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TRANSHIPMENT AND PORT RELATED FACILITIES IN THE CARIBBEAN

by Sherman B. Thomas */

*/ The author is presently General Manager, West Indies Shipping Corporation (W.I.S.C.O.). He was formerly Assistant Vice-President (Marketing), Bauxite Industry Development Company Ltd. of the Co-operative Republic of Guyana.

TRANSHIPMENT AND PORT-RELATED FACILITIES IN THE CARIBBEAN

1. INTRODUCTION

The Caribbean lies thwart some of the main shipping routes of the world: to and from North, Central and South America, Europe, Africa, the Far East.... The geographic location of the Caribbean makes this area strategically important for transportation in general and for shipping, in particular. Because of the area's geographic location and the fact of the Caribbean being constituted mainly of islands, thus affording the population ready access to the sea, the idea has developed that the people of the area should be main actors in the shipping industry if not in the overall transportation sphere. A developed shipping industry within the region seems, a priori to be a natural outcome of the geographic position of the area and the fact that the people have a long and well-established relationship with the sea. In spite of the perceived natural pre-disposition, however, the shipping industry in the region has not developed to the extent that might be expected. The regional shipping industry reflects features of the region's special development experience consistent with other aspects of the economic and social life of the region. In spite of the relative under-development of the indigenous industry, it is significant that the region is well served by ships ... at this time the claim can be made, with some justification, that the region is too well-served by ships!

One of the arguments in support of the claim that there are too many ships plying the region is that the returns from ship operations are low and uneconomical. Caribbean operators have to seek more remunerative trades or find alternative means of earning a livelihood. However, while such might be true of ship operations, there are other areas which should be developed and promoted with a view towards capitalising on the geographic position of the islands and the fact that some of them possess relatively sophisticated infrastructure which can yield greater rewards through more intensive use.

One of these areas of emphasis for the Caribbean is the development of the region as a major transhipment centre for cargoes moving on the main trade routes of the world as well as for cargoes destined for the Caribbean from main metropolitan centres.

This paper will examine the idea of transhipment; the advantages which it offers; the organisational and marketing demands for establishing and maintaining transhipment activity; the costs, i.e., the downside, of transhipment; and will propose measures for securing the maximum benefit from transhipment activity. All of these aspects of transhipment will be discussed with special relevance to transhipment in the CDCC member countries. These are: Antigua and Barbuda, the Commonwealth of the Bahamas, Barbados, Belize, Republic of Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Christopher/Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Montserrat, the British Virgin Islands, the Netherlands Antilles and the United States Virgin Islands.

2. DEFINITION

Transhipment is defined as the activity whereby cargo is brought by one carrier - Carrier 'A' - into a location which is not the final destination for the cargo which is then handed over to a second carrier - Carrier 'B' - (and in some cases even a third or fourth carrier) which would take the cargo to its final destination. This is the pure meaning of transhipment, and normally the activities are carried out by two or more separate and distinct carriers i.e. separate shipping companies. However, transhipment can also be effected by the same carrier, or shipping company, using two or more of its services, as in a situation where the same carrier on one service brings the cargo into a given port where the cargo is discharged and then with another of its own ships, but under a different service, picks up that cargo for its final destination. The term that is used to distinguish this activity which is carried on by one and the same carrier in two or more services from the activity in which two or more distinct carriers are used is known as "RELAY". Put simply "RELAY" can be regarded as transshipment by the same carrier from one of its services to another, while "TRANSHIPMENT" involves distinct services as well as distinct carriers.

In this paper no differentiation will be made between the two terms "RELAY" and "TRANSHIPMENT". Both concepts will be subsumed in the one term "Transhipment".

3. REASON AND RATIONALE FOR TRANSHIPMENT

Transhipment has become a major activity in liner shipping and particularly so today. However, this activity is not confined to liner shipping as bulk cargoes are also transhipped. Overall cost-competitiveness is the primary reason for undertaking transhipment, whether of liner or non-liner cargo.

3(a) Liner Operations

In the context of liner shipping, transhipment normally takes place under the following circumstances:

(1) In a situation where one shipping line (Carrier 'A') with service concentrated along a certain route finds it advantageous to solicit and carry cargo for destinations which do not lie along its route. Since Carrier 'A's vessels call only at ports on its specific route, then cargoes secured for destinations off that route must be handed over to another carrier (or carriers) which serve the ports lying off Carrier 'A's route.

(2) In a situation where the trade is organised with equipment, that is, ships, and/or cargo-carrying equipment, e.g. containers, which are not compatible with certain ports which it is otherwise convenient and profitable to serve. Among these instances are the situations where there is a mix of large and relatively small ports in an area with the large ports having the capability of accommodating and handling ships of a certain size which ships cannot be accommodated at the smaller ports. For commercial reasons the entire area might be viewed as the market so that the larger ports then are developed into areas of cargo centralization and feeder services are encouraged and/or established to move cargoes from these larger ports to the smaller ports. In these

REASON AND RATIONALE FOR TRANSHIPMENT .... cont'd

instances the feeder services utilise or deploy ships and other equipment which are more suited to the physical limitations, available facilities, and other characteristics of the smaller ports.

(3) In a situation where the volumes of cargo to some ports are not large enough to justify direct calls at those ports by larger ships. Therefore, in order for the entire transportation activity to be cost effective, these larger, more costly vessels, must be utilised more intensively. Transhipment cargo is looked at as marginal cargo, and often is actually costed in that way in these situations. Under these circumstances it is both commercially and economically viable to offer and to develop transhipment activity, as it allows for the realisation of economies of scale through the intensive use of larger vessels. Thus the transhipment cargo can continue to be regarded as peripheral to the operation and therefore amenable to very favourable costing.

(From the opposite standpoint, of course, it means that the feeder operator probably has to adopt a different approach with respect to his costing of the transhipment operation. This is so because while for the operator of the larger vessel the transhipment cargo could be regarded as marginal, for the feeder vessel operator such cargo might well be the main cargo carried).

3(b) Bulk Cargo Operations

The rationale for the transhipment of bulk cargoes is not materially different from that for liner-type cargoes. Greater economies are achieved through utilising much larger vessels. Transhipment activity leading to the consolidation of cargo in the sense of smaller lots of cargo being brought together for a much larger shipment, can therefore be clearly very advantageous. This is true in the region, particularly, of cargoes from some countries of South America where there are draught limitations which restrict severely the tonnage of cargo which can be loaded on any medium or large-sized vessel and necessitates the use of the transhipment device in order to improve cost-effectiveness.

A good example is the tens of thousands of tons of bulk cargo which are brought into Trinidad and Tobago and transhipped to all parts of the world. The rationale for this activity is that most of the bulk commodities in question are moving to fairly distant destinations. Once the commodity is homogeneous then there can be very considerable savings in moving the larger lot sizes. Smaller "shuttle" vessels are employed to accumulate cargoes at convenient points for larger vessels to pick up such cargo for trans-ocean destinations. If the smaller lot sizes were to be moved to the trans-ocean destinations by the "shuttle" vessels the actual freight cost would be considerably higher, in some instances as much as four times as high, as the final cost using larger vessels. In a situation where the bulk commodity in question is relatively low value the freight element can make all the difference as to whether or not the commodity is marketable, i.e. whether the marketing is a commercially viable operation.

4. CHOOSING THE TRANSHIPMENT LOCATION

Caribbean States as a whole enjoy a considerable advantage in geographic location which is one of the key determining factors in the decision of which several competing centres should be favoured for the development of transhipment facilities. In spite of the overall attractiveness of the area, individual states face considerable difficulties in establishing their ports as transhipment centres. This is so because these states, in spite of their natural advantages, also face a number of disadvantages which are in some ways related to their geographic location. It is useful to examine the advantages and disadvantages which the Caribbean States must contend with in seeking to develop their ports as transhipment centres.

4(a) Geographic Factors

The main geographic characteristics to be considered in choosing a location to develop transhipment activity are:

1. Economic proximity of the transhipment centre to final destinations.

2. Economic proximity of the transhipment centre to supply sources.

3. The ease with which the transhipment centre, based on its geographic location, lends itself to being integrated in the basic economic, commercial, industrial and trading structures of the source and destination countries which are served by the transhipment arrangement(s).

4(a)(i) Liner Operations

For the liner operations in the Caribbean, since the States are not major producers of a significant number of commodities, the critical characteristics are those listed at 1 and 3 above. The attractiveness of the islands as transhipment centres lies in the fact that they are in close proximity to major markets in North, Central and South America and in the fact, that in themselves they constitute a significant number of final destinations. The significance of the area's integrative capability is that a suitably located island can be found to be aligned with virtually any destination in the Southern USA, in Central America and in Northern South America. Such an island would also lie along several major trade routes to/from North, Central and South America and the Far East, Europe ...

To the extent that the geographic characteristics have been exploited, it has been with respect to the liner-trades. In this respect, cargoes are brought into an island port for distribution to other ports in relative close proximity. Such cargoes must be transhipped within a few days, at most, if the geographic advantage of nearness to a number of final destinations is to be realised.

4. CHOOSING THE TRANSHIPMENT LOCATION .... cont'd

4(a)(ii) Bulk Cargo Operations

While the region's production and trading situation for general cargo is conducive to regional transhipment centres serving final destinations in the region, the opposite is true of the development of regional transhipment centres to service major dry bulk cargo movements in the area. The major dry bulk cargo movements in the area are of bauxite and alumina. The production centres of relevance are: Guyana and Suriname. Both countries are located on the Northern coast of South America and suffer from severe draught limitation. Thus only relatively small quantities (5,000 - 12,000 tons) of these major export commodities can be carried at any one time on the limited draughts. Economic lot sizes in most of the markets which absorb these commodities are from 25,000 to 50,000 tons. To attain these quantities it is necessary to consolidate smaller lots in a convenient location. For cost effectiveness, the location(s) where consolidation take(s) place should be as close as possible to the supply source(s). The closest land-based location is Trinidad and Tobago. Hence, transhipment facilities for bauxite and alumina from Guyana and Suriname are located in Trinidad and Tobago.

The locating of these activities in Trinidad and Tobago also has the advantage of the transhipment centre in Trinidad and Tobago being integrated in the basic economic and trading structures of Guyana and Suriname on the one hand and the European, American and Asian destination countries on the other hand. The integrative quality derives from the fact that little or no deviation is involved in proceeding from Guyana and Suriname to the final destinations when done via Trinidad and Tobago. Also, in very many instances, ships are used which either have been employed carrying cargo to Trinidad and therefore can move into the new employment loading the bauxite/alumina immediately they are released from their previous employment, or have to call at Trinidad and Tobago in any case en route to, say, Europe. The commercial importance of Trinidad and Tobago and its standing as a major port of call in the southern Caribbean confers considerable advantage on the transhipment centre as an integrator in the trading and commercial relations of source and destination countries for bauxite and alumina.

4(b) Over-dependence on Geographic Factors

There have been occasions when too much reliance was placed on the seeming impregnable advantages of geographic location to the exclusion of proper concern for marketing, for investing in improving knowledge of the industries which are served and for seeking out and cultivating other clients, service to whom would be compatible with service to existing clients.

Underdevelopment of significant transhipment potential as a result of insufficient attention paid to marketing is reflected in the situation of the Port of Port-of-Spain, Trinidad and Tobago. This Port had, from the late 1970's up to 1985 regarded itself as self-sufficient by virtue of the volume of its domestic cargo. As such, the Port lost all interest in exploring its considerable

4. CHOOSING THE TRANSHIPMENT LOCATION ..... cont'd

transhipment potential for cargoes into South America and to nearby Caribbean islands such as Grenada and Saint Vincent.

4(b) Over-dependence on Geographic Factors

Interestingly, while the Port of Castries, Saint Lucia, has announced an interest in attracting transhipment cargo, the Port has not engaged in any significant marketing thrust to realise its aim of attracting transhipment cargo. In one instance when transhipment cargo was being moved over this port, the requisite interest to maintain and assist in the growth of this cargo was not evinced. As a consequence the cargo migrated.

It is felt that bulk transhipment facilities should maintain a keen interest in the fortunes of the industries which they serve as (some of) these industries are susceptible to major swings in viability because of economic trends which can hit them very hard and change their prospects in a relatively short period - six months to a year. The sunk investments and infra-structure for these bulk transhipment facilities tend to be rather expensive and are also somewhat specific. Even so, there is a range of commodities which those facilities, with relatively modest modifications, can be made to handle, provided that the commodities to be handled are compatible with those being handled already since contamination leading to off-specification is a major risk in the handling of bulk commodities. It is not inconceivable that bauxite, for example, can be handled side-by-side with cement clinker. However, alumina is rather more sensitive than bauxite and it might not be feasible to find easily other commodities which can be handled side-by-side with alumina without severe contamination risk.

4(c) Competition

The region as a whole is attractive for the development of transhipment, especially of liner-type cargoes. However, because of the large number of islands which are suitably located, virtually all of them suffer from the profusion of options which carriers enjoy. This leads to competition among those islands which have a keen interest in developing transhipment services. Minor differences in port or cargo-handling costs, in the methods of operation of these ports, in perceived industrial stability of the ports, etc., assume major significance. In addition, the small scale of the economic hinterlands of the islands (and of the region as a whole) tends to limit the extent to which transhipment activity in any one island (and, hence, in the region as a whole) can be developed. Further, the fact that so many of the islands lie so close to each other means that the cost of deviating from one state to another is not very great. Several of these islands can be served, even by a large carrier, without losing much time. This fact militates against commitment by some carriers which may be induced to make direct calls at ports which they would otherwise prefer to serve on a transhipment basis as and when their volumes of cargo to these ports approach a certain magnitude. In some instances, volumes as low as 15 twenty-foot containers could constitute adequate inducement.

4. CHOOSING THE TRANSHIPMENT LOCATION .... cont'd

Intense competition for transhipment business can lead to costly and duplicative investment in infra-structure and facilities to attract and maintain this type of business. Unless the growth in transhipment cargoes is fast enough and attains commercially viable volumes, there will be under-utilisation of equipment and facilities, thereby imposing an economic burden on the investing state(s).

The above analysis indicates that the advantages of geography as a determinant in the locating of transhipment activity are an important but are not the only criteria in making the final decision. The advantages of geographic location appear to be greater for the region as a whole than for any individual state. Because of the fact that the states offer such good opportunities and are so close to one another, there must be considerable competition among states for limited transhipment business. The realisation of the transhipment potential of the region depends heavily on the extent to which individual islands can attract and maintain transhipment business. Barring strategic decisions of Caribbean Governments acting in concert, it is really each state's success in wooing individual shipping lines, providing them with the requisite facilities, being cost competitive with the neighbouring islands, and being able to assure carriers of stability in operations that will be crucial in the development of regional transhipment centres.

Unfortunately, the smaller states are at a considerable disadvantage in meeting any other than the geographic conditions for the locating of transhipment centres. The position of the smaller states is further weakened by the fact that CDCC states face major competition from third countries with very considerable advantage over the CDCC states as transhipment centres within the wider Caribbean region. These and other relevant aspects of the problem of transhipment in the Caribbean will be discussed in the section following.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN

5(a) World Economic Situation

The scope for the development of transhipment services in the Caribbean is determined to a large extent by the world economic situation and how this situation is manifested in the shipping industry in general, and in the regional shipping industry in particular.

The world-wide economic recession of the past five/six years has taken a heavy toll on world shipping. The incidence of bankruptcies of shipping operations (both in the liner and bulk fields) has reached unprecedented proportions. That shipping has not yet begun to emerge from the doldrums is evidenced by the fact that one of the top five or six operators in the world - U.S. Lines - has recently had to seek the protection of the courts against its creditors due to its inability to meet obligations of hundreds of millions of dollars.

5(a)(i) Impact on Liner Shipping

The shipping industry has been as badly affected as it is not only because of the economic recession which has reduced drastically the volumes of cargo being traded, cut freight rates dramatically on virtually every route in the world, and made most operations unremunerative, but also because of the fact that the recession came at a time when the industry, or at least the liner sector of it, was on the verge of implementing thorough-going structural changes. In a word, these changes were related to the construction of mammoth container carriers representing billions of dollars of investment and the introduction of round-the-world services and all the attendant down-stream modifications which needed to be made to fit into the new scheme of operations. The operation of some of these very large vessels has shown that it does not matter that unit operating cost is as low as US$50 per 20ft. container slot if ten vessels must sail every day with 2,000 vacant slots the loss per day is still US$1,000,000!

The economic situation and the change in the structure of liner shipping has led to the following developments:

1. The charter market for ships has been weak. Consequently, speculators have been able to secure ships rather cheaply and have become a force in markets which offer unrestricted entry. (With the liberal provisions in the US Shipping Act of 1984, this means virtually all markets except for the markets between US territories).

2. The easy entry of speculators into most markets has been a somewhat de-stabilising force as they have contributed a great deal to the down-ward movement in freight rates over the past five/six years and to disruptions in service in many trades as they have moved in and out of these trades almost at will.

3. The small or medium-sized committed carriers therefore find their position weakened. It becomes virtually impossible even for these carriers - many of whom would have found an important niche in the new structural arrangements of liner operations as transhipment carriers - to maintain a commercially-viable operation.

4. The large and ultra-large committed carriers are placed in a dilemma: given the structural changes, should they under-pin their main-line operations by means of third-party feeder services (which could go out of business at any time), or should they set up their own feeder operation (which represents additional investment and probably would be more costly)?

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

One thing is clear, however, and it is that for the liner aspect of the shipping industry, the structural changes which have taken place mean that proportionately more cargo to final destinations such as those in the Caribbean must now be transhipped - the latest generation of liners at capacities upwards of 4,000 TEU's are simply too large to call at most Caribbean ports. Whether or not this means that the volumes of transhipment cargo to the region will grow depends largely on how soon the economic recession abates, the strength of economic recovery in the Caribbean and the effectiveness of the transhipment operation. Whether or not more transhipment will be done in the Caribbean depends on how well the region can organise to take advantage of the new opportunities.

5(a)(ii) Impact on Bulk Shipping

The world economic recession has also seriously affected the volume of bulk cargoes traded. Prices for these commodities also softened. As a result, freight rates and earnings fell greatly. A parallel development to that which affected liner shipping in terms of bankruptcies and instability, etc., took place with respect to bulk shipping.

Transhipment centres which handle bulk commodities have therefore witnessed a reduction in through-put, loss in profitability, competition in the sense of economic lot sizes which previously might have been as large as 40,000/50,000 tons falling to 15,000/20,000 tons and such smaller cargo-loads being met without the need for transhipment (of much of the cargo-load).

On the bulk aspect of shipping, the economic recession has led to a reduction in the demand for transhipment facilities to handle bulk cargo. The existing Caribbean facilities are unlikely to face a threat from the establishment of new facilities to handle bulk cargoes.

5(b) Transhipment of Liner (General) Cargoes

Among the CDCC countries, only Jamaica and Barbados are well-established as transhipment centres for general cargoes - mainly containerised cargoes which include commodities such as miscellaneous manufactures, foodstuffs - tinned and packaged, paper products, chemicals, building materials, wood products, refrigerated cargoes such as fruit and vegetables, etc. Of the two countries, Jamaica is far superior in terms of its transhipment capabilities compared with Barbados. The Table below shows the extent of the infra-structure and equipment which are available to service transhipment in the two countries. The Table also shows the volume of transhipment cargoes handled at the ports of the two countries over the period 1983 to 1985.

TABLE I - SOME VITAL STATISTICS - JAMAICA; BARBADOS

(a) PORT FACILITIES (as at January, 1987)

COUNTRY	PORT	NO. OF BERTHS	DEPTH	CONTR SHED (SQ METRES)	FCL CONTR PARK (TEU'S	T/SHPMNT CONTR PARK (TEU'S)
Barbados	Bridgetown	One	9.75M	5,314	320	372
Jamaica	Kingston	Four	11-12M	10,000	6000	4200

(b) PORT EQUIPMENT (as at January, 1987)

COUNTRY	PORT	CRANES		OTHER TERMINAL EQUIPMENT
		GANTRY	OTHER	
Barbados	Bridgetown	N I L*	One	2 side-loaders. 3 straddle-carriers; 1 fork-truck
Jamaica	Kingston	Four	One (140 tons)	17 straddle-carriers; 2 fork-trucks; 58 chasses

*This port plans to purchase one gantry crane and one additional straddle-carrier within the next year.

(c) CARGO VOLUMES

COUNTRY	PORT	YEAR	CONTAINERS HANDLED (in TEU'S)	
			TOTAL	T/SHIPMENT
Barbados	Bridgetown	1983	15,396	1,725
		1984	14,603	1,383
		1985	15,109	1,526
Jamaica	Kingston	1983	73,000	55,242
		1984	80,000	53,963
		1985	100,000	74,000

Sources: Port Authority of Barbados; Port Authority of Jamaica.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(b)(i) Growth in Cargo Volume

The growth of transhipment cargo over the port of Kingston has been quite remarkable. This Port's management has expended considerable effort and financial resources in developing the port as a major transhipment centre. Their efforts and investment have paid off in the growth of transhipment cargo over the Port. The Port of Kingston can claim to have met the critical challenge of increased cargo through-put which is the most difficult problem which Caribbean ports face in becoming established as transhipment centres.

As outlined in the previous section on Choosing the Transhipment Port, one of the greatest limiting factor is the small economic hinterland on which transhipment is based. The Port of Kingston has been able to surmount this constraint by attracting shipping lines which service not only Caribbean ports but which also service Central America ports and other regional states. Hence, their economic zone of operation has been considerably extended.

The Port of Bridgetown has not been able to attract lines with a similar network of services. One reason is that there is a limit to such lines which serve the Caribbean. Another reason is that geographically, the Port of Bridgetown is less favourably located than the Port of Kingston. A third reason is that the Port of Bridgetown does not have adequate equipment or facilities to cope with substantial volumes of transhipment cargoes.

5(b)(ii) Equipment Problems

Adequacy of suitable equipment is a major problem for Caribbean ports, including Kingston. In the case of Kingston, the problem has taken the form of a shortage of foreign exchange to acquire and maintain the requisite equipment. In a number of other ports, the problem has been one of economic and commercial justification for the equipment, particularly expensive equipment such as gantry cranes. Several of these ports have already invested in up-grading their facilities to handle their domestic cargo and find that the amortisation burden is so severe that they cannot easily justify the acquisition of additional equipment to cater to transhipment prospects. The risks assume even greater proportions when cognisance is taken of the fact that these ports would have to compete with other nearby ports for the limited available transhipment business. In the case of Trinidad and Tobago which until relatively recently did not have a foreign exchange problem (or problems of justifying the additional expenditure), the constraint has been in the form of operating the available equipment at a reasonable performance level and maintaining the equipment in good operating order.

The problem of equipment therefore is manifested in various forms depending on the financial and skills status of individual ports. All aspects of the problem fuse in terms of cost.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(b)(iii) Equipment Problems, Other Facilities and Cost

From the ship-owner's/operator's stand-point, the deciding factor is cost. The notion of cost in this context however, is not as simple as it seems at first glance since there are many subtle facets to this issue. The most important of these are:

- Productivity

How quickly and smoothly can the cargo aboard the ship be discharged and the cargo (including empty containers) for loading be placed aboard the ship so that the vessel can proceed to its next port of call? In Jamaica, container vessels at the transhipment terminal are worked at the rate of 20 - 25 container "moves" per hour. (A "move" is defined as the action of picking up the container from its place of rest on board a ship to positioning it in a place of rest on the terminal.

In Barbados, container vessels are worked at the rate of 10 to 15 "moves" per hour. In an eight hour day 80 - 120 container "moves" can be accomplished at the port of Bridgetown. However, these "moves" would be taken as 3 to 4 days' work since the system which is in operation at this port takes the first thirty-three "moves" (assuming no delay between "moves" is fifteen minutes or longer) as one day's work. (Each fifteen-minute delay between "moves" is taken as if a "move" had occurred and serves to reduce the number of "moves" which finally constitute the day's work). The next thirty-three "moves" constitute another day's work. However, this "second day's work" is not an eight hour day but a six hour day! The explanation being that after the first day's work, overtime becomes applicable.

Incidentally, in Bridgetown, handling a 40ft. container is counted as two "moves".

In Barbados, a vessel which requires ninety-nine (99) container "moves" will be actually handled in, say eight (8) hours. However, the ship's operators will be required to pay for at least three (3) days of operation. If such a ship has on board fifteen (15) transhipment containers, they will be caught in the thirty-three "moves" per day system and the cost of handling these containers will therefore be weighted accordingly. Taking all charges into account, the cost of handling the transhipment containers will be about US$200-225 per container (TEU) based on the 33-moves-per-day system.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN ... cont'd

- Productivity

In Jamaica, the same vessel with the same number of overall and transhipment "moves" faces a different cost structure. Each transhipment move over the port of Kingston will cost US$80.00 per container (20ft. or 40ft.). In addition, the vessel's port stay in Kingston would be less than its stay in Bridgetown.

In Trinidad for the same number of "moves" the vessel will spend twelve hours in port. The cost of discharging each transhipment container would be US$55.00.

- Berth and Terminal Facilities

The major deep-sea operators, who are the carriers with real transhipment potential, must maintain tight schedules and must be assured a large measure of reliability in their operations - both their primary and transhipment operations. One of their first areas of concern, therefore, is guarantee of a suitable berth and the ability to have their ships work without delays arising from inadequate and/or unorganised terminal facilities.

The port of Kingston, Jamaica, has met the demands of carriers for suitable berths and has announced plans to meet even greater demands from carriers. The port has stated that it will be increasing the depths of water at its container berths to 12.8 metres from the present depth of about 11 metres. Additionally, the port has plans for improving the extent of its marshalling area by 60,700 square metres.

The port of Bridgetown, Barbados, has also moved to improve berthing and terminal facilities which are offered to carriers. This port will be acquiring its first gantry crane in 1987/1988. Additionally, the port has plans to purchase an additional straddle-carrier to increase its complement of this type of equipment to four (4). However, its present complement of one 15-ton forktruck is not adequate to meet the demands of carriers. Most operations at this port when two or more ships have to be handled simultaneously are slowed down because of this shortage of equipment.

The situation in Trinidad at the port of Port-of-Spain is one where up to 1985 the port had earned a reputation for both berth and terminal congestion. Since there was virtually no transhipment cargo over this port, the congestion severely affected domestic cargo and left no scope for transhipment cargo. At one stage, because of the severe berth congestion problems, a reverse transhipment syndrome had set in: domestic cargo which previously was, and would normally be, moved directly to Port-of-Spain and which it was admittedly commercially feasible to move direct to the port of Port-of-Spain was being

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN ... cont'd

- Berth and Terminal Facilities

transhipped from the port of Bridgetown! To a large extent this problem existed because of the sudden substantial increase in the import capacity of Trinidad and Tobago. However, undoubtedly, the problem was exacerbated by the fact that in spite of long-standing congestion, the Port continued to operate a one-shift system - from 0700 hours to 1900 hours - for the loading and discharging of cargoes. The delivery and receipt of cargo was done from 0900 hours to 1500 hours Monday to Friday. And the system involved in effecting delivery of cargo to consignees was so time-consuming that no more than a fraction of the import cargo received daily could be delivered daily.

Today, with the drastic reduction in the import of domestic cargo, berth and terminal congestion in the port of Port-of-Spain has been eliminated. The port, physically, is in a position to accept transhipment cargo and should be able to give guarantees of readily available berths, speedy handling and prompt dispatch of vessels. The port also seems to be gearing for a possible future re-surgence in demand by implementing, in early 1987, a two-shift system for loading and discharging vessels.

Congestion bringing about delays of four days or more in a delivery schedule to the islands is particularly destructive for transhipment to the Caribbean islands since the islands are so close that with deviation of no more than a day (and in some cases, less than a day) a port can be served by a direct call rather than have to wait for upwards of four days for a feeder vessel to secure a berth at the transhipment port.

As Trinidad and Tobago is able to correct its deficiencies in the areas of productivity, terminal management and congestion, this country will begin to pose a serious challenge to the two more established transhipment centres of Jamaica and Barbados and, possibly, even challenge competing non-CDCC countries transhipment centres. Available equipment and facilities at the port of Port-of-Spain are presented in TABLE 2. (See Appendix)

5(c) Competition

CDCC states are competing among themselves for the limited intra-regional transhipment business. These states are also competing with non-CDCC territories for this same business as well as they are competing with each other and with non-CDCC states for non-CDCC transhipment business. The competitive situation in which the islands operate has the following features:

1. Competition among CDCC states for CDCC transhipment cargo.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(c) Competition

2. Competition among CDCC states for non-CDCC transhipment cargo

3. Competition with non-CDCC states for CDCC transhipment cargo

4. Competition with non-CDCC states for non-CDCC transhipment cargo

5(c)(i) CDCC Competition

Besides price competition the other main area of competition is in the provision of services. The key services are related to:

- Expeditious handling and dispatch of ships.

- Efficient procedures for the transfer of cargo from one carrier to the other. Efficiency is measured in terms of if procedures allow for the transfer to be done directly from one ship to the next i.e. within a matter of an hour or so.

  The procedures both in Jamaica and in Trinidad and Tobago meet the direct transfer requirement. However, in Barbados, two clear working days must elapse from day of discharge of the cargo from the first carrier before transfer of the cargo to the second carrier can be accomplished. The customs procedures in Barbados constitute the bottle-neck.

- Flexibility in the types of ship-loading/discharging systems - roll-on roll-off (RO-RO); lift-on lift-off (LO-LO); combination RO-RO/LO-LO; break-bulk carriers which the port can accommodate and in the ability to handle 20', 40', 35', 45' containers and cargoes which are extra-heavy and therefore require some specialised equipment and storage facilities.

  In some instances, in order to meet the requirements of heavy cargoes, engineering improvements have to be made to the terminal. This was so both for heavy cargoes as well as for the proper storage of 40ft. containers in the port of Port-of-Spain.

- Security of cargoes, both for full container loads (FCL's) as well as for less than full container loads (LCL's), is another important consideration. In a number of instances, for ease of shipment, small lots of cargoes for different destinations are containerised and shipped from the point of origin to the transhipment place where the containers are then stripped and the cargo loaded separately (on different carriers) for the various destinations. Pilferage of cargo in

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5.(c)(i) CDCC Competition

- such instances can be a serious problem. In some ports of the region entire containers (FCL's) have been known to disappear off the port only to turn up some time later abandoned in some deserted area. Transhipment cargo is particularly susceptible to theft because of the fact that on occasion, the cargo remains on the port for a few days before it is picked up by the on-carrier.

  All the ports have their own special security forces as well as substantial physical barriers that restrict unauthorised entry, and procedures and controls which are designed to minimise loss of cargo. In Jamaica, the security controls are also specially designed to inhibit trafficking in drugs.

- Availability of feeder services is another key factor in inter-port competition. Generally, the more feeder services which utilise a given port, the greater that port's chances of attracting and maintaining new main-line carriers. Because of the decline in the shipping market in recent years, the number of universal feeder services out of Jamaica has been reduced. However, with the more intensive use of Kingston, Jamaica as a transhipment port, special feeder (relay) services have been established to cater for the new on-carrying requirements. Over the past three years, two new feeder services commenced operation at the port of Kingston, Jamaica.

  The port of Bridgetown, Barbados, has seen one new feeder service in this period.

  The port of Port-of-Spain has lost one feeder service in this period.

5.(c)(ii) CDCC/Third Port Competition

The ports of San Juan, Puerto Rico, and Miami, USA, are the main competitors with the CDCC ports for transhipment cargo. The effectiveness with which these ports compete with Caribbean ports for transhipment cargo is ample testimony to the all-round suitability of these areas to attract and maintain transhipment cargoes. The following advantages are readily apparent:

1. San Juan

1.1. For all practical purposes, this is a Caribbean port with all the natural geographic advantages which are inherent in all Caribbean ports as transhipment centres.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(c)(ii) CDCC/Third Port Competition

1. San Juan

1.2. San Juan is the gateway to the largest single market in the Caribbean area. Hence in its own right it attracts major shipping lines from every area of the world. All of these lines have significant transhipment cargo and since they must all call at San Juan to deliver the local cargo, they find it eminently feasible to effect transhipment over this port.

1.3. The port of San Juan is well-developed with adequate facilities for handling ships of all sizes and classes and handling them efficiently.

1.4. Marketing of the port of San Juan as a transhipment centre has been done for years - not only by the port of San Juan but also by several large deep-sea carriers which are committed to using San Juan as a transhipment port over the long-term.

2. Miami

2.1. The port of Miami has been a main beneficiary of the buoyancy of the Central and South American oil-boosted economies during the latter half of the 1970's. Attendant to the dramatic growth in cargoes over this port was the growth in transhipment cargoes to the Caribbean as well as to Central and South America. The sheer size of the Miami through-put has been a major factor in this port's dominance in the movement of transhipment cargoes through the wider region.

2.2. Like the port of San Juan, the port of Miami is well-developed with adequate facilities for handling the large number and variety of ships which call there.

2.3. Marketing the port has also been done most aggresively and successfully.

2.4. There is no lack of feeder services to the Caribbean.

2.5. The long-term prospects are good for this port to continue to be dominant in transhipment to the region.

For ports in the CDCC countries to compete effectively with Miami and San Juan, it is necessary for the former to agree to a concentration of their resources in one port, (or at most two) to make the chosen port(s) at least comparable to, and maybe, even superior to the ports of Miami and San Juan. The features of the CDCC super-port(s) should be:

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(c)(ii) CDCC/Third Port Competition

1. Draught - a minimum of ten (10) metres.

2. Berthing space - a minimum of 900/1000 metres. This space should be such as to accommodate RO-RO vessels, LO-LO vessels, combination carriers, etc.

3. A Turning Basin with a minimum turning circle of 300/400 metres diameter at a draught of 10 metres minimum.

4. Terminal space - a minimum of 45,000/50,000 square metres, with paved surface areas and re-inforced areas capable of accommodating heavy pieces of equipment. The terminal must also have provision for refrigerated cargoes.

5. Gantry cranes - four each capable of operating at 30-40 "moves" per hour.

6. A complement of other cranes, forklifts, top-lifts, straddle-carriers, etc., to support the operation of four gantry cranes.

7. A container stripping/stuffing station of 45,000/ 50,000 square metres.

8. Ancillary services in equipment (chassis and container) surveys, equipment repairs, equipment pool, etc., capable of handling 60,000 units per year.

9. Administrative arrangements such that ships can be worked around the clock; transfer of cargo from one carrier to another can be done in a matter of hours; acceptable productivity levels can be assured; a high level of equipment availability can be guaranteed.

10. The charge for handling transhipment (as well as domestic) cargo must be competitive enough to induce major carriers to select the CDCC 'super-port' in preference to Miami and San Juan. An overall charge of US$50/60 per transhipment container would probably be competitive.

11. A massive marketing thrust must be undertaken to secure commitment from major deep-sea carriers such as Sealand, CAROL, Evergreen, OOCL, the Japanese, Australian, and Middle Eastern carriers.

12. A less aggressive marketing effort will need to be mounted to attract a larger number of feeder services both to other Caribbean territories as well as to Central, South and North America.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(c)(ii) CDCC/Third Port Competition

13. "A family of transhipment centres" in the Caribbean should be created through the establishment of two or three lower echelon centres among the smaller island-states. Economic operations of medium-sized vessels and concern for transit times indicate that there would be considerable advantages to the operation of such facilities. The types of facilities which the port at which such a centre may be established are basically the same as for the larger transhipment centre. The difference would be in the extent of the physical facilities and the number of pieces of equipment.

Administratively, the requirements for efficient operation of the smaller facility would be no less than for the larger one.

In brief, a massive and concerted attempt must be made to reverse the present (and natural) tendency for the polarisation of shipping services towards the United States of America in preference to the Caribbean.

5(d) Transhipment of Bulk (Dry) Cargoes

The concept of transhipment of bulk cargoes in the Caribbean must be extended to include consideration of issues of storage, separation/consolidation, and transhipment. The organisation of transhipment of bulk cargoes in the Caribbean reflects concern for all of these aspects of the transhipment activity. The demand for transhipment of bulk cargoes in the region derives from two main factors:

1. The serious draft limitations in some South American ports through which millions of tons of bulk cargo are exported world-wide. The ports of Guyana and Suriname are classical examples of South American ports with serious draft limitations.

2. Seasonal restrictions on shipping into some of the larger markets for the bulk products of Guyana and Suriname. The Canadian market for bauxite and alumina is the prime example of this kind of constraint.

5(d)(i) Bulk Cargo Transhipment Facilities in Trinidad and Tobago

Historically, the above constraints have been overcome by the setting-up of transhipment centres for bauxite and alumina in Trinidad and Tobago. The difference in the types of facilities serve as a good example of the specificity of certain types of transhipment facilities to the commodities to which they cater.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

FACILITIES

COMMODITY	BERTHS		DRAFT	TONS PER HOUR HANDLING RATES LOAD	DISCH	STORAGE CAP.(TONS)	TYPE OF STORAGE	HDLG EQUPT
BAUXITE	TWO		10M	550	500	15,000 1,200,000	SILO* OPEN	GRAB/CONVEYOR SYSTEM
ALUMINA	TWO	(1)	7M	-	350	-	-	GRAB/CONVEYOR SYSTEM
		(2)	11M	600	-	75,000	SILO	

* For special type(s) of bauxite(s)

5(d)(ii) Alternative Cargoes

In spite of the specificity of the systems for bauxite and alumina, other types of commodities can still be accommodated by these systems. Suitable commodities would include: cement clinker, sand, and fertilizer which can be accommodated with minor modifications to the system to ensure that there is no contamination of any one type of material by another. The contamination danger is a real one in handling these types of commodities which are normally produced and sold according to rigid specifications. If the quality of the commodities are altered in any way, the value of the material would be considerably reduced or the material would even become useless for its original purpose.

The storage and transhipment of grain utilising the system for bauxite and alumina could also be considered. However, major modifications would have to be made to the facilities for the safe handling of grain. Also, there are objections to the handling of food items such as grain on the same facilities which handle industrial minerals. The alternative uses of the facilities are therefore somewhat restricted, making the life of the bulk transhipment centre closely linked to the economics of the few industries which it serves.

5(d)(iii) Competitive Arrangements

For these reasons, investment in transhipment facilities for bulk commodities is considered a very high risk venture. Other CDCC states would therefore not be in a very good position to offer competition to Trinidad and Tobago for the bulk commodities which are transhipped in that territory. Competition for Trinidad and Tobago would therefore flow from three other possible areas:

(1) Contiguous Countries in South America without a draft limitation problem.

(2) Floating storage and handling systems located in deep water off the coast of South America.

(3) Carriers which have developed the expertise for ship-to-ship transfer of bulk cargoes.

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

5(d)(iii) I South American Ports

The distances from the ports of Georgetown, Guyana and Paramaribo, Suriname, to Trinidad and Tobago, are, respectively 364 and 528 nautical miles. There are no ports on the South America north coast which are (a) closer to Georgetown and Suriname, and, (b) also have no draft problem. Hence the development of alternative transhipment centres on a commercially viable basis on the South America north coast is not regarded as an imminent consideration.

5(d)(iii) II Floating Storage and Handling Systems

The erection of floating storage facilities off the South American north coast would be a prohibitively expensive investment which probably could not be supported on the basis of transhipment cargoes from Guyana and/or Suriname. It should be borne in mind that most grades of bauxite fall within the category of being a low-value raw commodity which cannot absorb much in transhipment cost. Alumina is considerably higher in value, but in recent years, the industry has been in the doldrums and there are probably not many producers or users who would be prepared to commit to new, high-cost facilities for transhipment of this commodity. Competition to Trinidad and Tobago from floating storage facilities can therefore be ruled out in the immediate and medium-term future.

5(d)(iii) III Direct Ship-to-Ship Transfer

Direct ship-to-ship transfer of alumina and bauxite is a feasible and proven alternative compared with using the Trinidad transhipment centre. The requirements for this activity are:

- suitable ships with the right bulk cargo handling gear;
- expertise in scheduling the movements of both the main and feeder carriers so that they arrive at the transfer point simultaneously to ensure little or no waiting time by either vessel;
- suitable protective fendering to ensure that the ships do not damage each other when they are brought together;
- calm sea conditions;
- insurers who are prepared to underwrite the operations;
- high level of technical skill by ships' personnel;

5. PROBLEMS OF TRANSHIPMENT IN THE CARIBBEAN .... cont'd

- an area where the operation would not be subject to high "artificial" costs. (In the past when the operation was carried out in the territorial waters of Trinidad and Tobago, the operators were forced to pay wages to port workers who were "standing-by" throughout the operation. Wages were paid as though they actually worked the ships!)

The margin on bauxite pricing probably cannot sustain the cost of ship-to-ship transfer unless all aspects are consistently synchronised. The threat of ship-to-ship transfer to shore-based transhipment facilities in Trinidad and Tobago is therefore probably quite small unless the shore-based operation is priced too high. Ship-to-ship transfer of alumina, however, can probably be done at a cost that is quite competitive with the cost of shore-based transhipment operations.

5(d)(iii) III Direct Ship-to-Ship Transfer

The geographic position of Trinidad and Tobago gives it a very substantial advantage to maintain its premiership as a transhipment centre for bulk commodities from South America. The fact that substantial facilities have already been developed in this island further strengthens its position. However, it is necessary that Trinidad and Tobago monitors developments in the bauxite/alumina industry and adjusts its pricing and other policies to ensure that its facilities continue to be in demand and to counter competitive developments in other areas.

6. BENEFITS FROM TRANSHIPMENT OPERATION

Already it is clear that one of the main advantages of transhipment is that it allows for market access to cargoes that would not normally be marketable on a commercial basis. This is particularly true, as stated above, where the commodity is low value and its successful marketing depends on the lowest possible freight rate. Without transhipment (and consolidation) such commodities would not be saleable in distant markets.

Another major advantage which derives from transhipment is that it generates a much larger flow and volume of cargo. Most carriers, particularly in the liner trades, have the capacity for taking several hundred tons of additional cargo compared with cargoes carried normally.

Such additional cargo is really regarded as marginal cargo and can be carried at very attractive rates of freight. This fact allows for such cargo to be priced differently in order to absorb the cost of transhipping, and thereby ensures that additional revenues are generated both for the primary as well as for the secondary carrier, or feeder operator.

6. BENEFITS FROM TRANSHIPMENT OPERATION .... cont'd

Thirdly, to the extent that the feeder operator is able to secure more and more transhipment cargo the unit cost of his operation is reduced making it possible for the feeder operator to improve the quality of his service, and also to improve profitability.

There are other considerable economic benefits to be derived by the country in which the transhipment centre is established. Some CDCC states, as is demonstrated below, already enjoy some of the benefits which ensue from having a well-developed transhipment centre.

6.1. Employment

For Trinidad and Tobago, the development of the transhipment centre for bauxite and alumina created employment not only when the centres were constructed but also has over the long-term in the maintenance and operation of the centre. Thus, new employment, wholly related to transhipment activity, has been created in this island.

Indirect employment was also created through the diffusion in the economy of the direct employment earnings from the centre. Such indirect employment was created mainly in the support services sector such as transportation, housing, etc.

If the transhipment activity is extensive enough, new industries can be created, leading not only to the generation of employment but also to the development of valuable industrial skills. Not all countries may be able to identify as clearly as Trinidad and Tobago can the employment benefits from transhipment as in most instances these are tied-up with the employment benefits from normal port and shipping activities which are primarily of service to domestic cargoes and operations. However, in a declining shipping market, transhipment cargo serves either to maintain the old level of employment or to reduce the extent of retrenchment of employees and therefore can assist in the stabilisation of the work-force. Several Caribbean States are at present in the situation where they need the contribution from transhipment cargo to assist in stabilising their work forces.

Labour Unions which represent port workers should therefore have a keen interest in and be supportive of measures to attract, maintain, and develop transhipment cargo.

The employment benefits from transhipment are not confined to the ports but also ramify through the economy by lifting the level of overall economic activity.

6.2. Financial

Each transhipment container usually gives rise to four revenue moves, thus:

once, when discharged from the first carrier,

then, when loaded by the on-carrier,

6. BENEFITS FROM TRANSHIPMENT OPERATION .... cont'd

third, when returned and discharged (empty or full) by the on-carrier, for

fourth, being picked up (re-loaded) by the first carrier.

A domestic shipment gives rise to only two revenue moves. Not only, therefore, is the transhipment container extra, but it can also contribute more than a domestic container to the transhipment port's finances, depending, of course, on how the "moves" are priced.

In Trinidad, however, the handling (twice) of a domestic container (20ft. or 40ft.) yields US$260 to the Port. A transhipment container (20ft. or 40ft.) yields US$220 when handled four times. The pricing of transhipment containers at the port of Port-of-Spain is therefore quite attractive compared with the charges for the domestic containers, even taking into account that the pricing of domestic containers includes an element for delivering the container i.e. the extra cost for lifting-on and lifting-off the container from the consignees' chassis, etc.

6.2 Financial

In Jamaica and Barbados, the comparative charges (for lift-on/lift-off operations) are as follows:

- Jamaica:	domestic cargo:	US$ 270 per 20ft. or 40ft. container (2 moves)
	transhipment cargo:	US$ 320 per 20ft. or 40ft. container (4 moves)
- Barbados:	domestic cargo:	US$ 495/1110 per 20ft./40ft. container (2 moves)
	transhipment cargo:	US$ 325/650 per 20ft./40ft. container (4 moves)

Besides the charges which are assessed on the basis of a container "move", the transhipment port also derives revenue from port charges which include berthing fees, pilotage, light and tonnage dues, etc. The revenue earned flow both from main as well as feeder vessels. However, since the charges apply to the ship (whether it brings transhipment cargo or not), a port derives new revenues in these categories only when it is able to attract new main and feeder carriers.

For some ports, for example in Jamaica, the foreign exchange earnings from transhipment can be very material not only to the port, but to the economy as a whole. Foreign exchange can be earned both from the main as well as from the feeder operation (provided neither is locally-owned) by the port requiring payment of charges in foreign currency.

6. BENEFITS FROM TRANSHIPMENT OPERATION .... cont'd

In some instances, the port is allowed to use part of its foreign exchange earnings directly to satisfy its requirements for supplies, which are not available domestically. The port is thereby provided with an added incentive to foster as much transhipment cargo as possible.

A country's Central Government finances also receive a boost from the development of transhipment business at the country's ports. The benefits to the Central Government are manifested in the following ways:

(i) Taxes on profits earned by the port

If transhipment business enables port operations to generate a surplus, this either is directly incorporated into the Government's finances or is subject to tax by the Central Government. If operations are not profitable, the transhipment cargo would at least assist in reducing the port's deficit and therefore reduce its demand for subvention from the Central Government.

6.2. Financial

(ii) To the extent that transhipment business allows the port to maintain a certain number of workers, or to increase this number, the Central Government receives a benefit directly through the taxes which these workers pay. Indirectly, the demands on the Government for social assistance, etc., are reduced.

(iii) Customs Fees

Another avenue of benefit is in the fees charged by the country's Customs Department for the processing, etc., of transhipment documents and the provision of other services to facilitate the transhipment operation. Customs fees and charges represent net revenue to the Government since additional Customs staff do not normally have to be employed to cater for the transhipment operation.

(iv) Excise Revenue

The Government derives a further financial benefit from the transhipment business through an increase in excise revenue which comes about from increased expenditure by port workers as a result of the port securing transhipment business.

(v) Foreign Exchange

The Government stands to benefit further through the earning of foreign exchange from the transhipment activity. Whether or not the foreign exchange earnings go directly to the port or not the Government benefits either directly through an increase in such payments

6. BENEFITS FROM TRANSHIPMENT OPERATION .... cont'd

into its accounts or indirectly through the fact of not having to allocate (as much) foreign exchange to port operations to meet their requirements for inputs and supplies which must be acquired from external sources.

Central Government in each state, therefore, has an interest in the developing of the transhipment potential of the country's port(s). The level of actual investment of national resources in such development must be assessed against the background of the quantum of benefits which are expected to be derived from the investment.

6.3. Marketing and Ancillary Services

Financial benefits accrue to the country as a whole from the development of marketing services to promote a port as a transhipment centre. Among the "spin-off" services which have to be provided within a well-developed transhipment centre are:

6.3. Ancillary Services, Port Modernisation

Freight forwarding and cargo consolidation. These activities provide employment and generate additional income in the economy and can be developed to be an important aspect of the overall transhipment and shipping facilities.

The establishment of a transhipment centre can lead to substantial up-grading of port operations through improvements in the operating systems and the introduction of new systems to cater for the special requirements of transhipment cargoes. The need to acquire highly productive efficient cargo-handling equipment has already been noted. The administrative changes, coupled with the better quality of equipment will mean modernisation of the port with all the attendant benefits which flow from such a development.

In summary, well developed transhipment activity confers benefits on:

(1) The economy, in terms of: increased revenue; (and in a number of instances) foreign exchange earnings; industrial development in terms of cargo consolidation, the establishment of ancillary support services such as equipment surveys, repairs, maintenance, etc.

(2) The port, through: reduction in its unit cost of operations; increased revenue; development of additional skills and expertise; and serving as a buffer against seasonal declines in cargo movements.

(3) Shippers, in terms of: reduced freight rates; access to wider range of cargoes and wider range of equipment available; wider selection of carriers; increase in the number of destinations, i.e. a widening in market potential.

6. BENEFITS FROM TRANSHIPMENT OPERATIONS .... cont'd

(4) Consignees, in terms of: lower freight rates; wider choice and better access to sources of supply; different types of equipment.

(5) Shipping Companies, in terms of: increased revenues; as a buffer against declines in any one market; higher utilisation of ships and other equipment; general strengthening of market-share.

(6) To the trade in general through: strengthening of trading linkages; movement of higher volumes of cargoes, extension of existing markets and development of new markets.

7. REVIEW OF PORT FACILITIES

7.1. Cargo-Flow

An examination of the facilities which are offered to carriers which serve Caribbean trade, shows wide variations in the quality and adequacy of equipment and facilities which are available. Yet the type of facilities is among the critical considerations for inducing utilisation of any port for transhipment. One explanation of the wide variation which is to be found among Caribbean ports in their ability to service transhipment cargo is that a transhipment capability is normally a by-product of the level of service and expertise which are required for the volume of local cargo imported and exported. Every economy tends to develop and acquire the equipment which are necessary to serve its own trade needs. The type of port equipment, the manner of operation of the port, the support facilities, etc., would have been developed to meet domestic needs.

Table 3 compares domestic and transhipment cargoes for certain Caribbean ports. (See Appendix)

7.2. Structure of the Trade

More often than not there is over-capacity in port facilities as the demands of the domestic market are not great enough to utilise the facilities as intensively as they could be. However, invariably the structure of the domestic (general cargo) trade requires that the facilities be available. This is very true of most if not all Caribbean Ports. Most ports work a one or two shift system. In a number of territories even a one-shift system is an indulgence.... For example, several ports stipulate an eight hour minimum period per gang while most ships which call at these ports can complete their cargo operation in two to four hours! Those that attempt a three-shift system find that the third shift is a very unproductive shift due largely to questions of supervision, deployment of manpower and the infrequency of employment of this shift. Needless to say such conditions are not conducive to full utilisation of port facilities.

7. REVIEW OF PORT FACILITIES

Table 4 shows the average tonnage per ship carried into/out of specific ports. (See Appendix)

7.3. Investment Cost

The investment in port facilities begins with the provision of adequate draught (minimum 10 metres), berthing space, and ship-turning area to accommodate large-sized vessels.

The investment in port facilities tends to be substantial, even when restricted to minimum requirements. For liner operations the required facilities include reliable cargo-handling equipment for loading and discharging containers to/from fairly large ships. Also required are adequate ground equipment for moving containers to and from shipside and from storage areas.

As a guide, container handling facilities must be capable of ensuring that a ship can be worked at a rate of 20-30 containers per hour, as a minimum.

7.3. Investment Cost

Another key requirement is adequate marshalling areas for handling containers, for stacking empty containers, and for unstuffing full (and stuffing empty) containers. In addition, facilities must be made available for the accommodation, handling, monitoring and (minor) repair of refrigerated containers.

Any port which sets out to cater for transhipment cargo must be prepared to acquire and to maintain the equipment and facilities which are indicated above. Investment in port equipment and facilities is an on-going process as requirements change in response to modifications in ships and to ever new demands from consignees and shippers.

The port of Bridgetown is in the process of up-grading its facilities through the acquisition of:

> One Container Handling Gantry Crane with a lifting capacity of 40 tonnes. (The port has stated that with the acquisition of this crane "there will be an extremely low charge for transhipment boxes" i.e. containers).
>
> One Straddle Carrier

Both pieces of equipment are to be acquired in 1987. Capital expenditure by the port in 1985 was estimated at US$109 million. The acquisition of the gantry crane and the straddle carrier plus other capital items will increase the port's expenditure on capital items to over US$5.5 million for the period 1985 to 1987.

7. REVIEW OF PORT FACILITIES ... cont'd

The port of Kingston, Jamaica, is also in the process of improving its facilities. Major dredging of the harbour to increase the draught to 12.8 metres to meet the requirements of larger ships, particularly the new container vessels, has been undertaken. The target completion date is January 1987. Simultaneously, the port is paving fifteen (15) additional acres of land (60,700 sq. metres) at the container terminal to give additional container storage area.

In the area of terminal equipment, the port has ordered five (5) new straddle carriers and is examining the need for additional equipment including a fifth high speed gantry crane for ordering in 1987. The new straddle carriers, the new gantry, the dredging and paving of the container terminal was estimated at US$9/10 million.

The port of Port-of-Spain, Trinidad and Tobago, has also invested substantially in new equipment and facilities in recent years. Over the past two/three years, the port has acquired the following additional equipment:

Fork-trucks

Tractor-trucks

Shore (not gantry) cranes

7.3. Investment Cost

Considerable dredging has been done to deepen draught at the container terminal to 10 metres.

At present (early 1987), the port is in the process of developing an area of 16,200 sq. metres to serve as a storage area for empty containers. The acquisition of the equipment and the development of the other facilities cost some US$9.98 million over the years 1984 to 1986.

The investment cost in improving the above Caribbean ports' capability to serve domestic and transhipment business, is substantial, and compares favourably with recent investment in the port of Miami. In 1984, this port embarked on a US$100 million capital improvement programme which is designed to prepare it for the turn of the century. The improvements include the acquisition of another high-speed gantry crane, investments to improve port traffic flow and a master computer system. It should be borne in mind that the port of Miami is starting from a substantially higher base in term of equipment and facilities than the Caribbean ports. Port of Miami US$100 million investment will therefore take it considerably further than investment of similar amounts in Caribbean ports. Most of the smaller Caribbean islands cannot justify such investment..... their domestic cargo-base is too slim and they cannot justify such expenditure on transhipment cargo mainly.

7. REVIEW OF PORT FACILITIES ... cont'd

A comparison of the equipment and other facilities which are available at some of the Caribbean ports is given below:

COUNTRY	PORT	DRAUGHT (IN METRES)	CONTR VSLS BERTHS	GANTRY	OTHER CRANES
Antigua	St. John's	10.6	ONE	NONE	1 x 140 tons
Barbados	Bridgetown	9.75	ONE	NONE	1 x 175 tons 2 mobile cranes
Dominica	Roseau	10.6	ONE	NONE	NONE
Jamaica	Kingston	12.8	FOUR	FOUR	1 x 140 tons
St. Lucia	Castries	10.6	ONE	NONE	1 x 90 tons 1 mobile crane
St. Kitts	Basseterre	9.1	ONE	NONE	1 x 15 tons
Trinidad and Tobago	Port-of-Spain	10	TWO	TWO	ELEVEN (11)

7.4. Administrative Procedures

Catering for transhipment requires not only the provision of adequate space, equipment, and the other facilities which are mentioned above, but also must encompass the institutionalisation of effective control systems for smooth and efficient handling of a variety of cargo-carrying units. All types of operations, whether roll-on/roll-off; lift-on/lift-off; break-bulk; or combination of these, must be accommodated. These operations must be accommodated against a background of the transhipment concept being difficult to "sell", thus making it essential that the system supporting the transhipment activity is efficient and works smoothly. Otherwise the full potential of transhipment will never be realised.

Among the requirements which the control system must meet are the following:

1. The need for all procedures (including Customs requirements) to be quick and co-ordinated so that transfer of cargo from one carrier to another is done efficiently and without delay.

2. The handling procedures must be safe and guard against damage to the cargo and the container. Where damages do occur, the reasons and the responsible parties must be readily pinpointed so that (a) such damages do not recur and (b) the injured parties can receive due compensation. Every assistance must be given to effect prompt settlement of claims.

3. Adequate security precautions must be taken to ensure that losses are minimised, particularly where the mode of carriage is changed, thereby exposing the cargo to pilferage.

7. REVIEW OF PORT FACILITIES ... cont'd

4. Sensitivity to the fact that in many areas there is a strong built-in resistance to transhipment. The port might, therefore, be required to engage in considerable marketing cum educational promotion of the transhipment concept, the particular port's operations, etc., to assist in the winning of acceptance of the idea of transhipment as a feasible and cost-effective means of shipping.

5. The industrial climate must be amenable to initiatives for change and must be stable.

7.5. Commercial Decisions of Shipping Lines

In the final analysis, it is the decision-making of a large enough number of shipping lines that determine whether or not a port will be successful in developing its transhipment potential. A sufficient number of such lines - both main and feeder carriers - must opt for a given port and must maintain services at that port, becoming a fixture in operations there for the port to become a transhipment centre of note and be able to derive the benefits which flow from becoming so established.

Port managements must never lose sight of this fact and must strive at all times to ensure that the lines are receiving the services which they require and are doing so at a price that is competitive with what the lines can secure at alternative ports.

The decision by a line to use a given port for transhipment is based on commercial criteria, once all other things are equal. These criteria have been examined above in a number of different ways already. At this time, it is necessary only to review them briefly; thus:

1. The underlying need for the first carrier to call at the port because of the volume of domestic cargo being carried or to be loaded. In the Caribbean, the need for the call is almost always the volume of cargo being brought into the country as the volume of exports of general cargo from these islands is rather small, except for one or two commodities such as bananas which is regularly exported from some of the smaller islands in relatively large amounts.

2. The facilities which are available to the carrier at the port, how well these facilities are managed and put at the disposal of the carrier. Most lines which have a large share of the transhipment cargo market adopt the position that the port must be prepared to accommodate their ships more or less as they are rather than be prepared to modify their ships and/or aspects of their operation to suit limitations of the port. However, once a carrier becomes established in a port, it can usually be influenced to modify some aspect of its operations to meet (temporary) constraints on the port provided that such modification is not too costly.

7. REVIEW OF PORT FACILITIES .... cont'd

7.5. Commercial Decisions of Shipping Lines

3. Productivity of port operations, as mentioned above, is also vital in inducing and keeping a carrier. Lines insist on fast turn-around of ships on a regular and predictable basis, since they must maintain their schedules as well as keep costs down if they are to remain competitive.

4. The line's overall cargo-interests and its marketing thrust also are critical in determining whether one port or another is used as a transhipment point. Thus, all things being equal, a line which has strong cargo-interests in the Eastern Caribbean islands - Antigua, Dominica, Saint Lucia, say, would probably opt for Puerto Rico as a transhipment point over Jamaica, while a line with stronger interests in the northern Caribbean area - say, Haiti, Dominican Republic .... would probably favour Jamaica. Choice based on such criteria are almost completely out of the purview of the state which is passed over and there is really nothing that such an island can do to influence a decision in its favour.

5. Most operators also place a high premium on a port's good reputation with respect to work stoppages and other disruptions related to disharmony between workers and management. Some lines even follow a conscious policy of not using ports which are manned by unionised workers since they feel that there is always the threat of disruptions to their operations as a result of Union activities. Lines which are averse to working with Unions will not agree to tranship their cargo over facilities which are Union-controlled unless they cannot help it or they receive guarantees that their operations will not be disrupted.

6. Cost as reflected in the transhipment charge tends to be one of the largest element in the decision as to whether or not a given port is used for transhipment. However, the normally quoted single charge is not taken in isolation. All other relevant aspects of cost including costs brought about by unsuitable facilities and equipment, low productivity, disruptions, etc., are taken into account. These factors that influence the cost of operation in one port are translated into dollars and cents and compared with the cost implications of similar factors in other ports and the decision made on the basis of the comparative position.

7. REVIEW OF PORT FACILITIES .... cont'd

7.5. Commercial Decisions of Shipping Lines

A carrier, having decided that it will use the transhipment method to extend its market and improve its profitability and having decided on the port which it will use for transhipment must decide whether or not to establish its own relay service or to utilise existing feeder services. In large measure, the choice of one or the other depends on how large a part transhipment is of the line's overall cargo-carryings, its philosophy regarding the use of third carriers, and its perceptions regarding the stability and loyalty of third carriers. As a general rule, a line is tempted to set-up its own relay service to handle its transhipment cargo if such cargo is a significant part of its overall volume. This is particularly true of a major line which draws cargoes from numerous areas and must therefore set up a complex and well-co-ordinated distribution net-work for its cargo. The Sealand operation is a case in point.

Sometimes the decision to establish owned relay facilities is based on the line's operating philosophy which might decree that control of its transhipment operations reside with the line. Such a position is compatible with a situation in which transhipment cargo is a significant part of the line's overall volume. It might also be an aspect of a line's competitive and/or marketing strategy to either: (a) ensure that it does not (unconsciously) offer any assistance to competitors and/or (b) maintain a high visibility in its end markets in order to develop a high profile and encourage continued utilisation of its services.

In recent times, as more and more lines have become bankrupt owing to the parlous state of the shipping industry, committed carriers have become wary of entrusting any part of their overall service to third carriers. This is another factor which could influence a line in its consideration of whether or not it should set up its own relay service.

However, the setting-up of feeder operations is expensive and if a line is forced to invest in such a service it could be a deterrent to the line becoming involved, or as deeply involved as it otherwise would be, in transhipment.

The shipping lines consider a wide range of possibilities and take account of a number of factors before making the final choice of whether, where and by what means to transhipment. Many aspects of the decision are related to matters of port facilities and management. However, several key aspects are also related to the line's internal policies and preferences and these are largely outside of the area of influence of port operators. In the areas where port operators have considerable influence, they have not always used it. This is particularly so with respect to the marketing of transhipment which, traditionally, has been done by Ships' Agents in the Caribbean. It is recognised that Agents do have some qualifications for this function as part of their normal

7. REVIEW OF PORT FACILITIES .... cont'd

7.5. Commercial Decisions of Shipping Lines

functions is to analyse cargo flows, examine cargo-carryings of the various lines and be able to identify carriers with actual as well as potential transhipment capability. Further, they are able to determine the needs of these carriers - whether such needs are of a developmental nature or are purely maintenance in terms of the level and extent of particular services.

Agents have also had to develop their knowledge of the shipping industry and become aware of the organisation of local agency net-works. Finally, they would acquire some knowledge of costs in alternative and competing areas and therefore were able to induce carriers to come into certain ports. However, what agents were not cognisant of were factors such as:

- What are the real costs for the provision of port services?
- What scope is there for ports to apply differential pricing to transhipment activity?
- What advantages would accrue to the ports through an increase in volume as a result of transhipment activity?
- And, how deepening the port's involvement in containerisation, for example, would affect its revenues and profitability?

The concept of deepening involvement in containerisation refers to aspects such as cargo consolidation; setting-up container repair facilities; developing the container industry by developing skills in the areas of container inspection, container surveys, etc. All of these are critical aspects of the marketing of a port as a transhipment centre.

The time is probably ripe for (more) Caribbean ports to receive the baton from the Agents and embark on aggressive market programmes to induce lines to utilise their facilities. Not only are the ports better placed to do this in terms of crucial areas of influence on lines' decision-making, but with the reduced cargo volumes, Agents have dwindling resources for committing to inducing carriers to develop transhipment business. A concerted approach involving both the Agents (possibly through their Associations) and the ports would probably be the most effective means of inducing carriers to commence and/or consolidate and extend their service to any port.

7.6. Feeder Services

The concept of a "family of transhipment centres" which is outlined in section 5(c)(ii) is a strong inducement for the development of feeder services in the region. Such services are an indispensable part of transhipment activities generally and more so in the Caribbean region because of the many small islands to which it is not commercially feasible for most large carriers to have a direct service.

7. REVIEW OF PORT FACILITIES .... cont'd

7.6. Feeder Services

Further, two or more regional transhipment centres which are served by a number of feeder operations enable even the smallest island to have access to markets all over the world at a cost - both in terms of freight charges and costly port infrastructure - which it could not otherwise enjoy.

The operation of feeder services can be a boon to the smaller Caribbean ports, especially when such operation is under-pinned by the feeder services' dependence on transhipment cargo. Such cargo is important to the contribution which these services can make to the smaller ports because of the fact that they tend to be a main determinant of the frequency of calls to the small ports. Without transhipment cargo inward, the number of ship visits which would be made to a small port would be much fewer than if a considerable proportion of the total volume to such a port consists of cargo which is transhipped. This is because transhipment cargo must be moved to its final destination as soon as possible after it is landed at the transhipment centre. Normally, this cargo would have been shipped from the port of origin some weeks before it arrives at the transhipment site. The urgency of getting it to its final destination therefore imposes considerable demands on feeder operators to deliver it as quickly as possible.

All Caribbean ports can accommodate the typical feeder vessel which plies in the Caribbean. However, not all of the ports have adequate and suitable equipment for handling these vessels. The typical feeder vessel is of 80-120 TEU's, and is capable of carrying both break-bulk and containerised (20ft. and 40ft. containers) cargoes. Such ships may be either self-sustaining i.e. capable of fully loading and discharging all cargoes (except heavy-lift cargoes in excess of 25 tonnes), or gearless (i.e. not itself capable of loading or discharging any of its cargo). Generally, gearless vessels are less expensive to operate and therefore can carry cargo at a lower freight rate than geared vessels. However, gearless vessels depend on the ports' handling equipment to load and discharge. Several of the smaller ports - Saint Christopher/Nevis, Montserrat, St. Vincent, Grenada, Tortola .... - have no equipment for discharging and loading containers. These ports can therefore accept only geared vessels or roll-on/roll-off vessels, thus limiting their access to the widest possible range of feeder vessels. Also, since only the more costly geared (or roll-on/roll-off) vessels can be used at these ports, the freight charge for cargoes to these ports would tend to be higher.

The establishment of regular feeder services requires some form of agreement between the primary carriers and feeder operators and a commitment by both parties not only to each other but also to the trade and to the countries of origin and destination of the cargo. Most carriers are interested in improvements in handling their vessels and in facilities in the ports which they serve regularly. This is true of feeder operators as well.

7. REVIEW OF PORT FACILITIES .... cont'd

7.6. Feeder Services

To the extent that such operators constitute a major body of carriers to the smaller islands, the ports in these islands must equip themselves to meet the current as well as future needs of the carriers. These ports must continue to improve the expertise of their workers so that they can handle the ships faster. Also, the ports must acquire the skills which are required to make minor repairs to refrigerated containers, for example. While it is not necessary for these ports to engage in massive investment to compete with the larger ports, they must be willing to effect small engineering and other changes related to aspects of operation such as the flow of container traffic through the port, for example. Ideally, as well, these ports, both in terms of physical layout and availability of land as well as financing, must be prepared to expand to cater for small increments in tonnage, seasonal variations in cargo volume and even to accommodate temporary over-spill of containers, say, from ports in nearby islands. A creative approach to port management and development is still necessary notwithstanding the small size of the ports. Feeder operation is no less sensitive in these ports than main-line operation is in the larger ports, and in a number of ways successful feeder operation probably requires more care and attention than that of main-line operations.

S U M M A R Y

The countries of the Caribbean possess considerable natural attributes which make them attractive as transhipment centres - for both general and bulk cargoes. However, the natural advantages are not without drawbacks as they tend to lead to competition among the ports especially in the area of general cargo transhipment business. Additionally, the economic hinterland of the countries as a group is not large enough to support the development of viable transhipment centres in as many countries as desire to have such centres. The development of such centres to date has tended to be concentrated in the larger Caribbean islands and in Miami, Florida, U.S.A.

Several factors are responsible for this tendency. The main determinants have been the level of domestic cargo imports of the countries which have become established as transhipment centres, and the success of the ports' management in promoting their use, both for domestic and transhipment cargoes. Promotion, or marketing, of the port encompasses a wide range of features and activities. However, one of the key aspects of such promotion is the port and port-related facilities which the ports offer. Only a few Caribbean (CDCC) ports can offer minimum acceptable facilities - physical facilities such as adequate draught as well as port equipment and administrative procedures which are conducive to reliable, predictable and efficient operations.

Given the present state of the shipping industry, the size of the Caribbean general cargo market, the high cost of investment in port and port-related facilities to equip a port to handle substantial volumes of transhipment cargo, and the firmly established competitive ports of Miami and San Juan, CDCC member countries may have to consider a unified approach to the development of transhipment centres among themselves. Failing that, development of transhipment centres among CDCC member countries will materialise only through the ability of individual states, in a fiercely competitive environment, being able to induce more and more carriers to utilise their facilities. The countries which are successful in doing this will reap the substantial financial and other economic benefits which flow from becoming established as a major transhipment centre. A large measure of these benefits would also be diffused to other Caribbean states.

A P P E N D I X

TABLE 2

PORT EQUIPMENT AND FACILITIES - TRINIDAD AND TOBAGO

PORT	NO. OF BERTHS	DEPTH	CONTR SHED (SQ. METRES)	FCL CONTR PARK (TEU'S)	T/SHPMNT CONTR PARK (TEU'S)
Port-of-Spain	Two	10-11M	17,475	9,000/10,000	Not designated

EQUIPMENT

Gantry cranes	-	2
Other "	-	2 of 75 tons capacity
	-	1 of 200 tons "
	-	1 of 100 tons "
	-	3 of 50 tons "
	-	4 of 30 tons "
Top-lifters	-	5 of 23-28 tons
Fork-trucks	-	144 of various capacities
Yard Gantries	-	4
Tractor-trucks	-	40
Straddle-carriers	-	3
Chasses	-	84 x 20ft; 35 x 40ft.
Empty Container Handlers	-	7

A P P E N D I X

TABLE 3

CARGO - FLOW (IN '000 TONS) - GENERAL CARGO (METRIC TONS)

		DOMESTIC				TRANSHIPMENT				T O T A L			
COUNTRY	PORT	1982	1983	1984	1985	1982	1983	1984	1985	1982	1983	1984	1985
Antigua	St. John's	89.5	97.8	107.8	111.4	3.5	2.5	2.6	2.4	93.0	100.3	110.4	113.8
Barbados	Bridgetown	442.1	394.1	400	392.4	44.8	46.4	36.7	36.7	486.9	440.5	436.7	429.1
Dominica	Roseau	N.A.	68.8	78.4	78.9	N.A.	N.A.	N.A.	N.A.	N.A.	68.8	78.4	78.9
Jamaica	Kingston	784.7	718.6	685.6	N.A.	507.9	589.8	545	N.A.	1292.6	1308.4	1230.5	N.A.
St. Lucia	Castries	N.A.	162.3	198.3	N.A.	N.A.	6.03	4.6	-	163.6	168.3	202.9	N.A.
Trinidad and Tobago	Port-of-Spain	1802	1860	1607.2	1227.3	8.0	7.1	8.0	14.8	1810	1867.1	1615.2	1242.1
Montserrat	Plymouth	29.8	28.4	25.2	22.9	NIL	NIL	NIL	NIL	29.8	28.4	25.2	22.9

Sources: Caribbean Shipping Association
Port Authorities of the various islands

A P P E N D I X

TABLE 4

SHIPMENT SIZE OF GENERAL CARGO (METRIC TONS)

COUNTRY	PORT	TONNAGE (000's TONS)				NO. OF VESSELS				AVE. TONS PER VSL			
		1982	1983	1984	1985	1982	1983	1984	1985	1982	1983	1984	1985
Antigua	St. John's	N.A.	112.0	108.8	113.8	N.A.	N.A.	804	957	N.A.	N.A.	135.32	118.9
Barbados	Bridgetown	486.9	440.5	436.7	429.1	741	816	696	737	657.1	539.8	627.4	582.2
Dominica	Roseau	N.A.	68.8	78.4	78.9	N.A.	449	457	516	N.A.	153.2	171.5	152.9
Jamaica	Kingston	1292.6	1308.4	1230.5	N.A.	846	874	851	N.A.	1527.9	1497	1445.9	N.A.
St. Lucia	Castries and Vieux Fort	163.6	168.3	202.9	N.A.	742	741	784	N.A.	220.5	227.1	258.8	N.A.
Trinidad and Tobago	Port-of-Spain	1810	1867.1	1615.2	1242.1	667	596	672	588	2713.6	3132.7	2403.7	2112.4
Puerto Rico	San Juan	4253	4190*	N.A.	N.A.	2113	2050	N.A.	N.A.	2012.78	2043.9	N.A.	N.A.

*Estimated

Sources: Caribbean Shipping Association
Port Authority of the various islands