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ECONOMIC COMMISSION FOR LATIN AMERICA
Office for the Caribbean

ELEMENTS OF AN INTEGRATED TRANSPORT INFRASTRUCTURE IN THE CARIBBEAN

Port of Spain
Trinidad and Tobago

C O N T E N T S

I. THE INVENTORY

1. General background

In accordance with the terms of letters dated 13 April 1970 exchanged between the President of the Inter-American Development Bank (IDB) and the Executive Secretary of the Economic Commission for Latin America, the ECLA has collaborated with the Bank on its project Physical Integration (Inventory of Multinational Projects) in Latin America. The collaboration consists of compiling the basic information for an inventory of projects in the transport sector, in the Caribbean sub-region, including appraisals of their economic feasibility and of their contribution to the process of integration in the area. The IDB's letter stipulated that a short-term consultant should be contracted to undertake the inventory, and also outlined the terms and procedure for execution of the project. In accordance with these requirements, the ECLA recruited Mr. Randolph Williams, Senior Lecturer at the University of the West Indies as the consultant.

Mr. Williams was briefed in Port of Spain by ECLA staff members, and also by Mr. Simon Izaguirre, the IDB chief of the project and undertook visits to Barbados, the Dominican Republic, Haiti, Jamaica and Trinidad and Tobago during the period 21 August 1970 to 28 February 1971 for consultation with Government officials. He also cooperated closely with IDB chief of the project throughout this period and visited IDB Headquarters on 14 January 1971. ECLA wishes to express its appreciation for dilligence with which Mr. Williams carried out the assignment.

Following completion of the consultant's tasks, ECLA is required to designate a staff member who would formally present the inventory material to the IDB chief of the projects at the IDB Headquarters at Washington D.C.

This includes:

i. the complete list of projects relating to the sub-region and the corresponding index cards;

ii. the basic reference material;

iii. an appraisal of the content of the card index of projects, with emphasis on the critical aspects related to the feasibility of the group of projects presented;

iv. a preliminary analysis of the economic and financial aspects of the group of projects.

2. Preparation of the Inventory

The consultant's task has been to compile data on transport projects for transfer to uniform index-cards; these data should be accompanied by brief country backgrounds and summary statements on each project in a format prescribed by IDB. The inclusion of a project in the Inventory required the authority of the Government of the country where the project is located, and a necessary criterion has been that Government's designation or appraisal of the project as having an integration attribute.

Accordingly, the consultant has submitted the results of his field work in five country reports on Barbados, Dominican Republic, Haiti, Jamaica and Trinidad and Tobago. Each report is prefaced by a brief description of the country's general characteristics and conditions, providing a frame of references for the inventoried projects. This is followed by information on the individual projects designated to the consultant by the authorities for inclusion in the Inventory, as the country's integration projects. The information appears in two separate sections. The first section provides the text of entries for uniform index-cards especially designed for the project. The other section is a brief annex supplementing the entries of the index-card and summarizing the main economic evaluation data. A note on source material and persons interviewed completes the country report.

A close adherence to these principles permitted the desired concentration on the field work to carry out the compilations and formulate the itemized entries for the project index-cards. It excludes recourse to examination of projects from semi-official or unofficial sources even though they might be already known to the Bank through its own investigations and contacts with Governments. Likewise no area integration agencies could be consulted on projects and agreements being considered by them, or projects which they would designate. Such limitation results in reflecting the present policies of individual

Governments as regards physical integration in the transport sector. However, the results of the inventory for the Caribbean clearly represent an initial phase in the pursuit of regional cooperation, which could be expanded by bi-lateral or multi-lateral action.

A total of 23 inventory cards, one for each project designated by Governments, are derived from the Inventory. They are presented in Spanish. The preliminary Spanish version was done at ECLA Headquarters from the consultant's text, and has been reviewed by IDB Chief of the Project in June 1971.

II. APPRAISAL OF THE INVENTORY

There is a concensus that a lagging progress of the transport sector, in particular with regard to infrastructure, has been a common restraint on economic growth in the islands, and that lack of intra-Caribbean transportation[1/] has been an ever present obstacle for trade expansion among the countries in the area. Moreover, the integrative function of transport requires a definition in accordance with the orientation of the Caribbean countries' economic cooperation policies[2/] towards the Inter-American system. Barbados, Dominican Republic, Haiti, Jamaica and Trinidad and Tobago are all members of the Inter-American

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1/ Significant data in this respect are found in the following studies: Los fletes marítimos en el comercio exterior de America Latina, doc. E/CN.12/812: UP/OEA/SER.C.17/2, Publication of the United Nations, Sales No. S.69.II.G.7; H. Brewster, C.Y. Thomas The Dynamics of West Indian Economic Integration ISER, University of the West Indies, Jamaica, 1967. S. de Castro: Problems of the Caribbean Air Transport Industry, U.W.I. Jamaica, 1967; Aron Segal: Politics of Caribbean Economic Integration, Institute of Caribbean Studies, University of Puerto Rico, 1968.

2/ The Caribbean area referred to in this note is taken as the archipelagoes of islands demarcating the Caribbean Sea from the Atlantic Ocean.

Development Bank and of the Organization of American States, even though they have not yet entered into any formal relationship with the Latin American Free Trade Area as has been recommended by the 1967 Declaration of Punta del Este.[3/] The majority of these countries actively pursue the policies of prior sub-regional integration, formulated under the auspices of the Economic Commission for Latin America (ECLA). They are expressed by the establishment and consolidation of the Caribbean Free Trade Association (CARIFTA) and the Caribbean Development Bank. Barbados, Jamaica, Trinidad and Tobago are their members along with Guyana, at present not an IDB member state, the West Indies Associated States and Montserrat (U.K. Colony)[4/]. The Dominican Republic has also expressed an interest in the CARIFTA[5/]. In brief, on the grounds of geography, regional political articulation, or the adopted policies of economic cooperation, the development of physical transport infrastructure through the Caribbean area has to satisfy a multiple role. It should participate in servicing trade flow of world traffic of Central and South America; facilitate the inter-American free flow of traffic, and it should extend individual islands' national systems to the neighbouring islands.

The Inventory covers the following independent island states of the Caribbean: Barbados, Dominican Republic, Haiti, Jamaica and Trinidad and Tobago. There may be projects located in other countries of the area,

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3/ Signed at the Meeting of the Presidents, 14 April, 1967. The text appears in Documentos Relativos a la Integración Económica de América Latina, INTAL, 1968.

4/ Within CARIFTA, there has been established a seven-member East Caribbean Common Market (ECCM), i.e. Antigua, Dominica, Grenada, Montserrat, St. Kitts-Nevis-Anguilla, St. Lucia and St. Vincent. These territories have been granted special concessions as less developed territories under the treaty on free trade area and the Charter of the Caribbean Development Bank. On 1 May 1971 British Honduras (Belize) became the twelfth member of CARIFTA.

5/ The process envisaged is outlined in Domestic Efforts and the Needs for External financing for the Development of the Dominican Republic, CIAP, 389 page 56.

which are related with some of these member countries of IDB, but they have not been proposed for inclusion in this phase of the Inventory (cf. provision I.1 of the text of letter exchange of 13 April 1970).

For the five countries of the Caribbean area the Inventory consists of twenty-three infrastructure projects calling for an investment of US$220.0 million (See Table 1). Barbados and Haiti provide three projects each, the Dominican Republic and Trinidad and Tobago six projects each and Jamaica five. The implementation period is 1971-1980, although one project would continue in the 1980's. Included are seven ports, seven airports, eight road projects (involving some 360 miles of new construction), and one railway enterprise (205 miles of line), which do not fall into any specific pattern of either port or aerodrome networks. No cases of infrastructure projects such as pipelines, airlines, air fleets, or shipping (light carriers, coastal vessels) have been identified (cf. provisions 1. 2 and 1. 3 of BID/ECLA letter of 13 April 1970). The consultant was not required by IDB to identify projects of this nature; he was asked to concentrate on those of physical infrastructure.

The Inventory necessarily refers only to projects that are to be carried out in the decade 1971-1980, in accordance with the countries' legislative measures or under approved development plans. However, most of these plans do not extend beyond 1975, and some of them terminate even earlier (Barbados, 1972), so that while various projects may be timed for completion in the second half of the decade only, under subsequent plans further projects are likely to be undertaken. This observation is based only on the known deficiencies of the sector and the relatively rapid growth of density of domestic and international traffic (See Table 2). No information has been offered that would permit identification of any such likely projects (provision I.3 of BID/ECLA letter of 13 April 1970).

1. Individual projects

Ports and shipping

Recent studies on ports and shipping in the Caribbean sub-region have indicated that the principal maritime problems facing the area are:[6/]

i. port facilities are inadequate to accommodate modern ships;

ii. large volumes of low cost cargoes are loaded as compared to smaller volumes of cargoes discharged, though the latter are of higher unit values;

iii. deficit on transport transactions in the balances of payments accounts;

iv. the control of freight by shipping conferences which results in disproportionately high rates being levied on goods moved, having regard to the conditions and economic changes in the Caribbean.

One study also states that these main problems are further aggravated by inadequate governmental organization and outdated legislation or its absence for administration of maritime transport. In this context it may be noted that while the Caribbean offers ample maritime traffic, the shipping is not geared to serve the intra-Caribbean routes, since the modern types of vessels developed for trades other than those characteristic for the Caribbean, require port improvements which are beyond the capability of the majority of countries.[7/]

6/ ECLA internal studies by staff and technical cooperation experts.

7/ Preliminary Analysis of the Maritime Transport in the Caribbean, written and issued by Corporacion de Desarrollo Economico del Caribe, (CODECA) Rio Hato, Puerto Rico, (Doc. 203, 2/1/68/5, November 1968) in Spanish.

In this regard the CODECA study makes a series of recommendations, including the following ones[8/]:

i. The region should establish a mechanism for regional negotiations as a "compensatory power" between the maritime conference and the transport users in the region. This organism would take joint action on maritime transport in all its aspects, and would assist in solving the problem in the small Caribbean countries;

ii. shipping fleets should be created, which could be either national or regional. Countries of the Caribbean with common maritime problems would have this done on regional terms. The fleets should consist of small vessels of the type that would permit rapid loading and unloading and the use of port facilities as they exist instead of needing port facilities comparable to those in Europe or in the United States;

iii. the main ports which have adequate facilities should be used as transhipment ports where the ocean lines would unload cargo for its distribution through the region by the ships of the Caribbean enterprises;

iv. for the discussion of maritime problems and implementation of recommendations an inter-governmental conference should be convened at an early date.

The above observations and recommendations are rather general, for recent or current work by ECLA staff and experts in the area indicate that they would need a critical assessment, including the establishment of priorities for action. In the main, from the point of view of regional economic integration, the problems of port investment are probably the most serious ones, closely followed by those of strengthening Caribbean flag services and establishing a system of consultation in shipping between Governments and shipowners.

The five member countries of IDB, covered by the Inventory (Barbados, Dominican Republic, Haiti, Jamaica and Trinidad and Tobago), provide the Caribbean region with about 45 maritime

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8/ They have been summarised from original Spanish text, ibid, pages 59 - 64.

ports. While various of these are special purpose ports owned and operated by private interests (mainly handling minerals, bulk petroleum, bananas, bulk sugar), the public service ports on which general cargo traffic primarily depends, are as a rule, publicly owned and operated[9/] by a government agency or department and in a few cases by an autonomous port authority.

Of the seven port projects included in Inventory, each falls into a different category. One provides for the modernization of Port of Spain (Trinidad), a focal port in the area which ranks in international importance with Kingston (Jamaica), San Juan (Puerto Rico) and Willemstad (Curacao), or with Cristobal and Balboa in the Panama Canal. Furthermore, three major ports serving as main gaetways of their respective countries appear on the Inventory: Santo Domingo complex; Port-au-Prince (Haiti); Bridgetown (Barbados). The Point Lisas (Trinidad) project is for construction of an industrial port and a container transfer terminal. There is also projected a major reconstruction of one port (Puerta Plata, Dominican Republic as a part of a development programme of a region of the country. The port project in Jamaica involves construction of passenger cruise ship facilities.

The port development projects (with the exception of that in Jamaica) have the common feature of aiming to provide the physical facilities required by modern ships employed to carry the respective countries' overseas trade (exports characterized by large volumes, low unit value, seasonal peaks and imports by lesser volumes though of high unit values). The construction of physical facilities to serve inter-island shipping of the area is tentatively planned in the case of Barbados only.

It should be observed that integration attributes of these projects are stated as those of multinational service. Typical of such a classification are the multinational ports, serving regional trades

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9/ In the Caribbean context a majority of ports are operated.

rather than purely national ones. Their areas of influence (hinterland) extend beyond national boundaries which result in imports and/or exports of two or more countries being handled through them. In the present Inventory this designation is derived from the role of the ports to service ships of a multitude of national flags. Additionally, some projects, for example those having ferry-ship or container terminals or cruise ship facilities, are significant for regional integration considering that the solutions adopted may be suitable models for other ports, which have not yet advanced beyond the stage of planning for such facilities.

In the circumstances, the port projects on the Inventory contribute to the regionally shared problem of modernizing ports for overseas shipping. Significant advantages from such investments may be expected to benefit foreign shipowners rather than the Caribbean flag fleet, which is small and mainly operates in short-sea trades. The minimum requirements to strengthen the integration concept of these projects would be those which would provide for incorporation of a standard physical facility and of simple operational measures reserved for inter-island shipping by area enterprises. Moreover, the Governments and port authorities should agree on periodic exchanges of experience and consultations with a view to facilitating regional shipping.

Aerodromes and air transport

No recent investigation of air transport in the Caribbean Basin has been undertaken although a framework for it has been laid by an ICAO study.[10/] With regard to the Caribbean, the study reflects the state of a very limited cooperation among governments and within the air transport industry.

10/ Development of International Air Passenger Travel: Latin America (Circular 90-AT/16, 1968), ICAO, Montreal.

The findings of the study are that in Latin America (including the Caribbean area) the development of international air tourism is vital to the growth of this region's air transport industry. It therefore outlines extensive proposals for cooperation of governments and of the private sector on the development of international air passenger travel. The latter being closely dependent on tourism, the study also discusses and proposes measures to accelerate the growth of international tourist travel to an within the region.

Air transport is of greater importance to the Caribbean Basin than elsewhere in the hemisphere because of the absence of contiguous land between states and the large geographical extension of the area. Consequently, air transport is not affected by competition from motor transport and is more complementary than competitive with sea transport[11/]. Air services will continue to be of great importance, because the traffic of goods and persons within the area and between the area and the rest of the world has been on the increase. To take advantage of this increase, however, steps must be taken to improve the economy and efficiency of air transport. Appropriate initial action could involve;

a) consolidation and coordination of services;

b) improvements of navigation aids and equipment.

A prior requirement is for the countries to examine together the problems and the available resources and agree on common objectives.

Data available at the end of 1970 indicate that the Caribbean Basin has 23 airlines operating scheduled international services within the Basin or abroad. Five of these airlines have their headoffices in the Commonwealth Caribbean, six airlines in other territories of the Caribbean arc and

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11/ Thus, various airlines serving the area achieved growth rates of air cargo traffic substantially above those shown by manufactured goods' imports (including intra-area trade).

twelve airlines fly the flag of one of the continental States. Moreover, there are sixteen airlines registered in countries outside the region whose international routes include services within, or to and from the subregion. One of these airlines is South American (Peru)[12/] seven are from the United States, one is Australian and six are European.

Of the non-Caribbean airlines, 12 out of 16 belong among world's major operators, while among the Caribbean airlines, only two (Aeronaves, Avianca) may be considered as having traffic volumes approaching those of the major foreign airlines serving the region. Also, considering the population situation and the characteristics of the economies of the countries, the number of national airlines is comparatively large, even though on grounds of geography competition with road transport and shipping is a less important factor than elsewhere in the Americas.

Data for 1970 show that scheduled airlines of the five Caribbean countries have a fleet of 22 commercial aircraft (of more than 20 thousand lbs., maximum take-off weight), consisting of 9 turbo-jets, 9 turbo-props and 4 piston engined types of aircraft. Compared with 1967, when the fleet had 29 aircraft, of which only 8 in the turbo-engined types, the productive capability increased by about 130 per cent[13/].

The British West Indian Airways (BWIA) owned by the Trinidad and Tobago government is the largest carrier of the area[14/]. In the CARIFTA context of economic cooperation, consideration is being given

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12/ Inactive since May 1971.

13/ That is from some 390 to about 920 thousand seatkm. available per hour.

14/ Carried 416 million passenger kms. in 1969, of which 2 per cent on domestic services, the rest international.

to designating BWIA as the regional carrier, but negotiations have been protracted and no final agreement has been forthcoming. The leading position of BWIA has been maintained largely because the government of Trinidad and Tobago subsidizes the operations, which it considers necessary to international tourist travel, and essential to provide for rapid inter-island services in the Eastern Caribbean[15/]. Apart from the recent liquidation of BAL (Bahamas Airways Limited), the cooperation of Air Jamaica with Air Canada, and the operations of a Bahamas and a Barbados non-IATA carrier of trans-Atlantic services have provided the Governments of those countries with a counterpart to BWIA and may combine into creating more favourable perspectives for cooperation and coordination of air transport policies. In accordance with the stated CARIFTA aim of rationalizing air transport, the countries may agree that the multi-national ownership of the BWIA can be taken as a long-term project, in the meantime the airline would concentrate on the problems of viability by recourse to the more standard ways, such as pooling of equipment, increased average stage length on its routes, or re-arrangement of service patterns.

Consistent with the above pattern of air policies airport development in the area is orientated principally to international services connecting the countries with the rest of the world. To ensure their safety, efficiency and adequacy, technical facilities, services and procedures required at airports and en route for air navigation are determined by the countries in the different regions of the world through ICAO Regional Air Navigation Meetings and formulated in Regional Navigation Plans[16/].

15/ From 1961 (when acquired from BOAC) to 1966 the subsidy was an average TT$3.5 million per year. The airline deficit was TT$8 million in 1967. See Kamaluddin Mohammed Common Services in the Caribbean, pg. 121 in Roy Preiswerk Ed. Regionalism and the Commonwealth Caribbean, UWI, Trinidad, 1966.

16/ For the Caribbean area: Air Navigation Plan - Caribbean and South American Regions, ICAO Document, 8733/3, Third Edition, 1970.

Major airports in the area of the Caribbean islands under the current Plan are: Freeport and Nassau in the Bahamas; Seawell Airport in Barbados, Camaguey, Havana and Veradero in Cuba; Santo Domingo, Dominican Republic, Port de France and Pointe a Pitre in the French Antilles; Port au Prince in Haiti; Kingston and Montego Bay in Jamaica; San Juan, Puerto Rico; Port of Spain, Trinidad and Tobago; St. Thomas, U.S. Virgin Islands; St. John's, Antigua, one of the West Indies Associated States. Commitments to develop facilities for handling the heaviest operational type aircraft (B 747) are stated for the two aerodromes of Bahamas (in 1971), Montego Bay (1971) and San Juan, Puerto Rico (1970).

The Inventory proposes new investments for each of the aerodromes in the above Plan with regard to the five countries covered. Its findings are that in addition to Montego Bay, another five require to be rebuilt for B 747 type critical aircraft by 1974 and the remaining one (Haiti) tentatively towards the end of the decade. These are large capacity aircraft introduced since 1970 on international airlines' services. They are not, however, on order by area airlines so that the benefits from the modernizations are likely to be of secondary nature to them. Also, the emphasis on the relative urgency of the projects indicates to some extent a competitive attitude on the part of some of the airports to attract services by such aircraft and become transfer-points to and from locations served by smaller aircraft. On the other hand it contributes a concrete measure to develop tourism through the support of international air travel generated by those large aircraft.

The integration content and measures have an institutional expression by the above mentioned ICAO Plan. The up-dating of its current edition will take account of the governments' projects, ICAO recommendations and airlines' programmes. In this regard, therefore, it would be appropriate to consider the integration of airports as reflecting a "multi-national agreement", instead of providing "multi-national services".[17/]

17/ Similarly, as in the case of ports, there is no aerodrome serving directly as a common international airport of two or more countries.

It should be noted that if under ICAO Plan a country encounters difficulties in its implementation, it will be eligible for technical assistance. At least, one project in this category has been operational in the area, that which provides the training of air traffic controllers[18].

Roads and railways

In the Caribbean, as elsewhere in Latin America, roads and railways have been built to facilitate exports of agricultural produce and raw materials by ocean transportation. The formation of country-wide road systems still lacks dynamism, though greater progress has been made by some countries than others. Given the small territorial size, even a modest expansion of road networks has resulted unavoidably in rapid motorization of road transport and caused the closing down of most railways.

It would seem that road network development of the countries has indeed proceeded on very modest scales with regard both to amount of investment and technical specifications. The design of roads and bridges has followed lower norms than those devised by agreements or recommendations on Inter-American highway networks. Moreover; a large part of new construction has been undertaken by the governmental administration rather than under contracts.

The development of the Inter-American system[19] which has been the main area of progress in regional physical integration is of a relatively minor interest in the Caribbean. It may be mentioned, however, that the inclusion of a Gulf route[20] has been also envisaged, for its tourist interest.

18/ Air Traffic Controllers' Training School established in Trinidad and Tobago in cooperation with ICAO and UNDP offers courses to technicians of several West Indian Civil Aviation Directorates.

19/ The OAS related specialized Inter-American Highway Congress is taken here as the main technical and coordinating body.

20/ This route would form a circuit interconnecting the highways of U.S.A., Mexico and Cuba.

Accordingly, in the Caribbean sub-region, against this background the contribution of road projects to integration can be that of harmonizing (i) norms of road design, and (ii) laws and regulations on motor transport and traffic.[21] The physical projects would be those which would permit, either directly or by ferries, the inter-connection of domestic networks or the extension of the Inter-American mainland network by feeder roads situated in the Caribbean sub-region, so as to facilitate trade and tourism[22].

The Inventory consists of eight road projects and one railway project. The latter is a notable exception to the Caribbean-wide trend of replacement of railways by roads. The project provides, however, for a rehabilitation of the Jamaican railway line, which becomes necessary for its role as a contractual bulk carrier rather than as a general common carrier.

With regard to the road projects and their integration content, various of the desirable features set out in the preceding paragraph are satisfied. In the first place, the inventoried projects seem to indicate a new tendency, that of emphasis on technical aspects, since large-scale construction is planned, and modern technical norms adopted.

21/ The problem of uniform traffic rules and regulations in the Caribbean is of special interest since in some territories left-hand traffic rules prevails; of the countries covered by the Inventory, only in the Dominican Republic and Haiti the traffic keeps to the right. Presumably, restructuring a road system of a country to change the rule of the road to the right would be an integration project meriting multinational cooperation.

22/ The new techniques of maritime transport of ferry-, trailer- or container-ship operations emphasize the need for uniform design and load norms of raods in order to permit inter-changeability of land vehicles and continuous inter-modal transportation from place of origin to that of destination rather than only from port to port.

Additional integration contribution is represented by projects in so far as they connect the countries' main ports and airports with the major industrial and commercial centres and resort zones usually linked with tourism. It would appear that each of the inventoried projects is a segment of such a network, though no information is provided as to its articulation in the respective countries.

The road projects inventoried for Dominican Republic and Haiti show no links between the countries' road networks. Given the aim of relating projects to the requirements of integration of physical infrastructure, this reduces to some extent the integration interest of these projects, but it reflects the present situation as regards relations between the two countries. Given the scope of the Inventory, it has not been possible to forecast the progress of these relations. Nevertheless, as long-term orientation, in terms of eventual projection of links with other parts of the Caribbean and the Pan American Highway system (complemented by sea and air ferries), priority routes and their connecting points at frontiers could be defined.

2. The Group of Projects

The projects are basically those of infrastructure development on the national scale. Issues of regional integration and coordination are inherent in, though not specifically raised and identified by the Inventory. The designation of integration attributes is therefore limited in its meaning and as mentioned with regard to certain groups of projects, it could be equivocal[23]. A comparison of time horizons for the different projects shows gaps and inconsistencies which further indicate a low order of priorities for solving the existing problems of costly and discontinuous area transport. Relationship with regional programmes such as those developed under the auspices of OAS or LAFTA seems also to be only marginal (See Table 3).

23/ See in particular the outline of integration criteria in: Cristobal Lara, The Evaluation of Economic Integration projects, in Multinational Investment in Economic Development and Integration of Latin America. IDB, 1968.

Accordingly, the Inventory can be taken as representative of the direction proposed for the formation of a regional physical infrastructure, though it is not comprehensive. It conveys a policy oirentation which is geared primarily towards national priority objectives, which have to be satisfied before regional projects with a multinational content would be tackled. Similar situations have been experienced in other regions during the early stages of economic cooperation, and deliberate action has had to be taken to stimulate a multinational outlook.

Within the Caribbean sub-region, multi-lateral cooperation in transport has been hampered by the absence of an institutional framework outlining basic guidelines for operation. Such a framework would require inter-alia the designation of regional projects and physical integration projects by the respective national authorities or integration agencies, each of which might be entrusted with specific responsibilities under the integration instrument.

It may be noted, however, that the integration content of projects comprising the Inventory provides a guide for strengthening both intra-area and regional transport, and modernizing the facilities, especially those dependent on port and road improvements[24/]. In particular, much can be done to achieve a timely execution of projects to which the present Inventory contributes a measure of coordination (i) by comparing and analysing the required capital investment, and (ii) by exposing the lack of institution building and inadequacy of, or non-participation in the integration instruments.

It is assumed that the Inventory should be as complete as practicable for each sub-region, with the coverage and selection criteria harmonized and comparable, for the different sub-regions. If this assumption is correct, then it is likely that the Inventory

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24/ For example, ports lying on the same shipping route should be viewed with this criterion in mind, to ensure the effectiveness of investment in modernized port facilities.

betrays the marks of the considerable lag which exists in the area in the application of the regional integration policies. Before incorporating the present Inventory into that for Latin America as an entity, it would be desirable to devise a modest review stage designed to reduce such a lag. The main concern would be for

i. projects which are not on the Inventory since they call for prior consultations or negotiations among governments;

ii. technical assistance on feasibility studies;

iii. projects of institution building; and

iv. projects under which multilateral instruments would be prepared as may be necessary for the implementation of regional projects (and for increasing the integration content of national projects).

3. Projects in various stages of consideration

It has been pointed out already that the Governmental sources consulted identified no projects specifically designed to create physical links between their respective countries or those for which they have some obligation or responsibility to cooperate. This should not be surprising since there are no formal agreements or other instruments in force providing for cooperation or consultation in the field of transport, apart from those established by OAS - related inter-American Port and Harbour Conference and the Inter-American Highway Congresses. However, countries of the area have not been taking an active part in these organizations. Some of the newly independent countries and some of the territories which are part of, or associated with, metropolitan countries, formerly experienced a measure of cooperation on transport development and several regional projects were at one time envisaged, but the relevant studies remained incomplete proposals[25/]. At present only active integration association is is CARIFTA, but the Agreement (and that of the associated East Caribbean

25/ This was the case of the now defunct Caribbean Commission and more recently the Caribbean Development Corporation (CODECA) sponsored by Puerto Rico.

Common Market) contain transport provisions which are rather general[26/]. In the circumstances, typical regional projects (that is where timely execution imposes the coordination of investments among countries or where the investment is multinational) are not yet found in the nations plans. Such projects have been subject of official technical dicussion, even though further studies may be still necessary before action can be taken on them.

A few cases of projects from the above general category are briefly referred to below. The purpose is to indicate the source or forum at which the project originated and comment on its potential bearing on integration.

Dominican Republic - Haiti road network

The island of Hispanola is the only part of the Caribbean where regional integration could begin with a road project of physical integration. In this case, to some extent a precedent set by Central America and Panama might then be followed by the two countries involved, i.e. Haiti and the Dominican Republic. Even though strained relations have existed between Haiti and Dominican Republic since 1966, it is realistic to assume that cooperation may take place between the two countries on some projects during the decade. A project consisting of island-wide road network might then provide

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26/ By Agreement establishing the Caribbean Free Trade Association Annex A the governments should "endeavour to maintain and improve regional carriers to facilitate the movement of goods and services within the area". In accordance with the Agreement establishing the East Caribbean Common Market Article 16, Governments undertake to pursue a common transport policy and within three years of the coming into force of the Agreement to have common rules for the operation and development of inter-territorial transport.

The UNDP report of the Praparatory Mission on the Caribbean Development Bank emphasizes need for the Bank's financing of transport infrastructure projects in the smaller territories and regional projects, especially shipping (doc. SF/310/Reg 111).

a useful example of effective integration in transport infrastructure[27/]. A paper on Haiti-Dominican Republic regional integration projects[28/] has a ten-point programme with the two following transport projects shown (summarized from Spanish):

2. Road Port au Prince - Jimani (on Haitian territory) continued to Santo Domingo. It would promote:

   - bilateral trade (first class road to reduce cost of transport, reduced customs rates for frontier traffic). Dominican Republic exports would be: beer, paints, paper, carton boxes, matches, animal feed, stockings, soap, plastic containers, chem-fertilizers; and imports: sisal, cotton seed.

   - tourism circuit of Haitian lakes, Dominican Lake Enriquille and zone Barahona-Ovideo .

10. Development of Manzanillo Bay (presumably coastal road across border, fishing and commercial harbour) .

Rationalization of CARIFTA shipping

CARIFTA governments jointly own two vessels (both registered in Trinidad and Tobago) which the West Indies Shipping Corporation (WISCo) operates on a regular inter-island line. The level of service is high though this necessitates fairly large governmental subsidies. There is also a relatively large number of small vessels locally owned in the Eastern Caribbean which transport low-cost cargoes, but they are not efficient and dependable enough to constitute a reliable service. A recent policy accepted at the CARIFTA level embodies in a programme for

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27/ An appraisal of frontier interconnections could be done initially, for example on the basis of recommendations of the Inter-American Highway Congresses.

28/ (cf. pp. 99/100 La Republica Dominicana y la Integracion de America Latina, by R. Tamames, quoting Bernado Vega, Economic Adviser of the Central Bank, Dominican Republic.

i. a reorganization of the Corporation and expansion of the service;

ii. the chartering and purchasing of new vessels for the Caribbean runs; and

iii. studies of measures which would enable the Corporation to extend services to Europe and/or North America, (independently or jointly with other lines). There is also a general understanding, though not a specific resolution by the CARIFTA Council of Ministers that the small vessel enterprises would also improve their role, possibly in a reorganized WISCo[29/].

It has been estimated[30/] that the implementation of this policy would require an investment in cargo vessels of approximately US$2.2 million.

Regional air carrier

In 1961 the Government of Trinidad and Tobago acquired BWIA and its subsidiary LIAT from BOAC, and envisaged that the airline should be restructured and accepted by the Commonwealth Caribbean countries as the "regional air carrier". The required action was examined in detail during 1967-1969 at inter-governmental meetings. (of which records are kept by the Regional Secretariat of Commonwealth Caribbean countries (which is also the CARIFTA Secretariat)). The main characteristics of the proposals are:

i. ownership of the enterprise to be opened to other (CARIFTA) governments;

ii. forming a cabotage area; and

iii. joint negotiation of air routes.

29/ A present situation, a medium-term programme of modernization etc., are dealt with in ECLA draft report, Small Vessel Services in Eastern Caribbean ECLA/POS 70/6 Rev. 1

30/ 1969 United Nations Inter-regional Seminar on Coastal Shipping, Feeder and Ferry Services. Transport equipment used in feeder services. Paper 1(b) Theme II Session IV.

No information is available on the progress of consultations among the participating governments. It may be that a substantial revision of the proposal is being prepared. Such revision would take into account that in 1969/1970 Barbados and Jamaica acquired their own airlines for international services, while in 1971 one ECCM territory authorized the setting up of an airline to operate inter-island service. The further cooperation of the governments and the airlines may aim at accelerating a rationalization of services, possibly by forming an airline consortium as a long-term objective.

Transport in ECCM territories

A recent study of development problems in the East Caribbean[31/], including the transport sector in the ECCM countries, showed the need for substantial external financial assistance, at discretionary terms. Among other things the study proposed the establishment of a regional development agency through which capital financing and other forms of assistance would be channelled. The financing function of this proposed agency has since been undertaken by the newly established Caribbean Development Bank. This Bank has among its membership the more advanced independent states of CARIFTA, and because of the limited funds available to it, must seek cooperation from other financial institutions. Consequently, infrastructure projects in ECCM are related with three member-states of IDB, i.e. Barbados, Jamaica, Trinidad and Tobago. Moreover, these states have accepted the obligations of assistance to the least developed members by the terms of CARIFTA Agreement.

31/ Report of the Tripartite Economic Survey of the Eastern Caribbean. January - April 1966 - London H.M. Stationery Office, 1967.

Taking ECCM as an entity, a study on the lines of those for the Caribbean IDB member states probably would result in some four to five projects. Tentatively these could be outlined as follows:

i. Port development

St. George's Grenada	inter-island vessel facility; cruise ship jetty; deepwater harbour extension.
Kingstown, St. Vincent	inter-island facility cruise ship jetty.
Castries, St. Lucia	deep-water harbour reconstruction and extension; cruise ship pier.
Roseau, Dominica	deep-water harbour construction, including inter-island vessel berths and cruise ship facility.
Plymouth, Montserrat	inter-island type harbour.
St. John's, Antigua	inter-island pier extension; cruise ship pier modification.
Basseterre, St. Kitts-Nevis-Anguilla	deep-water harbour construction; inter-island pier reconstruction.

ii. Feeder roads

Grenada	through-road St. George's Pearl Airport with access roads to state park reservation, industrial park; residential estate.
St. Vincent	Transinsular road.
St. Lucia	Spinal road, Beane Airport and Vieux Fort tourist centre-Castries-Pigeon Island.
Dominica	Raod network, Portsmouth Roseau forestry area Melville Hall Airport.
Montserrat	road Plymouth to Blackburne Airport with an access road to the main area designated for hotels and residential development.
Antigua	radial roads from St. John's to Long Bay, English Harbour and Crab Hill; inter-connection of these radial roads at their terminals and a ring road at St. John's.

	St. Kitts-Nevis-Anguilla	road and ferry link, St. Kitts-Nevis (several alternatives, but no studies made). One suggested route is Frigate Bay - Salt Ponds area - Cockleshell Bay (Ferry 7 miles) - North Nevis.
iii.	Airports	
	Grenada	feeder airport with 7,500 ft. runway at Point Saline.
	St. Vincent	runway strengthening at Arnos vale airport.
	St. Lucia	Beane Airport night flying improvements.
	Dominica	site studies to continue (Portsmouth, Melville Hall).
	St. Kitts-Nevis-Anguilla	Golden Rock Airport construction to standards permitting direct overseas flights.
iv.	Small vessel enterprise	Provision for coastal shipping and repair of vessels.

III. PRELIMINARY ANALYSIS OF ECONOMIC AND FINANCIAL ASPECTS

This analysis must be preliminary in the strict sense of the term for reasons apparent in the preceding appraisal of the projects and the group of the projects as a whole. The inventoried programme contains the three basic types of capital investments, that is those required to:

i. expand capacity by new construction;
ii. replace old structures or equipment; and
iii. modernize existing structures or equipment.

However, there are no data available to analyse them by these types and to appraise the adequacy of their relative shares in the programme. In particular, it would be desirable to have a clearer view of the investments that are planned in operational projects[34/] along with those in new construction.

With regard to financing, where the issue of cooperation with a lending agency arises, it must be assumed that within the respective national plans of which the project in question forms a part, the appropriate investigation is carried out with due considerations of economy and efficiency. No attempt can be made here to evaluate the contribution which the financing is to make to the country where the project is located or the capacity of the country to service the loan. (Data provided by the Inventory on these aspects are shown in Table 4).

1. Implications for regional integration and development

The present planning for a regional transport infrastructure from 1971 to 1980, including both actual construction and the studies which may lead to construction, is formed by 23 projects as identified in the Inventory. It could be summed up as follows (See Table 5):

34/ Only one such project, a railway operational improvement is listed. Other projects would be equipment for shipping services, port maintenance, management and administrative procedures.

i. There are five projects under construction representing a total investment of US$36.4 million. These include the road project in the Dominican Republic, the port improvements project in Jamaica, no external financing apparently being required on any of these, and one road project (Southern Highway) in Trinidad and Tobago, with loan to finance its external cost component already concluded with IBRD.

ii. Two projects of port development in the Dominican Republic with their design completed though financing has to be obtained.

iii. The remaining studies are at a stage where economic and engineering feasibility studies are being done or upgraded or further studies prepared. An early completion of feasibility studies may be expected for the area airports, and the road and railways projects in Jamaica.

An implication for regional integration which arises from the above, is that port development may be expected to progress rather unevenly, compared to a more decidedly oriented planning of airport expansion, and with some exceptions also that of feeder roads. This is of course an important economic issue considering that shipping is not only the principal area transport mode, but also that the port development in the area is largely motivated by the need to reduce transport costs of the countries' export and import trade with the rest of the world.

In regard to the latter, it may be mentioned that liner conference freight rates[35/] are established for groups of ports in the same general area without any distinction based on efficiency of individual ports.

35/ Subject to landing charges scales, which may be also prescribed by tariff rules and regulations.

Conferences need not be relied upon for efficiency and low cost area transportation; the inter-island specialized shipping by Caribbean flag enterprises is the more likely path towards achieving these objectives, but they depend on adequate regional port facilities. It is obvious that actions at national levels alone are not adequate in this context, and that proceeding with the port projects in a coordinated manner[36/] would offer important economic advantages. In other words, a coordinated approach to port development and shipping would offer enormous potential for increasing the volume of Caribbean trade, thereby providing new economic stimuli to the country in which the project is located.

The distribution of the programme by countries has the following main characteristics:

a) The Barbados programme of $19.7 million is for the most part at the design stage; high rates of economic benefits and substantial participation of external financing are anticipated, though negotiations for the latter appear undefined.

b) The Dominican Republic envisages the largest programme in the area, totalling $66.1 million. The road programme and the domestic port projects seem destined mainly for implementation with the government's own resources of technical expertise and finance; while the interests of financial cooperation agencies appear centered on the international port and airport.

c) The programme in Haiti amounting to $26.9 million is destined to improve the efficiency of transport in one important area of the country which generates the main portion of external trade. Only that area of the country would have

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36/ To further strengthen the effectiveness of such coordination, a linkage could be included with road and airport programmes, though it might be more expedient, at least for the time being, continue to be functionally coordinated within the respective national plans.

the road network comparable to that of nation-wide networks elsewhere in the region. Considerations of regional trade and transport seem excluded from the programme.

d) The Jamaica programme is the second largest in the area amounting to $59.67 million. It appears conceived to carry the modernization of the sector initiated by port projects in the preceding period, to roads and airport development. The proposed construction periods seem too concentrated within the early part of the decade, considering the relatively large amount of preparatory work still required, even though the necessary cooperation with bilateral sources of technical and financial assistance has been forthcoming.

e) The cost of the programme of Trinidad and Tobago of $47.6 million is more evenly distributed through the decade than in the case of the other countries. This is rather important in view of the situation that about half the amount is for projects on which the feasibility surveys and design studies are pending. The matters of financial follow-up appear to have been adequately provided for.

Expenditures which will be incurred for the planned transport investments for 1971-1980 show the following trends (See Table 6):

a) In 1970 and 1971 the investments would reach a total of about $32m. Thereafter, until 1975, they will fluctuate between $30m and $50m annually, so that by 1975 nearly 90 per cent of the planned infrastructure expenditures would be made.

b) In the quinquennium, 1976-1980, the expenditure would fall off sharply, to $7.6 million in 1976 and $2.9 million in 1980.

The proportion of projects on which further studies will be carried out before they are ready for negotiations on financing and before construction can start, is relatively high. This fact suggests that the rate of implementation resulting from the estimated annual expenditures in 1971-1980 may not be achieved. It seems likely that at least some of the projects now scheduled for completion during the period 1972-1975 may have to be re-scheduled for the latter part of the decade.

While there will be a decline in planned infrastructure projects after 1975, this does not necessarily mean that there is available scope for a re-scheduling of the programming, since a major bottleneck could be created because of the constant need for improving and/or expanding facilities. This type of scheduling is possibly indicative of the realtively minor attention paid so far to the concept stage of identification and preliminary evaluation of projects with integration content, if not of national projects in general, which will lead to new physical construction in the second half of the decade.

The time horizon of implementation may be also affected by the availability of finance upon the completion of economic evaluations and technical design. Inventory data on financial follow-up provide several significant indications. The impression seems clear that negotiating financial assistance is mainly hindered by slow progress or difficulties in completing the required economic and technical studies. However, the cooperating financial institutions seem to be inclined to open negotiations for some projects on the basis of preliminary studies, while on others more detailed surveys are required. For example, it would appear that one or the other airport construction study may be still at a relatively early stage, but the status of the loan appears quite advanced, while at least some road or port projects reportedly with plans completed, appear at a less favourable stage of financial follow-up.

2. Availability of domestic resources for programme implementation

A considerable uncertainty appears to exist as to the availability of financing the programme from the countries' own domestic sources. The component projects of the Inventory are part of the countries' public sector investments, where as a rule in developing countries a large share goes to transport. If the recent trends of the proportion of transport projects were maintained, it could be conjectured that the programme would be absorbed by a majority of the countries, especially those where tax systems were appreciably improved (See Table 4).

There is little room for much generalization, but even so the impact of the Inventory projects seems to be that of greatly increasing the demand for expansion of public expenditure (See Table 7). As a result a considerably higher proportion of it may have to be financed from non-tax resources, thereby increasing the public debt. For the countries covered by the Inventory, this would include increasing the inflow of loans by official agencies, providing bilateral and/or multi-lateral financial cooperation. It would seem that on the whole no serious problems might arise, for the incidence of capital servicing to the value of exports of goods and services appears to be moderate. (See Table 8).

While then the Inventory projects tend to lack financing (with exception of Trinidad and Tobago) the policies adopted by countries with regard to the application of domestic resources may nevertheless be suitable also for the implementation of the Inventory programme. In this context it may be noted that Jamaica, and Trinidad and Tobago seem to have adopted policies of contracting for external financing of the foreign import component of a project, which may range from some 30 to 50 per cent of the total investment, and this will be also the policies for the Inventory projects. In the case of the Dominican Republic the cooperation with bilateral and multi-lateral sources of financing has extended in the past to external costs and to a proportion of local costs of projects. This is likely to be continued for the Inventory programme.

For Barbados and Haiti the data indicate an emphasis on the need for financing from external sources a high proportion of the total project or programme costs. The two countries show the most favourable ratios of amortization and interest payments on foreign loans to total foreign exchange receipts. It may probably be necessary for Haiti to guard against a deterioration of that ratio and enhance its ability to maintain the flow of essential imports by resource to grants and loans on concessionary terms.

3. Need for IDB financing

At present the main bilateral sources of assistance are the United States in regard to the Dominican Republic and Haiti, and Canada and the United Kingdom in regard to Barbados and Jamaica. Trinidad and Tobago appears more oriented to multi-lateral sources of financing. The

participation of IDB, whether contracted, sought or envisaged, refers to at least one project per country (except for Jamaica), according to the data of the Inventory (See Table 7). Assuming that the assistance (by grants or loans, on discretionary or commercial terms) would be for the external component only which is estimated to represent some 50 per cent of capital required, the total would amount to US$61.6 million or 28 per cent of the capital needed for the inventoried projects. (See Table 9).

The above share of IDB perticipation in the development of integration infrastructure places the Bank in a position where it can influence and encourage the Governments to invest in projects important to regional integration. The Governments' readiness to co-operate actively would be facilitated by strengthening and extending the institutional framework, as has been pointed out previously. In this respect it would be for IDB to make available financial support for the corresponding research and project studies. These could be combined with pre-feasibility studies of specific projects having a demonstration value, that is multi-national investment projects on which cooperation of national agencies could be promoted, and carried out through field work and initial experience gained with any integration instruments that would have been concluled.

4. Summary

Modernization and expansion of the transport infrastructure may be expected to continue as an important segment of the Governments' investment activity for the coming decade. In part, it results from re-scheduling projects of past plans and in part, from increased demands by trade and tourism development. The projects comprising the Inventory are indicative of such trend, though they do not represent the full extent of the combined Caribbean-wide requirements. On the one hand, projects of national and local character are not considered, and on the other hand,

international projects are not included on the Inventory, several of which are actually considered, though not part of national plans.

Thus far, the decisions on transport development are made by governments on the basis of national considerations (See Part I). With the liberalization of trade in the area, considerations of enlarged and diversified traffic flows impose the need for greater efficiency of both physical facilities and services, emphasizing the role of multi-national consultation for planning and implementing transport infrastructure development.

Accordingly, integration agencies should be encouraged to take initiative by developing the relevant technical information on multi-national integration projects in concept stage, having recourse to inter-agency cooperation wherever practicable. More intensive cooperation in fact appears quite necessary in the Caribbean area in order to expand and strengthen this particular sector of the area economy, for the problem of adequate transport as one of the basic pre-conditions for economic integration, may be even more serious in this sub-region than elsewhere in the inter-American system.

Compared with inventories of physical integration projects of other sub-regions, it may be that the Caribbean area inventory lacks projects grounded in, or resultant from, multi-national action, agreements or recommendations, adopted either at inter-American or at Caribbean levels. Such discrepancies as may exist could be minimized to some extent by provision of technical assistance for implementation of such regional instruments, and to facilitate countries' participation in regional activities in the field of transport.

For the above reasons the Caribbean has no projects on which consultations or negotiations among countries are necessary (some examples of potential projects of this type have been given in Part III). It also lacks projects of institution building and those under which multi-national instruments would be prepared, both of which are necessary for the implementation of joint projects. It would seem that activating regional action on these matters is especially important. This could be achieved by devising a suitable form of assistance by the Bank at an early stage.

Annex 1

Letter dated 13 April 1970 from Mr. Felipe Herrera, President of the Inter-American Bank, to Mr. Carlos Quintana, Executive Secretary of ECLA

(English translation by ECLA Secretariat)

13 April 1970

Mr. Carlos Quintana
Executive Secretary
Economic Commission for Latin America
Casilla 179 TD
Santiago, Chile

Dear Mr. Quintana:

I am pleased to refer to the conversations which the Adviser on Integration and his collaborators have had with you and officials of that Commission concerning the collaboration which ECLA could lend us in the Caribbean region in connection with the preparation of the inventory of multinational projects of physical infrastructure, which by resolution of the Assembly of Governors and of the Executive Board, the Bank should carry out.

In accordance with the understanding reached during the more recent such contacts, particularly in view of the visit of Dr. Jules Dekock, ECLA, taking advantage of the general study of transport in the Caribbean Basin which is being carried out, would accept the responsibility of compiling the basic information corresponding to the said inventory of projects of multination physical infrastructure, in relation to their political and economic feasibility and of its contribution to the process of integration in the islands of the Caribbean.

I. The study carried out by ECLA will be within the following terms:

1. The inventory will include the following islands: Barbados, Haiti, Jamaica, Dominican Republic, and Trinidad-Tobago. The projects located in other countries of the Caribbean area will be included in so far as they are related with some of the member countries of the Interamerican Development Bank.

2. The inventory will concentrate on the transport sector and will consist especially of:

   a) Land transport: highways, railroads, pipelines and gaslines

b) Maritime ports

c) Schooners and other light carriers (shallow)

d) Airports and air fleets

e) As well as the description of the regional coastal vessels in the Caribbean Basin.

The inventory will refer basically to the projects that are being carried out or likely to be undertaken in the decade 1970/80.

II. As regards the manner in which the work will be carried out, this will take the following form:

ECLA will contract for a period of four months a technician, engineer or economist, familiar with planning of investment projects in works of infrastructure. If possible, the person contracted should have practical experience in the preparation of inventories of projects of this nature. The technician will travel to the different countries of the Caribbean, with the object of compiling pertinent information. His specific duties will consist of:

a) Compiling data on infrastructure projects of the transport sector, obtained from the official institutions or organisms in charge of the infrastructure sectors, in order to:

- prepare an inventory card-index in accordance with established pattern.
- formulate an appraisal in general terms, on the technical, economic and financial feasibility of each individual project.
- learn about possible new agreements which are being studied by the Governments, in relation to the regional physical infrastructure.
- investigate the priority which the respective Government gives to each project.

b) Obtaining the information which requires the economic evaluation of the aggregate of projects of the transport sector. Such information will include:

- studies carried out;
- development plans;
- international agreements;
- other pertinent informative material, such as preliminary estimated cost and anticipated traffic.

III. Together with the inventory, it is anticipated that the following tasks will be undertaken:

1. The group of projects for each country will be preceeded by a brief description (no more than 5 pages) of the general characteristics and conditions of the country, which serve to frame the inventory in its true context.

2. To keep open the connections with the government offices and regional organisms, with the aim of assuring the permanence and the continuity of the system of inventory which is established.

3. The technician contracted will forward monthly progress reports to the Director of the ECLA Office for the Caribbean and will send a copy to the Representative of the Inter-american Bank in Port of Spain, Trinidad.

4. Once the above mentioned tasks are finished, a technician designated by ECLA will travel to Washington to present to the Chief of the Project the results of the work, this is:

   a) The complete list of projects corresponding to the region and the respective card-index.

   b) The accompanying material (studies, agreements, reports), etc. compiled during the course of the work;

   c) The appraisal of the content of the card-index of projects, with emphasis on the critical aspects related to the feasibility of the group of projects presented;

   d) A preliminary analysis of the economic and financial aspects of the group of projects.

IV. In order to meet the expenses of the realisation of the inventory and the supporting studies, the Bank will make a financial contribution for the equivalent of up to US$10,000, which will cover:

- the salary of the technician contracted for four months, travel, per diem and related expenses; travel expenses and subsistence of the ECLA official to Washington, and secretarial services, cables and miscellaneous expenditures.

If you are in agreement with the terms of this understanding, please sign the attached copy and return it to us as soon as possible.

Greetings to you with my greatest consideration.

Felipe Herrera

Annex 2

Note on Documentation

1. Inventory references

The Inventory has been compiled from feasibility studies and other similar studies as indicated below. These documents have not been made available to be collected by the Consultant, except those marked by asterisk*. Several of the projects on the Inventory have been, or are under discussion by the Government concerned with the Bank, and it is assumed that the relevant documents have been submitted to the Bank in the meantime.

Inventoried projects on which such feasibility studies were consulted are listed below. The Consultant's country reports indicate where the document may be consulted(as stated in the parenthesis).

BARBADOS —

DOMINICAN REPUBLIC

South Coast ports

Stanley Consultants: Port Feasibility Study, April 17, 1970 (Library of the Ministry of Public Works and Communications)

Puerto Plata Port

Technical Study by Construcciones Civiles y Maritimas Corp. (Library of the Ministry of Public Works and Communications).

Access roads to ports

See section II

Las Americas Airport

*B.M. Hellman: Proyectos de Aerodromos a Construirse en la Republica Dominicana. 18 May 1970, ICAO

HAITI

Port-au-Prince Harbour

Study by James C. Buckley Inc. (Director, Port Administration)

Southern Highway

* Department of Public Roads; Elements de base d'un programme del'infrastructure routiere, May 1970, Department of Public Works and Communications.

F. Duvalier International Airport

* Department of Public Roads: Airport International, F. Duvalier, project d'extension et d'aménagement, September 1970. Department of Public Works and Communications.

JAMAICA

Palisadoes International Airport
Donald Sangster International Airport

Study of existing Airport Facilities, by Leigh Fisher Associates Inc. and Goodkind and Odea Inc. (Library of the Ministry of Communications and Works, Kingston)

Development of cruise-ship ports
Cross Island roads
Development of railway service

Jamaica Transportation Study, by Lamarre Valois Inc. 1970. (Library of the Ministry of Communications and Works, Kingston).

TRINIDAD AND TOBAGO

Piarco International Airport
Stage I and II

Airport Feasibility Study by C.C. Parker, Parsons and Brickenhoff. January 1969. (Library, Ministry of Planning, Port of Spain).

East-West expressway; Southern Highway

National Transportation Plan, by C.C. Parker and Parsons. 1967. (Library, Ministry of Planning, Port of Spain).

Port of Spain harbour expansion

Expansion of Port Facilities; Port of Spain, by C.C. Parker and Parsons and Brickenhoff, 1964. (Port Authority, Port of Spain)

Point Lisas Industrial port

Feasibility study by Arthur D. Little, 1967. (Library of the Industrial Development Corporation, Port of Spain).

II. Published economic and technical studies

Material used for the compilation of the Inventory and of country reports other than feasibility studies listed in section I above, has been made available to the Bank by Governments. It consists of the following:

BARBADOS

1. Barbados Development Plan, 1969-1972.

2. A Master Plan for Physical Development in Barbados, by town and Country Development Planning Office, in conjunction with United Nations Technical Assistance, June 1970.

3. Estimates of Revenue and Expenditure, 1970

DOMINICAN REPUBLIC

1. Republica Dominicana en Cifras, 1968

2. Republica Dominicana en Cifras, 1969, Vol. IV, published by Secretariado Tecnico de la Presidencia, Oficina Nacional de Estadistica, Santo Domingo, R.D. Agosto de 1969.

3. Micro Boletin No. 2 - Estadistica de Commercio exterior, published by Secretariado Tecnico de la Presidencia, Oficina Nacional de Estadistica, Santo Domingo, R. D. Agosto de 1969.

4 & 5 Banco Central de la Republica Dominicana - Boletin Mensual, Vol. XXI, Nos. 10/12, and Vol. XXIII, No. 3.

6. 1er Plan Nacional de Desarrollo, Secretarido Tecnico de la Presidencia, Oficina Nacional de Planificacion, Marzo de 1970.

7. Proyectos de Aerodromos a Construirse en un futuro proximo en la Republica Dominicana, 1970 - por B.M. Hellman, 19 de Mayo de 1970.

8. Diagnostico del Sector Transporte, Oficina Nacional de Planificacion, Departmento de Programacion de Infraestructura, Santo Domingo, D.R. (Undated).

HAITI

1. Elements de base d'un programme de l'infrastructure routiere en Haiti. Port-au-Prince, May 1970.

2. Aeroport International Francois Duvalier. Projet d'extension et d'amenagement. September 1970.

3 & 4 Planification et Developpement Bulletin du CONADEP, Nos. 1 and 3 - March and October 1969.

5. Rapport Technique No. 1 - L'infrastructure du Transport en Haiti - (copie provisoire), Mission d'Assistance Technique Integree OEA, Port-au-Prince, September 1969.

6. Septième Réunion du Comité technique permanent des ports, Bogota.

14/19 September 1970: Compte-Rendu des activites portuaires nationales. Port-au-Prince, Haiti.

7. P.A. Talon: Preinvestment Study on the Preparation of a Haitian Shipping Line . October 1970.

TRINIDAD AND TOBAGO

1. Draft Second Five Year Plan, 1964-1968.

2. Third Five Year Plan, 1969-1973.

III. Bibliographical references of the present report

Wherever use is made, in Parts II and III of the present note, of data from a source other than those listed above, references appear in footnotes. Documents made available by ECLA Office for the Caribbean for the Inventory project are as follows:

1. The Process of Integration among the CARIFTA Countries. United Nations ECLA E/CN.12/886/Rev.1. 24 March 1971.

2. The Foreign Trade and Trade Policy of The English-Speaking Caribbean Countries. United Nations ECLA Information Document E/CN.12/882.

3. Towards Multilateral Economic Cooperation in the Caribbean. United Nations, ECLA Office for the Caribbean. Undated.

4. CARIFTA and the Caribbean Economic Community, Government of Trinidad and Tobago, July 1968.

5. Transport Equipment used in Feeder Services, United Nations, New York. Interregional Seminar on Coastal Shipping, Feeder and Ferry Services, September 1969.

6. Report of the Tripartite Economic Survey of the Eastern Caribbean, Mimeographed, 22 April 1966.

Table 1

The Caribbean area: Breakdown of projects by countries

(Costs in million US$)

	Total No. of country projects	Cost of all projects	Ports				Airports				Roads				Enterprises		
			No. of projects	No. of new berths	Min. depth (ft.) 1/	Cost	No. of projects	Design aircraft	Runway length (m)	Cost	No. of projects	New construction (KM)	Cost	No. of projects	Network (miles)	Cost
Barbados	3	19.7	1	2	..	6.0	1	B 747,3000		3.7	1	24[E]	10.0[1A]	-		
Dom. Rep.	6	66.1	2	Complex Haina etc., 4 berths 35 ft. depth Pto. Plata /4.0/ 1 berth, 35 ft. depth		/17.3/ 36.8	1	B 747-3350		2.3	3	75 Santiago Pt. Plata /23.0/ Iguamo bridge /4.0/	27.0	-		
Haiti	3	26.9	1	5	33	6.0	1	B 707 2270		0.9 2/	1	293	20.0	-		
Jamaica	5	59.7	1	4 3/		2.4	2	Palisadoes /8.6/ B 747 2560 D. Sangster /9.9/ B 747 2600		18.6	1	136	32.9	1	205	5.8
Trinidad & Tobago	6	47.6	2	Port-of-Sp. /5.6/ 3 .. Pt. Lisas /7.4/		13.0	2 4/	.. ..		14.6	2	50[E] East-West Exp. / Southern H'way /	20.0	-		
Area total	23	220.0	7	19 5/		64.2	7			40.1	8	578	109.9	1	205	5.8

Source: R. L. Williams: Country Reports

1/ At berth (medium low-water)

1A/ Project extends to 1985 at a total cost tentatively est. $13.2 million

2/ Passenger facility cost. For late 1970's planned runway extension (B747-3000 m)

3/ Berths or jetties for passenger cruise ships

4/ Piarco Airport development in two stages

5/ Excludes Pt. Lisas, Trinidad & Tobago

E - Estimated from unofficial information.

TABLE 2

THE CARIBBEAN AREA: INVENTORY TRAFFIC DATA, 1968

	Barbados		Dominican Republic	Haiti	Jamaica	T'dad, & Tobago
Shipping	Bridgetown		Sto. Dom. Haina-St. Andrés	Port-au-Prince annual average	Kingston	Port-of-Spain
Cargo (th. tons)	1961	1968	1968		1967	1968
Loaded		14.5 a/	1,400	275	400	
Unloaded	76.9	253.6			2,200	
Ships (No.) arrivals						6,000 1/
Air traffic passenger (no.)	1961	1968		1966 1969		1964 1968
Arrivals	46,381	175,118		44,631 94,184		144,000 191,000
Departures	50,800	175,606				
Transit	49,133	153,821				
Total	146,331	504,539				
Cargo (ton)	1964	1968	1968			1964 1968
Loaded	398	1,074	4,700			1,790 1,800
Unloaded	771	1,809	10,000			2,000 2,120
Aircraft (no.) arrivals				1966 1969 1,262 2,037		
Road traffic	1965		1968	1969	1966/67	
No. of motor vehicles 2/	16,043		50,326	17,254 3/	69,476	
Main roads network (miles)	204		2,960	837 km	2,682	1,258
Local roads				1,145 km		2,252

Source: R.L. Williams - Country Reports

a/ Excluding sugar.

1/ Includes 1,500 vessels of 350 tons or less (schooners).

2/ Excludes motorcycles and trailers.

3/ Motor cars, 12,832; jeeps 1,123; goods vehicles 3,147; buses 152.

Table 3

CARIBBEAN AREA INVENTORY OF TRANSPORT INFRASTRUCTURE

COMPARISON OF MAIN INTEGRATION FACTORS, 1971

	Attributes of Integration	Target year for Implementation			International or bi-lateral Agency cooperating with Govt.			Issue of specific interest to the Caribbean (C), or Latin America (L)
	1 2 3 4 5 6 7	Feasibility study	Project design	Construction	Feasibility study	Project design	Construction	
Ports								
Port system (Jamaica)	0	1970	..	1973	CIDA	..	..	Passenger pier design (C)
Port-au-Prince (Haiti)	0	Done	1971	1972	..	..	IDB	Small vessel facility (C)
Sto. Domingo complex (Dom. Rep.)	0	1970	1970	1980 1/	..	..	IDB	
Pto. Plata (Dom. Rep.)	0	Done	1970	1976 E	..	..	..	
Bridge~~town~~ (Barbados)	0	1971			CIDA	Technical and financial assistance will be required		Small vessel facility for inter-island services (C)
P.O.S. (T & T)	0	1971	..	1975	CIDA	..	..	
Point Lisas (T & T)	0	1971 2/	..	..	CIDA	..	.. 3/	Container transshipment wharf (L)

	Attributes of Integration					Target year for Implementation			International or bi-lateral Agency cooperating with Govt.			Issue of specific interest to the Caribbean (C), or Latin America (L)
	1	2	3	4	5	6	7	Feasibility study	Project design	Construction	Feasibility study	Project design	Construction	
Airports														
Palisadoes (Jamaica)	0							..	1971	1975	..	CIDA	CIDA	
D. Sangster (Jamaica)	0							1971	1971	1975	..	CIDA	CIDA	
F. Duvalier (Haiti)	0							..	..0	1973	..	..	..	
Las Americas (Dom. Rep.)	0							Done	Done	1972	..	..	..	
Seawell (Barbados)	0									1972[4]	IDB			
Piarco I (T & T)	0							Done	1971	1975	CIDA	..	EIB[5]	
Piarco II (T & T)	0							Done	..	1978	CIDA	..	..	
Roads														
Cross Island Roads (Jam.)					0			1970	1971	1975	CIDA	..	IDB	
Southern H'way (Haiti)					0			Done[6]	Done	1990	OAS	..	..	
Santiago-Pto. Plata (Dom.Rep.)					0				1972	1972	..	..0	..	
Andres-Macoris (Dom. Rep.)					0				1970	1972	..	..	..	
Iguamo Bridge (Dom. Rep.)					0				1972	..	..	..	..	

	Attributes of Integration	Target year for Implementation			International or bi-lateral Agency cooperating with Govt.			Issue of specific Interest to the Caribbean (C), or Latin America (L)
	1 2 3 4 5 6 7	Feasibility study	Project design	Construction	Feasibility study	Project design	Construction	
Roads (cont'd)								
Main Roads (Barbados)	0	..	..	..	..	..	..	As a preparatory measure traffic code modernized in accordance with U.N. recommendations (C).
East-West Express (T & T)	0	1968	1970	1975	CIDA	..	IBRD	
Southern H'way (T & T)	0			..	CIDA		IBRD	
Services								
Jamaica R'way Corp.	0	Done	Done	1979	CIDA	N/A	N/A	

Footnotes

1/ Development plan continue till 1990.
2/ Pre-feasibility done in 1967.
3/ Preliminary negotiations with CIDA and IDB.
4/ Inventory indicates 1972 but ICAO Air Navigation Plan 1970 specifies 1971 for accommodating aircraft type B 707; for B 747 no provision is made, the date of construction completion may be delayed (est. 1974).
5/ IDB and CIDA also possible sources of construction finance.
6/ UNDP agreed to assist with new feasibility and engineering studies since the completion of the Inventory.

E - Estimated.

Table 4

THE CARIBBEAN: INVENTORY FINANCIAL DATA. 1958-1969

(Amounts in Million US$)

	Barbados		Dominican Republic		Haiti	Jamaica	T'dad. & Tobago	
Gov't budget								
	1958 - 1969		1969			1969/70	1963	1968
Current revenue	11.9	29.7	219.0			210.96	116.47	170.15
Current expenditure	10.35	25.95	163.6				86.75	126.0
	1960	1968						
Proportion of current revenue to GDP (%)	20.8	25.6	17.0			25.6	15.9	17.6
					1968/69			
Total revenue		31.5			47.7	254.64		
Total expenditure		..			47.7	262.80		
Infrastructure Investment								
	1963/64	1968/69	1966	1968			1967	1968
Gov't capital expd.	5.2 x/	3.6 x/	56.1	73.1 a/	7.1	78.24 d/	26.5	32.8
Transport & comm.	1.8	1.2			2.45	26.76		21.05 1/
	av.1965-1968		1968	1969				
Proportion of gov't capital expenditure to GDP (%)	5.0		5.5	6.6	4.0 b/	7.6		
	Average						av. 1964-1968 2/	
Sources of finance								
foreign loans (%)	57.5					14.0 e/	22	
domestic loans (%)					70.0 e/	35.7 e/	37	
savings (%)	34.1						24	
National debt	1959/60	1968/69	1967	1969		1966 1969		
Public loans outstanding total	12.5	30.75				177.84 289.92		
internal	6.05	17.85				169.32		
external	6.55	12.85	193.6	257.0		120.60		
Taxation	1959/60	1968/69	1966	1969		1969/70	1964	1968
Direct		13.0				77.88 f/		
Indirect		13.15				115.32		
Percentage of share in total revenues (%)								
direct taxation	40.0	41.0	18.0	23.0		37.0 g/	30	40
indirect taxation	50.0	41.0	56.0	60.0		55.0 g/	23	20

Table 5

Caribbean area: Inventoried Transport Infrastructure Development 1971-1980

(Costs in US$ million)

Country Project	Estimated Cost	Local financing available or proposed	Extrnl. financing required	Co-operating financial agency	Status of loan/grant negotiations	Proposed completion (present status of project)
1	2	3	4	5	6	7
Barbados	19.67	..	..			
Bridgetown harbour	6.0[a/]	..	..	CIDA or other agencies	Technical assistance on feasibility and technical studies being negotiated	1980 Preliminary investigations completed.
Seawell International Airport	3.67	-	3.67	IDB assistance will be sought	IDB grant 0.07m$ made to finance feasibility studies	1972 Preliminary works being done
Development of Main Roads	10.0	..	..	International financial institutions	Technical assistance from UK being sought for feasibility and technical studies	1980 Preliminary studies being done)

Country Project	Estimated Cost	Local financing available or proposed	Extrnl. financing required	Co-operating financial agency	Status of loan/ grant negotiations	Proposed completion (present status of project)
1	2	3	4	5	6	7
Dominican Republic	66.1	..	..			
Integrated port system (a) complex Haina-Sto. Domingo-Andres (b) San Pedro de Macoris	32.8 b/	..	..	IDB	Governments expects to enter into negotiations for construction financing	1990 (Project study completed)
Puerto Plata	4.0	..	..	Not known	Not known	Not known (Project study completed)
Las Americas Airport	2.3	..	..	Not known	Not known	(Feasibility study completed
Access roads to ports (a) Santiago Pto. Plata (b) Andres-S.P. de Macoris (c) Iguamo bridge	27.0	..	..	Not known	Not known	1972 (Under construction)
Haiti	26.925					
Port-au-Prince Harbour	6.0	1.0	5.0	IDB	Financing being discussed with IDB	1972 (Feasibility study completed)

Country Project	Estimated Cost	Local financing available or proposed	Extrnl. financing required	Co-operating financial agency	Status of loan/ grant negotiations	Proposed completion (present status of project)
1	2	3	4	5	6	7
F.Duvalier International Airport	0.925	..	..	Not known	No information	1975 (Preliminary study completed)
Southern Highway	20.0	..	..	OAS[c]	Need for external assistance is emphasized	1980 (Project study completed)
Jamaica	59.67	..	..	..	..	1973 (under construction
Cruise ship port facilities	2.4	2.4	-	-	-	
Palisadoes International Airport	8.64	..	..	CIDA	Loan will be negotiated	1975 (Preliminary study completed)
D.Sangster International Airport	9.93	..	..	CIDA	Loan will be negotiated	1975 (Preliminary study completed)
Cross-Island roads	32.9	..	16.7[d]	CIDA and IBRD	Feasibility studies financed by CIDA. For construction loan IBRD being approached	1975 (Preliminary study completed)

Country Project	Estimated Cost	Local financing available or proposed	Extrnl. financing required	Co-operating financial agency	Status of loan/ grant negotiations	Proposed completion (present status of project)
1	2	3	4	5	6	7
Railway Service	5.8		5.6[e/]	CIDA	Loan of 1.56m$ contracted, other financing under discussion	1979
Trinidad & Tobago	47.595					
Port of Spain harbour expansion	5.62	2.81	2.81	IBRD	Loan negotiations in progress	1975 Feasibility being completed
Point Lisas Industrial Port	7.35	..	..	Not known	Not known	Completion year not decided (Feasibility study completed)
Piarco International Airport					IDB and Canadian Government may also assist	1975 (Feasibility study completed)
(a) Stage I	10.325	7.065	3.260	IEB		
(b) Stage II	4.3	2.107	2.193	Not known	Not known	1980 (Very provisional studies)
Road projects						
(a) East-West Expressway	20.0	10.0	10.0	IBRD	Negotiations being conducted	1975 (Design study completed)
(b) Southern Highway	..	..	7.0	IBRD	Loan negotiated	1975 (Under construction)

Totals:-

Notes:

..	Amount not known
-	Nil
CIDA	Canadian International Development Agency
IBRD	International Bank for Reconstruction and Development
IEB	Import and Export Bank
IDB	Inter-American Development Bank
UK	United Kingdom
a/	Preliminary appraisal by officials of the Ministry of Communications and Works
b/	Entire development planned over a 20-year period to 1990, estimated to cost $59.2 million (at 1969 prices)
c/	Technical assistance for a transport survey only
d/	Estimated total foreign component cost of project is 19.2m (US$)
e/	Estimated total cost of imports.

Table 6.

Caribbean Area: Projected Infrastructure Investment Expenditures 1971-1980 (Costs in US$ million).

Country and Group of Projects	Total	1971 or earlier	1972	1973	1974	1975	1976	1977	1978	1979	1980
Barbados	19.7	1.8	3.9	4.0	4.0	3.0	2.0	1.0			
Port 1/	6.0		1.0	2.0	2.0	1.0					
Airport	3.7	1.8	1.9								
Roads 2/	10.0		1.0	2.0	2.0	2.0	2.0	1.0			
Dominican R.	66.1	16.9	19.2	3.4	5.4	5.5	3.7	3.3	2.9	2.9	2.9
Ports 3/	36.8	3.4	3.4	3.4	5.4	5.5	3.7	3.3	2.9	2.9	2.9
Airport	2.3		2.3								
Roads	27.0	13.5	13.5								
Haiti	26.9	5.0	5.0	6.9	5.0	5.0					
Port	6.0	1.0	1.0	2.0	1.0	1.0					
Airport	0.9			0.9							
Roads	20.0	4.0	4.0	4.0	4.0	4.0					
Jamaica	59.7	4.5	14.1	14.1	13.6	11.6	0.4	0.4	0.4	0.3	
Ports	2.4	0.8	0.8	0.8							
Airports	18.6	1.6	4.0	5.0	5.0	3.0					
Roads	32.9	0.5	8.1	8.1	8.1	8.1					
Railway	5.8	1.6	1.2	0.5	0.5	0.5	0.4	0.4	0.4	0.3	
Trinidad & Tobago	47.6	4.1	7.0	9.8	12.1	10.3	1.5	1.5	1.3		
Ports	13.0	0.6	1.0	2.0	4.6	4.8					
Airport	14.6		2.5	2.8	2.5	1.5	1.5	1.3			
Roads	20.0	3.5	3.5	5.0	5.0	3.0					
Grand Total	220.0	32.3	49.2	38.5	40.1	35.4	7.6	6.2	4.6	3.2	2.9

Notes:

1/ A tentative suggestion.

2/ Government provided no information. This is suggested as a likely order of magnitudes and investment period.

3/ It has been assumed that no investment were made on the Sto. Domingo port complex in 1970 and that with regard to Pto. Plata the capital is to be forthcoming in 1974/75; otherwise the data provided by the Government are followed.

Table 7

The Caribbean Area: COMPARISON OF INVENTORY PROJECTS WITH THE AVERAGE ANNUAL CAPITAL EXPENDITURES

(Amounts in US$ million)

	Barbados	Dominican Republic	Haiti	Jamaica	Trinidad & Tobago
Average Annual public capital expenditures:					
a) actual	1969/70	1967-1969			1965-1969
total	5.9	67.7			33.4
proportion of transport projects in total (%)	[30]	[11.8]			[20.8] c/
external financing realised	0.35	12.5			14.6
proportion of loan for transport projects in total authorized by international agencies	[-]	[6.3] a/			[69.4]
b) projected	1971/72 - 1973/74	1970-1972		1970-1972	1969-1973
total	6.7	89.4		62.5	37.5
external financing contracted	1.0	49.2		3.0	8.6
external financing required	4.3			11.2	13.2
c) on inventoried b/ projects	1971-1977	1971-1980	1971-1975	1971-1975	1971-1975
total	2.8	6.6	5.4	11.6	8.7
external financing available	-	-	-	1.6	4.6
proportion of inventoried projects total transport sector	[100]	[..]	[..]	[..]	[72.7]

a/ Period 1962-1968
b/ Inventory period up to discontinuance or sharp reduction of annual investment data.
c/ Transport and communications.

Sources: R.L. Williams, Country Reports and CIES data.

Table 8

The Caribbean Area: Foreign capital flows, their servicing and the value of exports, 1967

1967 (in millions of US Dollars)

	Total exports (goods and services and private transfers receipts)	Total servicing of foreign capital flows	Service payments on external capital flows as percentage of exports	Service payments on external official debt as percentage of exports
Barbados */	76.0	7.1	[9.3]	--
Dominican Republic	191.6	42.8	[22.3]	7.4
Haiti	59.4	4.0	[6.7]	--
Jamaica	411.6	89.7	[21.8]	2.5
Trinidad & Tobago	521.7	82.2	[15.7]	1.9

*/ 1966

Source: IMF Balance of Payments Yearbook, Vol. 20 and 21.

Table 9

Caribbean Area: IDB participation in Inventory (transport) projects: 1971-1980

Country	Project	Est. Cost	Year of planned completion	Status of co-operation with IDB
Barbados 1/	Airport	3.67	1972	Assistance to be sought
Dominican Republic 2/	Southern Port complex	32.8	1980	Government to initiate negotiations
Haiti	Harbour	6.0	1975	Discussions started
	Roads	20.0	1980	Government emphasizes need for assistance
Trinidad & Tobago	Airport	14.625	1980	Discussions started 3/
	Point Lisas Harbour	7.35	1980	Preliminary

Source: *R.L. Williams - Country Reports*

1/ IDB participation envisaged in the total programme of 19.67 million.

2/ Tentatively IDB participation indicated for access roads to ports 27.0 million.

3/ Only first stage considered, 10.325 million.