to be very effective is the Cámara Argentina de Contenedores (Argentine Chamber of Containers), an intersectorial group which meets regularly to deal with pending problems which interfere with the flow of container traffic. The Chamber has brought together transporters and other intermediaries with the shippers and Governmental officials to study new legislation and procedures which might be adopted, and to resolve immediately the exceptional cases which arise.

5. Measures to facilitate the movement of all general cargo

Independently of the introduction of new transport technologies, the Latin American Governments have taken institutional measures to promote more expedite and efficient cargo movements. These measures, some of which have been associated with unitization elsewhere, have benefited the movement of all general cargo in the Latin American countries where they have been introduced. In this manner, unitized cargo is not given undue preference by users because modernization of institutional practices is limited artificially to this cargo. On the other hand, the implementation of new procedures and documentation at times has not taken fully into account the implications of the new transport technologies, and special complementary measures for unitized cargo have had to be improvised later.

/There are a

There are a number of regional and subregional conventions which are now effective, or soon to be made operative, in Latin America, almost entirely related to international transport on a modal basis. Argentina, Brazil and Uruguay subscribed to a "Convenio sobre Transporte Internacional Terrestre," (Convention on International Land Transport) restricted in fact to highway traffic, in 1966, in order to compatibilize the norms related to the licensing of trucks and buses for international carriage, the operations of vehicles of one country in another, nationalization of the cargo at the frontier (with the possibility of nationalization at the destination), and insurance. This agreement has been ratified by Chile and Paraguay ^{9/}. Decision 56 of the ninth period of sessions (July-August 1972) of the Commission of the Cartagena Agreement established a "Reglamento de Transporte Internacional por Carretera en el Grupo Andino" (Reglamentation of International Road Transport in the Andean Group), which has not been ratified as yet by the minimum required number of countries, but already its norms have been referred to in the Andean Group countries (Bolivia, Chile, Colombia, Ecuador, Peru, Venezuela) for the modification of procedures and regulations. The Decision is quite explicit on the international transport contract, the content and form of the transport documentation, and nationalization of the cargo at destination. Also under study since 1968 is a draft convention of international road traffic under the auspices of the Latin American Free Trade Association. International rail traffic in South America is ruled by bilateral agreements, with the exception of a special agreement for the movement of automobile parts in containers between Buenos Aires, Argentina and Arica, Chile, via Bolivia. The bilateral agreements are not consistent or compatible, and the Latin American Railway Association is studying a "Convención Multilateral de Tráfico Internacional por Ferrocarril" (Multilateral Convention of International Railway Traffic), which is especially interesting regarding the uniformity proposed of charges and conditions related to the movement of the freight cars, and the chapters on intermodal transport and containers. The necessity of convergence towards a common set of norms, although not necessarily a single agreement, for all international land transport in South America is now evident, with the great increase of transcontinental traffic involving normally a highway-rail-highway combination. The potential for this traffic, and the problems which have been uncovered in experimental cargo movements and field studies, are described in detail in the reports of a joint project of the Economic Commission for Latin

^{9/} Brazil has not ratified this Convention, although it is operative in that country.

America and the Institute for Latin American Integration 10/. These reports indicate that there is already adequate infrastructure and considerable demand for transcontinental intermodal transport services, and that in this moment the critical elements are the lack of facilitation measures (simplified and coordinated documentation requirements and procedures for the intermodal transfer of cargo, for transit and for minimum delay at frontier points); the need to compatibilize norms regarding insurance and customs procedures to permit a single entity to assume responsibility for sealed unit-loads (trailers or containers) from door-to-door; the existence of unnecessary charges in some countries which impede transit and which effectively deny participation in this traffic by their transport companies and other services; and the need for promotion and guidance of national or subregional combined transport enterprises which are organized to assume responsibility for the delivery, documentation, condition and delay of the cargo. Most interesting are the conclusions of the cited joint ECLA/INTAL project that one or another country has arrived at, and in some cases innovated, solutions to problems which are major deterrents to facilitation of international traffic in other countries, and that official agencies have responded in a very positive manner to the demonstration by the project that certain barriers to traffic are unnecessary for the protection of national institutions and in fact can be prejudicial to national as well as regional interests, contrary to the intent of these barriers.

Besides the conventions mentioned, there are agreements in Central America and on the Dominican Island which permit the regular flow of cargo in trucks past international frontiers. However, in these cases as well as in South America, substantial problems remain to be resolved before the natural advantages of land transport for the movement of determined products on the existing infrastructure can be taken advantage of to the fullest. When the disposition to facilitate the traffic is demonstrated, the need to make improvements in the infrastructure will become evident, and it will be clearer which of the routes and modes in each case should receive priorities depending on the nature and quantity of traffic responding to the new incentives to use land transport.

10/ Servicios de transporte terrestre internacional en los corredores Lima-Buenos Aires y Lima-Sao Paulo; E/CN.12/L.107. Tomo I: La Infraestructura, March 1974. Tomo II: Los servicios y aspectos institucionales, October 1974.

In the maritime field, the "Convenio de Transporte por Agua" (Water Transport Convention) of the Latin American Free Trade Association (LAFTA) which just recently came into force in 1974 for the five countries which have ratified it 11/, provides inter alia that each Contracting State will adopt adequate measures for simplifying and standardizing the documentation and procedures for the arrival and departure of vessels and their cargoes; for establishing a consultation machinery to allow permanent contacts among liner Conferences and transport users; and providing the landlocked countries with the necessary facilities to improve their access to water transport.

LAFTA has also been very active in simplification of ship documentation and has worked in close co-operation with the Organization of American States in the formulation and adoption of a programme to facilitate international waterborne transportation in the Western Hemisphere.

The Interamerican Convention on Facilitation of International Waterborne Transportation (Convention of Mar del Plata) is an agreement to adopt all feasible measures "for reducing to a minimum the formalities, documentary requirements and procedures for the entrance and clearance of vessels and the treatment of their passengers, crews, cargo and baggage." The Convention has not yet entered into force, but its provisions and those of its Annex have been very useful for adopting the ship basic documentation in LAFTA countries. Thus, a Working Group of Ship Documentation Simplification, established by LAFTA (1968) prepared the design and format of the six model forms required, for the entrance and clearance of a ship, by the Annex to the Convention of Mar del Plata 12/

Upon recommendation of LAFTA's Transport and Communications Council, the Conference of the Contracting Parties of the Montevideo Treaty at its Ninth Period of Sessions (Caracas, December 1969) adopted Resolution 254 (IX) on standard documentation for arrival and clearance of ships, which includes as an Annex the six model forms.

Also in the maritime field, a number of other facilitation projects are recently completed or underway, including the study of liability

11/ Colombia, Chile, Ecuador, Mexico and Paraguay.

12/ These were approved by the third Inter-American Port and Harbour Conference (Viña del Mar, November 1968).

problems for cargo in Caribbean ports, of the Caribbean Shipping Association 13/.

There are a number of activities in Latin America of a more permanent nature for the facilitation of international trade and intermodal transport. The majority of the Latin American countries have organized national working groups to study the institutional problems of international intermodal transport, especially in connection with a proposal that a convention be drafted on international intermodal transport. The work of these groups on this question, and associated projects, is described in the ECLA document, "Memorandum on trade facilitation and documentation in Latin America (E/CN.12/L.105, Santiago, Chile, 18 June, 1974). The joint programme of UNCTAD and the Economic Commission for Europe has advised a few countries on trade documentation, simplification and alignment. In addition to the previously mentioned activities, the Latin American Free Trade Association has worked on the standardization of maritime bills of lading, export declarations and transit documents. The Organization of American States has advised Central American countries on road transport facilitation, and continued its interest in maritime transport facilitation.

6. Key sectors with especially inadequate preparation for unitization in Latin America: insurance, banking, labour

During the various research projects carried out by the Economic Commission for Latin America on facilitation of international transport in Latin America, in collaboration with other regional organizations, several sectors have been discovered in which there generally seems to be especially inadequate planning or preparation for the consequences of the introduction of the new transport technologies, and in general to meet the challenge of facilitation of transport. These sectors include insurance, banking and labour.

The disparity among the very national legislations in Latin America which are oriented to the protection of the development of national insurance industries, has resulted in an inability by insurers of the region to offer the most appropriate coverage for international intermodal cargo

13/ Caribbean Shipping Association, Report by the Committee Convened to Examine the Present Practices with Reference to the Custody and Liability of Cargo, and to Develop a Blue-Print for the Future, Kingston, Jamaica, May 1973.

movements. Ironically, this situation leads to less ability of insurers of the region to combine their resources and to offer competitive policies for door-to-door transport risk coverage, especially as concentration of risk increases parallel to the introduction of new transport technologies. It also means that combined transport operators formed by multi-national firms with substantial capital have advantages in backing up the responsibilities they assume for the cargo, in comparison with local operators that must rely on local insurers 14/.

While European banking has been in the forefront of the movement to simplify trade and transport documentation, under new rules which it favored, there has been relatively little participation in Latin America in comparable activities. This is quite unfortunate for a number of reasons. First, it is largely the banking industry, along with the insurers, that determine the acceptability of a trade or transport document for commercial transactions. Thus the collaboration of these sectors is particularly important with regard to the implementation of restrictions on the use of documents which have terms or conditions which are not conducive either to facilitation of cargo-handling in the region or to the protection and development of national or regional services (including transport, insurance and banking itself) to international trade.

Second, the meaning or significance of negotiability of a document in Latin America may be quite different than the meaning commonly understood in more industrialized regions. In many Latin American countries, transferability of title of goods being imported, for example, is severely limited. Nonetheless, it is in the bank's interest that import documents with the bank holding title to the goods be negotiable.

Third, in several Latin American countries, bank processing and transmission of trade documents, especially of imports, is a major cause of delay of the movement of goods, particularly when these goods arrive at a frontier point or port some distance from the commercial center of the country.

14/ For more discussion of this point, see Economic Commission for Latin America, Institutional Aspects of International Intermodal Transport: Liability and Insurance, E/ECLA/L.112, Santiago, Chile, 17 September, 1974.

In the developing countries, there have been several errors commonly committed in the introduction of new transport technologies, as far as implications for labour are concerned, and these errors have in some cases already been repeated with the unitization of cargo. One error is the expectation that transport workers in these countries should, once the new technology is implemented, obtain productivity levels comparable to those of the more industrialized countries. What is overlooked is that there is a complex inter-relationship of different social and technical components of transport systems, and the relative success of new technologies in some places of the world often depends on the stage of development of all of the elements which are associated with these new technologies. The blame is all too often thrust on the workers for the failure to meet the targets set out with the introduction of new technology, but it is often the case that unrealistic expectations are being made on the workers, because the conditions do not exist for any group of workers to apply the technology as efficiently as where these conditions do exist. Care has to be given regarding the setting of goals for cargo-handling efficiency in developing countries, with the introduction of unitization.

A second error is the lack of anticipation of jurisdictional problems among labour groups when unitization is introduced. To avoid problems of this nature, careful planning and extensive consultations are normally needed.

A third error is to estimate costs and benefits of new specialized container ports or specialized unitized cargo transport organization without reference to the social effects on existing ports and transport means. In fact, among the justifications considered for the construction of these separate ports, or facilities, even where normally cargo volume does not justify such an investment, is the avoidance of labour opposition to unitization of cargo or the avoidance of conditions which organized labour demands for the handling of unitized cargo. While the shipper of unitized cargo might enjoy direct benefits from this, it may be a costly exercise from the point of view of the other shippers and of the State. This is not meant to be a blanket criticism of specialized facilities, but it implies that caution is needed in this regard when considering proposals for such facilities.

7. Economic implications of institutional aspects of international intermodal transport

It is pertinent to ask at this point how important these institutional aspects are economically. The answer is that these are crucial for determining if the benefits of the use of new transport technologies, or of alterations in the uses of the more traditional technologies, are to be enjoyed by the user himself. A study in the United States shows that, as regards trade documentation alone, the direct and indirect costs to the user are considerable. Average international shipments involve 46 separate documents, with an average of over 360 copies per shipment being employed, consuming 64 man-hours to prepare and process and costing \$351.04 ^{15/}. In Latin America, the data shown in the Tables III-7 and III-8 demonstrate a reduction in costs of the indicated non-transport intermediaries in one case of unitization but not in the other.

These costs to the user often do not reflect real costs of operations and paperwork, of course. Unfortunately, there has been occasion when these costs have been unnecessarily inflated by intermediaries who take advantage of the key positions they occupy in the intermodal transport movement. The situation in Arica, Chile, is instructive, where data on the charges made by the twelve customhouse brokers for the services they subcontract and for their own commissions (which can be as much as 42 per cent of the costs of the services which are subcontracted) show great variations from broker to broker and month to month, and at times the charges by a broker for a service greatly exceed the amounts really paid for that service. It is significant that these charges were reduced substantially when the Administración Autónoma de Almacenes Aduaneros (AADAA) began to exercise a control over the "planillas de costos" (broker's invoices) of these agencies with respect to Bolivian cargo. Aside from the direct implications for costs to the user, it has been shown that the overall structure of intervention by these intermediaries, in some cases where this is not controlled, contributes to less rather than more efficient cargo-handling and documentation flows ^{16/}.

^{15/} National Committee on International Trade Documentation, and Office of Facilitation, Department of Transportation, United States Government, Paperwork or Profits? in International Trade, New York, 1971.

^{16/} Programa de Cooperación Técnica Chile-California, Proyectos Transportes, Programa de Inversiones en el puerto de Arica y en el Ferrocarril Arica-La Paz, Santiago, Chile, August 1966; Latin American Railway Association (ALAF), Grupo Zonal Chile-Bolivia, Estudio de la Operación de la Vía Arica a Bolivia, February 1968.

The benefits for the user of these intermediary services are many: greater supervision of the cargo, improved coordination between the required documentation and cargo handling or movements, and the resulting reduction in damages or losses and of insurance premiums. Such cost reductions are often more directly attributable to institutional developments than to the introduction of new transport technologies.

In conclusion, it is necessary to look at the overall structure of the difference of the price of a good between producer and consumer, before assuming that the simplification or reduction of institutional procedures, or the reduction of transport costs, will benefit one or both of these ultimate users. An example of this principle is given in the case of the impact of the movement of more than 10,000 containers per month to Puerto Rico. A study made in Puerto Rico and reported in Via Port of New York concluded that "the over-all cost of moving consumer commodities from New York to Puerto Rico has declined 13.4 per cent since 1958, even though the island's consumer price index has risen 33.7 per cent during the following decade... The Federal Maritime Commission found that on a wide variety of consumer goods, ranging from kidney beans to automobile tires, ocean freight added only 8.5 per cent to the mainland wholesale price. However, it reported that many retailers added as much as 60.9 per cent to what the item would cost if purchased on the mainland." 17/

17/ Via Port of New York, September 1970, page 5.

Chapter VI

THE ALTERNATIVE INSTITUTIONAL SYSTEMS FOR INTERNATIONAL INTERMODAL TRANSPORT WHICH ARE NOW PROPOSED

In the two previous chapters, changes presently being undertaken of institutional arrangements for international transport and commerce were described, particularly as they are related to the introduction of new transport technologies. Both at the international level and in Latin America, the introduction of the new institutional arrangements for the international movement of almost all types of general cargo has taken on a life of its own, often only indirectly related or not at all related to cargo unitization.

There is a strong movement towards the formalization and diffusion of a single systematic integration of the new institutional arrangements under a consistent set of rules. At the present time, the proposals in this regard may be considered in terms of three alternative institutional systems for international intermodal transport. Each of these systems involves a set of norms, procedures, practices and rules or legislation with regard to the door-to-door movement of international trade, particularly the packaging of the various services to this trade, including banking, insurance, trade documentation, forwarding, transport service, trans-shipment and transit, warehousing, customs' and other inspection, leasing of vehicles and instruments (e.g. containers) of transport, interchange of equipment, through rates and responsibility for the delivery, delay, condition and loss of the cargo.

Each of these systems is "in development" in the sense that many attributes are already institutionalized, some formalized in international agreements, while others are in the process of being more sharply defined. It is not necessary to wait until the complete formalization of all major aspects of these systems into national or international legislation or agreements before studying their economic implications, given that at least the first of the two systems have been under development for some time.

The European System

This system involves the following major components:

(1) Organization of multimodal transport operations by Combined Transport Operators which tend to be founded by users, shipping lines or freight forwarders, with preference for consortia or pooling arrangements.

(2) A single combined transport document, with terms much like those of the FIATA Combined Transport Bill of Lading or of the Uniform Rules for a Combined Transport Document of the International Chamber of Commerce.

/(3) Customs guarantee

(3) Customs guarantee systems for cargo, containers and vehicles following the Customs Convention on the International Transit of Goods (ITI Convention), the Customs Convention on Containers and the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) respectively. Considerable liberty to CTO to establish interior cargo groupage centers for international trade.

(4) No restrictions or very limited restrictions on the contracting of services by the Combined Transport Operator.

(5) Alignment of trade documentation with the ECE Layout Key, and maritime documentation with International Chamber of Shipping (ICS) and Intergovernmental Maritime Consultative Organization (IMCO) formats.

(6) Very intensive use of unitization.

The economic and institutional implications of this system can be studied by examination of the results thus far on affected trades, such as the European-Australian trade described in Chapter IV.

The United States System

This system involves the following characteristics:

(1) Initiative mainly in the transport enterprise or "non-operating carrier" for the organization of combined transport operations.

(2) A single through transport document, and emphasis on coordination of intermodal through service, including aspects of liability, single responsibility, through bill of lading, through joint rates, cargo handling, cargo packaging and unitization, expeditions customs inspections, and simplified documentation 1/.

(3) Customs guarantee systems for cargo, containers and vehicles following the ITI Convention, the Customs Convention on Containers and the TIR Convention, respectively. Government research and development efforts to establish regional TFC (cargo groupage centers) terminals for domestic and international cargo.

1/ Major responsibility would be assumed by the "carrier" which takes leadership to organize the package of services, along the lines set out in the document TD/B/AC.15/L.3, presented by the United States along with Australia, Canada, and New Zealand at the first period of sessions of the Intergovernmental Preparatory Group in Geneva, 30 October 1973. However, the proposal in this document is only tentative.

/(4) Restrictions on

(4) Restrictions on the contracting of services and on establishment of through rates by indirect carriers which organize combined transport operations. Efforts to resolve practical and legal problems which limit direct carriers in this regard.

(5) Simplification and standardization of trade documentation, including primarily (a) its alignment with the U.S. Standard Master, (b) the transfer of data from documents to electronic data processing, and (c) emphasis on seller, rather than buyer, to assume major transport and commercial documentation responsibilities.

(6) Very intensive use of unitization.

The economic and institutional implications of this system may be studied in at least one case, that of the U.S.-Caribbean roll-on/roll-off and container trades, some aspects of which were described in Chapter V.

The Latin American System

This system is much less defined, but the following elements appear to give shape to what is presently being developed in the region:

(1) Initiatives by multinational enterprises, foreign shipping lines, and national carriers and cargo consolidators or customhouse brokers for the organization of combined transport operations.

(2) Functions and content of combined transport document now under study by interministerial and intersectorial study groups ^{2/}. At present, practices vary regarding trade and transport documentation and packaging of services, depending largely on national legislation and nationality of the combined transport operator.

(3) Argentine legislation is a model for the norms set out by the Latin American Free Trade Association, "Normas recomendables sobre el tratamiento aduanero aplicable a los contenedores". Government involvement in the organization of interior cargo groupage centers for international trade in some of the countries. Work underway on adaptation and review of regional highway, rail and water transport agreements for intermodal transport.

^{2/} Alfonso Ansieta Nuñez, "The Combined Transport Document", in Economic Commission for Latin America, Institutional Aspects of International Intermodal Transport: Contributions of Latin American experts, E/ECLA/L.111, Santiago, Chile, 17 September 1974. Also, Annex II of the Decision 56 of the Andean Group countries.

(4) Restrictions on the contracting of services by the Combined Transport Operator, in order to protect national services and commercial objectives.

(5) Interest in alignment of trade documentation, especially with Latin American Free Trade Association (LAFTA) formats for customs and maritime documents, and Organization of American States (OAS) formats for maritime and ports documentation.

(6) Desire to leave options open for the most economic use of unitization and traditional cargo-handling according to user and national interests.

Chapter VII

POLITICAL-LEGAL ACTIONS NEEDED TO ASSURE THE DEVELOPMENT OF VIABLE
LATIN AMERICAN INSTITUTIONS AND THE PROTECTION OF THE REGION'S
COMMERCIAL AND SOCIAL INTERESTS

There are two separate but not entirely independent initiatives related to the movement of international commerce which are being considered here: the institutional changes, represented by the introduction of the combined transport document, or a variation on this document; and technological changes, most notably represented by the unitization of cargo shipments, especially with the use of transport instruments (containers, LASH barges, pallets, etc.) which are not disposable and which often require empty movement due to the imbalanced flow of the traffic which can be unitized.

The following four-square table summarizes the interrelationship of these two initiatives, and the present situation in most of Latin America:

	Without unitization	With unitization
With segmented transport documentation	1. Predominant combination for present general cargo movements	2. Presently on small scale, with rapid growth on some routes and in some zones of Latin America.
With CT Document	3. Being introduced, especially on intra-regional trade	4. Being introduced; given greater impulse by introduction of 3 or by the introduction of 2.

The Latin American countries have supported, through UNCTAD Resolutions and other agreements, a number of objectives which should be sustained as restrictions or preconditions on the introduction of the CT Document and/or unitization. The following is a compilation of these objectives ^{1/}, in relation to the trade of each Latin American country:

1. At least 40 per cent, and striving towards 50 per cent, of the maritime cargo movement to be carried in ships under the flag of the Latin American country, or alternatively, of the region;
2. All of the services of warehouses, customhouses brokers, trans-shipment, loading and unloading, and inland transport in the Latin American country of origin or destination to be provided by national entities and with national labour, except in those cases where these elements are considered by special reciprocity agreements;
3. Insurance and reinsurance arrangements such that an increasing share of the market is insured by Latin American institutions, and that a high and increasing proportion of the net collections (total premiums minus premiums reinsured outside of country plus indemnizations returned to country) remain in the Latin American country.
4. Ample opportunities for the user to file insurance claims, and ability to carry out litigation where necessary without undue costs or difficulties of obtaining and using available evidence in his favour.
5. Ample insurance coverage available to the user, with each intermediary assuming liability necessary to insure honest, careful and expedite handling of the cargo documentation, without unnecessarily complicating the processing of claims or duplicating insurance administration costs, and permitting the user to take advantage of self-insurance or his own open policies where it is most convenient for him.
6. Full disclosure of breakdown of the costs of the different services to the user and pertinent governmental regulatory agencies, with controls on rate-making procedures and rates of each mode of transport or service being respected.

^{1/} See especially the reports of the subregional meetings on combined transport, June 1972, Brasilia, Lima and Mexico City, contained in report to the 53rd. session of the United Nations Economic and Social Council, in Geneva, 17 July, 1972, (E/AC.6/L.460/Add.4). Also pertinent are the resolutions of UNCTAD on merchant marine and insurance matters, taken under consideration at the subregional meetings.

7. Selection of transporters by criteria, in addition to that of nationality, consistent with the development of responsible and stable service industries, and with national policies on transport system development.

8. Full compensation in the case of labour-displacement effects, and equitable participation of labour in the benefits of institutional and technological changes.

In addition to the above, there are additional objectives in the case of unitization, with or without the introduction of the combined transport document:

1. That the introduction of new specialized ships or vehicles, of new transport instruments, and of new cargo-handling installations take place under subregional plans which consider:

(a) Effects on labour;

(b) Construction of the new elements with maximum value added in the countries of the subregion;

(c) Facilities and standards for certification for international traffic of the ships, vehicles and instruments.

(d) Adoption of a definition of the nationality of the transport instruments consistent with the subregion's trade and development objectives;

(e) Norms on leasing and pooling arrangements of specialized ships, vehicles and transport instruments.

(f) Coordination of the flow of the transport instruments to minimize empty movements;

(g) Ample financing or aid from the more developed to the developing countries.

2. That no single interest can adversely affect other interests by the introduction of new transport technologies without previous consultation.

There are a number of actions which the Latin American Governments might consider in order to assure that the objectives stated above are respected during the introduction of the combined transport document and/or unitization in Latin America.

First, work could continue on the preparation of articles for a draft convention on international intermodal transport, taking advantage

/of the

of the work already completed towards this objective, and of the conclusions of the subregional and regional meetings of Latin American Governments which are considering the draft proposals which have been made. The advantages of an inter-disciplinary focus in the preliminary drafting stages are evident. Re-drafting by experts in commercial and transport law would probably be necessary.

Of course, any further work done in this area would need to be coordinated with the programme of drafting a convention set out during the second period of sessions of the Intergovernmental Preparatory Group on a Convention on International Intermodal Transport (11-29 November 1974, Geneva). However, it should be emphasized that of the different systems proposed for international intermodal transport, which are summarized in the fifth chapter of this study, considerable work has already been undertaken to formalize and implement rules for the systems (the "European system" and the "United States system") originating among the more industrialized countries. This suggests the need to continue working on alternative proposals insofar as is possible, representing the points of view of the developing countries. Among the developing countries, the Latin American countries have often taken a leadership role on this particular issue, in part due to the complexity of affected interests in this region in comparison with other developing regions, and may wish to continue to refine and elaborate draft articles to be used as a point of reference for the later international drafting work.

Second, up to the moment when a convention on international intermodal transport is completed and accepted, there may be interest in transitory measures which would offer some degree of protection for the objectives of the region, beyond what national legislation and regulations are able to control, in the face of present activities to introduce the combined transport document and unitization. One possibility in this regard would be a set of uniform rules for combined transport contracts which would be acceptable in Latin America, with particular attention to the aspects of combined transport operations which appear least susceptible to effective control by a single nation in the face of international pressures for the implementation of certain norms. Such aspects might include the preconditions or requirements for licensing of entities which would be permitted to emit the combined transport document; conditions on the subcontracts between the combined transport operator (CTO) and the different transport and other services related to cargo handling and movement and documentation flows; the responsibilities of the CTO for damage, loss, delivery and delay of the cargo; and the functions and content of the combined transport document. These rules could be made obligatory in the region until such time as a convention on international intermodal transport is concluded, or they could serve as a model for national legislation and/or bilateral agreements.

With regard to either a convention or uniform rules for international intermodal transport, there is a major policy decision that appears

/necessary; the

necessary: the types of arrangements which should be made to assure equitable conditions for operations of CTO's of more industrialized nations and those of the developing countries. Present tendencies with regard to the introduction of this institution (the CTO) in Latin America, which were examined in Chapter V, appear to be directed to the eventual implementation of reciprocity agreements. A Latin American CTO, organized to contract the elements inside and outside of the region which are needed to offer a competitive service, must be able to count on good working contacts with public and private sectors abroad. "Reciprocity" arrangements between Latin American and foreign countries or enterprises would assure participation of Latin American CTO's or regulate competition between CTO's of different nationalities. However, especially given that the CTO depends on contracts extended to local services in countries other than his own, it is more difficult for Latin American governments to make or control such "reciprocity" arrangements than is the case of maritime or local land transport agreements 2/.

An alternative to this type of development is the "joint venture", under norms which reflect the region's objectives. This arrangement involves the taking of contracts or setting up of subsidiaries by a Latin American CTO and foreign CTO (or consortia of foreign CTO) according to maritime routes. That is to say, a Latin American CTO which can organize operations at the Latin American end of a maritime route enters into an arrangement with a foreign CTO who can organize operations at the other end of the route. They agree upon the document, insurance agreement, ties with the banks and transporters and other elements, following norms set out by the Latin American Government or Governments. The Latin American Governments could take complementary action to assure that these arrangements be consistent as much as possible with the uniform rules mentioned above.

For such arrangements, it is presumed that all of the basic resources for viable enterprises already exist in the region. A CTO does not require a great deal of capital. The Latin Americans are in the best position to put together the necessary communications network, chain of contacts with public authorities and ready knowledge of the immediate problems of moving goods in the region. Where it is convenient to unitize the cargo, the

2/ The ability of Latin American CTO's to establish services attractive to shippers or buyers abroad is limited where the more industrialized countries insist on uniform freight tariffs, or uniform practices regarding transport documentation, or they regulate other aspects of transport and other services to international commerce. This is because these might be the very aspects over which the Latin American CTO would have greater opportunities to offer a competitive service. Where all CTO's must offer the same price for a type of service contracted in those countries, the CTO's of those countries would have natural marketing advantages.

region has the necessary technical and industrial capacity for the construction of standardized transport instruments (containers, IASH barges, etc.), and it is mainly a question of planning and coordination to set up the necessary certification facilities and procedures, leasing arrangements and programming of operations.

In any action programme in the region, special consideration would probably need to be given to specific institutional problems which require multi-lateral cooperation in the region, and possibly those problems which are particularly vexing for the countries of the region and over which an exchange of information and innovations might be helpful. These problems might include the following:

- (i) Uniform and consolidated regional or subregional transport insurance contracts;
- (ii) Uniform concepts regarding negotiability of transport documents;
- (iii) Faster processing and transmission of required data, especially among banking and customs' offices;
- (iv) Measures for the protection of labour interests during the introduction of the combined transport document and/or unitization of cargo;
- (v) Policies regarding transshipment of cargo among ocean carriers.

At the same time, certain of the subregions will probably wish to get underway studies and the drawing up of plans or guidelines regarding the introduction of new specialized ships or vehicles, of new transport instruments, and of new cargo-handling installations. Interest has already been expressed among the Andean Group countries and the Central American countries in studies of this type. Such studies should devote ample attention to the aspects of this problem which are listed earlier in this chapter. A basic question to be answered is the relative importance of the new vessels and of the transport instruments carried by these vessels for profits of the carriers and for the balance of payments effects in the Latin American countries. Ideally, for example, the cost and savings effects of the containership and those of the container, would be separated. It might be shown that the relative importance of the transport instrument has been understated, and the Latin American countries might do well to concentrate on this aspect of the new technologies ^{3/}. With more data on this subject, the Latin American countries will also be in a much better position as regards freight rate determination or regulation.

^{3/} This would have implications for the present practice of some shipping lines of only accepting their own containers.

Finally, Latin American Governments may in some cases wish to encourage the formation of national or subregional combined transport enterprises, not only by promoting training or guidance seminars for potential operators, but also assuring maximum collaboration among the authorities of relevant public agencies.

Should the legal instruments be limited in application to unitized cargo movements?

There has been a debate both inside and outside the region regarding the desirability of limiting the application of uniform rules for combined transport documents and of a convention on international intermodal transport to unitized cargo movements, at least during a transitory period. The proponents of this point of view argue that Latin America is not ready for large-scale unitized cargo operations, and these legal instruments present the opportunity to establish such rules that, in practice, assure that the introduction of the system in the region will only be gradual. There is no need to alter rules for the bulk of the region's foreign trade, which will continue for some time to rely on segmented transport documents, until experience is gained with the legal instruments drawn up for more restricted traffic. Besides, in the case of maritime traffic, the needs of the developing countries are already considered in the Convention on a Code of Conduct for Liner Conferences. Finally, break-bulk cargo will not, as a rule, be appropriate for carriage under international intermodal transport documents.

Those who oppose limiting the legal instruments to application to unitized cargo movements argue that, with the exception of some documents of individual enterprises, none of the combined transport documents introduced abroad, like the FIATA Combined Transport Bill of Lading or the Uniform Rules for a Combined Transport Document of the International Chamber of Commerce, is limited to cover only unitized cargo. If an objective of the Latin American countries is one of opposing the use of these documents in the region, insisting on an alternative document which is more compatible with the region's objectives, in that case this alternative document should cover all general cargo. Presently, combined transport documents are used in Latin America for non-unitized cargo.

It is to be presumed, of course, that legal instruments on combined transport documents, drawn up with the active participation of the Latin American countries, will be compatible with the general interest of the region. Undoubtedly, for the cargo it covers, the users will enjoy benefits which they do not have with the use of segmented transport documentation. Thus, while these legal instruments will impose certain conditions on the activities of Combined Transport Operators with regard to break-bulk general cargo, they also will be mechanisms to facilitate the movement of that cargo. Limiting the coverage of the legal instrument

/to unitized

to unitized cargo would have the effect of giving unitized cargo an unnatural advantage over non-unitized cargo. The transport instrument would serve as a mechanism giving undue preference to the use of unit-loads, beyond the natural economic advantages unitization might offer to certain cargo movements.