

July 15, 1983

Notice of Meetings

TO: See Distribution

FROM: AFR/PD, Norman Cohen

SUBJECT: Issues Review and ECPR for Kismayo Port Rehabilitation PP

PP Issues Review

July 22, 1983

Room 6941

2:00 p.m.

ECPR

July 29, 1983

Room 6941

2:00 p.m.

N.B.: This notice schedules both the issues review and the ECPR for the Kismayo Port Rehabilitation Project. Subsequent to the issues meeting an agenda and issues memo will be prepared and distributed for the ECPR. For those who wish to review the preliminary design report prepared by Parsons Brinkerhoff International, Inc., a copy is available from Jack Snead, AFR/TR/ENG, room 2941 and Carlos Pascual, AFR/PD/EAP, room 2450.

Attachment: Somalia Kismayo Port Rehabilitation PP

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We have provided just one document because of its length. Please call 632-8286 if more are needed.

AFR/PD/EAP (East Africa)

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number

DOCUMENT CODE

3

COUNTRY/ENTITY

Somalia

3. PROJECT NUMBER

649-0114

4. BUREAU/OFFICE

AFR

06

5. PROJECT TITLE (maximum 40 characters)

Kismayo Port Rehabilitation Project

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
013 | 3 | 18 | 8

7. ESTIMATED DATE OF OBLIGATION
(Under "B:" below, enter 1, 2, 3, or 4)

A. Initial FY 83 B. Quarter 4 C. Final FY 85

8. COSTS (\$000 OR EQUIVALENT \$1 =)

| A. FUNDING SOURCE | FISCAL FY 83 | | | LIFE OF PROJECT | | |
|------------------------|----------------|----------------|----------------|-----------------|----------------|-----------------|
| | B. FY | C. L/C | D. Total | E. FY | F. L/C | G. Total |
| AID Appropriated Total | \$5,000 | | \$5,000 | \$35,000 | | \$35,000 |
| (Grant) | (5,000) | () | (\$5,000) | (35,000) | () | (35,000) |
| (Loan) | () | () | () | () | () | () |
| Other U.S. | | | | | | |
| 1. | | | | | | |
| 2. | | | | | | |
| Host Country | | \$4,967 | \$4,967 | | \$7,100 | 7,100 |
| Other Donor(s) | | | | | | |
| TOTALS | \$5,000 | \$4,967 | \$9,967 | \$35,000 | \$7,100 | \$42,100 |

9. SCHEDULE OF AID FUNDING (\$000)

| A. APPROPRIATION | B. PRIMARY PURPOSE CODE | C. PRIMARY TECH CODE | | D. OBLIGATIONS TO DATE | | E. AMOUNT APPROVED THIS ACTION | | F. LIFE OF PROJECT | |
|------------------|-------------------------|----------------------|---------|------------------------|---------|--------------------------------|---------|--------------------|---------|
| | | 1. Grant | 2. Loan | 1. Grant | 2. Loan | 1. Grant | 2. Loan | 1. Grant | 2. Loan |
| (1) ESF | 991 | 890 | | | | | | \$35,000 | |
| (2) | | | | | | | | | |
| (3) | | | | | | | | | |
| (4) | | | | | | | | | |
| TOTALS | | | | | | | | \$35,000 | |

10. SECONDARY TECHNICAL CODES (maximum 8 codes of 3 positions each)

823

11. SECONDARY PURPOSE CODE

739

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

BUW & BRW

B. Amount

\$35,000

\$35,000

13. PROJECT PURPOSE (maximum 480 characters)

To improve the economic and social well-being of the people in the southern region of Somalia by assuring the continued availability of an essential component of the area's trade-enabling infrastructure (Kismayo Port).

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
0 | 6 | 8 | 5 | 0 | 6 | 8 | 6 | 0 | 6 | 8 | 7

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

17. APPROVED BY

Signature

Jim Kelly

Title

Director, USAID/Somalia

Date Signed

MM DD YY
09 | 10 | 83

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY
| | | | |

KISMAYO PORT REHABILITATION PROJECT

Project Paper Outline

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Rates, Weights, Measures and Acronyms

Rates

U.S. dollar \$1.00 = 15.1 Somali Shillings (S/Sh)
S/Sh 1.00 = \$0.666

Weights

1 Metric Ton (MT) = 2.240 pounds (lbs)

Measures

1 kilometer (km) = 0.62 mile
1 hectare (ha) = 2.5 acres
1 meter (m) = 3.28 feet

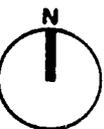
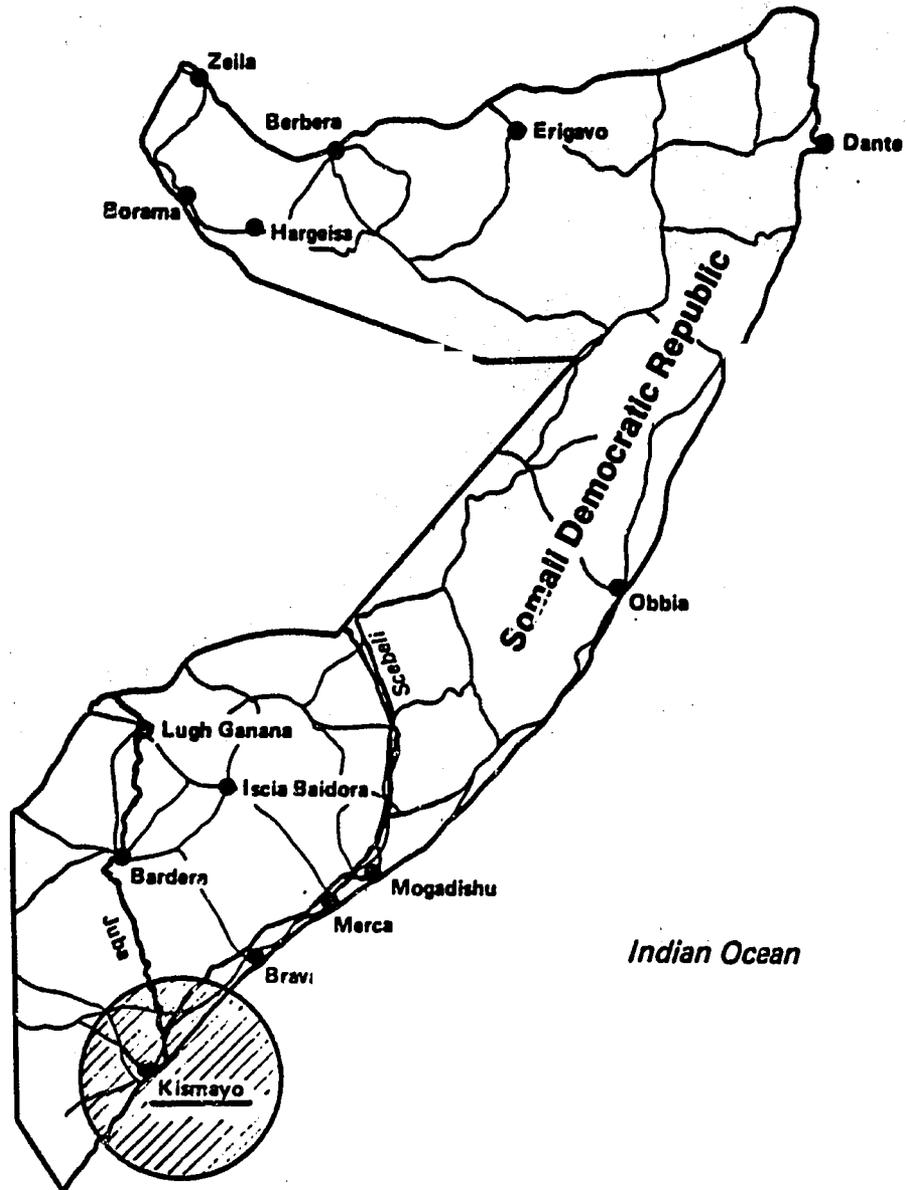
Acronyms

A/E = Architectural and Engineering Firm
CP = Condition Precedent
DSP = Development Strategy and Program (1982-86)
dwt = dead-weight tons
EA = Environmental Assessment
EAC = Environmental Advisory Committee
FAA = Foreign Assistance Act of 1961, as amended
FOB = Freight on Board
FY = Fiscal Year
FYDP = Five Year Development Plan (1982-86)
GSDR = Government of Somali Democratic Republic
IBRD = International Bank for Reconstruction and Development
I/L = Implementation Letter
IRR = Internal Rate of Return
L/COMM = Letter of Commitment
L/Credit = Letter of Credit
MPW = Ministry of Public Works
NPV = Net Present Value
PASA = Participating Agency Service Agreement
PBI = Parsons Brinckerhoff International, Inc.
PIP = Public Investment Program
PP = Project Paper
REDSO/ESA = Regional Economic Development Services Office--Eastern and Southern Africa
RoRo = Roll on-Roll off
SPA = Somali Port Authority
SSL = Somalia Shipping Line
TAMS = Tippets-Abbet-McCarthy-Stratton
USAID/SOMALIA = USAID Mission to Somalia

Location Map

Port of Kismayo Rehabilitation

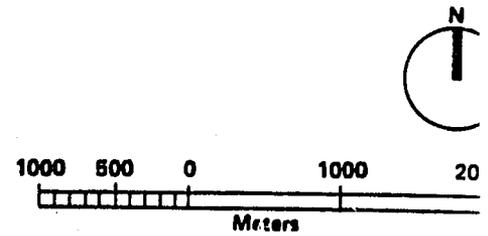
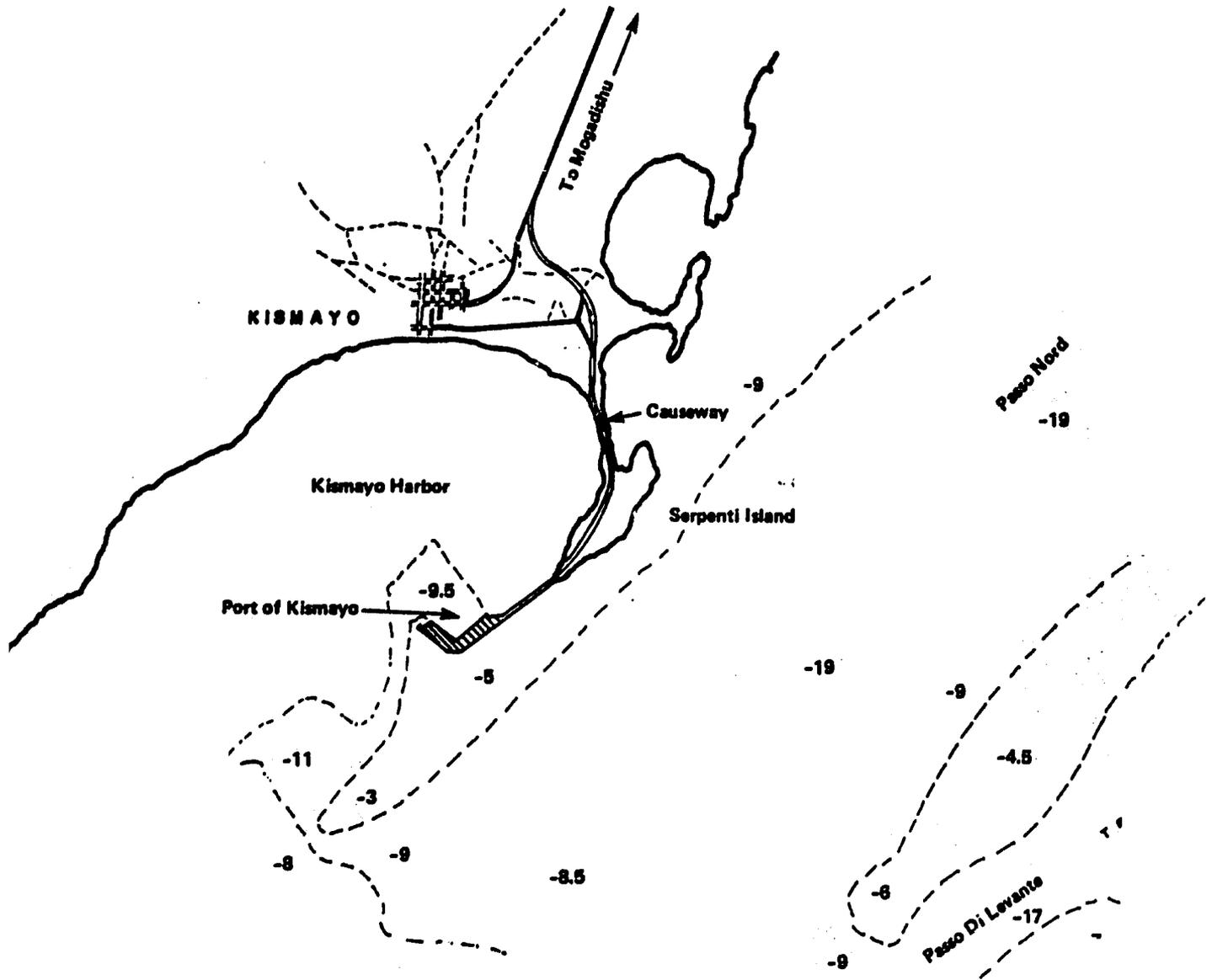
Parsons Brinckerhoff International, Inc.



Location Plan

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc



I. Summary and Recommendations

- A. Project Title: Kismayo Port Rehabilitation Project
- B. Cost: Total \$42,100,000 (\$35,000,000 in US dollars and \$7,100,000 in Local Currency)
- C. Terms: ESF grant financing to the GSDR
- D. Life of Project: Five (5) years
- E. Executing Agency: The Ministry of Public Works (MPW) for execution of design, supervision and construction contracts; the Somali Port Authority (SPA) for port operations.
- F. Brief Project Description: The purpose and goal of this infrastructure project are to improve the economic and social well-being of the people in the southern region of Somalia, and to improve Somalia's balance of payments situation through greater exports respectively. The project will provide financing for the complete rehabilitation of the existing Kismayo Port, including the provision and rehabilitation of essential ancillary facilities and equipment (e.g., yard lighting for nighttime cargo operations, a power distribution system, repairs and improvements of sanitary facilities). At the completion of the project (approx. mid 1987), the Kismayo port's four berths will be entirely rehabilitated, all the essential ancillary facilities rehabilitated, and all necessary equipment installed or operating on the site. The rehabilitated port itself is expected to have a minimum life of thirty (30) years and is designed to require a minimum of maintenance. On-the-job training will be provided to 10-15 SPA maintenance personnel at Kismayo port to assure that SPA carries out a reasonable maintenance program. The maintenance program will cover other structures, facilities and equipment necessary for the smooth and efficient operation of the Kismayo port. The Kismayo port will be rehabilitated in stages to permit the continued use of two berths to handle a limited amount of in-coming and out-going cargo.

Full funding is proposed for the project, with \$5.0 million to be obligated in FY 1983, \$15.0 million in FY 1984 and \$15.0 million in FY 1985. Once funding is available to the project, it is intended that PBI will go forward and prepare the final design (and assuming AID and GSDR approval of the final design); PBI will subsequently supervise the construction phase of the project. Both the Construction Contractor, who will be selected using HB 11 competitive procedures for construction services, and PBI will be under contract to the GSDR. PBI will assist the GSDR in the preparation of bid documents (IFB), the evaluation of proposals, and the selection of the Construction Contractor.

The GSDR, USAID/Somalia and PBI are confident that the final design will be a quality document and that, in a fairly short time, the GSDR and AID will approve it. The cost estimates, which are based on PBI's Preliminary Design Report, are calculated using

May 1983 cost estimates to which appropriate contingency and inflation factors have been applied. The costs are considered reasonable and satisfy the requirements of Section 611 (a) of the FAA, as amended. Also no major technical problems are foreseen in the preparation of the Final Design Report and the IFB, which would significantly negate the principal technical factors described in the Preliminary Design Report. Consequently, a smooth transition is envisioned, from the preparation of the final design and IFB to the orderly implementation of the project.

The recommended technology for the rehabilitation of the Kismayo port is the steel sheetpile bulkhead scheme, which uses corrosion resistant steel sheetpiles. It is a common construction/reconstruction technology which has been used around the world with satisfactory results and, considering the physical characteristics at Kismayo, no major technical problems are foreseen. To maximize the life of the port, and, simultaneously, to minimize the maintenance requirements to the port structure, PBI has included in its preliminary design three noteworthy characteristics in the steel sheetpiling. One, a heavier and stronger corrosion resistant steel will be used; two, a coal tar epoxy protective coating will be applied to the steel sheetpiling to approximately 5 ft below the mud line; and, three, a cathodic protection system, which does not require an electric power source, will be attached to the steel sheetpiling below the waterline. Individual anodes can be easily replaced, if one should fail or malfunction.

The following sections of this Project Paper will show how the proposed project is consistent with the AID and GSDR strategies, describes the project in detail, analyzes the project from various perspectives (e.g., technical, financial, economic, etc.), and provides an Implementation Schedule and Plan for the port rehabilitation. The analyses presented in this Paper demonstrate that the required investment by AID in the project makes good sense.

- G. Source/Origin: It is expected that the source/origin of final design, supervision and construction contract services will be Code 941, and all other commodities and services will be Code 941, and the cooperating country.
- H. Environmental Concern: The Environmental Scoping Statement, which has been approved by AID/W, is attached as part of Annex F.5. All factors included in the Scoping Statement have been addressed in the environmental assessment contained in this Paper (see Section VI.F).
- I. Issues: In 1982 the official exchange rate rose from S/Sh.6.3 to 15.1 to the U.S. dollar. The SPA tariff rate schedules were not adjusted accordingly. If the present rate structure remains unchanged, it could impair the financial viability of the project.

However, if rates are increased proportionately, they will yield a net profit as shown in the Financial Analysis. Discussions with GSDR officials have shown that the GSDR is amenable to the idea of an upward cargo rate adjustment to insure the financial viability of SPA's port operations in Somalia. USAID Somalia proposes that a CP to disbursement for construction be incorporated into the Project Grant Agreement to ensure the financial integrity of the project. USAID/Somalia proposes that during the final design stage, SPA, in conjunction with FBI, undertake a tariff rate structure study, which will include specific recommendations for the time(s) that the tariff rate structures should become effective. The proposed wording of the CP is shown in Section VIII, as well as in Annex C.

- J. Statutory Checklist: A completed statutory checklist for the project is presented in Annex B.
- K. Section 611 (a) and 611 (e) Certification: The USAID/Somalia and REDSO/ESA Engineers have reviewed the Preliminary Design Report. They are in agreement that satisfactory planning and reasonable cost estimates are provided in this Paper to satisfy Section 611 (a) of the FAA, as amended. A 611 (e) Certification, signed by the USAID/Somalia Director, is presented in Annex D.
- L. Recommendation: It is strongly recommended that a grant in the amount of \$35,000,000 to the GSDR be approved under the terms and conditions contained in the draft Kismayo Port Rehabilitation Project Authorization (see Annex C).

II. Introduction

In FY 1962, AID grant funds in the amount of \$7.5 million were provided for the first phase of the construction of the Kismayo Port and the principal features of the work to be accomplished thereunder were:

1. Piling
2. Wharf structure
3. Precast concrete pavement
4. Breakwater
5. Causeway
6. Bulkhead
7. Dredging and mole fill
8. Navigational aids

The master plan for a new deep water port at Kismayo, as well as power and water for city and port use and other dock and shore facilities, was prepared by Frederick R. Harris, Inc. under contract to the U.S. Corps of Engineers. Final design for the basic civil works was accomplished by the U.S. Army Engineer Division, Mediterranean, U.S. Corps of Engineers. The U.S. construction contractor was the Paul Smith Construction Co. under the supervision of the Corps of Engineers.

When actual construction on Phase I was approximately 50% complete, the GSDR requested additional assistance for the construction and provision of a water system, an expanded power plant, warehouses, POL handling facilities, port handling equipment and a communications system to service both the port and the City of Kismayo. In FY 1963, AID approved a \$3.6 million loan to the GSDR to accomplish the above (Phase II).

Final design for Phase II was undertaken and completed by Frederick R. Harris, Inc. The U.S. construction contractor was Reynolds Construction Co. and the construction supervision was provided by the U.S. Corps of Engineers. Construction of Phase I was completed in 1967 and work under Phase II was completed in 1970.

Since completion of Phase I, the port of Kismayo, particularly the quays, has deteriorated at an alarmingly rapid rate. The GSDR in 1978 engaged the U.K. firm of Bertlin and Partners, Consulting Engineers, to replace the fendering system, then review the state of the Kismayo Port, the reason(s) for the deterioration, examine alternative methods for rehabilitation of the port, recommend the most feasible solution, and develop plans, specifications, cost estimates and a construction schedule. For the purpose of this section, it should be noted that the principal causal factor of port deterioration was found to be the high chloride content of the construction materials, e.g., the sand and gravel. Also, with the passing of each day the deterioration continues to progress and the cost of rehabilitating the Kismayo Port increases.

Based on AID's past involvement in the Kismayo Port facilities and specific requests by the GSDR, a preliminary review was made of Bertlin and Partners' technical documents and a PID prepared and submitted to AID/Washington. In mid 1981 a PASA agreement was executed with NAVFAC, Department of the U.S. Navy, to provide technical feasibility of rehabilitating

the Kismayo Port in accordance with Bertlin and Partners' plans and determine the reasonableness of cost estimates for such rehabilitation. The firm of Tippetts-Abbett-McCarthy-Stratton (TAMS), under contract to NAVFAC, performed such an analysis. The TAMS report rejected the Bertlin and Partners port rehabilitation solution and, instead, suggested a tied-back steel sheetpile bulkhead with hydraulic fill solution. The TAMS suggested solution, however, was subject to a confirmation which could only be attained by undertaking additional surveys and studies.

AID still did not possess sufficient information, at this point, to determine if AID should consider investing significant financial resources in the rehabilitation of the Kismayo Port. In mid-August 1982, AID authorized the use of up to \$1.5 million in FY 1982 ESF grant funds to undertake a series of technical studies which would lead to the development of a Conceptual Design Report analyzing various rehabilitation methodologies (see Annex G). A rehabilitation methodology would then be selected--with predominant consideration given to technical, cost and time factors--and a decision would be made whether or not to go forward to the preliminary design stage.

Using AID competitive procedures, PBI was selected to prepare a Conceptual Design Report and, at AID's option, to go forward to prepare a Preliminary Design Report on the selected technical rehabilitation solution. A direct AID contract was executed with PBI in January 1983 and the Conceptual Design Report was completed in April 1983. A review of the Conceptual Design Report (which included an examination of various technical solutions for rehabilitating Kismayo Port) was completed in Washington, D.C. in late April 1983, and included participants from AID/W, USAID/Somalia and PBI. PBI was instructed to proceed with the development of a Preliminary Design Report based on the agreed-upon technical solution; namely, the master pile sheetpile bulkhead methodology. It should be noted that the GSDR has reviewed all the relevant technical documents at each stage and has approved the master pile sheetpile bulkhead methodology.

The Preliminary Design Report was completed in July 1983 and it is this document which is the basis on which the technical viability of the project is demonstrated. In July 1983 the GSDR formalized its request for financial assistance to rehabilitate the Kismayo Port (see Annex A). PBI and the Preliminary Design Report were also used to prepare the various project analyses, which form part of this Paper. It is the opinion of the GSDR, USAID/Somalia and the design team that this project is feasible and viable from every perspective. A final and important point to be made is that the above-mentioned parties have every confidence that there will be no substantial technological or cost change which will emanate from the Final Design. In the event that such an unlikely or unforeseen event occurs, USAID/Somalia will promptly initiate the necessary action to have appropriate sections of this Paper amended for AID/W review and authorization.

III. Background

This section intends to place the project in the Somali setting, by providing general and economic information about Somalia, as well as describing some of the salient characteristics of Somalia's three major ports--Mogadishu, Berbera and Kismayo. The relationship of the project with the planned Juba Valley Development Program--which includes the Bardheere Dam and electric generating facilities, as well as bringing new land under cultivation by providing irrigation--is presented in Section III.A.2.

The IBRD has provided four credits to Somalia principally to assist in the development and expansion of the port at Mogadishu. A fifth project appraisal report for expansion of the Berbera Port was also prepared by IBRD. Some of the information contained in this Project Paper was included in previous IBRD Staff Appraisal Reports of Somalia Port Projects, and some information was included in PBI's Preliminary Design Report.

A. Economic and General Background

Somalia (637,000 km²) lies on the northeastern corner of Africa, between Ethiopia and Kenya on the west and south, and the Gulf of Aden and the Indian Ocean on the north and east (see map in front of this Paper). The country forms the shape of a "7"; the top being about 1,000 km in length and the tail 1,500 km. Although Somalia has one of the longest coastlines in the African continent, there are few natural harbors. The terrain is mostly plateau and steppe lands and, apart from some escarpments in the north, does not pose serious difficulties for land transport.

Most of Somalia is arid to semi-arid, with harsh environment. The areas most favored with rainfall, and therefore of most agricultural potential, are the northwest and the south. There are only two rivers of any significance, the Shabelli and the Juba, both of which rise in Ethiopia and flow through the south. Neither is navigable and the Shabelli flows only about eight months of the year on average. The Juba river, which flows into the Indian Ocean just north of Kismayo, generally does not go dry during any part of the year. The Kismayo Port project site is located about 8 km south of the Juba river and offers the best prospects for economic development in Somalia.

About 70% of the approximate 5.0 million Somali population is thinly scattered over extensive desert and bush areas, and most of the people are nomads. Estimates of future population growth vary from 2.6 percent to 3.1 percent per annum. Except for a small area around Hargeisa, most of the sedentary population is located in the south along the Juba and Shabelli rivers. Population densities vary with the season as well as with location. Urban population accounts for 30% of the total population, with 34% of the urban dwellers in Mogadishu. During the 1970-80 period the urban area had a growth rate of approximately 5.1%, while other areas were 2.3%. The GNP per capita income for Somalia in 1980 has been estimated at approximately \$225, making Somalia one of the poorest and least developed nations in the world.

Animal husbandry is the main occupation of the rural population and livestock accounts for about 75% of total exports. Bananas, the only other

major export, are grown near the southern coast and have accounted for about 15% of total exports in recent years. It is expected that livestock and agriculture will continue to dominate Somalia's economy for the foreseeable future.

Excluding the massive amount of aid that has poured into Somalia for refugee relief, imports have remained relatively stable throughout the 1970's. Foodstuffs account for 1/3 of the total, other consumer goods 1/4, fuel and lubricants 1/4, and general cargo the remainder. Due to weak exports, import capacity is limited. In 1977, for example, merchandise imports (f.o.b.) totaled \$175.1 million in contrast to merchandise exports of \$71.3 million.

Known mineral resources in Somalia include iron ore (low grade), uranium and other radio-active minerals, sipiolite, gypsum, anhydrite, tin and plezo-quartz, but exploitation is not feasible at the present time. Exploration for oil and natural gas has been underway since the 1960's, but no significant finds have resulted. Commercial fishing is being developed and the possibilities for tourism (game parks) are being investigated.

The GSDR's development efforts have been directed toward improving living conditions and strengthening national control over its resources. In the 1970's under Soviet domination, public ownership and management expanded through nationalization. More recently (post 1980), the GSDR has begun to shift its policies towards greater emphasis on its private sector, with a concurrent decline in public ownership in the production and manufacturing sectors. The small monetary sector is hindered by the small domestic market, poor infrastructure, and a shortage of capital and entrepreneurial experience. The modern manufacturing sector is small, with food processing (sugar, grain milling, milk and fish processing), textiles, and cement being the most important industries. Most factories are located in the Mogadishu area where power, transport and markets are available.

Two documents summarize the Government's objectives and investment plans: the Five Year Development Plan, 1982-1986 (FYDP), and the Development Strategy and Programme, 1982-1986 (DSP). The latter was prepared for the upcoming Consultative Group Meeting. Four differences mark the two documents: the DSP is in current prices whereas the FYDP uses the abandoned two-tier exchange system; the DSP includes certain food aid, balance of payments, and relief projects not included in the Plan; and, finally, the DSP concentrates on large projects and does not provide the same level of detail as the FYDP, since it is more concerned with financing than with development planning. On the whole, the DSP is the more informative document. It is divided into a core funding request and other funding requests. Within the DSP, the Public Investment Programme (PIP) forms the centerpiece of the Government strategy. Priority is given to short term productive activities with a potential for improving the utilization of the country's existing capacity; increasing food production, export marketing and import substitution. A number of Government programs are aimed at completing on-going donor-supported projects and assessing whether any of them should be halted. Priority is also given to activities which will help ease the shortage of skilled labour and personnel with technical and managerial skills. Continued efforts are also planned to increase the efficiency of public sector activities; to increase private sector participation, including that of Somalis living abroad, and to increase foreign investment.

The DSP outlines domestic and external funding requirements totaling over US \$5.0 billion. However, the core of funding request is for US \$2.24 billion of external assistance, of which US \$1.85 billion is for the PIP and the remainder is for the balance of payments support program. As of December 1982, the balance remaining to be funded from external sources totaled US\$643 million, of which US \$511 million was for the PIP. The amount remaining to be funded from domestic sources is US \$72 million, all of it for the PIP. The total projected cost of the 1982-1986 PIP is US \$2,308 million. The upcoming Consultative Group meeting in October 1983 should help clarify the funding picture.

Realizing that the DSP is still an overly optimistic plan, the GSDR and the IBRD have started (May, 1983) to reduce it to a more realistic statement of what the GSDR hopes to achieve during the next four years. This reduced-DSP document will also aid donors at the CG in identifying priorities for funding.

The Juba Valley Development Project involves the construction of a major dam and electric generating facility at Bardheere, and bringing under cultivation up to 223,000 hectares (ha.) of new land in the valley through irrigation; 50,000 ha. by gravity-fed means. The estimated cost of the dam is approximately \$600 million, with about half that amount already pledged by several national and multinational donors. The Somali government is committed to developing the Juba Valley and construction of the dam could begin in 1987 and be completed in the early 1990's.

Construction of the dam will require the completion of a 32-mile road from Bardheere to the dam site, and possibly a new cement plant at the site. In the event that the port of Kismayo is rehabilitated and the Kismayo-to-Bardheere road is rebuilt (and this is presently under analysis by EEC), it is likely that Kismayo will be used as a major point of entry for construction materials and equipment; otherwise, Mogadishu Port will fulfill this function.

The Juba Valley agricultural program calls for 90,000 ha. to be brought under cultivation over 30 years, or 3,000 ha. per annum. This program includes 3,200 ha. for bananas, 1,600 ha. other fruits, 27,000 ha. for groundnuts, 15,000 ha. for maize, and 12,000 ha. for small individual farmers. Unofficial estimates put population growth in the Juba Valley project area at 50 percent over the 30-year period.

The timing of the dam project is not yet firm, nor does the agricultural program have assured funding. The effect of this uncertainty on future traffic projections through Kismayo Port is fully discussed in Economic Analysis section of this Paper.

B. Ports

Although there are 27 harbors on the Somali coast, three of them (Mogadishu, Berbera, and Kismayo) handle over 95% of overseas trade. The three ports are sheltered deep-water facilities.

Transport by coastal shipping within Somalia is limited despite the long coastline because there has been little interregional trade suitable

for such shipping. Upon completion of a cement plant in Berbera, about 75,000 tons of its annual output will be moved by ship to Mogadishu. Similarly, petroleum products from the new refinery near Mogadishu will be transported by small tanker to Berbera and Kismayo. Current development of commercial fishing is also expected to stimulate some growth of coastal shipping. Fish are to be transported from a number of small ports to a few processing and distributing centers, particularly Mogadishu and Berbera.

The relative importance of the three ports is best illustrated by SPA's 1980 tonnage flow figures by port:

| | <u>Cargo Tonnage (000's)</u> | | | |
|---------|------------------------------|----------------|----------------|--------------|
| | <u>Mog.</u> | <u>Berbera</u> | <u>Kismayo</u> | <u>Total</u> |
| Exports | 47 | 64 | 36 | 147 |
| Imports | <u>394</u> | <u>127</u> | <u>54</u> | <u>575</u> |
| TOTAL | 441 | 191 | 90 | 722 |

The statistics of the Ministry of Planning show the following as Somalia's major trading partners in 1980:

| <u>Country</u> | <u>Imported Tons</u> | <u>% of Total</u> |
|----------------|----------------------|-------------------|
| USA | 398,456 | 38 |
| Italy | 124,511 | 12 |
| Saudi Arabia | 68,624 | 7 |
| Kenya | 60,418 | 6 |
| | <u>Exports</u> | |
| Saudi Arabia | 73,731 | 32 |
| Italy | 35,908 | 15 |
| Kuwait | 27,267 | 12 |

Imports from the USA consisted mainly of cargo in bags, including food for refugees, and petroleum products. Italian goods imported were general cargo and bagged products. Imports from Saudi Arabia were evenly divided between petroleum, general cargo and bagged cargo, and imports from Kenya consisted largely of cement.

The bulk of Somali exports consists of livestock sent to countries of the Persian Gulf, principally Saudi Arabia and Kuwait. Bananas were the major export product to Italy.

Most of Somalia's international trade is handled by foreign vessels, supplemented by the Somali Shipping Line (SSL), which was established in 1974 as a joint venture of the GSDR (51% ownership) and Libya. This line operates two refrigerator ships of a 4,000 dwt and 4,700 dwt capacity, a livestock ship of 2,500 dwt capacity, and two small general cargo vessels of 1,500 and 2,000 dwt capacity. The SSL plans to add a small oil tanker and a livestock ship to its fleet.

1. Mogadishu

Mogadishu is clearly the leading port in terms of imports and overall cargo tonnage. This port has an open roadstead with good holding ground in 12.19 to 13.71 meters (m.) of water, 0.8 km offshore. During the S.W. monsoon (May to August), the swell is heavy with a strong current. The original shallow draft piers in the old port area, previously used by lighters, have been abandoned. The new port area, completed in the late 1970's, has five berths: three for general and bagged cargo, one for livestock and one for banana exports. A 200 m banana pier extension with a RoRo ramp, using steel sheetpile bulkhead, is currently being completed. The breakwater-protected port has several transit sheds, warehouses and open storage areas. Bunkering facilities are available. Depth of water at berths varies from 8.5 to 12.0 m.

2. Berbera

Berbera ranked first in export tonnage in 1978, but since then the diversion of bananas from Merca (which closed in 1982) to Mogadishu has increased the relative importance of the latter port in handling exports.

This harbor is formed by a low, sandy spit. It has a navigable width of entrance of about 0.8 km, with a fairway depth of 16.4 to 18.3 m., reducing gradually to approximately 11 m. The anchorage range is between 9 to 18.3 m.

The berthage line of the new port provides for handling of cargo carriers up to a 12,000 dwt capacity. The length of berthage (320 m) allows for handling of two such freighters simultaneously. The depth at the berthing line is 9.8 m.

Telephone communication is available at the port. Berbera port has a covered warehouse (5,760 sq. m.) and an open storage area of 15,000 sq. m. There are two electric portal cranes (each with a hoisting capacity of 5 tons) installed at the berthage. Mobile cranes and forklift trucks are also in use at the port.

3. Kismayo

The port is situated in a sheltered bay about 384 km south of Mogadishu. A strong breakwater protects the "L"-shaped artificial harbor. Ships can anchor in the harbor basin with minimum depth of water of 9.5 m. Entrance to the port is via a 100 m wide 9.5 m deep entrance channel marked by channel buoys spaced approximately 400 to 500 m apart. Lighterage operations have been discontinued.

All ships can berth alongside in the port. As shown on Fig.I, one side of the "L"-shaped pier measures 337 m and the other 281 m. Each side has two berths for medium-size ocean-going vessels. Depth of water at all four berths is 9.5 m at mean low water. The port has suffered serious deterioration in recent years so that a part of the pier is not usable (see Technical Analysis section).

The port has two transit sheds and open storage spaces. Cranes of 6 and 12 ton capacity are also available.

IV. Project Relationship With AID and GSDR Development Strategies

A. AID Strategy

The recently approved CDSS for Somalia places an emphasis on economic recovery and growth. It proposes that AID provide support for both short term stabilization of the economy and longer term recovery and structural adjustment. In accord with this focus, AID financed investment is directed toward overcoming constraints to production and economic activity. Since Somalia's economy is primarily dependent on agriculture (including livestock), those sectors are given the highest priority.

The absence of a functioning port in Kismayo is viewed as a severe constraint to the development of the lower Juba valley, the area with greatest potential for production increases. It is the region of the country with the highest rainfall and the greatest potential for supplemental irrigation. Without appropriate imported inputs and an outlet for economical transport of excess production to deficit production areas (primarily in the North and surrounding Mogadishu), the full potential of the area cannot be realized.

Furthermore, Somalia depends on livestock for over 85% of its foreign exchange earnings with most of the remainder coming from banana exports. The Kismayo port is critical to maintaining current export levels from the Southern region of the country. As the economic analysis points out, the costs to the economy of not having a functioning port in Kismayo is great and thus rehabilitation of the port fits well within our strategy of economic recovery and structural adjustment.

The AID Development Coordination Committee Policy Paper titled "Evaluation of the Basic Human Needs Concept" presents the case for infrastructure development very well when it states "activities that provide productive employment depend on various types of infrastructure. Improving infrastructure which ultimately makes a significant contribution to labor-intensive production is an appropriate use of foreign assistance under a basic human needs approach. There is no presumption that this infrastructure must help only the poor, so long as the benefits to the poor are demonstrably large." The Kismayo port rehabilitation clearly fits these criteria.

AID/W has provided \$1.5 million in FY 1982 ESF for the development of this project, but has been rightly concerned with the port rehabilitation technology, cost and economic feasibility. PBI has satisfactorily addressed these AID/W concerns in its Preliminary Design Report and the analyses contained in this Paper establishes the desirability and feasibility of the project.

B. GSDR Strategy

The GSDR development strategy is articulated in its FYDP (1982-1986) and its Development Strategy and Program (1982-1986), the latter document is intended to prioritize its investment requirements. An IBRD/IMF team which arrived in Somalia in May 1983 intends to review the GSDR investment program and amend it, as appropriate. The revised GSDR investment program will serve as the basis for establishing the provisions of the upcoming IMF Fund Facility.

Somalia, in general, is poorly endowed with natural resources. The areas most promising for investment, primarily because of their natural endowments, are the river valleys (the Juba and Shabelli), the inter-riverine areas and the Northwest. The Juba River, compared to the Shabelli, has a more constant water supply that is somewhat less saline. Although no definitive soils mapping has been carried out, the agricultural and pastoral carrying capacity of the land is quite significant and without doubt will gradually be fully exploited.

The Juba Valley covers an area of 116,000 square kilometers and it has the second densest population concentration of the geographical areas of Somalia. The population is estimated at 651,000, of whom 70% are categorized as nomads, existing at subsistence pastoral levels, and the balance are predominantly laborers or marginal level farmers. The Juba Valley presently provides some 30% of the country's cereals and oil-seed production, 46% of the bananas, 40% of the cattle, 10% of the sheep and goats and 30% of Somalia's camels.

Ongoing projects in the region include (a) the substantial Italian Government sponsored efforts to increase banana production, (b) the Juba sugar project with 8,000 hectares under production, (c) the 10,000 hectare Faanooole irrigated cotton and sesame project, (d) the 15,700 hectare Jilib State Farm, (e) the Mogambo irrigation project, (f) the Sakow irrigation district which will eventually have 30,200 hectares under cultivation, (g) the Trans-Juba Livestock scheme of 80,000 hectares, (h) the Jilib Multipurpose Ranch of 15,000 hectares, (i) the Trans-Juba Grazing Project II of 80,000 hectares, (j) the Trans-Juba Irrigated Fodder Farm of 1,200 hectares, and (k) the Kismayo Livestock Holding Ground of 20,000 hectares. In addition, there is the current UN effort to revitalize selected stock watering facilities of the completed EEC inter-riverine project. A tsetse fly eradication program under FAO technical guidance is being undertaken with Arab Fund and ODA involvement. The World Bank has indicated a willingness to consider financing the five year follow-up tsetse eradication project. There are also numerous road projects in the area which will complete a transportation network of the productive areas of the Juba Valley.

The largest single activity proposed for the Juba Valley is the building of the Bardheere Dam which will regulate the flow of the river and generate hydroelectric power.

The Juba Valley has about 400,000 hectares of irrigable land of which about 223,000 hectares are planned for development under the Juba River Valley Development Plan. A multi-volume plan has been completed for the Juba Valley development by the Italian Consultants Impresit, S.P.A., in 1979. The price for the development of the 200,000 hectares is estimated to be \$2,296 million (1978 prices). An alternative plan for only 102,000 hectares is estimated to cost \$1,232 million.

When the irrigation scheme is completed, it is anticipated that the project area will be exporting abroad 135,000 tons of rice, 63,000 tons of grapefruit, 30,000 tons of vegetable oils, 3,000 tons of tobacco, and 190,000 tons bananas. Large portions of crops will be shipped through Kismayo to other parts of Somalia as the project is expected to meet 80% of Somalia's maize requirements, 50% of the Pulses and 50% of the cotton requirements.

The GSDR believes that the port rehabilitation will make a major contribution to meeting basic human needs as the port is a necessary part of the development package for the small farmer and stock-raiser of the Juba Valley.

The Juba Valley Development Plan by Impresit may have stated the case very well when they said "considering the quantities of commodities to be produced by agriculture and the agroindustries over the next 30 years, most of which will be channeled through the port of Kismayo, it is evident that development there will be very marked. It would not be overstating the case to say that the success of the economic and social development of the whole valley will depend largely on the efficiency of the Port of Kismayo."

The GSDR places high priority on the Kismayo port rehabilitation, and has approached USAID on numerous occasions for financial assistance. The formal GSDR request for financial assistance to rehabilitate the Kismayo port is presented in Annex A.

V. Detailed Project Description

The purpose and goal of this infrastructure project are to improve the economic and social well being of the people of the southern region of Somalia, and to improve Somalia's balance of payments situation through greater exports respectively. A logical framework for the project is presented in Annex E.

The achievement of the purpose and goal will be ameliorated by the output of the project; namely, a rehabilitated and functioning pier facility, as well as necessary ancillary facilities. A fully operational Kismayo port will provide an outlet for increased exports in the future (see Financial Analysis section), as well as the necessary imports of consumables and other commodities required for developing Somali commercial and industrial sectors.

Aside from a rehabilitated pier structure having four berths, other essential outputs of the project are:

- a) channel dredged to restore a 9.5 m depth and a 100 m channel width; this will require the dredging of approximately 30,000 cubic yards of material;
- b) utilities: yard lighting for nighttime operations and a power distribution system will be operating to supply the Kismayo port with electric power;
- c) maintenance: during the period of construction, the construction contractor will provide on-the-job training for 10-15 SPA maintenance personnel for maintenance of buildings, equipment, road and dock. PBI, during the final design stage, will determine if a modest formal training program is warranted for a few maintenance managers and technicians. If so, a maintenance training program will be prepared by PBI to be undertaken by the construction contractor. A small amount of money, if required, for maintenance training is available under the contingency and inflation items in the project budget (see Annex F.2);
- d) navigation aids: existent navigational aids will be repaired to operational capacity and to permit nighttime navigation;
- e) sanitation: new sanitary facilities will be installed and operational;
- f) environmental: the National University has established an Environmental Advisory Committee to review environmental matters related to the construction phase of the project; it is expected that the GSDR will use the EAC for other environmental matters in Somalia.

Other non-essential, but desirable, features will be provided by the GSDR during the life of the project. These items are presented in Section VI B. 3 (b).

To achieve the above outputs, a total estimated amount of \$42,100,000 (\$35,000,000 and \$7,100,000 in local currency) will be required to finance the following inputs:

Costing of Project Inputs¹
(in \$,000 or Equivalent)

| | <u>Pier Rehabilitation</u> | | <u>Ancillary Facilities</u> | | <u>Total</u> | |
|-------------|----------------------------|----------------------------|-----------------------------|----------------------------|-------------------|----------------------------|
| | <u>FX AID</u> | <u>Loc. Curr. GSDR</u> | <u>FX AID</u> | <u>Loc. Curr. GSDR</u> | <u>FX AID</u> | <u>Loc. Curr. GSDR</u> |
| Labor | 6,080 | 2,069 | 596 | 66 | 6,676 | 2,135 |
| Materials | 19,448 | 3,504 | 860 | 112 | 20,308 | 3,616 |
| Contingency | 3,877 | 849 | 218 | 27 | 4,308 | 876 |
| Engineering | 3,739 | 454 | 189 | 15 | 3,928 | 469 |
| | <u>33,144</u> | <u>6,876</u> | <u>1,863</u> | <u>220</u> | <u>35,007</u> | <u>7,096</u> |
| | | | | say | 35,000 | 7,100 |

The rehabilitation of the Kismayo port is expected to extend over a period of four (4) years and be completed by mid 1987. Construction during this period will be undertaken in a manner which will permit two berths to be continuously in operation to assure, at least, the minimum of necessary imports and exports to flow through the Kismayo port.

The technology to be used to rehabilitate the Kismayo pier is the steel sheetpiling bulkhead technology, which has been tried and proven throughout the world. PBI's Preliminary Design Report, which is the basis for the analyses in this Paper, considers the technical solution mentioned above as most appropriate in the Somali setting. PBI, in its professional capacity, does not foresee any major technical problem during the final design and construction stages. In brief, the technical solution is appropriate, do-able, cost effective and timely (see Technical Analysis Section).

¹ Except for Contingency, all other items include an inflation factor of 8 percent per annum. During the Final Design phase, PBI, working with the SPA, will undertake a study to review the cargo rate structure in Somalia. PBI and SPA will make recommendations as to reasonable cargo tariff structures, as well as the time(s) that they should become effective. The cargo tariff structures study will cost approximately \$80,000 and these funds will be provided from the substantial contingency and inflation line items (see Annex F.2).

VI. Project Analyses

A. Administrative Analysis

1. Organization

The Somali Ports Authority (SPA), created in 1962 and reconstituted in 1970 and again in 1973, is an autonomous government agency responsible for operating and maintaining the country's commercial ports under the Ministry of Marine Transport and Ports. An Organization Chart of SPA and the Kismayo port are presented on the following pages.

The Ministry of Public Works (MPW), however, has the responsibility for the planning and execution of port development projects. Completed projects are handed over to SPA for operations.

The MPW will be responsible for overseeing two host country contracts: one for final design and supervision, and one for construction. MPI has a wealth of experience in administering contracts and this is confirmed by PBI and USAID/Somalia. What is considered more important is SPA's ability to manage, operate and maintain Kismayo port, especially since the rehabilitation work is designed so that two berths are always functional.

Under the SPA, the overall management of individual ports is handled by the Port Manager, assisted by an Assistant Port Manager and a Secretariat group. Reporting directly to the Port Manager is the Internal Audit section. Reporting to the Assistant Port Manager are the Heads of the Operating Services and Personnel and Accounting Services. The Operating Services section is responsible for cargo handling, statistics, assessments and operation of the equipment repair workshop.

2. Staff

SPA headquarters is organized into four departments: Planning and Construction; Administration and Finance; Personnel; and Technical. Each of the Somali ports has a manager responsible for its operations and reporting to the General Manager. Spa is managed by a President and a General Manager who shares some of the management functions.

SPA employs approximately 3,400, of which about 1,000 (30%) are regular staff and the remaining (70%) are casual dock laborers working on a piece-work basis. Casual labor is acquired by contract to workers' cooperatives.

The limited availability of skilled manpower, to a certain extent, inhibits adequate staffing at each port below top management level. This problem arises principally because of the exodus of large numbers of educated and skilled Somali workers to neighboring oil producing countries where the rate of remuneration is significantly higher. PBI, however, feels that the present Kismayo port management staff has sufficient capability to satisfactorily manage and operate the port for the foreseeable future.

SOMALI PORTS AUTHORITY
ORGANIZATION CHART

MINISTRY OF MARINE TRANSPORT AND PORTS

PRESIDENT

GENERAL MANAGER

INTERNAL AUDIT

DIRECTOR
PERSONNEL

DIRECTOR
ADMINISTRATION &
FINANCE

DIRECTOR
PLANNING &
COORDINATION

DIRECTOR
TECHNICAL

16A

BUDGETS

ACCOUNTING

PLANNING

STATISTICS

TRANSPORT
& WORKSHOPS

GENERAL
STORES

CONSTRUCTION
& DREDGING

PORT MANAGER
MOGADISHU

PORT MANAGER
KISMAYO

PORT MANAGER
BERBERA

DEPUTY
PORT MANAGER

DEPUTY
PORT MANAGER

OPERATIONS
& TRAFFIC

PERSONNEL

TECHNICAL

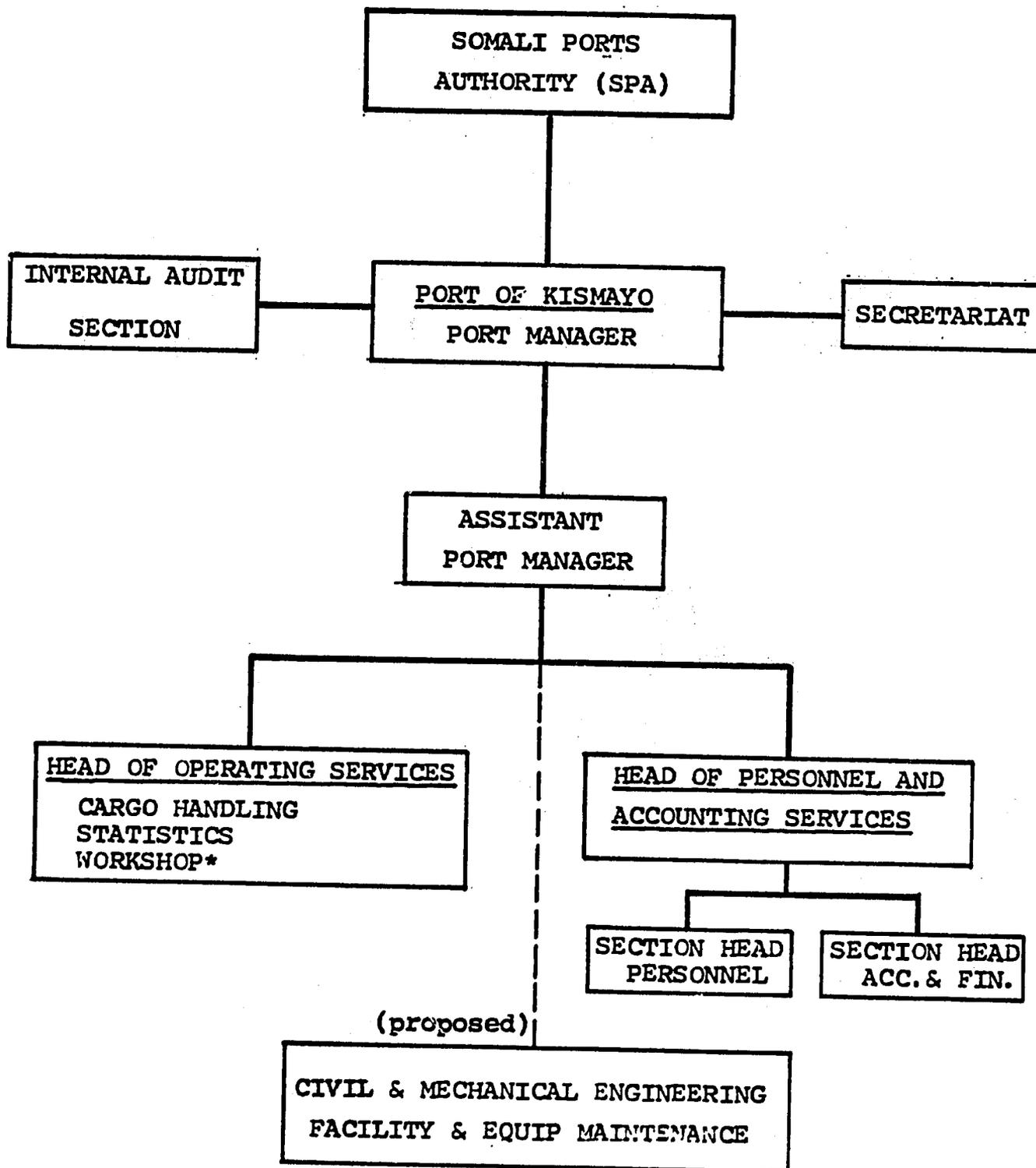
OPERATIONS

PERSONNEL &
ACCOUNTING

OPERATIONS

PERSONNEL &
ACCOUNTING

PORT OF KISMAYO ORGANIZATION CHART



*workshop would be transferred to proposed Maintenance and Engineering Section.

3. Maintenance

The SPA has plans for instituting training programs for management and maintenance staff personnel (including statisticians) at Mogadishu in the near future. To the extent that Kismayo Port personnel take advantage of this training program, the management and operation will be enhanced.

A serious shortcoming of SPA in managing and operating the ports in Somalia, including Kismayo, is a lack of routine maintenance. As will be explained in the Technical Analysis Section, the steel sheetpile bulkhead technology is designed so that a very minimum of maintenance is required for the rehabilitated pier structure.

The SPA is planning to upgrade the existing maintenance unit (workshop) at Kismayo to the status of a separate Civil and Mechanical Engineering section, the main function of which will be to effect port maintenance and repair work. This is a positive step in the right direction which A.I.D. fully supports. A covenant will be included in the Project Grant Agreement that the GSDR will use its best efforts to establish this section at Kismayo port and provide adequate and competent technicians to staff the section. During the construction of this project, the construction contractor will provide on-the-job training for equipment operators and for maintenance of buildings, road and pavements. This should be sufficient for the reasonable maintenance of Kismayo Port. However, to assure that adequate maintenance will be provided, PBI will review SPA's maintenance capability during the final design stage to determine if some of SPA's maintenance managers and technicians of Kismayo port should be provided with additional training. If so, PBI will design a modest maintenance training program for a few select maintenance managers and technicians at Kismayo port to be implemented by the construction contractor. Funds to cover this small program, if required, are available from the contingency and inflation categories in the project budget. (see Annex F.2).

4. Conclusion

USAID/Somalia and PBI agree that MPW has the experience and ability to administer the two contracts under the project - one for final design and supervision, the other for construction services.

The SPA does operate ports in a relatively efficient manner under the circumstances and this fact is borne out by PBI's assessment, as well as the fact of Somali ports operating profitably in the past (see Financial Analysis Section). It is felt that SPA has the necessary capability to reasonably manage and operate the port during and after its rehabilitation.

B. Technical

1. Port Condition and Need for Rehabilitation

The Kismayo port was constructed in two phases. The first stage, consisting of the breakwater, the pier, hydraulic fill, causeway and dredging was completed in 1967. The second stage, comprising utilities, pavements and

buildings, was completed in 1970. Utilities included potable water, fire protection system, electric power system (with power provided by the City of Kismayo), telephone lines and P.O.L. piping. A new flexible type fendering system, independent of the pier structure, was installed in 1980 and the molasses tank was constructed in 1981. The existing port layout is shown in Figure I.

A cross section through the pier is shown on Fig. II. The existing pier structure consists of prestressed concrete piles supporting precast and cast-in-place pile caps and a concrete deck. The pier deck is 18.25 m (60 ft) wide and is supported on eight vertical piles per bent.* The bents are spaced at 3.65 m (about 12 ft) on centers. Batter piles* are provided adjacent to the outer vertical pile in every other bent. Deck expansion joints are located approximately every 300 ft. All piles are 48 cm. square with a 28 cm. diameter hollow interior. The pile caps consist of three precast interior sections and cast-in-place sections at the inner and outer edges. The deck was formed with five foot wide precast concrete panels. The underside of the deck panels is parabolically curved.

The pier started deteriorating as soon as construction was completed. Although various repairs were made subsequently, pier deterioration could not be arrested and is continuing. There are numerous cracks and extensive spalling* in upper portions of most piles. With exposed and corroded reinforcing steel, severe spalling of the deck, and broken and corroded prestressing tendons in the deck structure. In the area of Berth 3 where several piles are broken the pier has been closed for traffic.

The pier was designed for a uniform live load of 600 pounds per square foot resulting from cargo stacked on the pier deck and for concentrated loads anywhere on the pier imposed by the wheels of an H-20 truck weighing 20 tons fully loaded (American Association of State Highway Officials loading designation). Such loads are appropriate for general cargo operations at the Port of Kismayo. In recent years most general cargo piers have been designed for uniform live loads ranging from 600 to 800 pounds per square foot and concentrated loads imposed by H-20 trucks.

The design of the pier was based upon the prestressing of concrete deck panels. By prestressing, their live load carrying capacity was increased from 120 pounds per square foot (before prestressing) to 600 pounds per square foot (after prestressing). Losing the prestress due to extensive corrosion and breakage of the prestress tendons and deterioration of concrete, has substantially reduced the capacity of the deck. Since prestressing has become ineffective over most of the pier area, the present load carrying capacity of the deck is estimated to be as low as 120 pounds per square foot--the same as before prestressing. In some areas--due to deterioration of concrete--it may be even lower.

Based on these findings it was concluded that the pier deck, including pile caps, is beyond repair and that as such, it should not be incorporated into a pier rehabilitation scheme.

*bents - lines of piles in a transverse framework to carry lateral as well as vertical loads.

batter piles - receding upward sloping piles--sometimes known as raker piles.

spalling - deterioration caused by expansion of corroding steel.

The piles were designed for a superimposed load of 40 tons per pile. This is equivalent to the dead weight of the deck within the area which is carried by the pile plus the 600 pounds per square foot uniform live load placed over the same area. Depending on the extent of their deterioration, the present load carrying capacity of the piles is considerably lower, estimated at between 10 and 30 tons. Furthermore, numerous piles have reportedly been pulled into position during construction to align them with the holes in the precast pile caps into which they had to fit. As a result, they may have been broken near their point of fixity below the mudline due to excessive bending stresses introduced by the pulling force. This would still further reduce their capacity and would make the piles unstable.

To determine the actual capacity of the piles and whether they could be repaired and incorporated into a pier rehabilitation scheme, it would be necessary to conduct pile load and/or inspection tests for about 50 percent of a total of over 1500 piles. In addition, it would be essential to excavate around a large number of piles to a depth of about 10 feet below the mudline and then to visually inspect each uncovered pile in order to determine whether and how many piles are actually broken. As the piles are under the deck, excavating equipment could not be used and all excavations would have to be accomplished manually by divers. It is estimated that pile tests, excavations and inspection would cost \$3 to 4 million and would take about one year to carry out. Considering that the costs of pile load tests and excavations to inspect piles below the mudline would be very high and results uncertain to say the least, they were not recommended by PBI and were not performed.

The major conclusions of the evaluation of the pier condition are that the structural integrity of the pier is severely impaired, that it is structurally unsafe for general cargo operations such as conducted at the Port of Kismayo, and that the pier should be rehabilitated without delay, employing a design which does not rely on any part of the existing pier structure. If not rehabilitated, the pier would possibly be used for up to five years more, but with an increasingly curtailed operational efficiency and with an ever present risk of serious mishap caused by a structural failure.

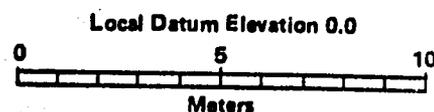
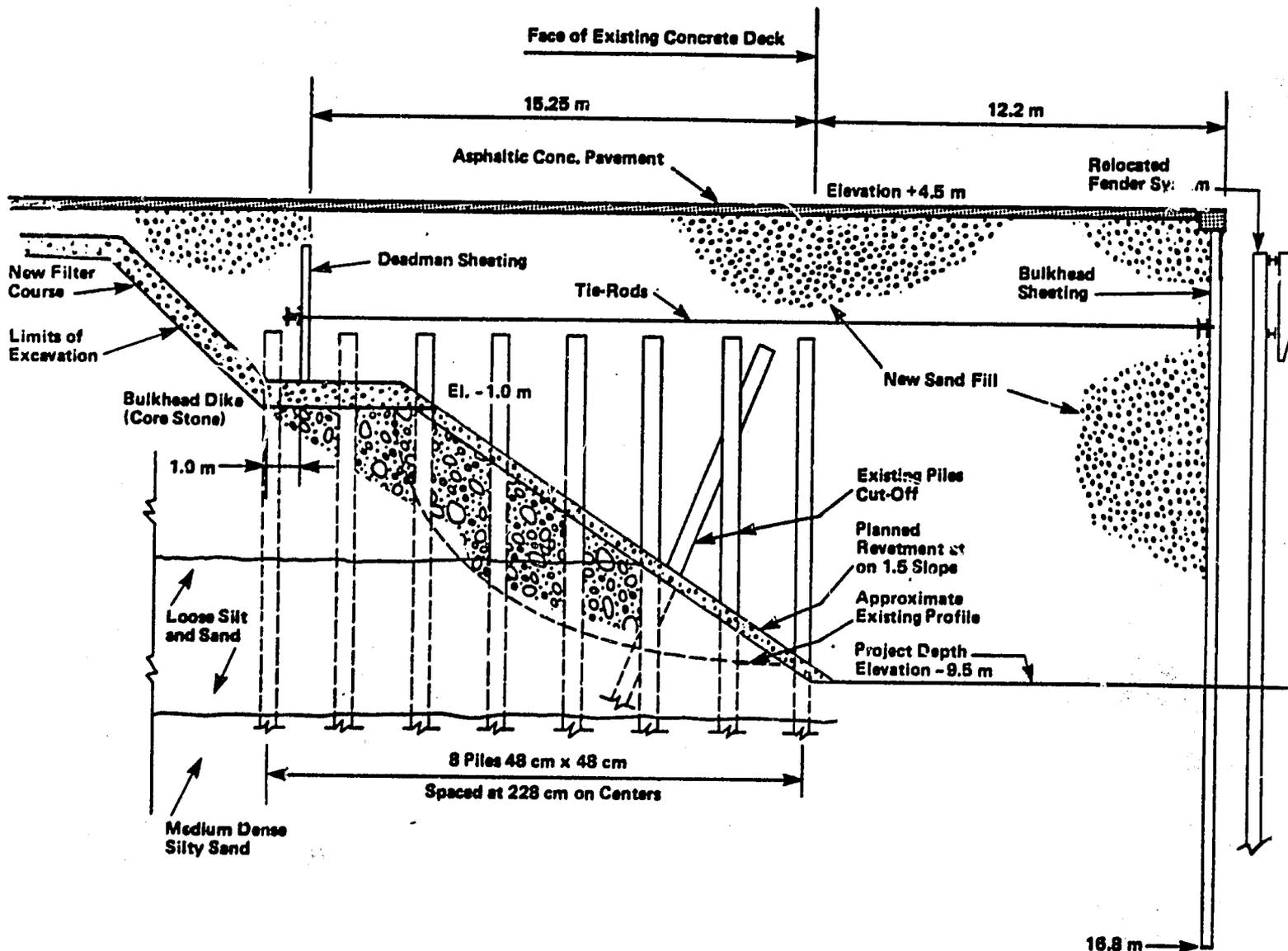
In addition to the severely deteriorated pier, the entrance channel has partly silted up, various navigation aids are not functioning, most utilities are deteriorated or inoperative and buildings are in various stages of disrepair. It has also been reported that overtopping of the breakwater occurs during storm conditions and, at such times, access to the port is disrupted.

PBI, USAID/Somalia and the GSDR are in agreement that some ancillary facilities and equipment are essential for the efficient operation of Kismayo port, while others are desirable, but not essential. AID, under the project, will finance the essential items, while the desirable items will be for the account of the GSDR. Details on the essential ancillary facilities and equipment is provided in the following pages.

Cross Section Through Bulkhead

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.



Plan of Recommended Pier Rehabilitation

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International

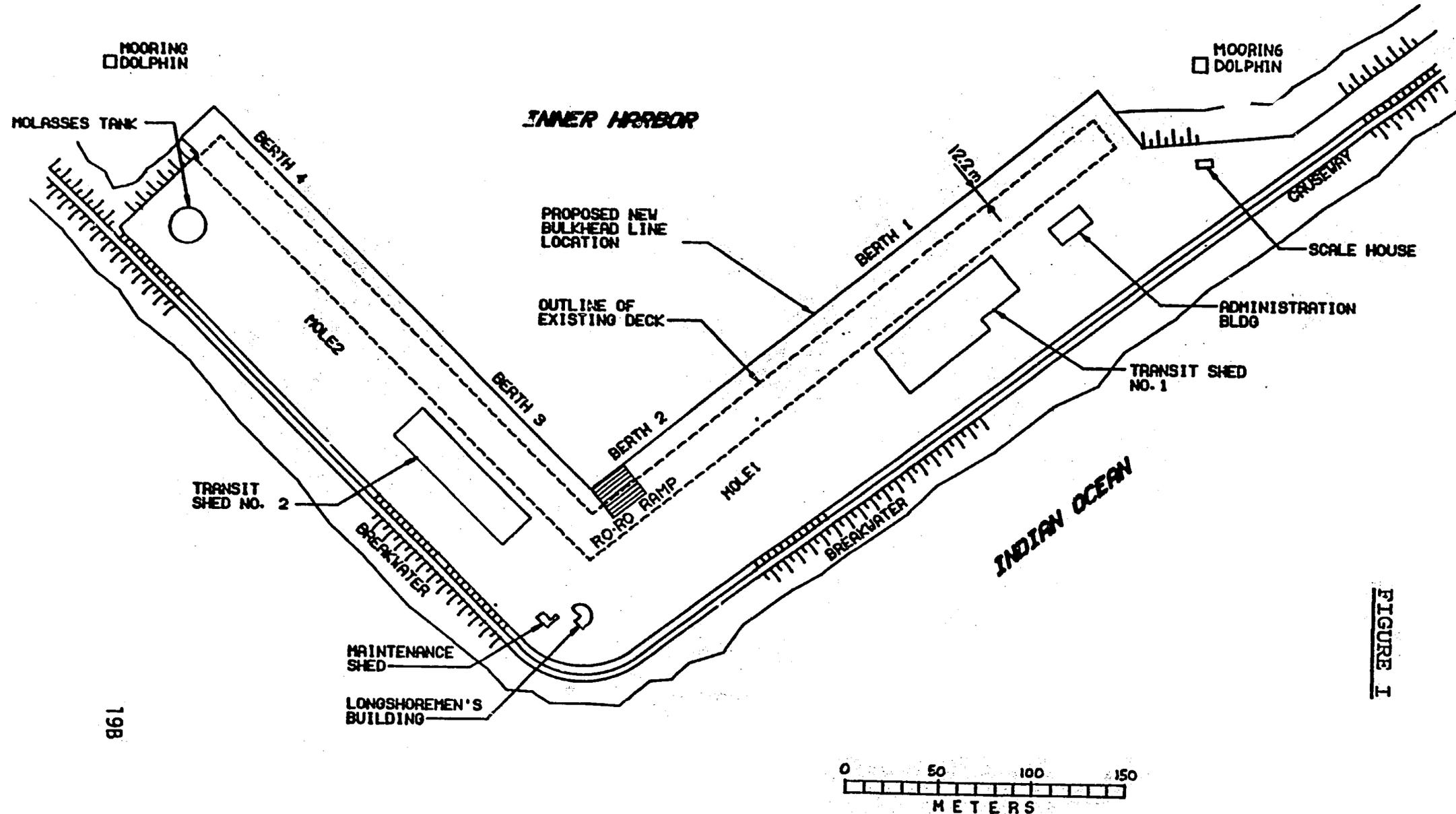


FIGURE 1

2. Pier Rehabilitation Technology

The steel sheetpile bulkhead concept was found to be best suited, under the circumstances, and was selected for pier rehabilitation. Its costs are lower than those of the other alternatives and it should not create any unusual construction problems. Its life expectancy is estimated at a minimum of 30 years. This technology has been used world-wide and proven feasible.

Constructing the bulkhead along the existing face of the pier would require extensive excavations beyond the apron area to install tie rod anchorage structures in areas where existing buildings would preclude such excavations. For these reasons it was decided to locate the bulkhead 12.2 m (40 ft) in front of the existing face of the pier as shown in Figures I and II. At that location no excavations are needed and simple tie rod anchorages can be installed along the entire bulkhead. Another advantage of this location is that about two acres of additional apron area are gained at no extra cost. This additional area will be particularly useful for handling of containerized cargo in the future.

The selected bulkhead section consists of U.S. standard PZ38 sheetpiles with 5 in x 1 in reinforcing plates welded on at the manufacturer's plant to provide the required cross-section. U.S. standard PZ27 sheetpiles are used as deadman anchorages, with 3 1/2 in diameter steel tie rods spaced at 4.5 ft on centers.

Since steel sheetpiling is subject to corrosion when installed in tropical seawater, measures were developed to protect the steel and thereby extend the life of the structure. The steel will be corrosion resistant. As such, it costs about 25 percent more, but also provides at least 25 percent higher strength. Protective coatings will be provided on all steel members including the wales,* tie rods and deadman sheeting.* The tie rods, in addition to the coal tar epoxy coating, will be wrapped with protective tape and placed inside pipe sleeves for added protection. The coating on both sides of the bulkhead sheeting will extend to approximately 5 feet below the mud line. Also, a reinforced concrete cap will be provided to protect the top of the bulkhead sheeting from damage and to distribute lateral loads along the bulkhead wall.

In addition to coating, a sacrificial anode cathodic protection system, an electrical method of preventing corrosion, will be installed to protect the submerged portion of the bulkhead. That system uses magnesium, zinc or aluminum alloy anodes which are installed on the exterior of the bulkhead. The resulting electric current between the anodes and the bulkhead, flowing through the water which acts as the electrolyte, brings the steel surface to a potential where it becomes protected against corrosion. The anodes which consume themselves in the process of generating protective current (and therefore called "sacrificial") will have to be replaced after about 20 years of service, at which time they will become ineffective due to gradual loss of material. Maintenance needs are minimal.

Protected as described above, the bulkhead structure should have a minimum life expectancy of 30 years. The life could be extended further by

*wales - horizontal stiffening members or ribs.
deadman sheeting - anchorage for tie rods.

proper maintenance, including patching up of damaged areas of protective coating, recoating in the splash zone, periodic inspection of the anodes to ascertain that the cathodic protection system is functioning properly, spot checking tie rods and making repairs if necessary. Experience has shown that without protective measures steel sheetpile bulkheading in a tropical zone would have a useful life of about 15 to 20 years.

The existing flexible fendering system is in generally good condition, except for a section near the inshore end of the pier where it was recently damaged by a berthing vessel. As such, it will be reused for the new pier structure. Approximately 10 percent of the existing steel members will have to be replaced along with the rubbing strips. New bollards* will be provided in order to insure that bollards and anchor bolts are compatible and properly sized for the loads and foundations as designed.

The rehabilitated pier will also have a RoRo ramp to facilitate the handling of livestock and unitized cargo. It will be suitable for stern-unloading RoRo vessels equipped with their own connecting ramps.

Two new mooring dolphins are provided; one beyond the outer end of the pier to replace the existing deteriorated dolphin for the molasses berth, and the other one at the inshore end of the pier for the petroleum vessels. Both are needed to enable two ships of the design size to be safely moored along each side of the L-shaped pier.

Pier rehabilitation design criteria are presented in Annex F.1.

The utility work included in the pier rehabilitation scheme consists of the following items:

- Potable water line
- Fire protection
- Electric power lines
- Gasoline/diesel and lube oil lines
- Molasses transfer piping

Details concerning the above utilities are included in Annex F.1. PBI foresees no serious obstacle either in the design or installation of these utilities.

3. Rehabilitation of Ancillary Facilities

(a) Essential Ancillary Facilities

Concurrently with the rehabilitation of the pier structure and utilities within the pier area, certain ancillary facilities which are outside of the rehabilitation area of the pier but are essential for proper functioning of the port will also be rehabilitated or improved. These include:

- o Dredging of the access channel to maintain unrestricted access for vessels calling at the port.
- o Repairs to and improvement of existing navigation aids to enable vessels to safely navigate in and out of the port at any time during day or night.

*bollards - a post on a wharf around which to fasten mooring lines.

- o Provision of yard lighting to facilitate nighttime cargo operations.
- o Power distribution system to distribute power from the generator to the pier and buildings at the port.
- o Installation of sanitary facilities to replace existing deteriorated and largely inoperative facilities and provision of septic tanks to treat sewage effluent before it is discharged into the harbor.

While the justification for including the above ancillary items in the project appears obvious, a detailed justification for their inclusion is presented in Annex FI.

(b) Desirable Ancillary Facilities

The items presented below are not financed by the project.

Those are:

- Rehabilitation of access road lighting
- Rehabilitation of buildings
- Repairs to the breakwater
- Repairs to causeway and access road

These items are not essential to the effective operation of Kismayo port and can be undertaken, as appropriate, by the GSDR using local currency.

4. Other Construction Related Factors

A preliminary survey of locally available contractors, labor and materials was made to determine to what extent the resources available in the Somali Democratic Republic could be utilized by the General Contractor. The findings are as follows:

Local firms do not have skills necessary to perform geotechnical investigations or topographic and hydrographic surveys. The nearest sources for these services are in Kenya.

Some laboratory capability exists in GSDR government agencies which can perform chemical analyses on the water samples, soils testing, design concrete mixes and test concrete cubes and cylinders. However, they do not have the capability to perform chemical analyses of aggregate samples. For this latter function, the nearest commercial laboratories are in Nairobi.

With respect to local contractors, there are about ten who are registered with the Ministry of Public Works and qualified for contracts up to 8,000,000 S/Sh (about US \$533,000). Most of them are in Mogadishu, but also available for work in Kismayo. They handle civil construction and building work, some operate quarries and have a limited capability in sanitary and electric fields. None of the local contractors have the experience necessary to serve as general contractor on the Port of Kismayo rehabilitation project, but could act as subcontractors in their line of expertise.

Skilled local labor is very scarce, but skills such as equipment operators, steel and concrete workers should be available. Somali personnel are also used at various quarries throughout the country, including those at Kismayo, where they operate heavy excavation equipment and the rock crushers.

Except for natural materials such as fine and coarse aggregates and water, all other material for construction will have to be imported.

Weather conditions in the Kismayo area are generally good for construction work. The protected harbor will enable construction to proceed without delay except for infrequent storms and occasional heavy rains during the monsoon periods.

The soil conditions along the bulkhead alignment are believed to be good for driving of steel sheetpiling. The proposed field investigations program of boring and probing will clearly define the underlying materials. Should boulders or hard strata be encountered, it may be necessary to prepunch holes for the sheeting or to fragment the hard materials by punching or blasting.

During the construction period it will be necessary to maintain the ongoing port operations. As a result, only limited space will be available to the contractor within the port for an on-site office, storage of materials and temporary placement of equipment. Additional land area will have to be provided by the Port for the contractor's camp and operational requirements in the immediate vicinity of the port. GSDR has provided assurances that it will make the necessary arrangements to have sufficient space made available to the construction contractor. This assurance has been conveyed formally to USAID/Somalia and is included in the GSDR Financing Request (see Annex A). In addition, the GSDR has provided assurance that the quarry material and beach sand will be available to the contractor at no cost (see Annex A).

5. Additional Field Investigations

There are considerable data available on site conditions at the Port of Kismayo from previous studies, construction reports and field investigations. These data were used as basic input for the present port rehabilitation study and preliminary design. However, the available data are inadequate for the final design and construction and must be supplemented by additional field investigations. The cost estimate of the project includes the cost of these additional field investigations, since absence of such additional data could cause problems during construction.

The necessary additional field investigations include a site topographic survey, boring and probings along the new bulkhead alignment, and investigations of aggregate and water sources. The cost of these additional surveys and investigations, including engineering, are estimated at \$300,000 (see Annex F.1 for cost breakdown). A detailed cost estimate for the project is shown in Annex F.2.

Topographic Survey. The topographic survey will accurately locate and establish dimensions of all port facilities, including their

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The necessary additional field investigations include a site topographic survey, boring and probings along the new bulkhead alignment, and investigations of aggregate and water sources. The cost of these additional surveys and investigations, including engineering, are estimated at \$300,000 (see Annex FI for cost breakdown). A detailed cost estimate for the project is shown in Annex FII.

Topographic Survey. The topographic survey will accurately locate and establish dimensions of all port facilities, including their

deviations, along with elevations and grades of roadways, area pavements and breakwater. These data will be used to prepare site plans, to locate new structures and utilities, and to estimate quantities of required excavations and backfill. Soundings taken under the existing deck structure will establish the embankment slope and thus help determine the required amount of fill.

Borings and Probings. Previous soil investigations have disclosed presence of hard stratum (coral) immediately below the harbor bottom, along the existing face of the pier, in the general area of berth 1. However, no information is available on whether this stratum extends to the new bulkhead alignment 40 ft away. To obtain the necessary data eight borings will be drilled. If the hard stratum is encountered, core samples will be taken and laboratory tested to determine its characteristics. In addition, an estimated 30 jet probings will be made in the area of the hard stratum to determine its limits. The results will be used for the final dimensioning of the bulkhead and to determine what measures (such as predrilling or breaking up of the hard stratum), if any, will need to be taken prior to the driving of the sheetpiles.

Aggregate Source Investigation. Concrete aggregate source surveys conducted in November 1982 at three active quarries in the Kismayo area produced mainly negative results. The conclusions were that while dune sands--after some processing--could be used as a source for fine aggregates, quarry materials could not be recommended as a source of crushed stone aggregate and that consideration should be given to obtaining dense, good quality coarse aggregate from sources located outside the Kismayo area. Also, suitable quarry material for pavement base coarse was not located. For these reasons it is necessary to search for aggregate sources in quarries other than those previously investigated. Initially, interviews will be held with contractors and government agencies using quarry materials and site visits will be made to potential new quarries to select two most promising locations. At these, borings and test pits will be made to determine the depths of strata and to obtain samples for laboratory testing. Using the resulting data, suitability of aggregate materials for concrete and pavement base coarse will be determined and available quantities estimated.

Water Source Investigation. Water for use in the mixing of concrete must be reasonably free of chlorides so as not to cause corrosion of reinforcing steel in concrete structures. While recent surveys suggest that the Juba River is the preferred source of water, they also recommend that samples be obtained for testing during periods of both high flow and low flow to determine any tidal influences. It will, therefore, be necessary to obtain samples at various times during the year as the flow of the river varies with rainy and dry seasons. Samples obtained will be tested in the laboratory for chemical contents and pH values. Sample will be obtained during Final Design by site personnel, with testing performed by a commercial laboratory.

6. Conclusion

It is the opinion of PBI, the GSDR and USAID/Somalia, based on the Preliminary Design Report, that the project is technically feasible and can be completed within the project cost estimate. Given the relative technical simplicity of the project, there is every confidence that the technical analysis contained herein will be confirmed in the Final Design. The Final Design will be reviewed by the GSDR and A.I.D. and, once approved, the project will move into the construction phase.

G. Financial

1. Estimated Costs of Port Rehabilitation

The total project cost is estimated at \$42,100,000 with the foreign exchange component \$35,000,000 or 83 percent of total project cost. All costs include inflation at 8 percent annually.

Tables I and II present summaries of the capital costs for pier rehabilitation and for rehabilitation of ancillary facilities which are included in project funding. Detailed cost estimates are given in Annex F.2.

The estimated costs reflect current (May 1983) market prices, and include contractor's overhead and profit. Costs of most materials and equipment to be imported for the project are based on quotations by U.S. suppliers. They include ocean transportation on U.S. flag vessels. Costs of local labor and materials are based on market prices obtained from Somali Government sources, local contractors and suppliers. In addition, the contractor for the just-completed pier extension at Mogadishu was consulted relative to costs for mobilization and construction, efficiency of local labor, and problems encountered. This provided important information which was used in the cost estimate to reflect local conditions.

Contingency to account for accidental omissions, errors in estimating quantities of materials and labor requirements amounts to approximately 15 percent of construction costs. Engineering costs include additional site investigations, final design, preparation of contract documents, assistance in contractor prequalification and bid solicitation, evaluation of bids and construction phase services. During construction three full-time expatriate field engineers and a Somali staff of engineers and technicians will be provided, along with home office support personnel.

The estimate does not include duty and taxes on imported items, as they will be exempted from such charges by the Somali government. It does include some prepunching of the hard stratum and costs of obtaining concrete aggregate from sources outside of the Kismayo area.

2. Cargo Forecasts

Forecasts of cargo movements through the port--imports and exports--have been prepared for the period 1985 to 2005. The forecasts provide a basis for determining an appropriate size for the port to accommodate traffic

TABLE I
Cost Estimate Summary--Pier Rehabilitation
 (US \$,000)

| <u>Item</u> | <u>AID Foreign Currency</u> | <u>Host Country Local Currency</u> | <u>Total</u> |
|---------------------------------|---------------------------------|--|---------------|
| Mobilization | 4,110 | 190 | 4,300 |
| Pier Demolition | 634 | 362 | 996 |
| Removal of Slab | 95 | 53 | 148 |
| Excavation | 175 | 66 | 241 |
| Bulkhead | 11,449 | 1,094 | 12,543 |
| Backfill | 1,411 | 1,636 | 3,047 |
| Pavement | 727 | 457 | 1,184 |
| Concrete Cap | 133 | 131 | 264 |
| Marine Hardware | 836 | 135 | 971 |
| Mooring Dolphins | 116 | 23 | 139 |
| Fendering | 434 | 166 | 600 |
| Pier Utilities | 909 | 109 | 1,018 |
| Cathodic Protection | 178 | 22 | 200 |
| Miscellaneous | 109 | 113 | 222 |
| | <u>21,316</u> | <u>4,557</u> | <u>25,873</u> |
| Contingency | 3,237 | 694 | 3,931 |
| | <u>24,553</u> | <u>5,251</u> | <u>29,804</u> |
| Engineering & Constr. Supr'n | 3,122 | 371 | 3,493 |
| | <u>27,675</u> | <u>5,622</u> | <u>33,297</u> |
| Inflation | 5,469 | 1,254 | 6,723 |
| TOTAL | <u>33,144</u> | <u>6,876</u> | <u>40,020</u> |
| Say | 33,100 | 6,900 | 40,000 |

TABLE II
Cost Estimate Summary--Ancillary Facilities
 (US \$,000)

| <u>Item</u> | <u>AID Foreign Currency</u> | <u>Host Country Local Currency</u> | <u>Total</u> |
|---------------------|---------------------------------|--|--------------|
| Channel Dredging | 570 | 30 | 600 |
| Navigation Aids | 180 | 20 | 200 |
| Power Distribution | 80 | 11 | 91 |
| Yard Lighting | 266 | 50 | 316 |
| Sanitary Facilities | 120 | 30 | 150 |
| | <u>1,216</u> | <u>141</u> | <u>1,357</u> |
| Contingency | 182 | 21 | 203 |
| | <u>1,398</u> | <u>162</u> | <u>1,560</u> |

TABLE II (Cont'd)

| <u>Item</u> | S O U R C E | | <u>Total</u> |
|---------------------------------|---------------------------------------|--|--------------|
| | <u>AID</u> <u>Foreign Currency</u> | <u>Host Country</u> <u>Local Currency</u> | |
| Engineering & Constr. Supr'n | <u>158</u> | <u>18</u> | <u>176</u> |
| | <u>1,556</u> | <u>180</u> | <u>1,736</u> |
| Inflation | <u>307</u> | <u>40</u> | <u>347</u> |
| TOTAL | <u>1,863</u> | <u>220</u> | <u>2,083</u> |
| Say | 1,900 | 200 | 2,100 |

over the 20-year planning period (berth optimization)--used as a major input to the financial and economic feasibility analyses, and for establishing port operational and equipment requirements.

For the years 1986 to 2005, very little in terms of projections were available from outside sources on which to base the cargo forecasts. Therefore, Parsons Brinckerhoff found it necessary to make estimates based on best judgment of future trends for each of the cargo categories.

on: Cargo forecasting involved the collection and analysis of information

- o Historical cargo movements through Kismayo and other Somali ports;
- o historical data and available forecasts of key social and macroeconomic indicators;
- o current status and available forecasts and plans for key sectors of the economy contributing to cargo movement through the port; and
- o current status and available plans for inland and marine transport infrastructure, especially new hard-surface roads for the Juba Valley region, and improvements to the Port of Mogadishu.

Of particular concern in forecasting cargo traffic for Kismayo is the status of the Juba Valley Development Project. The project involves the construction of a major dam and electric generating facility at Bardheere, and bringing under cultivation up to 223,000 ha. of new land in the valley through irrigation, 50,000 ha. by gravity-fed means. Construction of the dam could begin in 1986 and completion in the early 1990's. However, due to present uncertainties regarding the availability of funding for the project, it could be delayed. Therefore, two forecasts were prepared. The high forecast assumed the attainment of the goals of the Five Year Development Plan and the implementation of the Bardheere Dam on schedule. The low forecast assumed a much more conservative scenario, with underattainment of the Five Year Plan goals and delay of the Bardheere Dam.

The different cargo categories projected for the 20 years (1985-2005) are those which traditionally have passed through Kismayo Port. These consist of imported petroleum products and general cargo, and five export commodities, namely: livestock, bananas, molasses, general cargo and fish. For each category a high and a low forecast was prepared for the 20 year period.

For the years 1983 through 1985, the yearly increases in the high volume case were those of the Five Year Development Plan. The increases in the low volume case were assumed conservatively to be approximately two thirds of the high case through 1985. A summary of the forecasts are shown below, in thousands of metric tons:

TABLE III

| <u>Commodity</u> | <u>Average</u> 1976-82 | <u>Low Case</u> | | | <u>High Case</u> | | |
|------------------|---------------------------|-----------------|-------------|-------------|------------------|-------------|-------------|
| | | <u>1985</u> | <u>1995</u> | <u>2005</u> | <u>1985</u> | <u>1995</u> | <u>2005</u> |
| <u>Imports</u> | | | | | | | |
| Fuel | 19.4 | 26 | 42 | 68 | 30 | 65 | 140 |
| General Cargo | 37.4 | 41 | 50 | 61 | 43 | 64 | 98 |
| Total Imports | 56.8 | 67 | 92 | 129 | 73 | 129 | 238 |
| <u>Exports</u> | | | | | | | |
| Livestock | 9.3 | 10 | 11 | 12 | 12 | 16 | 22 |
| Bananas | 26.5 | 40 | 60 | 60 | 50 | 92 | 134 |
| Molasses | 19.4 | 33 | 33 | 33 | 33 | 45 | 60 |
| General Cargo | 3.9 | 4 | 13 | 15 | 5 | 20 | 35 |
| Fish | | 2 | 3 | 5 | 2 | 5 | 5 |
| Total Exports | 59.1 | 89 | 120 | 125 | 102 | 178 | 256 |
| Total Cargo | 105.9 | 156 | 212 | 254 | 175 | 307 | 494 |

3. Financial Feasibility

A financial analysis was performed for the project to determine if project revenues were sufficient to cover all operating costs plus depreciation.

A financial analysis along commercial lines (i.e., SPA borrows on commercial terms to rehabilitate the port) is really not appropriate. In fact, general cargo ports in developing countries do not earn sufficient revenue through fees to cover operating costs and, with a few exceptions, earn enough to cover operating costs and depreciation. However, Financial Statements based on SPA borrowing on commercial terms were prepared and are presented in Annex F.2 for the interested reader.

The analysis presented below reflects the real situation (i.e., no debt servicing). Two revenue assumptions were made. In the first, existing fee schedules were not readjusted for the devaluation which occurred in 1982. The second assumes that the GSDR readjusts the fee schedules so that they yield the dollar equivalent of the pre-1982 rates.

The operating costs for the pro forma financial statements were based in part on the actual values for Kismayo port. Historic operating costs for the years 1980, 1981 and 1982 were grouped into wages, maintenance, fuel, local utilities, others, depreciation, and administrative/general. The three years totals in each category were divided by the total tonnage handled to obtain S/Sh/ton.

The conversion of the Somali shilling cost into dollars again presented a problem due to the devaluation at the end of 1982. As the cost of labor and other locally sourced goods and services were not increased proportionally to the devaluation, the conversion rate is the official one of 15.1 shillings to the dollar. However, imported goods, namely fuel and maintenance, will have to be purchased with dollars; therefore, the dollar value for these items was maintained by converting them by the historic exchange rate of 6.3.

Depreciation was assumed to be straight line, with a five year useful life for port operating equipment and 30 years for the pier and other facilities.

Pier maintenance was calculated as 0.1 percent of the capital cost of the rehabilitation the first year, increasing to 0.2 percent the second year, and so on reaching 1.0 percent by the tenth operating year.

Maintenance dredging was assumed to be U.S. \$200,000 per year.

Operations were assumed to start in 1986 upon the completion of the second berth, and continue during the demolition and reconstruction of the remaining two berths.

The operating costs per ton were multiplied by the projected tonnages in the high and low volume cases to obtain the yearly costs for each operating category.

The results are summarized in Tables IV and V. The readjusted rates generate sufficient income to cover operating expenses, administrative and general, and depreciation. The existing fee schedules cover operating costs but not depreciation. As the port is an infrastructure project, like a highway, and not for the purpose of generating a profit, financial viability means that it should be able to cover its own operating expenses and depreciation, whereby it creates a capital reserve for future equipment purchases and rehabilitating the pier and other facilities at the end of the estimated 30 year useful life. These criterion are adequately met by readjusting the rates to compensate fully for the devaluation of the shilling such that real dollar income per ton is equivalent to that existing before the 1982 devaluation.

Under Law No. 58 of 1972, public sector entities such as SPA are subject to the following taxes and contributions:

- (a) an income tax rate of 50% of net operating income;
- (b) a contribution to the national depreciation fund at the rate of 50% of the annual depreciation provision; and
- (c) a share of profit at the rate of 60% of net operating income after taxes.

As can be seen from the above Summary Profit and Loss Statement based on a readjusted fee schedule (Tables IV and V), these levies on SPA would yield substantial revenues for the GSDR for the next 20 or more years.

4. Financial Plan

U.S. dollar (000s) grant funds are proposed for obligation by FY as follows:

| | <u>FY 1983</u> | <u>FY 1984</u> | <u>FY 1985</u> |
|--------------|----------------|----------------|----------------|
| <u>Total</u> | \$5.0 | \$15.0 | \$15.0 |

TABLE IV
Financial Analysis
High Volume Case
Readjusted Fee Schedule

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <u>Gross Income</u> | | | | | | | | | | | | | |
| Port Fee: | 3457 | 3682 | 3881 | 4087 | 4303 | 4543 | 4838 | 5095 | 5416 | 5416 | 5416 | 5416 | 5416 |
| <u>Operating Costs</u> | 916 | 995 | 1067 | 1141 | 1219 | 1300 | 1392 | 1478 | 1574 | 1607 | 1607 | 1607 | 1607 |
| <u>Depreciation</u> | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1877 | 1877 | 1877 | 1877 | 1877 |
| Total Operating Costs Administrative & General | 1827 | 2256 | 2572 | 2646 | 2724 | 2805 | 2897 | 2983 | 3451 | 3484 | 3484 | 3484 | 3484 |
| | 216 | 231 | 243 | 256 | 270 | 285 | 304 | 321 | 340 | 340 | 340 | 340 | 340 |
| <u>Operating Profits</u> | 1414 | 1195 | 1066 | 1185 | 1309 | 1453 | 2497 | 3406 | 3407 | 3024 | 3019 | 3019 | 3019 |

| | 1999 | 2000 | 2001 | 2002 | 2003 | Total |
|--|------|------|------|------|------|--------|
| | 5416 | 5416 | 5416 | 5416 | 5416 | 88,046 |
| | 1607 | 1607 | 1607 | 1607 | 1607 | 25,545 |
| | 1877 | 1877 | 1877 | 1877 | 1877 | 29,972 |
| | 3484 | 3484 | 3484 | 3484 | 3484 | 55,517 |
| | 340 | 340 | 340 | 340 | 340 | 5,526 |
| | 1592 | 1592 | 1592 | 1592 | 1592 | 27,003 |

Financial Analysis
Low Volume Case
Readjusted Fee Schedule

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <u>Gross Income</u> | | | | | | | | | | | | | |
| Port Fees | 3006 | 3093 | 3199 | 3247 | 3361 | 3461 | 3621 | 3732 | 3870 | 3985 | 4030 | 4076 | 4158 |
| <u>Operating Costs</u> | 827 | 879 | 930 | 975 | 1031 | 1089 | 1146 | 1195 | 1259 | 1314 | 1325 | 1338 | 1355 |
| <u>Depreciation</u> | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 |
| Total Operating Costs Administrative & General | 1738 | 2140 | 2435 | 2480 | 2536 | 2594 | 2651 | 2700 | 2764 | 2819 | 2830 | 2843 | 2860 |
| | 188 | 194 | 200 | 204 | 211 | 219 | 226 | 233 | 241 | 248 | 252 | 255 | 261 |
| <u>Operating Profits</u> | 1080 | 759 | 564 | 563 | 614 | 3095 | 3399 | 3399 | 3400 | 3399 | 3392 | 3388 | 3393 |

| | 1999 | 2000 | 2001 | 2002 | 2003 | Total |
|--|------|------|------|------|------|--------|
| | 4232 | 4299 | 4355 | 4413 | 4519 | 68,657 |
| | 1371 | 1386 | 1399 | 1415 | 1437 | 21,671 |
| | 1505 | 1505 | 1505 | 1877 | 1877 | 26,996 |
| | 2876 | 2891 | 2904 | 3292 | 3314 | 48,667 |
| | 266 | 279 | 275 | 280 | 287 | 4,310 |
| | 1090 | 1138 | 1176 | 841 | 918 | 35,608 |

TABLE V

Financial Analysis
High Volume Case
Actual Fee Schedule

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|-----------------------------|------|------|-------|-------|-------|------|------|------|-------|-------|-------|-------|-------|
| <u>Gross Income</u> | | | | | | | | | | | | | |
| Port Fees | 1597 | 1701 | 1793 | 1888 | 1988 | 2099 | 2235 | 2354 | 2502 | 2502 | 2502 | 2502 | 2502 |
| <u>Operating Costs</u> | 916 | 995 | 1067 | 1141 | 1219 | 1300 | 1392 | 1478 | 1574 | 1607 | 1607 | 1607 | 1607 |
| <u>Depreciation</u> | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1877 | 1877 | 1877 | 1877 | 1877 |
| Total Operating Costs | 1827 | 2256 | 2572 | 2646 | 2724 | 2805 | 2897 | 2983 | 3451 | 3484 | 3484 | 3484 | 3484 |
| Administrative & General | 216 | 231 | 243 | 256 | 270 | 285 | 304 | 321 | 340 | 340 | 340 | 340 | 340 |
| <u>Operating Profits</u> | -446 | -786 | -1022 | -1014 | -1006 | -991 | -966 | -950 | -1289 | -1322 | -1322 | -1322 | -1322 |

| | 1999 | 2000 | 2001 | 2002 | 2003 | Total |
|--|-------------|-------------|-------------|-------------|-------------|---------------|
| | 2502 | 2502 | 2502 | 2502 | 2502 | 40,675 |
| | 1607 | 1607 | 1607 | 1607 | 1607 | 25,545 |
| | <u>1877</u> | <u>1877</u> | <u>1877</u> | <u>1877</u> | <u>1877</u> | <u>29,972</u> |
| | 3484 | 3484 | 3484 | 3484 | 3484 | 55,517 |
| | 340 | 340 | 340 | 340 | 340 | 5,526 |
| | -1322 | -1322 | -1322 | -1322 | -1322 | -20,368 |

Financial Analysis
Low Volume Case
Actual Fee Schedule

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|--------------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>Gross Income</u> | | | | | | | | | | | | | |
| Port Fees | 1389 | 1429 | 1478 | 1500 | 1553 | 1599 | 1673 | 1724 | 1788 | 1841 | 1862 | 1883 | 1921 |
| <u>Operating Costs</u> | 827 | 879 | 930 | 975 | 1031 | 1089 | 1146 | 1195 | 1259 | 1314 | 1325 | 1338 | 1355 |
| <u>Depreciation</u> | <u>911</u> | <u>1261</u> | <u>1505</u> |
| Total Operating Costs | 1738 | 2140 | 2435 | 2480 | 2536 | 2594 | 2651 | 2700 | 2764 | 2819 | 2830 | 2843 | 2860 |
| Administrative & General | 188 | 194 | 200 | 204 | 211 | 219 | 226 | 233 | 241 | 248 | 252 | 255 | 261 |
| <u>Operating Profits</u> | -537 | -905 | -1157 | -1184 | -1194 | -1214 | -1204 | -1209 | -1217 | -1226 | -1220 | -1215 | -1200 |

| | 1999 | 2000 | 2001 | 2002 | 2003 | Total |
|--|-------------|-------------|-------------|-------------|-------------|---------------|
| | 1955 | 1986 | 2012 | 2039 | 2088 | 31,720 |
| | 1371 | 1386 | 1399 | 1415 | 1437 | 21,671 |
| | <u>1505</u> | <u>1505</u> | <u>1505</u> | <u>1877</u> | <u>1877</u> | <u>26,996</u> |
| | 2876 | 2891 | 2904 | 3292 | 3314 | 48,667 |
| | 266 | 270 | 275 | 280 | 287 | 4,310 |
| | -1187 | -1175 | -1167 | -1533 | -1513 | -21,257 |

Projected expenditures by fiscal year are shown below. The expenditures reflect the combined costs of rehabilitation of the pier and the ancillary facilities. They also include contingency and inflation.

TABLE VI
Projection of Expenditures by Fiscal Year
 (US \$,000)

| <u>Fiscal Year</u> | <u>AID Foreign Currency</u> | <u>Host Country Local Currency</u> | <u>Total</u> |
|--------------------|---------------------------------|--|--------------|
| 1984 | 5,657 | 631 | 6,288 |
| 1985 | 14,451 | 2,435 | 16,886 |
| 1986 | 11,106 | 2,857 | 13,963 |
| 1987 | 3,793 | 1,173 | 4,966 |
| TOTAL | 35,007 | 7,096 | 42,103 |
| Say | 35,000 | 7,100 | 42,100 |

Local currency will be deposited into a Separate Special Account (SSA) to be used exclusively to finance costs, estimated at approximately S/Sh.108.6 million, of the rehabilitation of the Kismayo port. To date, the GSDR has earmarked for deposit S/Sh.75.0 million into the SSA to be used exclusively for the Kismayo port rehabilitation. Local currency deposited into the SSA has been generated by the AID Commodity Import Program (CIP). Withdrawals from the SSA into an account of the construction contractor will require signatures of designated representatives of the GSDR and USAID/Somalia. Appropriate assurances have been received from the GSDR that all additional local currency will be promptly and timely deposited into the SSA, so as not to impede implementation progress.

5. GSDR Contribution

All local currency costs (approx. \$7.1 million) will be provided by the GSDR. The GSDR will also provide quarry material and sand to the project at no cost. The value of this material is estimated at approximately \$3.5 million, because the technical solution to the project requires large quantities of quarry materials and sand. PBI also estimates that the in-kind contribution of the GSDR to the project by the MPW and SPA for labor, administrative expenses, supplies, etc., will modestly range between \$.300 to \$.350 million per annum during the life of the project, or an approximate total of \$1.2 to \$1.4 million. This results in a total GSDR contribution of \$11.8 to \$12.0 million, which satisfied the FAA requirement that the host country provide a 25% (financial and in-kind) contribution to the project.

Additionally, the technical solution of the project is not to completely demolish the existing port and then rebuild it from scratch. Rather it is to use the existing facilities and, through the steel sheetpile bulkhead methodology, to rehabilitate the existing port. The value of infrastructure in place is also considered a contribution of the GSDR to the project. The cost alone of the Kismayo port and related facilities, in early 1960s dollars, is \$11.1 million, minus \$3.0 million for the pier, or \$8.1 million. The value of the infrastructure in place in 1983 terms is obviously much greater. Consequently, USAID/Somalia considers that the GSDR contribution to the project will far exceed the 25% requirement.

D. Economic

Whereas the financial analysis considers the project from the point of view of the implementing agency and entrepreneur, showing how much it will cost and how it will be financed, the economic analysis looks at benefits derived from the project by the users of the facility and the national economy, as well as the impact of the money spent by the project on the local economy. This is accomplished first, by the application of shadow prices to the different cost items already presented in the financial analysis. Shadow prices are coefficients which, when applied to the cost of a factor of production, weight it so as to reflect the cost to the economy of the utilization of that factor by the project. The shadow prices used in the Kismayo Port economic analysis are discussed in detail in Annex F.3. The second aspect of the economic analysis is the quantification of the benefits which would accrue to the users of the facility. Once these are determined, they are again weighted by the appropriate shadow pricing coefficients. The resulting net benefit flow is then discounted and the internal rate of return is calculated. Information on cargo forecasts and port operations is presented in Section VI.C.2, and details of the analysis are presented in Annex F.3.

For the purpose of the economic analysis of Kismayo, a number of assumptions had to be made. The basic premise was that the rate of deterioration of the Kismayo pier is such that if the pier is not rehabilitated by 1988, it will not be possible to load and unload cargo from the pier. The exceptions to this are the handling of petroleum products and molasses, which do not depend on the pier platform. For the rest of the projected cargo volumes, there are two alternative scenarios, assuming the present pier becomes inoperative. In the first, the port would not be used at all, except for petroleum and molasses. All cargo would be shipped through Mogadishu port and brought to and from Kismayo by truck. The second is that the cargo would be handled at Kismayo through the use of lighters and the rehabilitation of one berth for loading animals. In both cases, the economic benefits of rehabilitation are the savings in additional costs which would be absorbed by direct users and the national economy, were the port not rehabilitated. The economic costs, in both cases, are the capital and operating expenses of the port rehabilitation. Both costs and benefits are weighted by the appropriate shadow pricing coefficients (see Annex F.3 for details). The resulting net benefit flow in all cases was discounted by 5, 10 and 15 percent, and the internal rate of return calculated. By way of comparison, an internal rate of return of ten percent is used by the World Bank and the Planning Ministry to evaluate projects in the GSDR.

Scenario #1: Closing of Kismayo Port. If the Kismayo port is inoperable, general cargo, bananas and fish must all be transported between Kismayo and Mogadishu by truck, a distance of 500 kilometers. The total cost per year would be considerable, even assuming 20 percent empty backhaul (Annex F.3). The additional cost could well make major Somali exports from the south such as grapefruit and bananas noncompetitive on international markets. In addition, the added congestion at the Mogadishu port caused by cargo diverted from Kismayo would increase ship waiting time and would require additional berths to be added sooner than otherwise needed. Finally, the truck fleet would have to be expanded and petroleum consumption increased, both of which would entail increased imports.

However, the greatest impact would be on Somali livestock exports. The three prominent livestock exporters interviewed both in Mogadishu and Kismayo were unanimous in their opinion that if the port were inoperative, exports of

southern Somali cattle and camels would simply cease. The loss of the livestock export market would be a dire blow to the economy of southern Somali Democratic Republic as well as that of the country as a whole. As the weighted average FOB value of livestock per ton is U.S. \$983, the volumes from the low forecast suggest an annual loss of foreign currency from 1988 of U.S. \$9,830,000. This would pay for the port rehabilitation in less than four years.

By way of sensitivity analysis, if it were assumed that two thirds of the cattle and camels were trekked to and exported from other Somali ports at no extra cost, the internal rate of return would be 17 percent in the low case. Even if 85 percent of livestock were exported, the result would still be a ten percent rate of return.

Thus, under terms of the first scenario, the port rehabilitation is clearly justified.

Scenario #2: Lighterage Operation. A more likely scenario would be that of reinstalling a lighterage operation to handle general cargo and bananas, and the rehabilitation of one berth to allow the exportation of animals. The breakwater, which protects the harbor from the open sea, would make continuous lighterage operations possible within the harbor. Initial construction costs of U.S. \$27,900,000 would be lower than U.S. \$33,297,000 for the rehabilitation of the four berths (see Annex F.3 for details). Disadvantages are higher operating costs, and greater ship waiting time due to the general inefficiency of lighter operations. Finally, cargo losses would be higher, assumed to be 1.5 percent of the average annual cargo value, for exports and imports handled by the lighters. The animal berth could be easily justified through the foreign exchange earnings from animal exports, shown in the previous discussion.

The economic benefits of lighterage are again the additional savings in additional costs that would be incurred by users and the national economy in adopting the lighterage alternative. To calculate the economic benefits, the different items in the lightering operation--infrastructure, equipment, cost of waiting time, fuel and maintenance--were multiplied by the relevant shadow pricing factors and combined with cargo losses to give total annual benefits for both the high and low volume cases. The economic costs were those attributable to the rehabilitation of the four berths. The difference between the benefits and costs gives the net benefit flow, which discounted, shows the net present value. The discount rate at which the present values of the costs equals that of the benefits is the internal rate of return.

The net present values for the high and low volume cases are positive for all relevant discount rates. The internal rate of return is 26.7 percent for the low volume case and 30.2 percent for the high volume case. By way of sensitivity, the total of waiting time, cargo lost, and operations can be reduced by a third and still yield an internal rate of return above 16 percent in the low volume case, which is the most sensitive. This suggests that the rehabilitation of four berths is economically superior to lighterage, the other technically feasible alternative.

The results of the economic analysis, in U.S. dollars, are summarized below:

Port Rehabilitation Comparison

| | <u>No Port Rehabilitation</u> | <u>Lighterage</u> |
|-------------------------|-----------------------------------|-------------------|
| <u>High Volume Case</u> | | |
| NPV - 5% | 159,913 | 30,530 |
| NPV 10 | 91,250 | 16,318 |
| NPV 15 | 54,384 | 8,655 |
| IRR | 48.5% | 30.2% |
| <u>Low Volume Case</u> | | |
| NPV 5% | 109,231 | 24,317 |
| NPV 10 | 60,319 | 12,592 |
| NPV 15 | 34,215 | 6,266 |
| IRR | 37.9% | 26.7% |

It should also be mentioned that the cost of the port rehabilitation includes the cost of steel (approx. \$9.8 million). It was assumed in this analysis that the steel would be purchased from the U.S. During investigations leading to the Preliminary Design Report, PBI determined that if steel were procured from European sources, rather than U.S., a savings of \$2.2 to \$2.5 million could be realized. Since this savings in and of itself was not sufficient for requesting a source/origin waiver, it is not included in the project cost estimate (see Annex F.2). If the opportunity cost of steel were used in the above calculations, the returns would be even greater. The results are more than adequate to justify the port rehabilitation by a substantial margin, which can absorb any reasonable change in the basic assumption by way of sensitivity analyses.

E. Social Analysis

This section summarizes the social context which relates to the proposed project; project beneficiaries and benefits; and long-term social impact of the project on the Somali population to be affected by the rehabilitated port. Annex F.4 provides a detailed social analysis.

Summary

The project is judged to have no major negative social impacts and is considered feasible from the standpoint of labor availability during the construction phase. The potential positive impacts of port rehabilitation are numerous: 1) immediate employment for skilled and unskilled workers, 2) upgrading of skill levels and experience of skilled workers and managers, 3) stimulation of private sector suppliers and construction contractors, 4) encouraging the use of viable wage standards in the Kismayo area, 5) reinforcement and expansion of the southern Somali cattle industry, 6) stimulation of Kismayo to become a regional trade center, with consequent expansion of social services to the rural population.

It is important to emphasize that, if the port is not rehabilitated, there are likely to be significant negative effects on the livestock-based economy of southern Somalia, which could bring economic hardship to most of the families in the region, or threaten their livelihood.

1. Socio-Cultural Context

Kismayo, the major population center for much of southern Somalia, serves as the principal facility for export of agricultural products and livestock from the Juba River Basin, and handles imported cargo to support population needs. Prior to port construction, livestock trade out of Kismayo was limited to a few sheep and goats. When the port became operational, cattle and camel trade out of Kismayo began and has increased more or less steadily up to the present. In southern Somalia as elsewhere in the country, family-based livestock enterprises form the mainstay of the economy and producers are highly involved in commercialization. Kismayo port accounts for one-third or more of the country's cattle exports, and one-fourth or more of its camel exports.

The maximum number of people potentially affected by development in Kismayo is 1.2 million, roughly one-fifth of the total population of Somalia. Approximately 65 percent of these are labeled "nomadic", 22 percent agricultural and 13 percent urban dwellers. These distinctions, however, are rather arbitrary because in southern Somalia people move from one category to another and back again according to the opportunities available in each sector.

Socially and economically, Kismayo draws its importance from its strategic position near the terminus of the Juba River Valley where it functions as a nexus for trade and migration for one of the largest concentrations of agro-pastoral communities in Somalia. Because of this, the population which affects or is affected by the port rehabilitation is larger and more widespread than one might expect; it includes riverine agricultural people, southern Somali pastoralists, residents of villages and semi-urban areas, as well as the residents of Kismayo itself.

The present trade and labor catchment area of Kismayo covers the two southernmost administrative regions of Somalia--Lower Juba and Middle Juba. The western sectors of these regions supply livestock for export; the eastern riverine ones provide agricultural produce and much of the wage labor for development projects. This demarcates the "low forecast" area which assumes development along present lines. Under the high forecast alternative (construction of Bardheere Dam and associated downstream development) the trade area expands to include Gedo Region in the north and parts of the Bay Region in the east.

The population of the Lower and Middle Juba Regions displays greater heterogeneity in terms of historical background, economic base, and various ethnic characteristics than almost any other area of Somalia.

The agricultural, "traditional sector" population resident in this area can be classified into five groups: 1) settled cultivators of village background, 2) agro-pastoralists who raise both crops and livestock, 3) itinerant workers of nomadic background, 4) nomadic pastoralists whose major

occupation is raising cattle and/or camels, and 5) refugees from the 1975-1976 drought, now settled as wage laborers on agricultural projects. Group (4), the nomadic pastoralists, are the largest population group in the catchment area, estimated at 50 percent of the total population of the riverine districts. The agro-pastoralists (2) also depend to a large extent on livestock production. All of the groups depend to some extent upon wage employment, although some tend to gravitate more than others to the plantation employment available in the region. Their different skills, work preferences and availabilities for wage labor are detailed in the Social Analysis Annex.

Even though, in some groups, families are highly decentralized and widely scattered they maintain economic links among their members, and to varying extents may deliberately allocate the labor and financial resources of the family to different sectors such as trade, wage labor, pastoral production, government service, or agriculture in order to take advantage of the full range of opportunities.

Because of this, it is likely that those living in the Kismayo catchment area will be highly responsive to economic opportunities generated during and after port reconstruction and any social benefits are likely to be amplified geographically and economically, perhaps more than in other societies.

Within the modern economic sector of the Kismayo area are a number of people who will be affected as well. These include: public servants who work on the basis of official salary scales in government ministries, parastatal and joint venture operations, and specialized agencies (e.g. Port Authority), 2) project workers, such as those connected with the Juba Sugar Project, or the irrigation schemes, and 3) private plantation owners and employees. Modern sector wages tend to be below the cost of living, thus requiring the worker to supplement his or her income through overtime work, additional jobs, and/or earnings of other family members (spouse, children and relatives). As a result, attention or commitment to any one job tends to be diffuse, turnover is high, and incentives are strong to seek employment outside the country. This is much less of a problem where working conditions and wages are adequate in regard to the cost of living, and competitive with the traditional sector.

2. Beneficiaries

a. Construction Phase: Direct Beneficiaries

Those who will benefit most during this phase are the people employed in the construction process--and those who will provide these workers with essential support services (housing, food and medical care).

Unskilled laborers. Approximately 300 laborers will be required on average. The major benefit to them will be employment on a continuous, long-term (2-3 years) basis.

Skilled workers 30 skilled workers may be needed. The major benefit to them will be employment at a viable wage and further training and/or experience in their field of specialty.

Managers, contractors, supervisors. Depending on the judgment of the major contractor, 5 subcontractors and 10 supervisors may be required. In addition to financial return, the major benefit to local subcontractors will be to provide experience and a "track record" that will facilitate increased Somali input in future international contracts. For managers and supervisors, the benefit is the opportunity to be employed within Somalia, rather than emigrating, at a salary scale commensurate with their training and experience.

b. Construction Phase: Indirect Beneficiaries

Families. A conservative estimate of family members benefiting from port construction is 1,550.

Merchants. Additional money circulating in the local economy is likely to be invested in the two preferred sectors--livestock and house construction--as well as increased purchase of food and consumer goods--cloth, utensils and jewelry. Skilled tradesmen (plumbers, carpenters, masons) will benefit from the housing construction, retail merchants from heightened commercial activity, and the agro-pastoral sector from livestock sales.

c. Operational Phase: Direct Beneficiaries

No major changes from the type of port operations now in effect are proposed, although the scale of operations is expected to increase in line with increased cargo demands; therefore, changes in number but not in type of beneficiaries is expected, with the exception of 10-15 maintenance personnel who are to be added. Current port employees are: 120-130 permanent (skilled) staff, 60 daily (unskilled) staff at any one time.

d. Operational Phase: Indirect Beneficiaries

To the extent that the port construction has fostered new industry or on-going activities, there will be expanded opportunities in Kismayo for employment, production, and public service. If the road along the Juba River is completed, operations in connection with the Bardheere Dam construction may benefit from reduced transport costs.

Those who will benefit most from port rehabilitation and continued operation will be the livestock and agricultural producers and individuals involved in businesses which depend on access to the port. This is especially true for small family-based livestock producers who otherwise would bear the cost of a time-consuming trek for their animals to farther ports, and who might have to curtail their cattle production due to the prohibitive costs of trucking cattle. The rehabilitation of the port will, in fact, ensure the continued viability of cattle production in the entire southern part of the country, and allow it to expand with the growing market preference for beef. The Kismayo area is the region most suited for cattle and where, at present, the majority of the country's cattle are raised.

3. Social Feasibility

The social feasibility of the reconstruction of the Kismayo Port is affected by labor dynamics--the availability of appropriate labor from this

population, the competition with other Juba industries for scarce skills, and the competition with local construction entrepreneurs for contracts. With some foresight and planning all of these issues can be addressed satisfactorily and as a result improve considerably the efficiency and speed with which the port is reconstructed.

Unskilled labor is generally considered to be available in the Kismayo area (Lower Juba and Middle Juba Regions) given the market wage and favorable working conditions (bonuses for good quality work, emergency medical care, urban location). Construction workers may be either male or female; they are usually hired through the Labor Office, directly, or through a private contractor, indirectly.

Skilled labor tends to exist but is in short supply due to emigration of experienced workers to the Gulf States. Some remain though, for family reasons or personal preference, and can be found in the following categories: equipment operators, welders, steel and concrete workers, and construction trades. Less available are highly skilled metal fabricators, specialized welders, and first grade mechanics and pile drivers.

Managers and supervisors also exist at internationally competitive wages; Somali nationals in these positions contribute greatly to the efficiency of the operation because of their skill in dealing effectively with unskilled and semi-skilled labor.

The feasibility of obtaining suitable subcontractors is high in terms of quarrying, transport, and construction operations; moderate in regard to specialized concrete and steel work; and it is just beginning in the field of labor procurement.

Positive social impact is enhanced to the degree that local rather than expatriate contractors can be used in construction and procurement. This will stimulate local initiative, ensure more funds enter the local economy and provide useful experience to contractors by working to demanding international standards.

4. Social Impact

The social impacts which will predominate when port operation returns to normal will be more indirect and related to trade rather than labor. The improved port facility could generate a growth in employment, support services, small scale trade, transport and commerce, and the livestock industry, and enhance the socio-political role of Kismayo as a center for trade, industry and social services for the surrounding rural population.

As agricultural and livestock developments expand in the Juba Valley, and as the extent and quality of the road infrastructure increases, more people will be drawn into the zone of trade and influence of Kismayo and be affected by improvements there. A followup development which would facilitate the animal export would be improvement in livestock holding facilities near Kismayo and within the port itself.

If the Bardheere Dam is constructed, Kismayo Port livestock exports might well increase since the lake which will be created by the dam will likely channel livestock south down the Juba to export via Kismayo, instead of to Mogadishu. Moreover, with the dam and the necessary linking roads, Kismayo might well become a major regional center--much as Hargeisa is in the north. In this capacity it would provide goods and services for constructing the dam and associated development projects, and would function as an urban magnet to immigrants from the agro-pastoral sector. If it received electricity from the dam, more industrial activity might be generated in Kismayo itself. In other words, instead of Kismayo being primarily a transit center for goods moving in and out of the country, it could become a manufacturing center in its own right.

F. Environment

1. Introduction

The Environmental Assessment for this project was undertaken by Parsons Brinckerhoff International following approval of the Scoping Statement. Both of these documents are attached as Annex F.5. The Regional Environmental Officer has reviewed the EA and presents the following summary of the major points.

2. Impacts

The Environmental Assessment contained a detailed outline of the most significant adverse impacts of the project. The Regional Environmental Officer after reviewing the assessment and visiting the site has summarized the impacts as follows:

a. Short-term. The project consists of improving the existing port facilities and the channel. There are no adjacent populated areas which will be directly affected; however, the project will have a number of adverse impacts resulting from the excavation, dredge and fill, quarrying and construction operations. These include loss of habitats for marine life due to the required excavation and placement of backfill; increased turbidity in waters adjacent to construction and dredging operations; loss of marine habitats at the dredge spoil disposal site; and an increase in air pollutant and noise levels in the immediate vicinity of the construction site. All of these adverse effects should be temporary.

b. Long-term. The project will have a long-term beneficial effect on local water quality over what now exists, because of the provision for treatment of domestic sewage on the pier. Also, provisions will be made for better drainage of the pier surface to avoid solid waste, animal dung, animal urine and molasses residue from being washed into the harbor.

The most significant long-term negative impact will be the slow and steady increase in harbor pollution. This will come about because of the increased use of the improved harbor and port facilities, and the future development of the Lower Juba Region. At present the harbor and local beaches are relatively free of pollution. But, because Kismayo is a small harbor, it

will not take much to dramatically change the picture. Any oil spill offshore could do the trick. The presence of small, old tar balls on the beaches outside and inside the harbor attest to the fact that some crude oil somehow arrives here on occasion. More critical than this will be the bilge and bunker washings and raw sewage originating from the ships in port.

Another long-term impact will be the increased growth of Kismayo City. At present there is little or no solid waste disposal or sewerage system in the city. This is especially seen in the Old Town area where solid waste is deposited above the normal tide level on the Town Beach. During the rainy season a significant amount of surface run-off occurs along the unpaved back streets which drain toward the harbor. The Town Beach is at present used as a principal recreation area for the residents of Old Town. But, with growth, the eastern and western beach areas within the harbor will be pressed into use.

Such long-term impacts predictably bring about a slow, inexorable loss of marine species, a process seen in so many other parts of the world. This is of special importance along the Somalia coast, because so little research has been done here; hence we know almost nothing of the marine fauna and flora. We do not even know if any unique biota are being lost as a result of development. AID does, however, plan to undertake a comprehensive environmental study of the Juba Valley and this study will address, inter alia, the points raised above.

3. Rationale for Technical Assistance

a. Marine resource inventory and assessment. Sometime in the future, the Juba River mouth will come under investigation as resource inventories and assessments will be called for prior to the construction of the Bardheere Dam. In addition to marine fauna and flora, there must be some work carried out on inshore currents. The transport of river silt and its subsequent movement over the bottom in shallow water south to Kismayo would constitute the type of baseline data needed prior to dam operation. This would allow prediction of the effects of the dam on: (a) local fishing effort; and (b) sedimentation patterns. Kismayo City, port and harbor will always be affected by changes in sedimentation (because of its effect on channel dredging and port access) and fishing efforts (the local fisheries cooperative is one of the few significant local industries). Thus, it would seem worthwhile to call for technical assistance at this point to help the GSDR to determine and plot local current and sedimentation patterns in the Kismayo-Jamama region. Regarding marine biota, mission staff have expressed interest in applied private sector investment in fisheries. Any background data on the marine biota (as well as current patterns) obtained during the present project would also help direct such marine resource management efforts.

b. City pollution control. To reverse the effects of Kismayo City on the harbor environment will require resources far beyond those available to this project or to the city at this time. What is needed amounts to a complete lay-out of basic urban amenities (surface drains, solid waste collection and disposal, sewer mains and sewer treatment plant). USAID has already provided some assistance to the city in the form of a technical consultant funded to carry out an inspection of the city water treatment plant.

c. Monitoring. There appears to be little capacity in Somalia for monitoring environmental impacts. Several bilateral projects (especially USAID) have technical staff who are primarily concerned with sample collection and analysis. However these technicians deal with specific project goals, e.g., quantity and quality of soil (agricultural projects); soil erosion and water loss (land management projects); water quality (borehole drilling), etc. Under the project, SPA would use the services of the National University science faculties (geology, chemistry and engineering). The deans of these faculties have already expressed an interest in forming an Environmental Advisory Committee (EAC). The chairman of the EAC will be Prof. M. A. Arush (geology) whose C.V. is attached as Annex I. Committee members would be available to carry out periodic, short-term surveys of the port and harbor to check on physical indicators of pollution. They could also carry out an occasional seawater analysis. However, most importantly, they would be employed to inspect those sites to be used for disposal of dredge spoil, and the sources for aggregate and sand. This last is an important point because many people in Somalia are already concerned about the degradation of the coastal area north of Mogadishu. This degradation has come about from indiscriminate mining of sand and aggregate for construction in the capital city. Although the impact is not as noticeable in Kismayo region, the large amount of sand fill and aggregate needed should be taken from an appropriate site, far from any of the game reserves. The project will provide S/Sh.375,000 (approx. \$25,000) for the EAC to visit the project site periodically during the construction period to perform the above services.

4. Mitigation of Project Impacts

a. Short-term. Most of the short-term impacts will be mitigated by ensuring that the Final Design will incorporate:

- (i) Proper sewage treatment facilities;
- (ii) Allowance for drainage of the pier surface and disposal of run-off;
- (iii) Potable water supply; and
- (iv) Measures to contain accidental leakage and/or spillage.

In addition, a monitoring program consisting of the following components can be carried out by the Environmental Advisory Committee (described above) of the National University. The program should contain:

- (i) Initial site inspection, especially of the disposal and quarry sites and potential areas for fill;
- (ii) Periodic inspections of the port and harbor during construction; and
- (iii) Periodic, brief reports on the environment directed to the Mission Environmental Officer.

b. Long-term. The long-term impacts will be difficult to mitigate because they deal with issues further removed from the immediate project objectives. In general any long-term mitigation would have to address:

(1) pollution control; (2) resource assessment; (3) monitoring; and (4) long-term training. The goal here would be to develop an environmental consciousness in the local population which in all probability will require a long period of time. In order to achieve this, a certain amount of AID technical assistance should be directed now at key ministries and government bodies using the centrally-funded projects available from Science and Technology Bureau, AID/W. The target groups would be:

- (i) Port Authority, Kismayo;
- (ii) Kismayo City Council;
- (iii) Ministry of Mineral and Water Resources;
- (iv) Ministry of Fisheries;
- (v) Department of Environmental and Social Affairs, Juba River Development Authority;
- (vi) National Range Agency;
- (vii) Science staff, National University.

5. Summary

a. General. After discussions between USAID/Somalia, REDSO and PBI, it was concluded that this project is environmentally feasible, especially because many of the environmental concerns will be satisfactorily addressed in the final design stage. As presented in this PP, the Mission envisions approval of the project and moving forward into the completion of the final design. Once the final design is completed, it will be reviewed by the GSDR, USAID/Somalia, the REO and the RLA. During this review AID will insure that all environmental concerns have been met.

b. Pollution control. A covenant will be included that requires the GSDR to establish (and enforce) an ordinance which will allow control over local oil spillage, bunker washing, and sewage and garbage dumping inside the port. If requested by the GSDR, USAID will endeavor to acquire the necessary technical services which could be provided under the centrally-funded ST/FNR Environmental Planning and Management Project 936-5517, to help advise and work with the SPA.

The above relates directly to the Kismayo Port Rehabilitation Project. However, it is felt that there presently exists a serious lack of capability in Somalia to understand and act on environmental issues and problems. In order to rectify this unfortunate situation, it is suggested that AID/W give serious consideration to providing the following types of environment-related technical assistance to Somalia:

c. Long-term technical assistance:

- (i) Inventory of the local marine fauna and flora and the detection and plotting of inshore surface current patterns along the Kismayo-Jamama section of the shore. Both activities should be proposed to ST/FNR for inclusion in the Coastal Resources Management Project (615-0217).

- (ii) Although at present it may not be possible to substantially assist Kismayo City with its enormous sanitation and water problems, the mission may want to follow up by using TAMS under an IQC as suggested by ST/FNR. Here the objective would be to help the City Council (or train its staff) to lay out and plan its utilities in an integrated fashion so as to complement the work at the port yet provide for a better beach environment.
- (iii) The environmental monitoring program outlined above, could be initiated on a cooperative basis with Somali science staff of the National University. Here the recent ST/FNR Environmental Planning and Management Project (936-5517) can also be called on to provide outside consultants to review and evaluate the monitoring program. They could also help the Somali EAC in suggesting how this activity could be picked up and extended by the GSDR.
- (iv) Training needs for Somalis involved in environmental monitoring and resource management could be undertaken on a limited basis by the AFR/RA Environmental Training and Management in Africa Project (ETMA 638-0427) through REDSO/ESA.
- (v) The overall coordination of the long-term TA activity could be provided by the new AFR/TR/SDP RSSA signed with the National Park Service. The NPS environmental specialist, in addition to coordinating activities, could advise on how local educational programs could be set up through the National Range Agency in order to develop a local environmental consciousness.

Many of these long-term needs in terms of technical assistance have already been addressed by the USAID/Somalia in their recent cable (Mogadishu 4533) to AID/W. A copy is attached as Annex I.

VII. Implementation

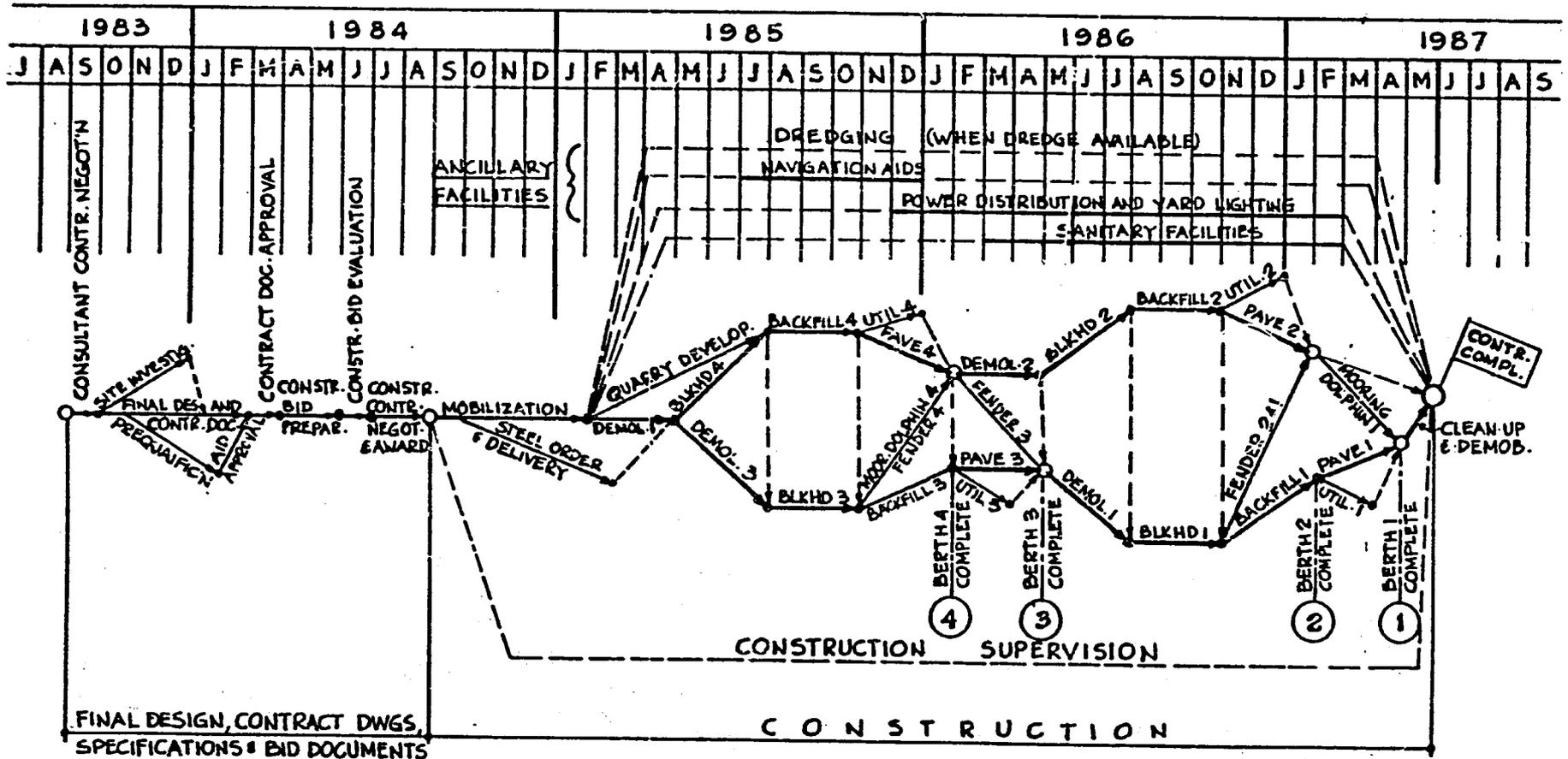
A. Project Implementation Schedule

The project implementation schedule, taken from the Preliminary Design Report, is shown on the following page. It is based on timing of initial steps as follows:

- | | |
|----------------------------------|-------------------|
| (1) Project Approval | August 1, 1983 |
| (2) Project Authorization | August 15, 1983 |
| (3) Project Agreement signed | September 1, 1983 |
| (4) Consultant's Contract signed | October 1, 1983 |

The GSDR is presently preparing scopes of work for both the final design (including the preparation of the IFB) and the construction supervision phase. USAID/Somalia will, of course, review these scopes of work and approve them.

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Contract negotiations between PBI and the GSDR can commence upon approval of the Project Paper. It is reasonable to expect under these circumstances that a contract between PBI and the GSDR can be signed by October 1, 1983.

As mentioned repeatedly in earlier sections of this Paper, the Project Implementation Schedule is not expected to deviate significantly from that which is shown on the previous page. Nevertheless, the Project Implementation Schedule shown in the Final Design Report will be the schedule against which future project progress will be measured.

Final design and preparation of construction contract documents is scheduled to take five months. Concurrent activities include additional field investigations to be initiated at the beginning of the final design phase, and prequalification of bidders, including placement of notice in the Commerce Business Daily. Following AID and host country approval of contract documents scheduled to take one month, two months are allowed for construction bid preparation by prequalified contractors. A bidders conference will be arranged in Mogadishu, including a field visit to Kismayo, during the bid preparation period. Bid evaluation and contractor selection will take two months, to be followed by a two month negotiation period. On that basis, the construction contract will be awarded by September 1, 1984.

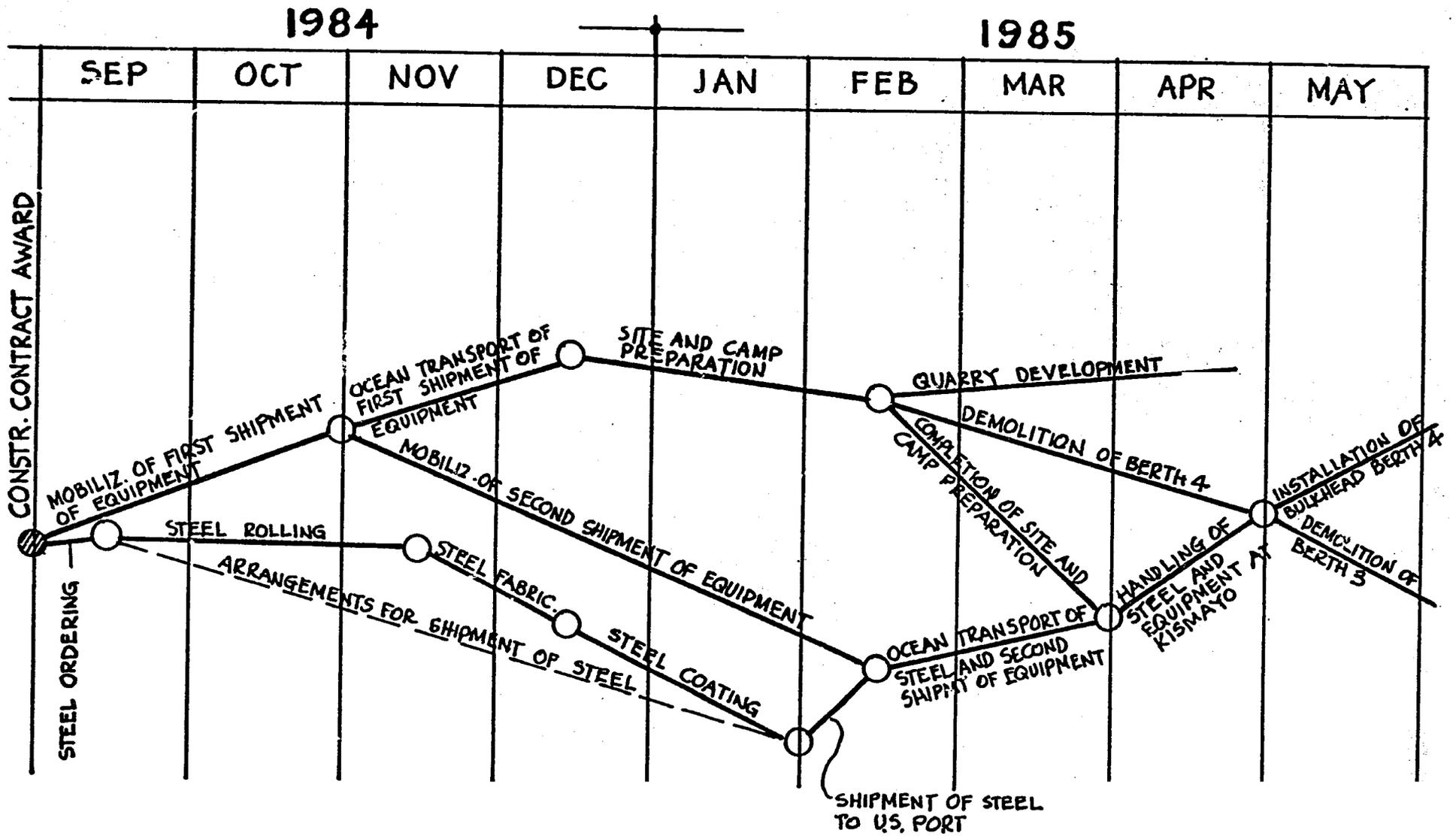
The construction phase is scheduled to take a total of 33 months, from September 1, 1984 to June 1, 1987. The schedule reflects the requirement that a minimum of two berths must be available at all times during the construction period for port operations. Completion of rehabilitation of individual berths is scheduled as follows:

| | |
|-------------------|------------------|
| Berth 1 | February 1, 1986 |
| Berth 2 | May 1, 1986 |
| Berth 3 | February 1, 1987 |
| Berth 4 | May 1, 1987 |
| Project completed | June 1, 1987 |

To meet the schedule, ordering of steel sheetpiling, tie rods and appurtenances for the bulkhead is critical. It must take place within about one month of the signing of the construction contract. These items require shop rolling fabrication and coating prior to shipping and have a lead time of at least 5 months, including ocean transportation. The period until they arrive at the site will be used by the contractor for work which must precede bulkhead installation. This includes equipment mobilization, establishment of a camp, site preparation, demolition of berth 4 deck and dismantling of a section of the fendering system. A separate schedule was prepared covering the critical period of mobilization and steel delivery and is presented on the next page. After receipt of the initial shipment of bulkhead materials, the delivery of the remaining items will not be critical.

Rehabilitation of ancillary facilities does not require tight scheduling, but installation of utilities will have to be coordinated with the progress of the pier rehabilitation work. Dredging of the access channel should be accomplished when a dredge is available in the general project area

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PORT OF KISMAYO REHABILITATION

PROJECT SCHEDULE
MOBILIZATION AND STEEL DELIVERY

(for example Berbera, Mogadishu, Mombasa). Work on navigation aids should be performed during the first half of the construction period to enable vessels to navigate at night and thus to minimize ship waiting which will tend to increase during the construction period because of availability of only two berths and some unavoidable delays caused by construction activities.

B. Contracting Procedures

Two major contracts are required in order to rehabilitate the Kismayo Port in accordance with the project schedule described in the previous subsection. One, a contract with an A/E firm to perform the necessary investigations leading to the preparation of a Final Design Report, an IFB for the procurement construction services, and supervision of the construction contractor; and two, a construction services firm to perform the actual rehabilitation work on Kismayo Port. Both contracts are intended to be host country contracts. USAID/Somalia is confident that, given the past performance and experience of the GSDR in contracting for services directly under AID guidelines and procedures, the GSDR should have no major problem in negotiating and executing satisfactory contracts with both firms. Additionally, it is felt that the most effective manner of implementing the project is to have the construction contractor and the design and supervision contractor both contractually bound to the same party--the GSDR. Of course, AID will review the contract provisions and costs and the contracts will not be effective until AID concurrence is formally given to the GSDR. Should AID assistance be required by the GSDR during the contracting process, the USAID/Somalia Engineer will be available, as will REDSO/ESA legal and contract services, as required.

The advertisement in the Commerce Business Daily for A and E services to prepare Conceptual Design and Preliminary Design Reports stated that AID had the option to continue the services of the A/E firm to prepare a final design and supervise the Kismayo port rehabilitation in accordance with the design. PBI has completed the above-mentioned reports and AID and the GSDR have found them satisfactory. Consequently, the GSDR will begin appropriate contract negotiations with PBI, upon authorization of the project. The host country contract with PBI will state that upon acceptance of the final design by the GSDR and AID, PBI may be directed to supervise construction of the Kismayo Port. It is expected that the contract will include separate scopes of work and corresponding costs for final design and supervision.

The GSDR has experience administering project contracts, and, under a number of ongoing AID projects in Somalia, there are a number of host country contracts. USAID/Somalia believes that the GSDR is doing a reasonable job of administering its contracts and the GSDR understands AID contract requirements. USAID/Somalia fully endorses host country contracts under the project.

During the time that PBI is preparing the final design and the IFB for construction services, the GSDR and USAID/Somalia will initiate the pre-qualification exercise. An advertisement will be placed in the Commerce Business Daily requesting technical, financial and experience data from construction firms interested in undertaking the Kismayo Port rehabilitation work. The GSDR will evaluate the pre-qualification data of various firms, rank order them by capability and recommend a short-list of 3 to 5 of the most able firms. USAID/Somalia will review the evaluation documents and approve the short-list.

Immediately upon approval of the IFB and final design by the GSDR and USAID/Somalia, the IFB will be presented to the short-listed firms and these firms will be requested to submit technical and cost proposals. These proposals will be reviewed by the GSDR, with PBI assistance, and a firm selected. AID will review and approve the selection and approve the host country contract for construction services (which is expected to be a lump sum contract), after it has been successfully negotiated. In brief, the GSDR will follow AID Handbook 11 procedures for acquiring construction services for the project.

Sub-contracts to be entered into between the construction firm and local contractors will be reviewed by PBI and GSDR for completeness and conformity with local labor laws. USAID/Somalia will assure that required AID contract provisions are incorporated into these sub-contracts.

C. Procurement

All procurement of project commodities will be undertaken by the U.S. construction contractor. All project commodities will have their source/origin in AID Geographic Code 941, and the cooperating country.

As mentioned in the previous sub-section, the services of a construction contractor will be attained in compliance with the guidance provided in the Handbook 11, Chapter 2 (Country Contracting), Procurement of Construction Services. The resultant host country contract for construction services will include provision that AID competitive procurement regulations will be adhered to, as stated in Handbook 11, Chapter 3, Procurement of Commodities and Related Services.

USAID/Somalia is fortunate to have a Supply Management Officer on its staff, so that prompt advice and assistance can be provided, as requested and appropriate, during contract negotiations and actual project implementation. Given AID's experience with infrastructure capital projects (e.g., Egypt), no major procurement problems are envisioned at this time; and, the presence of a full-time U.S. direct hire Supply Management Officer within USAID/Somalia should considerably simplify the resolution of any procurement problems which arise during the life of the project.

D. Financing

1. U.S. Dollar

The simplest and cheapest financing mechanism to finance the necessary goods and services under the project is to use an AID Direct Letter of Commitment (L/Comm). It is proposed that the two contracts (A/E and construction) be financed in this manner. Project commodities (e.g. steel) will be procured directly by the construction contractor following AID procurement procedures.

If for any reason the AID Direct L/Comm is unacceptable to the U.S. contractors, then AID will utilize commercial banking practices and follow a L/Comm and L/Credit procedure to effect payments under the project. The financing of the two contracts with A/E and construction firms is fairly

straightforward and the GSDR and A/E and construction firms have experience with both of the above-mentioned U.S. dollar financing mechanisms.

2. Local Currency

The local currency required by the project will be made available by generations under AID's Commodity Import Program (CIP) to Somalia. The necessary local currency generations required by the project will be deposited into a Separate Special Account (SSA) to be used exclusively for the rehabilitation of Kismayo Port. The details on the precise procedures to be followed have already been developed, as the procedures are currently used for other USAID projects. In general, USAID/Somalia is considering a general disbursement procedure which permits a 2-3 month advance of local currency to the construction contractor. Adequate financial records of disbursements will be maintained by the construction contractor and advance replenishment requests will be satisfactorily supported by receipts and records. These replenishment requests will be reviewed and approved by PBI and an appropriate representative of SPA. Withdrawals from the SSA will be countersigned by the Director, USAID/Somalia or his authorized representative. No problems are envisioned in using the SSA mechanism for local currency disbursement as this mechanism is used by USAID/Somalia.

It should also be mentioned that the GSDR has already earmarked S/Sh 75.0 million (approx. \$5.0 million) into the SSA for the rehabilitation of Kismayo port. Appropriate assurances have been obtained so that the required additional local currency is deposited promptly into the SSA to cover necessary project costs.

E. Evaluation

Three evaluations of the project are planned at this time. Since the GSDR and AID will review and approve the final design for the rehabilitation of Kismayo, the evaluations should take place one year after commencement of construction, a year after the first evaluation, and a final evaluation at the completion of the project.

The obvious emphasis of the evaluations will be technical-engineering aspects, construction progress, quality of work, etc. A REDSO/ESA or AID/W Engineer will be designated team leader for these evaluations. Other team members are expected to include an economist, sociologist and environmentalist, each will review the project from the perspective of his own area of expertise. No funding has been provided under the project for evaluations, as it is expected that the above individuals will be drawn in-house (from both or either REDSO/ESA and AID/W).

The USAID/Somalia direct-hire engineer, who is the Project Manager for this activity, will assist in providing all necessary documents and data requested by the evaluation team. Logistical support for the team will be provided by USAID/Somalia. A maximum of three (3) weeks should be sufficient to accomplish each evaluation.

The project evaluations will review all aspects of the implementation of the project with a view toward documenting and incorporating into AID's

data bank any and all pertinent lessons learned by this project experience, and any recommendations for improving the design of similar projects, particularly in Africa. While it is true that in Africa port construction or reconstruction projects are not common, there is an increasing trend towards AID financing capital intensive infrastructure projects. The evaluations of this project should be beneficial to AID in assessing and reassessing its performance with capital projects. The fact that infrastructure projects are visible and tangible should make these assessments somewhat simpler and easier.

F. Monitoring Responsibility

1. GSDR

The GSDR executing agencies under the project are MPW and SPA, which--as mentioned in Section VI.A--have the necessary capability to administer the project.

The MPW has indicated that it will assign one full-time professional engineer from its staff to work exclusively on the project. This individual will be the direct liaison with the U.S. contractors (A/E and construction) and the USAID/Somalia Project Manager. Given the high priority the GSDR places on the Kismayo port rehabilitation, the Director of the SPA has assured AID that he will make himself available to all parties to resolve any and all substantive project issues as they may arise.

The professional assistance and cooperation received from the MPW and SPA in the development of this project, coupled with the reasonably satisfactory track record of SPA in managing and operating Somali ports, are basically the factors upon which USAID/Somalia and PBI have concluded that MPW and SPA monitoring of this project will be more than satisfactory.

2. AID

USAID/Somalia will have direct responsibility for monitoring the project. Considering the technical dimensions of the project, USAID/Somalia has assigned a direct-hire engineer as Project Manager to oversee project implementation. It will be the Project Manager's responsibility to maintain liaison with the contractors and MPW, to review the progress and financial reports, to conduct periodic site visits, to assist in resolving normal implementation problems, and to keep USAID/Somalia management apprised of project progress. In the event that the Project Manager anticipates or is confronted with a major implementation problem beyond his capacity to resolve, he will enlist the prompt and appropriate assistance of USAID/Somalia management.

During the implementation of the project, the Project Manager can call on other appropriate USAID/Somalia offices for particular services (e.g., Project Officer of Supply Management Officer). Other professional services (e.g., contract and legal) will be provided by REDSO/ESA on an as-needed basis. Therefore, AID has sufficient resources in the field to satisfactorily monitor the project.

G. Reports

1. Progress Reports

Subsequent to the execution of a host country contract for final design and supervision, PBI will submit progress reports on a quarterly basis to MPW and USAID/Somalia. These progress reports should be submitted within fifteen (15) days after the end of a calendar quarter. Up until a construction contract is awarded and actual construction commences, project progress will relate to the final design and preparation of an IFB. Thereafter, progress will also include the actual construction work and related activities.

These progress reports are expected to include, inter alia, the following:

- a. major activities and the general progress against the work plan under the project during the reporting quarter;
- b. major problems encountered during the quarter (especially noting problems of a longer-term nature);
- c. PBI's proposed solution(s) to the problem(s);
- d. identify where MPW and/or USAID assistance is required for problem resolution;
- e. bring to the attention of MPW and USAID those potential factors, issues, and problems which could impinge on the future implementation and direction of the project;
- f. actions to be taken during the next quarter; and
- g. provide any other information which MPW and/or USAID may reasonably request.

PBI will, obviously, also be advised that major problems should be reported promptly and directly to the MPW and USAID Project Managers and should not await inclusion in the quarterly progress report.

2. Financial Reports

a. U.S. Dollar

PBI will report U.S. dollar disbursement under its contract on a quarterly basis to MPW and USAID. These reports are also to be submitted within fifteen (15) days after the end of a calendar quarter.

Disbursements will be shown by line item category quarterly and cumulatively which are to be the same categories as those shown in the estimated budget included in the contract. Any current or anticipated financial problem should be clearly noted and explained in the report. Financial problems whose resolution requires the services of MPW or USAID should also be highlighted. Should the need arise for a particular financial report format, the USAID/Somalia Controller, in consultation with MPW, will provide the necessary guidance in the form of an I/L.

The construction contractor will also provide U.S. dollar disbursement information to SPA and USAID in the same manner as explained above for PBI.

b. Local Currency

The construction contractor will provide quarterly financial reports on the receipt and disbursement of local currency made available by advances from the SSA.

Receipts and disbursement are to be shown separately for the reporting quarter and cumulative. As in the case of U.S. dollar reporting, the contractor will maintain satisfactory financial records and documentary evidence supporting disbursements.

MPW is also expected to provide a financial report to USAID on a quarterly basis on the deposits and withdrawals from the SSA. This financial information will also be provided for the reporting quarter and cumulative. All financial reports are expected to include a narrative section only if a serious financial problem exists or is anticipated. All financial reports should be submitted within fifteen (15) days after the end of the calendar quarter.

VIII. Conditions, Covenants and Negotiating Status

A. Conditions Precedent to Disbursement

1. Conditions Precedent to Initial Disbursement

Prior to the first disbursement or to the issuance of the first Letter of Commitment under the grant, the GSDR shall furnish to AID in form and substance satisfactory to AID:

a. An opinion of the Somali Ministry of Justice or other legal counsel satisfactory to AID that the grant agreement has been duly authorized and ratified by, and executed on behalf of, the GSDR and is a valid and legally binding obligation in accordance with its terms.

b. The names of the persons who will act as the representatives of the GSDR, together with evidence of their authority and the specimen signature of each.

c. Evidence that the grant proceeds will be made available to the SPA for rehabilitation of Kismayo Port on a grant basis.

d. An executed contract for the services of a U.S. consulting firm for the preparation of a Final Design Report and the supervision of construction in accordance with that design.

2. Conditions Precedent to Disbursement for Construction

Prior to the first disbursement or to the issuance of the first Letter of Commitment under the grant for any construction activities, the GSDR shall furnish to AID in form and substance satisfactory to AID:

a. A plan for executing the recommendations of the tariff rate structure study performed by SPA and PBI. The plan will be specific as to the precise time(s) the cargo rate structures will be effective.

b. An executed contract for the services of a construction firm for the rehabilitation of Kismayo port and the installation and repair of essential ancillary facilities for the satisfactory operation of the port.

All the Conditions Precedent stated above shall be included in the grant authorization.

Covenants

The GSDR will be required to covenant:

1. Execution of the Project

- a. To carry out the project with due diligence and efficiency, and in conformity with sound engineering, construction, financial and administrative practices.
- b. To cause the project to be carried out with all plans, specifications, contracts, schedules, and other arrangements, and with all modifications therein approved by AID pursuant to this agreement.
- c. To submit for AID approval prior to implementation, issuance or execution, all plans, specifications, construction schedules, bid documents, documents concerning soliciting of proposals relating to eligible items, contracts, and all modifications to these documents.

2. Funds and Other Resources to be Provided

To make available on timely basis any Somali currency and any other foreign currency in addition to the grant, for the punctual and effective carrying out of construction, maintenance, repair and operation of the project.

3. Operation and Maintenance

To establish a civil and mechanical engineering section at Kismayo port and to staff this section with capable individuals. To operate, maintain and repair the project in conformity with sound engineering, financial and administrative practices, and in such manner as to insure the continuing and successful achievement of the purpose of the project.

4. Management

To provide qualified and experienced management for the project and to train such staff as may be appropriate for the maintenance and operation of the project.

5. Continuing Consultation

To cooperate fully with AID to assure that the purpose of the grant will be accomplished. To this end, the GSDR and AID shall from time to time, at the request of any party, exchange views through their representatives with regard to the progress of the project, the performance of the GSDR of its obligations under the grant agreement, the performance of consultants, contractors and suppliers engaged on the project, and other matters relating to the project.

6. Environment

To establish and enforce an ordinance which will allow control over local oil spillage, bunker washing, and sewerage and garbage dumping inside Kismayo port.

7. Quarry Materials and Sand

To provide all necessary quarry materials and sand--assuming the quality of these materials are satisfactory--to the project at no cost.

C. Negotiating Status

Through the extended development of the Kismayo Port Rehabilitation Project, the GSDR and USAID/Somalia have worked closely together and with various consulting firms. The GSDR has approved both the Conceptual Design and the Preliminary Design Reports. They are fully in accord with the technical solution described in this Paper, as well as the implementation arrangements.

The GSDR has accepted all the conditions and covenants in principle to be included in the Project Grant Agreement. It has also provided the necessary assurances that the requisite local currency (to be furnished by CIP generations) will be deposited into the SSA in a prompt and timely fashion.

USAID/Somalia foresees no obstacles to duly signing the FY 1983 Kismayo Port Rehabilitation Project Grant Agreement immediately after advise of AID/W authorization, receipt of fiscal data, and notification to proceed.



Annex A

Jamhuuriyadda Dimoqraadiga Soomaaliya
WASAARADDA QORSHEYNTA QARANKA
MUQDISHO (Somalia)

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Somali Democratic Republic
Ministry of National Planning
P. O. Box 1742
MOGADISHO (Somalia)
Telex 715 SPC MOGA

MINISTRY/ الوزير
WASIIRKA

جمهورية الصومال الديمقراطية
وزارة التخطيط الوطني
ص. ب. ١٧٤٢
مديشو - صوماليا
تلكس ٧١٥

Tix/Ref : BLA/82/20 33 /83

Ujeeddo/Subject :

Dear Mr. Kelly,

The Government of the Somali Democratic Republic (GSDR) requests financial assistance of approximately US\$ 35.0 million from the Government of the United States to assist in the rehabilitation of the Kismayo Port, and will as provide certain essential ancillary facilities.

The Preliminary Design Report, prepared by parsons Brinckerhoff International, Inc. (PBI) has shown, among other things, that the Kismayo Port Rehabilitation Project is technically, financially and economically feasible. The GSDR is prepared to finance the Somalia Shilling (S/Sh) costs of the project, which PBI has estimated will cost the S/Sh equivalent of approximately US\$ 7.1 million. As a demonstration of our good faith, please be advised that the GSDR has already earmarked S/Sh 75.0 million for placement into a separate Special Account to be used exclusively to rehabilitate the Kismayo Port.

The GSDR also extends its assurance that it will provide sufficient space and area near Kismayo Port to permit the Construction Contractor to work unimpeded. Also, the GSDR will make available the necessary quarry materials and sand to the project at no cost, excluding quarrying and transport costs.

TELEPHONE: N. 80384/7 — 80634 تلفون : ٨٠٦٣٤ — ٧/٨٠٣٨٤



Jamhuuriyadda Dimoqraadiga Soomaaliya
WASAARADDA QORSHEYNTA QARANKA
MUQDISHO (Somalia)

«0»

Somali Democratic Republic
Ministry of National Planning
P. O. Box 1742
MOGADISHO (Somalia)
Telex 715 SPC MOGA

MINISTRY/ الوزير
WASIIRKA

جمهورية الصومال الديمقراطية
وزارة التخطيط الوطني
ص. ب. ١٧٤٢
مدينتو - صومالييا
تلكسي ٧١٥

Fix/Ref : 2033

Ujeeddo/Subject :

(2)

The GSDE attaches high priority to the economic development of the southern region of Somalia. As you are aware, the realization of the Bardhere Dam and related irrigation projects will substantially increase agricultural production from the southern region in the future and a large share of the amount exported will pass through Kismayo Port. The GSDE considers an operational Kismayo Port as a key factor to the economic development of the southern region.

We look forward to receiving a favorable response to our request in the near future.

Yours Sincerely,

Mr. James Kelly
Director
U S A I D
Mogdisho.

CC: Minister
Ministry of Marine Transport and Port
Mogdisho.

: Minister of Foreign Affairs
Mogdisho.

Brig. General Ahmed Suleiman Abdalla
Minister
Ministry of National Planning.

TELEPHONE: N. 80384/7 — 80634

تيليفون : ٧/٨.٣٨٤ — ٨.٦٣٤

PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECT1. FY 1982 Appropriation Act
Sec. 523; FAA Sec. 634A;
Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;

(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

AID/W will submit CN to Congress prior to June 30, 1983. Accordingly, the waiting period will have expired not later than July 15, 1983.

(c) If the proposed assistance is a new country program or will exceed or cause the total assistance level for the country to exceed assistance amounts provided to such country in FY 82, has a notification been provided to Congress?

AID/W will submit all necessary CNs.

(d) If the proposed assistance is from the \$85 million in ESF funds transferred to AID under the Second CR for FY 83 for "economic development assistance projects", has the notification required by Sec. 101 (b) (1) of the Second CR for FY 83 been made?

N/A

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Engineering, financial and other plans and a reasonably firm cost estimate have been completed.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No legislative action is required.

4. FAA Sec. 611(b); FY 1982
Appropriation Act Sec. 501.

N/A

If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

Annex D of Project Paper contains Mission Director certification. Because project will be authorized in AID/W, the Administrator will take into consideration the country's capability, in determining whether to authorize the project.

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

No. Other donors have expressed no interest. This project will permit an outlet for agricultural products in Southern Somalia, complementing the increase in agricultural productivity expected from the planned Juba Valley Development Project (a multi-donor project).

7. FAA Sec. 601 (a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

The project will encourage country efforts concerning (a), (b), and (e). See Financial Analysis section of Project Paper.

8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channel and the services of U.S. private enterprise). The rehabilitation of the port may facilitate U.S. private trade.
9. FAA Sec. 612(b) 636(h); FY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars. The host government is meeting all local currency costs.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? No
11. FAA 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? Yes
12. FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A
13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of tropical forests? Yes
- N/A

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?

N/A

15. FAA Sec. 128; Second CR FY 83, Sec. 101 (b) (2). Has an attempt been made to finance productive facilities, goods, and services which will expeditiously and directly benefit those living in absolute poverty under the standards adopted by the World Bank?

The project will rehabilitate a facility that will enable small farmers and rural entrepreneurs living in absolute poverty to market their products and thereby benefit. The project will also provide employment for many during reconstruction.

B. FUNDING CRITERIA FOR PROJECT

Economic Support Fund
Project Criteria

- a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 102?
- The project will promote economic development and this, in turn, promotes political stability. The project does reflect the policy directions of Section 102. Although the project is a capital construction project, it will directly benefit agriculture and rural development by providing a marketing outlet for agricultural products. It will also generate employment and other benefits, and was identified by the host government as a top priority project, essential to the development of the entire southern region of Somalia.
- b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?
- No
- c. FAA Sec. 534. Will ESF funds be used to finance the construction of, the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?
- No
- d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?
- N/A

e. Second CR FY 83, Sec.

N/A

101 (b) (1). If ESF funds to be utilized are part of the \$85 million transferred to AID under the Second CR for FY 83 for "economic development assistance projects", will such funds be used for such projects and not for non-development activities including balance of payments support, commodity imports, sector loans, and program loans?

PROJECT AUTHORIZATION

Name of Entity : Government of the Somali
Democratic Republic

Name of Project : Kismayo Port Rehabilitation Project

Number of Project:: 649-0115

1. Pursuant to Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Kismayo Port Rehabilitation Project involving planned obligations in an amount not to exceed \$35,000,000 in grant funds over a five year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project.
2. The Project is to improve the economic and social well-being of the people in the southern region of Somalia, and to improve Somalia's balance of payments situation by increasing exports, through the rehabilitation of the Kismayo Port. To carry out the objectives of the Project A.I.D. will provide financing for engineering design and supervision; construction costs including labor and materials; and provision or rehabilitation of essential ancillary facilities and equipment such as navigational aids, channel dredging and power distribution system. A.I.D. may also provide financing for a training program for port maintenance personnel, if it proves to be needed.
3. The Grant Agreement, which may be negotiated and executed by the officers to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following terms, covenants, and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.
4. a. Source and Origin of Goods and Services
Goods and services, except for ocean shipping, financed by A.I.D. under the Project shall have their source and origin in Somalia or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of Somalia or the United States.

b. Conditions Precedent

The Grant Agreement will provide in substance as follows:

(1) Conditions Precedent to Initial Disbursement

Prior to the first disbursement or to the issuance of the first Letter of Commitment under the grant, the GSDR shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- a) An opinion of the Somali Ministry of Justice or other legal counsel satisfactory to A.I.D. that the grant agreement has been duly authorized and ratified by, and executed on behalf of, the GSDR and is a valid and legally binding obligation in accordance with its terms.
- b) The names of the persons who will act as the representatives of the GSDR, together with evidence of their authority and the specimen signature of each.
- c) Evidence that the grant proceeds will be made available to the Somali Port Authority (SPA) for rehabilitation of Kismayo Port on a grant basis.
- d) An executed contract for the services of a consulting firm for the preparation of a Final Design Report and the supervision of construction in accordance with that design.

(2) Conditions Precedent to Disbursement for Construction

Prior to the first disbursement or to the issuance of the first Letter of Commitment under the grant for any construction activities, the GSDR shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- a) A plan for executing the recommendations of the tariff rate structure study performed by SPA and the engineering design contractor. The plan will be specific as to the precise time(s) the cargo rate structure changes will be effective.
- b) An executed contract for the services of a construction firm for the rehabilitation of Kismayo Port and the installation and repair of essential ancillary facilities for the satisfactory operation of the port.

c. Covenants

The GSDR shall covenant:

(1) Operation and Maintenance

To establish a civil and mechanical engineering section at Kismayo Port and to staff this section with capable individuals. To operate, maintain and repair the project in conformity with sound engineering, financial and administrative practices, and in such manner as to insure the continuing and successful achievement of the purpose of the project.

(2) Environment

To establish and enforce an ordinance which will allow control over local oil spillage, bunker washing, and sewerage and garbage dumping inside Kismayo Port.

(3) Quarry Materials and Sand

To provide to the project at no cost all necessary quarry materials and sand, assuming the quality of these materials are satisfactory.

Date: _____

M. Peter McPherson
Administrator

Clearance:

RLA/REDSO:KHansen (drafter) VAH
PROJ/REDSO:DScarfo DS
PROJ:MPLeifert _____
A/DIR:GNelson _____

ANNEX D

Section 611 (e) Certification

I, James Kelly, U.S.A.I.D. Mission Director to Somalia, having taken into account, among other things, the maintenance and utilization of projects in Somalia previously financed or assisted by the United States and the commitment of the Government of the Democratic Republic of Somalia (GSDR) to economic development as expressed in the GSDR's Five Year Development Plan (1982-86), do hereby certify that in my judgement the Government of the Democratic Republic of Somalia will have and employ both the financial and human resources necessary to maintain and effectively utilize the capital and technical assistance to be extended under the Kismayo Port Rehabilitation Project.



James Kelly

U.S.A.I.D. Director to Somalia

Date: _____

7/10/83

LOGICAL FRAMEWORK FOR SUMMARIZING PROJECT DESIGN

Date of this Summary June 26, 1983Project Title: Kismayo Port Rehabilitation Project (No. 649-0115)

| NARRATIVE SUMMARY | | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|--|--|--|--|--|
| <p>Program Goal The broader objective to which this project contributes:</p> <p>Improvement in GSDR's balance of payments.</p> | | <p>Measures of Goal Achievement:</p> <p>Exports, through Kismayo Port, increase (in both quantity and value) at a higher proportional rate than imports.</p> | <p>Kismayo Port Cargo Import and Export Records</p> | <p>Concerning long-term value of program/project: That the development of the southern region of Somalia (especially the Bardhere Dam and related irrigation schemes) will continue as a high GSDR development priority.</p> |
| <p>Project Purpose:</p> <p>Improvement of the economic and social well-being of the people of the southern region of Somalia.</p> | | <p>Conditions that will indicate purpose has been achieved: End of project status</p> <ol style="list-style-type: none"> Local labor and contractors used on construction to maximum extent. Commercial activities increase. Employment increases. Social services increase. | <ol style="list-style-type: none"> Copies of subcontracts and Contractor's Qtrly. Prog. Reports Records of Governorship of Lower Juba Region Same as 2. above. Same as 2. above, also various Ministry records (e.g., Health, Power, Communications, etc.) | <p>Affecting purpose-to-goal link:</p> <ol style="list-style-type: none"> Local labor and contractors available and willing to work. That development projects in the region continue and are successful. That labor is attracted to geographical location where employment available. That increasing economic activity will lead to increased revenue for GSDR, so GSDR can make investments in social infrastructure. |
| <p>Outputs:</p> <ol style="list-style-type: none"> Rehabilitated Pier Structures Dredged channel Power distribution system in place and operating. Maintenance training program completed Existing navigational aids repaired and operating New sanitary facilities installed and operating A Somali Environmental Advisory Committee established & functioning | | <p>Magnitude of Outputs necessary and sufficient to achieve purpose.</p> <ol style="list-style-type: none"> Four berths rehabilitated Channel dredged to a depth of 9.5 m and a width of 200 m. Installed power distribution system working. 10-15 maintenance technicians trained Lighthouse and buoys Self-explanatory Self-explanatory | <p>1,2,3,4,5, and 6 -</p> <ol style="list-style-type: none"> Consultants' Quarterly Progress Reports Periodic USAID site visits Formal Implementation Reviews between GSDR, USAID and consultants Periodic liaison between USAID Engineer and SPA | <p>Affecting output-to-purpose link:</p> <ol style="list-style-type: none"> Construction work will be high quality A dredge becomes available for use in Kismayo during the LQP. Commodities available and installation is timely. GSDR provides the necessary qualified individuals for training. Existing Nav. aids can be repaired. Commodities available and installation is timely. |
| <p>Inputs Activities and Types of Resources</p> <ol style="list-style-type: none"> Final Design and Supervision Contract (includes additional surveys and investigation) Construction Contract (includes services, training and Ancillary Facilities) Contingency and Inflation | | <p>Level of Effort/Expenditure for each activity.</p> <ol style="list-style-type: none"> \$3,493,000 \$27,406,000 \$11,204,000 | <p>1,2,3, and 4 -</p> <ol style="list-style-type: none"> AID/W financial records Consultants' and SPA's Quarterly Financial Reports | <p>Affecting input-to-output link:</p> <ol style="list-style-type: none"> Project approved and \$5.0 million obligated in FY 1983. GSDR makes local currency available promptly when needed. There is no significant change to project schedule or estimated project costs. |

DEVELOPMENT HYPOTHESES

MANAGEABLE INTEREST

If Purpose, Then Goal

If Outputs, Then Purpose

If Inputs, Then Outputs

DESIGN CRITERIA

The pier rehabilitation design criteria summarized below generally follow the original design criteria for the pier used by the U.S. Army Corps of Engineers.

Vessel Types and Sizes

- o General cargo vessels and tankers
- o Maximum vessel size -- 10,000 DWT cargo ship or tanker, fully loaded

Vertical Live Loads

- o Deck Live Load -- uniform, 600 pounds per square foot
- o Concentrated Live Load -- H-20 truck with impact (for heavier equipment or point loads spreaders or outriggers have to be used).

Transverse Loads

- o Wind loads on ships and buildings -- 10 pounds per square foot (equivalent to a wind speed of 55 MPH), plus a gust increase of 33 percent.
- o Mooring and berthing loads as exerted by vessels of design size.

Other Criteria

- o No current effect should be considered in the design within the harbor.
- o The inner harbor, including the berths, is to be dredged to El. 9.5 m (31 ft) below mean low water (MLW), plus an allowance of 0.5 m for overdredging. The same applies to the channel.
- o The top of the deck to be 4.5 m (14.8 ft) above MLW.

Materials

- o Precast concrete to have a 28 day cylinder strength of 5,000 psi (350 kg/sq.cm)
- o Cast-in-place reinforced concrete to have a 28 day cylinder strength of 4,000 psi (280 kg/sq.cm)
- o Unreinforced concrete to have a 28 day cylinder strength of 3,000 psi (210 kg/sq.cm)
- o Reinforcing steel to be deformed and to conform to ASTM A615 (Grade 50 ksi)
- o Structural steel sheetpiling for bulkheading to be ASTM A590 (Grade 50 ksi)
- o Steel sheetpiling for anchorage deadmen to be ASTM A572 (Grade 50 ksi)

REHABILITATION OF PIER UTILITIES AND ANCILLARY FACILITIESPier Utilities

The utility work included in the pier rehabilitation scheme consists of the following items:

- Potable water lines
- Fire protection
- Electric power lines
- Telephone lines
- Gasoline/diesel and lube oil lines
- Molasses transfer piping -- all shown on following pages.

The design of the potable water system assumes that water will be supplied by the City of Kismayo. The potable water system begins at the existing valve near the inshore end of the pier, which connects to the new City water line. From there a new 100 mm diameter water line extends to a nearby new booster pump and a new 5,000 gallon storage tank. A circulator will distribute pumped water through a 100 mm pipe located under the apron pavement. The pipe will be tapped and extended to ship service boxes and to other facilities at the port.

The new fire protection system, needed to replace the existing corroded and inoperative system, is a dry pipe system which uses seawater, and is serviced by two diesel-driven fire pumps, with one pump serving as standby. Seawater for the pumps will be taken from the harbor through suction piping. Pumps will be housed in a new pump house located adjacent to the transit shed at berth 1. Piping will terminate at hydrants and service boxes.

A new underground electric conduit and duct system is provided within the pier rehabilitation area to replace the existing system and to distribute 380/220 volt power at the port with two ship service boxes provided for each berth. The power will be supplied by the port's own new diesel generator.

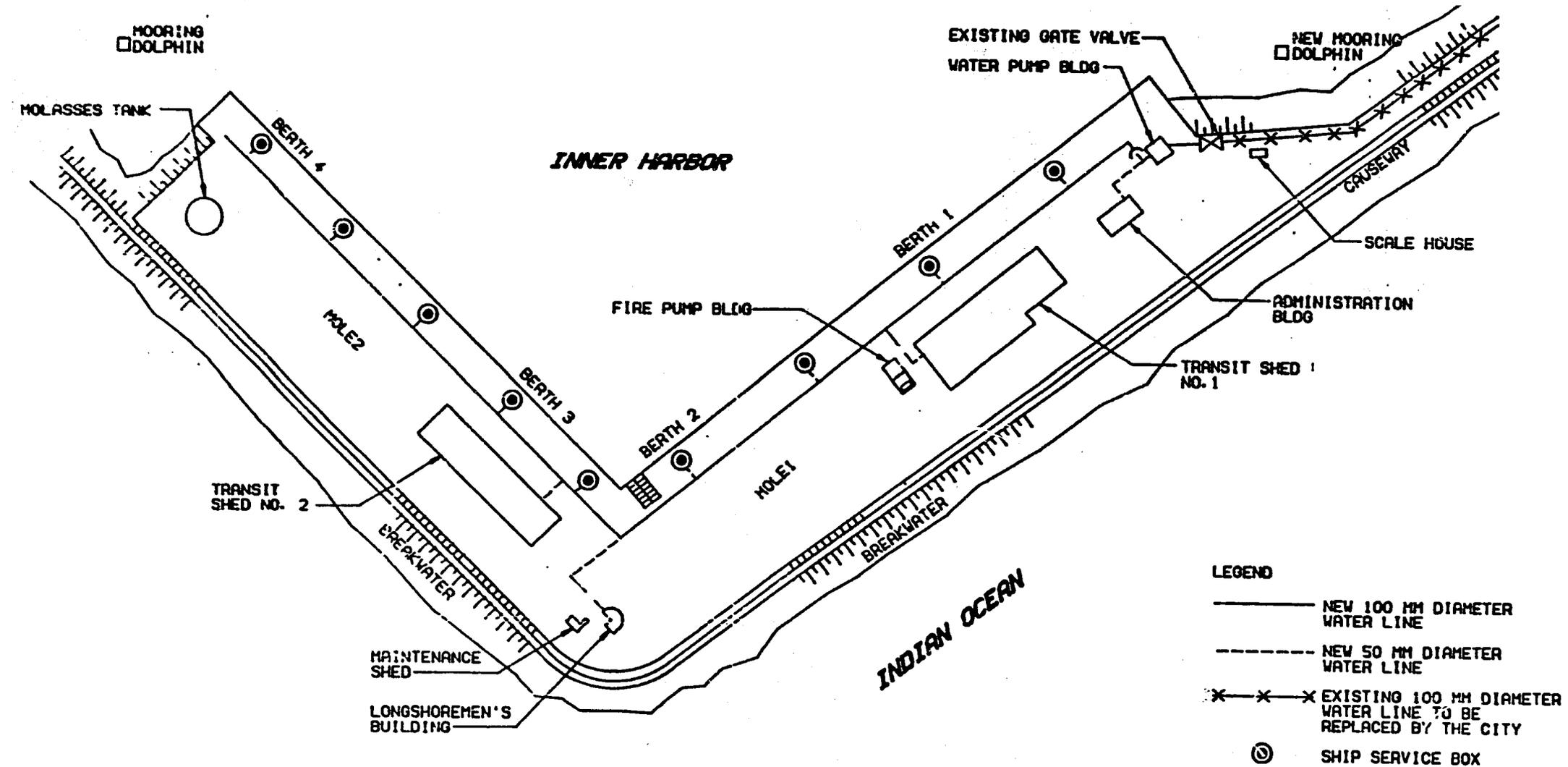
A new underground conduit and duct system with manholes is provided to extend the telephone lines to various buildings at the port. Telephone service will be provided by the City of Kismayo.

Pier rehabilitation will require modifications to gasoline/diesel and lube oil piping. Two new 200 mm diameter pipes will be installed below the apron pavement extending from the existing gate valves behind the scale house to the ships service

Utility Plan—Potable Water System

Port of Kismayo Rehabilitation

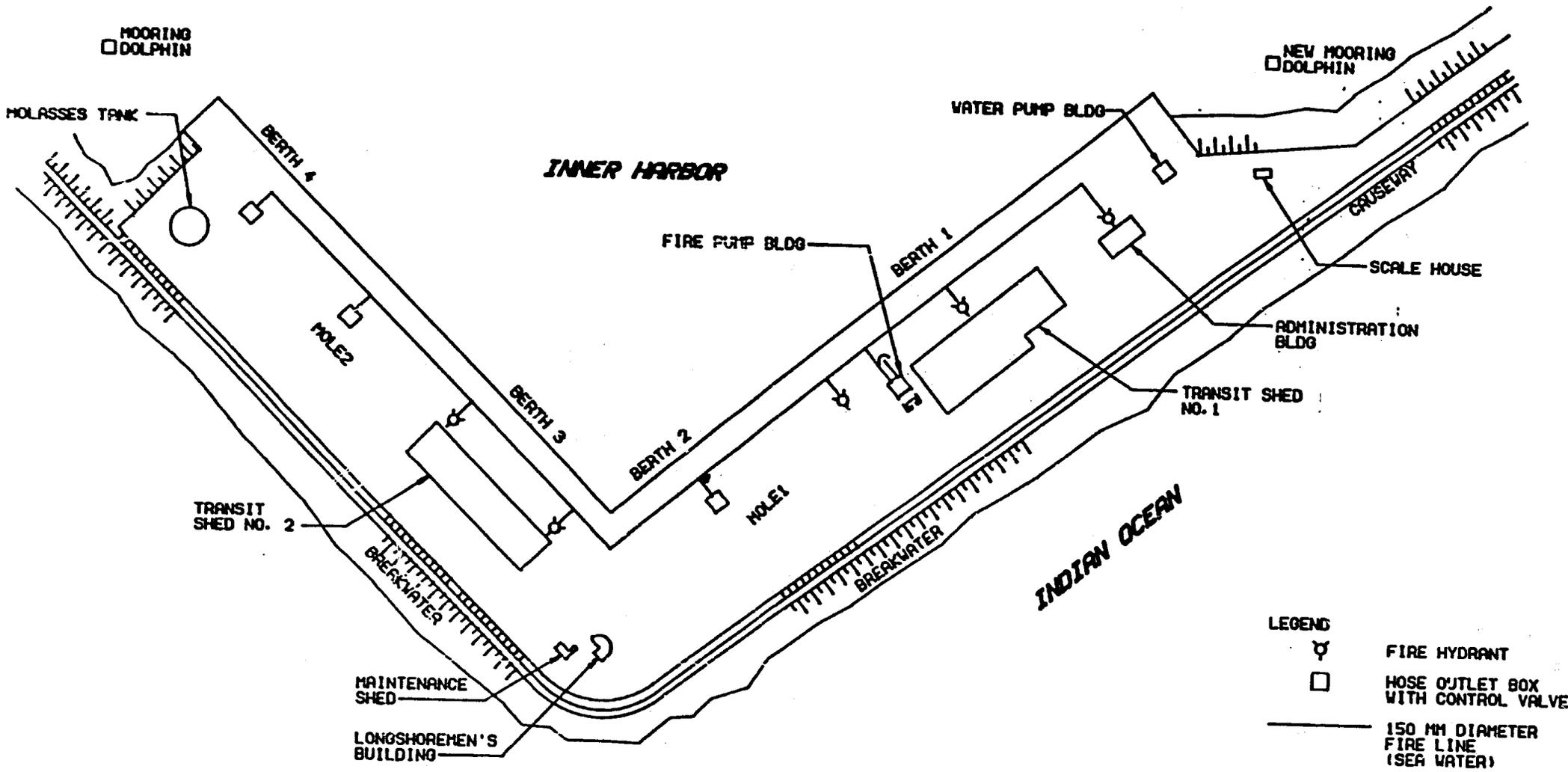
Parsons Brinckerhoff International, Inc.



Utility Plan--Fire Lines

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.

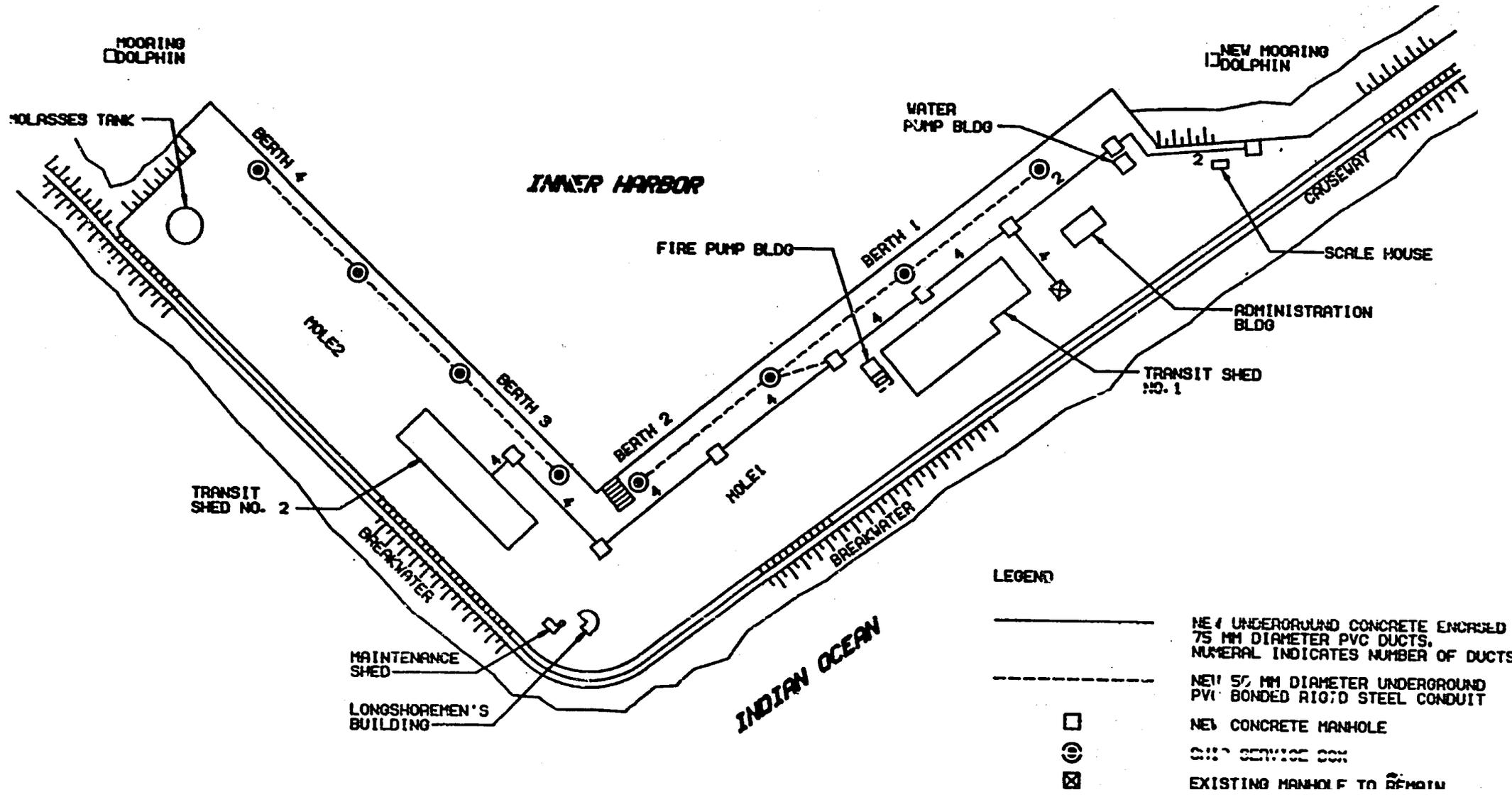


- LEGEND**
- ☼ FIRE HYDRANT
 - HOSE OUTLET BOX WITH CONTROL VALVE
 - 150 MM DIAMETER FIRE LINE (SEA WATER)

Utility Plan—Electrical Distribution

Port of Kismayo Rehabilitation

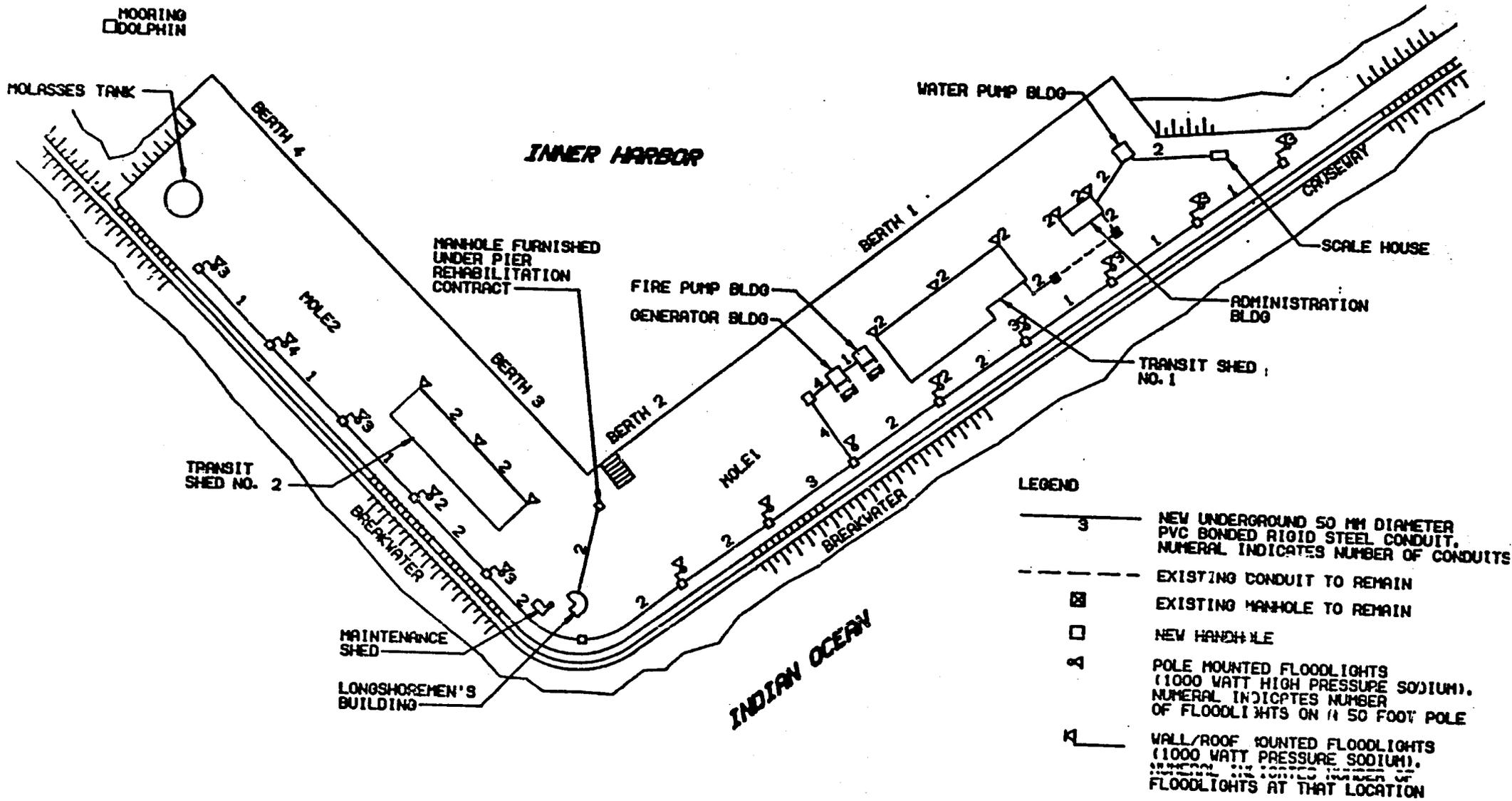
Parsons Brinckerhoff International, Inc.



Utilities Plan—Electrical Distribution and Area Lighting

Part of Kismayo Rehabilitation

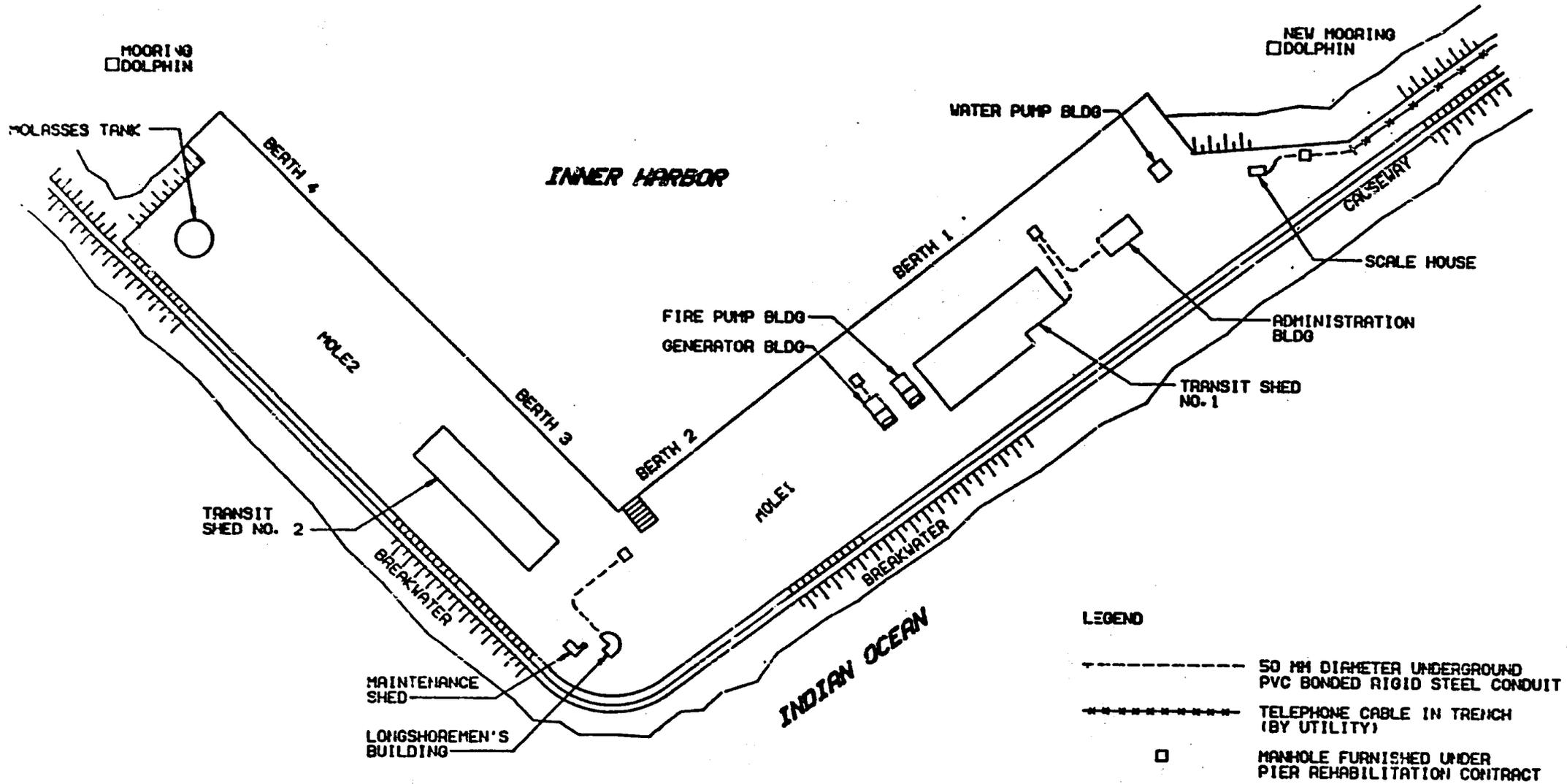
Parsons Brinckerhoff International, Inc.



Utilities Plan—Telephone Lines

Port of Kismayo Rehabilitation

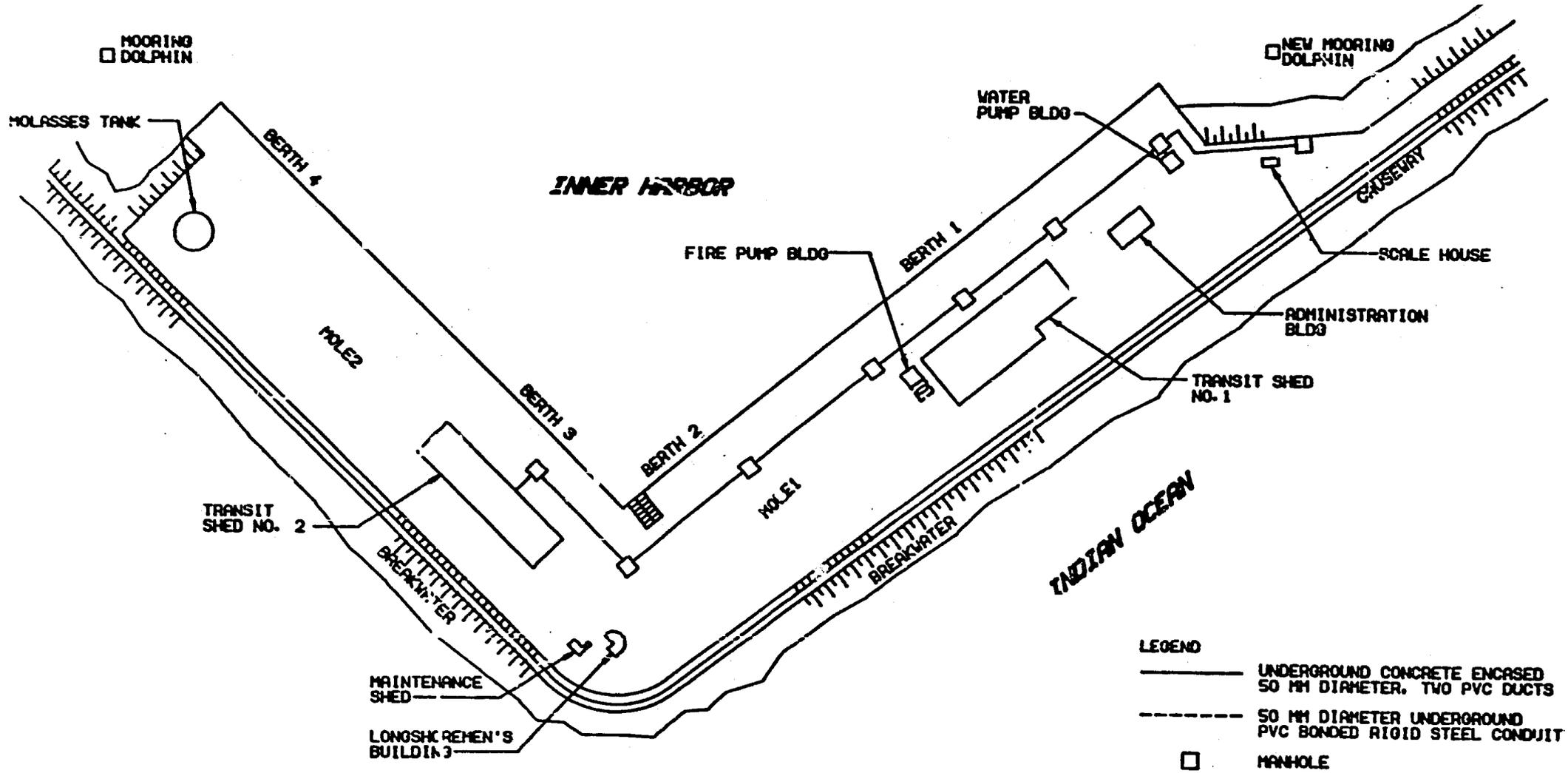
Parsons Brinckerhoff International, Inc



Utility Plan—Telephone Lines

of Kismayo Rehabilitation

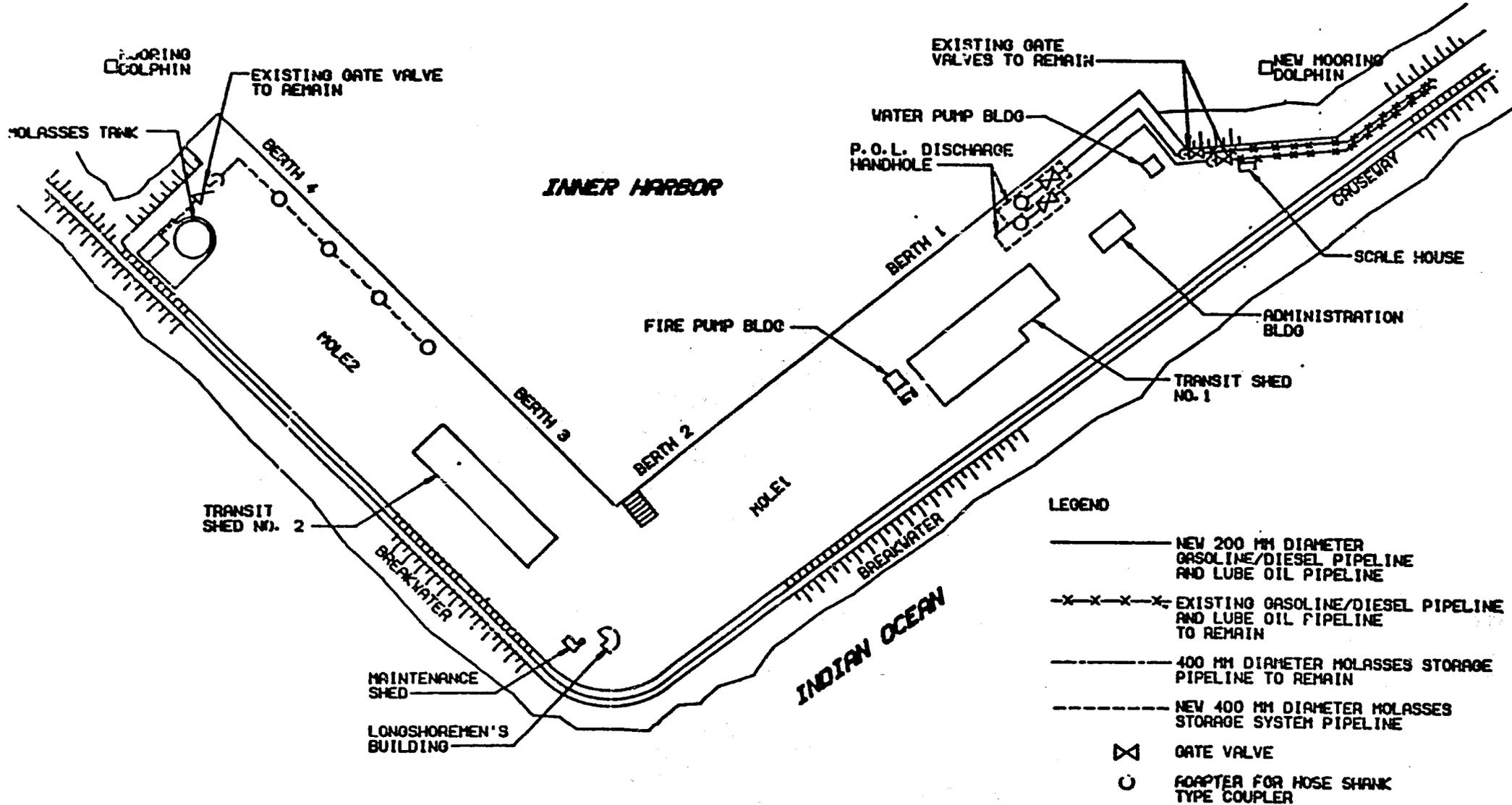
Parsons Brinckerhoff International, Inc



Utility Plan—Molasses and P.O.L. Lines

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International



box. During construction, temporary line extensions will be provided to enable ship unloading operations to continue.

Molasses transfer piping will also be modified and a new 380 mm diameter pipe will be installed in the sand fill to convey the molasses from the existing storage tank to the ships. During construction, a temporary line extension will be provided to enable ship loading operations.

The new pavement will be placed on backfill which is expected to consolidate over a longer period of time and thus cause settlement of the pavement subgrades. For this reason, a flexible pavement has been selected consisting of 8 inches of compacted sub-base, 6 inches of compacted base, and 3 inches of asphaltic concrete surface course. Design is based on the requirements and design guidelines of the American Association of State Highway and Transportation Officials (AASHTO) and the Asphalt Institute. The apron pavement will be sloped at approximately one percent toward the harbor to facilitate surface drainage.

Essential Ancillary Facilities

Concurrently with the rehabilitation of the pier structure and utilities within the pier area, certain ancillary facilities which are outside of the rehabilitation area of the pier but are essential for proper functioning of the port will also be rehabilitated or improved. These include:

- o Dredging of the access channel to maintain unrestricted access for vessels calling at the port.
- o Repairs to and improvement of existing navigation aids to enable vessels to safely navigate in and out of the port at any time during day or night.
- o Provision of yard lighting to facilitate nighttime cargo operations.
- o Power distribution system to distribute power from the generator to the pier and buildings at the port.
- o Installation of sanitary facilities to replace existing deteriorated and largely inoperative facilities and provision of septic tanks to treat sewage effluent before it is discharged into the harbor.

Justification for rehabilitation and improvement of these ancillary facilities is given below.

Access Channel. The access channel to the Port of Kismayo was originally designed to have a depth below mean low water (MLW) of 9.5 m and a dredged width of 100 m. These channel dimensions are necessary for safe navigation of vessels calling at the port at any tide condition--high or low (mean tide range at Kismayo is about 2.7 m).

Hydrographic surveys carried out in 1982 revealed that immediately south of the west end of the breakwater, for a distance of about 300 m, the channel has partly silted up so that its present width where the 9.5 m project depth is still available is only about 40 m. Depth of water in the remaining 60 m channel width varies between 7.5 and 8.5 m at MLW. As a result, vessels with a loaded draft of 7.5 m and more cannot enter or leave the port at low tide, but must wait until sufficient clearance under the keel becomes available as the tide rises.

To determine whether channel dredging to the project depth and width is justifiable, two different scenarios were tested. In the first, it was assumed that there would be no night navigation and it was estimated that a total period of eight daylight hours would be available during which the tide would be sufficiently high to allow ships to enter and leave the port. As ships would arrive randomly, this would mean an average waiting time of eight hours per ship, i.e. half of the 16 hours during which they would not be able to navigate the channel. In the second scenario, which includes night navigation, two eight hour periods would be available with sufficiently high tide to allow unrestricted navigation in both directions--one at night and one during the day. This would cut average waiting time to four hours per day for ships entering and leaving. In both scenarios it was estimated that 30 percent of the ships moving in and out would be affected.

Dredging costs were estimated at US \$766,000, including contingency and engineering costs. Average daily ship costs were estimated at US \$8,175, reflecting 1983 prices.

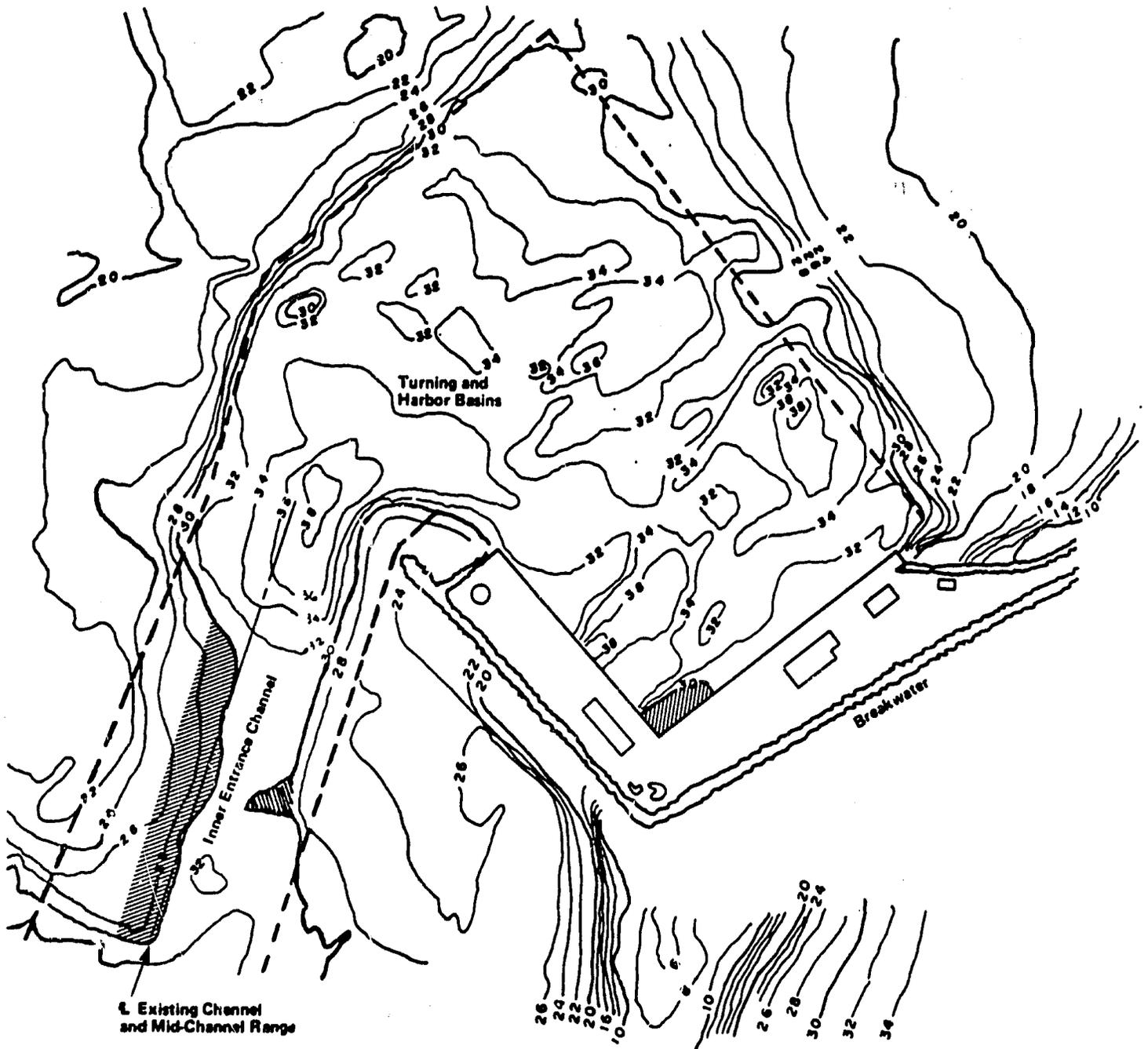
The yearly ship waiting time costs discounted against the cost of dredging gave the following results:

| | | Without Night Navigation 8 Hours <u>Waiting Time</u> | With Night Navigation 4 Hours <u>Waiting Time</u> |
|-----|----|---|--|
| NPV | 5% | \$3,054,000 | \$1,162,000 |
| | 10 | 1,803,000 | 553,000 |
| | 15 | 1,093,000 | 212,000 |
| IRR | | 40.3% | 20.4% |

Channel and Harbor Basin— Dredging Plan

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.



Existing Channel
and Mid-Channel Range

Shaded areas are less than project
depth (optional dredging areas)

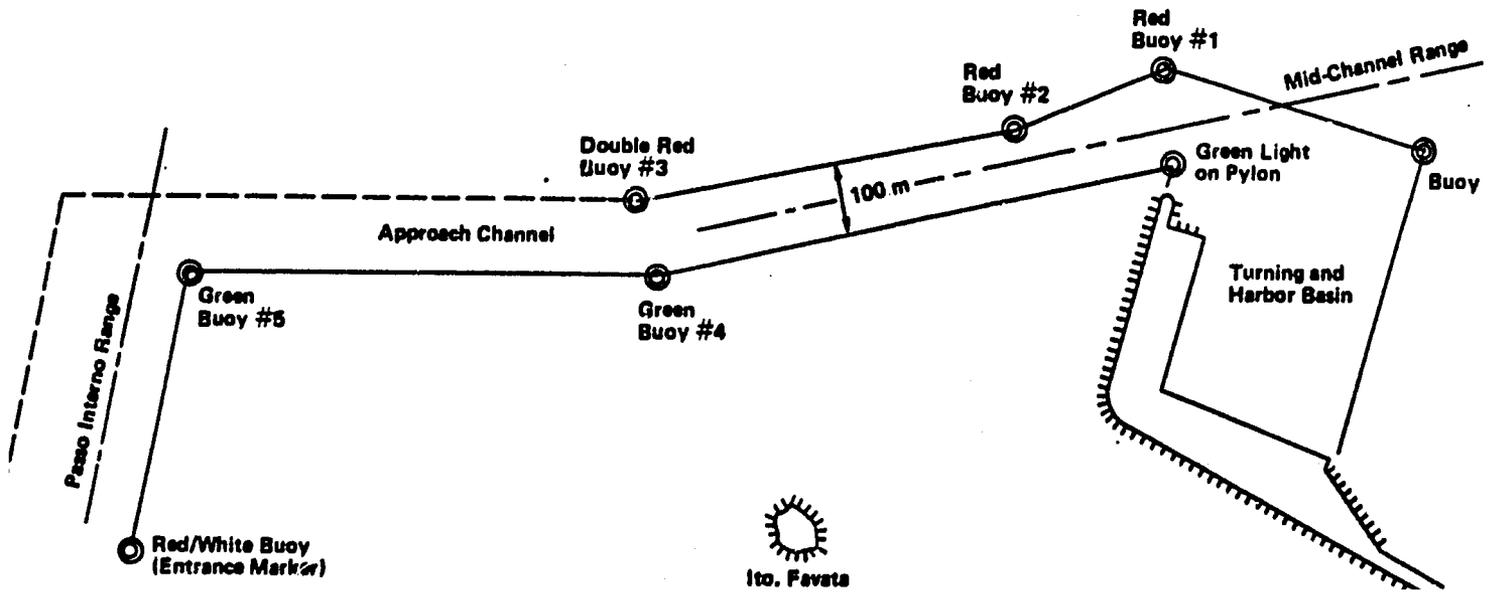
0 25 50 100 200 300
Meters



Channel Navigation Aids

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.



In the above analysis the ship waiting costs were calculated for the low cargo forecast case. Dredging costs assume that a dredge will be available in the area and that therefore mobilization costs would be low. Total volume of dredging is 30,000 cubic yards.

The above analysis indicates that channel dredging is justified from the point of view of economic soundness.

Navigation Aids. Navigation aids, such as lighthouses and buoys, enable ships to navigate into and out of the harbor at any time, day or night. Under the current situation at Kismayo with only daylight navigation possible, ships at anchor wanting to move into the harbor have to wait for first light. At times this conflicts with ships wanting to leave at the same time. Assuming only 20 percent of outbound and inbound ships are delayed six hours because they cannot sail at night, this would mean, for example, that in 1990, 19 ship days would be lost at \$8,175 per day, or \$153,900 in the low cargo forecast case. Calculating the additional demurrage for each year, and comparing it to the estimated cost of the navigation aids of \$200,000, the internal rate of return becomes 71.9 percent for the low case and 86.5 percent for the high. Under these assumptions, the rehabilitation and improvement of the navigation aids to make night navigation possible is clearly justified.

Yard Lighting for Night Operations. At the present time, loading and unloading of ships at night is done using ship lights. Such lighting is adequate for liquid bulk and banana operations, since all these activities take place around the ship. For general cargo operations, particularly those not involving direct delivery to the pier, lighting for the pier and storage areas is recommended, especially because it is not practical and unsafe for tractors and forklifts to move cargo between pier and storage areas in the dark.

For the purpose of quantifying the costs and benefits, it is estimated that with no lighting, each general cargo ship loses 10 percent in cargo handling efficiency. For the six hour night shift with one gang, which is the present practice, this adds 2.4 hours per ship call. Taking 1990 as example and using the high cargo forecast, there would be 103 general cargo ship calls that year, resulting in a total loss of $2.4 \times 103 = 247$ hours or 10.3 days. Using an average daily demurrage charge of \$8,175, the cost for that year due to lack of yard lighting would be US \$83,430.

The cost of yard lighting is estimated at \$316,000. Calculating the cost of savings in demurrage for each year as a benefit and applying it against the cost of yard lighting, the internal rate of return is 22.0 percent for the low volume cargo

forecast case and 25.6 percent for the high volume case. Under these assumptions the yard lighting is clearly justified.

Power Distribution System. The power distribution system is needed to distribute power from the source to the pier and buildings at the port.

The existing power distribution system, extending from the small on-site generator, is severely corroded and must be replaced. The new system will be via underground ducts and conduits, extending from the new generator/switchgear to the pier and to the various buildings which need power and lighting.

Materials for the distribution system are not available locally and must be imported. Installation should be performed by expatriate electricians, since qualified personnel are not available locally. For these reasons all work related to the power distribution system will be included within the framework of the pier rehabilitation contract with the General Contractor.

Sanitary Facilities and Sewage Treatment. Toilet facilities in all larger buildings are severely deteriorated and mostly inoperative. Sewage is discharged directly into the harbor basin, untreated. To satisfy environmental requirements, existing toilet facilities will be improved or replaced and septic tanks will be provided for treating sewage before it is discharged.

Other Ancillary Facilities

In addition, it is desirable that repairs or improvements be made to certain other port facilities and installations to prevent their further deterioration, to make their life expectancy more compatible with that of the rehabilitated pier and to generally improve the working conditions at the port. To be accomplished outside of AID project funding, they include:

- o Rehabilitation of access road lighting. Originally, the power for the road lighting was supplied by the City of Kismayo. Since the City power generation system is inoperative and the port's own generator has inadequate capacity, the access road to the port is not lighted. Also the existing luminaries and wiring are all corroded and should be replaced with new wiring and fixtures installed on existing wood poles.
- o Rehabilitation of buildings. All existing buildings exhibit various degrees of deterioration and lack of maintenance. These should be rehabilitated to prevent further deterioration and to improve appearance. This includes electric fixtures and lighting inside the buildings.

- o Repairs to the breakwater. Reportedly wave overtopping of the breakwater occurs during storm conditions in the area opposite the scale house. At such times, road access to the port is disrupted. Visual inspections of the breakwater have revealed that the crest of the breakwater in that area is slightly lower than elsewhere and that large voids exist between individual armor stones. The affected area should be surveyed in detail to determine what repairs should be made.

- o Repairs to causeway and access road. Some settlements of the causeway in its harbor side are in evidence between Serpenti Island and the port. Also, the roadway needs some minor repairs at several locations. These deficiencies should be corrected before heavy construction traffic starts.

ADDITIONAL FIELD INVESTIGATIONS - COST ESTIMATE

Topographic Survey

| | | |
|---|-------|--------|
| Base line and benchmark survey | 5,000 | |
| Structure and utility locations | 4,000 | |
| Cross-sections through mole and breakwater | 4,000 | |
| Soundings below deck | 2,000 | 15,000 |

Borings and Problings Along Bulkhead Line

| | | |
|--|--------|---------|
| Mobilization and rental of floating rig | 80,000 | |
| 8 borings - average length 80 ft - 640 L.F. | 42,000 | |
| 30 problings | 30,000 | |
| Shipping of samples and laboratory tests | 8,000 | 160,000 |

Aggregate Source Investigation

| | | |
|-----------------------------------|--------|--------|
| Mobilization | 2,000 | |
| 12 borings, average length 25 ft. | 15,000 | |
| 6 test pits | 3,000 | |
| Laboratory tests | 2,000 | |
| Topographic survey | 2,000 | 24,000 |

Water Sampling and Testing

4,000

Engineering, Planning, Inspection and Supervision

| | | |
|--|--------|--------|
| Planning, specification and contracts | 11,000 | |
| Field inspection, site visits and supervision | 26,000 | |
| Laboratory arrangements including test evaluation | 4,000 | |
| Evaluation of results and preparation of report | 16,000 | |
| Travel, per diem and local support | 12,000 | 69,000 |

Contingency 10%

27,000
\$299,000

Say \$300,000

FINANCIAL FEASIBILITY ANALYSIS

The purpose of the financial analysis of the rehabilitation of Kismayo port is to demonstrate to what extent the relevant capital and operating costs can be covered by port income. In the text, section VI-C-3 presented the real case whereby all rehabilitation costs would be covered by a grant. The purpose of this annex is to develop the analysis in greater detail through the use of financial statements, showing the minimum revenue necessary to cover not only operating cost and depreciation, but interest and principal payments assuming 100 percent commercial loan financing from commercial banks. The analysis demonstrates what portion of the necessary funding would come from internally generated funds and other sources, such as loans, equity, and surcharges.

The first section briefly discusses the present financial condition of the Kismayo Port. The second presents the assumptions made on income, costs, and financing, and is followed by the presentation and discussion of the proforma financial statements. Cost breakdown is given in Table F.2.I

Present Financial Condition

The financial performance of the Kismayo Port over the last few years has been reasonable, in spite of considerable variation in some line items.

A simplified summary of the Kismayo Port costs and reserves for the years 1980, 1981, and 1982 is shown in Table F.2.II. The statements indicate that the Port's revenues have been sufficient to cover its operations in addition to heavy depreciation charges. This situation may change in the future, however, because after the substantial devaluation of the Somali shilling at the end of 1982, the tariff rates for services were not raised proportionately. This situation will lead to lower dollar earnings to cover higher dollar costs of such imported items as fuel, parts, and equipment. Some adjustments in the tariff schedules were made by the Somali Port Authority in the basis for the charges, for instance, by rounding the amount of chargeable tonnage up to the nearest ton instead of to the nearest 100 kilos, which resulted in a de facto rate increase of ten percent. However, the rate schedules themselves have been left basically unchanged. This situation, if not rectified, may cause problems in financing future port improvements and the replacement of operating equipment, all of which have a high imported component.

Table F.2-1
**ESTIMATED COSTS OF PIER REHABILITATION
 AND ANCILLARY FACILITIES**
 (in U.S. Dollars)

| Item | Quantity | Unit | Foreign Currency Costs | Local Currency Costs | Total Costs |
|---|----------|--------|------------------------------|----------------------------|-------------------|
| Rehabilitation | | | <u>4,110,000</u> | <u>190,000</u> | <u>4,300,000</u> |
| Deck Rehabilitation | | | <u>633,000</u> | <u>362,200</u> | <u>996,000</u> |
| Concrete deck | 14,000 | sq.yds | 497,000 | 256,000 | |
| Tops of piles | 1,730 | cu.yds | 98,700 | 66,000 | |
| Removal from site | 8,730 | cu.yds | 47,100 | 40,200 | |
| Removal of slab on fill | 1,700 | sq.yds | <u>94,700</u> | <u>53,200</u> | <u>147,900</u> |
| Excavation | 20,400 | cu.yds | <u>175,100</u> | <u>65,600</u> | <u>240,700</u> |
| Bulkhead | | | <u>11,499,000</u> | <u>1,093,700</u> | <u>12,542,700</u> |
| Sheetpile bulkhead | 3,767 | tons | 8,998,500 | 615,300 | |
| Sheetpile caseman | 147 | tons | 700,000 | 110,000 | |
| Tie Rods | 586 | tons | 1,564,100 | 293,500 | |
| Tie Rods sleeves | 41,520 | lin.ft | 178,400 | 74,900 | |
| Backfill | 200,000 | cu.yds | <u>1,410,600</u> | <u>1,635,900</u> | <u>3,046,500</u> |
| Pavement | 13,550 | sq.yds | <u>727,200</u> | <u>457,100</u> | <u>1,184,300</u> |
| Concrete curbs | 620 | cu.yds | <u>133,100</u> | <u>131,000</u> | <u>264,100</u> |
| Marine hardware | | LS | <u>836,100</u> | <u>135,400</u> | <u>971,500</u> |
| Cooring machines | 2 | each | <u>116,500</u> | <u>22,500</u> | <u>139,000</u> |
| Condensing water | | LS | <u>433,500</u> | <u>166,500</u> | <u>600,000</u> |
| Pier Utilities | | | <u>909,400</u> | <u>109,000</u> | <u>1,018,400</u> |
| P. & Piping | | LS | 91,500 | 10,000 | |
| Collases Piping | | L | 134,500 | 15,000 | |
| Potable Water | | LS | 120,900 | 17,000 | |
| Fire Protection | | LS | 378,900 | 47,000 | |
| Electric | | LS | 118,400 | 13,000 | |
| Telephone | | LS | 65,200 | 7,000 | |
| Cathodic Protection | | LS | <u>178,000</u> | <u>22,000</u> | <u>200,000</u> |
| Miscellaneous | | LS | <u>109,000</u> | <u>113,000</u> | <u>222,000</u> |
| Subtotal | | | <u>21,316,000</u> | <u>4,557,000</u> | <u>25,873,000</u> |
| Contingency | | | <u>3,237,000</u> | <u>624,000</u> | <u>3,861,000</u> |
| Additional Soil Investigations | | | <u>24,553,000</u> | <u>5,251,000</u> | <u>29,804,000</u> |
| Design, Engineering, Contract Documents | | | <u>300,000</u> | - | <u>300,000</u> |
| Construction Supervision | | | <u>1,140,000</u> | <u>83,000</u> | <u>1,223,000</u> |
| Total before inflation | | | <u>1,682,000</u> | <u>238,000</u> | <u>1,920,000</u> |
| Inflation, annually, Comp. | | | <u>27,675,000</u> | <u>5,622,000</u> | <u>33,297,000</u> |
| Total pier rehabilitation | | | <u>5,469,000</u> | <u>1,754,000</u> | <u>6,723,000</u> |
| Total pier rehabilitation and ancill. facilities | | | <u>33,144,000</u> | <u>6,876,000</u> | <u>40,020,000</u> |
| ANCILLARY FACILITIES | | | | | |
| Channel Breakings | 30,000 | cu.yds | 570,000 | 30,000 | 600,000 |
| Navigation Aids | | LS | 180,000 | 20,000 | 200,000 |
| Power Distribution | | LS | 80,000 | 11,000 | 91,000 |
| Yard Lighting | | LS | 266,000 | 50,000 | 316,000 |
| Sanitary Facilities | | LS | 120,000 | 30,000 | 150,000 |
| Contingency | | | <u>1,216,000</u> | <u>141,000</u> | <u>1,357,000</u> |
| Subtotal | | | <u>182,000</u> | <u>21,000</u> | <u>203,000</u> |
| Construction and Constr. Supvn | | | <u>1,398,000</u> | <u>162,000</u> | <u>1,560,000</u> |
| Total before inflation | | | <u>151,000</u> | <u>18,000</u> | <u>176,000</u> |
| Inflation, annually, Comp. | | | <u>1,556,000</u> | <u>180,000</u> | <u>1,736,000</u> |
| Total Ancillary Facilities | | | <u>307,000</u> | <u>40,000</u> | <u>347,000</u> |
| Total pier rehabilitation and ancill. facilities | | | <u>35,007,000</u> | <u>7,096,000</u> | <u>42,103,000</u> |

* Includes funds for the following:

a) Approximately 125,000 in local currency (US\$ 175,000) for establishment of the Social Environmental Advisory Committee to review matters of environmental concern during the construction phase of the project (see environmental analysis - Section VI.2).

b) Approximately 500,000 for the undertaking of a tariff rate structure study for small ports to be used as a basis for making these ports financially viable operations.

c) Approximately 100,000 for a formal maintenance training program for a few maintenance managers and technicians. It will determine the need for a formal training program is, in fact, necessary during the

Table F.2.II
 Historical Kismayo Port Costs and Revenues
 1980-1982 ,000 So/Sh

| <u>Item</u> | <u>1980</u> | <u>1981</u> | <u>1982</u> |
|-------------------------------|-------------|--------------|--------------|
| Revenues | | | |
| 1. Ship Charges | 4710 | 6755 | 6573 |
| 2. Export Cargo | 86 | 451 | 334 |
| 3. Livestock | 454 | 631 | 739 |
| 4. Bananas | 800 | 625 | 1102 |
| 5. Molasses | - | 7 | 322 |
| 6. Petroleum | 132 | 221 | 40 |
| 7. Import Cargo | 2085 | 4538 | 1847 |
| 8. Misc. | 1316 | 3372 | 1567 |
| Total Revenue | 9583 | 16600 | 12524 |
| Costs | | | |
| 1. Wages | 2292 | 2847 | 2832 |
| 2. Maintenance | 297 | 265 | 899 |
| 3. Fuel | 353 | 275 | 905 |
| 4. Local Consumables | 106 | 109 | 196 |
| 5. Others | 48 | 8 | 104 |
| 6. Admin & General | 1371 | 1687 | 1606 |
| 7. Depreciation | 4325 | 5737 | 4060 |
| 8. Financial Charges | 1 | 3 | 7 |
| 9. Misc. | 260 | 291 | 256 |
| Total Costs | 9053 | 11222 | 10875 |
| Net Before Tax | 530 | 5378 | 1649 |
| % Gross Income | 5.5% | 32.3% | 13.2% |
| NET in US \$000 @ 6.30 | 84 | 854 | 262 |

Projected Financial Condition

In order to complete the financial analysis of the port rehabilitation, it was necessary to make projection of costs and revenues for the twenty years from the initiation of construction. The basis used was the high and low cargo forecasts discussed in Section 3.0. In the high forecast case, costs and revenues were held constant after 1994 because at that time berth occupancy reaches 70 percent, which means that new berth(s) should be added.

Table F.2-III
Revenue Calculations
Kismayo Port

High Revenue Case

,000 US\$

| | <u>General Import</u> | <u>General Export</u> | <u>Banana</u> | <u>Live- stock</u> | <u>Petrol</u> | <u>Molasses</u> | <u>Fish</u> | <u>Total</u> (1) | <u>Total</u> (2) |
|------|---------------------------|---------------------------|---------------|------------------------|---------------|-----------------|-------------|------------------|------------------|
| 1986 | 548 | 70 | 505 | 116 | 149 | 187 | 22 | 1597 | 3457 |
| 1987 | 572 | 82 | 543 | 126 | 163 | 193 | 22 | 1701 | 3682 |
| 1988 | 584 | 93 | 580 | 126 | 177 | 198 | 35 | 1793 | 3881 |
| 1989 | 609 | 105 | 618 | 126 | 191 | 204 | 35 | 1888 | 4087 |
| 1990 | 633 | 116 | 655 | 135 | 205 | 209 | 35 | 1988 | 4303 |
| 1991 | 669 | 128 | 693 | 135 | 224 | 215 | 35 | 2099 | 4543 |
| 1992 | 694 | 151 | 730 | 145 | 242 | 226 | 47 | 2235 | 4838 |
| 1993 | 718 | 175 | 777 | 145 | 261 | 231 | 47 | 2354 | 5095 |
| 1994 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 1995 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 1996 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 1997 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 1998 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 1999 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 2000 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 2001 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 2002 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |
| 2003 | 755 | 198 | 814 | 155 | 280 | 242 | 58 | 2502 | 5416 |

(1) Assumes present rate structure in dollars maintained

(2) Assumes increase in rate structure proportional to dollar devaluation

Source: Parsons Brinckerhoff Port of Kismayo Study Team

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Table F.2.IV
Revenue Calculations
Kismayo Port

| | ,000 US\$ | | | | | | | (1) Total | (2) Total |
|------|---------------------------|---------------------------|---------------|------------------------|---------------|-----------------|-------------|--------------|--------------|
| | <u>General Import</u> | <u>General Export</u> | <u>Banana</u> | <u>Live- stock</u> | <u>Petrol</u> | <u>Molasses</u> | <u>Fish</u> | | |
| 1986 | 511 | 58 | 393 | 97 | 126 | 182 | 22 | 1389 | 3006 |
| 1987 | 523 | 58 | 412 | 97 | 135 | 182 | 22 | 1429 | 3093 |
| 1988 | 536 | 70 | 431 | 97 | 140 | 182 | 22 | 1478 | 3199 |
| 1989 | 536 | 70 | 449 | 97 | 144 | 182 | 22 | 1500 | 3247 |
| 1990 | 548 | 82 | 468 | 97 | 154 | 182 | 22 | 1553 | 3361 |
| 1991 | 560 | 93 | 469 | 97 | 163 | 182 | 35 | 1599 | 3461 |
| 1992 | 572 | 105 | 505 | 106 | 168 | 182 | 35 | 1673 | 3621 |
| 1993 | 584 | 116 | 524 | 106 | 177 | 182 | 35 | 1724 | 3732 |
| 1994 | 596 | 140 | 543 | 106 | 186 | 182 | 35 | 1788 | 3870 |
| 1995 | 609 | 151 | 562 | 106 | 196 | 182 | 35 | 1841 | 3985 |
| 1996 | 621 | 151 | 562 | 106 | 205 | 182 | 35 | 1862 | 4030 |
| 1997 | 633 | 151 | 562 | 106 | 214 | 182 | 35 | 1883 | 4076 |
| 1998 | 645 | 151 | 562 | 106 | 228 | 182 | 47 | 1921 | 4158 |
| 1999 | 657 | 163 | 562 | 106 | 238 | 182 | 47 | 1955 | 4232 |
| 2000 | 669 | 163 | 562 | 116 | 247 | 182 | 47 | 1986 | 4299 |
| 2001 | 681 | 163 | 562 | 116 | 261 | 182 | 47 | 2012 | 4355 |
| 2002 | 694 | 163 | 562 | 116 | 275 | 182 | 47 | 2039 | 4413 |
| 2003 | 718 | 163 | 562 | 116 | 289 | 182 | 58 | 2088 | 4519 |

(1) Assumes present rate structure maintained.

(2) Assumes rate structure increased proportionally to devaluation.

Source: Parsons Brinckerhoff Port of Kismayo Study Team

For the purpose of the financial analysis, it was assumed that all investment costs including interest during construction and operating equipment would be 100 percent financed with commercial bank terms to reflect the opportunity cost of the lending agency(ies) funding of the project. The terms were: five years grace period, followed by a ten year amortization period, three percent real interest paid annually on the draw-down period. Three percent real interest implies about 11 percent current interest, assuming an eight percent inflation rate.

Investment Costs

For the feasibility analysis, all relevant investment items were included irrespective of their eventual sources of financing. In addition to pier rehabilitation, these comprised the ancillary items, new and replacement operating equipment, and financial costs such as interest during construction and working capital. The description of the different investment cost categories has been presented in detail in Section C.4. The difference between the high and low cases is due to the timing of the purchases of the operating equipment, more of which must be purchased earlier for the high volume case.

The investment costs are shown year by year in Tables F.2.V and F.2.VI for the high and low volume cases respectively.

Operating Costs

The operating costs for the pro forma financial statements were based in part on the actual values for Kismayo Port, as were the revenue calculations. Historic costs for the years 1980, 1981, and 1982 were grouped into the following general categories: wages (including welfare), maintenance, fuel, local utilities, others, depreciation, and administrative/general (Table F.2.II). The three year totals in each category were divided by the total tonnage handled to obtain Somali Shillings per ton.

The conversion of the Somali shilling cost into dollars again presented a problem due to the devaluation at the end of 1982. As the cost of labor and other locally sourced goods and services were not increased proportionally to the devaluation, the conversion rate is the official one of 15 shillings to the dollar. However, imported goods, namely fuel and maintenance, will have to be purchased with more shillings; therefore, the dollar value for these items was maintained by converting them by the historic exchange rate of 6.3.

Three line items were calculated in accordance with the pier rehabilitation:

Table F.2.V
Investment Schedule
High Volume Case
Including Equipment Replacement
in US\$,000

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | Total | |
|------------------------------|------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| Investment Costs | | | | | | | | | | | | | | | | | | | | | | |
| Engineering | | | | | | | | | | | | | | | | | | | | | | |
| Local | 37 | 130 | 130 | 74 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 371 |
| Imported | 1118 | 1001 | 658 | 335 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3122 |
| Materials | | | | | | | | | | | | | | | | | | | | | | |
| Local | 287 | 1146 | 1146 | 286 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2865 |
| Imported | 3248 | 8119 | 4872 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 16239 |
| Ancillary Items | | | | | | | | | | | | | | | | | | | | | | |
| Local | 55 | 187 | 217 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 545 |
| Imported | 461 | 1071 | 786 | 116 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2434 |
| Labor | | | | | | | | | | | | | | | | | | | | | | |
| Local | 169 | 508 | 677 | 338 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1692 |
| Expatriate | 508 | 2031 | 2031 | 507 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5077 |
| Operating Equipment | | | | | | | | | | | | | | | | | | | | | | |
| Imported | - | - | 535 | 875 | - | - | - | 535 | 875 | 452 | - | - | 535 | 875 | 452 | - | - | - | 535 | 875 | 452 | 6996 |
| Contingency | 451 | 1549 | 1516 | 812 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4328 |
| Sub Total | 6334 | 15742 | 12578 | 3429 | - | - | - | 535 | 875 | 452 | - | - | 535 | 875 | 452 | - | - | - | 535 | 875 | 452 | 43669 |
| Increase in Working Capital | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Interest During Construction | 190 | 662 | 1039 | 1142 | 1142 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Financing | 6524 | 16404 | 13617 | 4571 | 1142 | - | - | 535 | 875 | 452 | - | - | 535 | 875 | 452 | - | - | - | 535 | 875 | 452 | 47844 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Depreciation was assumed to be straight line, with a five year useful life for port operating equipment and 30 years for the pier and other facilities.

Pier maintenance was calculated as 0.1 percent of the capital cost of the rehabilitation the first year, increasing to 0.2 percent the second year, and so on reaching 1.0 percent by the tenth operating year.

Maintenance dredging was assumed to be US \$200,000 per year.

Operations were assumed to start in 1986 upon the completion of the second berth, and continue during the demolition and reconstruction of the remaining two berths.

The operating costs per ton are shown in Table F.2.VII. These were multiplied by the projected tonnages in the high and low volume cases to obtain the yearly costs for each operating category. In the high volume case the costs after 1994 were held constant as the four berths would be at full capacity in that year.

Table F.2.VII
Operating Costs Per Ton

| <u>Item</u> | <u>Cost/ton US\$</u> |
|-------------------------------|----------------------|
| 1. Wages and Welfare | 2.02 |
| 2. Maintenance | 0.76 |
| 3. Fuel | 0.78 |
| 4. Local Utilities | 0.09 |
| 5. Others | 0.04 |
| 6. Administrative and General | 1.17 |

Finally, for the purpose of compiling a pro forma balance sheet, a minimum amount of cash was included to cover day to day operations. This was assumed to be equal to two months operating costs minus depreciation.

The implicit assumption behind the cost projections is that productivity of operations will remain constant and that in the future higher cargo volumes will be handled by adding factors of production according to their historic ratios. This assumption may be considered conservative, for as volumes increase labor saving methods for cargo handling may be implemented. However, as volumes increase in ports, there is always the tendency through unionization for real labor costs to increase faster than real port income held low by pressure from port users, thus cancelling gains from possible productivity increases. There, in the long term, the operating cost projections are probably reasonable.

Since a maximum of four berths is contemplated in the present study, the costs and revenues due to additional berths or ship waiting costs if the port is not expanded were not included. All proforma statements are in constant 1983 US dollars.

Revenue

The estimates of the projected fee revenue for the port were based on actual port revenues for the years 1980, 1981 and 1982. They are shown in Table F.2.II. The revenues were divided into three basic categories: port charges, miscellaneous income, and direct charges made to each product group, namely general export and import, livestock, bananas, petroleum and molasses. The total revenue in each category for the three years was divided by the relevant tonnage to get an average revenue per ton for each category in Somali shillings.

A problem was to determine the correct conversion factor to change the shillings to dollars due to the substantial devaluation the shilling had suffered at the end of 1982. Therefore, two different revenues were calculated. In the first, the historic shilling revenues were converted at 15 to the dollar and the resulting revenue per ton increased ten percent to compensate for the rate increase. In the second, it was assumed that the present rates would be increased so that by 1986 they would yield in dollar terms what they did before devaluation in 1982. Then, the revenue per ton was multiplied by the number of tons in each cargo category in the high and low volume cases to obtain the total projected revenue for each year. The resulting total revenue and the revenue for each cargo category is shown in Tables F.2.III and F.2.IV.

Finally, a second category was created to show how much additional income would be needed to cover financial expenses over and above that obtained directly from port fees. This income could come from various sources, for example, from a surcharge per metric ton of cargo at Kismayo, or on all Somali ports during the years in which the Kismayo financial burden is greatest. This amount is presented as a separate line item in the Profit and Loss Statement.

Financial Plan

AID financing usually takes the form of a grant or a soft loan. Normal soft loan terms for AID financing include 40 years for repayment encompassing a ten year grace period with a two percent annual interest and a 30 year amortization period with three percent annual interest. In either case, the financing is usually extended to the host country government, which then would make the funds available to the project implementing organ at rates closer to those prevailing in financial markets.

Analysis and Discussion

For the purpose of analyzing the financial potential of the Kismayo Port rehabilitation, the usual financial statements were prepared for both the high and low volume cases, including a profit and loss statement, source and application of funds, and a balance sheet, all for the 20 year project analysis period. Finally, the financial return for both cases was calculated.

Profit and Loss, Source and Application of Funds Statements

The above statements are shown in Tables F.2.VIII, F.2.IX, F.2.X and F.2.XI. The total income lines in the P and L statements show the total income flow necessary to cover all operating costs, debt service and a minimum reserve for working capital, as defined by the Source and Application of Funds Statement. This amount is assumed to come from two sources: regular port fees, shown in "Port Income", and additional coverage during the amortization period, under "other", which could come from a surcharge per metric ton, direct subsidy, or through equity. Both high and low cases indicate that through the early beginning of operations on the rehabilitated pier and the five year grace period, a sufficient reserve would be created to absorb two years of financial costs in the low case and three in the high case. Thereafter, additional income would be needed to the end of the amortization period. The total necessary would be \$19,928 million in the low case and \$9,970 million in the high case, or an average surcharge of \$12.05 and \$5.01 per metric ton respectively.

The dollar value of the current fee schedules (Tables F.2.III and F.2.IV), in both cases cover operating costs, plus A & G, but not depreciation nor debt service. If the fee schedules are increased proportionally to the devaluation, they would cover in addition depreciation and part of the debt service in both cases. This is the Port Income shown in the P & L, Tables F.2.VIII and F.2.IX.

Net before tax profit is high in both cases, but this only reflects the difference between depreciation, calculated over a 30 year facility life, and the need to pay the financing in ten years.

Balance Sheet

The pro forma balance sheets are shown in Tables F.2.XII and F.2.XIII for the high and low cases respectively. Current assets include a minimum cash reserve of two months

Table F.2.VIII
Profit and Loss Statement
High Volume Case
US\$,000

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | Total | |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| Gross Income | | | | | | | | | | | | | | | | | | | | | |
| Port | - | 3457 | 3682 | 3881 | 4087 | 4303 | 4543 | 4938 | 5095 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 8804 |
| Other | - | - | - | - | - | - | - | 860 | 1615 | 1782 | 1432 | 1427 | 1427 | 1427 | 1427 | 1427 | 1427 | 1427 | 1427 | 1427 | 997 |
| Total: | - | 3457 | 3682 | 3881 | 4087 | 4303 | 4543 | 5698 | 6710 | 7198 | 6848 | 6843 | 6843 | 6843 | 5416 | 5416 | 5416 | 5416 | 5416 | 5416 | 9801 |
| Operating Costs | | | | | | | | | | | | | | | | | | | | | |
| 1. Labor | - | 374 | 398 | 420 | 442 | 467 | 493 | 525 | 554 | 588 | 588 | 588 | 588 | 588 | 588 | 588 | 588 | 588 | 588 | 588 | 955 |
| 2. Gen. Maintenance | - | 141 | 150 | 158 | 166 | 176 | 185 | 198 | 208 | 221 | 221 | 221 | 221 | 221 | 221 | 221 | 221 | 221 | 221 | 221 | 359 |
| 3. Pier Maintenance | - | 33 | 67 | 100 | 133 | 166 | 200 | 233 | 266 | 300 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 449 |
| 4. Fuel | - | 144 | 154 | 162 | 171 | 190 | 190 | 203 | 214 | 227 | 227 | 227 | 227 | 227 | 227 | 227 | 227 | 227 | 227 | 227 | 368 |
| 5. Utilities | - | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 25 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 42 |
| 6. Dredging | - | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 360 |
| 7. Others | - | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 19 |
| 8. Depreciation | - | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 2997 |
| Total Operating Costs | - | 1827 | 2256 | 2572 | 2646 | 2724 | 2805 | 2897 | 2983 | 3451 | 3484 | 3484 | 3484 | 3484 | 3484 | 3484 | 3484 | 3484 | 3484 | 3484 | 5551 |
| Administrative & Gen | - | 215 | 231 | 243 | 256 | 270 | 285 | 304 | 321 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 552 |
| Operating Profits | - | 1414 | 1195 | 1066 | 1185 | 1309 | 1453 | 2497 | 3406 | 3407 | 3024 | 3019 | 3019 | 3019 | 1592 | 1592 | 1592 | 1592 | 1592 | 1592 | 2700 |
| Interest | - | - | - | - | 1217 | 1105 | 990 | 871 | 748 | 622 | 492 | 359 | 220 | 78 | - | - | - | - | - | - | 2700 |
| Net Before Taxes | - | 1414 | 1195 | 1066 | -32 | 204 | 463 | 1626 | 2658 | 2785 | 2532 | 2660 | 2799 | 2941 | 1592 | 1592 | 1592 | 1592 | 1592 | 1592 | 20301 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.2.IX
Profit and Loss Statement
Low Volume Case
US\$,000

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | Total |
|------------------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Gross Income | | | | | | | | | | | | | | | | | | | | |
| Port | - | 3006 | 3093 | 3199 | 3247 | 3361 | 3461 | 3621 | 3732 | 3870 | 3985 | 4030 | 4076 | 4158 | 4232 | 4299 | 4355 | 4413 | 4519 | 6861 |
| Other | - | - | - | - | - | - | 2447 | 2655 | 2600 | 2535 | 2481 | 2444 | 2410 | 2356 | - | - | - | - | - | 1991 |
| Total: | - | 3006 | 3093 | 3199 | 3247 | 3361 | 5908 | 6276 | 6332 | 6405 | 6466 | 6474 | 6486 | 6514 | 4232 | 4299 | 4355 | 4413 | 4519 | 8851 |
| Operating Costs | | | | | | | | | | | | | | | | | | | | |
| 1. Labor | - | 325 | 335 | 345 | 352 | 364 | 378 | 390 | 402 | 416 | 428 | 434 | 440 | 450 | 459 | 467 | 475 | 483 | 495 | 741 |
| 2. Gen. Maintenance | - | 122 | 126 | 130 | 132 | 138 | 142 | 147 | 151 | 156 | 161 | 163 | 166 | 169 | 173 | 176 | 178 | 181 | 186 | 275 |
| 3. Pier Maintenance | - | 33 | 67 | 100 | 133 | 166 | 200 | 233 | 266 | 300 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 333 | 445 |
| 4. Fuel | - | 126 | 129 | 133 | 135 | 140 | 145 | 151 | 155 | 160 | 165 | 167 | 170 | 174 | 177 | 180 | 183 | 186 | 191 | 286 |
| 5. Utilities | - | 15 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 22 | 22 | 31 |
| 6. Dredging | - | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 360 |
| 7. Others | - | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 14 |
| 8. Depreciation | - | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 14 |
| Total Operating Costs | - | 1738 | 2140 | 2435 | 2480 | 2536 | 2594 | 2651 | 2700 | 2764 | 2819 | 2830 | 2843 | 2860 | 2876 | 2891 | 2904 | 3292 | 3314 | 2695 |
| Administrative & Gen | - | 188 | 194 | 200 | 204 | 211 | 219 | 226 | 233 | 241 | 248 | 252 | 255 | 261 | 266 | 270 | 275 | 280 | 287 | 432 |
| Operating Profits | - | 1080 | 759 | 564 | 563 | 614 | 3095 | 3399 | 3399 | 3400 | 3399 | 3392 | 3388 | 3393 | 1090 | 1118 | 1176 | 841 | 918 | 3560 |
| Interest | - | - | - | - | 1217 | 1105 | 990 | 871 | 719 | 623 | 493 | 359 | 221 | 79 | - | - | - | - | - | 667 |
| Net Before Taxes | - | 1080 | 759 | 564 | -654 | -491 | 2105 | 2528 | 2680 | 2777 | 2906 | 3033 | 3167 | 3314 | 1090 | 1131 | 1176 | 841 | 918 | 2893 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.2.X
Source and Application of Funds
High Volume Case
in US\$,000

| Source of Funds | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|-----------------------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Operating Profits | - | - | 1414 | 1195 | 1066 | 1185 | 1309 | 1453 | 2497 | 3406 | 3407 | 3024 | 3019 | 3019 | 3019 | 1592 | 1592 | 1592 | 1592 | 1592 |
| Depreciation | - | - | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 | 1877 |
| Loan Drawdown | 6524 | 16404 | 13617 | 4571 | 1142 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Equity | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Sources | 6524 | 16404 | 15942 | 7027 | 3713 | 2690 | 2814 | 2958 | 4002 | 4911 | 5284 | 4901 | 4896 | 4896 | 4896 | 3469 | 3469 | 3469 | 3469 | 3469 |
| <u>Application of Funds</u> | | | | | | | | | | | | | | | | | | | | |
| Interest | 190 | 662 | 1039 | 1142 | 1142 | 1217 | 1105 | 990 | 871 | 748 | 622 | 492 | 359 | 220 | 78 | - | - | - | - | - |
| Principal | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Payments for Plant | 6334 | 15742 | 12578 | 3429 | - | 3679 | 3791 | 3906 | 4015 | 4148 | 4274 | 4404 | 4537 | 4676 | 4818 | - | - | - | - | - |
| Total Applications | 6524 | 16404 | 13617 | 4571 | 1142 | 4896 | 4896 | 4896 | 4896 | 4896 | 5268 | 4896 | 4896 | 4896 | 4896 | - | - | - | - | - |
| <u>Cash Balance</u> | | | | | | | | | | | | | | | | | | | | |
| Yearly | 0 | 0 | 2325 | 2456 | 2571 | -2206 | -2082 | -1938 | -894 | 15 | 16 | 5 | 0 | 0 | 0 | 3469 | 3469 | 3469 | 3469 | 3469 |
| Accumulated | 0 | 0 | 2325 | 4781 | 7352 | 5146 | 3064 | 1126 | 232 | 247 | 263 | 268 | 268 | 268 | 268 | 3737 | 7206 | 10675 | 14144 | 17613 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.2.XI
Source and Application of Funds
Low Volume Case
in US\$,000

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|-----------------------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Source of Funds | | | | | | | | | | | | | | | | | | | | |
| Operating Profits | - | - | 1080 | 759 | 564 | 563 | 614 | 3095 | 3399 | 3399 | 3400 | 3399 | 3392 | 3388 | 3393 | 1090 | 1138 | 1176 | 841 | 918 |
| Depreciation | - | - | 911 | 1261 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1505 | 1877 |
| Loan Drawdown | 6524 | 16404 | 13067 | 5106 | 1142 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Equity | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Sources | 6524 | 16404 | 15058 | 7126 | 3211 | 2068 | 2119 | 4600 | 4904 | 4904 | 4905 | 4904 | 4897 | 4893 | 4898 | 2595 | 2643 | 2681 | 2718 | 2795 |
| Application of Funds | | | | | | | | | | | | | | | | | | | | |
| Interest | 190 | 662 | 1024 | 1142 | 1142 | 1217 | 1105 | 990 | 871 | 749 | 623 | 493 | 359 | 221 | 79 | - | - | - | - | - |
| Principal | - | - | - | - | - | 3678 | 3790 | 3905 | 4024 | 4146 | 4272 | 4402 | 4536 | 4674 | 4816 | - | - | - | - | - |
| Payments for Plan | 6334 | 15742 | 12043 | 3964 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Application | 6524 | 16404 | 13067 | 5106 | 1142 | 4895 | - | - | - | 452 | - |
| Cash Balance | | | | | | | | | | | | | | | | | | | | |
| Yearly | 0 | 0 | 1991 | 2020 | 2069 | -2827 | -2776 | -295 | 9 | 9 | 10 | 9 | 2 | -2 | 3 | 2595 | 2643 | 2681 | 2266 | 2795 |
| Accumulated | 0 | 0 | 1991 | 4011 | 6080 | 3253 | 477 | 182 | 191 | 200 | 210 | 219 | 221 | 219 | 222 | 2817 | 5460 | 8141 | 10407 | 13202 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.2.XII

Balance Sheet
High Volume Case
US\$,000

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | |
|---------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Assets | | | | | | | | | | | | | | | | | | | | | |
| Current Assets | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cash | - | - | 152 | 166 | 178 | 191 | 203 | 217 | 232 | 247 | 263 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 |
| Reserves | - | - | 2173 | 4615 | 7174 | 4955 | 2861 | 909 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3469 | 6938 | 10407 | 13876 | 17344 | 20813 |
| Total Current Assets | - | - | 2325 | 4781 | 7352 | 5146 | 3064 | 1126 | 232 | 247 | 263 | 268 | 268 | 268 | 268 | 3737 | 7206 | 10675 | 14144 | 17612 | 20813 |
| Fixed Assets | | | | | | | | | | | | | | | | | | | | | |
| Gross Fixed Assets | 6524 | 22928 | 36545 | 41116 | 42258 | 42258 | 42258 | 42258 | 42258 | 42258 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 | 42630 |
| Less Acc. Depr. | - | - | 911 | 2172 | 3677 | 5182 | 6687 | 8192 | 9697 | 11202 | 13079 | 14956 | 16833 | 18710 | 20587 | 22464 | 24341 | 26218 | 28045 | 29972 | 31949 |
| Net Fixed Assets | 6524 | 22928 | 35634 | 38944 | 38581 | 37076 | 35571 | 34066 | 32561 | 31056 | 29551 | 27674 | 25797 | 23920 | 22043 | 20166 | 18289 | 16412 | 14535 | 12658 | 10681 |
| Total Assets | - | - | 37959 | 43725 | 45933 | 42222 | 38635 | 35192 | 32793 | 31303 | 29814 | 27942 | 26065 | 24188 | 22311 | 23903 | 25495 | 27087 | 28679 | 30271 | 30271 |
| Liabilities & Equity | | | | | | | | | | | | | | | | | | | | | |
| Long Term Liabilities | 6524 | 22928 | 36545 | 41116 | 42258 | 38579 | 34788 | 30882 | 26857 | 22700 | 18435 | 14031 | 9494 | 4818 | - | - | - | - | - | - | - |
| Equity | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Retained Earnings | - | - | 1414 | 2609 | 3675 | 3643 | 3847 | 4310 | 5936 | 8594 | 11379 | 13911 | 16571 | 19370 | 22311 | 23903 | 25495 | 27087 | 28679 | 30271 | 30271 |
| Total Equity | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Liabilities & Equity | - | - | 37957 | 43725 | 45933 | 42222 | 38635 | 35192 | 32793 | 31303 | 29814 | 27942 | 26065 | 24188 | 22311 | 23903 | 25495 | 27087 | 28679 | 30271 | 30271 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.2.XIII
Balance Sheet
Low Volume Case
US\$,000

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Assets | | | | | | | | | | | | | | | | | | | | |
| Current Assets | | | | | | | | | | | | | | | | | | | | |
| Cash | - | - | 138 | 147 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Reserves | - | - | 1853 | 3864 | 5925 | 3090 | 172 | 182 | 191 | 200 | 210 | 219 | - | - | - | - | - | - | - | - |
| Total Current Assets | - | - | 1991 | 4011 | 6080 | 3253 | 305 | 0 | 0 | 0 | 0 | 0 | 221 | 219 | 222 | 229 | 231 | 234 | 236 | 240 |
| Fixed Assets | | | | | | | | | | | | | | | | | | | | |
| Gross Fixed Assets | 6524 | 22928 | 35995 | 41101 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42243 | 42695 | 42695 |
| Less Acc. Depr. | - | - | 911 | 2172 | 3677 | 5182 | 6687 | 8192 | 9697 | 11202 | 12707 | 14212 | 15717 | 17222 | 18727 | 20232 | 21737 | 23242 | 25119 | 26996 |
| Net Fixed Assets | 6524 | 22928 | 35084 | 38929 | 38566 | 37061 | 35556 | 34051 | 32546 | 31041 | 29536 | 28031 | 26526 | 25021 | 23516 | 22011 | 20506 | 19001 | 17576 | 15699 |
| Total Assets | 6524 | 22928 | 37075 | 42940 | 44646 | 40314 | 36033 | 34233 | 32737 | 31241 | 29746 | 28250 | 26747 | 25240 | 24328 | 24828 | 25966 | 27142 | 27983 | 28901 |
| Liabilities & Equity | | | | | | | | | | | | | | | | | | | | |
| Long-Term Liabilities | 6524 | 22928 | 35995 | 41101 | 42243 | 38565 | 34775 | 30870 | 26846 | 22698 | 18428 | 14026 | 9490 | 4816 | - | - | - | - | - | - |
| Equity | | | | | | | | | | | | | | | | | | | | |
| Retained Earnings | - | - | 1080 | 1839 | 2403 | 1749 | 1258 | 3363 | 5891 | 8543 | 11318 | 14226 | 17257 | 20424 | 23638 | 24828 | 25966 | 27142 | 27983 | 28901 |
| Total Equity | - | - | 1080 | 1839 | 2403 | 1749 | 1258 | 3363 | 5891 | 8543 | 11318 | 14226 | 17257 | 20424 | 23638 | 24828 | 25966 | 27142 | 27983 | 28901 |
| Total Liabilities & Equity | 6524 | 22928 | 37075 | 42940 | 44646 | 40314 | 36033 | 34233 | 32737 | 31241 | 29746 | 28250 | 26747 | 25240 | 24328 | 24828 | 25966 | 27142 | 27983 | 28901 |

Source: Parsons Brinckerhoff Port of Kismayo Study Team

operation and a strategic reserve of surplus project-generated funds. The latter are substantial at the beginning but soon drop to zero during the amortization period, then increase considerably thereafter. In studies of commercial project feasibility, current assets should be maintained at around 1.5-times current liabilities. In the case of the Kisamyo Port rehabilitation, this would mean that an additional reserve of around six million dollars should be maintained during the amortization period to guarantee the loan payments. In practice, this would take the form of a government guarantee or an equity contribution. This amount has not been included in the financial statements in accordance with showing the minimum funding necessary to keep the project financially viable, and, since the loan would be government to government, specific project reserves of this magnitude would not be in fact necessary. The government would make reserves available to the Somali Port Authority in sufficient amount to, among other things, guarantee the Kismayo loan payments.

Financial Rate of Return

A financial rate of return was calculated for both the high and low cases. The results were 2.7 percent for the high case and 1.8 percent for the low case. These returns represent about 11 percent and 10 percent in current terms, assuming 8 percent inflation rate, which is certainly reasonable, considering the nature of the project. Ports, like highways, are infrastructure projects in which the benefits accrue to the users of the facility, and not the entrepreneur as would be the case with an industrial project. A port, therefore, should try to maximize user benefit by maintaining fees as low as possible. Thus, the financial rates of return are certainly reasonable for an infrastructure project. The user's benefits will be considered in the economic analysis.

Conclusions

The major concern raised by the foregoing analysis is the level of income generated by the port vis-a-vis the financing assumptions. Port fee income alone will not be sufficient to amortize the investment under commercial terms. Raising fees higher in dollar terms, once the recent devaluation has been accounted for, is unrealistic as it would possibly make Kismayo non-competitive with other ports, such as Mombasa. This means that a subsidy would have to be provided amounting to half the investment cost in the low volume case and a quarter of it in the high case to pay the amortization. As mentioned above, the complementary funding could be obtained through a surcharge per metric ton spread over all Somali ports, and/or

direct government subsidy. However, these possibilities would have to be analyzed in terms of projected resources and obligations of the Somali Port Authority.

Finally, the fact is that there are few general cargo ports which earn enough through fees to do more than cover operating expenses and in some cases, depreciation. Port expansion projects are usually government as opposed to user financed. Assuming that port fees at Kismayo are raised to pre-devaluation levels before 1986, they will cover all operating costs, depreciation and part of the debt service under both high and low forecast assumptions. As Kismayo must remain competitive with other ports, raising fees to yet higher levels would certainly not be necessary nor should be recommended.

Shadow Pricing Factors

In preparing an economic cost-benefit analysis of a project, it is important to first change "financial" cost and revenue items which reflect the cost of the factors of production to the entrepreneur, to "economic" values, which indicate the cost of utilization of the factors to the national economy. This is accomplished by the application of a series of weights, called "shadow prices", to the "financial" costs. Traditionally, economists have applied shadow prices only to foreign exchange and labor. Over the past ten years, however, the derivation of the relevant shadow prices has become increasingly sophisticated, taking into account the income distributional effects of project inputs and outputs. The problem with this approach from the practical standpoint is that many developing countries do not have the proper data, which for the most part consists of input-output tables, and even when they do, the calculation of the factors are very time consuming for the project economist. Therefore, if the distributional weights have not already been calculated for the country, the practice is to use "efficiency" shadow pricing, which assumes the distributional weights to be equal to unity.

The following is a summary of the derivation of the shadow pricing factors used in the economic analysis of the Kismayo port rehabilitation feasibility study. Due to the lack of detailed economic data available on Somalia and in accordance with the foregoing, the shadow pricing for the project follows "efficiency" criteria. However, every effort has been made to make the project specific coefficients as realistic as possible.

1. Standard Conversion Factor β

The purpose of the standard conversion factor is to change local currency costs to border prices. It is the inverse of the shadow exchange rate. Normally, the SCF is calculated using the average propensity to consume imports and exports, usually derived from consumer surveys. Since this data was unavailable, a simplified approach was used, given by the following formula:

$$\beta = \frac{M + X}{M(1+t_m) + X(1-t_x)}$$

Where M is imports (CIF)

X is exports (FOB)

t_x , t_m are duties on exports and imports respectively.

The above formula assumes that export demand and import supply are infinitely elastic; that income elasticities are unity; and that the average propensity to consume importables and exportables is reflected in the relative amounts imported and exported. In calculating the SCF, data for the two latest years, 1978 and 1979, was used. Data from further back was available, but rejected due to sharp increases in duty rates which took place in 1978. The basic data are shown below.

| <u>In ,000 So. sh.</u> | <u>1978</u> | <u>1979</u> | <u>Average</u> |
|-------------------------|-------------|-------------|----------------|
| Total Imports | 1,518,944 | 1,804,600 | 1,661,772 |
| Total Exports | 671,033 | 697,800 | 684,416 |
| Import Tariff Revenue | 684,000 | 915,100 | |
| Export Duty Revenue | 16,000 | 12,400 | |
| Average Import Tariff % | 45.0 | 50.7 | 47.8 |
| Average Export Duty % | 2.4 | 1.8 | 2.15 |

Source: Tanzi, et al. 1980. Tax Survey of Somalia. IMF, unpublished.

The resulting SCF=.750. This implies a shadow exchange rate of 1.33 for Somalia, which is probably reasonable, considering the recent devaluation.

2. Unskilled Labor

Unskilled labor for the project will come from farming and urban areas, both Kismayo and Mogadishu. To ensure a steady high quality labor force, the project should pay a premium amounting to about 50 percent of the going unskilled wage. The formula for unskilled labor is

$$SWR_w = \beta \cdot \left(\frac{W_1}{W_2}\right)$$

Where W_1 = market wage
 W_2 = project wage
 β = SCF

The resulting shadow wage rate is 0.50.

3. Skilled Labor

Skilled labor in Somalia is generally in short supply, and will require a premium of about 33 percent to work on the project. The formula is

$$SWR_s = \beta \cdot \left(\frac{W_1}{W_2}\right), \text{ or } 0.56$$

The above labor shadow rates were also applied to port operating labor.

4. Expatriate Labor

According to Somali law, foreigners must receive 30 percent of their salary in local currency, which, it is assumed, would be spent in Somalia. The rest would be received in US dollars and repatriated.

Therefore, the shadow wage rate becomes

$$SWR_f = w - (w - t)\beta$$

where t = amount transferred abroad

w = wage rate

β = SCF

Assuming $w=1$, $t= .7$, then $SWR_f = .775$

5. Imported Material and Equipment, and Exports

The formula for the shadow price of imported material and equipment is

$$SP_m = \frac{1}{1+t_m}$$

However, because all material and equipment will be imported duty free, the shadow price is unity.

6. Local Material and Transport

Local material for the project consists of sand, rock and aggregates. As the source of these materials is free, the main cost involved is transporting them to the job site. As transport is a non-tradable commodity it is necessary to break it down into its components (fuel, depreciation, maintenance, labor, tires, overhead and interest), summing the financial costs per km and comparing them with sums of the same items times their shadow pricing factors. The ratio is .926, nearly unity, due to the high imported cost component. A similar disaggregated method was used for calculating the economic cost of transporting cargo between Kismayo and Mogadishu by road.

7. Local Services and Fees

These items were weighted by the SCF, as their total amounts are not enough to be considered separately.

8. Tradables

All tradable items, such as export animals and fuel, were considered in terms of their FOB/CIF values, therefore needed no special shadow pricing factors.

The following list provides a summary of the principal items included in the economic analysis and their respective shadow pricing factors.

9. Contingencies

The shadow price for contingencies was found by taking an average of the above shadow prices weighted by their participation in the project. The result, 0.919, is significant in that it shows the low participation of local inputs in the project.

Shadow Pricing Factors

1. Summary of Shadow Pricing Factors for Kismayo Port study.

| | |
|--|-----------------------------------|
| 1. Unskilled labor | 0.50 |
| 2. Skilled labor | 0.56 |
| 3. Expatriate labor | .775 |
| 4. Imported material | 1.00 |
| 5. Local material | .926 |
| 6. Fuel | 1.00 |
| 7. Transport road | .926 |
| 8. Export animals | 1.00 |
| 9. Local services, fees, others=SCF | .75 |
| 10. Lighterage facility (construction) | Wtd avg of factors for pier rehab |
| 11. Lighterage facility (equipment) | 1.00 |
| 12. Contingency | 0.919 |

TABLE F3 .I.

Economic Analysis
Scenario #1 No Port Rehabilitation
High Cargo Volume in US\$,000

| Years | Benefits | | | Total Benefits | Costs Port Rehab & Operating | Net Benefits |
|-------|---------------------------|------------------------------------|--|-------------------|---------------------------------------|-----------------|
| | Animal Exports Lost | Animals by Road to Mogadishu | Ship Cargo By Road to Mogadishu* | | | |
| 1984 | - | - | - | - | 6055 | -6055 |
| 1985 | - | - | - | - | 14742 | -14742 |
| 1986 | 11560 | 11 | 3923 | 15494 | 12298 | 3196 |
| 1987 | 12523 | 12 | 4179 | 16714 | 3903 | 12811 |
| 1988 | 12523 | 12 | 4436 | 16971 | 947 | 16042 |
| 1989 | 12523 | 12 | 4693 | 17228 | 1015 | 16213 |
| 1990 | 13486 | 13 | 4949 | 18448 | 1621 | 16827 |
| 1991 | 13486 | 13 | 5242 | 18741 | 2035 | 16706 |
| 1992 | 14450 | 14 | 5572 | 20036 | 1695 | 18341 |
| 1993 | 14450 | 14 | 5902 | 20366 | 1320 | 19046 |
| 1994 | 15413 | 15 | 6269 | 21697 | 1406 | 20291 |
| 1995 | 15413 | 15 | 6269 | 21697 | 1974 | 19723 |
| 1996 | 15413 | 15 | 6269 | 21697 | 2314 | 19383 |
| 1997 | 15413 | 15 | 6269 | 21697 | 1891 | 19806 |
| 1998 | 15413 | 15 | 6269 | 21697 | 1439 | 20258 |
| 1999 | 15413 | 15 | 6269 | 21697 | 1439 | 20258 |
| 2000 | 15413 | 15 | 6269 | 21697 | 1974 | 19723 |
| 2001 | 15413 | 15 | 6269 | 21697 | 2314 | 19383 |
| 2002 | 15413 | 15 | 6269 | 21697 | 1814 | 19883 |
| 2003 | 15413 | 15 | 6269 | 21697 | 1439 | 20258 |
| | | | | Net Present Value | 5% | 159913 |
| | | | | in US Dollars | 10% | 91250 |
| | | | | | 15% | 54384 |

Internal Rate of Return 48.5%

*Assumes 20% empty backhaul

Source: Parsons Brinckerhoff Port of Kismayo Study Team

TABLE E3.II

Economic Analysis
 Scenario #1: No Port Rehabilitation
Low Cargo Volume in US\$,000

| Years | Benefits | | | Total Benefits | Costs Port Rehab & Operating | Net Benefits |
|-------|---------------------------|------------------------------------|--|----------------|---------------------------------------|-----------------|
| | Animal Exports Lost | Animals by Road to Mogadishu | Ship Cargo By Road to Mogadishu* | | | |
| 1984 | - | - | - | - | 6055 | -6055 |
| 1985 | - | - | - | - | 14742 | -14742 |
| 1986 | 9633 | 9 | 3336 | 12978 | 11689 | 1289 |
| 1987 | 9633 | 9 | 3446 | 13088 | 4338 | 8750 |
| 1988 | 9633 | 9 | 3593 | 13235 | 832 | 12403 |
| 1989 | 9633 | 9 | 3666 | 13308 | 874 | 12434 |
| 1990 | 9633 | 9 | 3813 | 13455 | 927 | 12528 |
| 1991 | 9633 | 9 | 3996 | 13638 | 982 | 12656 |
| 1992 | 10597 | 10 | 4143 | 14750 | 2444 | 12306 |
| 1993 | 10597 | 10 | 4289 | 14896 | 1086 | 13810 |
| 1994 | 10597 | 10 | 4473 | 15080 | 1140 | 13940 |
| 1995 | 10597 | 10 | 4619 | 15226 | 1192 | 14034 |
| 1996 | 10597 | 10 | 4656 | 15263 | 1201 | 14062 |
| 1997 | 10597 | 10 | 4693 | 15300 | 2590 | 12710 |
| 1998 | 10597 | 10 | 4766 | 15373 | 1227 | 14146 |
| 1999 | 10597 | 10 | 4839 | 15446 | 1241 | 14205 |
| 2000 | 11560 | 11 | 4876 | 16447 | 1253 | 15194 |
| 2001 | 11560 | 11 | 4912 | 16483 | 1264 | 15219 |
| 2002 | 11560 | 11 | 4949 | 16520 | 3140 | 13380 |
| 2003 | 11560 | 11 | 5059 | 16630 | 1297 | 15333 |
| | | | | | Net Present Value | 5% 109231 |
| | | | | | in US Dollars | 10% 60319 |
| | | | | | | 15% 34215 |
| | | | | | Internal Rate of Return | 37.9% |

*Assumes 20% empty backhaul

Source: Parsons Brinckerhoff Port of Kismayo Study, Inc.

TABLE E3.III

Economic Analysis
 Scenario #2 Lighterage and Animal Berth
High Volume Case in US\$,000

| Years | Benefits | | | | Total Benefits | Costs Port Rehab & Operating | Net Benefits |
|-------|------------------------------|-------------------------|---------------|------------------------------|----------------|---------------------------------------|-----------------|
| | Invest- ment ¹ | Waiting Time Cost | Cargo Lost | Opera- tions ² | | | |
| 1984 | 2970 | - | - | - | 2970 | 6055 | -3085 |
| 1985 | 7611 | - | - | - | 7611 | 14742 | -7131 |
| 1986 | 9976 | 1134 | 1257 | 1380 | 13747 | 12298 | 1449 |
| 1987 | 5706 | 1186 | 1338 | 1408 | 9638 | 3903 | 5735 |
| 1988 | - | 1267 | 1416 | 1436 | 4119 | 947 | 3172 |
| 1989 | - | 1333 | 1496 | 1464 | 4293 | 1015 | 3278 |
| 1990 | - | 1412 | 1576 | 1495 | 4483 | 1621 | 2862 |
| 1991 | - | 1507 | 1669 | 1530 | 4706 | 2035 | 2671 |
| 1992 | - | 1593 | 1772 | 1566 | 4931 | 1695 | 3236 |
| 1993 | - | 1701 | 1874 | 1603 | 5178 | 1320 | 3858 |
| 1994 | - | 1701 | 1989 | 1603 | 5293 | 1406 | 3887 |
| 1995 | 3850 | 1701 | 1989 | 1603 | 9143 | 1974 | 7169 |
| 1996 | 3850 | 1701 | 1989 | 1603 | 9143 | 2314 | 6829 |
| 1997 | - | 1701 | 1989 | 1603 | 5293 | 1891 | 3402 |
| 1998 | -- | 1701 | 1989 | 1603 | 5293 | 1439 | 3854 |
| 1999 | - | 1701 | 1989 | 1603 | 5293 | 1439 | 3854 |
| 2000 | - | 1701 | 1989 | 1603 | 5293 | 1974 | 3319 |
| 2001 | - | 1701 | 1989 | 1603 | 5293 | 2314 | 2979 |
| 2002 | - | 1701 | 1989 | 1603 | 5293 | 1814 | 3479 |
| 2003 | - | 1701 | 1989 | 1603 | 5293 | 1439 | 3854 |

Net Present Value 5% 30530
 in US Dollars 10% 16318
 15% 8655

Internal Rate of Return: 30.2%

¹Infrastructure and equipment

²Labor, fuel, maintenance

Source: Parsons Brinckerhoff Port of Kismayo Study Team

TABLE F3.IV

Economic Analysis
 Scenario #2 Lighterage and Animal Berth
Low Volume Case in US\$,000

| Years | Invest- ment ¹ | Benefits | | | Total Total Benefits | Costs | Net Benefits |
|-------|------------------------------|-------------------------|---------------|------------------------------|----------------------------|------------------------------|-----------------|
| | | Waiting Time Cost | Cargo Lost | Opera- tions ² | | Port Rehab & Operating | |
| 1984 | 2970 | - | - | - | 2970 | 6055 | -3085 |
| 1985 | 7611 | - | - | - | 7611 | 14742 | -7131 |
| 1986 | 9976 | 965 | 1097 | 1303 | 13341 | 11689 | 1652 |
| 1987 | 5706 | 1005 | 1111 | 1319 | 9141 | 4338 | 4803 |
| 1988 | - | 1017 | 1157 | 1328 | 3502 | 832 | 2670 |
| 1989 | - | 1058 | 1179 | 1342 | 3579 | 874 | 2705 |
| 1990 | - | 1111 | 1225 | 1362 | 3698 | 927 | 2771 |
| 1991 | - | 1151 | 1279 | 1378 | 3808 | 982 | 2826 |
| 1992 | - | 1191 | 1327 | 1394 | 3912 | 2444 | 1468 |
| 1993 | - | 1246 | 1372 | 1413 | 4031 | 1086 | 2945 |
| 1994 | - | 1285 | 1429 | 1430 | 4144 | 1140 | 3004 |
| 1995 | 3850 | 1299 | 1475 | 1435 | 8059 | 1192 | 6867 |
| 1996 | 3850 | 1313 | 1487 | 1439 | 8089 | 1201 | 6888 |
| 1997 | - | 1341 | 1500 | 1447 | 4288 | 2590 | 1698 |
| 1998 | - | 1368 | 1524 | 1454 | 4346 | 1227 | 3119 |
| 1999 | - | 1383 | 1547 | 1459 | 4389 | 1241 | 3148 |
| 2000 | - | 1397 | 1560 | 1463 | 4420 | 1253 | 3167 |
| 2001 | - | 1411 | 1573 | 1468 | 4452 | 1264 | 3188 |
| 2002 | - | 1452 | 1580 | 1479 | 4511 | 3140 | 1371 |
| 2003 | - | 1480 | 1623 | 1487 | 4590 | 1297 | 3293 |

Net Present Value 5% 24317
 in US Dollars 10% 12592
 15% 6266
 Internal Rate of Return 26.7%

¹Infrastructure and equipment

²Labor, fuel, maintenance

Sources: Parsons Brinckerhoff Port of Kismayo Study Team

ANALYSIS OF LIGHTERING OPERATIONS

Introduction

If no action is taken to rehabilitate the dock structure it is assumed that it will become unusable in five years. One alternative at that time is to handle certain cargos by lighters which would load and discharge at a shallow draft berth to be constructed just northeast of the existing berth #1 and to construct other facilities to handle petroleum, molasses and livestock.

The analysis of lightering is based on the high and low cargo forecasts for 1990, 1995 and 2000. To carry out this analysis, the following assumptions were made:

Petroleum and molasses would be discharged at the present dock which would be upgraded by the addition of breasting dolphins at the dock face and mooring posts on shore.

Livestock would be loaded at a separate berth, as they do not lend themselves to lightering operations.

The existing channel and basin would continue to be dredged to accommodate the tankers and thereby allow lightering operations to take place in the shelter of the breakwater.

Banana and general cargo operations would be carried out by means of lighters.

For cost estimating purposes, all lightering operations will be handled by 40'X100' barges with approximately 4' loaded draft. The barges would be loaded or unloaded at a shallow draft dock to be constructed to the northeast of Berth 1.

Lightering operations for bananas and general cargo are described below, followed by a description of the livestock operation.

Banana Operation

The cargo forecasts and the regularity of present shipping patterns suggest that there is unlikely to be more than one banana loading operation taking place in the port at one time. It is assumed that as volumes increase the number of days when banana loading takes place, and perhaps the load per ship, will increase. However, it is assumed that operations will be limited to one ship at a time due to the logistics of harvesting and transporting the bananas. This assumption should be valid through 1990 for the high forecast volume and 2005 for the low forecast volume.

Two lighterage berths would be devoted primarily to bananas. The operation would work as follows. Prior to working the ship, two lighters would be loaded with 160 tons of bananas each. When the ship is prepared to load, these two lighters would be moved alongside the ship and loading operations would begin. Concurrently two other lighters would commence loading at the lighter dock. When the lighters were finished at the ship, they would return for loading as required to complete the operation.

The equipment and facilities required for this operation are as follows:

Two lighter berths of 120' length and 4' minimum depth at low water.

Two portable cranes capable of placing a three ton load at the outer extremity of the barge, or as an assumed 50' radius.

Four flat deck steel lighters 40' X 100.

320 steel racks (80 per barge) approximately 5' X 5'. The bananas would be placed on these racks on the lighter dock and removed from them in the hold of the ship to minimize cargo handling.

One tug or push boat of approximately 1000 hp to maneuver the lighters as necessary.

The above listed equipment would be sufficient for a single vessel loading operation.

In addition to the capital, maintenance and fuel consumption of the above equipment, the following operational aspects should be considered:

Extra labor will be required to man the tug, shoreside cranes and lighters. This increased labor has been estimated at two man hours per ton of cargo handled including an allowance for the reduced overall production of the operation compared with present methods.

Adding an extra step in the cargo handling operation will generally lead to increased ship time in port. In the case of the banana operation it is estimated that the lightering will reduce overall loading rates by 20% from 267 tons/day to 214 tons/day. The main causes of the additional lost time are the following:

- Weather or sea conditions preventing or delaying lighter operations.

- Delay waiting for lighters caused by shoreside problems or unavailability of the tug.
- Securing and moving the lighters under the ship's hook including time required to turn the lighters to bring the outboard racks under the ship's hook.

The increased operating costs can be summarized as follows on a per ton basis.

- o Additional labor costs will equal two man hours per ton of cargo.
- o Ship time in port will be increased from 3.75 days/1000 tons to 4.5 days/1000 tons or 0.75 days/1000 tons.
- o Fuel consumption for the two cranes and tug boat will be approximately 2 gallons per ton of cargo.

General Cargo Operations

The general cargo operation can be handled by lighters at somewhat less efficiency than the banana operation. The reason for the reduced efficiency is due to the difference in load size, the non-uniformity of cargo for barge loading and the necessity to either palletize or resling the cargo for removal from the barge.

Four lighterage berths would be devoted primarily to general cargo to keep ships waiting time to negligible levels to up around 1995 for the high volume forecast and 2005 for the low volume forecast. At that time, an additional berth should be added. The operation would work as follows. For outbound general cargo, two lighters would be loaded the day before commencement of ship loading. Each lighter is estimated to hold up to 100 tons of cargo. For inbound cargo, two lighters would be dispatched when the ship was prepared to unload. Lighters would be loaded or unloaded and shuttled back and forth to the lighter berths as appropriate until loading or unloading was completed. For inbound cargo, the ship could sail when the final lighter was loaded leaving the lighter to be unloaded after departure of the ship. The equipment and facilities required for this operation are as follows:

- o Four lighter berths of 120' length and 4' minimum depth at low water to provide the equivalent of approximately three ship berths.
- o Three portable cranes capable of placing a ten ton load at the extremity of the barge, or an assumed 50' radius.

- o Twelve flat deck steel lighters 40 x 100.
- o Two tugs or push boats of approximately 1000 HP to maneuver the lighters as necessary.

The above listed equipment will be capable of working three ships concurrently.

In addition to the capital and maintenance costs and the fuel consumption of the above equipment, the following operational aspects should be considered.

- o Extra labor will be required to man the tug, the shore-side crane during loading and unloading operations. This increased labor had been estimated at two man hours per ton of cargo.
- o As in the case of the banana operation, the ship will require extra time in port due to the lightering operation. Due to the different types of cargo involved, it is estimated that this will add 25% to the time required by the ship by decreasing the effective loading/unloading rates from 150 tons/day to 112 tons/day.

The increased operating costs can be summarized on a per ton basis as follows:

- o Additional labor costs will equal two man hours per ton of cargo.
- o Ship time in port will be increased from 6.7 days/2000 tons to 8.4 days/1000 tons or 1.7 days/1000 tons of cargo.
- o Fuel consumption for the cranes and tug boats will be 3 gallons per ton of cargo.

Finally, lighterage operations always entail a loss of cargo through damage caused by salt spray, exposure to the sun in open lighters, or through accidentally being dropped in the water. For the purpose of analysis, this was assumed to be 1.5 percent of the annual average value of the projected exports and imports handled by the lighters.

Livestock Operations

The ship loading of livestock does not lend itself to a lighterage operation. Currently camels and cattle are loaded

using slings and ship's gear, and the smaller animals, primarily goats, are herded into pens and hoisted onboard ship again using ship's gear. Therefore the basic needs for a livestock loading operation are a holding area, access to shipside, and an area at shipside for the loading of the ship's gear.

It is assumed that berth 2 would be rehabilitated for the livestock berth. Rehabilitation would be performed using the construction recommended for pier rehabilitation. A 600 foot long berth is planned at an estimated cost for construction and engineering of \$12,000,000.

Capital Cost Estimate

The capital costs of the various facilities and equipment for the lighterage port as described in the preceding paragraphs are presented below. Costs of engineering and contingencies are included in each individual item presented.

Estimated Costs of Lighterage

| <u>Item</u> | <u>Cost</u> |
|--|---------------------|
| Shallow Draft Lighter Berths - 720' @ \$10,000/foot | \$7,200,000 |
| Breasting Dolphins & Mooring Posts for Liquid Cargos - 4 @ \$250,000 | 1,000,000 |
| Lighters - 16 @ \$100,000 plus 25% | 2,000,000 |
| Tugs or Pushboats - 3 @ \$800,000 plus 25% | 3,000,000 |
| Crawler Crane - 10 ton capacity - 5 @ \$425,000 plus 25% | 2,700,000 |
| Livestock Berth | <u>12,000,000</u> |
| TOTAL | \$27,900,000 |

Note: Costs of equipment maintenance estimated at 10% of costs of acquisition per year

Costs of facility maintenance estimated at 1% of facility construction costs.

OVERVIEW

Purpose of Social Analysis

In general, a social impact study is designed to spot any problem areas caused by people (e.g. not enough labor to perform the job) or that the project will cause to people (e.g. disruption of their usual way of conducting business). Furthermore, it assesses which of the options being considered (e.g. local procurement vs. international) is likely to be more efficient given Somali circumstances. These factors are directly relevant both to planning in the design phase and to the technical implementation itself.

The study also provides a description of the general social context in which the project will be functioning and identifies the specific ways in which the project will be of benefit to the society.

Outline of Social Analysis

This study is divided into three parts. The first describes the demographic, geographical, and administrative contexts of the port in terms of their scope and major internal features. The second examines relevant cultural characteristics of the direct and indirect beneficiaries. The third presents the conclusions of the study concerning the nature of the impacts on the beneficiaries and the society at large. As in other sectors of the report the impacts are reviewed in light of two alternatives: a) the ideal growth alternative which includes construction of the Bardheere Dam and associated downstream development, and b) the moderate growth alternative which presupposes gradual development along present lines.

Summary of Analysis

Socially and economically, Kismayo draws its importance from its strategic position near the terminus of the Juba River Valley where it functions as a nexus for trade and migration for one of the largest agro-pastoral concentrations in Somalia.¹ Because of this, the population which affects or is affected by the port rehabilitation is larger and more widespread than one might expect; it includes riverine agricultural people, southern Somali pastoralists, residents of villages and semi-urban areas in the Lower and Middle Juba Regions, as well as the residents of Kismayo itself. As agricultural and livestock

1

The other major areas are the Shabelle Valley with the part of the interriverine area it commands, and Margeisa-Borama in the North.

developments expand in the Juba Valley, and as the extent and quality of the road infrastructure increases more people will be drawn into the zone of trade and influence of Kismayo and be affected by improvements there. Should the Bardheere Dam be constructed this effect will be even more dramatic.

The social issues which will predominate during the reconstruction of the Kismayo Port are those relevant to labor dynamics --the availability of appropriate labor from this population, the competition with other Juba industries for scarce skills, the impact on Kismayo social fabric of the influx of Somali and expatriate workers, and the competition with local construction entrepreneurs for contracts. With some foresight and planning all of these issues can be addressed satisfactorily and as a result improve considerably the efficiency and speed with which the port is reconstructed.

The social impacts which will predominate when port operation returns to normal will be more indirect and related to trade rather than labor. The improved port facility could generate a variety of economic changes which, in turn, would reverberate in the social structure as changes in employment patterns, social services, the livestock industry (and through it the pastoral lifestyle) and the socio-political role of Kismayo vis a vis other urban centers.

During both the construction and operational phases the social benefits are judged to outweigh any deleterious effects; and even these "issues" which have been identified can be adequately and effectively resolved through simple preparatory measures.

I. DEMOGRAPHIC AND SOCIAL CONTEXT

This first section is intended to provide a quantitative framework against which the more qualitative social variables, described in the second section, can be analyzed. It sets the geographical and demographic parameters for the study and describes the major administrative structures and demographic processes encompassed within these parameters.

Geographical Area Affected

From the standpoint of trade, the area most likely to be affected during construction and 20 years thereafter given the moderate growth option is the Juba River valley south of Bardheere, the southern rangelands to and sometimes over the Kenyan border, and the coastal zone and islands. With the ideal growth option, the area could, in addition, extend into the upper Juba basin, and encompass a wider portion of land

on the eastern bank of the river, an area which now relates primarily to Baidoa in the north and Jilib or Jamama in the south.

From the standpoint of labor, on the other hand, the catchment area cannot be so clearly defined. Skilled labor can be drawn from throughout Somalia and, conceivably, beyond due to the unusual mobility of the labor force and the noted ability of the Somali extended families to obtain employment information, disseminate it widely, and to consciously deploy their labor resources so as to take best advantage of the opportunities available. Given the appropriate incentive, unskilled labor is available in sufficient quantities for the port reconstruction in the Kismayo trade zone as identified above. Therefore, the geographical area which will be emphasized in this study and identified hereafter as the "Kismayo catchment area" with respect to both trade and unskilled labor recruitment will be the Lower Juba River basin and contiguous areas to the west--the moderate growth option noted above.

Administrative Divisions

Somalia is divided administratively into 17 "regions" which are in turn subdivided into varying numbers of districts. The bulk of the population in the Kismayo catchment area centers on two regions--Lower Juba Region and Middle Juba Region, each having three districts. It is these district subdivisions which are most useful in delineating trade and labor migration areas (see Fig.F.4-I); since the areas most significant for camel productivity (Badhadhe, Afmadow, Boale, and portions of northeastern Kenya) differ from the ones importing and exporting agricultural commodities (Jamama, Jilib, Dujuna). (Figs. F.4-II F.4-III show existing and potential trading areas.) According to the experience of other development projects in the area, labor is most likely to come from the agricultural districts.

As road systems are extended (from Kismayo to Garissa in Kenya and from Jilib to Bardheere, along the river), as planned agricultural projects get underway (Homboi, Saakow, Mugamba), and if the Bardheere Dam is constructed, Gedo Region and portions of Bay Region would become increasingly accessible to Kismayo.

Demographic Features

The population of Somalia as a whole is estimated at 5.14 million as of the end of 1982. (This estimate is extrapolated from 1975 census statistics.)¹ Roughly 1/5, or 1.2 million of this total resides in the area potentially affected by Kismayo. For

¹European Economic Community, Socio-economic Development of Somalia Dec. 1982.

purposes of this study 1.2 million can be considered as the ceiling or maximum number to be impacted given the ideal growth, or "high forecast" alternative.

The lower parameter can be established by only counting those districts which contain agricultural projects and/or population concentrations from which labor might be drawn. In Lower Juba Region this would total 162,898 and in Middle Juba 172,177. The density of the catchment area is presently rather low--4.3 in the range areas rising to 11.0 persons/km² in the settled strips along the river.

The demographic profile of this population shows a pyramid with a very wide base--possibly as much as 55% below age 15. This is in part a reflection of the relatively large number of households consisting only of women with their children which are associated with the Lower Juba agricultural projects and also in part to the low average life expectancy (42 years) which reduces the older adult population sectors. The actual ratio of males to females is not known because of the lack of systematic studies in this area; however, particularly in the Valley it is estimated to be extremely low.

In the Kismayo catchment area the population estimated to be nomadic is 333,000 or 64.4% of the total; the agricultural population is 116,000 at 22.4% of total, and the non-pastoral/non-agricultural population is 68,000 with 13.1% of the total. The rate at which these ratios are shifting is unknown but some change in favor of the agricultural sector is taking place as judged by the changes in statistics over the last 20 years. We do know that changes in these proportions are much influenced by external factors--a) droughts and floods, b) prices for livestock vis a vis agricultural products, and c) differing definitions for nomad, farmer and other members of the agro-pastoral system. All of these factors have implications for labor availability which will be discussed below.

There are no data on the rate of urbanization of the Somali towns such as Kismayo although estimates have been made for the City of Mogadishu and for the country as a whole. The latter indicate an urbanization rate of 4.3%. In the ideal growth model, Kismayo's rate might conceivably approach that of Mogadishu (4.9%). The overall population growth rate in Somalia is estimated at 3.1, the 1968 survey estimate for Kismayo was 4.4%.

Central Place Hierarchy

The major population center for Lower Juba Region as well as for much of southern Somalia is Kismayo. It is

followed in rank by Jamama, Afmadow and Badhadhe--all capitals of districts of the same names. In Middle Juba Region, the major center is Jilib, followed by the district and towns of Dujama/Doale, Saakow, and Baale.

Kismayo district (65,000) and town (35,000) is likely to experience the most direct and intense impact as a result of the port improvements and so its connections, services and government agencies are described in greater detail than for other centers.

At present, Kismayo is said to contain 8,900 stone, concrete block, or wattle buildings used as residences, and public or private business. In 1960, before work began on Kismayo Port, there are said to have been only 200 stone or block buildings. In 1968, 91% of all housing units were still wattle "arishes" according to the household survey of that year. 35% had neither water or electricity; 6% had both. Although current statistics are incomplete, it is the increase in permanent structures which is a particularly noteworthy change and appears to have been stimulated in large part by the initial port construction.

Health services in the District include two inpatient facilities (TB hospital--30 beds; general hospital--100 beds), 6 outpatient centers and 1 MCH clinic. There are 12 physicians, 8 of whom are foreign. The major diseases are: tuberculosis, malaria, bilharzia, and dysentery.

Educational services are provided by 14 primary/intermediate schools, 3 secondary schools, and 1 technical training center. Most students are from trader families. This year, 65% of the primary/intermediate students are female, but the proportion falls to only 30% in the secondary grades. These totals are significantly increased over those indicated in the 1968 Household Survey which reported that 60% of the male population and 91% of the females of Kismayo were illiterate (never schooled).

Water is provided to 2,000 households and 45 public buildings by the Water Agency via a pipeline from the Juba River (13 kms distant). Demand is very high but cannot be met because of insufficient piping and pumping capacity. Some houses have wells (watertable: 3m) which provide brackish water suitable only for washing purposes.

Power is provided to the city by one 825 watt generator; it is not functioning at the present time due to lack of spare parts. 95% of the homes in Kismayo have requested electrical connections, which suggests that very few already have them.

The telephone service has had only 200 lines since it was established in Kismayo in 1974 (100 more may be added in 1984), necessitating that patrons double up. Demand is very high. Long distance service is often interrupted due to maintenance problems at any of the 4 relay stations between Kismayo and Mogadishu, therefore a cable link is being considered for the near future.

Transportation links with the rest of Somalia are provided by a recently completed hard surfaced road to Mogadishu and a twice weekly air service.

Since Kismayo is a regional capital it contains offices of all relevant government ministries, including those of Local Government and Rural Development (Governor), Labor and Social Affairs (regional labor office), Education, Health, and Public Works.

At this time, Kismayo gives the impression of a community caught in a somewhat stagnant phase or plateau after a period of substantial growth. Several of the industries initiated by the government in the last two decades (tannery--96 workers, meat--430 employees, fish--100 employees, box and plastic factories), in an attempt to establish Kismayo as a regional center, are operating at far less than capacity and one (the meat factory) has closed, at least temporarily. This is due to several factors: the higher price available on the private market for animals and skins than what the factories can offer, preference for live meat rather than tinned in Saudi Arabia and elsewhere, the loss of the Russian market, and management strategies which have resulted in purchase of inferior stock.¹ Other government services, such as the Port, appear to be functioning at considerably less than optimum levels due to lack of trade volume and at lowered efficiency due to low employment rates and low pay instituted or continued as cost saving measures. New housing is proceeding slowly. New government industries have been suggested (e.g. salt production) but there are no specific plans yet for implementation.

In the Kismayo private sector, 935 establishments were tabulated by the 1975 census; 16 of these employed over 8 people, and 2 reported over 50 employees. Both large and small establishments have been starting at an increasing rate in recent years (Table F.4.I). Current industries include an ice-making plant and furniture factory; a new fish exporting

¹ John Holtzman, "The Economics of Improving Animal Health and Livestock Marketing in Somalia" June 1982, page 142.

factory and a juice canning factory are planned. Various cooperatives specializing in transport, quarrying, fishing, and other skilled trades are presently operating. There are 120 private fisherman and 2,009 private traders registered.

The informal market of Kismayo has recently suffered with the restriction of franco valuta and the subsequent difficulty in obtaining Letters of Credit. It may also have been affected by the ban on the qat trade. (Field interviews indicate that as many as 700 adults in the Kismayo area may have been involved in the transport, distribution, and sale of the drug.) Although in time the market will probably re-establish itself in some new direction, the current economic atmosphere in Kismayo is somewhat subdued. Indications are, however, that the all-weather road to Mogadishu and the reconstructed port may provide the necessary stimulus for a major new growth phase. And if the Juba River road (Jilib to Bardheere) is completed in the near future, especially prior to any work beginning on the Bardheere Dam, growth will be even further ensured. This road would not only allow importation of building materials and supplies for the dam through the port at Kismayo but would also bring Kismayo into easy reach of the Lower Juba River agricultural industries (especially Juba Sugar Project at Mareere and Fanoale Irrigation Scheme) whose consumer trade is presently constrained by high transport costs and a limited range of goods.

Social Features: Traditional Sector

The population of the Lower and Middle Juba Regions displays greater heterogeneity in terms of historical background, economic base, and various ethnic characteristics than almost any other area of Somalia. In most respects, this diversity is well assimilated due to a variety of traditional and modern arrangements (e.g. social contracts regarding use of fallow or harvested cropland for pastoralists' grazing, indigenous committees for the control of water use, and workers' cooperatives). However, it is helpful to recognize those socio-economic differences which do exist because they represent different skills, work attitudes, and availabilities for wage labor. The population resident in this area can be classified into five groups based on a number of factors common to each. It is important to remember that most represent points on a continuum which shift over time rather than significant ethnic differences.

Settled Cultivators. This group is the only one which has distinguishable ethnic characteristics, since its members derive from immigrants from the agrarian Dantu societies to the south. Its village structure is distinctive, with a chief-type authority pattern which differs from the less

centralized and more individualistic style common elsewhere. The economy is based entirely on agriculture; no livestock is usually kept other than poultry. These farmers reportedly form the core of the banana plantation labor force and are excellent workers. They have been resident in this area for at least two centuries and so have strong ties and a sense of ownership regarding the land. They speak a distinctive dialect which incorporates Swahili and af maymay into the basic Somali.

Settled Cultivators--Nomad Background. Also resident in this region for a considerable period, these groups have their economic base in dryland and irrigated farming in the flood plain. They also raise livestock to some extent, primarily cattle and goats, outside the tsetse area. They live in villages and have long-established traditions of mutual aid groups. They provide some labor to plantations in off-seasons. Some speak "af maymay", a version of Somali most commonly found in Bay Region, or "af jido", an accent characteristic of the lower Juba River.

Itinerant Workers--Nomad Background. These tend to be younger families or individuals who own animals (camels or cattle and small stock), and who may be involved in dry land farming in the areas adjacent to the Valley. During dry seasons or drought periods, they come to work in the fields of relatives in the villages or on the agricultural schemes. They constitute the group most available for wage labor although their experience in working in a highly organized or direct fashion is limited. They are also more exposed to conflicting demands upon their time posed by the exigencies of the agro-pastoral system to which they still remain connected, and so may be unable to be as reliable as wage labor situations demand.

Nomadic Pastoralists. The largest population group in the catchment area are the pastoralists (estimated at 50 percent of the total population of the riverine districts). Their lifestyle and movements are dictated by the grazing and water requirements of their livestock; they may also raise sorghum during high rainfall periods. Although they tend to move within consistent areas where they have relatives and customary rights to water, this pattern is often broken during periods of local or regional drought. At present, with livestock prices high and grazing relatively plentiful due to good rains, there is little incentive to shift outside the livestock sector and seek wage employment. A marginal group exists, however, whose livestock base was so badly damaged during the 1975 and 1980 droughts that they are more likely to be open to agriculture and other lifestyle options than formerly.

Refugees. Several thousand pastoralists who lost their herds during the 1975-76 drought were moved from their home areas in northeastern and central Somalia to Dujuna to undertake farming. Due to soil salinity and other problems, the agricultural experiment was not viable and so many of the refugees moved to the Juba Sugar Project at Mareere to find work. The population has a preponderance of women and children since men have remained in the north to re-establish their herds or have emigrated temporarily. Some cultural conflicts have arisen between the long established agricultural peoples of the area and the newer arrivals.

All these groups are expected to be affected in some measure by Kismayo Port developments because of the nature of their family-based economic system. Even though in some groups families are highly decentralized and widely scattered they maintain economic links among their members, and to varying extents may deliberately allocate the labor and financial resources of the family to different sectors such as trade, pastoral production, agriculture, government service, and wage labor overseas in order to take advantage of the full range of opportunities. Such diversification enables the families to survive in a harsh and variable physical environment as well as to undertake high risk/high gain ventures or long-term investments (e.g. camel production and development of industry) that would be impossible for smaller units to attempt. Because of this, we can expect that those living in the Kismayo catchment area will be highly responsive to any opportunities generated during and after port reconstruction, (provided that policies or other factors do not discourage them from doing so), and any social benefits are likely to be amplified geographically and economically more than in other societies.¹

Social Features: Modern Sector

Administration. Public service is a significant employer within the regional capitals and district centers in the Kismayo catchment area. For example, the following types of workers-- managerial and professional staff (5), clerical staff (106), other technical employees (17), and unskilled workers (33), a total of approximately 161 employees--are employed by the municipality alone.²

Wages for public servants are established by the national labor office for each job category and tend to be far below

¹This system is described in detail in Allan Hoben, et.al. Somalia: A Social and Institutional Profile, mimeographed report to AID, March 1983.

²Ministry of Labor and Social Affairs. National Manpower Resources and Requirement Survey, 1979. p.205.

the cost of living in spite of overtime and allowances. (For example, the position of director of services is paid So. sh. 1,200 to 1,500 per month (So. sh. 60/per day) where the cost of living is roughly 200/per day for a family of 4 to 6.) Public sector employees may be transferred or retained, according to the need of the service. Therefore, although many might prefer to move out of the public sector into private work, they may not be at liberty to do so. It is likely true that almost all government employees have several additional means of support.

Government Projects. There are two major agricultural projects (1-2,000 workers each) under the aegis of the Ministry of Agriculture functioning at the present time on the Lower Juba (Fanoole Irrigation Project and the Juba Sugar Project at Mareere); Mugambo Irrigation Project is under construction, and several others (e.g. Saakow, and the Bardheere Development Scheme) are being planned.

Wages for unskilled workers vary between 15 and 30 So. sh. per day although overtime and bonuses may, in some cases, raise it further. Labor is in short supply at all times for rough jobs such as cane cutting, but particularly so at peak times in the agricultural cycle (e.g. during Gu and Der rainy seasons during planting) when laborers leave to tend their own farms or to work for relatives. Unskilled agricultural workers, like administrative employees, require multiple sources of income. The cost of living in isolated areas, such as Mareere, tends to be much higher than in the towns because adequate markets have not developed there as yet, transportation to town is costly, and the food and consumer goods which are available are marked up drastically.

Turnover tends to be very high (40%) among skilled workers on these projects since the training and experience they receive there enables them to seek overseas work. Benefits, such as housing and formal training, however, do seem to provide incentive for them to stay and have been instrumental in diminishing turn-over to as low as 15% recently at one project.

Working conditions are a major factor in worker satisfaction (although not so important as wages). The Juba River area is notorious for mosquitoes, malaria and hot, humid weather, and so is considered a very undesirable place to work by all except those who are traditionally from the area. In a similar vein, many workers are unaccustomed to the pace and hours characteristic of modern industry; Fanoole, on the other hand, which is being assisted by Chinese, is operating in a much more leisurely fashion and apparently eliciting a more positive response from workers. Women and older children predominate among the unskilled labor on some of these projects. Men command the more skilled technical jobs.

Private Farms. The Italian and Somali fruit plantations have been for some time the major employers in the private sector. 9,500 ha of irrigated land are estimated to be currently under production. Although banana production declined in recent years due to pricing policies, flooding, and other factors, it is now swinging up again and an additional 1,000 hectares and a packaging plant are planned for production in the near future. The demand for labor will increase commensurate with the new developments. Wages in the banana industry are said to be slightly lower than the other projects, averaging So. sh. 10 per day.

Investment in agricultural land in the Kismayo catchment area has been increasing substantially in the last five years. Many of the lessors are people from outside the area who are expecting that the proposed river basin improvements (irrigation canals, flood control measures) and changes in government pricing policies will boost the profitability of agricultural production. In the early 60's, the banana plantations and some small subsistence farms owned primarily by the Swahili-speaking riverine people were the only evidences of private agriculture in the region. (A 1963-64 FAO study reported that these covered 70,000 ha in all--23,000 rainfed, 40,000 flood irrigated, and 2,100 control irrigated.) In 1968, however, a Kismayo resident is quoted as saying "agriculture here is beginning--previously we looked down on it, but now we are compelled to turn to it and respect it out of necessity."¹

The ideal estimate of irrigable land that will be brought into production as a result of the Bardheere Dam is 220,000 ha. The labor force currently in the area is 104,790 according to 1973 calculations by EPRESIT. The additional labor needed to bring these new lands into production will depend on the degree of mechanization employed but has been estimated at 10,490 for 1985, rising to 23,620 by 1990.

¹Ministry of Planning, SDR. Household Survey of Kismayo, 1968.

²Technital Spa, Juba River Development Study, 1977.

II. BENEFICIARIES

Direct Beneficiaries: Construction Phase

The primary beneficiaries during this phase are those who will actually participate in the construction process-- laborers, skilled workers, managers and contractors, and materials suppliers--as well as those who will provide these workers with essential support services (housing, food, medical care).

Unskilled Laborer. Approximately 300 laborers will be required on average (peak work periods may require more) for port construction. The major benefit to them will be employment on a continuous, long-term (2-3 years) basis. Most will be drawn from the Kismayo catchment area, and likely from the immediate vicinity of Kismayo itself. Therefore, most will already have established homes and/or close relatives with whom they will stay.

Based on interviews in the field, a typical "unskilled" laborer in the Kismayo area appears to have the following characteristics. The laborer is generally male and may be of any age between 14 and late 60's. He has no formal education, other than occasionally Koranic school. A laborer over the age of 30 is married with usually only one wife, and when family size is completed, has 5 to 7 children. His wife farms--producing a cash crop of sesame and a food crop of maize on land which the family regards as theirs. Several cows and smaller animals are kept for milk and as an investment or savings. The husband and wife are either from the Juba area or have immigrated at a very young age, usually with relatives. (younger laborers under age 30 or ones less well paid may have postponed marriage due to the cost and may not yet have acquired animals). The average laborer appears to spend very little time unemployed, seeking out a variety of casual laboring jobs in town or on agricultural projects, or by maintaining a side line such as a donkey cart or tea shop. He has no close relatives abroad. He will tend to stay with one employer, even though work is periodic, over a considerable period of time (10-20 years) if working conditions are satisfactory.

Skilled Workers. Approximately 30 skilled workers will be needed. The major benefit to them will be employment at a viable wage and further training and/or experience in their field of specialty. The majority are available in the Kismayo catchment area, although many candidates can be expected to immigrate from other regions.

A typical skilled worker in Kismayo has, at most, primary education if he is over 30 (younger ones may have more). He

has had an average of 3 jobs interspersed with short periods of unemployment which usually last for no more than a few months. He has received his training through formal training courses, apprenticeship in private business, or through experience with one of the larger development projects.

Although family size is similar to that of unskilled workers, the skilled worker is more likely to support additional relatives either in his house or elsewhere. A higher proportion have relatives abroad who remit their salaries in money or goods. Wives and other family members seem to be more engaged in trade than agriculture but almost all have some investment in animals. Since there are more opportunities for them to be employed and since, in some projects they may be employed for a longer period, skilled workers have less need and time for casual labor, although many have some part-time job or trade during off hours (e.g. private mechanic, sheik, builder).

Managers, Contractors, Supervisory Personnel. In addition to financial returns, the major benefit to any local sub-contractors who may be retained will be to provide experience and a "track record" that will facilitate increased Somali involvement in future international contracts. The benefit for higher level Somali managerial and supervisory personnel is the opportunity to be employed within Somalia at a salary scale commensurate with their training and experience rather than emigrating. Since the actual number of local sub-contractors and managerial personnel is decided by the major contractor, we can only estimate the potential number to be enlisted, which could be in this case approximately 5 sub-contractors (building construction and repair, quarrying, transport, labor procurement and concrete finishing) and 10 supervisory personnel (at a ratio of 1:30 workers).

Support Services. In terms of housing, the primary beneficiaries are likely to be hotel owners and staff, landlords with rental property, and to a lesser extent, the construction trades. The benefit to them will be increased revenue during the 3 year project period. The demand for housing will be lowest among the unskilled workers, who presumably will be living in their own homes or with relatives or friends, and highest among expatriate workers, who will require larger houses with more complete amenities. The potential number of housing units required will depend on camp accommodations provided by the contractor.

In terms of subsistence, the primary beneficiaries may well be nomad families, especially women, who will supply the increased demand for milk and meat among all levels of workers (400 workers might require 80 goats per day, for example, additional to what is normally sold in Kismayo). Other beneficiaries will be food retailers, restaurateurs, and owners of tea shops. During the initial port construction, enter-

prising individuals, mainly women, provided food near the job site for the workers. For comparison, workers employed for Kismayo port construction in 1962-66 are shown in Table F.4.II.

Indirect Beneficiaries: Construction Phase

Families. Both immediate and extended families of those employed in port construction will benefit from the project. More funds will be available for basic necessities as well as for school fees, medicine, house improvement, and other special needs. Inflation has been increasing domestic expenditures recently such that some expensive activities such as marriage may have been deferred; increases in income may help to offset this effect.

The number of family members potentially benefiting from construction can be conservatively estimated as 1,550 (based on average nuclear family size in Kismayo district in 1968 of 4.5 and a total of 345 Somali employees).

Merchants and Producers. With additional money circulating in the local economy, we can expect increased investment in the two preferred sectors--livestock and house construction--as well as increased purchase of consumer goods--cloth, utensils, jewelry. With house construction, a range of skilled tradesmen (plumbers, masons, electricians) will benefit. With livestock, the nomadic sector of the agro-pastoral economy will be stimulated. The escalating spiral of indirect benefits make it extremely difficult to enumerate all the livestock traders, spare parts importers, and concrete block makers who represent the producers and merchants potentially affected by the port construction.

Direct Beneficiaries: Operational Phase

Since no major changes in staffing or operations of the port are expected, the beneficiaries after reconstruction can be expected to be the same as those prior to it, that is, port employees (119 permanent staff, 59 daily laborers) and a variety of importers and exporters.

Indirect Beneficiaries: Operational Phase

To the extent that the port construction phase has fostered new industry or on-going activities, there will be expanded opportunities in Kismayo for employment, production, and public service.

If the Bardheere Dam is started, all operations connected with it will benefit from the improved port if the road along the Juba River is completed previously.

III. SOCIAL FEASIBILITY AND IMPACTS

This section reviews the major social issues which are likely to affect either the feasibility of the project or the impact it has on the local population-- these are availability of labor, impact on local industry and commerce, potential for undesirable competition--and suggests ways in which they may be resolved.

Availability of Labor

The most important way that Somali society impacts the project is in its capacity to provide the necessary labor at the appropriate time, in sufficient numbers, and of the requisite skills. The feasibility that this will happen is high for certain categories but low for others.

Unskilled. Unskilled workers are generally considered to be available to the private sector given the higher wage scale or better working conditions which private companies are able to offer. They are usually hired by a subcontractor on a piece-work basis, agreeing to provide a specified amount of work (e.g. such as digging trenches, loading and unloading materials) for a specified wage. The wage in both the private and public sectors works out to be roughly So. sh. 20-35 per day on this basis. (A banana ship, for example, is routinely loaded in 2 1/2 to 3 double shift days, which amount to 200 shillings per worker per ship).

The majority of unskilled labor is available in the Kismayo area and can be enlisted either through the regional labor office or by retaining a private labor recruiter. (Labor recruiters are a new phenomenon in Somalia; although they work in conjunction with the labor office, as required, they have additional advantages: more channels for recruiting workers, speedier service and more rigorous testing of applicants.)

Foreign contractors may be unaccustomed to using women as unskilled laborers; however in Somalia, particularly in building construction and renovation, a high percentage of the laborers will be female. Contractors should ensure that the hiring patterns they typically use do not bias selection in favor of males.

There is no indication as yet that local wage labor is draining too many workers from activities essential to the agro-pastoral system or otherwise inhibiting the productivity of the system. Farmers and herders still (correctly) assess this system as providing the more secure economic base and, consequently, in situations where demands of the wage labor

and agro-pastoral systems are competitive they tend to opt for the latter. This is seen, for example, in the common practice of leaving plantation and wage labor when their services are needed on their own land. When wage labor provides a return which effectively offsets the costs of migrating out of the rural areas and/or of maintaining two households, and which provides sufficient financial security to allow a worker to lessen his dependency on animals and land, the necessary labor becomes available. In other words, long-term contracts, wages in line with the cost of living, and perhaps subsidized housing or medical benefits are important factors in attracting Somali unskilled labor.

Skilled Labor Skilled workers are generally in short supply (although many are being trained on various projects) because they emigrate as soon as they have sufficient experience or when they can afford to do so. A considerable number of highly competent workers, however, have chosen not to leave because they prefer to stay with their families, or dislike the working conditions in the Gulf states. As a result, they may be either unemployed, biding their time in low paying jobs in hopes that something better will appear, or are engaged temporarily in commerce. Skills available in Somalia (but in limited numbers) are:

- o heavy equipment operators (e.g. bulldozers, rock crushers, excavators)
- o light equipment operators (fork lifts)
- o truck drivers
- o crane and hoist operators
- o welders and flame cutters
- o sheet metal workers
- o steel fixers and erectors
- o construction trades (concrete block makers, plumbers, electricians)
- o carpenters and furniture makers
- o reinforced concrete workers and cement finishers

Skills likely to be unavailable in Somalia are:

- o highly skilled metal fabricators

- o specialized welders (argon, ammonia gas)
- o pile drivers
- o mechanics.

Reasonably experienced middle management and good supervisors do exist, but their availability will be determined by the salary being offered.

Skilled labor is usually hired on a long-term contract or permanent basis. Basic wage rates in the public sector vary between 600 and 1500 shillings per month, although various strategems (overtime, allowances, bonuses) are used to increase this to 1-2,000 or more. Rates are very much dependent on the job category and degree of management responsibility required. In the private sector, wages of 2-3,000 shillings per month plus benefits are common, increasing to 4-5,000 for supervisors. For highly skilled workers, foremen, and supervisors, a foreign contractor is, in effect, in competition with firms in the Gulf states; he cannot expect to get the quality of manager or technician he requires at the current Somali rate. Those who have unique skills, that is who are hired as individuals, will need to be paid as individuals rather than according to job categories, which is whatever the value of their services would be on the international market.

Based on the experience of other projects, Somali managers and supervisors contribute greatly to the efficiency of the operation because they are skilled in directing Somali labor. Unskilled and skilled labor alike in Somalia tend to be more independent minded, or internally directed as a result of their nomadic background, than laborers from other types of societies. Consequently working relations between employer and employee greatly affect their productivity and work attitudes.

Competition With Other Industries

The pool of unskilled labor, both employed and unemployed, appears to be sufficiently large and so widely scattered that the number of workers required for port reconstruction would not impact any one industry appreciably should some be enticed away from existing employment. The loss of skilled laborers and managerial staff, however, could be strongly felt--particularly by the nearby Juba Sugar Project (JSP), which invests a significant amount of time (4 years) and money in training. JSP requires roughly 100 skilled workers; currently only 50 are employed, with an additional 50 in training. JSP sets its own wages in consultation with the Ministry of Agriculture and is theoretically responsive to labor market demands.

Government projects, however, are not adaptable and the effect of skilled labor "poaching" by private industry can be to sharply reduce productivity if a critical sector is hit. In order to avoid this, some local industries and contractors are considering a "gentlemen's agreement" by which they voluntarily refrain from recruiting key manpower from another industry. Obviously this is only a band-aid approach to what is a much more complex problem: the policy of holding down wages in the public sector in order to economize and reduce inflation. Private industry can have a beneficial effect on this by paying actual market wages and thereby providing a stimulus to other employers to do the same.

The timing of the project will determine if competition for scarce skills is to become an issue. If it coincides with a major construction project in the Juba area requiring large numbers of unskilled workers, or a project elsewhere in Somalia that requires skilled metal and concrete workers, the wage will need to be higher to attract the necessary labor. At this point, it seems that the likely competitor is Mugambo Irrigation Project on the lower Juba River (the clearing, road and canal construction phase) which is due to begin this fall and extend for 2 years.

Competition Among Contractors

As the private sector increasingly opens up in response to government encouragement, more Somalis are entering various phases and all levels of the construction business. Some off-shore companies and businesses which used to be entirely expatriate-controlled are now shifting to joint venture operations. In these expatriates provide overall supervision and an avenue for scarce foreign exchange for procurement of spare parts and equipment, while their Somali colleagues manage and implement the contracts. Some of these ventures are now carrying out contracts as high as So. Sh. 70 million. In addition, there are a number of internationally recognized Somali-owned companies who are well experienced in civil works. As elsewhere, the management capability of these companies changes over time and so their current competence, specifically in regard to port construction, will need to be assessed.

Social benefits to the local population will tend to be reinforced the more that Somali contractors and other local services are utilized. The benefits also tend to be longer term and developmental by stimulating subsidiary industry and strengthening to Somali private sector.

Increased Demand for Services and Facilities

The influx of expatriates, skilled and unskilled workers from outside Kismayo, plus their families and/or dependent relatives will require more housing, food, and other consumer goods than is presently in demand. The added money in the local economy and increased wage rates will likely stimulate prices to rise in all sectors. Extra pressure will be placed on the already vastly over-burdened power, telephone and water systems. Roads which are now sufficient for moderate semi-urban traffic may need repair and extension to serve the heavier loads.

On the positive side, this will undoubtedly spur more support services, construction employment, small-scale trade, and transport resulting in general economic growth for at least short term. The extent to which this money can be invested in permanent facilities and on-going industry, which is independent of the flow of monies from the outside, will determine its overall long-term impact. Experience from the initial port construction period was that prices and services rose sharply at the onset of the project and then dropped again after it was completed--but not to former levels. Permanent enterprise did not seem to be generated, other than in the livestock sector. The reason that growth was not sustained (although inflation was) is partly due to government policies discouraging private enterprise which were instituted during this period. Another factor, which is common with certain expatriate firms, is that they are so self-sufficient in food, housing and skilled labor that they inject very little into the local economy.

The potential negative consequence, as witnessed by this earlier project, is that food and housing prices might be strongly inflated in the short term, and remain moderately high over the long term without a commensurate gain in productive capacity. This creates most hardship for the more low paid unskilled workers and for government employees on fixed income, with the result that they tend to migrate or to economically diversify more than they might otherwise. Such diversification can result in less concentrated and productive work overall.

The resulting effect can perhaps be mitigated in two ways. First, the contractor can assist by utilizing, to the extent possible, local industries, services and labor at market rates so that their capacity is increased through the investment, and their standards are improved. Secondly, donors can give special attention to follow-up projects that will capitalize on the improved port and/or local services and

limited and in the south is likely to continue so for the near future due to the cost and availability of large trucks and fuel, and the condition of the roads.)

Prior to the creation of Kismayo port, a significant portion of the cattle export from the south appears to have been through Kenya, which probably resulted in a significant loss to the SDR of the export duty revenue.¹ On the basis of these observations, we can say that if the Kismayo port no longer existed, the cattle trade out of southern Somalia would be greatly inhibited and since most of Somalia's cattle are in the south this would constitute a grave blow to the national cattle industry.

Perhaps even more important is the potential of the cattle industry itself, and the possibility for greater use of the port than at present. Since 1974, more than 90% of the hard currency earned from exports of live animals came from sales in Saudi Arabia. Because of this, the tastes and requirements of the Saudis exert considerable influence on Somali production; cattle are becoming increasingly preferred there. Although presently cattle only account for 15-25% of these official earnings, they appear to be increasing, whereas camels which generate only 7% are declining.²

This is borne out as well in field studies of herd composition. In southern Somalia, the ratio of camels to cattle in 1964 was 1.4:1 and in 1973 was 0.5:1. In the north the shift has been even more notable--5.4:1 to 1.8:1. As the JASPA mission points out, this shift is not necessarily unidirectional because it responds to market conditions, weather (during drought, camel and goat resurge), and labor availability, and perhaps also to the implicit encouragement of cattle over camel by expatriate advisors, but it does appear to be a long-term trend.

As of 1981, 79% of the national cattle herd was being raised in the Juba/Shebelle/Interriverine area but only 27.5% of the cattle exports were recorded as leaving through Kismayo. As livestock loading facilities are improved at the port, and as trading links between Kismayo and the agro-pastoral communities in the interior are strengthened with improved roads, the proportion of national livestock exports exiting through Kismayo might well increase significantly.

¹Holyer, J.A. Report to the Government of Somalia on Livestock Development and Marketing. FAO:Rome, 1971. p. 3.

²Holtzman, John. The Economics of Improving Animal Health and Livestock Marketing in Somalia. USAID June 1982, p. 17.

Therefore with cattle increasing in importance and in numbers and with the major cattle-raising areas in the south, a good livestock port in southern Somalia is essential. If Kismayo were not rehabilitated both the existing and the potential industry would be jeopardized.

In the high forecast option, if Bardheere Dam is constructed, Kismayo port livestock exports might well increase since the animals raised in northeast Kenya and most of Gedo Region will be unable to cross the river except at Bardheere and Luuq due to the lake which will be created by the dam. In this case they will likely travel south down the Juba and export via Kismayo, instead of crossing the river in Gedo as they do at the present and exporting via Mogadishu.

Agriculture. Agricultural trade is becoming increasingly dependent on the Kismayo port. The amount of inputs (fertilizer, insecticide, machinery) necessary to sustain the major agricultural projects that are being established would be difficult and more expensive to truck down to the Juba from Mogadishu, as would the bananas and other Juba Valley produce if they were road transported to Mogadishu for export.

If the port were not reconstructed, there would likely be little effect on the Juba Valley subsistence farmers since their inputs and outputs are limited to the immediate area; but there would be a definite negative effect on the government supported projects at, for example, Fancole, Momboi and Mugamba, as well as the large private plantations producing export fruit and vegetables.

If Bardheere Dam were constructed, the importance of the port increases to the extent that the Bardheere Development Scheme is undertaken as planned and that private interests develop new downstream agricultural areas. The produce from these developments could be substantial, especially if government policy allows them to be used for export rather than import substitution. Present and potential trade zones for agriculture and livestock are shown in Figs. F.4-II and F.4-III.

Trade. All of the attention and activity being focused on the port is likely to serve as a "psychological" stimulus to general trade and manufacturing. The effect is apparent already; two businesses have recently moved to Kismayo and plans are being discussed for new industries which are in no way connected with construction or even the port itself. Because the government and donors see the area as important and worthy of investment, others are encouraged to do so as well.

If the port is not rebuilt the opposite effect will occur and an image will be created of an area that is being passed by in favor of others.

If the Bardheere Dam is constructed, with the necessary linking roads, Kismayo might well become a major rural center --much as Hargeisa is in the north. In this capacity it would provide goods and services for constructing the dam and associated development projects, and would function as an urban magnet to immigrants from the agro-pastoral sector. If it receives electricity from the dam, more industrial activity might be generated in Kismayo itself. In other words, instead of Kismayo being primarily a transit center for goods moving in and out of the country, it could become a manufacturing center in its own right.

Conclusions

Feasibility. The project is considered feasible, from the standpoint of unskilled labor availability given that at least a market-level wage is offered. Efficiency will be improved if 1) incentives are provided for quality work (food, bonuses), 2) the contract is for a longer period of time--20 to 3 years, 3) workers are supervised by Somali managers, 4) provision is made for emergency medical care and compensation.

From the standpoint of skilled and managerial staff, the project is also feasible given that a competitive salary is offered. Efficiency can be improved if 1) a 3 month training course is provided to assess and upgrade skills, 2) incentives are provided, 3) opportunities are provided for formal direct consultation and informal contact between contractor and employees.

Impact. The project is judged to have no major negative social impacts given that local subcontractors and skilled labor are used to the maximum extent possible and paid at competitive rates.

Potentially damaging inflationary effects of increased activity can be best mitigated through follow-up developmental activities in the Kismayo area after construction and through local procurement to the extent possible of housing, materials and subsistence needs during construction.

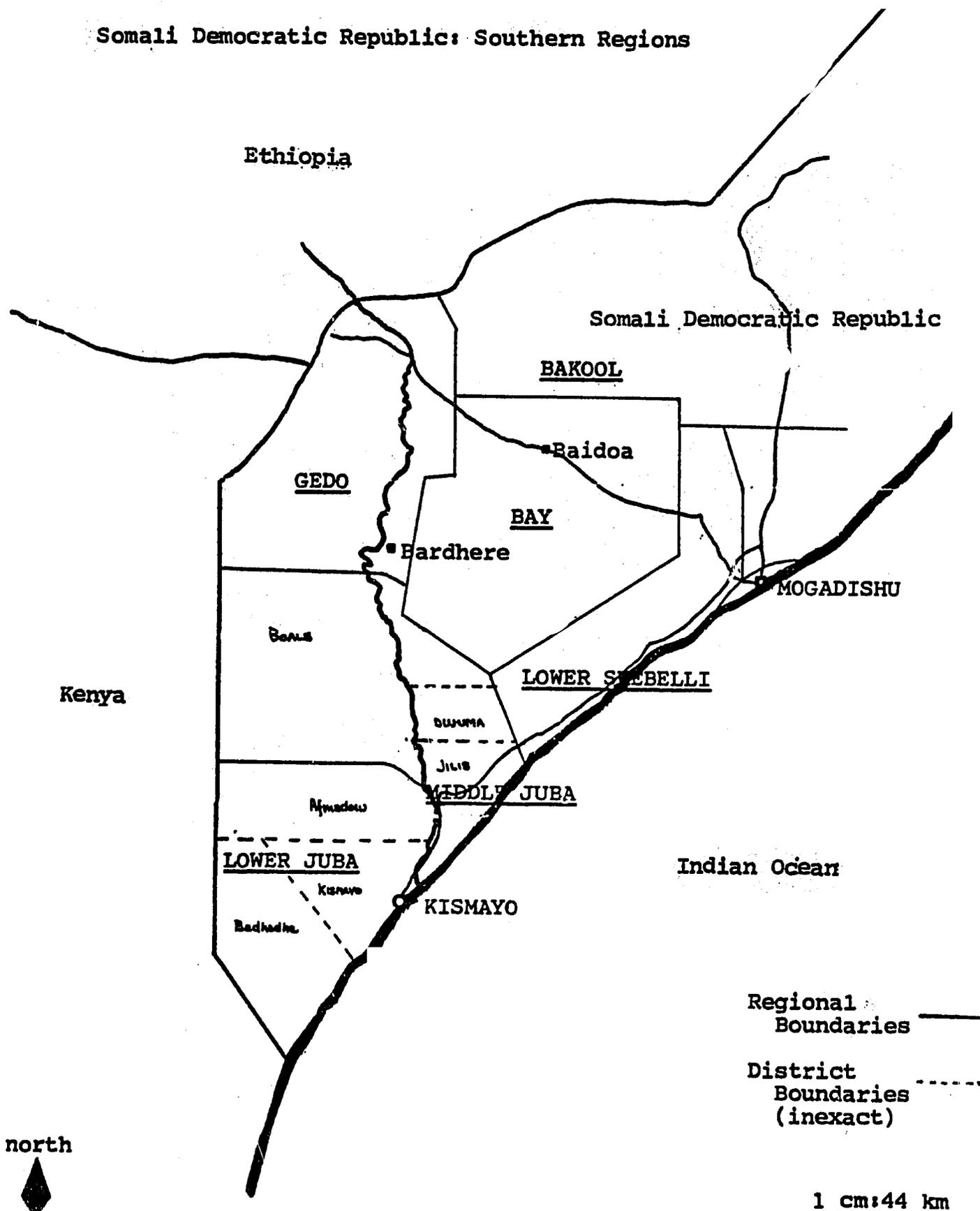
The positive outcomes, on the other hand, are numerous:

- 1) immediate employment for skilled and unskilled workers,
- 2) upgrading of skill levels and experience of skilled workers

and managers, 3) stimulation of the private sector suppliers and construction contractors, 4) encouraging the use of viable wage standards in the Kismayo area, 5) reinforcement and expansion of the southern Somali cattle industry, 6) stimulation of Kismayo to become a regional trade center, with consequent expansion of social services to the rural population.

Figure F4-I

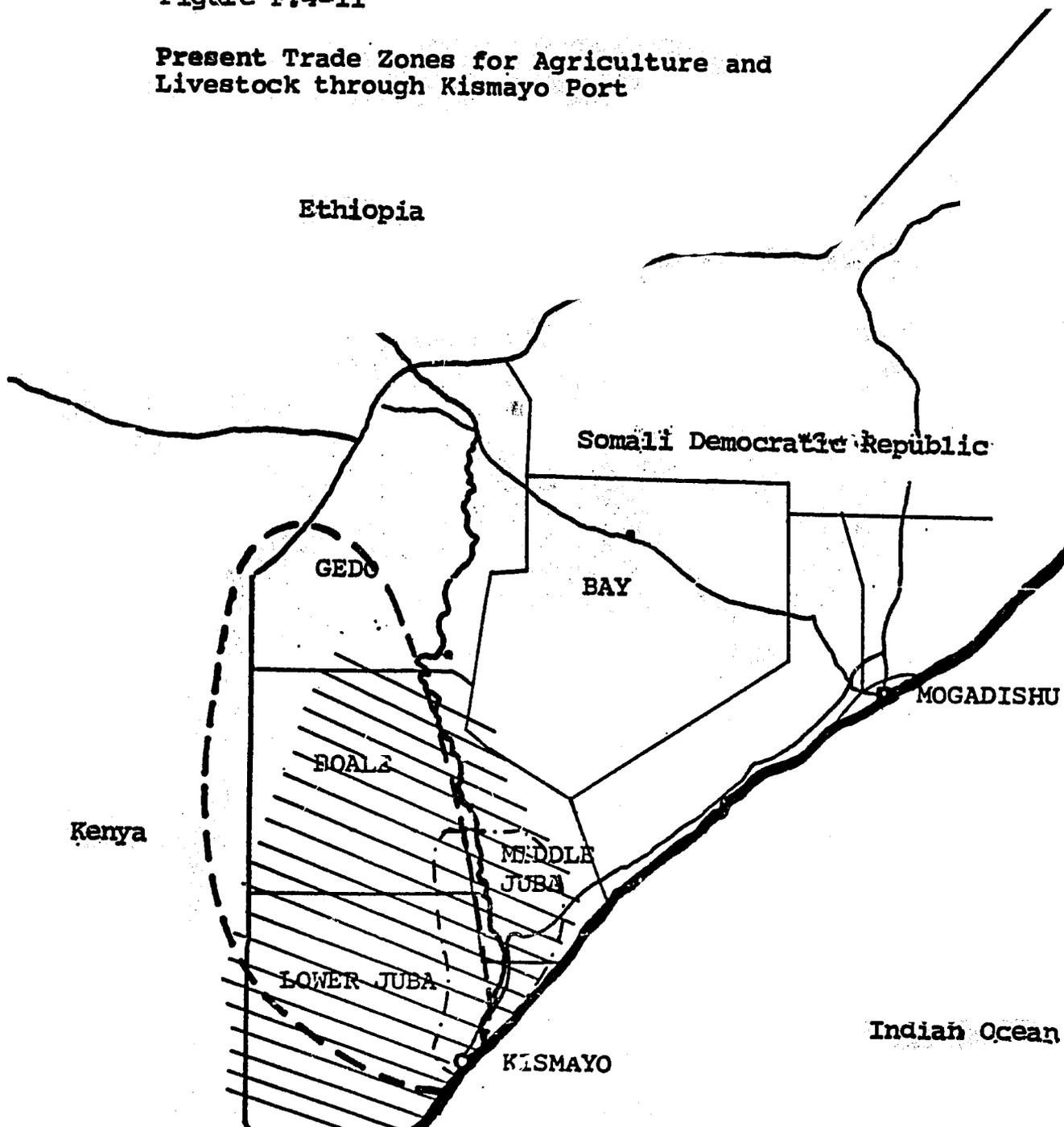
Somali Democratic Republic: Southern Regions



Source: Parsons Brinckerhoff Port of Kismayo Study Team

Figure F.4-II

Present Trade Zones for Agriculture and Livestock through Kismayo Port



north



legend

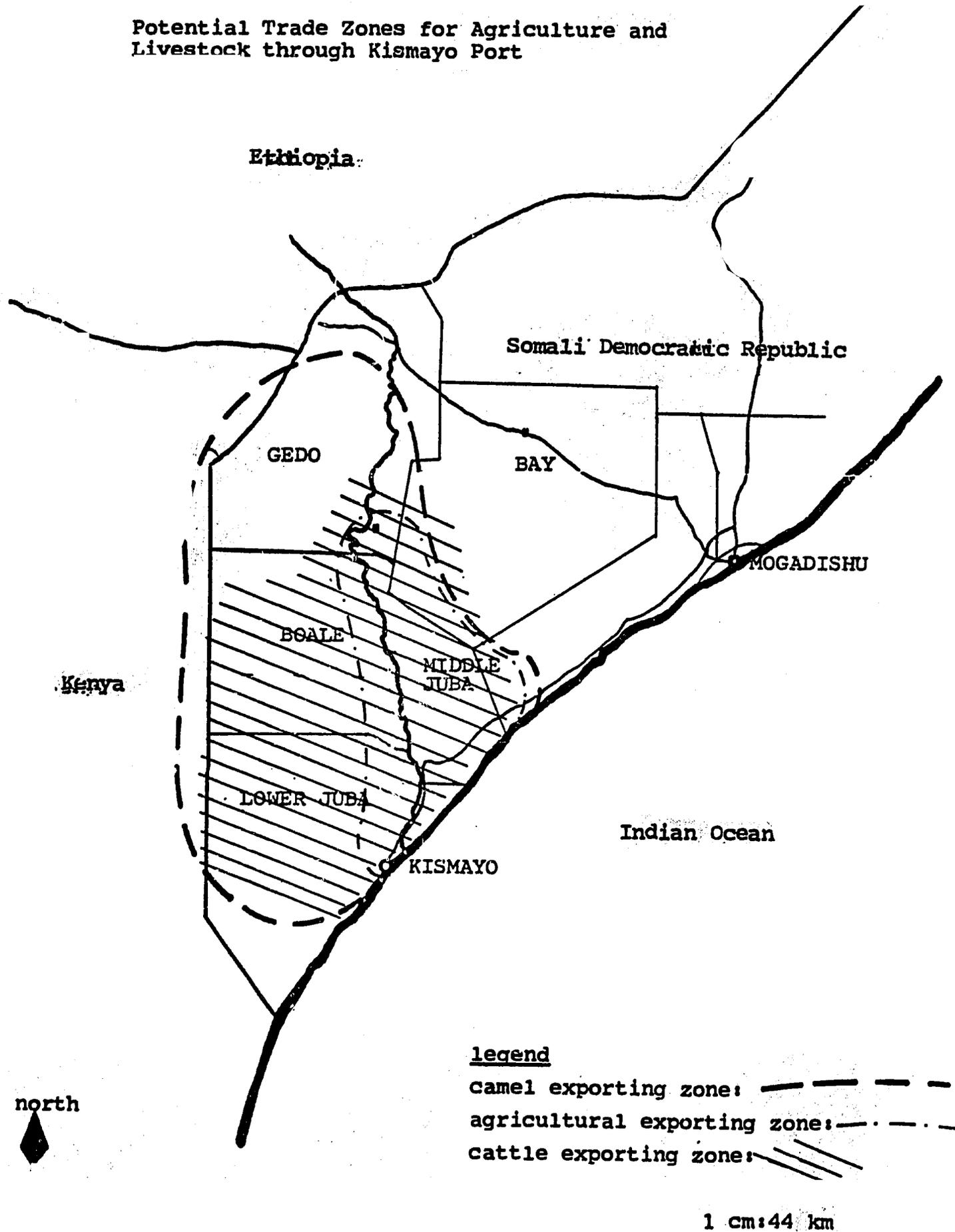
- camel exporting zone: - - - - -
- agricultural exporting zone: - . - . - .
- cattle exporting zone: //

1 cm:44 km

Source: Parsons Brinckerhoff Port of Kismayo Study Team

Figure F.4-III

Potential Trade Zones for Agriculture and Livestock through Kismayo Port



Source: Parsons Brinckerhoff Port of Kismayo Study Team

Table F.4.I

Period of Commencement of Operations of Large and Small Establishments in Kismayo, up to 1978

| Relative Size | Period of Commencement | | | | | | | Not Stated | Total |
|---------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-------|
| | Before 1960 | 1960-1962 | 1962-1965 | 1966-1968 | 1969-1971 | 1972-1975 | 1976-1978 | | |
| Large | 1 | 1 | 1 | 1 | 1 | 6 | 9 | 0 | 20 |
| Small | 20 | 10 | 25 | 25 | 120 | 210 | 390 | 45 | 845 |

Table F.4-II

Workers Employed For Initial Construction

Kismayo Port - 1962 - 1966

| <u>Skilled Workers</u> | | <u>Unskilled Workers</u> | |
|------------------------------------|----|--------------------------|-----|
| Large equipment operators (Euclid) | 7 | Guards | 21 |
| Dynamite blaster | 1 | Camp cleaner | 1 |
| Mechanics | 10 | Laundry boys | 5 |
| Light equipment operators | 8 | Mess boys | 4 |
| Drillers | 5 | Kitchen boys | 12 |
| Electrician | 2 | House boys | 10 |
| Welders | 8 | Laborers | 146 |
| Scaleman | 1 | | |
| Masons | 2 | | |
| Carpenters | 6 | | |
| <u>Semi skilled workers</u> | | | |
| Oilers | 6 | | |
| Assistant mechanics | 8 | | |
| Drivers | 12 | <u>Totals</u> | |
| Tug-boat crew | 6 | Skilled | 50 |
| Safety Inspector | 1 | Semi skilled | 58 |
| Timekeepers | 2 | Unskilled | 199 |
| Marine workers | 16 | Managers | 5 |
| Time checkers | 3 | Total Somali Labor Force | 312 |
| Surveyor Assistants | 3 | | |
| Medical Dresser | 1 | | |
| <u>Managers</u> | | | |
| Labor Foreman | 4 | | |
| Liaison man | 1 | | |

BIBLIOGRAPHY

- Commission of the European Communities, "The Socio-Economic Development of Somalia: 1981-1982." Mogadishu: Mimeo, Dec. 1982.
- Godfrey, Martin. "Manpower Implications of Development in the Juba River Valley, Somalia: A Preliminary Reconnaissance", Aug. 1978.
- Hollyer, J.A. "Report to the Government of Somalia on Livestock Development and Marketing." FAO: Rome, 1971.
- ILO-JASPA. "Wages and Incomes in Somalia" Appendix I. Addis Ababa: June 1981.
- ILO JASPA. Economic Transformation in a Socialist Framework: An Employment and Basic Needs Oriented Development Strategy for Somalia. International Labor Office--Jobs and Skills Programme for Africa. Addis Ababa 1977.
- Impresit. Updating and Revision of the River Valley Development Plan Vol. III. Agriculture, Rome: Impresit, Oct. 1979.
- Ministry of Labor and Social Affairs. National Manpower Resources and Requirement Survey 1978-1983: Manpower Survey Vol. I, August 1979.
- MacDonald, M and Partners, Ltd. Mogambo Irrigation Project: Supplementary Feasibility Study, Main Report 1979.
- Hoben, Allan et.al. Somalia: A Social and Institutional Profile, USAID, March 1983.
- Stephenson, James, Tom Zilla, and Susan Gunn. Juba River Valley Development Baardheere Dam and Downstream Facilities: Engineering Review, Summary of Economic Aspects and Sociological Issues, USAID, Oct. 1982.
- Thornton, Lewis. "Somalia Human Resource Development Support: Source Document", AID, Nov. 1982
- Technital. Juba River Valley Development Study and Plan, Technital SpA: Rome, 1977.

ENVIRONMENTAL ASSESSMENT

Summary

This assessment evaluates the reasonably foreseeable environmental effects, both positive and negative, of the proposed action, and reasonable alternatives to the proposed action, for rehabilitating the Port of Kismayo. The analysis was completed consistent with the requirements of USAID Regulations incorporated in 22 CFR Part 216, Environmental Procedures. The scope of this assessment is based on the attached Scoping Statement developed in accordance with the requirements of 22 CFR 216.3(a)(4), and on the results of extensive coordination with appropriate Somali Democratic Republic ministries and organizations affected by the proposed action (attached).

The Proposed Action, the Sheetpile Bulkhead Alternative, is described in detail in the "Preliminary Design Report for Rehabilitation of the Port of Kismayo," and consists of removal of the existing deteriorated concrete deck and pile caps; cutting off of the existing piles above the water level; driving of reinforced steel sheetpiling approximately 40 feet in front of the existing face of the pier; installing tie rods and deadman anchorages in front of the existing retaining wall; backfilling of the area between the bulkhead and the retaining wall and paving the area; and reinstalling the existing fendering system.

The major impacts of the Proposed Action are:

- o Loss of habitat for marine life due to dredge and fill operations.
- o Short-term increases in turbidity in the vicinity of the construction site and dredging areas.
- o Loss of small amount of habitat for animal and plant life in the vicinity of quarrying operations required to obtain fill.
- o Increase in air pollution and noise levels in the vicinity of the construction site.

None of these effects will have a significant impact on the environment.

Purpose and Need of Project

The Port of Kismayo, constructed in the 1960's, is the principal facility for the export of agricultural products from the Juba River basin. The Port also handles general cargo for the support of agriculture, construction, and the needs of the area population. Tables F.5.1 and F.5.2 summarize import and export shipments for the port during the year 1982. As of May 1983, approximately 13,860 tons of imports and 17,180 tons of exports had passed through the port during 1983. Forecasts indicate a significant increase in shipping activities during the next ten to fifteen years. Cargo forecasts for the year 1985 range between 156,000 and 175,000 tons, and for the year 1995 range between 212,000 and 307,000 tons, substantial increases from the current level of approximately 100,000 tons/year.

The Port's pier structure has severely deteriorated, however, and cannot safely sustain the loads for which it was originally designed. In its present condition the pier is unsafe for cargo operations such as conducted at Kismayo. Without rehabilitation the pier would possibly be used for another five years, but only on a limited basis, with operational efficiency severely curtailed and in a constant risk of a serious mishap. Loss of use of this facility would jeopardize the expected growth of Kismayo and the Lower Juba Valley Region. The purpose of the Preliminary Design Report is to develop a preliminary engineering design for the rehabilitation of the Port facilities to a level of detail that would permit rational decision making concerning the costs, schedule, and overall feasibility of rehabilitating the Port of Kismayo.

Alternatives Including the Proposed Action

This assessment evaluates the following five alternatives for rehabilitating the pier and associated facilities at the Port of Kismayo:

1. Steel Sheetpile Bulkhead Alternative

The Proposed Action. The main features of this alternative include removal of the existing deteriorated concrete deck and pile caps; cutting off of the existing piles above the water level; driving of reinforced steel sheetpiling approximately 40 feet in front of the existing face of the pier; installing tie rods and deadman anchorages in front of the existing retaining wall; backfilling of the area between the bulkhead and the retaining wall and paving the area; and reinstalling the existing fendering system.

Table F.5.1

Imports by Type of Goods to the
Port of Kismayo for 1982

| <u>Type of Goods</u> | <u>Amount (Tons)</u> |
|----------------------|----------------------|
| General Cargo | 6,900 |
| Cement | 8,800 |
| Timber | 700 |
| Iron | 1,900 |
| Cotton | 2,000 |
| Autos | 400 |
| Fertilizer | 2,900 |
| Bunker Fuel | <u>13,400</u> |
| Total | 36,800 |

Source: Kismayo Port Authority. May 1983

Table F.5.2

Exports by Type of Goods From
the Port of Kismayo for 1982

| <u>Type of Goods</u> | <u>Amount (Tons)</u> |
|----------------------------|----------------------|
| Bananas | 23,900 |
| Livestock | 12,900 |
| Molasses | 19,400 |
| General Cargo ¹ | <u>2,400</u> |
| Total | 58,600 |

¹Hides and skins, canned meat, and others

Source: Kismayo Port Authority. May 1983

2. Master Pile Bulkhead Alternative

A structural alternative. The main features of this alternative include removal of the existing deteriorated concrete deck and pile caps, cutting off of the existing piles above the water level, installation of master pile bulkhead along the face of the existing pier, deadman, and tie rods; placement of sand fill behind the master pile bulkhead. The present fendering system is retained.

3. Concrete Block Wall Alternative

A structural alternative. The main features of this alternative include removal of the existing deteriorated concrete deck and pile caps, cutting off of the existing piles at the water level, construction of a gravity wall composed of unreinforced precast concrete blocks on a prepared gravel or stone base about 40 feet in front of the existing face of the pier, placement of stone and sand fill behind the gravity wall, and installation of a deck on top of the fill and new dock fenders.

4. Steel Sheetpile Cell Concept

A structural alternative. The main features of this alternative include removal of the existing deteriorated concrete deck and pile caps, cutting off the existing piles above the water level, driving of steel sheetpile cells, filling the cells with sand, placement of sand backfill behind the cells, and installation of a deck on top of the fill. The existing fender system is restored and relocated.

5. No Action Alternative

The continuation of existing practices.

Ancillary Items

In addition to the actions required for the direct rehabilitation of the pier structure, each of the alternatives includes a number of actions needed for efficient operations of the port. The same actions are included in all structural alternatives. They include:

- o Installing roll-on/roll-off ramp for berth 3, to provide for more efficient livestock handling.
- o Installing two new mooring dolphins, one to replace the existing deteriorated dolphin at the end of berth 4, and a new dolphin at the inshore end of berth 1, to facilitate tanker berthing.

- o Dredging approximately 30,000 cubic yards of material to provide a channel 100 meters in width and 10 meters deep (9.5 meters minimal project requirement plus 0.5 meters overdredge).
- o Minor repairs to the existing breakwater.
- o Minor repairs to the causeway and access roads.
- o Improvements to restore existing navigation aids to original condition and to provide for nighttime navigation.
- o A variety of improvements to the port's utility systems, including improvements to the existing potable water system, total overhaul or replacement of existing sewage disposal system with new collection and septic tank system, upgrading of the existing electrical power supply system, general provision of interior and exterior lighting for pier buildings and open storage areas, provision of upgraded telephone system, and improvements to the existing cooking and food cold storage facility.
- o A number of repairs to existing port buildings.
- o Minor repairs to area pavements.

Expected Impacts

The primary impacts of the proposed alternatives for pier rehabilitation and ancillary items include:

- o The effect of dredging and excavation.
- o The effect of dredge spoil disposal.
- o The effect of excavation of sand fill and placing new fill.
- o The effect of construction activities on local air quality and noise levels.
- o The effect of construction activities on local traffic and transportation conditions.

In addition, the proposed alternatives will have a number of impacts on the social, cultural and economic conditions in Kismayo. These effects are addressed in separate economic and social analyses for the project.

Affected Environment

1. Location

The Port of Kismayo is located on the coast of the Indian Ocean, approximately 370 kilometers (235 miles) south of Mogadishu (Fig. F.5-1). It is connected to the mainland City of Kismayo by a causeway and Serpenti Island (Fig. F.5-2). The Port is protected from the effects of waves from the Indian Ocean by a man-made breakwater, constructed roughly parallel to the Port's berthing facility (Fig. F.5-3).

2. Climatology

The annual climatic cycle is connected with the occurrence of two monsoons:

- o The Northeast, warm and dry, coming from the Arabian Peninsula, from December to March.
- o The Southwest, cool and wet, coming from the Indian Ocean, from May to September.

These monsoons are reflected in four nominal seasons:

- o Gilal - December to March (dry)
- o Gu - April to June (rainy)
- o Haqai - July to August (dry)
- o Der - September to November (rainy)

Typical weather conditions by month are summarized in Table F.5.3 and Figs. F.5-4, F.5-5 and F.5-6. Mean monthly temperature varies from 26^o to 29^oC, mean relative humidity varies from 76 percent to 80 percent, mean rainfall varies from one (1) mm to 78 mm, and solar radiation varies from 793 cal/sq.cm/day to 895 cal/sq.cm/day. Maximum wind speed is approximately 43 to 44 miles per hour. Wind direction varies with monsoon season.

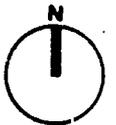
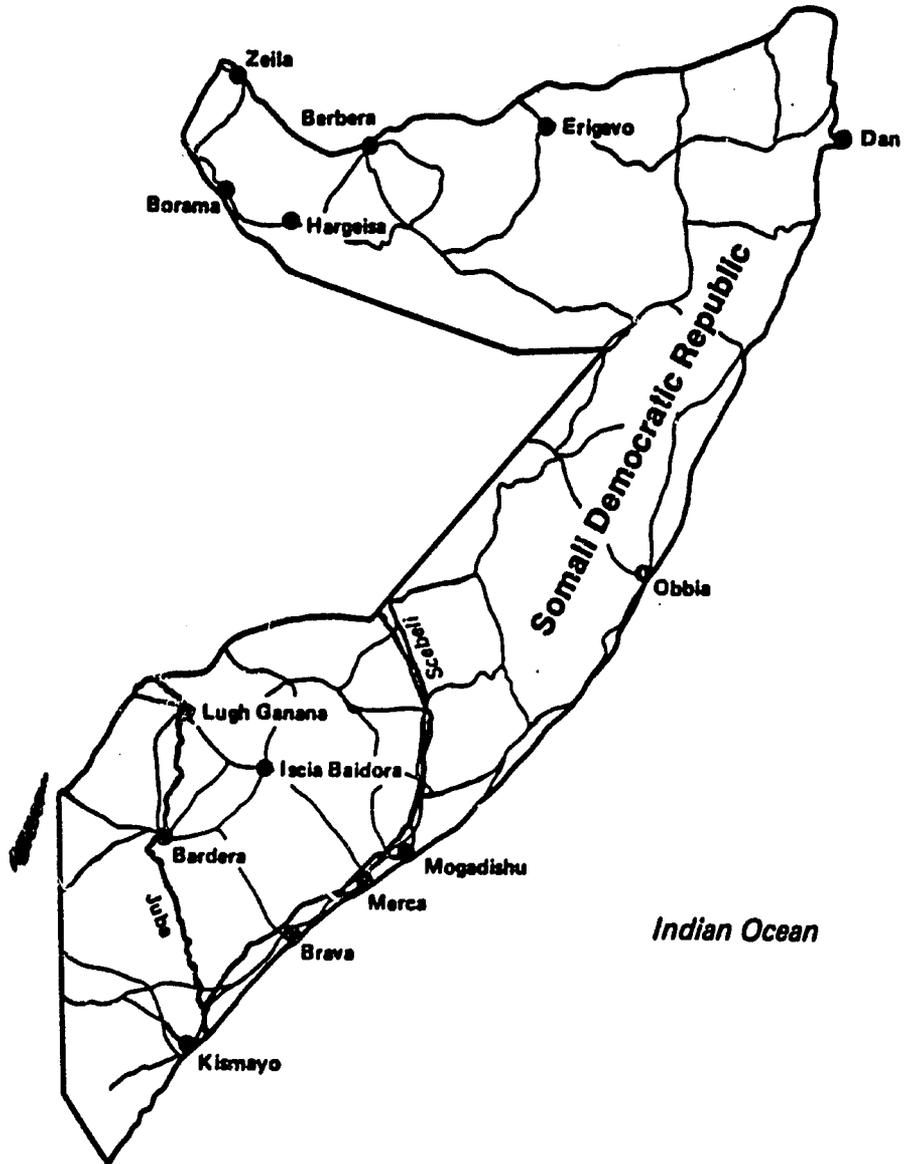
3. Regional Air Quality

Ambient air quality monitoring data for the Kismayo area does not exist. There are no major stationary or transportation-related sources of air pollution in Kismayo, however, and air quality in the region is believed to be excellent.

Location Map

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.

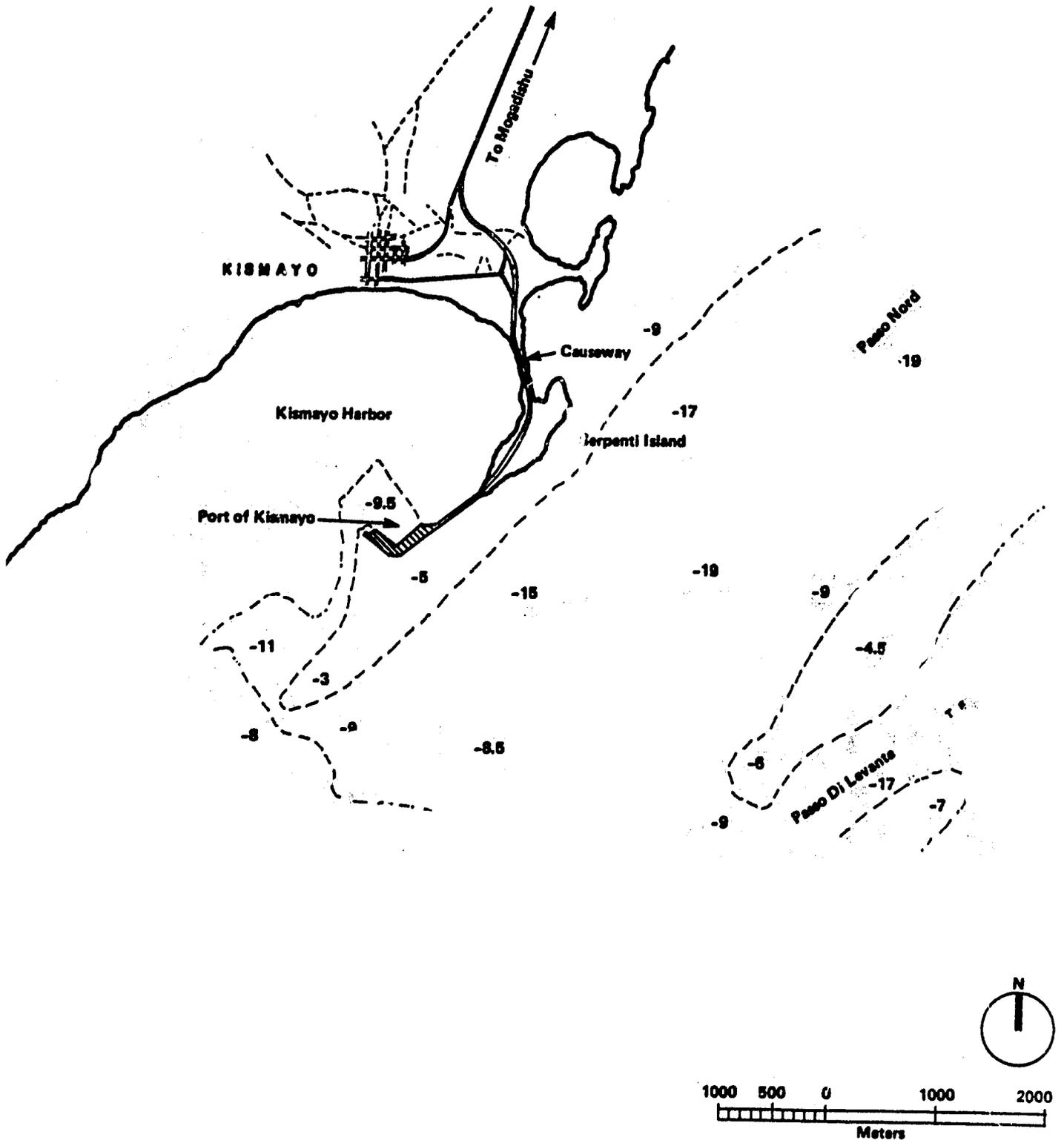


Location Plan

Port of Kismayo Rehabilitation

FIGURE F.5-2

Parsons Brinckerhoff International, Inc.



General Plan

Port of Kismayo Rehabilitation

Parsons Brinckerhoff International, Inc.

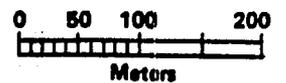
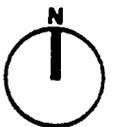
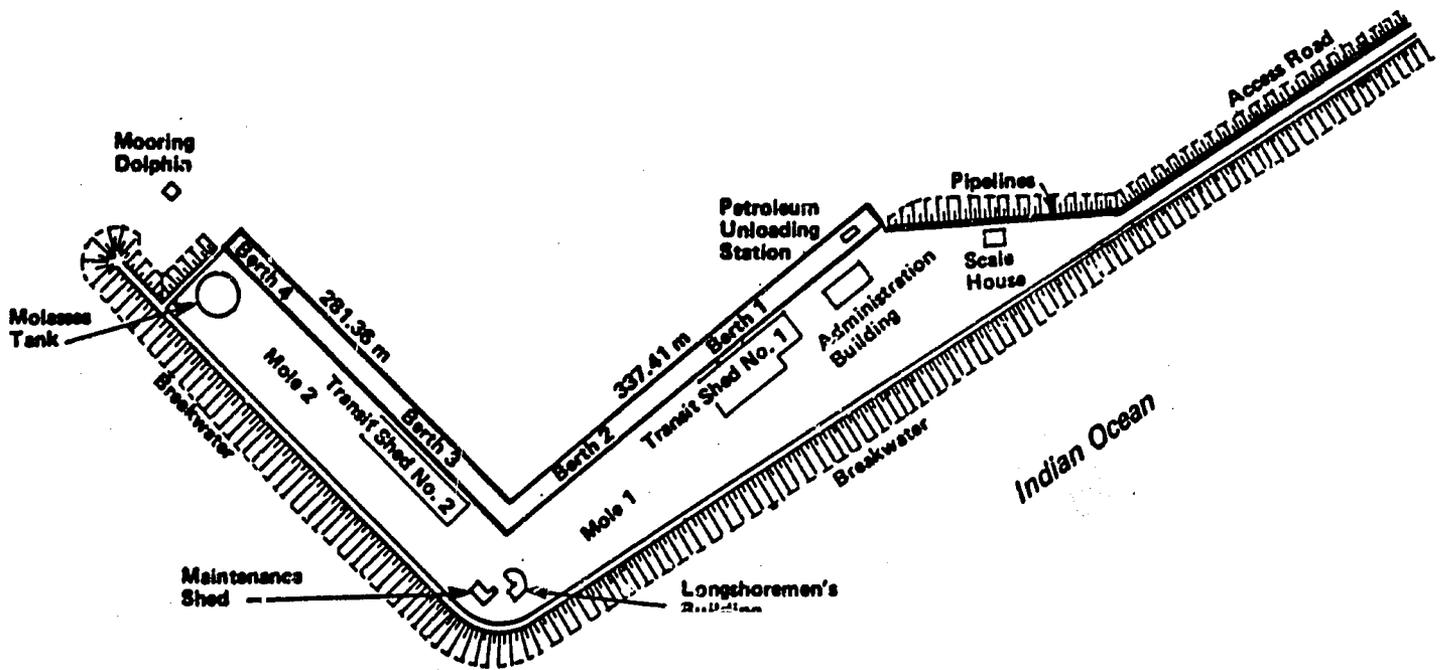


Table F.5.3

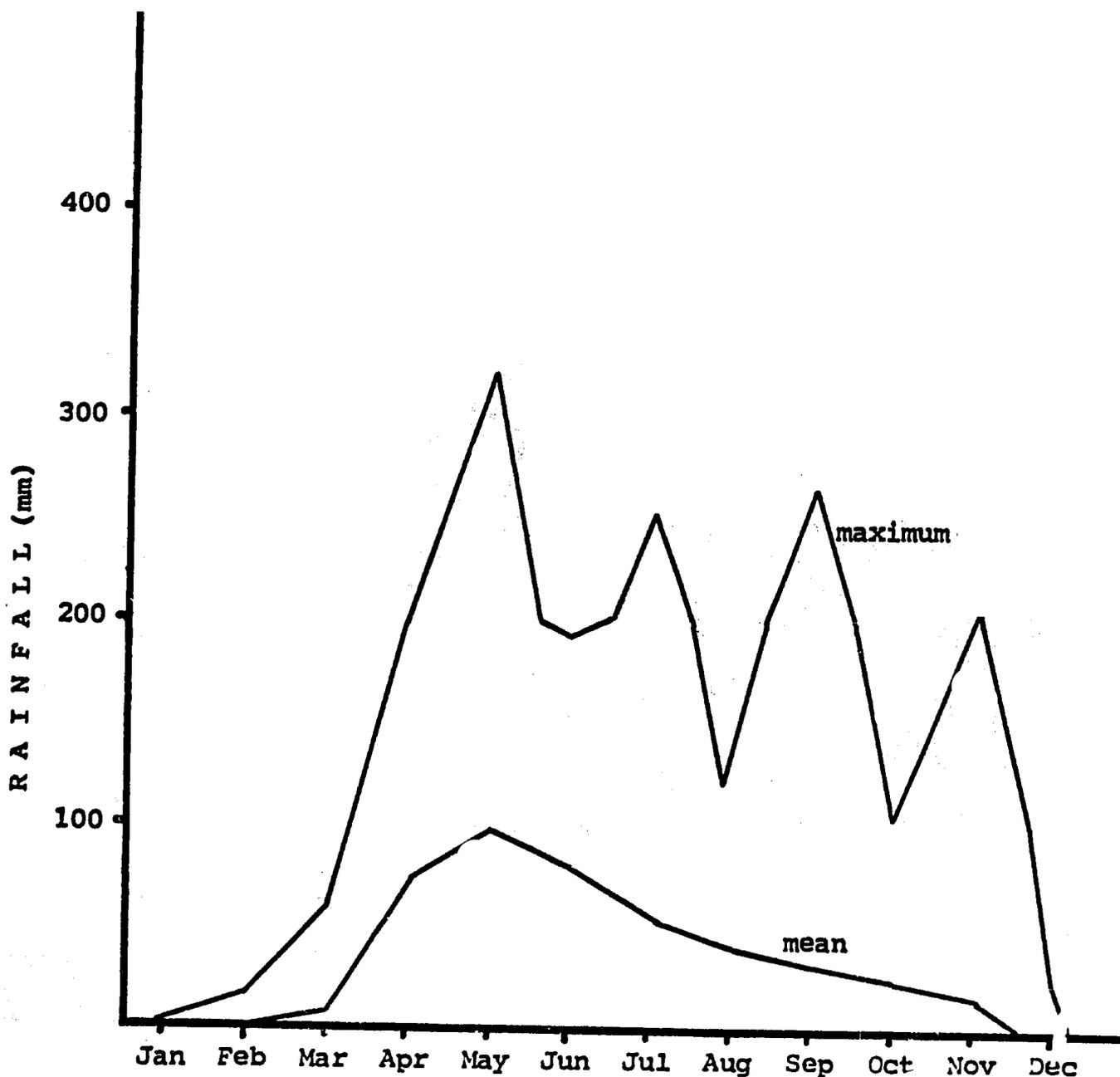
Climatic Features
Kismayo

| Months | Solar Radiation (Cal/Sq.cm/Day) | Temperature °C | Relative Humidity % | Cloudiness (Tenths) | Rainfall (mm) | | | |
|--------|------------------------------------|-------------------|---------------------------|------------------------|--------------------|--------------------|--------------------|---------------------------|
| | | | | | 1953-59 Average | 1953-59 Maximum | 1953-59 Minimum | Longer Periods Average |
| J | 859 | 27 | 77 | 4.6 | 1 | 4 | 0 | 1 |
| F | 887 | 27 | 76 | 4.3 | 0 | 0 | 0 | 1 |
| M | 895 | 28 | 76 | 4.5 | 0 | 0 | 0 | 1 |
| A | 869 | 29 | 77 | 5.2 | 21 | 48 | 2 | 23 |
| M | 823 | 27 | 80 | 5.4 | 78 | 201 | 0 | 92 |
| J | 793 | 26 | 80 | 5.7 | 66 | 139 | 1 | 96 |
| J | 803 | 26 | 80 | 5.8 | 72 | 255 | 2 | 52 |
| A | 842 | 26 | 79 | 5.2 | 9 | 18 | 0 | 17 |
| S | 879 | 26 | 78 | 5.0 | 3 | 10 | 0 | 13 |
| O | 885 | 27 | 78 | 4.8 | 5 | 27 | 0 | 20 |
| N | 862 | 27 | 77 | 4.8 | 5 | 22 | 0 | 7 |
| D | 846 | 27 | 77 | 4.8 | 1 | 8 | 0 | 4 |
| Year | 853 | 27 | 78 | 5.0 | 261 | (453)* | (180)* | 326 |

*These are yearly maximum and minimum value as the monthly value are not coincident

Sources: Updating and Revision of the Juba River Valley Development Plan", Impresit S.p.A., October, 1979.
Italcementi S.p.A., "Bardera Cement Plant Feasibility Study". Prepared for the Somali Democratic Republic. April 1982.

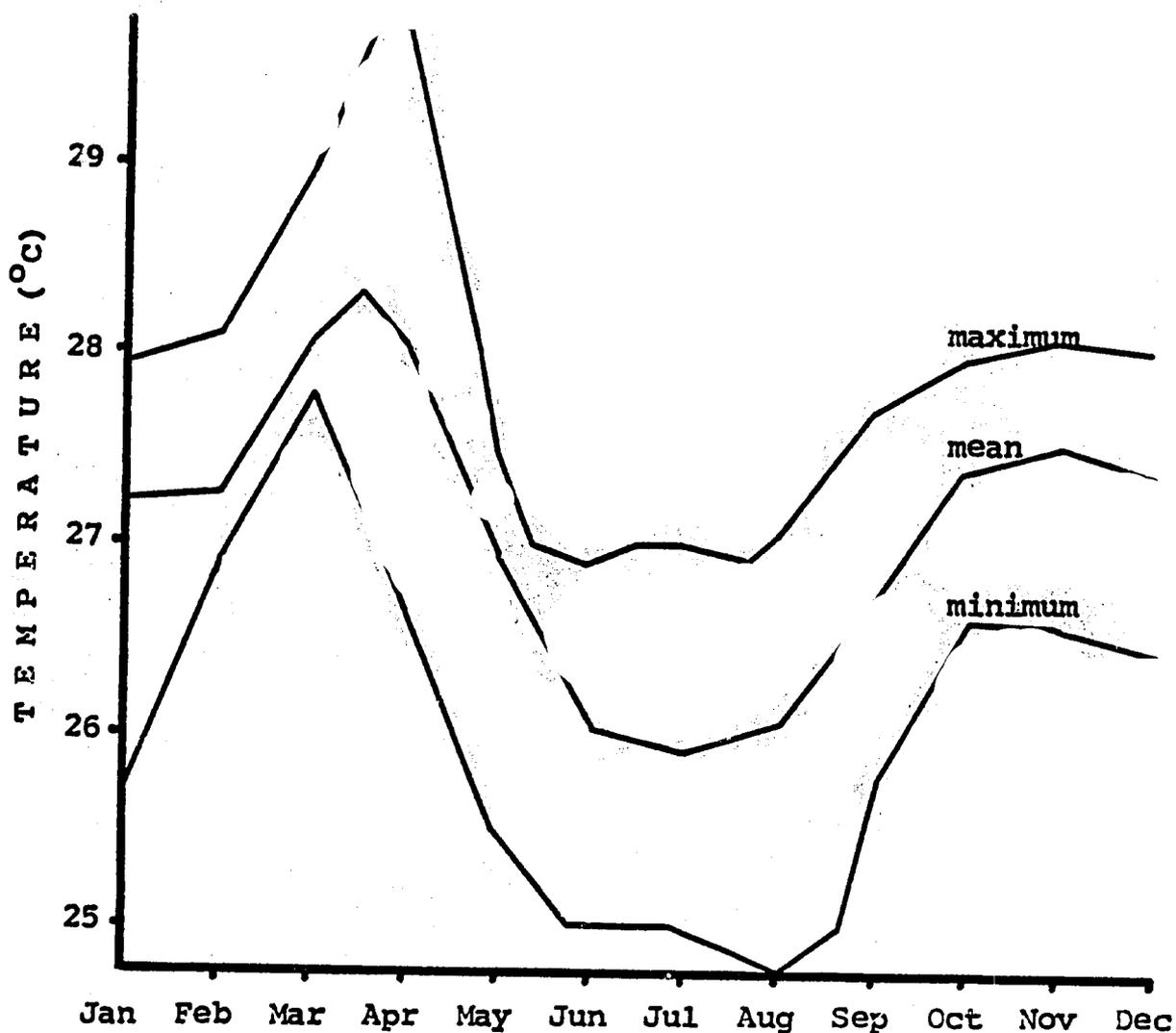
Monthly Rainfall in Kismayo. 1954-1965.



Source: B. Entz, "Report of the Mission for the Pre-Construction Investigations of the Bardhere Dam and Reservoir in the Juba Valley. Environmental Aspects." United Nations Environmental Prog. Nairobi 1982

FIGURE F. 5-5

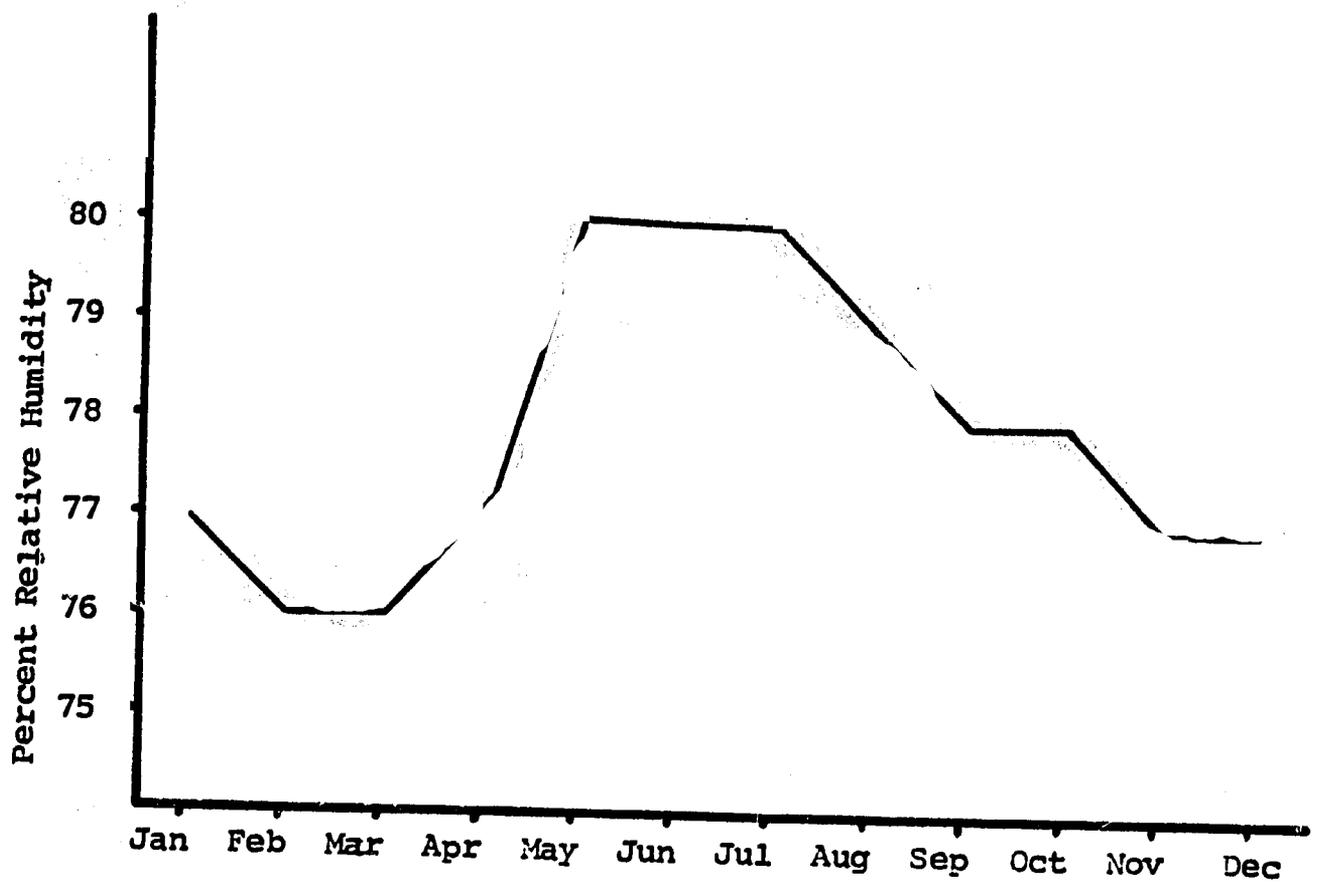
Monthly Temperature Conditions in Kismayo, 1954-1965



Source: B. Entz. "Report of the Mission for the Pre-Construction of the Bardhere Dam and Reservoir in the Juba Valley. Environmental aspects." United Nations Environmental Program, Nairobi 1982

FIGURE F.5-6

Monthly Relative Humidity in Kismayo. 1953-1959.



Source: Impresit, S.p.A. "Updating and Revision of the Juba Valley Development Plan." October 1979.

4. Oceanography

The Somali current, the main ocean current in the vicinity of the port, varies in direction from northerly, during April to October, to southwesterly, from December to February, roughly corresponding to the periods of the two monsoons. The Somali current is strong and relatively constant during the April to October period, with currents generally exceeding 3 knots in May and June, while generally staying below 3 knots during the remainder of the period. Maximum flows during the December to February period normally average 3 to 3 1/2 knots. Tidal levels at the port are summarized in Table F.5.4.

5. Geology and Topography

The Somali Democratic Republic is located within the limits of the structural block of Northeast Africa, the limits of which are defined by the fault of the Gulf of Aden on the north, the Abyssinian fault trough to the west, and the Indian Ocean to the east. The country can be divided into three principal morphological units, the mountainous zone (in the north), the inland plateau, and the coastal planes, on which Kismayo is located. These morphological units are underlain by bedrock composed of three major geologic elements:

- o Crystalline basement, probably of pre-Cambrian age, composed of granites, and complex associations of intrusive and metamorphic rocks.
- o Sediments of Mesozoic and Tertiary Age.
- o Quaternary deposits and recent accumulations of dune sands, alluvium, and coral reefs.

Kismayo is underlain by deposits of tertiary and quaternary age. Sand dunes, mobile as well as fixed, are widely developed in the region and display prominent relief. Coral limestone formations are also locally well developed.

The sands, gravel, and limestone and sandstone rock formations found in the area are quarried and used for road beds, fill, and other construction purposes. Existing quarry sites in the area include the Old Airport Quarry Site, the Control Quarry Site, and the Sheikh Road Quarry Site.

Borings in the immediate vicinity of the Port indicate the following principal strata, listed in order from the surface:

- o Loose gray-black silt and fine sand
- o Medium dense gray fine sand

- o Dense yellow-brown sandy gravel with some silt
- o Medium dense to dense brown silty fine sand
- o Dense to very dense gray-brown fine sand and silt
- o Medium dense yellow-brown gravelly silty sand
- o Coral

On-shore soils are the Solonchak soils association, and are composed of a mixture of sands, gravel and coral limestone.

No information exists on the chemical constituents of the under-water sediments found in the vicinity of the construction site, or at the site of proposed dredging operations. There are no industrial waste water discharges in the vicinity of Kismayo Port, however, nor has there been any recorded chemical or petroleum spills into the surface waters in the vicinity of Kismayo Port. It is, therefore, expected that the sediments do not contain heavy metals, PCB's, or other hazardous or toxic compounds. Untreated domestic waste water, from the port, however, is discharged directly into the surface waters, and the sediments are therefore expected to show significant concentrations of organic matter.

6. Ground Water

Kismayo is located in Somali Hydrogeologic Province 9, Coast of the Indian Ocean. It is underlain by eolian, marine and coral reef deposits of undetermined thickness. Many ground water wells have been sunk in the Somali coastal plain. Most wells are 2 to 3 meters deep (occasionally as deep as 5 to 6 meters) and tap only the upper part of the available unconfined aquifer. Water mineralization is variable, but can be generally characterized as hard to very hard. Water samples from wells in Kismayo have shown a total hardness and chloride content of greater than 1000 mg/liter and higher. The best water is found in dune sands and wells, situated in the mouths of valleys. The capacity of these wells is small, typically 0.2 to 0.6 cubic meter/hour. In wells near the beach, both water quality and water level tend to fluctuate with the tides. Table F.5.5 shows annual well water availability by major region in the Somali Democratic Republic.

7. Surface Water

The principal surface water feature on the mainland in the vicinity of the Port of Kismayo is the Juba River, which enters the Indian Ocean approximately 8 km (5 miles) north of

Table F.5.4
Tidal Conditions - Kismayo

| <u>Condition</u> | <u>Water Level</u> | |
|------------------|--------------------|-------------|
| | <u>Meters</u> | <u>Feet</u> |
| MLWS (Springs) | 3.1 | 10.2 |
| MLWN (Neaps) | 2.1 | 6.9 |
| MLWN | 1.3 | 4.3 |
| MLWS | 0.3 | 0.9 |

Note: Elevations referred to Local Datum

Source: Tide Tables

Table F.5.5
 Annual Water Availability in
 the Somali Democratic Republic -
Deep Wells, Shallow Wells, Rainfall

| <u>Region</u> | <u>Area (Km²)</u> | <u>Number of Wells</u> | <u>Total Water Available (m³m³)</u> |
|----------------|------------------------------|----------------------------|---|
| Northwest | 86,000 | 80 | 25,800 |
| Northeast | 174,000 | 60 | 26,100 |
| Central | 113,000 | 187 | 16,950 |
| Shabelle | 82,000 | 186 | 28,700 |
| Juba | 116,000 | 190 | 40,600 |
| Inter-Riverine | <u>66,000</u> | <u>139</u> | <u>25,400</u> |
| | 637,000 | 842 | 164,550 |

Source: United Nations Conference on the Least Developed Countries. Country Review Meetings. "Country Presentation - Somalia." 1981

the Port. Three rivers in the Ethiopian highlands meet near Dolo to form the 700 km long Juba River. The river has a total catchment area of approximately 330,000 km², of which 170,000 km² is within the Somali Democratic Republic (approximately 27% of the aerial extent of the country). River flow varies dramatically during the year, from over 2,000 cubic meters/second during the Der season, to less than 20 cubic meters/second during the January dry period (see Fig. F.5-7). Zero or negligible flow conditions have been reported in the Lower Juba on at least three occasions during the last 40 years, whereas flood waters from the Shabelle, the other great river, occasionally flows into the Juba during floods.

The quality of Juba River water varies dramatically from season to season, with suspended silt and dissolved salt contents highest during the beginning of the Spring rainy season. Samples taken at Gobuen during flood conditions indicated a total hardness of 150 to 300 mg/liter, and a chloride content of approximately 100 mg/liter. Total annual suspended silt load varies between three and six million tons. The Somali current tends to transport this silty material north or south along the coast depending on the time of year. The Juba River is the primary source of potable water to the City of Kismayo, augmented, on occasion, by several relatively shallow ground water wells located in the immediate vicinity of the City.

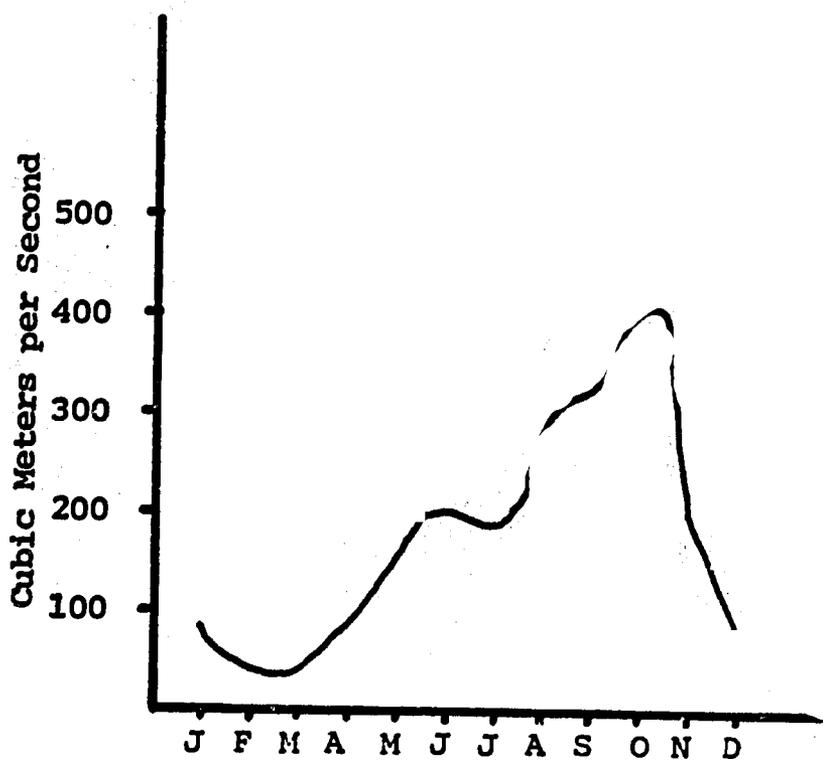
There are no known water quality data available for the surface waters in the vicinity of Kismayo Port. Major sources of pollution in the vicinity of the port are untreated domestic waste water from the Port of Kismayo, sediment transported in stormwater runoff, waste water discharge from the Kismayo fish plant, untreated domestic waste water from the City of Kismayo, and storm water runoff from paved areas in the vicinity of the port, including paved roadways. There are no industrial waste water discharges in the area. There have been no recorded chemical or petroleum spills from the operation of Kismayo Port. Water quality is therefore expected to be generally good, with the exception of localized high concentrations of coliform bacteria, and high turbidity levels during major storm events or during periods of the year when sediment from the Juba River is transported south along the Somali Coast to Kismayo.

8. Aquatic Ecology

A comprehensive published list of marine life does not exist for the waters in the immediate vicinity of Kismayo Port. The coral reef, bay, open ocean, and Kismayo Port structures, however, are thought to provide habitat and breeding

FIGURE F.5-7

Average Water Discharge of the Juba River at Bardhere



Source: B.Entz. "Report of the Mission for the Pre-Construction Investigations of the Bardhere Dam and Reservoir in the Juba Valley. Environmental Aspects." U.N. Environmental Program. Nairobi 1982

grounds for a wide variety of aquatic life similar to that found along the entire Somali Indian Ocean coastal area.

Table F.5.6 lists the major fish species found in the area. Of the species listed, the major marine species taken by local (artisanal) fishermen in Kismayo are lobster, grouper, snapper, lethrinus (bream) species, caranx (yellow fin) species, and siganus.

In 1981, the artisanal fishing fleet of Kismayo was composed of approximately 20 motor boats, 40 sail boats and 9 boats of the Kismayo Fishing Cooperative. Major fish species taken by the Cooperative include grouper, snapper, shark, tuna and mackerel. Depending on tide, wind and wave conditions, fish are caught throughout the area, including in the vicinity of the Port. These fish are mainly taken by gill nets and handlines, though some trawling, beach seines, and diving (for lobsters) is also used.

There are currently (May 1983) approximately 260 fishermen associated with the Kismayo Fishing Cooperative and an additional 120 private fishermen in Kismayo. The Cooperative operates a fish handling and packaging plant in Kismayo with a cold storage capacity of 150 tons, currently being increased to 1,000 tons.

In 1976 total take of fish through large scale commercial fishing in the territorial waters of the Somali Democratic Republic was approximately 3,400 tons of fish and 1,500 tons of lobster. With the withdrawal of the USSR, in 1977, from its joint venture role in SOMALFISH, it is believed that this total was significantly reduced in the immediately subsequent years. By 1980, however, approximately 18 new trawlers and multipurpose vessels were introduced to the commercial fishing fleet, and the current fish catch is believed to have regained pre-1977 levels.

9. Terrestrial Ecology

The dunes and plains in the vicinity of the Port support a wide range of animals and vegetation typical of the region. Animal species found in the area include the dik-dik, baboon, hyena, lizards and other reptilians, and a wide variety of bird and other animal life. The 280,000 cu. yds of fill will be taken from a site to be identified in the Final Design. It will be from a region outside of any wildlife reserve or national park (either existing or planned).

10. Noise

Noise levels in the area of the Port are quite low, dominated by the natural sounds produced by wind, rain and sea.

Table F.5.6

Major Fish Species Found in the Kismayo Area

| <u>Common Names</u> | | |
|---------------------|--------------------------|---------------------------|
| <u>Somali</u> | <u>English</u> | <u>Scientific Name</u> |
| Adashu | Painted Perch | - |
| Afuufuu | Dorcupine | Diodontidae |
| Baran | Sardines | Sardinella Spp. |
| Bidinji (Small) | Yellow Finned Jack | Caranx Sansun |
| Buraad | Ocellated Snapper | Luthianus Vaigiensis |
| Bunshil | Mesel Fish | Luthianus Vaigiensis |
| Carajiif | Red Gilled Bream | Lethrinus Mahsenoides |
| Cafuufuu | Porcupine Fish | Diodontidae |
| Colo-Colo | Guitar Fish | - |
| Dangub | Amber Jack | Caranx Spp. |
| Dambaambiri | Angel Fish | Pomacanthus Spp. |
| Duraniin | Disard Fish | Syngnathidae |
| Duwaami | Blue-Banded Bream | Lethrinus Nebulosus |
| Farango | Ground Dog Fish | - |
| Gamba Ruush | Gar Fish | Belonidae |
| Auri Waay | Red Perch | Epinephelus Fasciatus |
| Jamadul | Cat Fish | Ostariophysi Spp. |
| Kangish | Devil Ray | Manta Biroscris |
| Kingoy | File Fish | Aluteridae |
| Kombilo | Eel-Tailed Catfish | Ostariophysi Spp. |
| Khambiro | Striped Sturgeon Fish | Acanthurus |
| Mingari | Moustache Anchovy | - |
| Okomola | Soldier Fish | Holocentridae Spp. |
| Sorixaas | Sting or Soapy | Leiognathus Spp. |
| Subsaliim | Barracuda | Spiniidae Spp. |
| Sheer-sheerti | Flat Fish | Heterosomatta |
| Shish | Blue and Yellow Bass | Epinephelus |
| Showariburug | Red-Banded Snapper | Tutianus Sebae |
| Tamakri (Large) | Yellow Finned Jack | Caranx Sansun (Canauagus) |
| Tasigat | Blue Spotted Guitar Fish | Dijidensio |
| Yixaas Geesle | Hammerhead Shark | Triaenodon Spp. |

11. Traffic and Transportation

The Port is connected to the mainland by a concrete paved access road which is generally in good condition. Traffic conditions on the roadway can be characterized as light to very light. Sufficient capacity exists for a substantial increase in traffic flow.

12. Utilities

The existing system at the Port are described below. In most cases, the existing utilities have deteriorated or are in need of major repair. A number of the items described under Ancillary Facilities are intended to correct these deficiencies.

The existing port utilities consist of potable water, sewage disposal, fire protection, electrical and telephone systems.

- o Potable Water System. The port is served by the City of Kismayo water system. The piping at the port is in need of replacement due to extensive corrosion.
- o Sewage Disposal System. The toilets and piping which comprise the system are deteriorated, corroded, and mostly inoperative. Sewage is discharged directly to the sea.
- o Electrical System. The port is normally served by the City of Kismayo power plant. As the City's plant does not have enough generating capacity, the port has been disconnected from the system. The port is currently operating using its own temporary 15 KW generator for are lighting.
- o Telephone System. There are three phones at the port. The port system is connected to the City of Kismayo centrex system by cable. A portion of the cable is exposed above ground.

Environmental Consequences

The following evaluation describes the environmental impacts of the Steel Sheetpile Bulkhead Alternative which was selected as the preferred scheme for pier rehabilitation. This scheme is a modification of the Master Pile

Bulkhead Alternative, one of the three structural alternatives evaluated in the Conceptual Design Report for Rehabilitation of the Port of Kismayo.

The impacts of the Master Pile Bulkhead Alternative, and the two other alternatives for pier rehabilitation assessed in the Conceptual Design Report are similar to those associated with the Steel Sheetpile Bulkhead Alternative. The impacts of the three alternatives differ from those associated with the Steel Sheetpile Bulkhead scheme in the extent, rather than nature, of impact, since each alternative includes similar excavation, filling, construction, dredging and dredge spoil disposal activities.

Proposed Action Including Ancillary Items

1. Construction-Related Impacts

The major impacts during construction of the facility will result from fill and construction operations at the port, from channel dredging, from the disposal of excavated materials and dredge spoil, from on-land excavation at the quarry sites, and from truck traffic between the quarries and construction site. The effects of these activities are summarized below:

Surface Water Quality and Aquatic Ecology

- o There will be a loss of habitat for marine life and localized increases in surface water turbidity due to the placement of approximately 280,000 cubic yards of fill and the driving of steel sheetpiles. The existing pilings and the pier structure are used as habitat for a variety of marine species. This habitat is not unique for the species found, however, and the loss of habitat represents only a very small portion of the available habitat in the region. The needed fill operations are therefore not expected to cause a significant impact on the composition, diversity, or density of marine life in the area.
- o There will be a loss of habitat and localized increases in surface water turbidity due to channel dredging. Increased turbidity will reduce sunlight penetration and phytoplankton productivity and thereby negatively affect flocculate planktonic algae and availability of food supplies. The temporary build-up of sediments and the settling of suspended matter will also destroy a limited amount of spawning areas for certain marine species, smother benthic organisms, and reduce bottom habitat diversity. Adverse effects can also be expected

by the resuspension of organic matter through dredging operations which would result in oxygen depletion and, in turn, lead to suffocation of organisms. All these effects will be temporary. There will be no dredging or impact on the coral reef..

- o There will be a temporary reduction in water quality and loss of marine life habitat due to the dumping of dredge spoil material at sea. Approximately 30,000 cubic yards of dredge spoil will be dumped within the territorial waters of the Somali Democratic Republic. The effects of this dumping will be similar to those described above for dredging activities, but due to the relatively small amount of dredge spoil, any impacts will be quickly dissipated through dilution and transport by ocean currents.

Ground Water

- o There will be a potential impact on ground water due to the on-land disposal of excavated material from the port site. Approximately 15,000 cubic yards of material excavated from the port site will be placed in existing, abandoned quarries in the vicinity of Kismayo. Runoff from this material during rain storms could potentially infiltrate the unconfined aquifers. It is not expected that this will be a significant impact, however, due to the infrequent rains in the area and the small amount of excavated material involved. ®

Regional Air Quality, Noise, Traffic and Transportation

- o There will be a short term increase in truck traffic, air pollution, and noise levels during the transportation of the 280,000 cubic yards of required fill from the local quarries to the construction site. During the peak construction period up to a maximum of 250 trucks per day will potentially travel between the quarries and the construction site. This will represent a noticeable increase in local traffic, given the current relatively low levels of traffic in the area. Trucking operations will be limited to daylight hours. Resulting increases in noise and air pollution will be limited to the immediate vicinity of certain major travel routes and will not significantly affect the overall residential community in the area.
- o There will be a short-term increase in noise levels due to driving of sheetpiles and other construction activities. There are no adjacent or proximate popu-

lated areas which would be affected, however, since the facility is a significant distance from the mainland.

Terrestrial Ecology

- o There will be a loss of a very small amount of habitat for animal and plant life in the vicinity of the quarrying operations.

Oceanography

- o The proposed action includes moving the bulkhead of the pier approximately 40 feet in front of the face of the existing pier. This will not have a noticeable effect on the circulation of waters within Kismayo Bay.

Utilities

- o The proposed action and ancillary items include a number of significant improvements to the port utility systems. None of these actions will result in adverse environmental impacts. The improvements to the port domestic waste waters treatment system will result in a significant improvement in surface water quality.

Geology and Topography

- o The proposed action will result in a change in landform at existing quarry sites due to quarrying operations.

2. Operation-Related Impacts

Since the Proposed Action is intended solely to maintain current activity levels and previously programmed growth in port use, there will be no direct long-term adverse impacts of port reconstruction.

Implementation of the ancillary items will have a general long-term positive impact. In particular, the proposed improvements to the Port's sewage treatment system will result in improved water quality in the vicinity of the Port, since untreated effluent is currently discharged directly to the sea. In addition, potable water coming from the City will be treated at the port and will meet applicable drinking water standards.

During the Final Design phase means will be developed to minimize surface drainage discharge into the harbor. This includes preparation of instructions for removal and proper disposal of animal droppings, as well as measures to contain accidental spills or leakages from the petroleum unloading area, pipelines and the molasses storage tank on the pier.

The roll-on/roll-off facilities will generally improve water quality by reducing the time required for livestock to

be held at the port, and the amount of animal refuse that could potentially be washed into the sea during storm events and cleanup operations. Lighting at the port will be upgraded, resulting in improved safety and work conditions.

Other Alternatives

The three structural alternatives to the Proposed Action (the Master Pile Bulkhead, Concrete Block Wall and Steel Sheet-pile Cell Alternatives) would have impacts similar to those to the Proposed Action. The major differences would be in level of impacts, since the amount of excavation, fill and quarrying vary between alternatives (see Table F.5.7).

The Master Pile Bulkhead Alternative would have impacts virtually identical with those associated with the Proposed Action. The type and extent of construction activities required for the two alternatives are extremely similar, each requiring the driving of steel sheetpiles to form a new bulkhead, tying the new bulkhead to a sheetpile anchorage system and placement of similar quantities of fill. The only major difference between the two alternatives is the location of the bulkhead, the bulkhead for the proposed action being approximately 40 feet in front of the face of the existing pier, and the bulkhead for the Master Pile Bulkhead being approximately flush with the face of the existing pier. A slightly lesser amount of marine habitat would be taken with the Master Pile Bulkhead Alternative than with the Proposed Action.

The impacts of the Concrete Block Wall Alternative on water quality and marine life would be slightly greater than those with the Proposed Action, since the Concrete Block Wall Alternative would require a slightly greater amount of on-site excavation than the Proposed Alternative.

The Sheetpile Cell Concept Steel Sheetpile Cell Alternative would have impacts extremely similar to the Proposed Alternative, since the amount of excavation and loss of marine habitat with this alternative is virtually identical to that with the Proposed Action.

The amount, type and impact of channel dredging would not vary between alternatives.

Conclusion

The Proposed Action would have a minimal impact on the environment. The major impacts would be a short term reduction in water quality in the vicinity of the project site, and a small loss of available habitat for the marine species found in the area.

Table F.5.7

Excavation and Fill Requirements for Proposed Alternatives

| | Alternative | | | |
|--|--------------------|------------------------|------------------------|--------------------------|
| | Proposed Action | Masterpile Bulkhead | Concrete Block Wall | Steel Sheetpile Cells |
| Excavated Material Removed from site ¹ (cubic yards) | 20,400/15,000 | 55,200/17,300 | 62,110/57,940 | 7,970/3,800 |
| Fill (cubic yards) | | | | |
| --Excavated material | 13,300 | 37,900 | 4,170 | 4,170 |
| --Sand | 278,000 | 128,200 | 122,000 | 274,030 |
| --Quarry material ² | 5,800 | 18,200 | 113,960 | 0 |
| Total | <u>297,100</u> | <u>184,300</u> | <u>240,130</u> | <u>278,200</u> |

¹Total excavated material less excavated material required for backfill.

²Stone backfill, filter layer material, and material for concrete block wall base.

The Proposed Action would not cause a significant impact on the composition, density or diversity of marine life in the area nor would it have a significant impact on fishing activities in Kismayo. The other structural alternatives would have impacts similar to those associated with the Proposed Action. The No Action Alternative would, however, jeopardize the continued growth of Kismayo and the lower Juba River region.

* * *

This Environmental Assessment was prepared by James R. Brown, Senior Environmental Engineer of Parsons Brinckerhoff International, Inc.

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BIBLIOGRAPHY

Environmental Analysis

- Tippetts-Abbett-McCarthy-Stratton. - "Report for USAID Somalia on Field Technical Surveys for Port of Kismayo Somali Democratic Republic--Draft Final Report", February 1983.
- Lawrence C. Christy. "Fisheries Legislation in Somalia" Regional Fisheries Law Advisory Programme. Indian Ocean Region. Norway Funds-in-Trust. Fisheries Legislative Report 80/1. Food and Agriculture Organization of the United Nations. Rome. 1980.
- Italcementi S.p.A. "Bardera Cement Plant Feasibility Study." Somali Democratic Republic, Bergamo. April 1982.
- Hunting Technical Services Ltd. "Intern-Riverine Agricultural Study." Report prepared for Settlement Development Agency. Somali Democratic Republic. Hunting Tech. Services Ltd. Elstree Way, Borehamwood, Herts WD6 1SB, Great Britain.
- United Nations Development Programme. "Mineral and Groundwater Survey in Somalia--Phase 1." Report prepared by A.I. Ratskov and V. S. Lartsev for the Somali Democratic Republic.
- United Nations Development Programme. "Mineral and Groundwater Survey (Phase 2) Somalia." 1973.
- B. Entz. "Report of the Mission for the Pre-Construction Investigations of the Bardhere Dam and Reservoir in the Juba Valley--Environmental Aspects". Hungarian Academy of Sciences. Biological Research Institute. Tikany, Hungary. Report prepared for United Nations Environmental Programme. Nairobi. 1982.
- Sir M. MacDonald and Partners, Ltd. "Mogambo Irrigation Project. Supplementary Feasibility Study." Cambridge, Great Britain. Report prepared for State Planning Commission. Somali Democratic Republic. August 1979.
- James H. Johnson. "A Conceptual Review of Somalia's Groundwater Resources". Food and Agriculture Organization of the United Nations. Rome 1978.
- Loehnert, E.P. "Geochemical Interpretation and Evaluation of Groundwater in Southwestern Somalia (Upper and Lower Giuba Region)".

22 CFR Part 216. "Regulation 16: Environmental Procedures".
United States International Development Cooperation Agency.
Agency for International Development. Washington, DC.
October 1980.

United States Agency for International Development. "Guide-
lines for Preparation of Initial Environmental Examinations".

Impresit S.p.A. "Updating and Revision of the Juba River
Development Plan." State Planning Commission. Democratic
Republic of Somalia. October 1979.

United States Agency for International Development. "Handbook
3. Project Assistance". Technical Memo 3:43, Washington,
DC. September 1982.

Personal Communications

Personal Communication. Office of the Governor. Kismayo
Region. May 9, 1983.

Personal Communication, K. Kawaguchi, Team Leader/Technical
Adviser, Ministry of Fisheries, Mogadishu, Somali
Democratic Republic, May 7, 1983.

Personal Communication. John F. Arrundale, Managing Director,
Somali Marine Products, Mogadishu. May 7, 1983.

Personal Communication. J. Rosman, ARABCO, Ltd., Project
Manager, Kismayo Fish Plant Construction Project, May 10,
1983.

Personal Communication. Director, Kismayo Fish Cooperative,
May 10, 1983.

Personal Communication. Director, Somali Democratic Republic
Range Agency. May 7, 1983.

Personal Communication. Director, Juba Valley Authority,
Mogadishu. May 4, 1983.

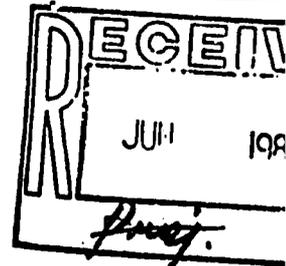
Personal Communication. Director, Kismayo Port,
Kismayo. May 8, 9, 10, 11, 1983.

Coordination With Affected Nation on Preparation of Assessment and Scoping

The scope of this assessment was based on the results of a review of available environmental information for the Kismayo area, a review of the proposed alternatives for rehabilitation of the Port of Kismayo, and communications with a number of agencies and organizations which would be either potentially affected or having jurisdiction over the project. These groups include:

Somali Democratic Republic - Ministry of Fisheries
Somali Democratic Republic - Ministry of Planning
Somali Democratic Republic - Juba Valley Development
Ministry
Somali Democratic Republic - Ministry of Mineral and
Water Resources
Somali Port Authority
Kismayo Fish Collective
Fish Factory, City of Kismayo
Somali Democratic Republic - National Range Agency
Kismayo Fish Plant Reconstruction Project
Somali Marine Products
USAID - Mission to Somalia
USAID - REDSO, Nairobi, Kenya
Kismayo Office of the Governor

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SUBJ KISMAYO PORT ENVIRONMENTAL ANALYSIS

REF: MOGADISHU 3992

BUREAU ENVIRONMENTAL OFFICER APPROVES SCOPING IN
REPTEL. SHULTZ

BT

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ENVIRONMENTAL ANALYSIS--SCOPING STATEMENT

I. Scope and Significance of Issues to be Included in the Environmental Assessment

1. Air quality - non-significant impact; effect of project limited to the effect of air pollutants generated by trucks transporting fill and excavated material, and by diesel-powered construction equipment.
2. Ground water - non-significant impact; effect of project limited to the effect of runoff from potentially contaminated excavated materials disposed of at the abandoned quarry site infiltrating into the ground water.
3. Surface water - significant impact; effects include degradation of water quality due to excavation, steel sheetpile driving, dredging and dredge spoil disposal activities.
4. Aquatic ecology - significant impact; effects include direct loss of marine life, and loss of available habitat for marine life due to filling, dredging, and dredge spoil disposal activities.
5. Terrestrial ecology - non-significant impact; effects limited to extremely small loss of habitat due to on-land excavation at existing quarries to provide fill material.
6. Noise - non-significant impact; effects limited to increased day time noise levels in the immediate vicinity of the project site and near truck routes between the quarry and project site.
7. Traffic and transportation - non-significant impact; effects limited to increased truck traffic along major arterials.
8. Utilities - non-significant impact; effects all positive, including major improvements to sewage disposal, potable water, electrical and phone systems.

Based on above evaluation, the following issues have been identified as "non-significant" and the evaluation of these impacts should be limited to a brief discussion in the Environmental Assessment:

1. Air quality
2. Ground water
5. Terrestrial ecology
6. Noise
7. Traffic and transportation
8. Utilities

There will be no significant variations in the format of the Environmental Assessment as specified in 22 CFR 216.6 (c).

II. Timing of the Environment Analysis

The Environmental Analysis will be completed simultaneously with the preparation of the Project Paper.

It is tentatively planned to complete the Environmental Assessment by July 1, 1983 (the tentative date for completion of the Project Paper for the project).

III. Description of how analyses will be conducted and the disciplines that will participate in the analyses. Major analyses will be completed in the areas of surface water quality, and aquatic ecology. Each of these analyses are described below:

1. Surface water quality:

Available water quality and sediment data for the area in the vicinity of Kismayo Port will be obtained, reviewed, and compared against applicable Somali water quality standards, or against comparable United States standards, in the absence of Somali standards.

An assessment will be completed of the impact of the pollutants generated during excavation, filling, construction, dredging, and spoil disposal on water quality in the immediate vicinity of such activities. This would include assessments of water quality impacts in the immediate vicinity of Kismayo Port and at the proposed dredge spoil disposal site.

2. Aquatic ecology:

Available data on the types and quantities of marine life at or in the vicinity of Kismayo Port will be obtained and reviewed. This data will be evaluated to determine if the area at or near the project site represents a unique habitat for the species found, or if any rare, endangered, or commercially significant species exist at or near the project site.

An estimate of the nature and extent of impact on the marine life identified above due to excavation, filling, construction, dredging and spoil disposal activities will be completed.

3. Other areas of study:

Limited evaluations will be completed assessing the project's impact on air quality, ground water, terrestrial

ecology, noise, traffic and transportation and utilities.

The primary discipline needed to complete these analyses is an environmental engineer.

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA, ACTING**FROM: AFR/DR, Norman Cohen****SUBJECT: Somalia Kismayo Port Rehabilitation Project (649-0114)**

Problem: Your approval is requested for a grant of \$1.5 million from the FY 82 Economic Support Fund to the Government of the Somali Democratic Republic (GSDR) to finance the design of the subject project through the completion of the Project Paper. The entire amount will be obligated by a project agreement in FY 82.

Background: AID's involvement in the construction of port facilities at Kismayo, Somalia began in 1962 when AID granted \$7.5 million to the GSDR for the construction of new deep water port facilities, including the wharf and pilings, waterway improvements and navigational aids. The master plan for this construction as well as power and water for city and port use and other dock and shore facilities, was prepared by Fredrick R. Harris, Inc. under contract to the U.S. Corps of Engineers. Final designs for the basic civil works were prepared by the U.S. Army Engineer Division, Mediterranean, U.S. Corps of Engineers. The U.S. construction contractor was the Paul Smith Construction Co., working under the supervision of the Corps of Engineers.

When construction on the work (designated as Phase I) was approximately 50% complete, the GSDR requested additional assistance for the installation of a water supply system, an expanded power plant, warehouses, POL handling facilities, port handling equipment and a communications systems to service both the port and the city of Kismayo. In FY 1963, AID approved a \$3.5 million loan to construct these complementary facilities (referred to as Phase II). Final design for Phase II was undertaken and completed by Fredrick R. Harris, Inc. The U.S. construction contractor was again the Paul Smith Construction Co. and construction supervision was provided by the U.S. Corps of Engineers. Construction of Phase I was completed in 1967 and work under Phase II was completed in 1970.

Since completion of Phase I, the port facilities at Kismayo, particularly the quays, have deteriorated at an alarming rate. In 1978, the GSDR engaged the British firm of Bertlin and Partners, (B/P) Consulting Engineers, to replace the fendering system and carry out a review of the Kismayo port which would (i) identify the reason(s) for deterioration, (ii) examine alternative methods for the rehabilitation of the port, (iii) recommend the most feasible solution, and (iv) develop plans, specifications, cost estimates and a construction schedule for carrying out that work. According to the B/P report, the principal cause of the rapid deterioration of the port structure was the high chloride content contained in the concrete.

The physical deterioration of the port is continuing at an alarming rate. The GSDR has, on several occasions, requested AID's assistance in rehabilitating Kismayo Port. In response to such requests, AID financed a PASA (costing approximately \$135,000) with Naval Facilities Engineering command (NAVFAC) of the Atlantic Division of the Department of the Navy to review the situation and advise AID concerning the adequacy and accuracy of B/P rehabilitation plan for the port. The firm of Tippetts-Abbett-McCarthy-Stratton (TAMS) under contract with NAVFAC performed such an analysis. The report prepared by TAMS states the following conclusions and recommendations.

"TAMS believes that the original design may have placed the pier in jeopardy and that any solution to rehabilitate the pier which does not deal with its total structural

integrity cannot be entertained. Any attempt to rehabilitate the existing structure does not appear justified unless the soundness of every pile at the ocean bed level is assured by a reasonable sample of a number of piles. In conclusion, TAMS cannot support the proposed rehabilitation scheme prepared by Bertlin and Partners which deals only with the upper structure of the pier structure - a much more basic approach is required; one that will insure a long lived, usable facility. The selected solution has to be right: another technical failure cannot be permitted."

"Therefore, TAMS, subject to geotechnical investigations, recommends the use of a tied-back steel sheet pile bulkhead with hydraulic fill."¹

TAMS, given their assessment of the fundamental causes of the deterioration of the port, recommends that additional surveys and studies be undertaken to develop technically sound methods of rehabilitating the port. USAID/Somalia, REDSO/EA and AFR/DR are in agreement with these recommendations and are hereby requesting funds to perform the desired studies and design work. These studies, surveys and design activities will result in a project paper which clearly defines the problems causing the deterioration of the port and will define a series of options for resolving said problems and rehabilitating the port.

In addition to the technical analysis that has been completed by TAMS and NAVFAC, REDSO/EA and USAID/Somalia have completed some preliminary analyses. A preliminary Cost/Benefit analysis, assuming total construction costs of \$45 million showed an internal rate of return of 25%. The Cost/Benefit analysis is, of course, sensitive to assumptions concerning Bardhere Dam and the development of the lower Juba River Valley.

II. Description of the Project Activities

The purpose for which these funds are authorized is to develop a plan to rehabilitate the Port of Kismayo. This investment will provide the technical information needed to complete an AID project paper and the required technical studies and preliminary design plans and cost estimates on which to base final engineering design and construction plans and documents. The discrete activities to be funded by this authorization are (a) geotechnical and field surveys needed to obtain basic information to prepare a rehabilitation plan of the Kismayo Port; (b) preliminary designs, plans and cost estimates for rehabilitating the Kismayo Port; and, (c) project analyses and documentation required for the review and approval of AID financed projects.

A. Geotechnical Studies and Field Surveys.

This set of studies will provide detailed information on geotechnical and hydrographical conditions of the Port area which will govern the methods used to restore the port, sources and suitability of locally available construction materials (water, sand and gravel) and the location and condition of existing port power and water supply systems, causeway and breakwater. Sufficiently detailed information will be made available by these studies so that final engineering design can be undertaken without obtaining additional field data. It is anticipated that these studies will be performed by the A&E consulting firm of Tippetts-Abbett-McCarthy-Stratton (TAMS) and that these services will

1. NAVFAC/TAMS, Report of the Technical Evaluation of the Rehabilitation Plan for the Port of Kismayo, Somali Democratic Republic, March 1982; pages 27-28.

be procured on the basis of predominate capability. These studies must be completed within the next 4 to 5 months before rough seas will render the data collection task more difficult and costly and so that the information will be available in time to permit preliminary design work to commence promptly. The geotechnical and field surveys are expected to cost \$675,000 including contingency.

B. The preparation of Preliminary Designs, Construction Plans and Cost Estimates for Rehabilitating the Port of Kismayo.

Based on existing engineering studies and surveys and on the geotechnical and field surveys discussed above, a plan for the rehabilitation of the Port will be prepared. The basic rehabilitation plan is expected to utilize an anchored steel sheet pile bulkhead with hydraulic fill. In preparing preliminary plans, designs and cost estimates, alternative engineering designs will be examined and alternative construction/implementation options will be explored. The recommended engineering design and construction/implementation method, major options and cost estimates will be presented in the Project Paper. Included among the options to be treated in the Project Paper are the number of quays to be rehabilitated and remedial work for the port utilities, breakwater, harbor dredging and navigational aids. The task of preparing preliminary designs, plans and cost estimates will be awarded to a competitively selected A&E firm. The estimated cost of procuring these A&E services is \$625,000.

C. The Preparation of Project Analyses and AID Project Documentation.

The preparation of the Project Paper for the rehabilitation of the Port of Kismayo will be the culmination point of this authorization. Standard AID project analyses will be required to complete the Project Paper. These analyses will include engineering feasibility studies, financial and cost/benefit analysis, social soundness analysis and an appropriate analysis of the environmental impact of the project. At least portions of these analyses will be completed by specialists from the competitively selected A&E firm or other appropriate sources (PSCs or IQCs, etc.) The project analyses which are performed on contract by non-direct hire personnel are expected to cost \$200,000.

Table 1. Project Budget

| <u>Component</u> | <u>Cost</u> |
|--|--------------------|
| A. Geotechnical Studies and Field Surveys | \$675,000 |
| B. Preparation of Preliminary Designs Construction Plans and Cost Estimates | \$625,000 |
| C. Project Analyses and Project Paper Preparation | \$200,000 |
| Total | \$1,500,000 |

Table 2. Obligation and Expenditure Schedule
for AID Financed Project Inputs

| | |
|---------------------------|--------------------|
| FY 82 Obligations: | \$1,500,000 |
| Expenditures: | -0- |
| FY 83 Obligations: | -0- |
| 1st Qtr. Expenditures | 255,000 |
| 2nd Qtr. Expenditures | 440,000 |
| 3rd Qtr. Expenditures | 345,000 |
| 4th Qtr. Expenditures | 235,000 |
| FY 84 Obligations | -0- |
| Expenditures | 225,000 |
| Total Obligations | \$1,500,000 |
| Total Expenditures | \$1,500,000 |

III. Project Implementation**A. Implementation Responsibilities**

Funds hereby authorized will be obligated in FY 82 by a Limited Scope Grant Agreement with the GSDR. An obligation is expected in September 1982.

USAID/Somalia and the GSDR Ministry of Public Works are responsible for the general management of the project. The direct AID contracts funded by this authorization will specify that the contractor will report to the USAID/Somalia Mission Director or his designate. USAID/Somalia will be assisted in the project management by REDSO/EA personnel as required by the technical nature of implementing the project and the implementation authorities delegated to field missions. AID/W will provide additional assistance as required to properly backstop the project activities.

A REDSO/EA Contract Review Board will examine the justification for selecting TAMS on the basis of predominate capability and proceed with contracting arrangements as appropriate. The services of an A&E firm to prepare preliminary designs and cost estimates and, perhaps, prepare the requisite project analyses will be secured using competitive selection procedures as established by the CFR 41 Chapter 7-4.10, entitled, "The Procurement of Architectural and Engineering Services".

USAID/Somalia is responsible for the preparation of the Project Paper using Mission staff resources, REDSO/EA personnel, AID/W staff and contracted services as required. It is anticipated that the contractor selected to prepare preliminary plans, designs and cost estimates for the port rehabilitation will also provide the required contracted services for Project Paper preparation. USAID/Somalia and REDSO/EA will prepare the scope(s) of work and budget for this contract(s) and will negotiate and execute the contract(s).

B. Implementation Schedule

The geotechnical and field surveys will require an estimated four months to complete once a contract is established. Contracting arrangements are expected to commence shortly after authorization and will require approximately 30 days to complete. Thus information obtained by the geotechnical and field studies is expected to be available in early CY 1983.

The process of competitively selecting an A&E firm to perform the preliminary engineering design work, cost estimates and Project Paper analyses will commence shortly after authorization and will require approximately five months until a contract is executed. The preparation of preliminary plans, designs and cost estimates is expected to require six months for completion including mobilization delays. Accordingly, it is expected that the selected A&E firm will commence work under the contract early in CY 1983 and complete preliminary design work by mid 1983.

The preparation of a Project Paper for the rehabilitation of the Port of Kismayo will take place concurrently with the preliminary design work and the PP is expected to be finalized by the Mission, REDSO/EA and A&E firm by mid-1983 or shortly thereafter. The Project Paper will be submitted to AID/W at that time for review and approval with the expectation of obligating project funds in late FY 1983.

Activities funded by this Authorization are expected to be completed by September 30, 1983.

IV. Other Project Requirements

A Project Statutory checklist has been completed for those activities to be financed by this Authorization (See Attachment C).

In respect to environmental concerns, the activities to be financed by this authorization have been reviewed and have been granted a Categorical Exclusion (See Attachment D). However, as project design proceeds, the USAID/Somalia is requested to complete a IEE prior to finalizing the Project Paper and submit the IEE to AID/W for review. At that time, a determination will be made concerning the need to complete an Environmental Assessment for the rehabilitation of the Kismayo Port.

This project was referenced in the Amended FY 82 Congressional Presentation (p. 238) and showed an expected FY 82 obligation of \$5 million. A Congressional Notification informing Congress of the agency's intended FY 82 obligation of \$1.5 million was sent on August 10, 1982 and will expire on August 25, 1982.

Sections 611(a) of the FAA, as amended has been fulfilled. 611(e) certification is not required by funds hereby authorized.

Only the standard Condition Precedent to First Disbursement, which requires the name and specimen signature of the person acting on behalf of the Grantee for the implementation of this project, will be required in the Project Agreement.

V. Summary and Recommendations

AID anticipates assisting the GSDR restore the badly deteriorated wharf of the Port of Kismayo so that the Port can continue to meet the current and future shipping needs of Southern Somalia through the year 2000. However, there is presently insufficient information to enable AID management to consider funding for the rehabilitation of the Port. To obtain the needed information and complete a plan for the rehabilitation of the Port, a series of technical studies and preliminary design work must be undertaken during the next twelve months. Based on that information, a Project Paper will be prepared for the rehabilitation of the Kismayo Port. The cost of obtaining the services required to perform the technical studies, preliminary design work and Project Paper preparation is estimated to be \$1.5 million. Funding for these activities will be from the FY 82 Economic Support Fund earmarked for the GSDR. A late FY 82 obligation is expected.

This course of action was recommended by the Africa Bureau Executive Committee for Project Review which explored several alternative courses of action on July 15, 1982 (See Attachment B).

Recommendation: That you sign the attached Project Authorization, thereby authorizing the proposed grant of \$1.5 million from the FY 82 Economic Support Fund for use in the design of a project to rehabilitate the Port of Kismayo.

Attachments:

- A. Project Authorization
- B. Report of ECPR Meeting
- C. Statutory Checklist
- D. Environmental Categorical Exclusion

Clearances:

| | | | |
|---------------------|-----------------|------|---------|
| AFR/DR/EAP, SCole | <i>SCole</i> | Date | 8/11/82 |
| AFR/DR/ENG, JSnead | <i>JSnead</i> | Date | |
| SER/CM/ROD, MSnyder | (Draft) | Date | 8/10/82 |
| AFR/EA, BKline | <i>BKline</i> | Date | 8/11/82 |
| AFR/EA, ESpriggs | <i>ESpriggs</i> | Date | 8/11/82 |
| GC/AFR, TBork | <i>TBork</i> | Date | 8/11/82 |
| AFR/DP, RHynes | (Draft) | Date | 8/10/82 |
| AFR/DP, HJohnson | <i>HJohnson</i> | Date | 8/11/82 |
| DAA/AFR, GPatterson | | Date | |
| DAA/AFR, ALove | | Date | |

Drafted: AFR/DR/EAP, *ABaker*:dph:8/10/82

PROJECT AUTHORIZATION

Name of Country: Somali Democratic Republic

Name of Project: Kismayo Port Rehabilitation

Number of Project: 649-0114

1. Pursuant to Section 531 of the Foreign Assistance Act of 1961, as amended (hereinafter referred to as "the Act"), I hereby authorize the Kismayo Port Rehabilitation Project for the Somali Democratic Republic (the "Cooperating Country") involving a planned obligation of not to exceed One Million Five Hundred Thousand United States Dollars (\$1,500,000) in grant funds during 1982, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project..

2. The Project will assist the Cooperating Country develop a technically sound plan for the rehabilitation of the Port of Kismayo (the "Port") by financing the costs of technical assistance and related goods and services necessary to complete the following tasks:

a) Undertaking of geotechnical and hydrographical studies and field surveys to obtain basic information required for preparation of a rehabilitation plan for the Port;

b) The preparation of preliminary designs, construction plans and cost estimates for the Port; and,

c) The preparation of and conducting project analyses (engineering, financial and economic, social soundness and environmental) as needed for the Project.

3. The project agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. Regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4.a. Source and Origin of Goods and Services.

Goods and services, including ocean shipping, financed by A.I.D. under the Project shall have their Source and Origin in the

Cooperating Country or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing.

b. Condition Preceent.

The Project Agreement shall contain a condition precedent providing, in substance, that prior to the first disbursement of funds under the project, or to the issuance of any commitment documents with respect thereto, the Cooperating Country shall furnish in form and substance satisfactory to A.I.D., a statement of the name(s) of the person(s) holding or acting on behalf of the Grantee, together with a specimen signature of each person specified in such statement.

c. Covenants.

The Cooperating Country shall covenant, in substance, as follows:

a) To provide all existing documentation, studies and plans pertinent to the Port which may be useful in the preparation of the rehabilitation plan for the Port; and,

b) To furnish sufficient human resources necessary for the effective management and coordination of the development of a plan for the rehabilitation of the Port.

Date: Aug 13, 1982

[Signature]
F. S. Ruddy
Assistant Administrator
for Africa

Clearances:

DAA/AFR:ARLove _____
DAA/AFR/ESA:GPatterson _____
AFR/DP:HJohnson _____
AFR:DR:NCohen _____
AFR/EA:ESpriggs _____
for Brian E. [Signature] 8/11/82

Drafted by: GC/AFR:TBork:ny:8/11/82:29218

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CURRICULUM VITAEMUHAMMAD ABDI ARUSH1983PERSONAL DATA:

- Born in 1/4/1950 at Horeca (Somalia), Somali citizen.
- Lecturer of petrology of the sedimentary rocks.
- Dean Faculty of Geology.

UNDERGRADUATE STUDY:

- High school diploma at the Hassan Barsona Secondary school in Hoga dishu 1971. Graduated With honor (110/110 a lode) in geology at the University of Parma in Italy on 28/3/1977.
The title of the experimental graduation thesis was: "Il Cretacico del medio Uobi Shabelli (Somalia).
It consisted of: Field survey, sedimentology and micropaleontological analysis. Correlation of stratigraphic series with the onshore wells of the Sinclair Company and those of the D.S.D.P.

- Practical training at the Malossa Oil wells and those at the offshore with AGIP reparto GESO 5/5-10/6/77. Log and lyst course with an exceptional permission together with the AGIP Geologists (San Donato Milanese) 31/10-2/12/77.

- In the academic year of 1977-78 at the Scuola Superiore Enrico Mattei of the ENI Group, Managerial oriented with reference to the economy of the energy resources.

- Two years specialization programme in sedimentology and petrology of the sedimentary rocks at the Institute of Petrography in Parma University (Italy) and Piacenza.

- Applied sedimentology for exploitation of hydrocarbons and sedimentology courses.

FIELD INTEREST:DIDACTIC ACTIVITY:

- Part of the stratigraphic course (25%) at the winter semester of 1978-79.
- Part of the sedimentology course (50%) at the summer semester of 1979-80-81.
- Acting Dean of the Faculty from 22/4/79-September 1980 and in other occasions in 1981 and from 10/8/82 up to definit full nomination as Dean on the Faculty at 31/3/1983.

PUBLICATIONS:

- 1)- Il Cretaceo della regione di Hiran in Somalia (valle dello Uebi Shabelle) con appendice sulla foresta fossile di Sheek Gure. Mem. Soc. Geol., Vol. 32, 33 pp., 16 figg., 3 tabb. Padova, 1979.
- 2)- Geology and oil prospects of Somalia, East Africa. Quaderni di Geologia, Vol. 11°, 1978, pp. 65-70 and Vol. 6°, pp. 205-213 (1982).
- 3)- Preliminary report on the Jurassic sequence in the Gedo and Bay regions (southwest Somalia). Quaderni di Geologia della Somalia, Vol. IV°, pp. 115-155 and Vol. VI°, pp. 127-155, Mogadiscio 1980 e 1982.
- 4)- Preliminary study on the paleogene formations of central Somalia. Quaderni di Geologia della Somalia, Mogadiscio, Vol. V°, pp. 1-26 (1981) and Vol. VI°, pp. 183-205 (1982).
- 5)- Evoluzione geologica della Somalia dal Mesozoico. Quaderni di Geologia della Somalia, Mogadiscio, Vol. V°, pp. 43-71 (1981).
- 6)- Osservazioni petrografiche sulle arenarie di Garbaharre. Quaderni di Geologia della Somalia, Mogadiscio, Vol. V°, pp. 49-56 (1981).
- 7)- The Indo Mediterranean character of the shallow sea fossil faunas from Jurassic to Oligocene. Boll. Soc. Paleont. Ital. Atti Congresso Tetide (1982).
- 8)- Sedimentary complexes in Somalia a general review. Pres. in stampa. Atti second congress of Somali Studies, Agosto 1983, University of Hamburg, Germany.
- 9)- The Bajuni Islands: some observations on the actual sedimentations. Pres. in stampa. Atti second congress of Somali Studies, Agosto 1983 University of Hamburg, Germany.

RESEARCH ACTIVITIES:
in course 1983

- Studio petrografico e sedimentologico delle arenarie fosfatiche di Yezonna. Soon in print. Quaderni di Geologia della Somalia, VII° (1983).
- Schema geologico della costa del Benadir tra Gesira e Ceel Cadde. Soon in print. Quaderni di Geologia della Somalia, VII° (1983).
- Mio-Pliocene basalts from the Southern coast of Gulf of Aden (Somalia). Soon in print. On Journal of Geology, with the Acquator Group (ENI).
- Studio geologico della copertura sedimentaria mesozoica e cenozoica. Progetto finalizzato.

ACTION

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REDSO

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| RHUBD | TO RUEHC/SECSTATE WASHDC 3527 |
| RIG/A | INFO RUEHNR/AMEMBASSY NAIROBI 7394 |
| RIG/II | BT |
| PROG | UNCLAS MOGADISHU 4533 |
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RF 1 E.C. 12552: N/A
 CHRON 2 SUBJ: ASSISTANCE AVAILABLE FOR AFRICA MISSIONS IN ENVIRONMENT AND NATURAL RESOURCES SECTORS THROUGH AFR/NPS RSSA

REF: STATE 149672

1. THERE ARE TWO AREAS IN WHICH SUBJECT RSSA MIGHT CONTRIBUTE SIGNIFICANT ASSISTANCE. THE FIRST CONCERNS OUR KISMAYO PORT REHABILITATION PROJECT AND THE SECOND OUR GENERAL FORESTRY AND RANGELANDS EFFORTS.

2. THERE ARE THREE AREAS OF LONGER TERM INVOLVEMENT WITH ENVIRONMENTAL MONITORING AND RESOURCE MANAGEMENT WHICH MAY BE ADVISABLE AND LINKED TO THE MISSION'S KISMAYO PORT EFFORTS. FIRST IS AN INVENTORY TO LOCAL MARINE FAUNA AND FLORA AND DETECTION AND PLOTTING OF INSHORE SURFACE CURRENT PATTERNS ALONG THE KISMAYO-JAMAMA SECTION OF THE SHORE. ST/TRA MAY BE ASKED TO CONSIDER INCLUDING THIS IN THE COASTAL RESOURCES MANAGEMENT PROJECT. SECOND, AN ENVIRONMENTAL MONITORING PROGRAM FOR THE PORT AREA WHICH MAY BE PROPOSED FOR THE ENVIRONMENTAL ADVISORY COMMITTEE OF THE NATIONAL UNIVERSITY MAY BE A GOOD CANDIDATE FOR THE NE ST/ENE ENVIRONMENTAL PLANNING AND MANAGEMENT PROJECT. THIRD, TRAINING NEEDS FOR SOMALIS INVOLVED IN ENVIRONMENTAL MONITORING AND RESOURCE MANAGEMENT IN THE PORT AREA COULD BE UNDERTAKEN ON A LIMITED SCALE BY THE AFR/RA ENVIRONMENTAL TRAINING AND MANAGEMENT IN AFRICA PROJECT THROUGH REDSO/ESA. THE OVERALL COORDINATION OF THE ABOVE THREE LONG TERM TA EFFORTS AS WELL AS ASSISTANCE IN THEIR FINAL DESIGN COULD BE PROVIDED BY THE SUBJECT RSSA. THE NATIONAL PARK SERVICE ADVISOR, IN ADDITION TO COORDINATING ACTIVITIES, COULD ADVISE ON HOW LOCAL EDUCATIONAL PROGRAMS COULD BE SET UP THROUGH THE NATIONAL PARKS AGENCY IN ORDER TO DEVELOP A LOCAL ENVIRONMENTAL AWARENESS.

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3. SECOND AREA IN WHICH SUBJECT RSSA MIGHT ASSIST MISSION EFFORTS IS WILDLIFE CONSERVATION. A LONG TERM TECHNICAL ADVISOR TO THE NATIONAL RANGE AGENCY HAS BEEN INFORMALLY REQUESTED BY NRA DIRECTOR GENERAL. IN THIS REGARD, MISSION IS CURRENTLY SUPPORTING COMPLETION OF NATIONAL LAND USE SURVEY, INCLUDING ANIMAL POPULATION CENSUS, IN CONJUNCTION WITH CIA FORESTRY EFFORT. WE ARE ALSO A MAJOR DONOR IN THE MULTI-DONOR CENTRAL RANGELANDS DEVELOPMENT PROJECT. THE NATIONAL RANGE AGENCY, WHICH IS CHARGED WITH OVERALL LAND USE PLANNING FOR SOMALIA, HAS REPEATEDLY EXPRESSED A NEED FOR ASSISTANCE IN WILDLIFE PLANNING, PARTICULARLY IN THE SOUTH. ALTHOUGH MISSION DOES NOT FORESEE BILATERAL ASSISTANCE DIRECTED TOWARDS WILDLIFE CONSERVATION, WE DO AGREE THAT SENSIBLE OVERALL PLANNING AND OUR ENVIRONMENTAL POLICIES MAY REQUIRE CONSIDERATION OF THIS RESOURCE. THIS NEW AID/W INITIATIVE APPEARS THE IDEAL OPPORTUNITY TO PROVIDE INPUTS AT MINIMAL COST.

4. MISSION WILL PROVIDE ADDITIONAL DETAILS ON ABOVE PROGRAMS UPON RECEIPT OF AID/W COMMENTS TO POTENTIAL INVOLVEMENT OF SUBJECT RSSA IN THESE PROGRAMS.

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