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INTERMODAL TRANSPORT
in the
CARIBBEAN REGION - 1973

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INTERMODAL TRANSPORT IN THE CARIBBEAN REGION

The Situation in 1973

Purpose and Scope

The United Nations Economic Commission for Latin America, (ECLA) in conjunction with the United Nations Conference on Trade and Development (UNCTAD), is currently (1974) assisting the Governments of Latin America and the Caribbean region to determine their official postures with respect to a proposed international Convention on intermodal transport. The extent that intermodal transport presently exists within the Caribbean region, and the trend of this concept of transport are factors that must influence the various Governments in determining their attitudes toward a world-wide agreement on intermodal transport.

In view of the indicated need, ECLA (Port of Spain) invited the principal seaports of the Caribbean basin Governments to report how many tons of containerized cargo was handled during 1973 and also to give an indication of the principal commodities involved and the principal places of origin and destination, to the extent feasible within the short time allowed.

The geographic scope of the survey includes the principal island Governments of the greater Caribbean basin except Cuba. Belize and Guyana, on the perimeter of the basin, were included, as well.

Participation

Requests for container traffic data in 1973 were solicited from twenty-seven different seaports of the Caribbean basin, and all but one (St. Vincent) responded. Three ports indicated little or no container cargo and the remaining twenty-three ports reported significant amounts of container traffic. The cooperation accorded ECLA by 26 of the 27 ports queried is most gratifying and highly appreciated, and it is recognized that a response from the single exception may have been delayed or lost in the mail.

Container Traffic - 1973

The result of the survey is summarized in Tables, (A) and (B). Table A lists the twenty-three ports reporting significant amounts of containerized cargo handled during 1973, and Table B shows for each of the same ports the principal places of origin and destination and the principal commodities involved in the container traffic, to the extent the information was given. Table (C) shows anonymously how the container and breakbulk cargo-handling operations compare at 37 world ports, including 6 Caribbean ports.

In Table A the amounts of cargo inbound and outbound are shown separately in columns (a) and (b) to the extent the breakdown was given, and the total of (a) and (b) is shown in column (3). The estimated amount of non-bulk cargo handled through the port is presented in column (4), the estimates having been received directly from the ports in some instances and derived from other sources in other instances, as explained in the notes to Table A. In column (5) the percentage ratio of column (3) to column (4) is presented, and in column (6) the similar ratio for year 1972 and earlier years is presented to the extent the information was available.

Assessment

Magnitude. Approximately $5\frac{1}{2}$ million tons of containerized cargo was handled through the Caribbean ports plus Belize and Guyana, excluding Cuba, during calendar year 1973. The estimated amount of non-bulk cargo handled through the same ports during the same period was approximately 15 million tons.

Proportion of Containerizable Cargo. The amount of cargo handled in containers amounts to at least 36.4 percent of the amount of non-bulk cargo, this figure resulting from excluding the traffic at the U.S. Virgin Islands for which information was not available to make an estimate of the amount of non-bulk cargo. However, there is evidence to indicate that container cargo arriving at the U.S. Virgin Islands represents a relatively high percentage of the non-bulk cargo.

Of course, not all of the non-bulk cargo is susceptible of containerization. If it may be assumed that as much as 80 percent of all non-bulk cargo is susceptible of economical transport in containers, it may be deduced that the amount of containerizable cargo handled through the twenty-three ports for which entries appear in column 4 of Table A, is approximately 12 million tons. The amount actually handled in containers through those ports, was approximately 5½ million tons, representing nearly 46 percent of the potentially containerizable cargo. It may be concluded that intermodal transport of cargo in containers, by land and sea, constitutes an important part of the present traffic in the Caribbean region.

Excluding More Developed Ports. It is pertinent to observe that the ratio of container traffic to containerizable traffic varies widely within the Caribbean, high ratios existing particularly at San Juan, Nassau and Port-au-Prince, and it is likely that the percentage is also high at the U.S. Virgin Islands. Excluding those four ports, the ratio of containerized cargo to containerizable cargo at the remaining nineteen ports, again assuming 80 percent of non-bulk cargo is susceptible of economical transport in containers, becomes 716,769 tons containerized versus 6,703,802 tons containerizable, a ratio of about one to eleven. It is evident that as a whole the ports of the Caribbean are experiencing a significant volume of container traffic, although there is a wide scope for the further growth of container shipping.

Rate of Change from Break Bulk to Containerized Cargo

In those instances where the statistics are available for year 1972, the comparison with year 1973 shows the trend toward adoption of the container concept is sharply upward in every case. Such a comparison was possible in only seven cases and these are tabulated below, showing the amounts of containerized cargo as a percentage of the estimated amounts of non-bulk cargo, and the percentage rate of change from 1972 to 1973:

	<u>1973</u>	<u>1972</u>	<u>Rate of Change</u>
Barbados	6.6%	2.7%	+ 144%
Grand Cayman	24.0%	6.8%	+ 253%
Montserrat	1.1%	0.0%	+ infinite %
Pointe-a-Pitre	21.6%	8.9%	+ 143%
Port-au-Prince	47.2%	21.6%	+ 119%
Port of Spain	14.3%	9.6%	+ 49%
San Juan	72.2%	65.0%	+ 11%

It is evident that the transition from breakbulk to containerized cargo is proceeding rapidly.

Port Operational Effectiveness

A useful indicator of port operational effectiveness is the rate that cargo is transferred between ships and shore, based upon ship turnaround time. The performance index, thus defined, has been determined separately for containerized cargo and non-containerized general cargo at some of the Caribbean ports along with similar analyses of ports at various other places, world-wide. The comparisons are presented in Table C, showing also the year in which the data is applicable. In nearly all of the 37 cases presented, including six ports of the Caribbean basin, cargo moves through the ports much more rapidly when it is containerized. In general, these cases show that container cargo goes through ports four to five times as fast as non-container general cargo. (The median ratio in the 37-port analysis is 4.06.) In the cases of six Caribbean basin ports the ratio ranges from 4.67 down to 1.41, the median being between 2 and 3. It may be concluded that some of the economies attributable to containerized cargo generally, were not being fully realized in the Caribbean area during 1973.

Origin, Destination and Composition

The data given concerning the origin, destination and composition of containerized cargoes is sketchy and inadequate for drawing valid conclusions. To the extent the information was given, the container

trade appears to be comprised mainly of foodstuffs, often frozen, and miscellaneous general cargo, and it appears to have origin and destination mainly on the Atlantic and Caribbean shores of North America, Central America and South America. A significant amount of the container traffic is between ports of the Caribbean, much of it being trans-shipment from larger to smaller ports.

Conclusion

It is evident that the movement of cargo in containers by land and by sea is growing rapidly in the Caribbean basin and has already accounted for a significant part of the cargo that may be transported economically in this manner. There are strong indications that the inherent economy of putting cargo through the sea-ports of the Caribbean is not being achieved to the extent that may be expected ultimately.

TABLE A

CONTAINERIZED CARGO TRAFFIC -- CARIBBEAN REGION -- 1973

PLACE OR COUNTRY	CONTAINERIZED CARGO (TONS)			BREAKBULK & CONTAINER CARGO (TONS)	RATIO OF COL- UMN (3) TO COLUMN (4)	
	Inbound (1)	Outbound (2)	Total (3)	(4)	1973 (5)	1972 (6)
ANTIGUA			4,941	76,596 ^{a/}	6.5%	
ARUBA			19,284	750,000 ^{d/}	2.6%	
BARBADOS			22,754	344,758	6.6%	
BELIZE	1,934	448	2,382	113,429	2.1%	
CAP HAITIEN		80	80			
CURACAO	30,000	7,000	37,000	1,936,000 ^{d/}	1.9%	
FORT-DE-FRANCE	33,815	55	33,870	536,000	6.3%	
GRAND CAYMAN	9,832	92	9,924	41,350	24.0%	6.8%
GRAND TURK			2,108	11,213	18.8%	
GUYANA			78	609,000 ^{e/}		
KINGSTON	224,940	55,592	280,532	1,256,864	22.3%	
MONTSERRAT			105	9,545	1.1%	0.0%
NASSAU			200,000	260,000	77.0%	
POINTE-A-PITRE	25,967	21,363	47,330	219,120	21.6%	8.9%
PORT-AU-PRINCE			72,160 ^{b/}	152,822 ^{a/}	47.2%	21.6%
PORT OF SPAIN	83,514	41,695	125,209	875,587	14.3%	9.6%
SAN JUAN			4,465,000	6,183,540 ^{a/}	72.2%	65.0%
SANTO DOMINGO			114,040	1,382,000 ^{e/}	8.3%	
ST. KITTS	5,171	369	5,540	89,355	6.2%	
ST. MAARTEN	9,543		9,543	50,000 ^{d/}	19.1%	
VIEUX FORT	387		387	47,300 ^{e/}	8.8%	
BRITISH VIRGIN IS.			1,662	31,636	5.3%	
U.S. VIRGIN IS.			119,178			
TOTAL			5,573,107	14,976,115	36.4%^{c/}	

Notes to Table A

- a/ 1973 data not available is assumed to be 10% greater than the amount in 1972.
- b/ 3,392 inbound containers and 3,187 outbound containers were reported, sizes not stated, and the total amount of cargo was stated to be 278,191 metric tons. This amounts to an average of 42.3 metric tons per container which is clearly unrealistic. The following assumptions are made:
- (1) the tonnage figure is for manifest tons;
 - (2) weight of cargo per full containers is 18 metric tons; and
 - (3) 10 percent of inbound containers and 70 percent of outbound containers are empty.

Then the estimated weight of container cargo is:

$$3,392 \times 0.9 \times 18 + 3,187 \times 0.3 \times 18 = 72,160 \text{ metric tons}$$

- c/ Based upon the sums of containerized and non-bulk cargoes excluding Cap Haitien and U.S. Virgin Islands for lack of a basis to estimate the amounts of non-bulk cargo.
- d/ Estimated total of Netherlands Antilles traffic, from UN Statistical Year Book of 1972, total dry cargo for year 1971 = 3,469,000 tons; less 733,000 tons of chemicals presumed to be bulk cargo (based on UN Year Book of International Trade Statistics 1970-1971) leaves 2,736,000 tons which is presumed to be the amount of non-bulk cargo for the entire Netherlands Antilles. Allocated arbitrarily: 750,000 tons to Aruba; 50,000 tons to St. Maarten; and 1,936,000 tons to Curacao.
- e/ Estimates based on gross dry cargo as shown in UN Statistical Year Book 1972, less sugar, molasses, grains and fertilizers shown in UN Year Book of International Trade Statistics, 1970-1971.

TABLE B

CONTAINERIZED CARGO TRAFFIC - CARIBBEAN REGION - 1973

PLACE	PRINCIPAL SOURCES	PRINCIPAL INBOUND COMMODITIES	PRINCIPAL DESTINATIONS	PRINCIPAL OUTBOUND COMMODITIES
ANTIGUA	Puerto Rico	Frozen foodstuffs, Dry Foodstuffs, General Cargo.	Puerto Rico	Not given
ARUBA	U.S., Venezuela, Europe.	General Cargo.	U.S.	Household effects, Coffee
BARBADOS	Canada, U.S., U.K. & Europe.	Foodstuffs, Animal feed, General Cargo.	Canada, U.S., U.K. & Europe	Not stated
BELIZE	Honduras & Guatemala	Foodstuffs	Honduras, Jamaica, Guatemala	Foodstuffs, Clothing, Furniture
CAP HAITIEN	none	none	Europe	Orange peel.
CURACAO	Florida, Puerto Rico.	Foods, Reefer.	Presumably to sources	Food
FORT-DE-FRANCE	Not given	Not given	Not given	Not given
GRAND CAYMAN	U.S.	Dry goods and Meat	U.S.	Household effects and Meat
GRAND TURK	U.S.	Foods, Bldg. Materials	Presumably nil	Presumably nil
GEORGETOWN	nil	nil	Not stated	Rum
KINGSTON	Not given	Not given	Not given	Not given
MONTSERRAT	St. Croix	Automobiles	St. Croix	Construction Equipment
NASSAU	U.S.	Food, Bldg. Materials General Cargo	U.S.	Rum
POINTE-A-PITRE	Not given	Not given	Not given	Not given
PORT-AU-PRINCE	Not given	Not given	Not given	Not given

PLACE	PRINCIPAL SOURCES	PRINCIPAL INBOUND COMMODITIES	PRINCIPAL DESTINA-TIONS	PRINCIPAL OUTBOUND COMMODITIES
PORT OF SPAIN	U.S. Canada, U.K. Jamaica, Guyana, Europe, Japan	General Cargo	U.S. Canada, U.K. Jamaica, Guyana, Bel- ize, Barbados, Haiti, Curacao, Japan, Europe.	General Cargo
SAN JUAN	Not given			
SANTO DOMINGO	Puerto Rico & U.S.	General Cargo	Puerto Rico & U.S.	Frozen Meat, Coffee & Cacao, Tobacco
ST. KITTS	Puerto Rico	General Cargo, Frozen Poul- try, TV Com- ponents.	Puerto Rico & U.S.	TV Components
ST. MAARTEN	U.S. & Europe	General Cargo	None	None
VIEUX FORT	U.S.	General Cargo		
BR. VIRGIN IS.	New York, Miami, St. Thomas.	General Cargo	Nil	Nil
US VIRGIN IS.	San Juan	General Cargo	St. Maarten	General Cargo

TABLE C
EFFECT OF CONTAINER TRAFFIC ON PORTS
OPERATIONAL EFFECTIVENESS

(37 WORLD PORTS)

PPI = tons of cargo per hour of ship turnaround time

PORT LOCATION	DATA YEAR	CONTAINER PPI (a)	BREKBUK PPI (b)	RATIO OF (a) to (b)
AFRICA	1973	18.6	7.5	2.48
ASIA	1972	37.4	12.0	3.12
AUSTRALIA	1972	371.1	128.2	2.89
AUSTRALIA	1972	70.2	24.4	2.88
CANADA	1970	265.6	22.7	11.70
CANADA	1972	122.5	21.6	5.67
CANADA	1972	62.9	16.2	3.88
CARIBBEAN	1973	105.2	22.6	4.65
CARIBBEAN	1973	8.7	2.5	3.48
CARIBBEAN	1972	40.2	13.2	3.05
CARIBBEAN	1972	3.6	2.0	1.80
CARIBBEAN	1972	22.9	14.1	1.62
CARIBBEAN	1972	21.6	15.3	1.41
EUROPE	1970	194.3	21.0	9.25
EUROPE	1972	130.3	16.0	8.14
EUROPE	1972	80.3	11.9	6.75
EUROPE	1972	96.9	20.4	4.75
EUROPE	1972	27.9	6.7	4.16
EUROPE	1972	92.3	27.4	3.37
JAPAN	1972	476.9	42.0	11.35
JAPAN	1970	188.3	46.4	4.06
MEDITERRANEAN	1971	79.8	13.2	6.05
MEDITERRANEAN	1971	5.6	1.4	4.00
MEDITERRANEAN	1972	150.1	63.4	2.37
NEW ZEALAND	1971	163.6	9.8	16.69
NEW ZEALAND	1973	1,140.7	78.4	14.55

PORT LOCATION	DATA YEAR	CONTAINER PPI (a)	BREAKBULK PPI (b)	RATIO OF (a) to (b)
NEW ZEALAND	1971	72.8	11.0	6.62
NEW ZEALAND	1971	79.7	14.7	5.42
NEW ZEALAND	1971	81.7	16.2	5.04
SCANDINAVIA	1972	200.0	29.5	6.78
U. S. A.	1969	107.0	16.8	6.37
U. S. A.	1972	345.1	67.9	5.08
U. S. A.	1971	190.1	51.4	3.70
U. S. A.	1973	249.6	69.1	3.61
U. S. A.	1969	236.5	115.5	2.05
U. S. A.	1971	172.7	89.7	1.93
U. S. A.	1971	210.3	128.1	1.64