

Document of
The World Bank

FOR OFFICIAL USE ONLY

LN. 2635-CO

Report No. 5530b-CO

STAFF APPRAISAL REPORT
COLOMBIA
PORTS REHABILITATION PROJECT

October 24, 1985

Projects Department
Latin America and the Caribbean Regional Office

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

Currency Unit = Colombian Peso (Col\$)
Col \$1 = 100 centavos (ctv)
Col\$152.06 = US\$1.00 (September 1, 1985)
Col\$1,000 = US\$6.58 (September 1, 1985)

AVERAGE EXCHANGE RATES

<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
47.3	54.5	64.1	78.9	100.8

SYSTEM OF WEIGHTS AND MEASURES

1 meter (m) = 3.28 feet (ft)
1 kilogram (kg) = 2.205 pounds (lb)
1 ton = 2,205 pounds (lb)

ABBREVIATIONS

COLPUERTOS	Empresa Puertos de Colombia S.A.
MOPT	Ministry of Public Works and Transport
FVN	National Highways Fund
FNCV	National Rural Roads Funds
DNP	National Planning Department
DAAC	Civil Aeronautic Administrative Department
FAN	National Aeronautic Fund
SENA	National Service of Traineeship

Fiscal Year

January 1 to December 31

STAFF APPRAISAL REPORTCOLOMBIAPORTS REHABILITATION PROJECTTABLE OF CONTENTS

	<u>Page No.</u>
I. <u>PROJECT SUMMARY</u>	1
II. <u>THE TRANSPORT SECTOR AND THE PORT SUBSECTOR</u>	2
A. The Transport Sector	2
(i) Characteristics	2
(ii) Infrastructure	3
(iii) Transport Planning, Coordination and Investment	4
(iv) Fuel Pricing	5
B. The Port Subsector	5
(i) The Port Authority and the Public Port Operations	5
(ii) Labor Relations	7
(iii) Port Planning	8
C. Bank Involvement in the Transport Sector and Lending Strategy	8
D. Experience with Past Lending	10
III. <u>THE PROJECT</u>	10
A. Objectives	10
B. Description	11
C. Equipment Situation and Port Productivity Targets	13
D. Project Cost, Implementation and Financing	14
E. Financial Aspects	15
(i) Financial Information Systems	16
(ii) Past Financial Performance	16
(iii) Future Financial Performance	19
F. Economic Justification and Benefits	21
(i) Port Infrastructure Rehabilitation and Improvements	22
(ii) Cargo Handling Equipment	23
(iii) Tugboats	23
(iv) Overall Project Economic Justification	24
G. Project Risks and Sensitivity Analysis	24

This report is based on the findings of an appraisal mission which visited Colombia during October/November 1984. The mission comprised Messrs. G. Unda (Senior Port Engineer); J. Bigosinski, and J. Mello (Consultants) and Ms. Rios (Financial Analyst). Ms. K. Sierra (Economist) assisted the mission in the economic evaluation. The report has been edited by Ms. V. Foster.

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

TABLE OF CONTENTS (Continued)

	<u>Page No.</u>
IV. <u>PROJECT IMPLEMENTATION DETAILS</u>	25
A. Cost Estimates, Finance and Disbursements	25
B. Execution and Procurement	25
C. Special Account	28
D. Project Monitoring, Semi-Annual Consultations and Mid-Term Review	28
V. <u>AGREEMENTS REACHED AND RECOMMENDATION</u>	29

TABLES

2.1 Summary of Port Traffic in 1983 and 1984	32
2.2 Actual and Forecast Public Terminal Traffic, 1978-2000	33
3.1 Existing and Proposed Equipment	34
3.2 Proposed List of Equipment and Procurement Schedule	35
3.3 Existing COLPUERTOS' Tugboat Fleet	36
3.4 Economic Evaluation and Sensitivity Analysis	37
4.1 Detailed Cost Table - Buenaventura	38
4.2 Detailed Cost Table - Cartagena	39
4.3 Detailed Cost Table - Barranquilla	40
4.4 Detailed Cost Table - Santa Marta	41
4.5 Detailed Cost Table - Institutional Development	42
4.6 Detailed Cost Table - Project Supervision of Construction and Studies	43
4.7 Project Cost Summary	44
4.8 Estimated Schedule of Disbursements	45

ANNEXES

1. Port Traffic Analysis	46
2. Financial Evaluation	55
3. Labor and Equipment Situation and Productivity Targets	79
4. Detailed Project Description	93
5. Details of the Training Component	96
6. Economic Evaluation	101
7. Project Monitoring and Reporting	116
8. Related Documents and Data Available in the Project File	121

CHARTS

- World Bank 27106 - Project Implementation Schedule
- World Bank 27107 - COLPUERTOS Organization Chart
- World Bank 27108 - Port Terminals Organization Chart

MAPS

- IBRD 18406 - Colombia Transport System .
- IBRD 18729 - Ports Rehabilitation Project - Cartagena
- IBRD 18730 - Ports Rehabilitation Project - Santa Marta
- IBRD 18731 - Ports Rehabilitation Project - Buenaventura

COLOMBIA

PORTS REHABILITATION PROJECT

I. PROJECT SUMMARY

Borrower: Empresa de Puertos de Colombia, S.A. (COLPUERTOS)

Guarantor: Republic of Colombia

Amount: US\$42.8 million

Terms: Repayment in 17 years, including four years of grace, with interest at the Bank's standard variable rate.

Project Description: This would be the first Bank involvement in the port sub-sector. The project's objectives are to (i) strengthen COLPUERTOS' managerial, financial, administrative and operational capabilities to improve port services and reduce operational costs and (ii) upgrade port capacity by restoring port installations and increasing port productivity to enable the public port system to cope with future traffic demand and ensure adequate support to Colombia's foreign trade. The proposed project consists of (a) civil works to rehabilitate existing port installations and to upgrade port utilities; (b) provision of heavy cargo handling equipment, workshop machinery and tools, second hand tugboats, training equipment and material, and computer hardware; and (c) management, operational, engineering and training consulting services.

Risks: The main risks associated with the project are the uncertainty regarding traffic levels and COLPUERTOS' failure to achieve productivity targets. The civil works components are not particularly sensitive to these risks, and, in the case of the equipment components, the risks have been minimized by concentrating on replacement of obsolete items.

The project is associated with institutional changes aimed at restructuring the terms of compensation to port labor and establishing a new pension system for port workers, to free COLPUERTOS from the heavy financial burden imposed by the current practices. The changes envisaged will permit COLPUERTOS to reduce substantially labor costs and long-term pension obligations, while improving manpower efficiency, thereby enabling the enterprise to transfer these benefits to port users through better service and lower port charges. The Government and COLPUERTOS have already shown their commitment to these objectives by pursuing actively, through negotiations with the port labor unions, the necessary changes to legally binding labor agreements, and by initiating the legal process to establish a pension system self-sufficient in the medium term and financially separated from COLPUERTOS.

Estimated Project Costs

	<u>Local</u>	<u>Foreign</u> (US\$ million)	<u>Total</u>
<u>Civil Works</u>	12.10	11.10	23.20
<u>Equipment</u>	-	17.20	17.20
<u>Institutional Development</u>	0.60	3.00	3.60
<u>Project Supervision and Studies</u>	0.90	3.60	4.50
<u>TOTAL BASE COST</u>	<u>13.60</u>	<u>34.90</u>	<u>48.60</u>
Physical Contingencies	1.40	2.80	4.20
Price Contingencies	2.20	5.00	7.20
<u>TOTAL PROJECT COST</u>	<u>17.20</u>	<u>42.80</u>	<u>60.00</u>

Financing Sources:

Proposed IBRD Loan	-	42.80	42.80
COLPUERTOS' Own Resources	17.20	-	17.20
<u>TOTAL FINANCING</u>	<u>17.20</u>	<u>42.80</u>	<u>60.00</u>

<u>Disbursements:</u> (Project Only)	<u>Bank FY</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>
Annual		5.0	11.0	13.0	7.0	4.0	2.8
Cumulative			16.0	29.0	36.0	40.0	42.8

Rate of Return: 38%

1/ Rounding up to the nearest integer.

II. THE TRANSPORT SECTOR AND THE PORT SUBSECTOR

A. The Transport Sector

(i) Characteristics

2.01 Colombia's advantage of having coast lines on both the Pacific Ocean and the Caribbean Sea is largely offset by the difficulty of movement between the coasts and the interior. The three massive ranges of the Andean Mountains running the length of two-thirds of the country present formidable obstacles to communication among its main population centers, which, until recently, developed as separate and somewhat isolated regions. The Magdalena River, until the mid-century, provided the only overland route between the Central region and the Caribbean coast and, even so, with serious navigational problems during the dry season. In the 1950s, however, under a drive toward integration and modernization, the transport system began to evolve into a national network. The development of the country's railways, trunk highways and civil aviation has greatly improved inter-regional communication and national integration.

2.02 The effort to establish the basic transport infrastructure absorbed a considerable proportion of the country's public investment. Transport represented about half of the Central Government's investment in the late 1950s. More recently, with the basic infrastructure in place, transport's share has declined, and, since the late 1970s, it has been around 13%. In 1984, the transport sector accounted for some 8% of the GDP, compared to about 5% in 1950. In the same year, the country's domestic surface transport system moved 25.4 billion ton-km of freight, of which 88% by road, 5% by inland navigation, 4% by coastal shipping and 3% by railways. Roads and aviation dominate passenger traffic, accounting respectively for 71% and 27% of total demand, estimated at 17,250 million passenger/km in 1984.

(ii) Infrastructure

2.03 Colombia has a road network of about 100,000 km (10,500 km paved), of which about 25,000 km comprise the national highway system, about 48,000 km are departmental roads, about 24,000 km are rural roads and about 2,000 km are private roads. The planning, construction and maintenance of the road network are performed under the Ministry of Public Works and Transport (MOPT) through its National Highway Fund (FVN) and National Rural Roads Fund (FNCV), in charge, respectively, of the national highways and the rural roads. The Departments perform their own road maintenance through their Secretariats of Public Works.

2.04 The railways system consists of 3,403 km (2,822 km currently in service) of single track narrow gauge (0.914 meters) lines administered by the Colombian National Railways, a semi-autonomous state-owned agency. The trunk line between the Caribbean port of Santa Marta and Medellin-Bogota in the central highlands is 1,287 km long and carries over 70% of the total railway traffic. The Pacific line (187 km) serves only the Department of Valle, connecting the port of Buenaventura to the city of Cali.

2.05 The Magdalena and Cauca rivers, together with the man-made Canal del Dique (connecting the Caribbean port of Cartagena with the Magdalena river), constitute a major transport system totaling 1,366 km of navigable waterways, which account for almost all inland shipping. The traditional importance of inland waterway shipping, however, has decreased with the development of road and rail transport; the remaining river traffic is mainly hydrocarbons and other bulk commodities, such as cement and fertilizers, which originates at, or is destined for, the ports of Cartagena and Barranquilla. River transport moved about 2 million tons of freight in 1984, roughly the same volume as 30 years ago. Administration and maintenance of inland waterways are under the jurisdiction of MOPT. Freight services are privately operated.

2.06 Aviation transport in Colombia developed early in the 1920s, induced by the adverse topography and the inherent difficulties of surface transport. Air traffic is now a major passenger transport mode for both international and domestic traveling. There are presently in the Colombian territory 70 airports whose standards vary widely. Seven of the airports in mainland Colombia and one on the Caribbean Island of San Andres are equipped for international flights. Aviation is governed by the Administrative Department of Civil Aeronautics (DAAC), which is directly responsible to the President of the Republic. DAAC is financed by the National Aeronautics Fund (FAN), whose revenues originate mainly from user charges.

2.07 Maritime transport supports most of the volume of Colombia's foreign trade, which is moved mainly through its public and private sea-ports. Empresa Puertos de Colombia (COLPUERTOS), the national port authority responsible to the Ministry of Public Works and Transport, controls all the public ports, namely Buenaventura and Tumaco on the Pacific coast, Cartagena, Barranquilla and Santa Marta on the Caribbean Coast and Leticia on the Amazonas River. Besides the two private ports of Turbo and Puerto Bolivar on the Caribbean coast, there are privately operated berths at the public terminals of Cartagena and Barranquilla. There are no private port facilities on the Pacific Coast. The private ports and privately operated berths specialize in certain own-user bulk traffic, mostly coal, petrochemicals, hydrocarbons, fertilizers and cement. Total traffic at the public ports amounted to 9.7 million tons in 1984, of which 5.8 million moved through private berths and 3.9 million, basically general cargo, moved through the public terminals (Table 2.1). Most of Colombia's seaborne trade is, and will likely remain, with the U.S., the industrialized European countries and Japan.

(iii) Transport Planning, Coordination and Investment

2.08 MOPT is directly responsible for sector planning matters, including the preparation of the National Transport Plan. The Plan, which is periodically updated by MOPT's Sector Planning Office, defines the relative role of the distinct transport modes based upon demand projections by commodity type. It also outlines investment programs and the corresponding financing sources for each subsector. The objectives of the Plan are formulated in accordance with the broader goals established in the National Development Plan, prepared by the National Planning Department (DNP). DNP also coordinates, with MOPT and other sector agencies, the programming and budgeting processes for investments in all transport modes, except pipelines.

2.09 The sector priorities in place, largely shaped to accommodate the transport investment needs with the constraints arising from the reduced inflow of external resources and the tight fiscal situation, emphasize rehabilitation and maintenance of existing infrastructure and equipment, motor fuel substitution, transport safety and intermodal coordination to reduce transport costs and improve efficiency. They also call for investment policies consistent with supporting productive and external trade-oriented activities, coordinated with cost-based pricing policies to mobilize resources through recovery of investments.

2.10 The financing of the transport sector is arranged through a combination of (a) operating revenues (38%); (b) earmarked taxes on oil products (35%); (c) budgetary contributions (13%); (d) domestic and external credit (7%); and (e) other sources (7%). Overall, sector funding policy emphasizes financial self-sufficiency for each subsector. In practice, however, its implementation has been weakened. The case of the railways--which have had to resort to budgetary contributions to finance operating deficits caused by declining demand and operational inefficiency--and the existing cross-subsidies (between import and export tariffs in the ports, between freight and passenger tariffs on the railways, and between user charges for light and heavy vehicles on the highways) are becoming of major significance.

(iv) Fuel Pricing

2.11 Colombia has maintained, in recent years, a policy of annual increases in fuel prices to adjust for domestic inflation and to reflect the corresponding opportunity costs. As of November 1984, the time of the last price increase, regular 1/ and premium 2/ gasolines were priced, respectively, at US\$0.82 and US\$0.93 (equivalent) per gallon, in line with the relevant international levels. However, the accelerated pace of devaluation since then brought current domestic fuel retail prices down to an average 25% below the equivalent international levels. Retail prices are expected to be adjusted toward the end of this year, and more frequent increases are expected during 1986 to compensate for the exchange rate adjustment policy currently in place. Fuel price developments in Colombia are being monitored through specific provisions in a Bank loan to ECOPETROL, the National Petroleum Company.

B. The Port Subsector

(i) The Port Authority and the Public Port Operations

2.12 The National Port Authority, COLPUERTOS, was created in 1959 as the public entity in charge of the management and operation of public ports in the country, and supervision and regulation of private berths located in the vicinity of the country's Atlantic ports. COLPUERTOS does not have jurisdiction over the private ports of Turbo (operated by the Federation of Banana Growers) and Puerto Bolivar (operated by the Colombian Coal Enterprise) since their regulations and supervision rest directly with the Government. In 1975, COLPUERTOS became a state-owned commercial and industrial enterprise under the Ministry of Public Works and Transport, with financial and administrative autonomy. The entity is governed by a Board of Directors in charge of the overall policy matters at national level and a General Manager with executive management functions. Each of the ports has its own Board and Manager with corresponding functions at the local level. The central office is charged with policy, budgetary, development and investment functions, while each of the ports is responsible for its own operations and administration. COLPUERTOS' organization is shown on Charts 27107 and 27108.

2.13 COLPUERTOS' relations with its labor force are regulated by collective labor agreements negotiated periodically between the enterprise and the port labor unions. These collective contracts are legally binding, and their terms and provisions prevail over the national labor legislation, which establishes the minimum standards that labor contracts must comply with (minimum salaries and benefits) and gives freedom to the parties to negotiate terms above the minimum legal requirements. Once formalized, the collective

1/ 80 RON (Research Octane Number)

2/ 92 RON

labor contracts can be amended only by agreement between the parties and, as last resort, by the ruling of a tripartite arbitration tribunal in which the parties and the Government are represented.

2.14 The four major public ports in Colombia are Buenaventura on the Pacific and Cartagena, Barranquilla and Santa Marta on the Caribbean coast. All four ports are fundamentally general cargo terminals, even though Buenaventura and Santa Marta have specialized facilities for bulk cargo handling and storage. The ports terminals provide services of pilotage, towage, bunkering, stevedoring, on-shore cargo handling, lighterage and storage.

2.15 Buenaventura is the main port on the Pacific and also Colombia's largest public deepwater and container port. It lies in a tropical zone with a heavy rainfall, which interferes with port operations. Its terminal facilities cover an area of 1,175,000 m². Its 13 berths, totaling 2,150 meters, are naturally protected and offer draft up to 32 feet. In addition to 10 warehouses, the terminal has specialized facilities for grain (32,000-ton capacity silos), sugar and bulk liquids. The port traffic does not interfere with the city, and the access to the port area is adequate, even though possibilities for further physical expansion are limited. The terminal is connected with the hinterland by rail and road and, together with coastal shipping, serves all the western part of the country. Buenaventura competes with the terminals on the Caribbean coast for the seaborne freight originating in, or destined for, the Bogota metropolitan area. All sugar, molasses, an important share of coffee exports, and most imports from the Far East move through Buenaventura. In 1984, this port handled nearly 2.1 million tons of freight, equivalent to 55% of the total moved through public ports.

2.16 Cartagena, situated in the best natural port location on the Caribbean coast, is Colombia's second container port and premier cruise ship port-of-call. Its hinterland includes the important agricultural and industrial region of Medellin, in the Department of Antioquia. The port links with its hinterland by road, air and inland waterways through the Canal del Dique to the Magdalena River. Port facilities cover an area of 289,000 m² with five deepwater berths and two berthing areas for smaller roll-on/roll-off ships totaling 1,218 meters; the port offers draft up to 35 feet alongside its berths. There is some room for physical expansion at the port site, although access to the port is through the city streets. Additional port areas can also be developed elsewhere in the bay. Cartagena moved 0.8 million tons in 1984, equivalent to 21% of the total freight through public ports.

2.17 Barranquilla is located at the estuary of the Magdalena River and is essentially a regional deepwater and river port. It serves primarily the city of Barranquilla and its area of influence, with some transshipment of cargo for upriver transport. The port is connected with the interior by road, river and air transport. The public port facilities cover an area of 1,030,000 m². Barranquilla has six berths with 1,058 meters and one berth for river vessels. Although its berths offer draft up to 34 feet, Barranquilla has the most serious sedimentation and dredging problems of all public ports. Physical expansion of port facilities is possible, although not envisaged. Access roads to the terminal area are adequate. Barranquilla

moved 0.48 million tons in 1984, equivalent to 12% of total freight through public ports.

2.18 Santa Marta lies in a natural deepwater bay on the Caribbean coast. The port occupies an area of 133,000 m². It has five berths with 1,300 meters offering draft up to 50 feet. Even though the terminal has four warehouses and mechanized grain handling facilities (32,000-ton capacity silos), they have limited use for unloading vessels because of the low unloading capacity of the conveyor. Potential for further physical expansion is limited. Road access to the port area is through the main city streets, which at times causes congestion. This port links with the interior by road, air and rail connections. The rail access to the terminal is adequate, but the lack of a marshaling yard disturbs the traffic in the port area. Santa Marta moved 0.49 million tons in 1984, equivalent to 12% of the total for public ports.

2.19 Seaborne traffic through Colombia's major public ports grew fast in the late 1970s, peaking at 4.9 million tons in 1980. Declining exports—caused mainly by reduced world demand for some Colombian agricultural exports, the diversion of coal exports to a private port and decreasing imports as a result of balance of payments restrictions—brought the public ports traffic down to 3.9 million tons in 1984. Because of improved prospects for economic growth, this trend is expected to be reversed, and traffic at these ports is forecast to increase at an average rate of 1.8% p.a. over the 1985-1990 period (Table 2.2). The highest traffic growth is expected at Santa Marta (7.6% p.a.) while, at Buenaventura, it is expected to remain at current levels, with declines in bulk traffic offset by increases in general cargo (Annex 1).

2.20 COLPUERTOS is a financially independent enterprise and receives no budgetary support from the Government. Most of its revenues come from tariffs for services provided by the public port terminals and a small portion from charges (ad valorem charge on traded goods) from the private wharves. The Central Office is financed by the charges on the private wharves plus 20% of the revenues generated by the public terminals to finance its administrative expenses, capital investments at headquarters and the ports and debt service. Each terminal retains 80% of its revenues to cover the cost of its own operations (Annex 2).

(ii) Labor Relations

2.21 Over the years, until 1983, COLPUERTOS' institutional and financial situation deteriorated sharply as the result of a combination of several factors. First, COLPUERTOS' management had been generally weakened by excessive political interference, which resulted in high turnover in upper management positions, which, in turn, contributed to lack of continuity and absence of clear institutional objectives. Second, influential port labor unions (one in each port and three in Barranquilla) took increasing control of labor and equipment assignment functions at the port terminals over the years and successfully generated significant overstaffing and unrealistic compensation terms. Third, COLPUERTOS' pension obligation to retirees, paid entirely by the enterprise out of its own operational resources with no funding provision, has become an unbearable financial burden upon the enterprise. Finally, the short-term-focused management concerns, coupled with continuous financial deterioration and recurrent labor problems, resulted in poor long-term planning, which weakened COLPUERTOS' operational capabilities.

2.22 By end-1982, however, in an effort to reverse these trends, a strong management took over and initiated, backed by the Government, a series of corrective measures to recover control of operations at the terminals and to bring down excessive costs (Annex 3). Substantive progress was made in the negotiation of new and more sustainable labor agreements, and important concessions with regard to linking payment to manpower productivity were obtained from the labor unions. Staff was reduced by 23% to 9,411 employees (through induced attrition coupled with a freeze in hiring). The cost reduction measures so far undertaken by COLPUERTOS' management have had an important impact upon the financial position of the enterprise, changing the nearly endemic operating losses of 1979-1982 into an operational surplus for the first time in 1983.

2.23 COLPUERTOS and the Government are committed to continue their efforts to rationalize payments to workers, relating payments to productivity during future labor agreements. This commitment is stated in the terms of the letter of representation submitted by Colpuertos on July 31, 1985 stating its labor policies approved by the National Council of Economic and Social Policy. Targets for further adjustments of personnel by attrition would be ratified by a side letter to be signed simultaneously with the loan agreement, agreed with COLPUERTOS at negotiations.

(iii) Port Planning

2.24 Since most management members of COLPUERTOS' current administration were appointed during the last 12-18 months, there is need to strengthen several areas, particularly project planning and execution, and to make financial and operational information available for management and corporate planning. In order to fulfill these needs, the proposed project would include a major technical assistance component consisting of: (a) improved financial information systems to allow an effective control of operating costs and the institution of cost-based tariffs; (b) improved cargo handling procedures and repair and maintenance practices to increase efficiency in port operations; (c) improved management information systems to improve planning and operational activities; and (d) training at managerial, administrative and operational levels.

2.25 The consolidation of COLPUERTOS' basic top- and medium-level managers to ensure their stability and the continuity of the enterprise's programs is included in the policy statement referred to in paragraph 2.23 preceding. The proposed project, in addition to providing technical assistance in training to strengthen COLPUERTOS' managerial capabilities (para 3.08(f)), would include rehabilitation of the port system (paras 3.05 and 3.06). COLPUERTOS would be required to review with the Bank any investment item not included in the project, resulting in a capital expenditure in excess of US\$2 million. Notwithstanding, COLPUERTOS would not commit itself to any such expenditure unless it were economically, technically and financially justified.

C. Bank Involvement in the Sector and Lending Strategy

2.26 The Bank has played an important role in the development of Colombia's transport sector. Its involvement dates back to 1949, when a transport sector mission reported the transport system to be in an

exceptionally bad condition. Since 1950, the Bank has lent about US\$551 million in 23 loans to the sector. These investments supported the construction of an integrated highway network and, more recently, have contributed to the rehabilitation and maintenance of the national network and to the development of an improved highway organization. They have also contributed to the construction of over 670 km of the main railroad line, as well as to the rehabilitation of other lines. A domestic aviation project helped to improve basic aviation infrastructure and subsector efficiency and planning. The proposed project would be the first Bank operation in the ports subsector.

2.27 The Bank's lending strategy for the transport sector emphasizes the timely provision of development finance in support of policy reform and institution-building objectives, including: (a) policies targeted at achieving a more balanced use of existing transport alternatives, through adequate price signals to consumers and improvements in marketing and distribution arrangements for key commodities; (b) equitable treatment for the distinct modes of transport, and for each user of public infrastructure, by pursuing the development and adoption of cost-based pricing policies for each mode, to cover marginal costs of use; (c) reduction of total transport costs, by improving modal interfaces and the efficiency of operations within each mode; (d) public sector funding and expenditure mechanisms to reflect the costs of use of existing infrastructure and facilities; (e) investment planning to give adequate priority to export development, agriculture diversification, and energy conservation and substitution, with emphasis on maintenance and rehabilitation programs; (f) further integration of the public planning, budgeting and programming processes and strengthening of the financial and personal management practices of sector agencies; and (g) institutional and human resources development, through comprehensive training programs at the upper and middle management, and operating levels.

2.28 At the project level, this lending strategy is presently supported by:

- (a) the Rural Roads Project (Loan 1966-CO, 1981, US\$33.0 million) for construction, rehabilitation and maintenance of rural roads; institutional objectives sought with the project include the strengthening of FNCV's technical and economic capability for identifying, programming and implementing rural roads subprojects;
- (b) the Seventh Railway Project (Loan 2090-CO, 1982, US\$77.0 million) for rehabilitation and modernization of the railways; the project supports the implementation of Colombian National Railways' (CNR) 1983-1987 investment program and the improvement of financial and operational management; and
- (c) the Highway Sector Project (Loan 2121-CO, 1982, US\$152.3 million) for rehabilitation, paving and maintenance of the primary road network; the project pursues the improvement of transport sector management and other subsector objectives, including the development of a balanced pluriannual highway expenditure program, more systematic use of economic appraisal methodologies, the implementation of a pavement management system and training actions at the managerial and operating levels.

D. Experience with Past Lending

2.29 The performance of these projects so far has been mixed. While the results with the Rural Roads and Highways Projects have been positive and the respective loans have contributed significantly to sector management improvements, building up of investment appraisal capabilities and institutional strengthening, as well as physical improvements, the activities involving the Railways subsector have fallen short of expectation. The capacity of the Railways Authority (CNR) to overcome operational deficiencies and, thus, to recuperate credibility with users of cargo services has not yet materialized, partly because of internal management and operational problems, such as slow procurement and poor operational planning, as well as insufficient Government counterpart funding for needed capital investments. The fiscal constraints have prevented the Government from making a significant financial contribution to project investments and have limited its financial support to covering CNR's mounting pension payments, which are not backed by any funding provision. A restructuring or deferral of the Railways project is presently being discussed with the Government. CNR's pension problems have served as a basis for the approach followed in consideration of the proposed Ports Rehabilitation Project.

2.30 The proposed Ports Rehabilitation Project described in the following section would be the first Bank operation in the port subsector, and it would strengthen COLPUERTOS' management and operational capabilities while achieving reductions in port operating costs and ship waiting times through better utilization of existing quay structures and equipment. It would also introduce the mechanisms for establishing a cost-based tariff structure and improved planning of port activities to accommodate future traffic increases.

III. THE PROJECT

A. Objectives

3.01 Three of the four main commercial ports administered and operated by COLPUERTOS—namely Buenaventura, Cartagena and Santa Marta—have reached a serious degree of deterioration due to poor maintenance, old age, and, in some cases, poor construction. Deterioration at the port of Barranquilla is not critical and should be taken care of through COLPUERTOS' regular maintenance. Port equipment maintenance has been neglected because of inappropriate maintenance facilities, shortage of spare parts and lack of a consistent equipment maintenance policy. This situation, coupled with inadequate port operation planning, has affected port productivity and efficiency.

3.02 The main objectives of the Bank support for the proposed Ports Rehabilitation Project are to: (a) ensure sufficient port capacity to cope with traffic demand up to 1990, facilitating Colombia's foreign trade; and (b) strengthen COLPUERTOS' (i) managerial, administrative and operational capabilities to enable the enterprise to increase port productivity and reduce port costs; (ii) financial capabilities to enable the enterprise to achieve its long-term financial viability through the establishment of a cost-related tariff structure; (iii) training capabilities by supporting the

enterprise's training schemes through appropriate technical assistance and equipment; and (iv) in the medium-term, its planning capabilities through training of medium- and high-level managers and fellowships for young professionals on port planning and administration.

3.03 The proposed project would finance part of the 1985-1988 COLPUERTOS investment plan, which was prepared with Bank assistance. The project is based upon detailed analyses of COLPUERTOS' organizational setup, administrative and operational practices, technical capabilities and financial situation, followed by a detailed analysis of present conditions of the project ports' existing infrastructure and equipment.

B. Description

3.04 The proposed project would comprise the following components at the four project ports:

- (a) civil works for the rehabilitation of existing infrastructure, including quays, storage areas and utilities;
- (b) equipment for general cargo and containers, workshops, training and computer equipment and tugboats; and
- (c) professional services for technical assistance, engineering, construction supervision, studies and training.

A detailed description of the project is given in Annex 4. The location of the project ports and the scope of the civil works rehabilitation components at each project port are shown on Maps IBRD 18406, 18729, 18730 and 18731.

3.05 Civil works under the proposed project would consist of repairs and reconstruction of about 1,250, 340 and 970 m of quays at the ports of Buenaventura, Cartagena and Santa Marta respectively; paving and repaving of about 63,000 and 39,000 m², including utilities, at Buenaventura and Cartagena respectively; construction of about 15,000 m² of roofing at Buenaventura; 7,600 m² of sheds to replace old ones to be demolished at Cartagena; and acquisition and installation of emergency power plants at all project ports. Engineering of all the described items has been completed; cost estimates of all civil works are based on final structural designs.

3.06 The proposed project would include the following equipment:

- (a) forklift trucks and mobile cranes to cover COLPUERTOS' present shortage of equipment to handle heavy loads;
- (b) trailers for general cargo;
- (c) container-handling equipment supplementary to the existing equipment owned by COLPUERTOS and private rental companies to handle 40- and 20-foot fully loaded containers;
- (d) 15,000-lb. forklift trucks or similar to equip the ports with capability to handle empty 40- and 20-foot containers efficiently;
- (e) yard tractors and trailers for container traffic;
- (f) workshop machinery and tools;
- (g) four second-hand tugboats to partially replace the existing fleet;
- (h) training equipment as required for the implementation of the training program (Annex 5); and
- (i) computer equipment for the implementation of the management information system (Annex 2).

3.07 The procurement of heavy cargo handling equipment includes the replacement of obsolete existing units and the coverage of the existing shortage for current traffic levels and additional equipment to cope with traffic growth. The equipment included in the project is given in Table 3.2. Lists of the existing cargo-handling equipment by port and ownership, together with proposed equipment that would be included in the project, are given in Table 3.1. A list of COLPUERTOS' existing tugboat fleet is given in Table 3.3.

3.08 The professional services to be financed under the proposed loan would comprise:

- (a) supervision of construction;
- (b) engineering studies and design for a future port project to equip selected ports with full container and bulk-handling capabilities;
- (c) feasibility studies for the long-term expansion of Colombia's port capacity on the Pacific coast;
- (d) studies to reorganize dredging services required for the operations of COLPUERTOS and to define institutional arrangements to permit the cost recovery of dredging activities (para 3.25);
- (e) management advisory services to: (i) strengthen and improve managerial, financial, administrative (Annex 2, Appendixes C and D), operational and maintenance capabilities of the enterprise and the project ports (Annex 3, Appendixes A and B); (ii) prepare, coordinate and supervise the implementation of COLPUERTOS' training program (Annex 5); and (iii) conduct supplementary actuarial financial studies; and
- (f) training for management, operational and administrative personnel of the port terminals and COLPUERTOS' central office (Annex 5).

Agreement was reached during loan negotiations on the timing and scope of these professional services.

3.09 With regard to the project's training component, COLPUERTOS has selected training advisers satisfactory to the Bank, established and staffed a Training Supervision Unit (TSU) and a Training Steering Committee (TSC), and prepared a preliminary training program to be implemented by SENA as part of the ongoing agreement between the two entities. In addition to the above, COLPUERTOS agreed during negotiations to:

- (a) prepare, with the assistance of the training advisers and submit to the Bank, an integrated four-year training program as a condition for loan effectiveness and implement it with SENA and the advisory services support; and
- (b) no later than June 1, 1986 select courses abroad and candidates for fellowships and courses/seminars.

C. Equipment Situation and Port Productivity Targets

3.10 Privately owned light cargo handling equipment to cover COLPUERTOS' shortage is used efficiently by private operators. However, this arrangement generated a number of anomalies that needed to be corrected to ensure port efficiency. Until very recently, port users paid for less-than-complete services and, in addition, paid the rent of private equipment required to handle port traffic; this situation encouraged port inefficiency since COLPUERTOS collected revenues for services not fully provided and its equipment operators were paid even when they did not participate in the operations. During negotiations, COLPUERTOS and the Government gave assurances to the Bank that the operational procedures had been changed as follows:

- (a) COLPUERTOS is paying and would continue to pay for the rent of private light cargo handling equipment to private equipment rental companies and would reimburse the users for the cost of equipment that they may rent by themselves under special circumstances; and
- (b) COLPUERTOS has eliminated payments to equipment operators who do not participate in the provision of port services.

3.11 Analyses carried out during appraisal show that COLPUERTOS' light cargo handling equipment operating costs are higher than those charged by rental companies. Consequently, COLPUERTOS should abstain from acquiring more light equipment when the existing equipment reaches the end of its economic life and should allow its replacement by private equipment rental companies, unless the enterprise is able to reduce its operating costs to levels comparable with those available in the private sector. This matter was formally agreed with COLPUERTOS and the Government during negotiations. Further details are given in Annex 3.

3.12 Productivity at the project ports was compared with that of other ports of similar size and volume of traffic handled and with the average performance indicators of a sample of 220 ports of the world (Table 1 of Annex 3). This analysis shows that, while gang productivity is generally in line with that of other ports, the idle time of ships alongside berths of the project ports is considerably longer than in other ports. While idle time is, on the average, only about 30% of the total time that ships occupy berths for the sample of 220 ports, in the case of the Colombian ports, idle time is about 60-70% of the total ship stay in port.

3.13 A detailed analysis of the causes for this unsatisfactory situation in each of the project ports is included in Annex 3. Low productivity is the result, among other things, of lack of port operations planning, inadequate

working time control, poor equipment availability, inadequate internal traffic organization and signalization within the port area and inappropriate preparation of cargo/storage areas.

3.14 The proposed project includes a comprehensive strategy for the improvement of port productivity based upon the rehabilitation of existing facilities, the procurement of heavy cargo handling and container handling equipment, a technical assistance component to improve port operations (Annex 3) and a training program (Annex 5). Based upon a detailed analysis of current port operations, a realistic set of targets for specific productivity increases was prepared for each of the project ports. These targets are discussed in Table 2 of Annex 3. At negotiations, COLPUERTOS agreed to take the necessary actions to implement the technical assistance recommendations for the improvement of port efficiency and the achievement of these productivity targets. A sample of the expected increases in productivity is given below:

		Increases in Productivity ^{1/} with Respect to 1984 Levels in %		
		1987	1989	1991
Buenaventura	General Cargo	7	14	22
	Containers	16	33	33
Cartagena	General Cargo	7	13	20
	Containers	16	33	33
Barranquilla	General Cargo	5	11	17
	Containers	25	50	50
Santa Marta	General Cargo	6	13	19
	Containers	25	50	50

^{1/} Measured as Ton/Gang/Hour for general cargo and TEU/Gang/Hour for containers.

D. Project Cost, Implementation and Financing

3.15 The total cost of the project, including provisions for contingencies and reflecting September 1985 prices, is estimated at US\$60.0 million, of which US\$42.8 million is foreign exchange to be covered by the Bank loan. The remaining US\$17.2 million would be covered through COLPUERTOS' internally generated funds. Further details of the financing plan of the project are in paragraph 4.07 and Annex 2. Cost estimates exclude a recent value added tax on local acquisitions, considering that practically all equipment included in the project would be imported, and duties on imported items from which COLPUERTOS is exempt; detailed estimates are given in Tables 4.1 to 4.7 and are summarized on page 26. Cost estimates for civil works are based on final engineering. Cost estimates include provisions for

physical contingencies of 10% for civil works, 6% for equipment, and 10% for all other project items. Price contingencies were calculated based on projected changes in local and international prices and expected exchange rate adjustment during the project period. Local inflation rates assumed over the project period are: 22% for 1985, 20% for 1986, and 18% thereafter. Price escalation for foreign costs components has been estimated at 5% for 1985, 7.5% for 1986 and 8% thereafter. Estimated manpower required for the professional services included in the proposed project would amount to about 190 and 270 man-months of foreign and local experts respectively.

3.16 Most of the civil works and equipment to be financed under the proposed project would be subject to international competitive bidding (ICB) in accordance with the Bank Guidelines; civil works items with an estimated cost of US\$0.6 million equivalent or less, and equipment items with an estimated cost of US\$0.1 million equivalent or less would be procured under local competitive bidding (LCB) procedures open to foreign bidders and acceptable to the Bank (para 4.05). Workshop machinery and tools, the second-hand tugboats, training-related equipment and computer hardware would be procured under international comparative shopping procedures satisfactory to the Bank. All professional services to be financed under the proposed project would be retained in accordance with procedures described in Bank Guidelines on the use of consultants. In evaluating bids for equipment procured through ICB, Colombian bidders would be allowed a margin of preference equivalent to 15% of the CIF cost of competitive imports, or the relevant prevailing customs duty, whichever is lower.

3.17 COLPUERTOS would be the Borrower and would be responsible for the execution of the project. COLPUERTOS has already established and staffed a Project Implementation Unit (PIU) to coordinate, monitor and supervise the execution of the project, in a form satisfactory to the Bank. The PIU is now fully operational in accordance with terms of reference also satisfactory to the Bank and available in the Project File. During negotiations, agreement was reached with COLPUERTOS and the Government on the establishment of a technical committee—with representatives of MOPT, the National Planning Department and COLPUERTOS—to coordinate and supervise the execution of studies for which COLPUERTOS will be responsible.

E. Financial Aspects

3.18 COLPUERTOS is constituted as a commercial enterprise, under the Ministry of Public Works and Transport, with financial and administrative autonomy. Under its present organization, which is based upon Decree 1174 of May 1980, COLPUERTOS has one central office in Bogota and offices in each port terminal, all of which have their respective functions and income defined by law. However, since the proposed project would ensure COLPUERTOS' overall financial viability, the financial evaluation (Annex 2) deals with the entity as a whole.

3.19 The financial evaluation covers two main aspects, namely: (a) an assessment of COLPUERTOS' financial information systems including budgeting, accounting, cost accounting, tariff structures, and internal and external

audit, with recommendations for improvement under the proposed project; and (b) an analysis of COLPUERTOS' past and future financial performance, with recommendations for strengthening its future financial position. The details of the financial evaluation are included in Annex 2, and the most relevant conclusions are discussed in the following paragraphs.

(i) Financial Information Systems

3.20 COLPUERTOS' financial planning is generally weak. Apart from the annual cash budgets which are used in monitoring current day-to-day operations, COLPUERTOS has no long-term financial objectives or plans. Consequently, capital investments and other business decisions are not subject to comprehensive economic and financial analyses to evaluate their impact upon COLPUERTOS' finances. In addition, despite important improvements made over the last two years toward computerization and decentralization, COLPUERTOS' accounting system is still inappropriate for measuring the financial efficiency of each port, and fixed assets are undervalued substantially. COLPUERTOS has no cost accounting to identify costs by function and by port, and the present tariffs, which are applied uniformly to all ports, are not cost-based. COLPUERTOS' external audit is performed by the Controller General of the Republic of Colombia. The external auditors' reports on COLPUERTOS' financial statements, however, lack the analytical scope of a commercial audit. Finally, even though the internal audit system is generally satisfactory, the results are, many times, hampered by the complexity of the existing systems and procedures.

3.21 In order to strengthen COLPUERTOS' financial capabilities, the following agreements were reached at negotiations:

- (a) the proposed project to contain technical assistance consisting of consultant services for improvements to financial information systems, including budgeting, accounting and cost accounting, with on-the-job training during the implementation phase (draft Outline Terms of Reference in Annex 2);
- (b) by March 31, 1987, and at least every year thereafter, COLPUERTOS to carry out an inventory and revaluation of its fixed assets;
- (c) by June 30, 1988, and based upon the results of the cost accounting studies referred to in (a) preceding, COLPUERTOS to restructure tariffs to reflect the cost of services rendered; and
- (d) COLPUERTOS to have its accounts and financial statements for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent external auditors acceptable to the Bank, in addition to the audit carried out by the Controller General of the Republic.

(ii) Past Financial Performance

3.22 COLPUERTOS' actual income statements for the period 1980 to 1984 are summarized on the following page and detailed in Table 1 of Annex 2:

Actual Income Statements
(in Current Col\$ millions)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Total Operating Revenues	9,597	11,145	12,936	14,961	16,569
Working Expenses	9,726	12,529	15,123	12,524	13,697
Working Income (Loss)	(129)	(1,384)	(2,187)	2,437	2,872
Depreciation	171	168	171	197	231
Net Operating Income (Loss)	(300)	(1,552)	(2,358)	2,240	2,641
Financial Expenses (Net)	212	128	259	399	250
Other Expenses (Provision for future Pensions)	-	-	-	1,555	2,391
Net Income (Loss)	(512)	(1,680)	(2,617)	286	0
Traffic ('000)	4,927	4,093	4,628	4,125	3,872
Average Number of Staff Employed	11,923	12,053	12,210	11,266	9,865
Pensioners	N.A.	N.A.	6,206	6,505	7,005
Ratios					
Working Ratio	101	112	117	84	83
Operating Ratio	103	114	118	85	84

From 1978 until 1982, COLPUERTOS made losses consistently, and, by year-end December 1982, total accumulated losses amounted to Col\$ 6.95 billion (or US\$98.9 million). Apart from inadequate tariff increases, coupled, during 1980-1982, with a reduction in traffic, staff costs increased considerably as a result of negotiations with politically powerful labor unions. In late 1982, a new administration carried out a plan of corrective measures to bring down excessive costs. The plan resulted, in 1983, in a reduction in personnel costs of about 31%, in real terms. COLPUERTOS' total staff was also reduced by 16% in the same period. As a consequence, after a period of nearly endemic operating losses, COLPUERTOS generated a significant operational profit for the first time in 1983, which amounted to Col\$ 2.24 billion (or US\$25.2 million). COLPUERTOS' 1984 operating results improved slightly compared to those of 1983, despite a 6% drop in traffic, because of additional staff reductions.

3.23 It should be noted that COLPUERTOS' staff reductions do not result in proportional reductions in the entity's wagebill since COLPUERTOS funds, in its entirety, the existing pension plan on a "pay-as-you-go" basis. The pension commitments of COLPUERTOS vis-a-vis its employees are contained in the labor agreements with the ports unions, which provide terms, for this benefit, substantially better than those provided under Colombian law to either public or private employees. COLPUERTOS' management agrees that leaving the current pension situation unchanged would eventually lead the entity to a point where it would be unable to afford these payments. In order to prevent a possible financial disaster in the long term, the proposed project would include a redesign of the pension system based upon a funding approach, with contributions required from employees, from COLPUERTOS and,

during its formation period, from the Government, and with pension terms consistent with those applied in other Government agencies.

3.24 The following steps for relieving COLPUERTOS from the pension burden and attaining a permanent and stable solution to protect the retirement benefits of COLPUERTOS' employees and pensioners, as well as for the adoption of appropriate personnel management policies, were taken prior to negotiations:

- (a) in February 1985, COLPUERTOS hired actuaries to quantify total future pension obligations as of December 1984;
- (b) in July 1985, the Government submitted to the Bank a letter of representation informing of the submission to the Congress, on that same date, of a Proposed Law to establish a pension fund, separate from COLPUERTOS' finances, that would be fully responsible for the payment of the retirement benefits of COLPUERTOS' employees and pensioners and would be financed with contributions from COLPUERTOS, its beneficiaries and, in the capitalization period, the Government. Under the proposed pension fund, the terms of the retirement benefits would be in accordance with the existing legislation. The proposed strategy for the establishment of the new pension scheme is further detailed in paragraphs 3.32 (a) and (b).
- (c) in July 1985, COLPUERTOS submitted to the Bank another letter of representation committing itself to continue to implement management policies aimed at relating workers' compensation to productivity. The proposed strategy is further detailed in paragraphs 3.32 (c) and (d).

3.25 COLPUERTOS has been assigned the responsibility for maintenance dredging in all ports and inland waterways; however, the entity is not reimbursed for the cost of this operation. Since the early 1980s, because of the financial crisis facing COLPUERTOS, most dredging activities have been discontinued and, as an emergency measure, MOPT is financing the 1984 and 1985 maintenance dredging costs. During negotiations, agreement was reached on the following:

- (a) as part of the project, COLPUERTOS would carry out a study of its future maintenance dredging requirements, together with the definition of institutional arrangements to permit the recovery of related costs; and
- (b) COLPUERTOS and the Government would implement the recommendations of the study not later than June 30, 1987.

3.26 COLPUERTOS' actual balance sheets for 1980-1984 (Annex 2, Table 2) show the impact of the entity's past losses upon its equity position. As of end-1982, COLPUERTOS' equity had reached a negative Col\$ 6.34 billion (or

US\$90.2 million), ten times its paid-in capital. The 1983 profit, however, improved the entity's equity position.

3.27 The actual sources and application of fund statements for 1981-1984 are shown in Annex 2, Table 3. The most outstanding feature is the significant decrease in working capital, during 1981-1982, as a result of insufficient revenues to cover COLPUERTOS' increasing costs, resulting in substantial overdue debts with employees and suppliers.

(iii) Future Financial Performance

3.28 One of COLPUERTOS' principal objectives would be to achieve financial viability by improving efficiency in operations, handling more traffic with lower operating costs and implementing cost-based tariffs. COLPUERTOS' financial projections for 1985-1990 are based upon this objective. They reflect reductions in port operating costs which would result from increasing productivity as indicated by the fact that, for an increased traffic, COLPUERTOS' staff would be reduced by attrition. Further cost reductions, not yet quantifiable, would also be expected toward the end of the projection period (1988), as a result of the implementation of the recommendations of a staff rationalization study which would be carried out under the project. The projections assume that, starting in 1986^{1/}, pension payments would be the responsibility of a pension fund, either existing or to be established, and, thus, COLPUERTOS' share in these costs would be limited only to the employer's regular contribution in the funding of future pensions. COLPUERTOS, however, would start making annual special contributions to the pension fund until the existing pension deficit (accrued pension liabilities) is covered. These special contributions would be in relation to service of the employee in the entity; the balance would be covered by the Government.

3.29 Regarding tariffs, cost-based tariffs would be instituted only when COLPUERTOS' cost accounting system is developed; therefore, the projections have assumed only adjustments to maintain the average revenue per ton constant, in real terms, at the 1984 level. Under the project, COLPUERTOS' financial viability would be supported by staff reduction targets and by a revenue covenant, as spelled out in paragraph 3.32 (c) through (e).

3.30 Projected consolidated income statements, based upon assumptions of paragraph 3.28 and Appendix A of Annex 2, are shown in Table 4 of Annex 2. A summary follows:

^{1/} Although transfer to an independent pension fund would not be completed until the end of 1985, for purposes of the financial projections, it was assumed that pensions would be recorded as if the fund was in operation from the beginning of 1985.

Projected Income Statements
(Current Col\$ million)

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Operating Revenues	20,304	26,494	31,288	36,626	44,713	54,703
Working Expenses ^{1/}	11,104	13,534	16,128	19,176	22,751	27,066
Depreciation	271	404	718	1,043	1,150	1,099
Operating Income (Loss)	8,929	12,556	14,442	16,407	20,812	26,538
Financial Expenses	571	723	902	1,294	1,817	2,537
Other Non-Operating Expenses ^{2/}	5,741	7,596	9,057	10,892	13,097	15,830
Net Income (Loss)	2,617	4,237	4,483	4,221	5,898	8,171
Working Ratio	55	51	52	52	51	49
Operating Ratio	56	53	54	55	53	51

The transferring of pension payments to a separate pension fund would have a significant favorable impact upon COLPUERTOS' operating results; the working ratio would improve from 83 in 1984 to 55 in 1985, and the operating ratio from 84 to 56 in the same years. In addition, as a result of cost reductions which would arise from increasing productivity to be achieved under the project, COLPUERTOS' projected financial performance would improve steadily until 1990. Indeed, a major efficiency gain achieved under the project would be a reduction in the average cost per ton of 24%, in real terms, between 1984 and 1990.

3.31 The sources and application of funds projections for 1985-1990 (Annex 2, Table 6) indicate that COLPUERTOS, after meeting all cash operating expenses, would generate the counterpart funds required for the project and that it could make annual special contributions to the independent pension fund in an amount equivalent to Col\$ 6,000 million in constant 1986 prices. COLPUERTOS' balance sheet projections for 1985-1990 (Annex 2, Table 5) show a continuing improvement in COLPUERTOS' equity position, as a result of the projected profits, with equity turning positive by 1986. The revaluation of fixed assets, to be carried out during the project period, would further increase COLPUERTOS' equity.

3.32 During negotiations, the following agreements were reached with regard to COLPUERTOS' financial viability:

^{1/} Include employer's regular contribution to funding of future pension, based upon a percentage of the worker's salary.

^{2/} Includes a special annual contribution to fund accrued pension obligations.

- (a) in order to determine the funding requirements of the new pension fund, in addition to the actuarial studies referred to in 3.24 (a), COLPUERTOS would regularly update records and other information on its pension fund and other related obligations to serve as a basis, given the agreed benefit structure, for defining optimum funding mechanisms from the various sources, as well as pace of the required funding;
- (b) in case the pension fund, as provided in the Proposed Law referred to in 3.24 (b), is not established in a timely manner, COLPUERTOS and the Government would put into effect, no later than June 30, 1986, arrangements satisfactory to the Bank providing for alternative mechanisms to ensure that the former's contribution toward retirement benefits will not exceed the amount that would have been required, had the proposed law been enacted;
- (c) not later than December 31, 1987, COLPUERTOS would carry out and complete a study on the rationalization of staff, taking into account COLPUERTOS' stated policy relating to labor assignment, operational requirements and traffic forecasts and, promptly thereafter, would implement the conclusions and recommendations of such study;
- (d) COLPUERTOS would refrain from hiring new personnel until it achieves, through attrition, a reduction of the number of staff to levels compatible with the optimal size of the plant of personnel, this level to be specified by the staff rationalization study referred to in (c) preceding (targets for staff levels, in each port, in the period 1985-1990, are included in Appendix B to Annex 2); and
- (e) COLPUERTOS would take all measures necessary, including changes in its rates, to provide, for each fiscal year, funds from internal sources equivalent to at least 35% of the annual average capital expenditures incurred, or expected to be incurred, for that year, the previous fiscal year and the next following fiscal year after meeting cash operating expenses, debt service, increases in working capital and other significant cash outflows excluding capital expenditures and including, starting in 1986, fixed annual special contributions to the independent pension scheme to be adopted in an amount equivalent to Col\$ 6,000 million, to be adjusted annually thereafter by the variation in Colombia's national consumer price index, until COLPUERTOS' share of accrued pension liabilities is covered.

F. Economic Justification and Benefits

3.33 The project is designed to reduce transport costs through the rehabilitation of existing facilities and the expansion of capacity to meet the demands of expected levels of traffic. The project is made up of three major components: port infrastructure rehabilitation and improvements, port

equipment acquisition, and technical assistance and training. In the assessment of the project's economic viability, each major component was analyzed separately by port. The technical assistance and training component was not analyzed separately, but its cost was included in the overall project economic analysis. A basic variable in the analysis was the traffic forecast given in Annex 1. Annex 6 gives details of the economic analysis of each component.

3.34 At present, about 30% of foreign seaborne commerce is transported by Colombian flag vessels and 70% by foreign vessels. Most of the ship time benefits from the project derived from traffic transported in foreign vessels would be passed on to the Colombian economy. Without the project, foreign liners would impose surcharges in order to recover costs of excessive ship service hours. With the project, these surcharges would be avoided. In the economic analyses, only 50% of the benefits from reduced ship waiting and service time of foreign liner vessels have been included, which is conservative. All other benefits would accrue to the Colombian economy.

3.35 The traffic forecasts are based upon the latest World Bank forecasts of GDP, import and export growth. These projections indicate that GDP is expected to grow by 2.5% in 1985 and 5% thereafter. The value of exports is expected to grow at an average annual rate of 10% and imports 3% p.a. over the 1984-1992 period. Expected movements of exports and imports were applied, by commodity, to determine expected cargo volumes. Allocation of traffic to each of the project ports was based upon past trends, modified as appropriate to take into account expected changes in technology and improvements in port efficiency due to the project (Annex 1 and Table 2.2).

(1) Port Infrastructure Rehabilitation and Improvements

3.36 The project provides for the rehabilitation of quays at the ports of Buenaventura, Cartagena and Santa Marta. In addition, port infrastructure improvements would include: (a) extension of the transit shed roof and paving of cargo handling areas and road access at Buenaventura; and (b) improvements to cargo handling yards at Cartagena. Together, these components represent 54% of total project costs.

3.37 Quay Repairs (31% of Project Costs). Quay deterioration has progressed to a point where, if the quays at Buenaventura, Cartagena and Santa Marta are not rehabilitated, berth capacity will decrease dramatically and seaborne traffic will, by necessity, be handled by a less efficient lighterage system. Quantified benefits from this component comprise avoidance of lighterage-related costs, including the cargo double handling costs and the cost of cargo losses. The estimated economic rates of return for these works are 86% in Buenaventura, 63% in Cartagena and 38% in Santa Marta.

3.38 Buenaventura Paving and Roof Extension (10% of Project Costs). Cargo storage and circulation problems in Buenaventura result from excessive precipitation, unpaved open storage areas and narrow, poorly maintained port roads. The main port road providing access to all facilities is overcrowded and is used for loading, unloading and temporary storage; its riding surface is too rough for normal speed operations and safe movement of port cargo. Quantified benefits from the paving works are reductions in damages to cargo

handling equipment and cargo. Benefits from extensions to transit shed roofs are reduced ship service and truck waiting times through avoidance of work stoppage during inclement weather. The estimated economic rate of return for this component is 36%.

3.39 Cartagena Cargo Handling Yard Improvements (9% of Project Costs). At Cartagena, the project provides for tearing down of three old sheds and repaving the entire area, as well as for the construction of a new shed to replace those demolished, and the paving or repaving of areas to meet the storage needs of breakbulk cargo. These works will shorten distances between the ship and the storage areas, improve access to the loading and unloading areas, increase safe speed limits and generally facilitate ship service operations. The project results in an estimated economic rate of return of 27%.

(ii) Cargo Handling Equipment

3.40 The project provides for acquisition of container handling equipment and heavy load equipment for general cargo (22% of project costs). The types and amounts of equipment required were determined on the basis of an analysis of current port equipment available at each port from both COLPUERTOS and the private sector, equipment requirements assuming the introduction of more efficient handling methods, and forecast traffic flows. An analysis was also made of the merits of COLPUERTOS owning and operating the equipment versus renting equipment from the private sector. This analysis concluded that COLPUERTOS should take advantage of capacity in the private sector to provide light cargo handling equipment. COLPUERTOS could efficiently provide the container and heavy load general cargo equipment, assuming that the productivity improvements contemplated under the project are achieved. Because this component's viability is dependent upon improvements in productivity, the acquisitions would be divided into two tranches. Bank financing of the second tranche would depend upon achievement of productivity and traffic targets (para 3.07). Quantified benefits from the cargo handling component are reductions in ship service time and in cargo handling costs. The estimated economic rates of return for container handling equipment are for Buenaventura 32%, Cartagena 22%, Barranquilla 32%, and Santa Marta 29%. The estimated economic rates of return for the heavy general cargo handling equipment are 16% at Buenaventura, 29% at Cartagena, 38% at Barranquilla and 25% at Santa Marta.

(iii) Tugboats

3.41 COLPUERTOS tugs are old, with engines which require frequent and costly repairs. Four used tugs will be purchased under the project (11% of project costs). Because the tug is an integral part of the efficient and safe operation of a port, its costs and benefits cannot readily be isolated. As such, a separate economic rate of return was not calculated, and, instead, the cost of tug acquisition was included in the overall economic analysis of the project. The tug analysis focused upon the determination of the most economic alternative: acquisition of used or new tugs. This analysis indicates that the acquisition of used tugs is the least cost alternative.

(iv) Overall Project Economic Justification

3.42 The overall economic evaluation of the project, including the costs associated with the expected institutional improvements (technical assistance and training) and the tugs is estimated at 38%. The economic rates of return at the individual ports are estimated at 56% at Buenaventura, 39% at Cartagena, 15% at Barranquilla, and 33% at Santa Marta (Table 3.4). Ship service time savings are a principal benefit for several of the project components. In order to avoid double counting, only ship service time savings associated with the equipment procurement program were considered in the calculation of the overall economic rates of return. In addition, only ship waiting time benefits associated with the quay improvements were considered for the overall analysis.

G. Project Risks and Sensitivity Analysis

3.43 The main risks associated with the project are those of shortfalls in forecast traffic levels and COLPUERTOS' failure to achieve productivity targets. While the civil works are not sensitive to these risks, these associated with the port equipment component are minimized by concentrating on replacement of obsolete items. In addition, a mid-term review would be made to determine if traffic and productivity improvements warrant continuation of the program at the same pace as that currently planned. Even if no productivity increases are realized under the project, and the benefit is limited to avoidance of declines in productivity without the project, the container handling equipment program would be viable, with estimated economic rates of return varying from 12% at Cartagena to 18% at Buenaventura.

3.44 Of the heavy load general cargo equipment, the Buenaventura acquisition program is the most sensitive to shortfalls in benefits, partly because of the high cost of the 40-ton crane, in comparison with the relatively modest heavy load traffic growth forecast for that port. Nevertheless, availability of at least one such crane on the Pacific Coast is considered essential. Benefits would have to decrease by 11% at Buenaventura, as compared to 43% at Cartagena, 50% at Barranquilla and 38% at Santa Marta, for the estimated economic rate of return on the general cargo equipment to drop to 12%. The risk of shortfalls in benefits due to lower-than-expected traffic at Buenaventura is not considered great since the traffic for general cargo which would use the equipment was assumed to grow at a modest 2% p.a. over the project life.

3.45 Another risk relates to the timely establishment of a new pension system, either through the enactment of the Proposed Law submitted to the Congress or through alternative mechanisms, which would liberate COLPUERTOS from the heavy financial burden imposed by the current system. The Government and COLPUERTOS have already shown their commitment to this objective by pursuing actively, through negotiations with the port labor unions, the necessary changes to legally binding labor agreements, and by initiating the legal process to establish a pension system self-sufficient in the medium term and financially separated from COLPUERTOS.

IV. PROJECT IMPLEMENTATION DETAILS

A. Cost Estimates, Finance and Disbursements

4.01 A summary of the estimated costs for the proposed project components is given on the following page, and detailed cost estimates are given in Tables 4.1 to 4.7. Cost estimates of the civil works components are based upon final engineering. Equipment costs estimates are based upon average current market prices, including attachments and spare parts. A list of existing and proposed equipment is given in Table 3.1. Technical assistance cost estimates reflect manpower requirements obtained from terms of reference; cost estimates for engineering services and studies are based upon the cost of similar studies in other Bank projects, and training cost estimates are based upon a tentative training program developed by the mission (Annex 5). The financial plan for the project is given in paragraph 4.07. All cost estimates are based upon September 1985 prices.

4.02 Disbursements of the loan would be made against:

- (a) 48% of total expenditures of civil works;
- (b) 100% of CIF costs for equipment procured from foreign sources; in the case of equipment procured from domestic sources, 100% of ex-factory prices if the value added in Colombia represents at least 20% of the ex-factory price, and 80% of the cost for imported equipment procured domestically;
- (c) 79% of costs for professional services, including supervision of construction, technical assistance and training; and
- (d) 100% of foreign exchange costs for fellowships and work visits abroad.

4.03 Bank funds are expected to be disbursed over a six-year period (Table 4.8), broadly in line with the standard profile for port projects in the region, which indicate that a six-and-a-half-year period is required to obtain full disbursement. Advance procurement of some of the project items, namely civil works and equipment, is in progress, and retroactive financing limited to US\$4.0 million would be allowed for expenditures incurred in relation to these project items after January 1, 1985 and before loan signature.

B. Execution and Procurement

4.04 The proposed project would be implemented by COLPUERTOS with the support of PIU (Annex 4) and consultants. Procurement procedures (para 4.05) were defined by grouping components of the rehabilitation program by port and type of construction works included, such as quay repairs, paving and repaving including related utilities, and shed construction. The project implementation schedule is given on Chart 27106.

4.05 Local competitive bidding (LCB) procedures to be used by COLPUERTOS (para 3.16) are similar to those used by other Government agencies for which

COLOMBIA
PORT REHABILITATION PROJECT
SUMMARY ACCOUNTS COST SUMMARY

	(Col. Peso Million)					(US\$ '000)				
	Local	Foreign	Total	% Total		Local	Foreign	Total	% Total	
				% Foreign Exchange	% Base Costs				% Foreign Exchange	% Base Costs
A. Civil Works	1,839.9	1,695.4	3,535.3	48	48	12,099.9	11,149.4	23,249.3	48	48
B. Equipment	-	2,614.5	2,614.5	100	35	-	17,194.1	17,194.1	100	35
C. Institutional Development										
1. Technical Assistance	65.4	250.8	316.2	79	4	430.1	1,649.1	2,079.2	79	4
2. Fellowships and Work Visits Abroad	-	105.3	105.3	100	1	-	692.3	692.3	100	1
3. Courses and Seminars (Consultants)	24.9	95.5	120.4	79	2	163.8	628.2	792.1	79	2
Sub-Total Institutional Development	90.3	451.6	541.9	83	7	593.9	2,969.7	3,563.6	83	7
D. Project Supervision and Studies										
1. Supervision of Construction	30.8	118.2	149.0	79	2	202.7	777.5	980.2	79	2
2. Engineering Studies	29.6	113.4	143.0	79	2	194.6	746.0	940.6	79	2
3. Port Studies	82.5	316.4	399.0	79	5	542.7	2,081.1	2,623.8	79	5
Sub-Total Project Supervision and Studies	142.9	548.1	691.0	79	9	940.0	3,604.6	4,544.6	79	9
Total BASELINE COSTS	2,073.2	5,309.6	7,382.8	72	100	13,633.8	34,917.8	48,551.6	72	100
Physical Contingencies	207.3	426.4	633.7	67	9	1,363.4	2,804.0	4,167.4	67	9
Price Contingencies	1,177.2	2,688.7	3,865.9	70	52	2,216.7	5,024.3	7,241.1	69	15
Total PROJECT COSTS	3,457.7	8,424.6	11,882.3	71	161	17,213.9	42,746.1	59,960.1	71	123

October 21, 1985 14:40

Source: Mission estimates

Bank financing is involved. Specifically, during appraisal, COLPUERTOS agreed, in principle, with the Bank's recommendations resulting from the review of LCB in Colombia, as follows: (a) foreign contractors should be allowed to participate in LCB; the association with local firms should be on a voluntary basis; (b) awards would be to lowest evaluated bidders; and (c) bids of imported equipment would be evaluated on a CIF basis, taking into account the freight costs quoted freely by each bidder. LCB procedures would be followed for civil works items with an estimated cost of US\$0.6 million equivalent or less, in a manner consistent with normal Bank practice. All contracts for civil works and procurement of goods with a value of more than US\$200,000 would be subject to prior review and approval by the Bank. Contracts for less than US\$200,000 would be reviewed after the award. Procurement of second-hand tugboats, included in the proposed project, would be carried out through international comparative shopping procedures satisfactory to the Bank, and contract award would require an independent technical assessment of the physical conditions and adequacy of the selected boats. These agreements were confirmed at negotiations. Procurement arrangements for items to be financed under the proposed loan, excluding physical and price contingencies, are summarized as follows:

<u>Project Element</u>	<u>US\$ Million 1/</u>			
	<u>Procurement Procedures</u>			<u>Total Cost</u>
	<u>ICB</u>	<u>LCB</u>	<u>Other</u>	
Civil Works	27.3 (13.1)	2.2 (1.0)	- -	29.5 (14.1)
Equipment	14.1 (14.1)	0.8 (0.8)	5.6 (5.6)	20.5 (20.5)
Technical Assistance and Studies	- -	- -	9.1 (7.2)	9.1 (7.2)
TOTAL	41.4 (27.2)	3.0 (1.8)	14.7 (12.8)	59.1 (41.8)

1/ Excluding fellowships and work visits abroad.

Note: Figures in () correspond to the foreign exchange cost component that would be financed by the Bank.

4.06 Supervision of civil works would be carried out by COLPUERTOS assisted by consultants acceptable to the Bank. Inspection of equipment during fabrication would not be required since all equipment should be suppliers' standard manufacture and widely used and tested around the world. Final acceptance tests would be carried out directly by COLPUERTOS.

4.07 Details of the proposed financing plan for the project (1985-1989) are given in the sources and application of funds statement in Annex 2. A summary follows:

	US\$ million			
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>%</u>
Funds Required:				
Proposed project	17.2	42.8	60.0	78
Debt service during period	-	17.3	17.3	22
<u>Total Required</u>	<u>17.2</u>	<u>60.1</u>	<u>77.3</u>	<u>100</u>
Funds Available:				
Funds generated internally by				
COLPUERTOS	34.5	-	34.5	45
IBRD loan	-	42.8	42.8	55
Government	(17.3)	17.3	-	-
<u>Total Available</u>	<u>17.2</u>	<u>60.1</u>	<u>77.3</u>	<u>100</u>

The amounts include physical and price contingencies. The terms and conditions regarding interest rate, amortization period, grace period and service charges are presented in Annex 2, Appendix A. The Bank would finance 71% of the project cost equivalent to 100% of the estimated foreign cost. COLPUERTOS would contribute, from its internally generated funds, for the local cost. COLPUERTOS would also contribute, from its internal cash generation, for debt service requirements; the foreign exchange required for this purpose would be obtained from the Government.

C. Special Account

4.08 In order to reduce the interval during which COLPUERTOS would finance the Bank's share of project costs with its own resources, the Bank would make advance payments from the loan account into a Special Account for an amount, in US\$, of 4.0 million, which would be opened in the Banco de la Republica and would be available for reimbursing COLPUERTOS for the Bank's share of the project cost. COLPUERTOS would be entitled to make withdrawals from the Special Account for payments incurred on Bank-approved contracts. The Bank would replenish the Special Account upon request of the borrower on the basis of statements of expenditures of the withdrawals made. Supporting documentation of withdrawals from the Special Account would be examined on a routine basis by regular project supervision missions. Disbursements from the loan would be made on the basis of certified statements of expenditures for local expenditures where the contractual values are less than the equivalent of US\$200,000, and for foreign expenditures where the contractual values are less than the equivalent of US\$20,000. The corresponding supporting documentation would be verified on a routine basis during the supervision process. At negotiations, agreement was reached on the terms and conditions of the Special Account.

4.09 Under the project, the Bank would require the Borrower to have the Special Account for each fiscal year audited, in accordance with appropriate auditing principles, consistently applied by independent auditors acceptable to the Bank. COLPUERTOS would forward copies of the accounts and of the audit report to the Bank, no later than four months after the close of the fiscal year. At negotiations, the auditing procedures were confirmed and agreed upon.

D. Project Monitoring, Semi-Annual Consultations and Mid-Term Review

4.10 With regard to project monitoring, COLPUERTOS would prepare quarterly reports providing information on the progress of procurement; the execution of the project; the status of each contract related to Bank-financed components; the status of disbursement requests and the schedule of estimated withdrawals of the loan proceeds. The quarterly reports would include operational data to assess the progress in the achievement of established productivity targets. COLPUERTOS would prepare reports on items detailed in Annex 7. The achievement of Productivity Targets would be specifically examined by the Bank and COLPUERTOS in early 1988 (Annex 3, Table 2). This would be assessed by COLPUERTOS and the Bank during a mid-term review that would take place in early 1988. These matters were agreed by COLPUERTOS at negotiations.

4.11 Considering the complexity of all matters that would be dealt with during the implementation of the project, frequent and intensive monitoring through Bank supervision is crucial. At least three supervision missions per year are considered necessary. The financial targets and the targets agreed at negotiations and the establishment of a new pension system would be reviewed every six months so that compliance with COLPUERTOS' and the Government's commitments is closely followed.

4.12 Another important aspect upon which achievement of the project objectives would depend is the effectiveness of the technical assistance and training elements that would be included in the project; the PIU that has been established by COLPUERTOS would have to prepare, in addition to the tables included in the quarterly report, a separate detailed report on the progress of consultant services in each of the areas described in paragraph 3.08 (e) and (f).

4.13 Upon completion of the proposed project, COLPUERTOS would prepare a Project Completion Report to assess the success in the implementation of the project and would carry out a general evaluation. During negotiations, assurances were obtained that, not later than six months after project completion, COLPUERTOS would prepare a Project Completion Report, satisfactory to the Bank, describing the implementation of the project, the achievement of financial and operational goals and the lessons learned from past experience.

V. AGREEMENTS REACHED AND RECOMMENDATION

5.01 During negotiations, agreement was reached with COLPUERTOS on the following:

- (a) to review with the Bank any investment item, not included in the project, resulting in a capital expenditure in excess of US\$2 million. Notwithstanding, COLPUERTOS would not commit itself to any such capital expenditure unless it were economically, technically and financially justified (para 2.25);
- (b) the scope and timing of professional services (para 3.08);

- (c) to prepare with the assistance of the training advisers and submit to the Bank an integrated four-year training program as a condition for loan effectiveness (and implement it with SENA and the advisory services' support) [para 3.09 (a)];
- (d) to select courses abroad, candidates for fellowships and instructors/experts, for courses/seminars in Colombia, not later than June 1, 1986 [para 3.09 (b)];
- (e) additional required light cargo handling equipment to be rented by COLPUERTOS from private equipment rental companies, unless the enterprise is able to reduce the operating cost of such equipment to levels comparable with those available in the private sector (para. 3.11);
- (f) to take the necessary actions to implement the technical assistance recommendations for the improvement of port efficiency and achievement of the productivity targets (para 3.14);
- (g) to carry out an inventory and revaluation of its fixed assets by March 31, 1987 and at least every year thereafter [para 3.21(b)];
- (h) to have its accounts and financial statements for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent external auditors acceptable to the Bank, in addition to the audit carried out by the Controller General of the Republic [para 3.21(d)];
- (i) to regularly update records and information on its pension fund and other related obligations necessary for defining optimum funding mechanisms [para 3.32 (a)];
- (j) to take all actions necessary to enable the Government to attain the arrangements for the handling of pension liabilities, should the Proposed Law for the establishment of the pension fund not be enacted in a timely manner [para 3.32 (b)];
- (k) to carry out and complete, by December 31, 1987, a study for the rationalization of staff in a or an e with operational requirements and traffic forecasts [para 3.32 (c)];
- (l) to continue reducing its staff by attrition until it achieves levels compatible with the optimal size of the plant of personnel [para 3.32 (d)];
- (m) to take all measures necessary, including changes in its rates, to provide, for each fiscal year, funds from internal sources equivalent to at least 35% of its annual average capital expenditures incurred for that year, the previous fiscal year and the next following fiscal year, after meeting cash operating expenses, debt service, increases in working capital and other significant cash outflows excluding capital expenditures and including, starting in 1986, fixed special annual contributions to the independent pension scheme to be adopted [para 3.32 (e)];

- (n) to carry out procurement of goods and services in accordance with the corresponding Bank guidelines and LCB procedures, satisfactory to the Bank (para 4.05);
- (o) to examine together with the Bank, the achievement of Productivity Targets during a mid-term review that would take place in early 1988 (para 4.10); and
- (p) to prepare a Project Completion Report not later than six months after project completion (para 4.13).

5.02 During negotiations, agreement was reached with COLPUERTOS and the Government on the following:

- (a) to establish a technical committee with representatives of MOPT, DNP and COLPUERTOS for the supervision and coordination of the feasibility study for the Pacific Coast port expansion and the other studies for which COLPUERTOS would be responsible (para 3.17);
- (b) by June 30, 1988, and based upon the results of the cost accounting studies, COLPUERTOS to restructure tariffs to reflect the cost of services rendered [para 3.21 (c)];
- (c) not later than June 30, 1987, to implement the recommendations of the study on the dredging services required, including institutional arrangements to permit cost recovery for such operations (para 3.25);
- (d) terms and conditions of the Special Account (para 4.08); and
- (e) auditing procedures for the Special Account (para 4.09).

5.03 A condition for loan effectiveness would be the preparation of an integrated four-year training program [para 3.09 (a)].

5.04 Subject to the above, the project provides a suitable basis for a Bank loan of US\$42.8 million. The terms would be 17 years with a four-year grace period.

October 1985

TABLE 2.1

COLOMBIA

PORTS REHABILITATION PROJECT

Summary Port Traffic in 1983 and 1984 a/
(000 tons)

<u>TRAFFIC/PORT</u>	<u>1983</u>						<u>TOTAL</u> <u>1984</u>
	<u>BUENAVENTURA</u>	<u>CARTAGENA</u>	<u>BARRANQUILLA</u>	<u>SANTA MARTA</u>	<u>TUMACO</u>	<u>TOTAL</u>	
<u>Foreign</u>							
Public	2,453.9	708.0	576.9	386.5	-	4,125.3	3,872.0
Private	-	5,212.5	716.7	-	-	5,929.2	5,793.0
<u>TOTAL</u>	<u>2,453.9</u>	<u>5,920.5</u>	<u>1,293.6</u>	<u>386.5</u>	<u>-</u>	<u>10,054.5</u>	<u>9,665.0</u>
<u>Coastal</u>							
Public	313.1	0.3	14.2	-	-	327.6	n/a
Private	-	2,162.3	239.3	-	682.4	3,084.0	n/a
<u>TOTAL</u>	<u>313.1</u>	<u>2,162.6</u>	<u>253.5</u>	<u>-</u>	<u>682.4</u>	<u>3,411.6</u>	<u>n/a</u>
<u>River</u>							
Public	-	114.8	7.5	-	-	122.3	n/a
Private	-	1,255.7	242.7	-	-	1,498.4	n/a
<u>TOTAL</u>	<u>-</u>	<u>1,370.5</u>	<u>250.2</u>	<u>-</u>	<u>-</u>	<u>1,620.7</u>	<u>n/a</u>
<u>GRAND TOTAL</u>							
Public	2,767.0	823.1	598.6	386.5	-	4,575.2	n/a
Private	-	8,630.5	1,198.7	-	682.4	10,511.6	n/a
<u>TOTAL</u>	<u>2,767.0</u>	<u>9,454.6</u>	<u>1,797.3</u>	<u>386.5</u>	<u>682.4</u>	<u>15,086.8</u>	<u>n/a</u>

a/ Does not include private ports outside COLPUERTOS' jurisdiction.

Source: COLPUERTOS

December 1984

COLOMBIA

PORTS REHABILITATION PROJECT

Project Ports: Actual and Forecast Public Terminal Traffic, 1978-2000
(Thousands tons)

PORT	ACTUAL							FORECAST							
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000
BUENAVISTA															
Imports	1250	1400	1762	1600	1919	1671	1666	1401	1379	1370	1372	1301	1391	1359	1063
Exports	681	886	906	677	770	783	620	623	640	650	679	701	726	798	940
<u>Total traffic</u>	<u>1909</u>	<u>2494</u>	<u>2668</u>	<u>2282</u>	<u>2693</u>	<u>2454</u>	<u>2094</u>	<u>2026</u>	<u>2019</u>	<u>2026</u>	<u>2051</u>	<u>2002</u>	<u>2117</u>	<u>2154</u>	<u>2011</u>
CARTAGENA															
Imports	447	504	555	632	543	502	363	365	341	331	364	377	391	457	732
Exports	142	176	191	130	123	205	245	279	299	322	331	300	436	331	794
<u>Total Traffic</u>	<u>589</u>	<u>680</u>	<u>746</u>	<u>610</u>	<u>666</u>	<u>707</u>	<u>608</u>	<u>644</u>	<u>640</u>	<u>653</u>	<u>695</u>	<u>677</u>	<u>827</u>	<u>782</u>	<u>1526</u>
BOGOTILLA															
Imports	413	368	410	530	400	397	440	431	434	459	471	477	492	593	700
Exports	60	32	46	36	40	37	40	41	46	33	62	71	83	116	194
<u>Total Traffic</u>	<u>473</u>	<u>400</u>	<u>456</u>	<u>566</u>	<u>440</u>	<u>434</u>	<u>480</u>	<u>472</u>	<u>480</u>	<u>492</u>	<u>533</u>	<u>548</u>	<u>575</u>	<u>709</u>	<u>894</u>
SANTA MARTA															
Imports	491	511	524	360	320	299	307	293	332	385	430	476	514	594	709
Exports	329	383	382	253	201	170	236	252	237	263	270	276	283	307	330
<u>Total Traffic</u>	<u>820</u>	<u>894</u>	<u>906</u>	<u>613</u>	<u>521</u>	<u>469</u>	<u>543</u>	<u>545</u>	<u>569</u>	<u>648</u>	<u>700</u>	<u>752</u>	<u>797</u>	<u>901</u>	<u>1039</u>
TOTAL COLPUERTOS TRAFFIC	3791	4483	4924	4091	4612	4092	3873	3829	3968	4069	4199	4304	4304	5132	6286
IMPORTS	2609	3100	3439	2967	3370	2899	2726	2632	2726	2750	2837	2911	2900	3403	4012
EXPORTS	1182	1383	1485	1124	1242	1293	1147	1197	1242	1296	1362	1433	1514	1729	2274

Source: COLPUERTOS and mission estimates.
August 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Existing 1/ and Proposed Equipment

<u>Equipment Description</u>	<u>BUENAVENTURA</u>			<u>CARTAGENA</u>			<u>BARRANQUILLA</u>			<u>SANTA MARTA</u>		
	<u>Existing</u>		<u>Proposed</u>	<u>Existing</u>		<u>Proposed</u>	<u>Existing</u>		<u>Proposed</u>	<u>Existing</u>		<u>Proposed</u>
	<u>COLFUERTOS</u>	<u>Private</u>		<u>COLFUERTOS</u>	<u>Private</u>		<u>COLFUERTOS</u>	<u>Private</u>		<u>COLFUERTOS</u>	<u>Private</u>	
A. <u>General Cargo</u>												
6,000 lbs. forklift trucks	54	39	-	33	55	-	63	21	-	63	-	-
15,000 lbs. forklift trucks	4	6	10	4	-1	10	6	5	6	7	-	4
Tractors	11	15	-	13	29	-	19	23	-	10	-	-
5,000 lbs. platforms	24	6	22	28	13	23	30	17	29	23	-	11
12-ton mobile cranes			-	-	-	-	-	-	-	2	-	-
16-ton mobile cranes	2	-	2	0	1	3	3	-	3	2	-	1
40-ton mobile cranes <u>6/</u>			1	-	-	1	-	-	1	-	-	1
B. <u>Container-handling</u>												
65,000 lbs. forklift trucks or equivalent <u>2/</u>	1	2	2	-	-	4	1	-	1	1	-	1
45,000 lbs. forklift trucks or equivalent <u>3/</u>	-	3	-	2	3	-	2	3	-	1	-	-
15,000 lbs. forklift trucks or equivalent <u>4/</u>	-	-	2	-	-	4	-	-	1	-	-	1
4,000 lbs. forklift trucks <u>5/</u>	-	-	5	-	-	5	-	-	-	-	-	-
5th wheel yard tractors	-	-	14	-	-	10	-	-	2	-	-	2
20' trailers <u>6/</u>	-	-	12	-	-	12	-	-	4	-	-	4
40' trailers <u>6/</u>	-	-	12	-	-	12	-	-	4	-	-	4

- 1/ Excludes equipment that has exceeded its economic life.
2/ For full containers up to 40' long.
3/ For full containers up to 20' long.
4/ For empty containers up to 40' long.
5/ For stuffing container cargo.
6/ To match 5th-wheel yard tractors.
7/ All existing 30-ton mobile cranes are in average 25-years old.

Source: COLFUERTOS

November 1984

COLOMBIA

TABLE 3.2

PORTS REHABILITATION PROJECT

Proposed List of Equipment and Procurement Schedule

Equipment Description	Year to Be Procured	NUMBER OF UNITS				Total	Unit Price US\$	Estimated Costs
		By Port						
		Buenaventura	Cartagena	Barranquilla	Santa Marta			
<u>General Cargo</u>								
15,000 lbs forklift trucks	1985-1986	2	3	1	1	7		280
	1988	8	7	5	3	23	40	920
16 ton mobile cranes	1985-1986	2	3	3	1	9		
	1988	-	-	-	-	-	180	1620
40 ton mobile cranes	1985-1986	1	1	1	1	-		
	1988	-	-	-	-	-	270	1080
3 ton trailers	1985-1986	7	5	4	-	16		80
	1988	15	18	25	11	69	5	345
<u>Container Handling</u>								
65,000 lbs. forklift trucks	1985-1986	2	3	1	1	7		2450
	1988	-	1	-	-	1	350	350
15,000 lbs. forklift trucks	1985-1986	2	2	1	1	6		270
	1988	-	2	-	-	2	45	90
4,000 lbs. forklift trucks	1985-1986	3	3	-	-	6		126
	1988	2	2	-	-	4	21	84
Yard Tractors (5th wheel)	1985-1986	7	5	2	2	16		1120
	1988	7	5	-	-	12	70	840
20' trailers	1985-1986	6	2	2	-	10		80
	1988	6	10	2	4	22	8	176
40' trailers	1985-1986	6	7	2	-	15		180
	1988	6	5	2	4	17	12	204

TABLE 3.3

COLOMBIA

PORTS REHABILITATION PROJECT

Existing COLPUERTOS' Tugboat Fleet

<u>Port</u>	<u>Boat</u>	<u>Power</u>	<u>Year of Construction</u>
Buenaventura	Rodrigo Bastidas (*)	1,200 HP	1953
	Rio Cauca (*)	1,200 HP	1953
	Rio Dagua (limited use)	240 HP	n.a.
Cartagena	Pedro Romero (*)	1,200 HP	1953
	Rio Manzanares	750 HP	n.a.
Barranquilla	Siete de Abril (*)	1,200 HP	1953
	R.H.-39.3 (river services)	374 HP	n.a.
Santa Marta	Santa Marta	600 HP	n.a.

(*) Tugboats that would be replaced under the proposed project.

Source: COLPUERTOS

November 1984

Table 3.4

COLOMBIA

PORTS REHABILITATION PROJECT

Economic Evaluation and Sensitivity Analysis

	Base Case	Switching Values		Benefits	Costs
	Economic Rate of return	Benefits	Costs	Decreased by 20%	Increased by 20%
	%	%	%	%	%
<u>Quay Rehabilitation</u>					
Buenaventura	86	-97	1,670	76	78
Cartagena	63	-93	993	56	56
Santa Marta	38	-72	249	24	24
<u>Infrastructure Improvements</u>					
Buenaventura	36	-61	141	28	31
Cartagena	27	-56	121	22	23
<u>Container Handling Equipment</u>					
Buenaventura	32	-55	122	26	27
Cartagena	22	-34	52	16	17
Barranquilla	32	-46	86	23	25
Santa Marta	29	-51	106	23	24
<u>General Cargo Handling Equipment</u>					
Buenaventura	16	-11	12	9	10
Cartagena	29	-43	75	29	22
Barranquilla	38	-50	98	28	30
Santa Marta	25	-38	61	18	20
<u>TOTAL PROJECT</u>	<u>38</u>	<u>-73</u>	<u>284</u>	<u>32</u>	<u>33</u>
Buenaventura	56	-87	546	49	50
Cartagena	39	-71	241	32	33
Barranquilla	15	-12	13	11	10
Santa Marta	33	-67	189	77	98

Source: mission estimates

October 1985

COLOMBIA
PORT REHABILITATION PROJECT
Table 1. Buenaventura
Detailed Cost Table

	Base Costs (Col. Peso Million)					Totals Including Contingencies (Col. Peso Million)					Totals Including Contingencies (US\$ '000)					Breakdown of Totals Incl. Cont (US\$ '000)						
	'85	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	Local (Excl. Duties & For. Exch. Taxes) Taxes Total			
I. INVESTMENT COSTS																						
A. CIVIL WORKS																						
Quay Repairs	41.4	156.9	156.9	156.9	-	512.0	50.5	231.6	275.4	324.9	-	892.4	306.7	1,236.3	1,332.2	1,438.8	-	4,314.0	2,233.8	2,080.2	-	4,314.0
Paving and Services	34.9	167.5	224.8	62.8	-	490.0	42.6	247.3	394.5	130.1	-	814.6	258.8	1,320.2	1,908.7	576.2	-	4,063.9	1,646.6	2,417.3	-	4,063.9
Sheds	24.3	87.2	87.2	24.3	-	222.9	29.7	128.7	153.0	50.3	-	361.7	180.1	686.9	740.2	222.8	-	1,830.0	965.9	864.1	-	1,830.0
Sub-Total CIVIL WORKS	100.6	411.6	468.8	244.0	-	1,224.9	122.8	607.6	822.9	505.4	-	2,058.7	745.6	3,243.4	3,981.1	2,237.8	-	10,207.9	4,846.2	5,361.6	-	10,207.9
B. EQUIPMENT																						
General Cargo	103.7	51.9	-	62.8	-	218.4	122.0	73.8	-	125.4	-	321.2	741.0	393.8	-	555.5	-	1,690.2	1,690.2	-	-	1,690.2
Container	168.1	23.6	-	89.6	-	281.3	197.8	33.5	-	178.8	-	410.1	1,201.3	179.0	-	791.5	-	2,171.8	2,171.8	-	-	2,171.8
Tugboats	-	103.7	103.7	-	-	207.4	-	147.5	175.4	-	-	322.9	-	787.5	848.6	-	-	1,636.1	1,636.1	-	-	1,636.1
Workshop and Trainings	18.9	-	17.3	-	-	36.1	22.2	-	29.2	-	-	51.4	134.7	-	141.4	-	-	276.2	276.2	-	-	276.2
Sub-Total EQUIPMENT	290.7	179.1	121.0	152.4	-	743.2	342.0	254.8	204.6	304.2	-	1,105.7	2,077.0	1,360.2	990.0	1,347.0	-	5,774.2	5,774.2	-	-	5,774.2
Total INVESTMENT COSTS	391.2	590.7	589.8	396.4	-	1,968.1	464.8	862.4	1,027.6	809.6	-	3,164.3	2,822.5	4,603.6	4,971.2	3,584.7	-	15,982.1	10,620.5	5,361.6	-	15,982.1
Total	391.2	590.7	589.8	396.4	-	1,968.1	464.8	862.4	1,027.6	809.6	-	3,164.3	2,822.5	4,603.6	4,971.2	3,584.7	-	15,982.1	10,620.5	5,361.6	-	15,982.1

October 21, 1985 14:39

Source: Mission estimates

COLOMBIA
PORT REHABILITATION PROJECT
Table 2. Cartesena
Detailed Cost Table

	Base Costs (Col. Peso Million)						Totals Including Contingencies (Col. Peso Million)						Totals Including Contingencies (US\$ '000)						Breakdown of Totals Incl. Cont (US\$ '000)			
																			Local (Excl. Duties & For. Exch. Taxes) Taxes Total			
	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total				
I. INVESTMENT COSTS																						
A. Civil Works																						
Quay Repairs	37.6	85.4	78.2	-	-	201.3	46.0	126.1	137.3	-	-	309.4	279.2	673.3	664.0	-	-	1,616.5	964.7	651.8	-	1,616.5
Remodelling Sectors 3 and 4	-	279.8	47.6	-	-	327.3	-	413.0	83.5	-	-	496.5	-	2,204.7	403.9	-	-	2,608.5	1,084.1	1,524.4	-	2,608.5
Remodelling Sector B	50.2	103.1	30.7	-	-	183.9	61.2	152.2	53.8	-	-	267.3	371.9	812.5	260.3	-	-	1,444.8	570.2	874.5	-	1,444.8
Services	-	-	-	17.1	25.7	42.9	-	-	-	35.5	62.9	98.4	-	-	-	157.3	254.8	412.0	217.5	194.6	-	412.0
Sub-Total Civil Works	87.8	468.3	156.4	17.1	25.7	755.4	107.2	691.3	274.6	35.5	62.9	1,171.5	651.1	3,690.5	1,328.2	157.3	254.8	6,081.8	2,836.5	3,245.3	-	6,081.8
B. Equipment																						
General Cargo	47.1	110.0	-	73.8	-	231.0	55.5	156.5	-	147.4	-	359.3	336.8	835.2	-	652.7	-	1,824.7	1,824.7	-	-	1,824.7
Container	59.7	224.7	-	154.0	-	438.4	70.3	319.6	-	307.3	-	697.2	426.6	1,706.3	-	1,360.9	-	3,493.7	3,493.7	-	-	3,493.7
Tugboat	-	103.7	103.7	-	-	207.4	-	147.5	175.4	-	-	322.9	-	787.5	848.6	-	-	1,636.1	1,636.1	-	-	1,636.1
Workshop and Training	20.4	-	18.9	-	-	39.3	24.0	-	31.9	-	-	55.9	145.9	-	154.3	-	-	300.2	300.2	-	-	300.2
Sub-Total Equipment	127.3	438.4	122.6	227.8	-	916.0	149.7	623.6	207.3	454.7	-	1,435.4	909.4	3,329.0	1,002.9	2,013.5	-	7,254.8	7,254.8	-	-	7,254.8
Total INVESTMENT COSTS	215.1	906.7	279.0	245.0	25.7	1,671.4	257.0	1,314.9	481.9	490.3	62.9	2,606.9	1,560.5	7,019.5	2,331.1	2,170.8	254.8	13,336.6	10,091.3	3,245.3	-	13,336.6
Total	215.1	906.7	279.0	245.0	25.7	1,671.4	257.0	1,314.9	481.9	490.3	62.9	2,606.9	1,560.5	7,019.5	2,331.1	2,170.8	254.8	13,336.6	10,091.3	3,245.3	-	13,336.6

October 21, 1985 14:39

Source: Mission estimates

TABLE 4.2

COLOMBIA
PORT REHABILITATION PROJECT
Table 3. Barranquilla
Detailed Cost Table

	Base Costs (Col. Peso Million)					Totals Including Contingencies (Col. Peso Million)					Totals Including Contingencies (US\$ '000)					Breakdown of Totals Incl. Cont (US\$ '000)			Parameters						
	1985	1986	1987	1988	1989	1985	1986	1987	1988	1989	1985	1986	1987	1988	1989	For.	Exch.	Taxes	Local (Excl. Duties & Taxes)	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Sum Acc.	
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
I. INVESTMENT COSTS																									
A. Civil Works																									
Emergency Power Plants	-	29.9	-	-	-	29.9	-	44.1	-	-	-	44.1	-	235.3	-	-	-	235.3	235.3	-	-	235.3	0.1	1	0
Sub-Total Civil Works	-	29.9	-	-	-	29.9	-	44.1	-	-	-	44.1	-	235.3	-	-	-	235.3	235.3	-	-	235.3			
B. Equipment																									
General Cargo	55.0	58.1	-	50.3	-	163.4	64.7	82.7	-	100.4	-	247.8	392.9	441.5	-	444.4	-	1,278.8	1,278.8	-	-	1,278.8	0.06	1	0
Containers	-	84.8	-	7.9	-	92.7	-	120.7	-	15.7	-	136.4	-	644.3	-	69.4	-	713.8	713.8	-	-	713.8	0.06	1	0
Tugboat	-	103.7	103.7	-	-	207.4	-	147.5	175.4	-	-	322.9	-	787.5	848.6	-	-	1,636.1	1,636.1	-	-	1,636.1	0.06	1	0
Workshop and Trainins	18.9	-	17.3	-	-	36.1	22.2	-	29.2	-	-	51.4	134.7	-	141.4	-	-	276.2	276.2	-	-	276.2	0.06	1	0
Sub-Total Equipment	73.8	246.7	121.0	58.1	-	499.7	86.9	350.9	204.6	116.0	-	758.5	527.7	1,873.3	990.0	513.8	-	3,904.8	3,904.8	-	-	3,904.8			
Total INVESTMENT COSTS	73.8	276.5	121.0	58.1	-	529.5	86.9	395.0	204.6	116.0	-	802.6	527.7	2,108.6	990.0	513.8	-	4,140.1	4,140.1	-	-	4,140.1			
Total	73.8	276.5	121.0	58.1	-	529.5	86.9	395.0	204.6	116.0	-	802.6	527.7	2,108.6	990.0	513.8	-	4,140.1	4,140.1	-	-	4,140.1			

October 21, 1985 14139

Source: Mission estimates

TABLE 4.3

COLOMBIA
PORT REHABILITATION PROJECT
Table 4. Santa Marta
Detailed Cost Table

	Base Costs (Col. Peso Million)						Totals Including Contingencies (Col. Peso Million)						Totals Including Contingencies (US\$ '000)						Breakdown of Totals Incl. Cont (US\$ '000)				
	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	For.	Exch.	Taxes	Local	
																						(Excl. Duties & Taxes)	Total
I. INVESTMENT COSTS																							
A. Civil Works																							
Quay Repairs 1, 2 and 3	79.3	424.6	353.8	223.6	114.6	1,195.9	96.8	626.8	621.1	463.2	280.2	2,087.9	587.6	3,345.8	3,094.5	2,050.8	1,135.5	10,124.2	4,833.3	5,290.9	-	10,124.2	
Quay Repairs 4 and 5	24.1	83.5	83.5	83.5	39.6	314.2	29.4	123.3	146.6	173.0	96.9	569.0	178.4	658.0	709.1	765.8	392.5	2,703.8	1,290.8	1,413.0	-	2,703.8	
Services	-	9.0	6.0	-	-	15.1	-	13.3	10.6	-	-	23.9	-	71.2	51.1	-	-	122.3	97.0	25.3	-	122.3	
Sub-Total Civil Works	103.3	517.1	443.3	307.1	154.3	1,525.1	126.1	763.4	778.2	636.1	377.0	2,680.8	766.0	4,075.0	3,764.7	2,816.6	1,528.0	12,950.3	6,221.1	6,729.2	-	12,950.3	
B. Equipment																							
General Cargo Containers	-	64.4	-	69.1	-	133.6	-	91.6	-	138.0	-	229.6	-	489.2	-	611.0	-	1,100.2	1,100.2	-	-	1,100.2	
Tugboat	-	78.6	-	-	-	78.6	-	111.8	-	-	-	111.8	-	596.6	-	-	-	596.6	596.6	-	-	596.6	
Workshop and Training	18.9	-	103.7	-	-	207.4	22.2	147.5	175.4	-	-	322.9	134.7	787.5	848.6	-	-	1,636.1	1,636.1	-	-	1,636.1	
Sub-Total Equipment	18.9	246.7	121.0	69.1	-	455.7	22.2	350.9	204.6	138.0	-	715.7	134.7	1,873.3	990.0	611.0	-	3,609.1	3,609.1	-	-	3,609.1	
Total INVESTMENT COSTS	122.2	763.8	564.3	376.2	154.3	1,980.8	148.3	1,114.3	982.8	774.1	377.0	3,396.6	900.8	5,948.3	4,754.8	3,427.6	1,528.0	16,559.4	9,830.2	6,729.2	-	16,559.4	
Total	122.2	763.8	564.3	376.2	154.3	1,980.8	148.3	1,114.3	982.8	774.1	377.0	3,396.6	900.8	5,948.3	4,754.8	3,427.6	1,528.0	16,559.4	9,830.2	6,729.2	-	16,559.4	

October 21, 1985 14139

Source: Mission estimates

COLOMBIA
PORT REHABILITATION PROJECT
Table 5. Institutional Development
Detailed Cost Table

	Base Costs (Col. Peso Million)					Totals Including Contingencies (Col. Peso Million)					Totals Including Contingencies (US\$ '000)					Breakdown of Totals Incl. Cont (US\$ '000)						
	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	Local (Excl. Duties & For. Exch. Taxes) Taxes Total			
I. INVESTMENT COSTS																						
A. Institutional Development																						
1. Technical Assistance																						
Financial Controls	36.1	25.6	7.5	-	-	69.3	44.1	37.8	13.2	-	-	95.1	267.9	201.7	63.9	-	-	533.5	423.2	110.4	-	533.5
Management Information Systems	33.1	10.5	9.0	-	-	52.7	40.4	15.6	15.9	-	-	71.9	245.5	93.1	76.7	-	-	405.4	321.5	83.8	-	405.4
Port Operations	49.7	31.6	10.5	-	-	91.8	60.7	46.7	18.5	-	-	125.8	368.4	249.2	89.5	-	-	707.0	560.8	146.2	-	707.0
Maintenance	57.2	34.6	10.5	-	-	102.4	69.9	51.1	18.5	-	-	139.5	424.2	272.9	89.5	-	-	786.6	623.9	162.7	-	786.6
Sub-Total Technical Assistance	176.1	102.4	37.6	-	-	316.2	215.1	151.1	66.1	-	-	432.3	1,306.1	806.8	319.6	-	-	2,432.5	1,929.4	503.1	-	2,432.5
2. Courses and Seminars (Consultants)																						
Advisory Services	6.0	7.5	6.0	6.0	-	25.6	7.4	11.1	10.6	12.5	-	41.5	44.7	59.3	51.1	55.2	-	210.3	166.8	43.5	-	210.3
Training Seminars	19.6	63.2	7.5	4.5	-	94.8	23.9	93.3	13.2	9.4	-	139.8	145.1	498.3	63.9	41.4	-	748.8	593.9	154.9	-	748.8
Sub-Total Courses and Seminars (Consultants)	25.6	70.8	13.5	10.5	-	120.4	31.3	104.5	23.8	21.8	-	181.3	189.8	557.5	115.1	96.7	-	959.1	760.7	198.4	-	959.1
3. Fellowships and Work Visits Abroad																						
Management Training	-	14.1	11.0	-	-	25.1	-	20.9	19.3	-	-	40.2	-	111.4	93.4	-	-	204.8	204.8	-	-	204.8
Conferences	-	4.7	4.7	4.7	-	14.1	-	7.0	8.3	9.8	-	25.0	-	17.1	40.0	43.2	-	120.4	120.4	-	-	120.4
Fellowships	18.9	17.3	17.3	12.6	-	66.0	23.0	25.5	30.3	26.0	-	104.9	139.8	136.2	146.8	115.3	-	538.1	538.1	-	-	538.1
Sub-Total Fellowships and Work Visits Abroad	18.9	36.1	33.0	17.3	-	105.3	23.0	53.3	57.9	35.8	-	170.1	139.8	284.8	280.2	158.5	-	863.1	863.3	-	-	863.3
Sub-Total Institutional Development	220.6	209.3	84.2	27.8	-	541.9	269.4	308.9	147.8	57.6	-	783.7	1,635.7	1,649.2	714.9	255.2	-	4,255.0	3,553.4	701.5	-	4,255.0
Total INVESTMENT COSTS	220.6	209.3	84.2	27.8	-	541.9	269.4	308.9	147.8	57.6	-	783.7	1,635.7	1,649.2	714.9	255.2	-	4,255.0	3,553.4	701.5	-	4,255.0
Total	220.6	209.3	84.2	27.8	-	541.9	269.4	308.9	147.8	57.6	-	783.7	1,635.7	1,649.2	714.9	255.2	-	4,255.0	3,553.4	701.5	-	4,255.0

October 21, 1985 14139

Source: Mission estimates

COLOMBIA
PORT REHABILITATION PROJECT
Table 6. Project Supervision of Construction and Studies
Detailed Cost Table

	Base Costs (Col. Peso Million)						Totals Including Contingencies (Col. Peso Million)						Totals Including Contingencies (US\$ '000)					
	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total	1985	1986	1987	1988	1989	Total
I. INVESTMENT COSTS																		
A. Project Supervision of Construction and Studies																		
1. Supervision of Construction																		
BUENAVENTURA	4.5	16.6	18.1	12.0	-	51.2	5.5	24.4	31.7	24.9	-	56.6	33.5	130.5	153.4	110.5	-	427.9
CARTAGENA	1.5	10.5	15.1	1.5	1.5	30.1	1.8	15.6	26.4	3.1	3.7	50.6	11.2	83.1	127.9	13.8	14.9	250.6
BARRANQUILLA	-	1.5	-	-	-	1.5	-	2.2	-	-	-	2.2	-	11.9	-	-	-	11.9
SANTA MARTA	4.5	16.6	16.6	16.6	12.0	66.2	5.5	24.4	29.1	34.3	29.4	122.8	33.5	130.5	140.6	151.0	119.3	575.8
Sub-Total Supervision of Construction	10.5	45.2	49.7	30.1	13.5	149.0	12.9	66.7	87.2	62.4	33.1	242.2	78.1	355.9	421.9	276.2	134.2	1,266.4
2. Engineering Studies																		
FINAL DESIGN SECOND PORT PROJECT	-	72.3	70.8	-	-	143.0	-	106.7	124.2	-	-	230.9	-	569.5	600.9	-	-	1,170.4
Sub-Total Engineering Studies	-	72.3	70.8	-	-	143.0	-	106.7	124.2	-	-	230.9	-	569.5	600.9	-	-	1,170.4
3. Port Studies																		
FEASIBILITY STUDY	57.2	131.0	132.5	30.1	-	350.8	69.9	193.4	232.6	62.4	-	558.1	424.2	1,032.2	1,125.1	276.2	-	2,857.7
DREDGING STUDY	-	27.1	21.1	-	-	48.2	-	40.0	37.0	-	-	77.0	-	213.6	179.0	-	-	392.6
Sub-Total Port Studies	57.2	158.1	153.6	30.1	-	399.0	69.9	233.4	269.6	62.4	-	635.1	424.2	1,245.8	1,304.1	276.2	-	3,250.2
Sub-Total Project Supervision of Construction and Studies	67.7	275.5	274.0	60.2	13.5	691.0	82.7	406.7	481.0	124.7	33.1	1,128.3	502.4	2,171.2	2,326.9	552.3	134.2	5,687.0
Total INVESTMENT COSTS	67.7	275.5	274.0	60.2	13.5	691.0	82.7	406.7	481.0	124.7	33.1	1,128.3	502.4	2,171.2	2,326.9	552.3	134.2	5,687.0
Total	67.7	275.5	274.0	60.2	13.5	691.0	82.7	406.7	481.0	124.7	33.1	1,128.3	502.4	2,171.2	2,326.9	552.3	134.2	5,687.0

October 21, 1985 14140

Source: Mission estimates

COLOMBIA
PORT REHABILITATION PROJECT
PROJECT COST SUMMARY

	(Col. Peso Million)					(US\$ '000)				
	Local	Foreign	Total	% Total		Local	Foreign	Total	% Total	
				% Foreign	% Base				% Foreign	% Base
			Exchange	Costs				Exchange	Costs	
A. Port Rehabilitation										
1. Buenaventura	643.6	1,324.5	1,968.1	67	27	4,232.7	8,710.4	12,943.1	67	27
2. Cartagena	404.0	1,267.4	1,671.4	76	23	2,657.0	8,334.9	10,991.9	76	23
3. Barranquilla	-	529.5	529.5	100	7	-	3,482.2	3,482.2	100	7
4. Santa Marta	792.3	1,188.5	1,980.8	60	27	5,210.2	7,816.0	13,026.2	60	27
Sub-Total Port Rehabilitation	1,839.9	4,309.9	6,149.8	70	83	12,099.9	28,343.5	40,443.4	70	83
B. Institutional Development	90.3	451.6	541.9	83	7	593.9	2,969.7	3,563.6	83	7
C. Project Supervision, Engineerins and Sector Studies	142.9	548.1	691.0	79	9	940.0	3,604.6	4,544.6	79	9
Total BASELINE COSTS	2,073.2	5,309.6	7,382.8	72	100	13,633.8	34,917.8	48,551.6	72	100
Physical Contingencies	207.3	426.4	633.7	67	9	1,363.4	2,804.0	4,167.4	67	9
Price Contingencies	1,177.2	2,488.7	3,665.9	70	52	2,216.7	5,024.3	7,241.1	69	15
Total PROJECT COSTS	3,457.7	8,424.6	11,882.3	71	161	17,213.9	42,746.1	59,960.1	71	123

October 21, 1985 14:40

Source: Mission Estimates

Table 4.8

COLOMBIA

PORTS REHABILITATION PROJECT

STAFF APPRAISAL REPORT

Estimated Schedule of Disbursements
(US\$ millions)

<u>FY/Quarter</u>	<u>Disbursements</u>	
	<u>Annual</u>	<u>Cumulative</u>
<u>FY1986</u>		
December 31, 1985	-	-
March 31, 1986	0.7	0.7
June 30, 1986	4.3	5.0
<u>FY1987</u>		
September 30, 1986	3.0	8.0
December 31, 1986	3.0	11.0
March 31, 1987	2.5	13.5
June 30, 1987	2.5	16.0
<u>FY1988</u>		
September 30, 1987	2.0	18.0
December 31, 1987	3.0	21.0
March 31, 1988	4.0	25.0
June 30, 1988	4.0	29.0
<u>FY1989</u>		
September 30, 1988	2.0	31.0
December 31, 1988	2.0	33.0
March 31, 1989	1.5	34.5
June 30, 1989	1.5	36.0
<u>FY1990</u>		
September 30, 1989	1.0	37.0
December 31, 1989	1.0	38.0
March 31, 1990	1.0	39.0
June 30, 1990	1.0	40.0
<u>FY1991</u>		
September 30, 1990	0.8	40.8
December 31, 1990	0.8	41.6
March 31, 1991	0.8	42.4
June 30, 1991	0.4	42.8

Source: Mission estimates

September 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Port Traffic Analysis

I. Methodology

1. Virtually all of Colombia's foreign trade volume is seaborne and moves through its public ports and private berths, and port traffic closely reflects the international economic and financial situation of the country. At present, imports are determined not by demand but by Colombia's depleted foreign reserves, low levels of foreign investment and credit. Export levels are largely dependent upon coffee and sugar; these commodities are controlled by international agreements and movements of international commodity markets, over which Colombia has little or no control.

2. Between 1980 and 1983, GDP grew at a rate of only 1% p.a., with the value of exports declining by 5% p.a. Imports declined in 1980 and 1981 and, after a recovery in 1982-1983, again in 1984. The most recent Bank economic projections indicate that GDP is expected to grow by 2.5% in 1985, and by 5% p.a. between 1986 and 1992. Exports of goods are expected to grow in terms of value by an average annual rate of 10% per annum over the 1984-1992 period, while imports will grow at a more modest 3% p.a. These projections are predicated upon the assumption that the proposed Bank Export Development Project will be implemented and that world economy conditions will be favorable. The import projections take into account projected increases in income, the income elasticity of demand for imports, and changes in the trade regime for the major import categories. For the major export commodity, coffee, the World Bank projections of price increases and increases in world demand were utilized. For the remaining export commodities, product-by-product projections of price and quantity changes were made, taking into account expected exchange rate movements.

3. The traffic forecasts used in the appraisal of the Colombia Port Rehabilitation Project were prepared by the mission in cooperation with COLPUERTOS. Forecasts were made for each of the public terminals to be rehabilitated under the project: Buenaventura, Cartagena, Barranquilla and Santa Marta. In making the forecasts, the World Bank estimates of export and import movements were applied, by commodity, to determine expected cargo volumes between 1985 and 2000. Allocation of commodity import and export traffic to each of the ports was based upon past trends, modified as appropriate to take into account expected changes in technology (particularly containerization) and improvements in port efficiency due to the project.

II. Characteristics of Port Traffic Flows

4. Colombia, through its ports, imports food, raw materials and intermediate inputs for its agriculture and industries, and exports such traditional agricultural products as coffee, bananas, sugar and molasses. Total waterborne commerce exceeded 15 million tons in 1983. This total

includes 10.5 million tons of hydrocarbons, fertilizers, cement and minerals handled by private berths and 4.6 million tons handled by the public ports. Of the traffic handled in the public ports, some 4.1 million tons were handled by the four project ports. The public port at Buenaventura on the Pacific coast handled 2.5 million tons in 1983 while, at the Atlantic ports, Cartagena handled 707,000 tons, Barranquilla 550,000 tons and Santa Marta 390,000 tons.

5. After a period of rapid growth in the late 1970s, foreign trade through the major public ports declined sharply from 4.9 million tons in 1980 to 3.8 million tons in 1984. Imports fell largely as a result of Colombia's worsening payments situation, while the decline in exports resulted mainly from the weakness in world demand for its sugar and molasses and the diversion of coal exports to private ports. The stagnation of port traffic affected some ports more than the others. Worst hit was the port of Santa Marta, whose traffic declined by over 40% as a result of diversion of traffic to other ports. On the other hand, the port of Cartagena actually registered a small increase in its traffic volume on the strength of its expanding container traffic.

6. All four project ports are fundamentally general cargo ports. Only Buenaventura and Santa Marta have mechanized facilities for bulk cargo handling and storage. Specialization, in terms of traffic flows that have developed (banana exports via Santa Marta, or barley imports via Cartagena), has been determined largely by the ports' proximity, or by inland transport links, to the plantation or processing locations.

7. Most of Colombia's seaborne commerce is, and will likely remain, with the industrialized countries of Europe, with Japan and with the United States. The country's own maritime fleet, which carried 30% of the public port cargo in 1983, has recently been modernized as a result of a major ship construction program. While the aggregate number of ships visiting Colombian ports has declined in recent years, their average size has increased.

8. Until recently, Colombian ports have been slow to containerize. In 1978, only 103,000 tons, or 4% of the general cargo traffic, were handled in containers, as compared to 468,000 tons, or 19% of the general cargo traffic, in 1984. The first full container ship service, CAROL, was established in Cartagena in 1981, followed by EUROSAL in Buenaventura in 1984. Both consortia are foreign-based and operate with self-sufficient ships, but they depend upon the ports to provide container storage and handling facilities and equipment.

III. Commodity Forecast

A. Exports

(i) Coffee

9. Coffee traffic represents about 55% of total exports through the project ports. Coffee exports through the project ports increased at an average rate of 1.9% p.a. between 1978 and 1984. During that period, coffee

traffic dropped in 1980 through 1982, then recovered by 1984. Based upon projections of world demand and prices, it is expected that coffee exports will increase at a rate of 0.6% p.a. between 1984 and 1992.

(ii) Sugar and Molasses

10. Sugar and molasses exports represent 15% and 5% of total project port exports, respectively. These commodities are handled as bulk traffic by the port of Buenaventura. Sugar exports fluctuated from a low of 124,000 tons in 1978 to a high of 293,000 tons in 1983. In 1984, these exports dropped to 167,000 tons. A modest increase of 1.3% p.a. between 1984 and 1992 is expected for this commodity. Even with this growth rate, sugar traffic will not reach the high of 1983 over the forecast period. Molasses traffic demonstrated a similar trend, dropping from 126,000 tons in 1983 to 52,000 tons in 1984. Molasses traffic is expected to remain at this lower level over the forecast period, growing to only 58,000 tons by 1990.

(iii) Banana

11. Banana traffic accounts for 6% of total export traffic handled by COLPUERTOS. Bananas are also exported through specialized facilities not administered by COLPUERTOS. All of COLPUERTOS' banana traffic is exported through the port of Santa Marta. Total Colombian banana exports between 1980 and 1984 grew at a rate of 4.7% p.a. The banana traffic through Santa Marta grew at the same pace over the period. In the traffic forecasts, it is assumed that exports through Santa Marta will continue to grow at the same rate as overall Colombian exports, or 2.8% p.a., until 1990.

(iv) General Cargo

12. Other general cargo traffic, which is made up mainly of heterogeneous goods, represents 19% of export traffic through the project ports. This traffic fluctuated between 124,000 tons and 225,000 tons from 1978 to 1984. Rapid growth in this traffic is expected as the proposed Export Development Project is implemented. Exports of other general cargo traffic are expected to grow at a rate of 10.9% p.a. between 1984 and 1990. The growth is expected to be distributed evenly among the four project ports.

B. Imports

(1) Grain

13. Wheat and other cereal imports account for about one-third of import traffic through the project ports. Wheat imports grew at an average rate of 5.8% between 1978 and 1984. Over the same period, imports of other cereals declined by 19% p.a. During this period, there was a shift in bulk grain traffic from Santa Marta and Barranquilla to Buenaventura. This trend is expected to be reversed as the large and relatively modern grain silo at Santa Marta, which 10 years ago handled nearly 300,000 tons of grain imports but which now handles less than 50,000 tons, will be reactivated outside the proposed project by the owner, the Agriculture and Cattle Marketing Institute (IDEMA). This facility has the potential for providing the most efficient

and least costly transshipment of grain to the Bogota metropolitan area. Overall, wheat imports are expected to increase at a reduced rate of growth of 2.2% p.a. until 1990, and other cereals are expected to remain at current levels. The growth in traffic is expected to be concentrated at Santa Marta, however, where grain imports are expected to increase from 53,000 tons in 1984 to 280,000 tons by 1990.

(ii) Petroleum Products

14. About 5% of import traffic is made up of petroleum products, which are mainly handled at Buenaventura. The petroleum berth is operated by ECOPETROL. The decline in petroleum product traffic, from 389,000 tons in 1982 to 120,000 tons in 1984, experienced by Buenaventura is expected to continue. It is expected that, after 1987, Colombia will no longer import petroleum products.

(iii) General Cargo

15. General cargo forecasts were developed by grouping COLPUERTOS' traffic into several categories (food, consumer durables, raw and intermediate products) and applying the corresponding World Bank projections to these for each port. General cargo import traffic grew at a rate of 5.5% p.a. between 1978 and 1980, then declined by 4% p.a. until 1984. With the revitalization of the economy, the trend is expected to be reversed, and this category of traffic is expected to grow at a rate of 2.5% p.a. at the four project ports. Despite this growth, the high of 1980 will be reached only by 1990. The smaller ports of Barranquilla and Santa Marta will experience the highest growth rates, 2.8% p.a. and 3.3% p.a. respectively. Buenaventura and Cartagena's growth rates are expected to be 2.5% and 2.0% p.a. respectively.

IV. Containerization

16. An estimate of the rate of containerization was made after the commodity projections were completed. It is estimated that 90% of coffee exports and 70% of general cargo exports will be containerized by the year 2000. Buenaventura, on the Pacific coast, is expected to follow, after a lag of about two years, a pattern similar to that which occurred in Cartagena. For Atlantic coast port import traffic, it is estimated that, by the year 2000, 75% of potential cargo will be containerized at Barranquilla and Santa Marta, and 54% at Cartagena. At Buenaventura, 54% of potential cargo will be containerized by the year 2000.

	Percent of Potential Cargo Containerized			
	<u>Barranquilla</u>	<u>Cartagena</u>	<u>Santa Marta</u>	<u>Buenaventura</u>
	(percent)			
<u>Exports</u>				
1984 (actual)	22	29	27	24
1990	40	55	51	47
1995	55	70	68	77
2000	70	85	85	82
<u>Imports</u>				
1984 (actual)	10	18	7	18
1990	17	29	15	29
1995	21	39	19	40
2000	27	54	25	54

V. Traffic Forecast by Port

17. Tables 1 to 4 of this annex present past trends in traffic at each of the four project ports and expected levels until the year 2000. Buenaventura's import traffic is expected to decline by 1.6% p.a. between 1984 and 1990 while exports are projected to increase by 2.0% p.a. The decline in overall import traffic reflects the diversion of grain to Santa Marta and the declines in petroleum product traffic. General cargo is expected to grow at a higher rate than average (2.4%).

18. At Cartagena, total traffic is forecast to increase at 3% p.a. between 1984 and 1990. Exports show the highest rate of growth, 5.8% p.a., as compared with imports, 1.5% p.a. Barranquilla's traffic is expected to increase by an average of 2.3% p.a. Exports are projected to grow by 10.9% while imports will realize a modest increase of 1.4% p.a. Santa Marta is expected to register the highest growth of the four ports, or 7.6% p.a. Most of this growth is attributed to redirection of grain imports through the Santa Marta bulk facility. Besides the rapid growth of grain, traffic increases are expected to be relatively modest at Santa Marta. Traffic other than grain is expected to increase at a rate of 1.9% p.a. between 1984 and 1990.

October 1985

COLOMBIA

ANNEX 1
Table 1

PORTS REHABILITATION PROJECT

Port Traffic Projections - Buenaventura

BUENAVENTURA

<u>COMMODITY</u>	<u>ACTUAL</u>							<u>FORECAST</u>							
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
<u>IMPORTS</u>															
<u>Dry Bulk</u>	275	376	438	374	661	685	574	522	507	498	471	439	446	563	715
<u>Wheat</u>	NA	NA	206	275	335	408	511	462	444	633	486	393	379	465	571
<u>Other</u>	NA	NA	232	99	306	277	63	60	63	65	65	66	67	98	144
<u>Liquid Bulk</u>	383	613	643	503	566	361	235	281	234	226	225	226	229	179	209
<u>Petroleum Products</u>	264	440	495	320	389	212	120	146	94	82	78	75	74	0	0
<u>Edible Oils</u>	53	80	29	21	94	63	46	44	46	47	47	48	48	53	58
<u>Other</u>	66	93	119	162	83	86	89	91	94	97	100	103	107	126	151
<u>General Cargo</u>	630	619	681	728	688	625	619	598	638	656	676	696	716	817	939
<u>Breakbulk</u>	567	583	611	681	646	575	597	468	495	496	502	503	505	488	430
<u>Container</u>	33	36	70	47	42	50	112	130	143	158	174	193	211	329	509
<u>TOTAL IMPORTS</u>	<u>1224</u>	<u>1608</u>	<u>1762</u>	<u>1605</u>	<u>1915</u>	<u>1671</u>	<u>1448</u>	<u>1401</u>	<u>1379</u>	<u>1378</u>	<u>1372</u>	<u>1381</u>	<u>1391</u>	<u>1559</u>	<u>1863</u>
<u>EXPORTS</u>															
<u>Dry Bulk</u>	124	283	266	176	293	293	167	169	172	174	177	179	182	194	203
<u>Sugar</u>	124	283	266	176	293	293	167	169	172	174	177	179	182	194	203
<u>Liquid Bulk</u>	120	138	169	192	126	126	32	53	54	55	56	57	58	60	63
<u>Minerals</u>	120	138	169	192	126	126	32	53	54	55	56	57	58	60	63
<u>General Cargo</u>	407	465	471	399	339	364	393	403	414	429	446	465	486	541	682
<u>Coffee</u>	329	393	391	318	318	327	336	340	343	347	351	355	359	364	384
<u>Other</u>	78	72	80	81	41	37	57	63	71	82	95	110	127	177	298
<u>Of which breakbulk</u>	372	424	424	360	290	314	298	315	284	281	277	268	257	119	120
<u>Of which container</u>	33	41	47	39	69	50	95	88	128	148	169	197	229	422	562
<u>TOTAL EXPORTS</u>	<u>651</u>	<u>886</u>	<u>906</u>	<u>677</u>	<u>778</u>	<u>783</u>	<u>612</u>	<u>625</u>	<u>640</u>	<u>658</u>	<u>679</u>	<u>701</u>	<u>726</u>	<u>795</u>	<u>948</u>
<u>TOTAL PORT TRAFFIC</u>	<u>1999</u>	<u>2494</u>	<u>2668</u>	<u>2282</u>	<u>2693</u>	<u>2454</u>	<u>2060</u>	<u>2026</u>	<u>2019</u>	<u>2036</u>	<u>2051</u>	<u>2082</u>	<u>2117</u>	<u>2354</u>	<u>2811</u>
<u>dry bulk</u>	399	659	704	550	954	978	741	691	679	672	648	638	628	757	918
<u>liquid bulk</u>	503	751	812	605	692	487	307	334	288	281	281	283	287	239	272
<u>breakbulk</u>	939	1007	1035	1041	936	889	805	783	781	777	779	771	762	607	350
<u>container</u>	68	77	117	86	111	100	207	218	271	306	343	390	440	751	1071

Source: COLPUERTOS¹ and mission estimates

April 1985

COLOMBIA

ANNEX 1
Table 2

PORTS REHABILITATION PROJECT

Port Traffic Projections - Cartagena

CARTAGENA

COMMODITY	ACTUAL							FORECAST							
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000
<u>IMPORTS</u>															
Dry Bulk	138	123	175	100	183	144	127	120	128	129	130	132	134	150	167
Cereals	138	123	175	100	183	144	127	120	128	129	130	132	134	150	167
Liquid Bulk	7	7	22	14	6	6	19	15	16	17	18	19	20	25	30
General Cargo	302	374	338	336	334	332	388	376	397	405	416	424	437	482	535
Breakbulk	296	361	322	297	321	271	317	292	311	310	311	311	310	292	266
Container	6	13	36	39	33	61	71	78	86	95	105	115	127	190	289
<u>TOTAL IMPORTS</u>	<u>447</u>	<u>504</u>	<u>535</u>	<u>452</u>	<u>543</u>	<u>502</u>	<u>534</u>	<u>505</u>	<u>541</u>	<u>551</u>	<u>564</u>	<u>577</u>	<u>591</u>	<u>657</u>	<u>732</u>
<u>EXPORTS</u>															
General Cargo	142	176	191	158	123	205	265	279	299	322	331	385	424	531	793
Coffee	68	105	120	89	85	115	145	147	149	150	152	154	156	157	166
Other	74	71	71	69	38	90	120	132	150	172	199	231	268	374	627
Of which breakbulk	136	167	179	105	100	122	188	167	167	170	174	179	185	149	145
Of which container	6	9	12	53	23	83	77	112	129	148	172	200	233	362	448
<u>TOTAL EXPORTS</u>	<u>142</u>	<u>176</u>	<u>191</u>	<u>158</u>	<u>123</u>	<u>205</u>	<u>265</u>	<u>279</u>	<u>299</u>	<u>322</u>	<u>331</u>	<u>385</u>	<u>424</u>	<u>531</u>	<u>793</u>
<u>TOTAL PORT TRAFFIC</u>	<u>589</u>	<u>680</u>	<u>746</u>	<u>610</u>	<u>666</u>	<u>707</u>	<u>799</u>	<u>784</u>	<u>837</u>	<u>869</u>	<u>910</u>	<u>956</u>	<u>1009</u>	<u>1188</u>	<u>1525</u>
dry bulk	138	123	175	100	183	144	127	120	128	129	130	132	134	150	167
liquid bulk	7	7	22	14	6	6	19	15	16	17	18	19	20	25	30
breakbulk	432	528	501	482	421	393	505	439	478	480	485	490	495	461	391
container	12	22	48	92	56	144	148	190	215	243	277	315	360	552	937

Source: COLPUERTOS' and mission estimates

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Port Traffic Projections - Barranquilla

BARRANQUILLA

COMMODITY	ACTUAL							FORECAST							
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1993	2000
<u>IMPORTS</u>															
Dry Bulk	33	122	139	122	191	201	149	142	146	142	143	140	142	186	243
Wheat	6	66	147	119	165	147	107	102	104	99	102	96	98	121	140
Other	27	56	12	3	26	54	42	40	42	43	43	44	44	63	93
General Cargo	380	443	439	408	417	306	301	289	308	317	326	337	330	407	465
Breakbulk	366	420	411	339	384	278	267	257	272	276	279	283	290	317	339
Container	14	23	40	49	33	28	34	32	36	41	47	54	60	90	126
<u>TOTAL IMPORTS</u>	<u>413</u>	<u>563</u>	<u>610</u>	<u>530</u>	<u>608</u>	<u>507</u>	<u>430</u>	<u>431</u>	<u>434</u>	<u>439</u>	<u>471</u>	<u>477</u>	<u>492</u>	<u>593</u>	<u>708</u>
<u>EXPORTS</u>															
General Cargo	60	32	66	56	40	37	37	41	46	30	36	62	69	116	194
Breakbulk	56	49	62	40	25	28	29	31	33	37	41	45	30	34	72
Container	4	3	4	16	15	9	8	10	13	16	21	26	33	62	122
<u>TOTAL EXPORTS</u>	<u>60</u>	<u>32</u>	<u>66</u>	<u>56</u>	<u>40</u>	<u>37</u>	<u>37</u>	<u>41</u>	<u>46</u>	<u>30</u>	<u>36</u>	<u>62</u>	<u>69</u>	<u>116</u>	<u>194</u>
<u>TOTAL PORT TRAFFIC</u>	<u>473</u>	<u>617</u>	<u>684</u>	<u>586</u>	<u>648</u>	<u>544</u>	<u>467</u>	<u>472</u>	<u>500</u>	<u>512</u>	<u>533</u>	<u>548</u>	<u>573</u>	<u>709</u>	<u>902</u>
dry bulk	33	122	139	122	191	201	149	142	146	142	143	140	142	186	243
breakbulk	422	449	473	399	409	306	296	280	305	313	320	320	340	371	411
container	18	26	32	65	48	37	42	42	49	57	68	80	93	132	248

Source: COLPUERTOS' and mission estimates

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Port Traffic Projections - Santa Marta

SANTA MARTA

COMMODITY	ACTUAL							FORECAST							
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000
IMPORTS															
Dry Bulk	188	199	254	132	82	48	53	115	146	178	217	252	280	344	423
Wheat	188	189	178	110	29	28	48	115	146	178	217	252	280	344	423
Other	0	10	76	22	53	20	5	0	0	0	0	0	0	0	0
Liquid Bulk	8	8	11	7	12	5	7	10	10	10	10	10	10	0	0
Petroleum Products	8	8	11	7	12	5	7	10	10	10	10	10	10	0	0
General Cargo	293	304	259	221	230	156	184	170	196	197	203	214	224	250	286
Breakbulk	292	300	249	211	221	145	172	156	179	177	179	185	190	201	213
Container	3	4	10	10	9	11	12	14	17	20	24	29	34	49	71
TOTAL IMPORTS	491	511	524	360	324	209	244	293	332	385	430	476	514	594	709
EXPORTS															
Dry Bulk	102	141	83	70	80	2	14	10	10	10	10	10	10	10	10
General Cargo	227	742	219	183	201	176	237	242	247	253	240	246	273	297	328
Coffee	160	164	136	111	132	93	143	143	146	148	149	151	153	155	163
Bananas	54	60	32	52	64	74	85	87	90	92	96	98	100	115	128
Other	13	18	11	20	5	9	9	10	11	13	13	17	20	27	37
Of which breakbulk	225	233	216	173	157	133	172	153	167	161	154	148	141	134	33
Of which container	2	9	3	10	44	43	65	87	90	92	96	98	100	163	293
TOTAL EXPORTS	329	383	302	253	281	178	251	252	257	263	270	276	283	307	338
TOTAL PORT TRAFFIC	820	894	826	613	605	387	495	547	609	648	700	732	797	901	1047
dry bulk	290	340	337	202	162	50	67	125	156	188	227	262	290	354	433
liquid bulk	8	8	11	7	12	5	7	10	10	10	10	10	10	0	0
breakbulk	517	533	465	384	378	278	344	311	346	338	333	333	331	333	250
container	5	13	13	20	53	54	77	101	107	112	120	127	134	212	344

Source: COLPUERTOS' and mission estimates

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Financial Evaluation

A. Introduction

1. COLPUERTOS, since 1975, has operated as a state-owned commercial enterprise with financial and administrative autonomy. Under its present organization, defined through Decree 1174 of May 14, 1980, COLPUERTOS has one Central Office in the city of Bogota and special offices in those cities which have ports. The Central Office has been assigned the following functions: (a) planning, programing and control of national port development; (b) planning and execution of investment programs; and (c) determination of the entity's administrative structure and salary scale. The responsibilities of the port terminals are defined as follows: (a) planning and execution of port operations; (b) preparation, execution and control of the port's annual budget and preparation of financial statements; (c) maintenance of installations and equipment for the normal operation of the port; and (d) personnel management based upon guidelines of the Central Office.

2. All COLPUERTOS revenues come from services provided by the ports under its jurisdiction and from charges to private wharves. The Central Office has been assigned 20% of each port's revenues plus all collections from private wharves, and each of the ports retains 80% of its own revenues. The resources of the Central Office are used to cover the costs of administering the office, the investment programs, the repair of civil works and equipment and the servicing of the external debt and of the internal debt when destined for investment. The resources of each port are used to cover the total cost of their functioning. The ports are allowed to use cash surpluses, produced after covering port operating expenses, in civil works and in equipment acquisition, provided that this is in accordance with the national port development plan and has the prior approval of the Central Office. The ports can also incur debt with local banks to cover cash operating deficits. However, all loans from foreign banks or loans from any origin to be used in investments can be obtained only by the Central Office. Although some flexibility was allowed in the distribution of revenues between the Central Office and the ports (20%-80%) until 1983, the percentages were to be enforced starting in 1984.

B. Accounting, Budgeting and Audit

3. COLPUERTOS' accounting system is computerized. Each port does its own accounting and forwards, to the Central Office in Bogota, summary copies of its monthly income accounts and balance sheet data. The information is used in Bogota to prepare consolidated statements for COLPUERTOS as a whole, which are issued every six months. The accounting system, however, needs to be further strengthened; some recording procedures such as billing, accounts receivable and payroll are not uniform for all ports, preventing a proper comparison of the ports' performance and delaying the preparation of COLPUERTOS' consolidated financial statements. Also, important accounting

functions, such as fixed assets and inventories, are still carried out manually because of the lack of adequate computer programs. Finally, the presentation of financial data needs to be improved to provide each management level with information to control its respective responsibilities effectively. It was agreed with COLPUERTOS during appraisal that the financial technical assistance under the proposed project, to be provided by consultants, would include a complete revision of the general accounting system. The scope of the consultants' work in this area, as described in terms of reference prepared by COLPUERTOS and the appraisal mission (Appendix C of this annex), would cover a revision of procedures and of the administrative organization of the accounting department as well as the preparation of manuals. The consultants would also be responsible for implementing their recommendations and training involved staff. Outline terms of reference for upgrading management information systems have also been attached to this annex (Appendix D) since they provide key data for interpretation of financial results and planning of future operations. It was agreed with COLPUERTOS that the contracting of technical assistance for the upgrading of the financial and management information systems could be made either separately or under a single contract, and, therefore, the terms of reference included as Appendixes C and D of this Annex are merely an indication of the scope of the work required.

4. Fixed assets are substantially undervalued; the last revaluation (1973) was canceled in 1974. Although the generally accepted basis of valuation of plant assets is that of costs less accumulated depreciation, the effects of inflation and rapidly changing price levels, such as in Colombia, make it necessary to review the methods of valuation. Assets should be revalued from time to time in order to avoid matching, in financial statements, monetary units of substantially different values. Revaluation should also apply to those assets which are fully depreciated but still in use. It is recommended that appreciation be recorded in accounts and that depreciation also be based on the higher written-up costs. To meet these requirements, COLPUERTOS' management has agreed to carry out an inventory and revaluation of the entity's fixed assets by March 31, 1987, and at least every year thereafter. The identification of appropriate systems for revaluing assets would be the responsibility of the financial technical assistance consultants to be contracted under the proposed project (Appendix C). COLPUERTOS would carry out the revaluation and would contract outside assistance, as necessary.

5. At present, COLPUERTOS' income accounts are classified into cost centers, or centers of responsibility. This grouping of accounts, however, does not allow for identifying costs and revenues by individual port functions or services. Since the ultimate aim of a tariff policy should be to enable the entity to generate sufficient revenues to cover its operating expenses and provide a reasonable return on the net fixed assets at the same time that it maintains a reasonable relationship between tariffs and costs of each function or service, it is imperative that COLPUERTOS institute a cost accounting system suitable for this purpose. This requirement would be fulfilled through the financial technical assistance of the proposed loan, which would cover the design and implementation of a system to identify costs of the various services provided by the ports, with the corresponding manuals and training of staff involved in this function.

6. COLPUERTOS prepares annual operating and investment budgets, on a cash basis. Each port does its own detailed revenue and expense cash budget and submits it to the Central Office, where the budgets are consolidated and approved by COLPUERTOS' Board. The investment budget is prepared by the Central Office, taking into account cash operating surpluses and each port's investment requirements. Budgeting control is strict; each port prepares monthly cash flow reports which are sent to the Central Office for review. Although the existing budgeting process is satisfactory for programming and controlling current day-to-day operations, budget preparation is long and tedious, and budgets are not issued until late (November-December) in the year prior to the budget year. It was agreed that the computerization of the budgeting process would be included in the financial technical assistance component of the proposed project. The financial consultants would also expand the scope of budgeting with a view toward covering, in addition to the entity's cash-flow position, an income and expense budget to monitor the financial performance during the year.

7. COLPUERTOS has no long-term financial planning. As a consequence, capital investments and other business decisions are not subject to comprehensive economic and financial analysis to evaluate their impact upon COLPUERTOS' finances over the long term. COLPUERTOS has agreed to strengthen its financial planning functions with the aim of formulating, periodically, comprehensive long-term financial plans simulating COLPUERTOS' economic and financial situation resulting from the combined impact of budgeted operations, proposed capital investments, settlement of existing obligations, and financing sources. In this respect, the financial technical assistance consultants to be contracted under the proposed project would be responsible for defining the functions and methods for the analysis, which would be conducted regularly by COLPUERTOS' financial staff.

8. COLPUERTOS has an internal audit unit which reports to the General Manager. The current structure and operation of this unit are based upon recommendations of a study of internal auditing carried out by Price Waterhouse in 1981. The internal audit unit, which is concerned with many aspects of accounting and finances as well as with operations and administration, pays regular visits to the ports to review the application and adequacy of internal controls and procedures in the above-mentioned areas. Although the internal audit system is generally satisfactory, the results are, many times, hampered by the complexity of the existing information systems and procedures. It is therefore expected that the proposed financial technical assistance would substantially facilitate the internal audit functions.

9. COLPUERTOS' external audit is performed by the office of the Controller General of the Republic of Colombia; the external auditors produce annual audit reports on COLPUERTOS' financial statements. Although these reports include some recommendations for improvement in accounting practices and internal control, they lack the analytical scope of a commercial audit. It was discussed and agreed with COLPUERTOS that, in addition to the audit of the Controller General, COLPUERTOS would hire independent external auditors acceptable to the Bank.

C. Tariffs and Costs

10. COLPUERTOS' existing tariffs, which are applied uniformly to all ports, bear no relationship to the cost of providing each port service. First, in the case of charges to vessels and charges for cargo handling, lump sum charges are applied instead of separate charges for each individual service provided. Second, tariffs are set arbitrarily to cover the overall costs of the entity without taking into account the specific cost of each service in each port. Third, some tariffs are denominated in local currency - tariffs on exports - and others in US dollars - tariffs on imports and tariffs to international vessels; therefore, exchange rate movements affect these tariffs differently. COLPUERTOS has not raised tariffs since mid-1980; consequently, only those tariffs denominated in US dollars have kept pace with the depreciation of the domestic currency. As a result of these three factors, the price of each service is not related to its cost. Thus, some services are taxed implicitly to subsidize others, with no clear rationale. The need to revise the present tariff structure to eliminate these distortions was discussed extensively with COLPUERTOS and the Ministry of Public Works and Transport. Agreement was reached that tariffs would be revised when cost accounting is implemented. In this respect, the financial technical assistance consultants would be responsible for formulating and applying an appropriate methodology for setting tariffs.

D. Past Financial Performance

11. COLPUERTOS' actual income statements for the period 1980 to 1984 are summarized below and detailed in Table 1 of this annex. The balance sheets and sources and application of funds statements for the corresponding period are shown in Tables 2 and 3 of this annex respectively.

Actual Income Statements
(in Current ColS/. millions)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Total Operating Revenues	9,597	11,145	12,936	14,961	16,569
Working Expenses	9,726	12,529	15,123	12,524	13,697
Working Income (Loss)	(129)	(1,384)	(2,187)	2,437	2,872
Depreciation	171	168	171	197	231
Net Operating Income (Loss)	(300)	(1,552)	(2,358)	2,240	2,641
Financial Expenses (Net)	212	128	259	399	250
Other Expenses (Provision for future Pensions)	-	-	-	1,555	2,391
Net Income (Loss)	(512)	(1,680)	(2,617)	286	0
Traffic ('000)	4,927	4,093	4,628	4,125	3,872
Average No. of Staff Employed	11,923	12,053	12,210	11,266	9,865
Pensioners	N.A.	N.A.	6,206	6,505	7,005
Ratios					
Working Ratio	101	112	117	84	83
Operating Ratio	103	114	118	85	84

While revenues increased by 35% from 1980 to 1982, working expenses increased by 55% over the same period. Apart from inadequate tariff increases coupled with a reduction in traffic, staff costs, which form about 90% of working expenses, increased considerably as a result of higher social benefits and the hiring of additional staff, reaching levels which represented about 92%, 100% and 103% of total operating revenues in 1980, 1981 and 1982 respectively. By year-end 1982, total accumulated losses amounted to ColS/. 6.95 billion (or US\$98.9 million), and COLPUERTOS equity had reached a negative ColS/. 6.34 billion (or US\$90.2 million).

12. It should be noted that COLPUERTOS' staff costs include, in addition to salaries and related benefits, provisions for future payment of unemployment allowances (severance payments) and actual pension payments to COLPUERTOS retirees. Since each employee receives, when leaving the entity, a one-time unemployment payment equivalent to one month's salary for each year of service, Colombian law makes it compulsory for employers to establish a provision which should reflect, at the end of each fiscal year, the total accrued liabilities pertaining to this benefit. The annual adjustment to this provision, resulting from salary increases and from the additional year of service with the entity, is reflected as an operating expense, although it does not entail an immediate cash outflow. On the other hand, COLPUERTOS has to bear the financial burden of pension payments to its retirees, which the entity funds in its entirety and with benefit terms substantially better than those provided under Colombian Law to either public or private employees. Together, unemployment and pension costs accounted, during 1980-1982, for about 28% of total personnel costs.

13. COLPUERTOS' financial results, however, improved substantially during 1983, and COLPUERTOS generated a net operating profit of about ColS/. 2,240 million (or US\$25.2 million). These improvements were possible, despite an 8% reduction in total traffic, because of important corrective measures, undertaken by a new administration appointed in late 1982, which consisted of ending all fixed-term contracts, reducing overtime payments and medical expenses and reducing COLPUERTOS' staff through attrition. These corrective measures also contributed toward increasing the number of employees who retired and/or resigned voluntarily because of the continuing reduction in the average salary which serves as a basis for unemployment and future pension payments. Consequently, these measures resulted in a reduction of 1,943 employees in 1983 (16%) and a reduction in personnel costs (excluding unemployment and pension costs) of about 32% in real terms in 1983 as compared to 1982. Although pension costs increased by about 12% in real terms in 1983 because of the increase in retirements, the annual adjustment to the provision for unemployment was substantially lower than in previous years since it is calculated for the employees who still remain with the entity at the end of each year. As a result, total personnel costs were reduced by 31%, in real terms, in 1983 as compared to 1982. The actual 1984 results show a slight improvement in COLPUERTOS' financial performance, as compared to 1983, despite a 6% drop in traffic, because of additional staff reductions.

14. COLPUERTOS has been assigned the responsibility of dredging in all ports and inland waterways. The service is provided by its dredging office, Bocas de Ceniza, located adjacent to the port of Barranquilla. However, the entity is not reimbursed for the cost of this operation. In the early

1980s, because of the deep financial crisis facing COLPUERTOS, most dredging activities were discontinued. In 1984, as an emergency measure, MOPT financed maintenance dredging costs and it will bear this cost again in 1985. However, an institutional definition for future maintenance dredging in Colombia would be required. A study on the dredging services required for COLPUERTOS operations, including a definition of institutional arrangements to permit recovery of costs related to dredging activities, is being included under the project. Implementation of recommendations of the study would immediately follow.

15. Because of the poor financial results of 1981 and 1982, COLPUERTOS' cash position deteriorated sharply in those years, as shown in a substantial decrease in working capital (Table 3 of this annex), reflected mainly in higher overdue debts with former and current employees (pensions, unemployment and leave payments). Despite an important improvement in its cash position in 1983 and 1984, COLPUERTOS will still require at least until end-1986 to catch up with delayed payments (Table 6, Note No. 3, of this annex).

E. Financial Objectives

16. One of COLPUERTOS' principal objectives would be to achieve financial viability by improving efficiency in operations, handling more traffic with lower operating costs and implementing realistic cost-based tariffs. COLPUERTOS' revenues should be able to cover total operating expenses, debt service charges and a fair contribution to the capital needs of the port system. However, since it is generally recognized that COLPUERTOS' operating expenses are still excessively high, the following complementary targets have been defined:

- (a) COLPUERTOS would continue reducing its staff by attrition during 1985-1990, which would result in a reduction of at least 205 employees p.a. In this respect, COLPUERTOS has committed itself to seek, during future labor negotiations, a rationalization of staff in line with operational requirements and traffic forecasts; and
- (b) COLPUERTOS would take all measures necessary, including changes in its rates, to provide, for each fiscal year, funds from internal sources equivalent to at least 35% of the annual average capital expenditures incurred or expected to be incurred for that year, the previous year and the next following year, after meeting cash operating expenses, debt service, increases in working capital and other significant cash outflows excluding capital expenditures. Consequently, in addition to the revision to tariff structures, tariff levels would be adjusted whenever necessary to ensure that this target is met.

It has been felt that the cash generation covenant, referred to in (b) preceding, addresses COLPUERTOS' cash requirement more directly given the magnitude of COLPUERTOS' non-cash expense items (provisions for unemployment, depreciation) and the low value of fixed assets, which make difficult the use of other measurements of financial viability (e.g., working ratio or rate of return).

F. Future Financial Performance

17. Financial projections for the period 1985-1990 have been made in current ColS/. pesos. The financial assumptions upon which they are based are listed in Appendix A of this annex. Five important assumptions are the following:

- (a) the financial projections assume reductions in port operating costs to be achieved under the proposed project from increasing productivity, as reflected in the fact that, for an increased traffic, COLPUERTOS' staff would be reduced through attrition. Also under the project, COLPUERTOS would carry out a staff rationalization study which would result in additional cost reductions starting in 1988. However, since its impact is not readily quantifiable, it has not been included in the projections;
- (b) since COLPUERTOS' tariff structure would be revised only by June 30, 1988, once cost accounting is developed, tariffs have been adjusted to maintain the average revenue per ton constant, in real terms;
- (c) starting in 1986, pension payments would be the responsibility of an independent pension entity or fund, either existing or to be established, and, thus, COLPUERTOS' share in these costs would be limited only to the employer's regular contribution in the funding of future pensions. Consequently, only these contributions have been recorded as an operating expense. However, COLPUERTOS would start making annual special contributions (non-operating expense) to the pension fund until the existing pension deficit (pension liabilities accrued up-to-date) is covered. The special contributions would be in relation to the service of the employee in the entity; the balance would be made up by the Government;
- (d) COLPUERTOS would continue charging to operating expenses the adjustments to the unemployment provision resulting from the additional year of service with the entity; adjustments to the accumulated provision to include latest salary increases would be considered non-operational; and
- (e) COLPUERTOS would continue bearing only the costs of maintenance dredging of port basins and alongside quays under its direct administration.

A summary of the consolidated income projections is shown as the following page.

Projected Income Statements
(Current ColS/. millions)

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Operating Revenues	20,304	26,494	31,288	36,626	44,713	54,703
Working Expenses	11,104	13,534	16,128	19,176	22,751	27,066
Depreciation	271	404	718	1,043	1,150	1,099
Operating Income (Loss)	8,929	12,556	14,442	16,407	20,812	26,538
Financial Expenses	571	723	902	1,294	1,817	2,537
Other Non-Operating Expenses	5,741	7,596	9,057	10,892	13,097	15,830
Net Income (Loss)	2,617	4,237	4,483	4,221	5,898	8,171
Working Ratio	55	51	52	52	51	49
Operating Ratio	56	53	54	55	53	51

18. COLPUERTOS' operating results would improve substantially between 1984 and 1985, as a result of excluding from the operating costs the portion of pension and unemployment costs which do not pertain to the current port operation [para 17 (c) and (d)]. Between 1984 and 1985, the working ratio would improve from 83 to 55 and the operating ratio from 84 to 56. Moreover, the working ratio would improve rapidly from 1984 until 1990, as a result of efficiency gains to be achieved under the project, which would bring about a reduction in the average cost per ton of about 24% in real terms.

19. Since the proposed project has been designed to assist resolution of the principal problem affecting the ports' finances, it has been conditioned to COLPUERTOS and the Government taking action to give an adequate solution to the pension issue, by seeking the establishment of a contributory pension scheme for COLPUERTOS' workers, with benefits consistent with those prevailing in other Government agencies.

20. In line with the preceding condition, the Government submitted to Congress (July 1985) a Proposed Law establishing a pension fund separate from COLPUERTOS' finances that will be fully responsible for the payment of the retirement benefits of COLPUERTOS' employees and pensioners, such pension fund to be financed with contributions from COLPUERTOS, its beneficiaries and, in the capitalization period, the Government. Should the Proposed Law not be enacted within an agreed timeframe (June 30, 1986), COLPUERTOS and the Government have agreed to put into place an alternative mechanism to ensure that COLPUERTOS' contribution toward the retirement benefits of its employees and pensioners will not exceed the amount of the contributions that would have been required from COLPUERTOS had the Proposed Law been enacted.

21. In early 1985, COLPUERTOS carried out actuarial studies to determine future pension payments based upon assumptions established in the existing Colombian legislation. The results indicate that the present value of future pension payments of COLPUERTOS' existing pensioners and workers amounts, as of December 1984, to about ColS/. 50 billion in 1984 prices. Although the validity of the assumptions used in the calculations is still under review, the figure gives a reasonable indication of the order of magnitude of pension obligations. However, further studies need to be carried out to produce, based upon COLPUERTOS' present benefit structure, as

well as alternative ones, cash outflow projections which would serve as a basis for determining alternative funding mechanisms, including sources and pace of the required contributions. COLPUERTOS would regularly update related records and information.

22. COLPUERTOS' forecast sources and application of funds for 1985-1990 are shown in Table 6 of this annex. A summary follows:

<u>Summary Sources and Application of Funds</u>						
	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
<u>Sources</u>						
Internal Sources	9,571	13,397	15,669	18,037	22,639	28,432
Borrowings	<u>103</u>	<u>1,758</u>	<u>1,988</u>	<u>2,640</u>	<u>2,357</u>	<u>5,677</u>
	9,674	15,155	17,657	20,677	24,996	34,109
<u>Applications</u>						
Capital Expenditures	1,759	4,402	3,326	2,372	3,956	8,240
Loan repayments	448	411	217	207	641	1,136
Interest Payments	215	287	413	661	921	1,365
Working Capital-Increase	2,720	2,371	675	762	1,062	1,297
Pension Fund	<u>5,000</u>	<u>6,000</u>	<u>7,100</u>	<u>8,400</u>	<u>9,900</u>	<u>11,700</u>
Total Applications	10,142	13,471	11,731	12,402	16,065	23,738
Increase (Decrease) in Cash	(468)	1,684	5,926	8,275	8,931	10,371
Cash at Beginning of Year	2,325	1,857	3,541	9,467	17,742	26,673
Cash at End of Year	1,857	3,541	9,467	17,742	26,673	37,044

Under the assumptions used (para 17 and Appendix A), COLPUERTOS' total sources of funds over the 1985-1990 period would be sufficient to meet capital expenditures, debt service and working capital requirements and to contribute toward the funding of the separate pension scheme, to cover the current pension deficit, in the amount of ColS/. 6,000 million p.a., in constant 1986 prices.

23. COLPUERTOS' Balance Sheet projections for 1985-1990 are shown in Table 5 of this annex. By end-1986, COLPUERTOS would have covered all overdue short-term debts, and, in addition, its equity would again turn positive. The revaluation of fixed assets, not yet reflected in the accounts, would further improve, starting in 1987, the entity's equity position.

G. Sensitivity of Financial Forecasts

24. The main risk associated with the project would be the uncertainty regarding traffic levels. However, since traffic has been projected to grow at a modest average rate of 1.8% from 1985 until 1990, a decline in traffic growth, of say 50%, would have a negligible impact upon COLPUERTOS' projected financial position.

COLOMBIA
PORTS REHABILITATION PROJECT
COLPUERTOS' Actual Income Statement
(in Current Col\$ Millions)

ANNEX 2
Table 1

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
I. OPERATING REVENUES					
1. Ships Maritime Services	615	729	925	1,032	1,122
2. Ship Loading and Unloading	2,963	3,347	4,035	4,700	5,367
3. Various Services to Ships	46	55	40	28	29
4. Private Wharves	195	237	193	275	365
5. Cargo Handling	5,412	6,349	7,147	7,603	8,579
6. Equipment Rent	64	52	88	62	48
7. Special Tariffs-Ships Services	256	287	402	426	412
8. Other	46	89	106	834	577
Total Operating Revenues	<u>9,597</u>	<u>11,145</u>	<u>12,936</u>	<u>14,961</u>	<u>16,569</u>
II. OPERATING EXPENSES					
1. Direct Personnel Costs					
1.1 Variable Labor	1,777	2,159	2,576	1,821	1,966
1.2 Permanent Staff					
1.2.1 Operations	1,171	1,479	1,844	1,460	1,438
1.2.2 Administration	422	577	678	539	707
Sub-Total Permanent Staff	<u>1,593</u>	<u>2,056</u>	<u>2,522</u>	<u>1,999</u>	<u>2,145</u>
Sub-Total Direct Personnel Costs	<u>3,370</u>	<u>4,195</u>	<u>5,098</u>	<u>3,820</u>	<u>4,111</u>
2. Indirect Personnel Costs					
2.1 Social Costs					
2.1.1 Variable Labor	1,405	1,759	1,993	1,636	1,434
2.1.2 Permanent Staff					
2.1.2.1 Operations	937	1,222	1,444	1,391	1,039
2.1.2.2 Administration	539	873	1,048	1,007	1,151
Sub-Total Perman. Staff	<u>1,476</u>	<u>2,095</u>	<u>2,492</u>	<u>2,398</u>	<u>2,190</u>
Sub-Total Social Costs	<u>2,881</u>	<u>3,854</u>	<u>4,485</u>	<u>4,034</u>	<u>3,624</u>
2.2 Unemployment (severance) 1/	1,429	1,304	1,649	360	985
2.3 Pension Payments 2/	1,104	1,745	2,043	2,738	3,466
Sub-Total Indirect Personnel Costs	<u>5,414</u>	<u>6,903</u>	<u>8,177</u>	<u>7,132</u>	<u>8,075</u>
Sub-Total Personnel Costs	<u>8,784</u>	<u>11,098</u>	<u>13,275</u>	<u>10,952</u>	<u>12,186</u>
3. Other Working Expenses	942	1,431	1,848	1,572	1,511
Total Working Expenses	<u>9,726</u>	<u>12,529</u>	<u>15,123</u>	<u>12,524</u>	<u>13,697</u>
4. Depreciation	171	168	171	197	231
Total Operating Expenses	<u>9,897</u>	<u>12,697</u>	<u>15,294</u>	<u>12,721</u>	<u>13,928</u>
III. NET OPERATING INCOME (Loss)	(300)	(1,552)	(2,358)	2,240	2,641
IV. FINANCIAL EXPENSES (Net)	212	128	259	399	250
V. OTHER EXPENSES 3/				1,555	2,391
VI. NET INCOME (Loss)	(512)	(1,680)	(2,617)	286	0
Average Number of Staff Employed	11,923	12,053	12,210	11,266	9,865
Pensioners 4/	N.A.	N.A.	6,206	6,505	7,005
Ratios					
Working Ratio	101	112	117	84	83
Operating Ratio	103	114	118	85	84

1/ Provision for future unemployment (severance) payments; non cash item.

2/ Actual payments to retirees, funded entirely by the entity.

3/ In view of the large 1983 operating profit, COLPUERTOS entered in its accounts a provision for future pension payments of Col\$/ 1,555 million. The 1984 figure includes a provision for future pension payments amounting to Col\$/1,514 million and other non-operating expenses (previous years).

4/ Mid year figures; end-year figures are available in Annex 3.

Source: COLPUERTOS
August 1985

COLOMBIA
PORTS REHABILITATION PROJECT
COLPUERTOS' Actual Balance Sheets
(in Current Col\$ Millions)

ANNEX 2
Table 2

<u>ASSETS</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
CURRENT ASSETS					
Cash and Banks	250	216	201	508	554
Short-term Investment	6	293	39	19	1,771
Receivables (operations)	1,038	1,122	889	1,079	1,308
Other Receivables	150	118	170	319	389
Inventories	769	794	903	982	1,112
Deferred Assets	10	7	24	139	231
TOTAL CURRENT ASSETS	<u>2,223</u>	<u>2,550</u>	<u>2,226</u>	<u>3,046</u>	<u>5,365</u>
FIXED ASSETS					
Port Installation & Equipment	2,700	3,066	3,730	4,227	4,521
Transport Equipment	296	335	369	379	217
Less: Accumulated Depreciation	<u>(782)</u>	<u>(950)</u>	<u>(1,121)</u>	<u>(1,318)</u>	<u>(1,549)</u>
Subtotal	2,214	2,451	2,978	3,288	3,189
Land & Works in Progress	923	1,121	770	567	780
TOTAL FIXED ASSETS	<u>3,137</u>	<u>3,572</u>	<u>3,748</u>	<u>3,855</u>	<u>3,969</u>
OTHER ASSETS	151	187	170	219	520
TOTAL ASSETS	5,511	6,309	6,144	7,120	9,854
LIABILITIES AND EQUITY					
CURRENT LIABILITIES					
Short-term Bank loans	165	239	351	571	489
Current Portion Long-term loans	130	181	249	223	281
Payables	353	585	650	732	865
Short-term Provision Unemployment	646	1,009	1,241	1,268	1,043
Short-term Social Payments	369	981	1,485	1,337	2,031
Other	281	525	750	798	1,067
TOTAL CURRENT LIABILITIES	<u>1,944</u>	<u>3,520</u>	<u>4,726</u>	<u>4,929</u>	<u>5,776</u>
LONG-TERM LIABILITIES					
Long-term loans	822	852	861	890	1,164
Long-term Provision Unemployment	2,848	3,327	3,903	2,740	2,743
Long-term Social Payments	<u>1,611</u>	<u>1,931</u>	<u>2,262</u>	<u>3,831</u>	<u>4,877</u>
TOTAL LONG-TERM LIABILITIES	<u>5,281</u>	<u>6,110</u>	<u>7,026</u>	<u>7,461</u>	<u>8,784</u>
OTHER LIABILITIES	234	268	180	168	673
PROVISION FOR CONTINGENCIES	98	137	555	619	678
EQUITY					
Paid-in Capital	606	606	606	606	606
Profit (Loss) previous years	(2,140)	(2,652)	(4,332)	(6,949)	(6,663)
Profit (Loss) of the year	<u>(512)</u>	<u>(1,680)</u>	<u>(2,617)</u>	<u>286</u>	<u>0</u>
TOTAL EQUITY	<u>(2,046)</u>	<u>(3,726)</u>	<u>(6,343)</u>	<u>(6,057)</u>	<u>(6,057)</u>
TOTAL LIABILITIES AND EQUITY	5,511	6,309	6,144	7,120	9,854

Source: COLPUERTOS
August 1985

COLOMBIA
PORT REHABILITATION PROJECT
COLPUERTOS' Actual Sources and Application of Funds
(In Current Col\$ million)

ANNEX 2
Table 3

<u>SOURCES</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
<u>Internal Sources</u>				
Net Operating Income	(1,552)	(2,358)	2,240	2,641
Add: Depreciation	168	171	197	231
Provision for Unemployment	1,304	1,649	360	985
Other Provisions	359	749	78	99
Less: Unemployment Payments	462	841	1,496	1,207
<u>Total Internal Sources</u>	<u>(183)</u>	<u>(630)</u>	<u>1,379</u>	<u>2,709</u>
<u>Long-Term Borrowings</u>				
Foreign Loans	135	254	318	87
Local Loans	-	-	-	500
<u>Total Borrowings</u>	<u>135</u>	<u>254</u>	<u>318</u>	<u>587</u>
<u>Other</u>				
Other Assets	(36)	17	(49)	(301)
Other Liabilities	34	(88)	(12)	1,551
<u>Total Others</u>	<u>(2)</u>	<u>71</u>	<u>(61)</u>	<u>1,251</u>
<u>TOTAL SOURCES AND FUNDS</u>	<u>(50)</u>	<u>(447)</u>	<u>1,636</u>	<u>4,547</u>
	*****	*****	*****	*****
<u>APPLICATIONS OF FUNDS</u>				
<u>Capital Expenditures</u>	603	347	304	345
<u>Long-Term Loan Repayment</u>				
Foreign Loan Repayment	54	177	315	213
Local Loan Repayment	-	-	-	42
<u>Total Principal Repayment</u>	<u>54</u>	<u>177</u>	<u>315</u>	<u>255</u>
<u>Interest Payments (Net)</u>	128	259	399	250
<u>Change in Working Capital Other Than</u>				
<u>Cash-Increase (Decrease)</u>	(801)	(1,215)	311	(493)
<u>Other</u>	-	-	-	2,391
<u>TOTAL APPLICATIONS OF FUNDS</u>	<u>(16)</u>	<u>(432)</u>	<u>1,329</u>	<u>2,748</u>
	*****	*****	*****	*****
<u>INCREASE (DECREASE) IN CASH</u>	<u>(34)</u>	<u>(15)</u>	<u>307</u>	<u>1,799</u>
<u>CASH AT BEGINNING OF YEAR 1/</u>	<u>250</u>	<u>216</u>	<u>201</u>	<u>527</u>
<u>CASH AT END OF YEAR</u>	<u>216</u>	<u>201</u>	<u>508</u>	<u>2,326</u>

1/ The 1984 figure includes short-term investments.

Source: COLPUERTOS
August 1985

COLOMBIA
PLATE REMEDIATION PROJECT
COLPUERTOS INCOME PROJECTIONS - COMPLETION '85
(Figures in Current Col\$ Millions)

	1982	1983	1987	1988	1989	1990
I OPERATING REVENUES						
1. Ships Maritime Services	1225	1623	1931	2251	2560	2915
2. Ship Loading and Unloading	8620	10676	12498	14440	16295	18390
3. Various Services to Ships	32	30	37	48	41	43
4. Private Moorings	182	614	716	792	867	938
5. Cargo Handling 1/	9800	12627	14782	16651	18742	20913
6. Equipment Rent	39	39	39	39	39	39
7. Special Tariffs-Ships Services	708	871	1056	1173	1287	1438
8. Other	0	0	0	0	0	0
9. Revenues from Tariff Adjustment	0	0	0	1240	4882	10006
Total Operating Revenues	26304	26994	31288	36626	44713	54785
II OPERATING EXPENSES						
1. Direct Personnel Costs						
1.1. Variable Labor	2107	2636	3220	3943	4822	5919
1.2. Permanent Staff						
1.2.1. Operations	1397	1649	1915	2215	2557	2933
1.2.2. Administration	731	860	1023	1177	1333	1536
Subtotal Permanent Staff	2128	2509	2938	3392	3890	4469
Subtotal Direct Personnel Costs	4235	5145	6158	7335	8712	10388
2. Indirect Personnel Costs						
2.1. Social Costs						
2.1.1. Variable Labor	1667	2085	2550	3118	3812	4679
2.1.2. Permanent Staff						
2.1.2.1. Operations	1104	1300	1513	1749	2019	2330
2.1.2.2. Administration	911	1060	1240	1428	1643	1889
Subtotal Permanent Staff	2015	2360	2753	3177	3661	4219
Subtotal Social Costs	3682	4445	5303	6295	7473	8898
2.2. Unemployment 2/						
2.2.1. Operations 2/	654	792	944	1122	1334	1590
2.2.2. Administration 2/	857	1020	1238	1472	1730	2087
Subtotal Indirect Personnel Cos	5192	6265	7485	8869	10537	12575
Subtotal Personnel Costs	9427	11410	13643	16204	19249	22963
3. Other Working Expenses						
3.1. Maintenance and General 4/						
3.1.1. Variable Labor	1,71	196	2338	2885	3287	3834
3.1.2. Contribution to Sona	85	103	123	147	175	209
Subtotal Other Working Expenses	1856	3009	2461	2932	3462	4043
Total Working Expenses	11104	13334	16128	19176	22731	27046
4. Depreciation						
	271	400	718	1043	1150	1099
Total Operating Expenses	11375	13738	16846	20219	23901	28143
III NET OPERATING INCOME -LOSS	8929	12256	14442	16407	20812	26538
IV FINANCIAL EXPENSES (NET)						
	571	723	962	1294	1817	2537
V OTHER NON OPERATING EXPENSES						
1. Contribution to Pension Fund 5						
	5000	6000	7100	8400	9900	11700
2. Adjustment to Past Unemployment Costs 6/						
	741	1396	1937	2492	3197	4130
Subtotal	5741	7396	9037	10892	13097	15830
VI NET INCOME -LOSS	2617	4237	4405	5221	5898	8171
Average Number of Staff Employed						
Staff Employed	9366	9110	9908	8,76	8584	8383
Passengers	7361	7372	7777	7976	8181	8382
Traffic						
Total Foreign Trade	3829	3968	4069	4199	4344	4504
Ration						
Operating Ratio	35	31	32	32	31	44
Operating Ratio	36	32	34	35	33	51

1/ Includes Revenues from empty container handling.

2/ Provision for future unemployment (severance) payments; reflects annual increase in liability for the additional year of service with the entity.

3/ Includes only the employers regular contribution to an independent pension system, to fund future pension payments; contributions are a percentage of total compensation payments received (direct plus indirect personnel costs excluding medical expenses).

4/ Includes equipment maintenance, dredging (COLPUERTOS' share) and general administrative.

5/ Special contribution to independent pension system to fund pension liabilities accrued up-to-date.

6/ Adjustment to accumulated (past) unemployment liabilities to be made when salaries are increased.

Source: COLPUERTOS and mission estimates
October 1985

COLOMBIA

PORT RENABILITATION PROJECT

COLPUERTOS' Balance Sheet Projections 1984-1990
(in Current Col\$ million)

ASSETS	1985	1986	1987	1988	1989	1990
Current Assets						
Cash and Banks 1/	1,857	3,541	9,467	17,742	26,673	37,044
Receivables from Operations	2,030	2,649	3,129	3,663	4,471	5,470
Other Receivables	236	298	354	421	493	578
Inventories	785	993	1,179	1,403	1,644	1,927
Other Current Assets	277	335	399	471	556	636
Total Current Assets	5,185	7,816	14,528	23,700	33,837	45,675
Fixed Assets						
Port Installations and Equipment	4,914	6,666	10,352	13,049	15,239	19,162
Less: Accumulated Depreciation	(1,780)	(2,121)	(2,699)	(3,468)	(4,399)	(5,359)
Subtotal	3,134	4,545	7,653	9,581	10,840	13,803
Land and Work in Progress	2,011	3,945	2,956	2,449	4,182	8,499
Total Fixed Assets	5,145	8,490	10,609	12,030	15,022	22,302
Other Assets						
Deferred Assets 2/	872	1,588	2,217	2,399	2,432	2,432
Less: Amortization	(40)	(103)	(243)	(517)	(736)	(875)
Subtotal	832	1,485	1,974	1,882	1,696	1,557
TOTAL ASSETS	11,162	17,791	27,111	37,612	50,555	69,534
LIABILITIES AND EQUITY						
Current Liabilities						
Current Portion Long-Term Loans (Existing)	411	217	207	226	248	224
Current Portion Long-Term Loans (IBRD)	-	-	-	415	888	973
Payables	471	596	707	842	986	1,156
Short-Term Provision Unemployment 3/	355	435	535	657	795	1,020
Short-Term Social Payments 4/	1,016	-	-	-	-	-
Other Current Liabilities 5/	533	-	-	-	-	-
Total Current Liabilities	2,786	1,248	1,449	2,142	2,917	3,373
Long-Term Liabilities						
Long-Term Loans (Existing)	937	959	880	748	581	426
Long-Term Loans (IBRD) 5/	108	2,063	4,412	7,176	8,671	9,537
Other Long-Term Loans	-	-	-	-	1,204	6,145
Long-Term Provision Unemployment	4,543	6,496	8,862	11,819	15,555	20,255
Long-Term Social Payments 6/	4,877	4,877	4,877	4,877	4,877	4,877
Total Long-Term Liabilities	10,465	14,395	19,031	24,620	30,888	41,240
Other Liabilities	673	673	673	673	673	673
Provision for Contingencies	678	678	678	678	678	678
Equity						
Paid-in-Capital	606	606	606	606	606	606
Profit (Loss) Previous Years	(6,663)	(4,066)	191	4,672	8,895	14,793
Profit (Loss) of the Year	2,617	4,237	4,483	4,221	5,898	8,171
Total Equity	(3,440)	797	5,280	9,201	15,399	23,570
TOTAL LIABILITIES AND EQUITY	11,162	17,791	27,111	37,512	50,555	69,534

1/ Includes short-term investments.

2/ Investment in studies (technical assistance).

3/ Reflects payments to be made in the next fiscal year.

4/ Overdue personnel payments.

5/ May not agree with accumulated disbursements since figure in balance sheet reflects the effect of devaluation on balance of loan

6/ Includes mainly a provision for future pension payments and other benefits.

Source: COLPUERTOS and mission estimates.

October 1985

COLOMBIA
PORTS REHABILITATION PROJECT
COLPUERTOS' Sources and Application of Funds
(in Current Col\$ million)

<u>SOURCES</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>TOTAL</u> <u>1985/1990</u>
<u>Internal Sources</u>							
Net Operating Income	8,929	12,556	14,442	16,407	20,812	26,538	99,684
Add: Depreciation and Amortization	271	404	718	1,043	1,150	1,099	4,685
Provision for Unemployment	654	792	944	1,122	1,334	1,590	6,436
Less: Unemployment Payments	(283)	(355)	(435)	(535)	(657)	(795)	(3,060)
<u>Total Internal Sources</u>	<u>9,571</u>	<u>13,397</u>	<u>15,669</u>	<u>18,037</u>	<u>22,639</u>	<u>28,432</u>	<u>107,743</u>
<u>Long-Term Borrowings</u>							
Proposed IBRD Loan 1/	103	1,758	1,988	2,640	1,205	950	8,644
Other Foreign Loans 2/	-	-	-	-	1,152	4,727	5,879
Local Loans	-	-	-	-	-	-	-
<u>Total Borrowings</u>	<u>103</u>	<u>1,758</u>	<u>1,988</u>	<u>2,640</u>	<u>2,357</u>	<u>5,677</u>	<u>14,523</u>
<u>TOTAL SOURCES OF FUNDS</u>	<u>9,674</u>	<u>15,155</u>	<u>17,657</u>	<u>20,677</u>	<u>24,996</u>	<u>34,109</u>	<u>122,266</u>
<u>APPLICATIONS OF FUNDS</u>							
<u>Capital Expenditures</u>							
The Project	1,309	4,402	3,326	2,372	473	-	11,882
Other - COLPUERTOS' 2/	450	-	-	-	3,483	8,240	12,173
<u>Total Capital Expenditures</u>	<u>1,759</u>	<u>4,402</u>	<u>3,326</u>	<u>2,372</u>	<u>3,956</u>	<u>8,240</u>	<u>24,055</u>
<u>Long-Term Loan Repayments</u>							
Foreign Loan Repayment -							
IBRD	-	-	-	-	-	888	888
Other	281	281	217	207	226	248	1,460
Local Loan Repayment	167	130	-	-	-	-	297
<u>Total Principal Repayments</u>	<u>448</u>	<u>411</u>	<u>217</u>	<u>207</u>	<u>226</u>	<u>1,136</u>	<u>2,643</u>
<u>Interest Payments</u>							
Foreign Interest Payments							
IBRD	10	138	332	586	797	952	2,815
Other	99	93	81	75	124	413	885
Local Interest Payments	106	56	-	-	-	-	162
<u>Total Interest Payments</u>	<u>215</u>	<u>287</u>	<u>413</u>	<u>661</u>	<u>921</u>	<u>1,365</u>	<u>3,862</u>
<u>Change in Working Capital Other Than</u>							
Cash-Increase (Decrease) 3/	2,720	2,371	675	762	1,062	1,297	8,887
Contribution to Pension Fund	5,000	6,000	7,100	8,400	9,900	11,700	48,100
<u>TOTAL APPLICATIONS OF FUNDS</u>	<u>10,142</u>	<u>13,471</u>	<u>11,731</u>	<u>12,402</u>	<u>16,065</u>	<u>23,738</u>	<u>87,549</u>
<u>INCREASE (DECREASE) IN CASH</u>	<u>(468)</u>	<u>1,684</u>	<u>5,926</u>	<u>8,275</u>	<u>8,931</u>	<u>10,371</u>	<u>34,719</u>
<u>CASH AT BEGINNING OF YEAR 4/</u>	<u>2,325</u>	<u>1,852</u>	<u>3,541</u>	<u>9,467</u>	<u>17,742</u>	<u>26,673</u>	<u>2,325</u>
<u>CASH AT END OF YEAR</u>	<u>1,857</u>	<u>3,541</u>	<u>9,467</u>	<u>17,742</u>	<u>26,673</u>	<u>37,044</u>	<u>37,044</u>

- 1/ Total amount of disbursements varies from Table 4.7 due to the effect of devaluation on disbursements which come after completion of works.
- 2/ Figures in 1989 and 1990 refer to future investments in the ports (container terminals and bulk handling facilities) to be partially financed (foreign cost) with external borrowings. Projection assumes a six-month delay in disbursements.
- 3/ Includes, in 1985 and 1986, payment of overdue personal expenses.
- 4/ Includes short-term investment.

Source: COLPUERTOS and Mission estimates
October 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Assumptions for Financial Projections

A. General

1. All financial figures in this report have been presented in current prices and are based upon the following rates of inflation and devaluation:

<u>Year</u>	<u>Rate of Price Increase (Percent)</u>	<u>Rate of Devaluation</u>
1984	18.3	28
1985	22	35
1986	20	22
1987	18	12
1988	18	9.5
1989	18	9.5
1990	18	9.5

B. Traffic

2. Cargo traffic inputs were based on figures provided in Tables 1 through 4 of Annex 1. Ship forecasts have been made based on the average tonnage per ship of the first semester of 1984.

C. Tariffs

3. The 1984 tariffs were used in projecting revenues by the main revenue headings. Since some tariffs are denominated in local currency - tariffs on exports - and others in US dollars - tariffs on imports and tariffs on international vessels - the latter were adjusted to reflect exchange rate movements. During 1988, COLPUERTOS should revise the existing tariff structure to have tariffs reflect the cost of services rendered. Since the impact of this revision, both upon composition and upon level of revenues, cannot be predicted at this time, tariffs have been adjusted only as necessary to maintain the average revenue per ton constant, in real terms, at the 1984 level. These adjustments have been indicated as a global amount in the revenue projections.

4. The following exchange rates (mid-year) were used to express tariffs denominated in US dollars, and in Col\$ pesos, over the forecast period: 1984 - Col\$ 101.3 = US\$1; 1985 - Col\$ 133.82 = US\$1; 1986 - Col\$ 170.67 = US\$ 1; 1987 - Col\$ 198.83 = US\$1; 1988 - Col\$ 200.09 = US\$ 1; 1989 - Col\$ 240.97 = US\$1; and 1990 - Col\$ 263.87 = US\$ 1.

D. Revenues

5. The following assumptions were used for calculating revenues under the main revenue headings:

- (a) Ships Maritime Services: based upon forecast number of ships (available in project file) and present wharfage and harbor tariffs;
- (b) Ship Loading and Unloading: based upon projected import and export traffic (weight-tons or volume-tons, as applicable) and the average tariff (including overtime surcharges), for the first semester of 1984, for each commodity or group of commodities; and
- (c) Cargo Handling: based upon projected import and export traffic (weight-tons or volume tons, as applicable) and the average tariffs (for each commodity or group of commodities) for the first semester of 1984. This revenue heading groups charges for cargo-handling, use of port facilities, storage, truck loading and unloading, port police and empty container-handling.

E. Costs

6. The total labor force was assumed to decrease by attrition (forecast number of staff in Appendix B of this annex). Basic wage rates (direct personnel costs) for variable staff (rates per ton) and for permanent staff (fixed salary) were forecast to increase by 10% in 1985, as approved by the Government, for all public entities, and by inflation thereafter. The relationship between direct personnel costs and social costs was forecast to remain constant at the 1984 level (first semester).

7. Unemployment costs reflect the annual increase in the provision for future severance payments. Colombian law makes it compulsory for employers to establish a provision for payment of unemployment money to staff retired or dismissed. This allowance, which is proportionate to the level of remuneration and length of service, should reflect, at the end of each fiscal year, the total accrued liabilities pertaining to this benefit. The annual increase in this provision is recorded in the accounts as follows: (a) the adjustment for the additional year of service is charged to operational expenses; and (b) the adjustment to the accumulated provision, to reflect salary increases, is considered as non-operational expense.

8. Pension costs have been divided into two portions: the first represents the employers' contribution toward pensions with respect to the service of the employee in a current year (charged to operating expenses), and the second, a special contribution toward the accrued liability for previous years - a charge to non-operating expenses. The first portion—regular contributions—has been assumed to be 12% of total compensation payments (direct personnel expenses plus social costs, excluding

medical expenses). The second portion - special "make-up" contribution - is a fixed amount determined from the 1985 forecast cash flow.

9. Maintenance and general expenses include: (a) general administrative expenses which are based upon the actual 1984 costs (first semester) and have been assumed to increase by inflation; (b) equipment maintenance costs based upon regular maintenance of existing and new equipment; and (c) maintenance dredging costs, based upon cost of dredging contracted by MOPT in 1984. The forecast includes only COLPUERTOS' proposed share of these costs (port basins and alongside quays under its jurisdiction). In the case of Buenaventura, COLPUERTOS' share was assumed to be 30% of total maintenance dredging costs in the area; in the case of Barranquilla, COLPUERTOS' share was assumed to be 20%.

10. Interest on loans corresponds to actual interest payable by COLPUERTOS on obtained, and still outstanding, loans and a forecast of interest payable on the loan to be obtained from the Bank. The terms of borrowing from the World Bank were assumed to be 17 years, with four years of grace. Although the loan would be at the standard variable rate, the current rate (8.82% p.a.) was used for purposes of financial forecasting.

11. Depreciation of existing fixed assets (as of 1984) was calculated based upon the historical value of these assets. By the end of 1986, according to the action plan, COLPUERTOS will have revalued its fixed assets in use and will institute a more realistic depreciation. This effect has not been included in the forecast. Depreciation on new investment is based upon straight line amortization and useful lives of 20 years for port installations and 10 years for equipment.

F. Main Balance Sheet Items

12. Accounts receivable were forecast to be 10% of operating revenues.

13. Inventories were forecast to be 50% of general and maintenance expenses.

14. Accounts payable were forecast to be 30% of general and maintenance expenses.

15. Provision for unemployment (severance) reflects the total accrued liability as of the end of each fiscal year (unfunded provision) and is based upon the total number of staff employed, the last year's salary and the length of service with the entity. The amount shown under short-term liabilities reflects payments to be made in the next fiscal year based upon projected retirements.

16. Short-term social payments reflect overdue personnel costs and were forecast to be paid during 1985 and 1986.

COLOMBIA

PORTS REHABILITATION PROJECT

COLPUERTOS' Staff and Pensioners

1. COLPUERTOS' actual number of staff for the period 1981-1984 and targets to be met during 1985-1990 are shown in Table 1 of this appendix. Although total staff decreased from 12,237 at end-1982 to 9,436 at end-1984 - 23% - COLPUERTOS is still overstaffed in almost all areas. By the end of 1987, according to the action plan, COLPUERTOS will have carried out a study for the rationalization of staff which should determine the optimal size of the plant of personnel, taking into account operational requirements and traffic forecasts. In the meanwhile, until the recommendations of the study are available and implemented, COLPUERTOS would continue making staff reductions in the course of the retirement program. These reductions would be possible because of efficiency gains to be achieved under the project. The targets developed for the period 1985-1990, based upon reductions by attrition, would need to be revised in light of the results of the staffing study. It should also be noted that the forecast number of retirements is based upon the years of service of the employees with COLPUERTOS only since information on years worked in other entities before joining COLPUERTOS was not available. The number of retirements in each year would therefore most likely be higher than that assumed in the forecast.

2. Table 2 of this appendix shows COLPUERTOS' actual and forecast number of pensioners. Based on the existing retirement program, by end-1990, COLPUERTOS' number of pensioners will exceed the total number of staff employed.

3. The figures shown in Tables 1 and 2 of this appendix were used for the purposes of financial forecasting and discussions with COLPUERTOS.

COLOMBIA

PORTS REHABILITATION PROJECT

COLPUERTOS' Number of Staff

(1981-1984, actual; 1985-1990, forecast)

	Barranquilla	Buenaventura	Cartagena	Sta. Marta	Central Office 1/	Total
	end-year figures					
1981	2,458	3,954	2,798	2,167	806	12,183
1982	2,452	4,052	2,756	2,113	860	12,237
1983	2,141	3,254	2,313	1,910	676	10,294
1984	1,971	2,964	2,183	1,713	605	9,436
1985	1,942	2,823	2,174	1,677	593	9,209
1986	1,898	2,766	2,165	1,599	579	9,007
1987	1,854	2,709	2,156	1,521	565	8,805
1988	1,810	2,652	2,147	1,443	551	8,603
1989	1,766	2,595	2,138	1,365	537	8,401
1990	1,724	2,540	2,127	1,289	522	8,202
<u>Staff Reductions 2/</u>						
(1985-1990)						
Total	247	424	56	424	83	1,234
Average p.a.	41	71	9	71	13	205
<u>Staff Composition(%)3/</u>						
(1985-1990)						
Variable	54%	50%	48%	58%	-	49%
Permanent Oper.	33%	35%	31%	24%	43%	32%
Permanent Ad.	13%	15%	21%	18%	57%	19%

1/ Includes the small port of Tumaco and the dredging office Bocas de Ceniza.

2/ Assumes reduction by attrition only.

3/ Staff composition used in financial forecasts; changes may occur due to reassignment.

Source: COLPUERTOS and Mission Estimate
August 1985

COLOMBIA
PORTS REHABILITATION PROJECT
COLPUERTOS' Number of Pensioners
(1981-1984, actual; 1985-1990, forecast)

	Barranquilla	Buenaventura	Cartagena	Sta. Marta	Central Office	Total
	end-year figures					
1981	N.A.	N.A.	N.A.	N.A.	N.A.	6,166
1982	2,310	1,745	1,470	546	175	6,246
1983	2,380	1,995	1,568	617	204	6,764
1984	2,224	2,239	1,634	737	412	7,246
1985	2,253	2,380	1,643	773	424	7,473
1986	2,297	2,437	1,652	851	438	7,675
1987	2,341	2,494	1,661	929	452	7,877
1988	2,385	2,551	1,670	1,007	466	8,079
1989	2,429	2,608	1,679	1,085	480	8,281
1990	2,471	2,663	1,690	1,161	495	8,480

Source: COLPUERTOS and Mission Estimates
August 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Outline Terms of Reference for the Financial
Technical Assistance

I. OBJECTIVES

1. The technical assistance in this area will focus upon a review of the accounting systems, setting up cost accounting and establishing the tariff structure, with a view toward making the necessary procedural changes in order to obtain prompt and reliable information for decision-making. The consultants will introduce appropriate innovations, including latest techniques in finance and systems, and will implement the recommendations agreed upon by the consultants and COLPUERTOS for promptly obtaining the information needed for efficient management. The studies referred to herewith would be carried out within the context of an integrated information system already defined by COLPUERTOS and would thus take into account their interrelation with systems presently in operation (i.e., personnel, billing). In this respect, the consultants would also propose, as appropriate, modifications to existing systems for purposes of compatibility.

II. SCOPE OF THE CONSULTING SERVICES

A. General Accounting

2. Work in this field will comprise review of the accounting system, both in terms of procedures and of the administrative organization of the department, preparation of manuals, identification of methods for revaluation of fixed assets, training of staff and implementation of recommendations.

B. Cost Accounting

3. Consulting services in this field will consist of designing a cost accounting system that will make possible the identification of the costs of the various services. The system should allow management to evaluate performance of the various operations and should also provide a base for periodic tariff reviews. Preparation of manuals, staff training and implementation of recommendations will also be included in the consultants' assignment.

C. Tariff Structures

4. Work in this field will consist of formulating a methodology for setting tariffs, taking into account the cost of the services. The consultants will also prepare manuals, train the staff and implement their recommendations.

D. Financial Planning

5. In this area, the consulting services will consist of defining functions and methodological design of analyses to be performed by COLPUERTOS' Financial Planning Unit, with a view toward formulating, regularly, a comprehensive financial plan, resulting from the combined impact of budgeted operations, proposed capital investments, debt service, financing sources, etc.

E. Fixed Assets and Inventory Control

6. Work in this field will include review of classification methods, basis of valuation and depreciation, accounting records and procurement and bidding systems for COLPUERTOS' fixed assets and inventories. The consultant will prepare the necessary manuals, train the staff and implement recommendations.

F. Budgeting

7. The consultants will review the methodology used for preparing the budget and the pertinent manuals in order to have this function include budgeting by item or account and by responsibility center, cash flow budget, investment and procurement budget and the mechanisms to control the execution of the various budgets. Preparation of manuals, staff training and implementation of recommendations will also be part of the consultants' work in this field.

COLOMBIA

PORTS REHABILITATION PROJECT

Outline Terms of Reference for the

Upgrading of Management Information Systems

I. OBJECTIVES

1. The purpose of this technical assistance will be to help COLPUERTOS upgrade its management information systems so that they will provide accurate key performance data, such as cargo handling rates, equipment utilization, ship waiting and turnaround time, berth occupancy and import/export, coastal and river traffic statistics by port and product, covering the entire range of COLPUERTOS' operations.

II. SCOPE OF THE CONSULTING SERVICES

2. The consultants' assignment will consist of reviewing existing management information systems, suggesting needed changes, making adjustments as and when required, and obtaining the decision-making data needed to chart the future development of COLPUERTOS' operations. The consultants shall pay special attention to the present level of mechanization and make full use of the available computer equipment. The consulting services shall, therefore, include the modification of existing, and the design and installation of new, computer applications in the fields or areas covered by the terms of reference. The consultants shall, if necessary, also make specific recommendations concerning additional computer equipment compatible with the existing facilities.

3. In performing their assignment, the consultants shall consider the statistical and operating data needs of:

- (a) each of the ports and the Head Office in Bogota, bearing in mind the long-term decentralization plans to delegate responsibilities to the ports; and
- (b) the planning, financial, technical and operational areas, among others, in order to facilitate: (i) appropriate planning of the future development of the ports system; (ii) appropriate interpretation of current financial results and future financial planning; (iii) efficient programming of equipment and spare parts maintenance and contracting of civil works; and (iv) continuous upgrading of the land and maritime services provided by COLPUERTOS.

4. The consulting services shall include:

- (a) implementation of the recommendations, subject to prior approval by COLPUERTOS;
- (b) training of staff in the new procedures for operating the upgraded management information systems; and
- (c) preparation of instruction manuals describing the operation of the systems and detailed procedures.

COLOMBIA

PORTS REHABILITATION PROJECT

Labor and Equipment Situation and Productivity Targets

A. Past and Present Labor Situation

1. COLPUERTOS was established in 1975 as a state-owned commercial and industrial enterprise, with financial and administrative autonomy, under the tutelage of MOPT. The Bogota office is responsible for the planning and control of national port development, including the implementation of investment programs. The terminals are responsible for the day-to-day planning and control of port operations. Allocation of responsibilities is based upon Law 1174 of 1980, but, in the past, COLPUERTOS headquarters has actively interfered in the operations of the terminals and has failed to fulfill its planning functions. Lack of qualified professional staff, coupled with highly politicized management, led the enterprise to inefficiency, overstaffing and corruption, resulting in continued operational losses, neglected maintenance and inability to provide all ports with full port services.

2. Labor union conquests over the years have gone so far that they have badly damaged COLPUERTOS. There are six labor unions, three at Barranquilla and one at each of the other ports. Until very recently, the unions had taken over control of equipment and labor assignment, as well as the interpretation of labor agreements with regard to payments. A clear example of the seriousness of this situation was the system used by COLPUERTOS to pay its workers, applying the same rate per ton for every ton of cargo handled irrespective of the type of cargo and handling method or system used. Container and direct delivery bulk-handling operations at Buenaventura, for example, were responsible for about 40% of the losses incurred at that port during 1981. In fact, while revenues increased by 35% from 1980 to 1982, working expenses increased by 55% over the same period, representing 92%, 100% and 103% of total revenues.

3. Due, in part, to the Bank's involvement in the port subsector in the role of Executing Agency for a UNDP-financed Ports Modernization Study aimed at the containerization of Colombian ports, some progress was made by the previous administration during the 1982 labor negotiations when: (a) payments to workers for container and bulk handling were frozen for four years (1982-1985) at the 1982 rate; and (b) payments for bulk direct delivery operations were reduced by 40% and frozen for the same four-year period. These changes were, however, insufficient to justify major investments for port development, and the new administration that entered the Government in August 1982 decided to seriously tackle the problems affecting COLPUERTOS and to limit the 1984-1988 investment plan to rehabilitating existing port facilities and equipment.

4. In October 1982, at the new Government's request, the Bank and UNDP organized a technical assistance mission, consisting of four independent experts, to identify institutional and labor constraints affecting the port system and to prepare a short- and medium-term plan of action that included, among others, the following aspects: disposal of abandoned cargo and scrap material; equipment repair and spare parts; implementation of a freeze on hiring personnel (which had been adopted, but not implemented, by the previous administration); operational planning and coordination; and rationalization of labor assignment to return this responsibility to the operations departments at the ports.

5. COLPUERTOS' management responded to these recommendations by adopting a number of corrective measures, most of which have been implemented, and, at the same time, with the full support of the Government, adopted a strong position during the labor agreement negotiations in 1983. Following a strike (July-August 1983) that was declared illegal by the Ministry of Labor, COLPUERTOS was able to change the pattern of previous negotiations and obtained some important changes to labor agreements as follows: Buenaventura: (a) changes and reduction of payments for sick leave, seventh day and holiday; (b) establishment of special low rates for direct delivery bulk handling; (c) reduction of payments for container handling operations (although still on a by-the-ton basis); (d) freeze in rates for bulk cargo through silos; and (e) elimination of standby (supernumerarios) workers' category used during peak hours. Atlantic Ports: (a) elimination of payments for direct delivery of bulk if port labor is not used and establishment of a compensatory payment to displaced workers; (b) reduction to selected container handling payments; (c) reduction to payments for sick leave; and (d) establishment of maximum number of stevedores and windmen.

6. The corrective measures undertaken by COLPUERTOS' management, together with the impact of changes to labor agreements and the reduction of personnel by attrition and voluntary retirements and resignations, have had a serious and important impact upon the financial situation of the enterprise, changing the nearly endemic operating losses of the 1979-1982 period into operational surplus for the first time in 1983.

7. COLPUERTOS' management is seeking additional changes under the ongoing negotiations, adopting a strong but conciliatory attitude toward the labor unions. A strategy that may render extremely important gains, consisting of ensuring employment to its workers, thus limiting reduction of personnel to attrition and voluntary premature retirement or resignation, has been adopted by the management. However, workers would have to agree, in principle, to: (a) change the pension benefits of personnel who joined COLPUERTOS within the last two to three years, to be in line with those established by the Social Security Law; and (b) contribute to their pensions on a percentage basis, when and if a new pension system is developed.

8. COLPUERTOS and the Government, during appraisal, expressed their commitment to establish a new pension system; although an early workers' agreement would, undoubtedly, prevent delays, such commitment would have to be formalized. Based upon the preceding, the proposed project includes

provisions to ensure COLPUERTOS and the Government's commitment to the establishment of a new pension system; COLPUERTOS has already retained actuaries to determine its pension requirements (Annex 2).

9. In addition, COLPUERTOS and the Government expressed their agreement to commit themselves to continuing their efforts to rationalize payments to workers, relating payments to productivity during future labor agreements. This commitment would be reflected in a letter of representation which stipulate the targets to be sought by COLPUERTOS during future labor negotiations as follows:

- (a) rationalization of gang sizes in accordance with operational requirements and cargo handling systems used; and
- (b) modification to payment systems for container operations from by-the-ton to by-the-container basis.

Since containerization is now being introduced, the principle of 24-hour working should also be addressed.

B. Equipment Requirements

10. Equipment requirements for the project ports were determined jointly by COLPUERTOS and the Bank. The methodology developed by COLPUERTOS was reviewed and found satisfactory by the appraisal mission: it is based upon operational analyses and actual and expected productivity. Total equipment requirements were determined based upon traffic forecasts, physical condition and expected useful life of COLPUERTOS' existing plant of equipment and the availability of privately owned equipment. Existing COLPUERTOS' and privately owned light cargo-handling equipment (namely forklifts and tractors for general cargo) is sufficient to cope with traffic growth up to 1988; private equipment is used because of the shortage of COLPUERTOS' light cargo-handling equipment due to poor maintenance. However, until recently, port users incurred a double payment because they had to pay full tariffs to COLPUERTOS for less-than-full services and, in addition, had to cover the costs of private equipment. This situation encouraged COLPUERTOS' inefficiency because the enterprise collected revenues for services not provided, and equipment operators were paid even when they did not participate in the provision of services. Present management has undertaken a plan to rehabilitate light equipment which is only five years old and is out of service for lack of spare parts. During 1984, the enterprise procured about US\$0.8 million of spare parts, and the rehabilitation plan is already under way; it is expected to reduce, but not eliminate, the participation of private equipment.

11. To eliminate the double payment incurred by the users, COLPUERTOS COLPUERTOS has changed its operational procedures and it is currently paying for the rent of private light cargo handling equipment to private equipment rental companies and will reimburse under special circumstances the users for the corresponding costs if they rent it directly. To discourage inefficiency, COLPUERTOS has also changed its operating regulations eliminating payments to operators who do not participate in the provision of services when private equipment is used. When some of the existing equipment

either COLPUERTOS' or privately owned, reaches the end of its economic life, it would be necessary to replace it.

12. An analysis prepared during appraisal shows that new operating costs of light equipment provided by COLPUERTOS would bring about considerably higher results than if some equipment were provided by private rental companies. Under these circumstances, COLPUERTOS should abstain from acquiring additional light equipment and allow rental companies to provide it, unless the enterprise is able to reduce its operating costs to levels comparable with those obtained in the private sector. This matter was discussed and agreed by COLPUERTOS and the Government during negotiations.

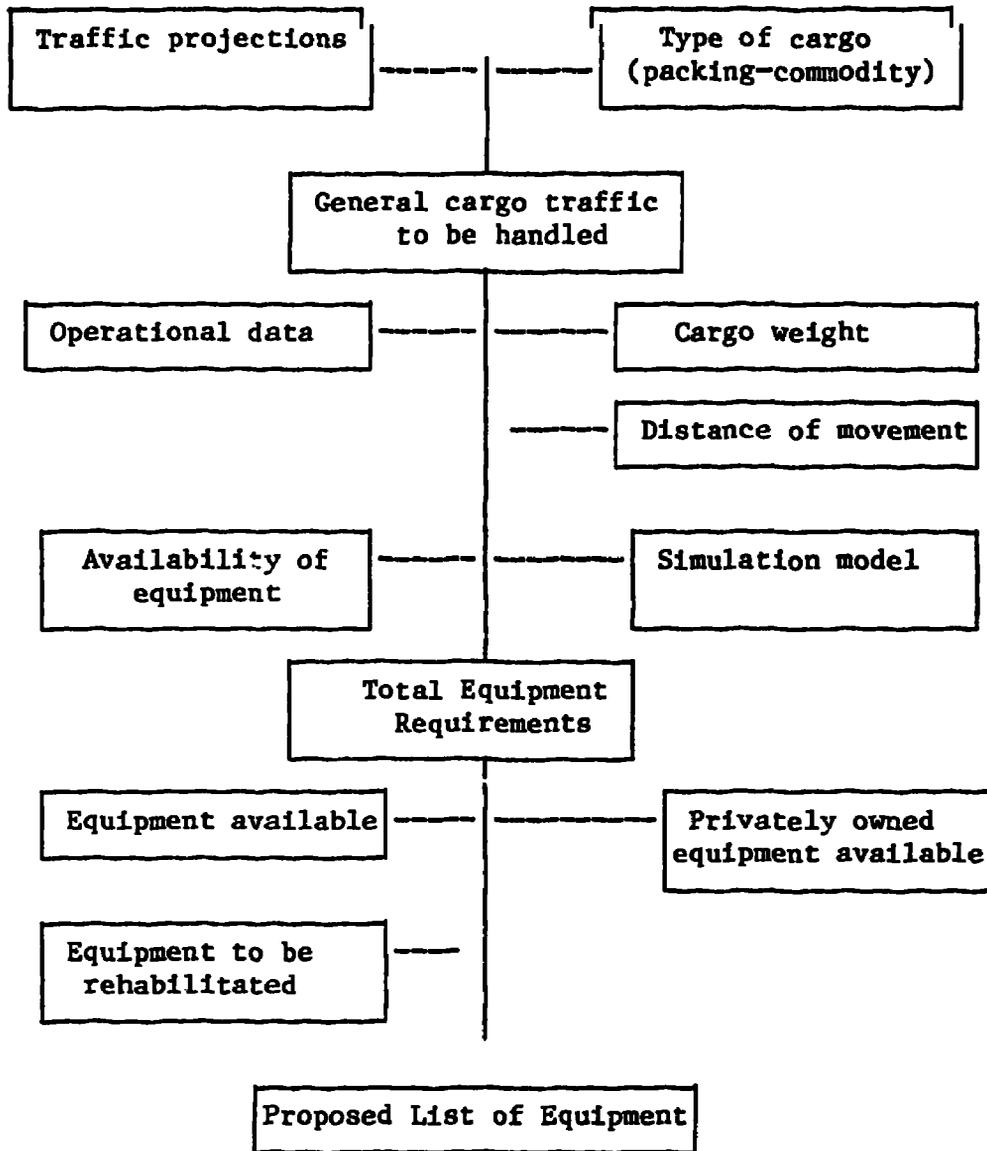
13. The project will finance heavy cargo handling equipment and container handling equipment. The former would replace COLPUERTOS' equipment that is 15 to 25 years old, that cannot be economically repaired and that would be scrapped during the period of project implementation; besides, additional units would be provided to cope with traffic growth. The table below shows the year of acquisition of existing equipment and identifies the units to be replaced.

	<u>Yr. of Acquisition</u>			<u>Proposed Equipment</u>	
	<u>1962</u>	<u>1970</u>	<u>1979</u>	<u>Replacement</u>	<u>Additional</u>
15,000-lb forklift trucks	-	15	24	15	9
16-ton mobile cranes	-	9	10	9	-
30-ton mobile cranes <u>1/</u>	1	2	-	3	1

1/ These cranes will be replaced with 40-ton capacity ones.

The replacement and provision of heavy cargo handling equipment will avoid cargo damage and truck/wagon and ship delays by handling cargoes weighing between 5 and 40 tons more efficiently. The container handling equipment will supplement existing COLPUERTOS' and privately owned equipment and will provide the necessary capacity as traffic increases. Some of COLPUERTOS' existing equipment is 25 years old (45,000-lb. forklift trucks) and has already been replaced by privately owned equipment. The project will include yard tractors and trailers and will establish their use as a regular feature of container operations at all the project ports to achieve improved productivity.

14. Cargo handling equipment requirements were determined using all information, data and results of methodology described above. The process can be shown schematically as follows:



The equipment to be procured would cover the current shortages of equipment and additional equipment to cope with traffic increases up to 1991. The proposed list of equipment that would be included in the project is given in Table 3.2.

C. Port Productivity and Productivity Targets

15. To measure the productivity of the project ports, port statistics were analyzed and compared with those of other ports. The following performance indicators were used: (a) Berth Performance Index (BPI), average rate based upon total time ships occupy berths; (b) Cargo Performance Index (CPI), average rate based upon net time ships are engaged in loading and discharging cargo; and (c) Gang Performance Index (GPI), average rate based

upon CPI and the average number of ships hatches worked simultaneously per ship; this index is expressed in terms of ton/gang/hour. It was obtained directly for Colombian ports based upon actual average hatches worked at the project ports.

16. The comparison of performance indicators precludes adjustments for bringing all ports into an absolute common basis since there may be disparity in port working hours, size of shipments, weather conditions, etc. To isolate the effect of these factors, a Cargo/Berth (C/B) ratio was determined which measures time actually spent in loading and discharging ships as a proportion to total time that ships occupy berths.

17. Table 1 of this annex shows the comparison of performance indicators and ratios of the project ports with other ports of similar size and volume of traffic handled and with the average for a sample of 220 ports of the world. The analysis of this table leads to the following conclusions:

- (a) Cargo performance (CPI) at the project ports is generally in line with that of other ports; this indicates that, despite the bad condition of existing facilities, port workers are able to handle cargo at reasonable rates; the gang productivity also reflects the effect of covering the ports' equipment shortage with equipment provided by the users. The effect of improved port facilities and availability of equipment to be provided under the proposed project leaves a margin of improvement to gang productivity; and
- (b) the comparison of C/B ratios indicates that idle time of ships alongside berths in the project ports is considerably larger than it is in other ports. While, in the case of the Colombian ports, ships are idle for about 60-70% of the total time that they occupy berths, the average for 220 ports is only 30%. This indication reflects, among other things, a lack of port operations planning, unsatisfactory labor working time controls, poor equipment maintenance services, inadequate port traffic organization and signalization, and inappropriate preparation of cargo/storage areas. The proposed technical assistance component to improve port operations, followed by the implementation of adequate administrative corrective measures to be identified through this assistance, would assist the ports in alleviating these problems and, consequently, would improve productivity and performance. An outline of this technical assistance is given in Appendix A to this annex, and draft terms of reference are in the Project File.

18. The main causes for the low productivity at the project ports may be summarized as follows:

- (a) restrictions imposed upon the use of heavy cargo handling equipment alongside quays due to the degree of deterioration. This applies to Buenaventura and Santa Marta;

- (b) narrowness of quay aprons. At Buenaventura, this problem is affecting quays 2 to 6 since a semi-fixed pipeline alongside these quays are narrowing the apron and obstructing loading/discharging operations. At Cartagena, finger piers 1 and 2 have narrow aprons 8 to 10 m wide;
- (c) restricted access to quays and storage areas. This applies to quays 2, 9 and 10 at Buenaventura and quay number 1 at Santa Marta, where access is restricted because of settlements of backfill. At Buenaventura, the access road to open storage areas behind quays 2 to 8 is neither paved nor used;
- (d) poor maintenance services. This problem causes interruptions to port operations as a result of continuous failures of equipment assigned to work;
- (e) shortage of container-handling equipment. Although some of this shortage is alleviated by equipment provided by port users, they give preference to their own vessels, and the others have to wait;
- (f) shortage of equipment to handle heavy cargo (over 15 tons). At all the project ports, this problem causes damage to cargo by necessitating the use of several forklift trucks to mobilize it; also, delays occur in receiving/dispatching heavy cargo because the user has to hire 16-to-40-ton capacity cranes wherever these can be found (Medellin, Cali and sometimes Bogota);
- (g) poor method of handling overall port operations. Operations at all project ports are carried out following the traditional daily meetings to define berth, labor and equipment to be assigned to each vessel. These meetings are attended by the agents, each one looking after his own ship, and the head of port operations. All ships are served on the basis of first-come/first-served. No overall planning exists nor do regulations concerning the admittance of trucks to deliver/receive shipments, coordination with railway services, delivery and reception of cargo, container storage and inspection and internal port traffic and signalization. This lack of planning applies to the absence of specific provisions to better serve full-container vessels, such as the introduction of the principle of 24-hour working. The ports lack an operational analysis unit to monitor and analyze port operations and resources used for mobilizing the various types of cargoes; statistical information is voluminous and complicated, and most of it is rarely used at port level or at headquarters level for improving productivity or/for medium- and long-term planning. Port documentation is complicated and obsolete; and
- (h) inefficiency of all the project ports' maritime services. This inefficiency results from, among other things, the lack of maintenance of the existing tugboat fleet.

19. Specific investments/actions that would be included in the proposed project to improve productivity and efficiency are as follows:

- (a) rehabilitation of existing facilities would reduce and eliminate restrictions described in paragraph 18(a) to (c);
- (b) the equipment component of the proposed project would eliminate shortage of port equipment, including general cargo and container-handling equipment and tugboats as described in paragraphs 18(e), (f) and (h);
- (c) the technical assistance, training and workshop equipment included in the proposed project would eliminate deficiencies of port maintenance services at all project ports, as described in paragraph 18(d), and
- (d) improvements for servicing full-container vessels by the introduction of the principle of 24-hour working would be addressed by COLPUERTOS during future labor negotiations (para 9 of this annex) and have therefore been partially considered in the determination of productivity targets.

20. Based upon a detailed analysis of current port operations, specific efficiency indicators have been prepared for general cargo and containers, in terms of ton/gang/hour (GPI), and ton/ship/day (BPI); the latter also includes dry bulk. The proposed project would not include investments to improve bulk-handling systems, but productivity rates for this type of cargo, through the actions/investments mentioned in paragraph 19, would improve the C/B ratio. Port efficiency indicators' data and analyses are in the Project File.

21. Table 2 of this annex summarizes the results of productivity analyses translated into productivity targets by main commodity groups and by port.

22. These productivity targets would have to be reviewed early in 1988, and refined by COLPUERTOS with the assistance of the consultants to be retained to improve port operations. The increase in terms of ton/gang/hour is reasonably modest because port workers are able to handle cargo at acceptably good rates; the average increase of about 19% is considered acceptable. The area in which there is more room for improvement is the increase of effective working hours, and it should have a favorable impact upon operating costs.

COLOMBIA

ANNEX 3
Table I

PORTS REHABILITATION PROJECT

Comparison of Operational Efficiency of Colombian Ports with Other Ports

<u>Port</u>	<u>Annual Throughput</u> (000 tons)	<u>Cargo-Handling Rate</u> (ton/ship/hour)		
		<u>BPI 1/</u>	<u>CPI 2/</u>	<u>(1)/(2)3/</u>
		(1)	(2)	(3)
<u>General Cargo</u>				
Buenaventura	990	22.5	61.3	.36
Cartagena	830	27.8	71.1	.39
Recife (Brazil)	780	27.5	55.2	.50
Veracruz (Mexico)	1,040	20.1	43.5	.46
Valencia (Spain)	1,010	12.3	27.7	.44
La Guajira (Venezuela)	642	330.9	419.1	.79
Barranquilla	380	14.7	49.8	.29
Santa Marta	330	17.4	49.5	.35
San Diego (USA)	319	433.7	453.4	.95
Mazatlan (Mexico)	140	15.5	44.9	.34
Townsville (Australia)	197	38.0	82.4	.46
Kiel (Germany)	101	61.2	67.4	.91
<u>Average 220 Ports</u>	N.A.	25.9	37.7	.69
<u>Dry Bulk</u>				
Buenaventura	978	46.2	124.8	.37
Barranquilla	201	26.4	93.5	.28
Cartagena	164	39.8	71.8	.55
Santa Marta	50	34.2	80.3	.42
Progreso (Mexico)	262	32.8	70.1	.47
La Guaira (Venezuela)	469	37.9	38.6	.98
Maracaibo (Venezuela)	551	99.4	128.4	.78
San Diego (USA)	908	235.8	242.7	.97
Palm Beach (USA)	797	124.4	186.5	.66
<u>Average 220 Ports</u>	N.A.	100.6	122.8	.82

- 1/ Average rate cargo moves between ship and shore based upon the total time ships occupy berths, measured in tons/hour.
- 2/ Similar to BPI, but based upon the net time ships are engaged in loading and unloading, measured in tons/hour.
- 3/ C/B ratio time actually spent in loading and discharging ships as a proportion of total time that ships occupied berths;

Source: Port Performance Index - 1984

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Productivity Targets 1/

<u>Port</u>	<u>Type of Cargo</u>	<u>Ton/Gang/Hour 2/</u>				<u>Tons/Ship/Day 3/</u>			
		<u>Actual</u> <u>(1984)</u>	<u>1987</u>	<u>1989</u>	<u>1991</u>	<u>Actual</u> <u>(1984)</u>	<u>1987</u>	<u>1989</u>	<u>1991</u>
Buenaventura	<u>General</u>								
	(a) Homogeneous	18	19	21	22	590	640	890	1,040
	(b) Miscellaneous	11	12	12	13	350	440	530	620
	Containers <u>4/</u>	6	7	8	8	106	130	162	192
	Dry Bulk	42	45	47	50	1,470	1,780	2,090	2,400
Cartagena	<u>General</u>								
	(a) Homogeneous	14	15	16	17	510	600	690	780
	(b) Miscellaneous	11	11	12	13	410	480	550	620
	Containers <u>4/</u>	6	7	8	8	106	130	162	192
	Dry Bulk	36	38	40	43	950	1,010	1,080	1,140
Barranquilla	<u>General</u>								
	(a) Homogeneous	12	13	14	15	350	430	510	590
	(b) Miscellaneous	11	12	12	13	300	370	440	510
	Containers <u>4/</u>	4	5	6	6	58	63	68	72
	Dry Bulk	31	33	35	36	630	740	860	980
Santa Marta	<u>General</u>								
	(a) Homogeneous	19	21	22	23	590	700	810	920
	(b) Miscellaneous	13	14	15	15	390	460	540	610
	Containers <u>4/</u>	4	5	6	6	58	63	68	72
	Dry Bulk	27	28	30	32	830	930	1,040	1,150

1/ Weighted average - import/exports

2/ Based on net time ships are engaged in loading and unloading operations.

3/ Based on total time ships occupy berths.

4/ Productivity expressed in TEU

Source: 1983 Equipment Requirements - COLPUERTOS

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Outline of Technical Assistance for Improvement of Port Operations

The cost of these consulting services to improve port operations will be financed by COLPUERTOS, supplemented by funds from the loan under negotiation with the World Bank.

It is COLPUERTOS' intention that the technical assistance to which these terms of reference relate shall be eminently practical. This will require the consultants to work, in all cases, in close collaboration with the chiefs of operations of the ports and the pertinent supervisory personnel. Terminal managers will be directly responsible for taking the necessary measures to ensure that the recommendations, regulations, etc. prepared by the consultants are implemented in a manner to accomplish the purposes described in the following paragraphs. Managers will have to secure the participation of users and other entities (railways, truckers, etc.) whenever necessary.

The Port Implementation Unit (PIU) will be responsible for coordinating the work of the port operations consultants with that of the consultants developing the management information and cost accounting systems and helping the Ports to reorganize their maintenance services.

Objectives

The objectives of the technical assistance for improvement of port operations are to: (a) increase the operational productivity of the ports; (b) rationalize the utilization of the available physical and human resources; (c) coordinate the port services with users' needs and land transportation services; (d) define, simplify and implement general and container cargo control systems; (e) define and implement cost centers for each service; (f) simplify cargo reception and delivery procedures; and (g) coordinate port activities with Customs procedures.

Scope of the Work

To accomplish the foregoing objectives, the consultants' services have been divided into the following phases:

Phase 1: (a) analysis of present and future traffic composition, cargo-handling systems and controls; (b) analysis of the operations' organization of the port, including physical and human resources; (c) identification of immediate measures to improve present operations; and (d) preparation of an immediate plan of action to implement those measures. This phase is expected to last six weeks.

ANNEX 3
Appendix A

Phase 2: (a) implementation of the Phase 1 plan of action; (b) preparation of a plan for the rationalizing of operations' personnel; (c) preparation of port operations regulations; (d) analysis of the viability of concessioning selected port services; (e) development and implementation of simplified port statistics; (f) simplification of port documentation; (g) development of port operations planning; and (h) review of productivity targets and monitoring systems.

The duration of this phase is estimated at four months. Upon its completion, the consultants shall present a report covering, among other points:

- (a) the results of the action plan; and
- (b) operations manpower rationalization plan.

Phase 3: Implementation of Phase 2. The duration is estimated at 10 months, at the end of which the consultant shall present a Draft Final Report for COLPUERTOS and Bank review, followed by a Final Report incorporating the corresponding comments.

Phase 4: Six months after completing Phase 2, assessment of the additional recommendations for further improvement. This phase is estimated at one month, and, upon its completion, the consultants shall present an evaluation report.

COLOMBIA

PORTS REHABILITATION PROJECT

Outline of Technical Assistance for Reorganization of Repair and
Maintenance Services

Objectives

1. The objectives of the technical assistance to improve repair and maintenance services are to: (a) organize an equipment management system; (b) ensure the availability and efficiency of port equipment, existing and new, to be procured under the Ports Rehabilitation Project; and (c) establish policies for replacement of equipment.

Scope of the Work

2. The consultants' services to assist COLPUERTOS in the reorganization of the maintenance services at the project ports will be divided into four phases, to enable the ports to undertake immediate corrective measures, develop an organization and operating methods and controls, and, in the short-term, assess the results. These phases will include, but not exclusively:

Phase 1: (a) a diagnosis of the existing organization; (b) an assessment of maintenance staff qualifications; (c) an assessment of physical facilities and resources; (d) a critical analysis of current maintenance preparation of an action plan for their implementation; and (f) an analysis of maintenance and repair requirements in the light of physical conditions of existing plant of equipment and programed acquisition of additional units. This phase is estimated to last about six weeks.

Phase 2: (a) implementation of the Phase 1 plan of action; (b) the design of a suitable organization of the services, including specific functions and responsibilities of all staff concerned; (c) preparation of manuals for preventive maintenance and mobile maintenance units; (d) design of control systems for inventories, fuel and lubricants consumption, and maintenance and safety; and (e) design of an adequate diagnostic method and quality control.

Phase 3: (a) implementation of reorganization of the services, including reassignment of personnel and machinery and tools; (b) preparation of bidding documents for the acquisition of machinery and tools and diagnostic instrumentation to adequately equip the port workshops and maintenance facilities; and (c) implementation of the use of manuals and control systems. This phase is expected to last about 36 weeks.

ANNEX 3
Appendix B

Phase 4: Six months after completion of Phase 3, the consultants would go back to the ports to: (a) assess the performance of the reorganized maintenance services and the personnel assigned thereto at each port; and (b) recommend corrections to the established systems and controls. This phase will last about one month.

Reporting

3. The consultants will prepare: an inception report, after completion of Phase 1; an interim report, Number 1, including manuals and control systems, and an organization manual, including detailed functions and responsibilities; monthly progress reports, during Phase 3. A Draft Final Report followed by a Final Report incorporating COLPUERTOS and Bank comments, after completion of Phase 3, and an evaluation report, after completion of Phase 4.

COLOMBIA

PORTS REHABILITATION PROJECT

Detailed Project Description

A. General

1. The proposed project would consist of: (a) the rehabilitation of port facilities at three of the four deepwater commercial public ports of the country, namely, Buenaventura on the Pacific Coast, and Cartagena and Santa Marta on the Atlantic Coast; (b) cargo handling equipment to supplement COLPUERTOS' and privately owned, second-hand tugboats to partially replace the existing fleet; workshop machinery and tools; training equipment and training-related material; and computer equipment complementary to that existing; and (c) professional services for: (i) technical assistance to help COLPUERTOS to strengthen its managerial, administrative and operational capabilities; (ii) training of COLPUERTOS personnel; and (iii) engineering and studies.

B. Civil Works

(i) At Buenaventura

2. Repairs to Quays 2 to 9: These quays need to be repaired since they are seriously deteriorated as a result of: poorly maintained fender systems (the berthing beam and a large number of concrete piles are seriously damaged); defective design (some quays' sections were built with no retention structures to contain backfilling); and poor construction and age (a large part of the structure's steel reinforcement is exposed and corroded). Paving and Repaving: Storage areas behind berths 2 to 5 are damaged and would be repaved under the project (concrete slabs are fractured, and settlements cause flooding during raining spells that occur most every day). Storage areas behind berths 6 to 9 and the corresponding access road have never been paved and lack drainage and lighting. Covered storage: Most of the areas adjacent to, and between, transit sheds have been covered in recent years to allow cargo operations during rainy periods (there is an average precipitation of about 770 mm per year). The project includes construction of roofs for similar areas not yet covered. Emergency Power Plant: There are continuous power interruptions in the port due to unreliable municipal services to which the port is connected. The proposed project includes an emergency power plant.

(ii) At Cartagena

3. Repairs to Finger Piers 1 and 2: These piers would be repaired since they are also deteriorated as a result of lack of fenders (this has caused damages similar to those in Buenaventura) and poor construction (corrosion of exposed steel reinforcement); the repairs would also include demolition of an existing old transit shed in finger pier 1 to enable this berth to handle container traffic. Remodeling of Sectors 3 and 4: These sectors would be remodeled under the project, being paved and having a new transit shed constructed to replace the ones to be demolished at pier 1 and sectors 3 and 4. Emergency Power Plant: For same reasons as in Buenaventura, an emergency power plant would be included in the project.

(iii) At Barranquilla

4. Emergency Power Plants: This port, more than the others, suffers continued power interruptions; the project would include two emergency plants.

(iv) At Santa Marta

5. Repairs to quay 1, 2 and 3: These quays would be subject to partial reconstruction and urgent repairs because of their serious degree of deterioration due to faulty design and poor construction (no retention wall was built to contain the backfill; about 60 piles of the front row have been broken by berthing vessels; and the concrete structure's steel reinforcement is exposed and corroded). Quays 4 and 5: These quays would be repaired to replace broken piles, construct a new berthing beam and replace the existing fender system. Emergency Power Plant: An emergency power plant would be included in the project to avoid interruptions caused by unreliable municipal services to which the port is connected.

C. Equipment

6. Equipment requirements are based upon: (a) operational analyses carried out by COLPUERTOS for each type of cargo operation to determine the resources required. These analyses were reviewed and found satisfactory by the appraisal mission. The methodology followed is described in Annex 3, and the full analysis is in the Project File; (b) traffic projections; (c) physical conditions of COLPUERTOS' plant of equipment, taking into consideration an ongoing equipment rehabilitation plan undertaken by the ports; and (d) availability of privately owned equipment currently used at the project ports.

7. The project would finance the purchase of heavy load and container handling equipment, harbor craft, workshop machinery and tools, training and computer equipment. Heavy load equipment: This includes heavy forklift trucks and mobile cranes to replace old equipment purchased in 1970 or before, and additional heavy forklift trucks to cope with traffic growth; the list of heavy load equipment takes into consideration the availability of privately owned forklifts and cranes. Container handling equipment: This includes equipment supplementary to that presently existing, both COLPUERTOS' and privately owned, to cover current shortage and provide for traffic growth; in addition, to enable the ports to adopt, on a regular basis, the tractor/trailer marriage system to mobilize containers from/to shipside to container stacking area, yard tractors and trailers and 18,000-lb. and 65,000 lb. forklift trucks have also been included in the list. Harbor craft: COLPUERTOS' tugboat fleet is 35 years old and extremely expensive to maintain, making COLPUERTOS' maritime services unreliable. At Buenaventura, there are two tugs, one of which is going to be repaired with a new engine; there are no private tugs available, and, when no tugboat is available, some small navy tugs, inadequate for these services, are used; at the Atlantic ports, COLPUERTOS has four more tugs, one of which is going to be repaired with a new engine. Private tugs are available, but only two of them are appropriate to provide services to COLPUERTOS. The proposed project includes the acquisition of four second-hand tugboats to partially replace the existing fleet. Workshop, Training and Computer Equipment: This would include: (a) workshop equipment to enable the ports to provide proper

preventive and corrective maintenance services; the corresponding list would be prepared by the experts to be retained to assist COLPUERTOS in restructuring these services under the technical assistance project component; (b) training equipment, with characteristics to be defined by COLPUERTOS with the assistance of a training expert to be retained by COLPUERTOS; and (c) computer equipment for the implementation of management information systems, with characteristics to be defined by the experts assisting COLPUERTOS to develop such systems.

8. Procurement of cargo handling equipment includes equipment to replace obsolete existing units and to cover the shortage for current traffic levels, as well as additional equipment to cope with traffic growth.

D. Technical Assistance

9. The technical assistance that would be included in the proposed project consists of: (a) improvement to COLPUERTOS' financial management systems, including general and cost accounting, tariff structures, financial planning and budgetary controls; (b) improvement to COLPUERTOS' management information systems; (c) strengthening and improvement to the ports' operations planning procedures, cargo-handling methods and controls and simplification of port documentation; and (d) reorganizing of port maintenance and repair services.

10. An important element of this technical assistance is the upgrading of the ports' maintenance services which would be achieved with the support of carefully selected experts, who, together with port staff, would prepare a diagnosis, an immediate plan of corrective measures, the design and regulations of a modern maintenance system followed by a period of implementation and ending with an assessment of results achieved. Outlines of the scope of work for items (a) and (b) are given in Annex 2; and for items (c) and (d), in Annex 3.

E. Training

11. The training component would include: (a) advisory services to prepare and implement a training program; (b) port planning, operations and maintenance courses and seminars for mid- and top-management; (c) COLPUERTOS' participation in regional and international ports and shipping conferences and congresses; and (d) fellowships for COLPUERTOS' professional staff. Details of the training component and the scope of the training advisory services are given in Annex 5.

F. Engineering and Studies

12. The proposed project would include: (a) supervision of construction; (b) engineering studies and design for COLPUERTOS' next investment: plan to equip selected ports with full container and bulk handling facilities; and (c) feasibility studies for the expansion of Colombia's port capacity on the Pacific Coast; and (d) a study to define institutional arrangements to establish a viable dredging entity.

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Details of the Training Component

A. General

1. COLPUERTOS' senior-level staff are generally capable; lower and middle-level personnel require additional training and/or upgrading to enable them to employ more efficient work methods. During the past years, limited training activities have been carried out in each port by the respective training division under the Industrial Relations Department (IRD).

2. During project preparation, COLPUERTOS, following Bank recommendations, started to develop a training policy to strengthen the capacity of the enterprise's personnel at all levels. COLPUERTOS' management has already entered a formal agreement with SENA, which became effective on January 1, 1985, for the provision of regular training services. SENA is expected to provide: (a) regular training courses for equipment operators, mechanics, and administrative staff at each one of the project ports; and (b) seminars on industrial safety, work incentives, managerial skills, development of working team attitudes and other subjects oriented to create an enterprise's consciousness among its employees. COLPUERTOS' training is currently being reorganized; the responsibility of social and welfare activities has been transferred to other departments. Bogota and each of the ports have two and one experts, respectively, who, at the present, are defining with SENA a preliminary training program limited to SENA's current capabilities.

3. COLPUERTOS' management agreed to the establishment of: (a) a Training Steering Committee (TSC) which would be responsible for the development of long-term training policies, approval of training programs and required budgetary allocations, monitoring of training activities and their periodical evaluation; and (b) a Training Supervisory Unit (TSU) that would be responsible for the coordination and supervision of training activities, headed by IRD and assisted by the advisory services to be retained.

4. The Project-Related Training (PRT) will include: (a) advisory services; (b) in-house courses/seminars; (c) selected specialized courses for mid- and top-level managers abroad; (d) participation of COLPUERTOS' staff in international/regional ports and shipping conferences/congresses; (e) working visits to selected ports to familiarize COLPUERTOS' managers, operations staff and port workers with container operations methods, systems and controls, as well as with tariff structures, methods of payment, labor participation and rationalization of operations; (f) fellowships for selected COLPUERTOS' young professionals for academic courses and practical training in port administration and planning; and (g) acquisition of training equipment and material.

5. The integrated training program, including SENA's services, would require its active participation to achieve the transference of the instructors/experts' experience and enable it to, in the future, expand its services to cover specialized port training that, at the present, it cannot cover. This is of particular importance because COLPUERTOS will continue to pay SENA for training services as a percentage of the latter's payroll, as stipulated by the law.

6. The advisory services that would be included in the proposed project to assist COLPUERTOS in strengthening its training capabilities and support the preparation and implementation of a four-year integrated training program would consist of: (a) reorganizing the training services at Bogota and at the project ports; (b) assessing the capability of personnel and determining required training; (c) adapting physical training facilities; (d) developing a phased training program, phase one covering a two-year Priority Program and phase two being a Regular Program to consolidate actions taken during phase one; (e) selecting trainees, instructors, training seminars/courses, materials and candidates for fellowships; (f) designing a training monitoring and evaluating system; and (g) organizing, coordinating and supervising the implementation of the integrated program.

7. The preparation of the training program would take into consideration all available courses/seminars and the need for coordination with the Bank and other international organizations/associations; the organization of some high level courses on a regional basis should also be analyzed. Estimates of COLPUERTOS personnel to be trained and preliminary cost estimates of the PRT are given in Tables 1 and 2 of this annex respectively.

B. Plan of Action

8. To ensure the effectiveness of the PRT, COLPUERTOS has undertaken the following steps:

- (a) retained training experts for the advisory services referred to in preceding paragraph 6;
- (b) prepared a preliminary training program to be undertaken by SENA;
- (c) established a TSC and TSU with SENA's participation in the latter;

9. At negotiations, COLPUERTOS agreed to implement the plan of action which would include:

- (a) preparation of an integrated four-year training program;
- (b) rehabilitation/expansion of COLPUERTOS/SENA's training facilities;
- (c) selection of fellowship courses and candidates; and

- (d) selection of instructors/experts for courses/seminars in Colombia and abroad.

Training Monitoring and Supervision

10. TSU would prepare detailed monthly reports that would be incorporated into the Quarterly Progress Report (Annex 7). TSU's reports would include, but not exclusively, details of the courses, number of participants, locations, etc., carried out during the period and of the activities programed for the next period.

Selection of Instructors/Experts/Courses

11. The selection of individual experts and/or firms, organizations, associations, etc. to participate in the implementation of the training program would follow the Bank Guidelines for consultants' services.

October 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Estimates of Personnel to Be Trained

Description	Buenaventura	Barranquilla	Cartagena	Sta. Marta	Total
1. OPERATIONS	2,200	930	1,300	1,000	5,430
2. MAINTENANCE/ EQUIPMENT	120	96	74	50	340
3. FINANCE	<u>60</u>	<u>70</u>	<u>60</u>	<u>40</u>	<u>230</u>
<u>TOTAL</u>	<u>2,380</u>	<u>1,096</u>	<u>1,434</u>	<u>1,090</u>	<u>6,000</u>

Source: COLPUERTOS and Port Terminals

June 1984

COLOMBIA
PORTS REHABILITATION PROJECT
Training
Preliminary Cost Estimates 1/

	<u>Local</u>	<u>Foreign</u> (US\$ '000)	<u>Total</u>
Advisory Services	46	177	223
Training Courses by Experts	191	617	808
Courses and Seminars (abroad)	-	199	199
Study Visits and Congresses	-	103	103
Fellowships	-	422	422
Training Materials	-	50	50
Miscellaneous (per diem for trainees) etc.	-	50	50
<u>TOTAL</u>	<u>237</u>	<u>1,321</u>	<u>1,528</u>

1/ Manpower is tentatively estimated at about 66 man-months, including experts engaged for the courses and seminars abroad.

Source: Mission estimates

February 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Economic Evaluation

I. General Methodology

1. For the purposes of the economic evaluation, the following project components were analyzed separately:

- (a) civil works, including quay repairs, paving and improvements to structures;
- (b) cargo-handling equipment; and
- (c) tugboats.

The civil works components were justified mainly on the basis of avoidance of reductions in port capacity and higher operating costs through the rehabilitation of infrastructure to restore service levels. In some cases (paving, roof extensions), the civil works were also designed to improve efficiency levels. The cargo handling equipment component was designed to provide capacity to meet projected traffic flows. Benefits include avoidance of lighterage costs and cargo handling costs with the project. The tugboats will partially replace the existing 32-year old fleet.

2. For the purposes of the economic evaluation, total investment costs include the cost of works already under way in Cartagena and Buenaventura which are required in order to achieve project benefits, even where these costs will not be financed under the project. Investment costs are exclusive of taxes and duties and include physical contingencies, engineering and supervision. A project life of 25 years was taken for quay repairs, 20 years for roof extension, and 15 years for paving improvements. For the equipment component, a project life of 15 years was taken for the second-hand tugboat repairs and 15 years for cargo handling equipment.

3. At present, approximately 30% of foreign seaborne commerce using public ports is carried by national flag vessels and 70% by foreign vessels. Most of the benefits from the project derived from traffic transported on foreign vessels will be passed on to the Colombian economy, since, without the project, foreign liners would impose surcharges on Colombian cargo in order to recover the costs of excessive ship service times. Surcharges have been imposed during periods of congestion in the past. With the project, these surcharges would be avoided. To account for this effect in calculating the economic return for the paving and structures works and equipment acquisition programs, only half of the benefits from reduced waiting and service time of foreign liner ships have been considered, which is conservative.

II. Economic Evaluation of Project Components

A. Civil Works

(1) Quay Repairs (31% of project costs)

4. The port rehabilitation project includes the renovation of berths in Buenaventura, Cartagena and Santa Marta. Present facilities are in an extreme state of disrepair, and, without the project, are expected to become inoperational over time. Table 1 of this annex shows the expected rate of deterioration in berth capacity in each of the project ports if they are not rehabilitated. In the Buenaventura and Cartagena ports, the repairs are relatively minor. The work is more difficult and costly in Santa Marta where the existing superstructure will have to be removed before rehabilitation. The economic appraisal of the project quantified four sources of benefits resulting from the proposed port improvements: ship waiting time savings, avoidance of lighterage costs, elimination of double-handling of cargo, and reduction in cargo losses due to lighterage. In order to avoid double-counting of benefits, it was assumed, in both the "with" and "without" project case, that the other project components would be carried out. In addition, improved Santa Marta grain throughput, due to more efficient use of the silos, is assumed in both the "with" and "without" project cost.

5. Without the project, the convergence of declining berth capacity and rising traffic would create congestion, resulting in prolonged ship delays.^{1/} It is not likely that general cargo traffic would divert to private specialized terminals. Instead, to minimize waiting time costs, ship owners would resort to lighterage. The expected distribution of port traffic, which would tend to minimize overall ship waiting time and lighter operations, has been estimated by assuming that no ship would wait for the berth if its per ton of cargo cost of waiting exceeded the cost of lighterage.

6. In the "with the project" case, berth capacity would be restored to original levels. However, increasing levels of traffic would eventually lead to congestion and diversion of traffic to lighterage. As such, benefits have been assumed to remain constant after the year in which the port reaches full capacity. Capacity is expected to be reached, with the project, in 1992 at Santa Marta, 1993 at Cartagena, and 1996 at Buenaventura. ^{2/} In all ports, repairs would be scheduled to minimize disruption to port operations and to put individual berths back to use as soon as their repairs are completed.

^{1/} In the analysis, it was assumed that a third shift would be introduced when port capacity, under current labor practices, is reached.

^{2/} Congestion at Santa Marta will be partially and temporarily relieved by diversion of some traffic to the nearby, less congested port of Barranquilla. For one to two years, the incremental congestion cost in Barranquilla would be less than the incremental cost in ship waiting time at Santa Marta.

7. Ship Waiting Time Costs. Ship waiting time costs were computed by using the Bank's shipcost model and weighing the costs of individual ship types to reflect their actual mix in each port.

Ship Time in Port Costs
(US\$/Day)

Buenaventura	\$6,818
Barranquilla	\$5,227
Cartagena	\$7,373
Santa Marta	\$6,829

8. Using UNCTAD's average ship waiting time tables for values corresponding to project port characteristics, ship waiting time costs per ton of cargo were estimated as a function of projected traffic growth and, for the "without the project" scenario, declining port capacity. It has been assumed that ship waiting time would remain constant after its value reaches US\$12.80/ton, which is the unit cost of lighterage, including avoidable handling costs. At that point, increases in traffic would be handled more efficiently by lighterage. Diversion of traffic to lighterage would occur in 1989 at Buenaventura, 1989 at Cartagena and 1988 at Santa Marta in the "without the project" case.

9. Lighterage Costs. Lighterage costs include the cost of lighters (depreciation), auxiliary equipment and maintenance and operation. They do not include the cost of shore facilities since adequate landing facilities exist. The per ton cost of an initial lighterage system averages US\$7.00 per ton at the volumes of traffic expected at the project ports.

10. Avoidable Cargo Handling Costs Due to Lighterage. According to a recent study, the avoidable cost of loading/unloading cargo between the ship and berth by lighterage was US\$5.80/ton. This saving was applied to each ton of lightered cargo.

11. Cargo Losses Due to Lighterage. The most recent data indicate that the CIF value of general cargo imports at project ports is US\$546 per ton. The FOB value of general cargo exports has been determined largely by coffee exports (US\$1,500 per ton) and others (US\$1,000 per ton). The average value per ton of general cargo traffic weighed for different import-export composition of traffic gives following values at individual project ports.

Buenaventura	US\$923 per ton
Cartagena	US\$732 per ton
Santa Marta	US\$800 per ton

Cargo damage and losses, normal features of lighterage operations, are estimated at one-fourth of one percent of cargo. Hence, estimated avoidable cargo losses for project ports range from US\$1.46 per ton for Cartagena to US\$2.00 per ton for Santa Marta and US\$2.31 per ton for Buenaventura. These unit costs were applied to each ton of lightered cargo.

12. At Santa Marta, the proposed quay improvements also include provisions for paving surfaces on and along the existing wharves and access roads. At present, general cargo imports are stored throughout the port storage areas, separated from the wharves by access roads which are either unpaved or which have riding surfaces too weak and old to support heavy equipment and provide smooth cargo-handling operations. As a result, some wharves cannot be served by heavy cargo-handling and transport equipment. Equipment operates slowly and breaks down frequently, and long detours are often necessary between the wharves and the storage areas. These problems are reflected in longer ship service time and higher cargo handling costs and cargo damages. With the project, there will be cost reductions and savings in all of the operational aspects mentioned. The reduction in ship time for unloading imports is estimated at 20%; little or no effect is likely for coffee and bananas - the primary export commodities. The ability to use appropriate equipment will benefit all port cargo, except bulk grain imports, by reducing the cargo handling cost by about 5%. There will also be some decline in cargo damage due to rough riding surfaces, estimated at 0.5% and applying primarily to general cargo imports.

13. Details of the economic analysis of the quay rehabilitation works are found in the project file. Table 2 of this annex gives the cost and benefit streams for each port. The estimated economic rates of return are high, which is consistent with the findings in most rehabilitation projects, whereby an asset is restored to originally designed service levels at a relatively low cost. The estimated economic returns for the rehabilitation of the Buenaventura and Cartagena ports are 86% and 63% respectively, and 38% for the Santa Marta port works.

(ii) Paving and Structures (19% of project costs)

14. In addition to the paving improvements at Santa Marta, which were analyzed as part of the quay repairs, the project includes paving and structural improvements in the ports of Buenaventura and Cartagena. At Buenaventura, the roof to the existing transit sheds will be extended, and the storage area and an access road will be paved. At Cartagena, existing transit sheds will be demolished, and the area will be paved to accommodate container storage.

15. Buenaventura: Roof Extension and Paving Benefits (10% of project costs). The proposed roof extension to the existing transit sheds and paving works will permit continuous cargo operations, reducing ship service time at berth and waiting time for land transport vehicles. Interruption in loading and unloading ships caused by inclement weather totaled 270 ship days in 1983. Lack of a covering for transit areas is estimated to account for about 13% of the total time lost because of inclement weather. The daily cost of the vessels which would benefit from reduced ship service times is estimated at US\$11,800. The initial annual ship service time saving to be realized from extending the roof is estimated at US\$269,000. At present, transit sheds benefiting from the proposed improvements handle approximately 240,000 tons of cargo annually. Trucks wait an average of 0.4 minute per each ton of cargo loaded as a result of weather-related work stoppages. With the truck time value of US\$3.03 per hour, the annual cost of avoidable delays is estimated at over US\$5,000.

16. Under this component, the open storage areas and access roads will be paved. In 1983, some 360,000 tons of cargo used open storage. Since it rains 60% of the time in Buenaventura, some 216,000 tons are estimated to have been exposed to the inclement weather. Particularly heavy damage has been experienced by breakbulk cargo, estimated at 150,000 tons stored in the water-clogged patio No. 1, and in the unpaved patios facing transit sheds 6, 7, 8 and 9. The project will improve drainage, thereby reducing rain-connected losses. According to port estimates, oxidization of iron and steel product imports accounts for losses of 10-20% of their value, and losses are higher for some bagged products. Reduction in cargo damage brought about by improvements is conservatively estimated at 1% of the average value of port imports of US\$546 per ton.

17. The main port road surface has been destroyed by rain and heavy traffic, forcing the use of adjacent unpaved areas for cargo and vehicle movements. This situation raises the cost of cargo handling, limits the use of heavy equipment and increases the damage to port cargo and land transport vehicles. A recent study estimates the increase in cargo handling cost due mainly to axle and suspension breakdown at 9% overall cargo handling costs, or US\$1.16 per ton. This cost would be avoided if proposed improvements are implemented. Cargo damages in transit between the ship and storage and land transport and between the storage areas are difficult to quantify. A reduction of 0.5% in the US\$546 per ton value of cargo assumed for this appraisal is believed to be conservative. The economic rate of return for the roof extension and paving works at Buenaventura is estimated at 36% (Table 3 of this annex).

18. Cartagena: Paving Container Yard (9% of project costs). The project will demolish transit sheds and pave the area for container storage. A new transit shed will be built in a different location to provide covered storage for general cargo. The principal benefit of an additional container yard and maneuvering area on the longer berth No. 1 will be a reduction in ship service time. Both areas are close to the container berths, and the project will speed up the container loading and unloading process. The project will also benefit general cargo vessels using the port facilities. A reduction of 15% in ship service time is expected. The estimated economic rate of return on these works is 27% (Table 3 of this annex).

B. Cargo Handling Equipment

19. The benefits of the equipment acquisition program have been estimated separately for each port and major function: container handling and heavy load general cargo handling. The analysis of equipment requirements to meet projected traffic, taking into account the current supply of equipment owned by COLPUERTOS and the private sector, is given in Annex 6. Because the benefits from the project depend, to a great extent, upon the achievement of improved productivity, the equipment program has been divided into two tranches. The second tranche would be approved for financing under the project only after a mid-term review indicates that productivity targets have been met and traffic has developed as expected.

(1) Container Handling Equipment (12% of project costs)

20. At present, COLPUERTOS lacks appropriate container handling equipment. The use of substitute equipment such as forklifts instead of tractors and platforms, or of two small forklifts working in tandem instead of a large one, is reflected in higher ship service time and cargo handling costs. The equipment being procured under the project is required to achieve a technological change which will result in improved productivity. The equipment package is also designed to meet the needs of traffic growth and to replace, as necessary, existing equipment which will be scrapped. Two main sources of benefits have been quantified: (a) ship service time savings; and (b) container handling cost savings.

21. In both the "with" and "without" project case, it has been assumed that the quay rehabilitation works will be undertaken. In addition, in the without project scenario, it is assumed that existing equipment, as it reaches the end of its useful life, will be operated with declining productivity and increasing unit costs. With the project, improved methods of handling container traffic will be possible with the introduction of appropriate equipment, and productivity levels are expected to increase. Specifically, the following productivity levels are expected in line with targets established in Annex 6:

<u>Port</u>	<u>WITHOUT PROJECT</u>		<u>WITH PROJECT</u>	
	<u>(TEU/gang/hour)</u>		<u>(TEU/gang/hour)</u>	
	<u>Actual (1984)</u>	<u>Projected (1995)</u>	<u>1987</u>	<u>1989</u>
Buenaventura	6	4.5	7	8
Cartagena	6	4.5	7	8
Barranquilla	4	3.0	5	6
Santa Marta	4	3.0	5	6

22. Ship Service Time Savings. Ship service time savings have been estimated by applying the unit value of ship time in port to ship service times with and without the project, taking into consideration changes in productivity rates. The following unit ship costs were computed for the average type of vessel carrying containers, using the Bank's shipcost model:

Buenaventura	US\$20,860/day
Cartagena	US\$15,190/day
Barranquilla	US\$6,050/day
Santa Marta	US\$5,200/day

23. Container Handling Cost Savings. The new container equipment will also reduce the unit cost of container handling. At present, the direct operating cost (labor, fuel maintenance and repair) of COLPUERTOS' container handling equipment is estimated at US\$0.34/ton. Without the project, this cost is expected to increase in line with declines in productivity as given in paragraph 21. With the project, productivity will increase by at least 10%, thereby reducing handling costs to US\$0.30/ton.

24. At Buenaventura and Cartagena, the project also provides for acquisition of container stuffing/emptying equipment, which will primarily be used for coffee traffic. At present, most containers stuffed or emptied in

these ports are handled manually. It takes, on the average, four men 30 minutes to handle one container. With the project, the handling time would be reduced by 50% and only two men would be required, one of whom is the equipment operator. The estimated avoidable costs of salaries (including social benefits) and equipment maintenance, and fuel with and without the project are shown below:

	US\$/ton			
	Without Project		With Project	
	Number	Cost	Number	Cost
Stackers	4	2.42	1	0.63
Equipment Operator	0	0.00	1	0.19
Subtotal	4	2.42		0.82
Equipment				0.10
Total				0.92

The resulting unit saving of US\$1.50 per ton has been applied to projected traffic volumes to obtain the annual benefit.

25. The container handling equipment component has an estimated economic rate of return of 32% at Buenaventura, 22% at Cartagena, 29% at Santa Marta, and 32% at Barranquilla (Table 4 of this annex).

(ii) Heavy Load Equipment (10% of project costs)

26. At present, the ports are ill-equipped to handle heavy load traffic since the existing mobile cranes are, on average, 25 years old, with the exception of two 12-ton capacity cranes that are still in good condition. The project provides for acquisition of 40-ton and 16-ton cranes for each port to handle this type of traffic. Forklift trucks will also be acquired, in two tranches. The first will replace existing equipment, which experiences frequent breakdowns and which can no longer be repaired economically. The second tranche is designed to handle expected increases in traffic. The principal benefits of heavy load equipment will be reductions in ship service times and lower cargo handling costs. There will also be minor non-quantified benefits because of less cargo damage. Traffic which requires heavy lift equipment is shown in Table 5 of this annex.

27. With the project, productivity is expected to increase above the present level and remain there for the useful life of the equipment, provided the equipment is maintained properly. The per ton cost of handling heavy loads without the project is estimated at US\$30 per hour or US\$0.75 per ton. The cost of handling this traffic with the project is estimated at US\$0.64 per ton with the project, which is in line with the productivity targets.

28. Reductions in ship and truck service times are also expected to result from the equipment acquisition program. Without the project, productivity is estimated to be 16 tons/hour. With the project, productivity is expected to reach 60 tons/hour. Since other factors besides availability of this equipment affect ship waiting times, it has been estimated that effective ship waiting time savings will equal only 25% of total potential ship waiting time savings with the project. For trucks, 100% of the productivity benefits are expected to be realized. The estimated economic rates of return vary from 16% in Buenaventura to 29% in Cartagena, 25% in Santa Marta, and 38% in Barranquilla.

D. Tugboats (11% of project costs)

29. The project provides for acquisition of four used tugboats to replace those which are to be scrapped since the high cost of major repairs and declining availability make their operation uneconomic. Because the tug is really an integral part of the efficient and safe operation of a port, its costs and benefits cannot readily be isolated. In this case, the cost of tug acquisition was included in the overall economic analysis of the project. The tug analysis focused upon the determination of the most economic alternative: acquisition of used tugs or acquisition of new tugs. The present value of the capital and maintenance cost of each alternative was compared. It was assumed that the used tugs would have a 15-year useful life and new tugs, a 25-year life. The acquisition of used tugs is the least cost alternative (Table 7 of this annex).

October 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Decline in Berth Capacity Due to Deterioration of Port Facilities without the Project
(Berth Capacity as % of the Original Capacity) 1/

<u>Port and Berth</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Buenaventura										
1	50	50	40	40	30	30	20	20	0	0
2	75	70	65	50	30	0	0	0	0	0
3	80	80	80	75	75	75	50	50	50	30
4	90	90	75	65	65	50	50	30	30	0
5	90	80	70	70	50	50	30	30	0	0
6	90	90	80	80	75	75	50	50	30	30
7	90	90	65	65	50	50	30	30	0	0
8	90	90	80	80	75	65	50	50	50	30
9	90	90	75	75	50	50	30	30	0	0
10	100	100	100	100	100	100	100	93	83	80
Cartagena										
1	100	100	100	100	100	100	100	100	90	85
2	70	70	65	60	50	50	40	40	30	30
3	80	75	70	60	60	50	50	40	40	30
4	50	50	50	50	50	50	50	50	50	50
5	80	75	70	60	60	50	50	40	40	30
6	70	70	65	60	50	50	40	40	30	30
Santa Marta										
1	60	60	50	50	40	30	0	0	0	0
2	90	80	80	70	70	60	60	40	40	30
3	90	80	80	70	70	60	60	40	40	30
4	100	95	95	90	90	80	70	70	60	60
5	80	80	75	75	60	60	50	50	40	40

1/ Berth capacity % was determined taking into consideration the actual restrictions that have already been imposed in terms of use of equipment, unloading heavy cargo and trucks, and/or wagons' traffic limitations. Zero berth capacity indicates the year in which the quays will have to be put out of service.

Source: mission estimates

April 1985

COLOMBIA

PORT REHABILITATION PROJECT

Quay Repairs - Economic Analysis
(thousand US dollars)

Year	Buenaventura			Cartagena			Santa Marta		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
1984	303		-303	1,895		-1,895	767		-767
1985	1,308		-1,308	574		-574	3,045		-3,045
1986	1,751		-1,751	703		-703	3,034		-3,034
1987	1,308	927	-381	195	1,603	1,408	4,546	1,222	-3,324
1988		3,887	3,887		3,206	3,206		4,886	4,886
1989		9,052	9,052		6,453	6,453		6,999	6,999
1990		15,604	15,604		9,923	9,923		6,431	6,431
1991		15,873	15,873		8,437	8,437		5,831	5,831
1992		17,464	17,464		7,553	7,553		5,831	5,831
1993		17,302	17,302		5,588	5,588		5,831	5,831
1994		16,585	16,585		5,588	5,588		5,831	5,831
1995		14,331	14,331		5,588	5,588		5,831	5,831
1996-									
2011		11,451	11,451		5,588	5,588		5,831	5,831

Economic Rate of Return

Buenaventura	86%
Cartagena	63%
Santa Marta	38%

Source: mission estimates

October 1985

COLOMBIA

PORT REHABILITATION PROJECT

Paving and Structures - Economic Analysis
(thousand US dollars)

<u>Year</u>	<u>Buenaventura</u> <u>Roof Extension and Paving</u>			<u>Cartagena</u> <u>Paving</u>		
	<u>Costs</u>	<u>Benefits</u>	<u>Net Benefits</u>	<u>Costs</u>	<u>Benefits</u>	<u>Net Benefits</u>
1985	688	0	-688	0	0	0
1986	1,845	0	-1,845	1,616	0	-1,616
1987	1,844	709	-1,135	2,026	0	-2,026
1988	453	1,110	657	205	0	-205
1989		2,033	2,033		1,338	1,338
1990		2,094	2,094		1,398	1,398
1991		2,177	2,177		1,475	1,475
1992		2,285	2,285		1,598	1,598
1993		2,389	2,389		1,598	1,598
1994		2,492	2,492		1,598	1,598
1995		2,580	2,580		1,598	1,598
1996		2,580	2,580		1,598	1,598
1997		2,580	2,580		1,598	1,598
1998-2003		2,580	2,580		1,598	1,598
2004-2005		2,580	2,580		0	0
Economic Rate of Return			36%			27%

Source: mission estimates

October 1985

COLUMBIA

PORTS REHABILITATION PROJECT

Container Handling Equipment: Economic Analysis
(US\$ thousand)

Year	Buenaventura			Cartagena			Barranquilla			Santa Marta		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
1985	1,310		1,310	1,221		-1,221	46		-46	0	0	
1986	223	220	-3	564	202	-361	159	37	-122	533	0	-533
1987	73	372	299	86	303	216	10	69	59	28	84	56
1988	644	602	-42	1,094	463	-632	464	126	-339	28	143	115
1989	113	741	628	134	560	426	32	159	128	28	175	147
1990	113	897	785	134	674	540	32	199	167	28	211	184
1991	158	1,086	929	188	819	631	45	237	193	28	255	227
1992	158	1,166	1,009	188	890	702	45	253	209	39	273	234
1993	158	1,253	1,095	188	1,063	875	45	270	225	39	291	253
1994	158	1,335	1,177	188	1,131	943	45	287	242	39	311	272
1995	158	1,341	1,183	188	1,205	1,017	45	304	260	39	311	272
1996-												
2001	203	1,341	1,138	241	1,205	964	57	304	247	39	311	272
2002	203	318	115	241	766	525	57	287	230			
2003	203	289	87	241	672	431	57	85	142			

Economic Rate of Return:

Base Case	32%	22%	32%	29%
Assuming no increase in productivity with project	18%	12%	14%	13%

Source: mission estimates

April 1985

COLOMBIA

ANNEX 6
Table 3

PORTS REHABILITATION PROJECT

General Cargo Equipment: Heavy Traffic Forecast
(thousand tons)

<u>Year</u>	<u>Buenaventura</u>	<u>Cartagena</u>	<u>Barranquilla</u>	<u>Santa Marta</u>
1986	67	84	144	51
1987	67	87	147	54
1988	67	92	153	59
1989	69	96	157	63
1990	70	102	165	67
1991	72	110	173	70
1992	74	119	182	72
1993	77	128	191	75
1994	79	139	201	78
1995	82	150	210	81

Source: mission estimates

April 1985

COLOMBIAPORT REHABILITATION PROJECTHeavy Load Equipment: Economic Analysis
(US\$ thousand)

Year	Buenaventura			Cartagena			Barranquilla			Santa Marta		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
1985	443		-443	149		-149	324		-324	0	0	0
1986	371	209	-162	847	275	-572	592	348	-592	510	0	-510
1987	45	209	164	49	288	239	45	360	45	25	166	141
1988	328	209	119	426	303	-123	380	372	-380	235	179	-56
1989	59	213	154	68	312	244	62	384	62	36	193	157
1990	59	217	158	68	335	266	62	399	62	36	205	170
1991	83	223	140	96	361	265	87	419	87	50	216	166
1992	83	229	146	96	391	295	87	440	87	50	223	173
1993	83	237	154	96	419	323	87	463	87	50	231	181
1994	83	245	162	96	456	360	87	486	87	50	241	191
1995	83	253	170	96	502	406	87	496	87	50	250	200
1996-												
2001	106	256	150	123	583	460	111	579	111	64	253	203
2002	60	123	63	109	519	410	82	429	82	64	253	203
2003	31	61	30	34	163	129	34	178	34	29	102	68
Economic Rate of Return			16%			29%			38%			25%

Source: mission estimates

April 1985

COLUMBIA
PORTS REHABILITATION PROJECT

Tugboat Alternatives

(US\$ thousand)

YEAR	NEW TUGBOAT			USED TUGBOAT			
	CAPITAL COST	MAINT COST	TOTAL COST	CAPITAL COST	MAINT COST	TOTAL COST	
1	2647		2647	1347		1347	
2		132	132		185	185	
3		132	132		185	185	
4		132	132		185	185	
5		132	132		185	185	
6		132	132		185	185	
7		195	195		238	238	
8		195	195		238	238	
9		195	195		238	238	
10		195	195		238	238	
11		195	195		238	238	
12		238	238		238	238	
13		238	238		238	238	
14		238	238		238	238	
15		238	238		238	238	
16		238	238		238	238	
17	-1000	0	-1000				
DISCOUNT RATE			0.12	DISCOUNT RATE			0.12
NET PRESENT VALUE			3229	NET PRESENT VALUE			2481

Source: mission estimates

April 1985

COLOMBIA

PORTS REHABILITATION PROJECT

Project Monitoring and Reporting

COLPUERTOS would prepare quarterly progress reports covering the following areas:

A. Project execution: (a) cost estimates (actual, appraisal and contracted amount; and disbursements (Table 1 of this annex); (b) procurement, including bidding documents, bid evaluation, award, completion date, etc. (Table 2); (c) progress of construction (Table 3); and (d) productivity targets (Table 4).

B. Productivity Targets: (a) ton/gang hour by port and per type of cargo; (b) ton/ship/day by port and per type of cargo (Table 4).

Tables 1 to 4 are attached to this annex.

C. Traffic Statistics: quarterly import and export statistics by port and total, broken down by month and by commodity groups as follows: (a) break bulk general cargo, containers by size (empties and full), dry bulk and liquid bulk; (b) shipping statistics grouped by gross tonnage and type and flag (conventional general cargo vessels, container vessels, bulk carriers, etc.); and (c) average ships service and waiting time and main reasons for the latter.

February 1985

FORTS REHABILITATION PROJECT

Program Report of Quarter Ending 198

Cost Estimates and Measurements
(in \$'000)

Category (Item) (1)	# of Measurements (by Category) (2)	Part (3)	Description (4)	Approved (5)	Contract Value (6)	Actual (7)	Measurements (in \$)		
							Actual (8)	Approved Estimate (9)	
I (Civil Works)	45	San Francisco	Quay repairs Paving Sheds Services						
		Cartagena	Quay repairs Rebuilding Sector 8 Rebuilding Sectors 3 and 4 Services						
		Barranquilla	Electric network and lighting						
		Santa Marta	Quay repairs 1, 2 and 3 Quay repairs 4 and 5 Services						
II (Equipment)	100 CLP price for foreign or on-factory for local	All	General cargo handling Containers; Rigging Services and repairs; Workshop; Training; Computer related					Page 2 of 2	
III (Technical Assistance)	70		Financial systems Management Information Systems Maintenance						
III (Training)	70		Advisory Services Courses/Workshops (in Colombia) Courses/Workshops (abroad) International Conferences and Conferences Fellowships Technical visits to ports						
III (Engineering and Studies)	70		Project Preparation Feasibility Studies Technical Studies Marketing Organization Study						

GENERAL

POWER TRANSMISSION PROJECT

Quarterly Progress Report, Volume 199

Procurement and Construction Schedule

<u>Item</u>	<u>MD&LJ Date Approved by Bank</u>	<u>Procurement Procedure</u>	<u>Invitation (Dates)</u>	<u>Bank to Bank</u>	<u>Bank's Report to Bank</u>	<u>Contract Negotiation</u>	<u>Award</u>	<u>CONSTRUCTION SCHEDULE</u>		
								<u>Subcontract</u>	<u>Completion</u>	<u>In Contract Appraisal</u>

- A. Civil Works
 - 1) Manufacturing
 - a) Core repairs
 - b) Periling
 - c) Roofing
 - d) Services
- 2. Catchment
 - a) Core repairs
 - b) Remodelling sections 3 and 4
 - c) Remodelling Sector 6
- 3. Surveillance
 - a) Emergency Power Plants
- 4. Water Works
 - a) Core repairs 1, 2 and 3
 - b) Core repairs 4 and 5
 - c) Services
- B. Equipm
 - 1st Machine
 - 2nd Machine

COLOMBIA

NEW REHABILITATION PROJECT

Contract Value _____ 198

Progress of Construction

<u>Item</u>	<u>Contract Amount</u>	<u>Actual Estimated Cost</u>	<u>Measurements to Date</u>	<u>Estimated Cost of Reported Works</u>	<u>Physical Progress as % of Total Works</u>	<u>Remarks</u>
<u>A. Civil Works</u>						
1) <u>Manizales</u>						
a) <u>Canal repairs</u>						
b) <u>Fencing</u>						
c) <u>Roofing</u>						
d) <u>Services</u>						
2. <u>Cartagena</u>						
a) <u>Canal repairs</u>						
b) <u>Roofing</u>						
<u>Sectors 3 and 4</u>						
c) <u>Roofing</u>						
<u>Sector 5</u>						
3. <u>Hydrovillia</u>						
a) <u>Emergency Power Plant</u>						
4. <u>Santa Marta</u>						
a) <u>Canal repairs</u>						
<u>1, 2 and 3</u>						
b) <u>Canal repairs</u>						
<u>4 and 5</u>						
c) <u>Services</u>						
<u>B. Bridges</u>						
<u>1st Tranche</u>						
<u>2nd Tranche</u>						

COLOMBIA
PORTS REORGANIZATION PROJECT
Quarterly Hours for Period Ending 198
Productivity Summary

Port	Type of Cargo	Base Year	Previous Year	Gross Product - ton/ship/year					Daily Productivity - ton/ship/day											
				Present Year				Total	Target	Base Year	Previous Year	Present Year								
				1	2	3	4					1	2	3	4	Total	Target			
Barroqueron	General a) Homogeneous b) Miscellaneous Containers Dry Bulk																			
Cartagena	General a) Homogeneous b) Miscellaneous Containers Dry Bulk																			
Barroqueron	General a) Homogeneous b) Miscellaneous Containers Dry Bulk																			
Santa Marta	General a) Homogeneous b) Miscellaneous Containers Dry Bulk																			

1/ Measured as the average effective hours worked, excluding stoppages for rain or other reasons.
2/ Measured as the average number of days the vessels are berthed.

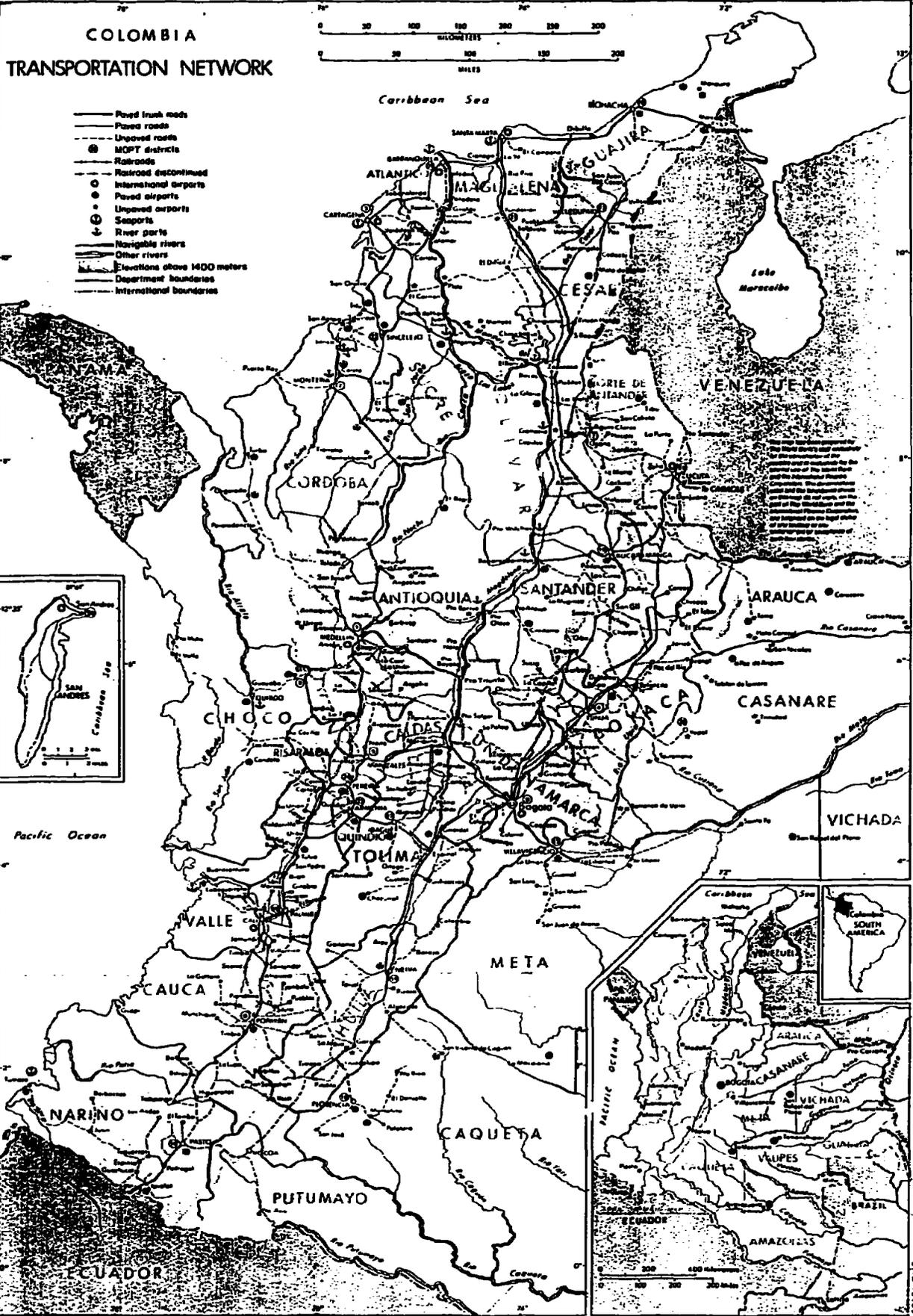
COLOMBIA

PORTS REHABILITATION PROJECT

Related Documents and Data Available in the Project File

1. Project Economic Analysis: Working Papers
2. Project Traffic Forecasts: Working Papers
3. Port Equipment Requirements Analysis
4. Detailed Cost Estimates by Project Item
5. COLPUERTOS-SENA Agreement
6. COLPUERTOS Organization and Functions Manuals (4 volumes)
7. COLPUERTOS Short-, Medium- and Long-Term Objectives
8. Draft Pension Law
9. Four-Year Preliminary Training Program (4 volumes)

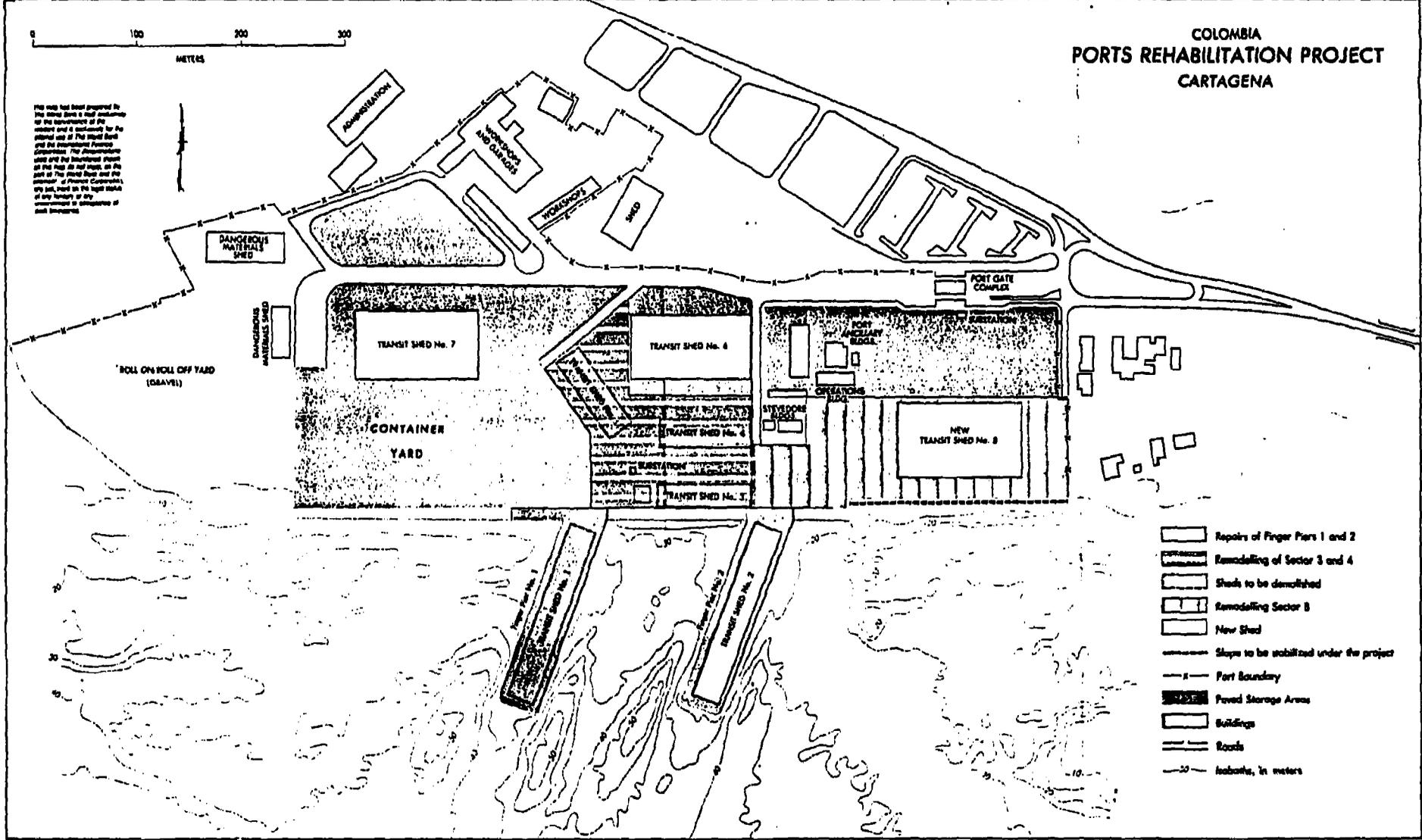
October 1985



COLOMBIA
PORTS REHABILITATION PROJECT
CARTAGENA



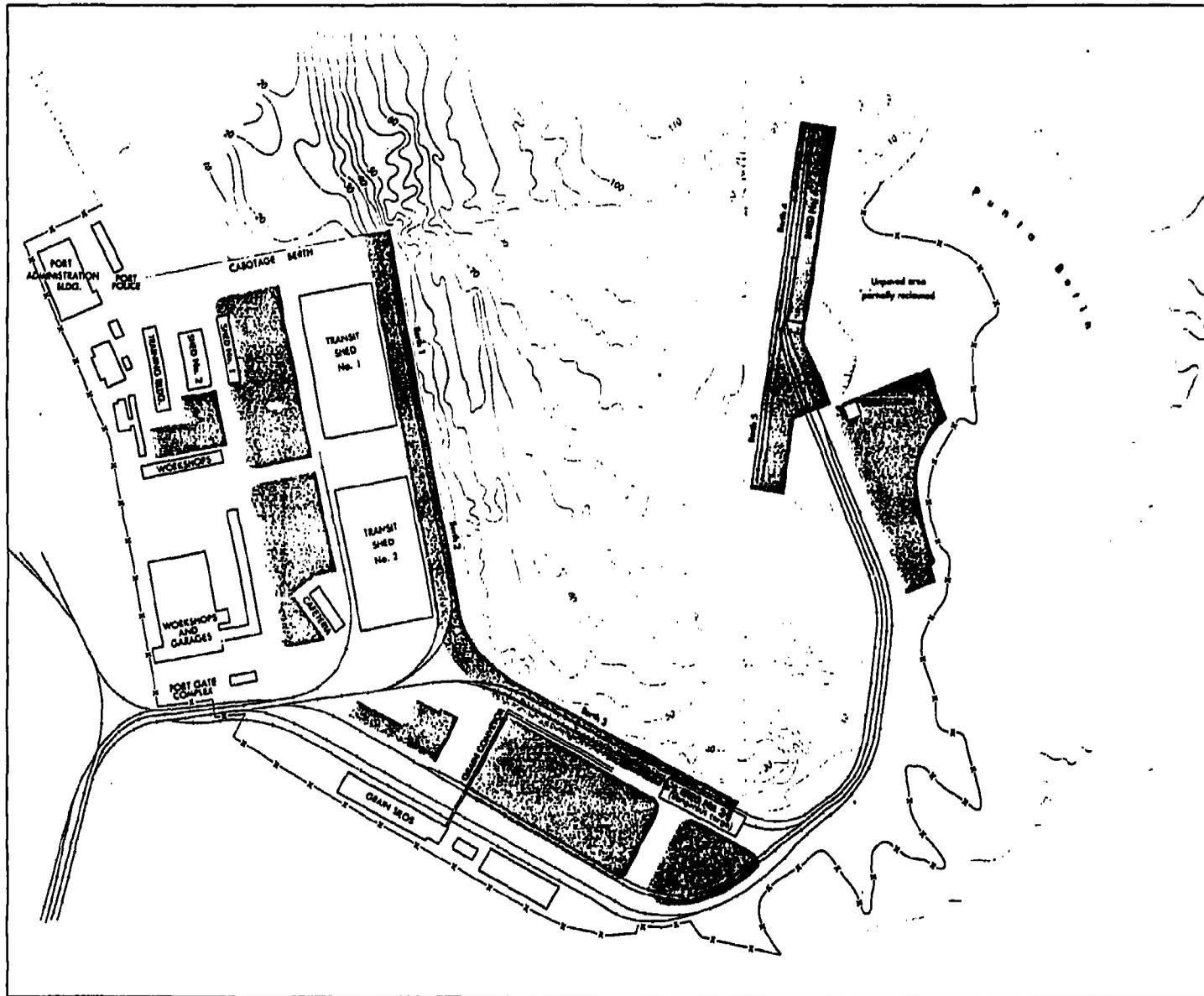
This map has been prepared by the World Bank in full accordance with the requirements of the contract and is submitted for the general use of the World Bank and the International Finance Corporation. The International Finance Corporation and the International Bank for Reconstruction and Development are not liable for any loss, injury or damage of any kind or for any consequences of any nature whatsoever.



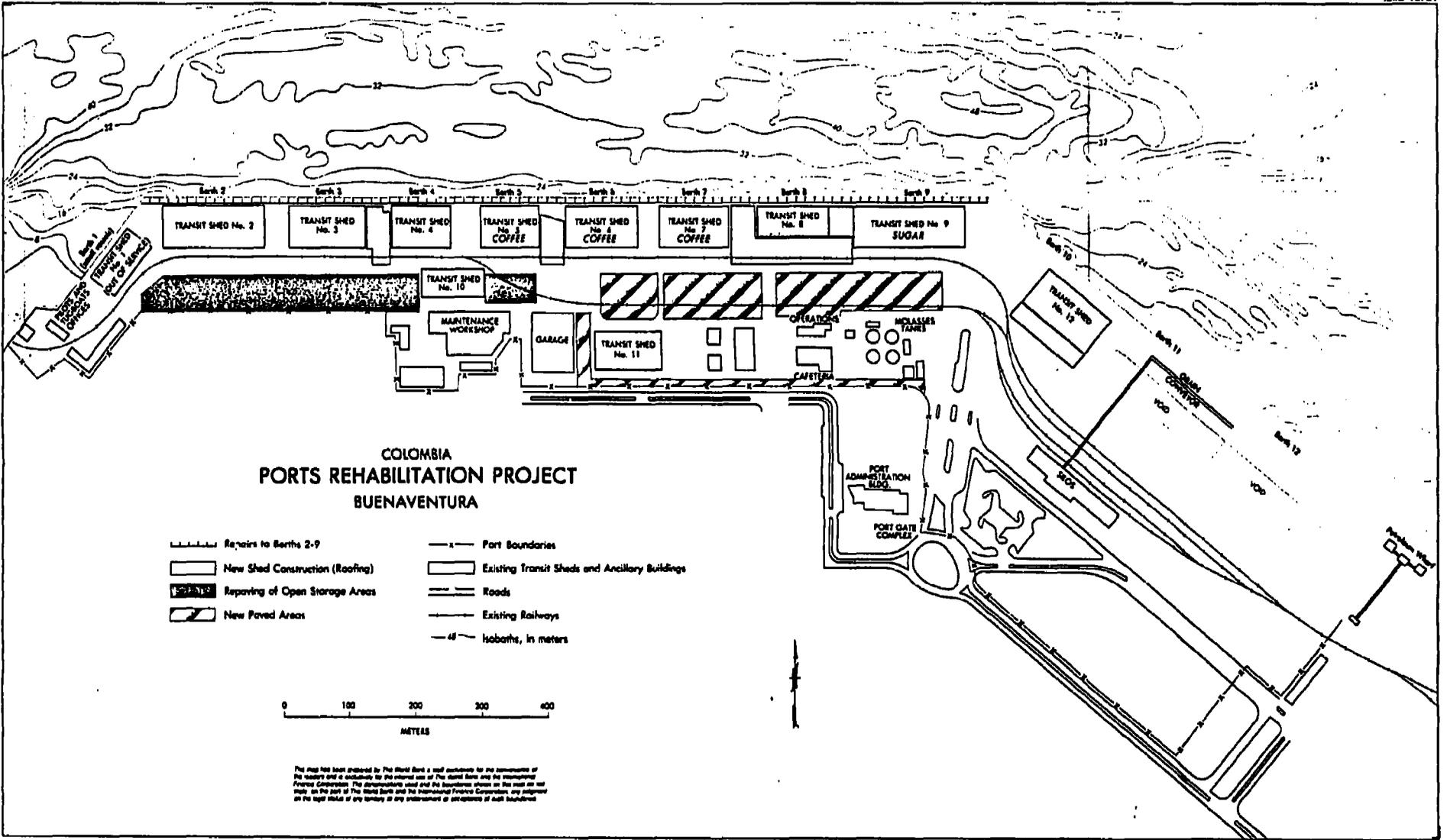
- Repairs of Finger Piers 1 and 2
- Remodeling of Sector 3 and 4
- Sheds to be demolished
- Remodeling Sector 8
- New Shed
- Slope to be stabilized under the project
- Port Boundary
- Paved Storage Areas
- Buildings
- Roads
- Isobaths, in meters

COLOMBIA PORTS REHABILITATION PROJECT SANTA MARTA

-  Existing Berths to be repaired
-  Port Boundaries
-  Paved Storage Areas
-  Buildings
-  Existing Railways
-  Isobaths, in meters

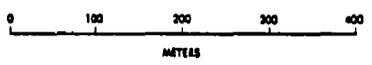


This map has been prepared for the United States and is not intended for the representation of the territory and is not to be used for the purpose of the International Maritime Organization. The responsibility for the accuracy and the boundaries shown on this map is not borne by the United States and the International Maritime Organization, any error or the legal status of any territory or any establishment or settlement of such territory.



COLOMBIA
PORTS REHABILITATION PROJECT
 BUENAVENTURA

- | | |
|---------------------------------|--|
| Remains to Berths 2-9 | Port Boundaries |
| New Shed Construction (Roofing) | Existing Transit Sheds and Ancillary Buildings |
| Repaving of Open Storage Areas | Roads |
| New Paved Areas | Existing Railways |
| | Isobaths, in meters |



The map has been prepared by The World Bank a staff assistance to the Government of the Republic of Colombia for the normal use of The World Bank and the International Finance Corporation. The information used and the boundaries shown on the map are not those of The World Bank and The International Finance Corporation, are subject to the right of any country in any information or documents of such boundaries.

