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INVENTORIES OF PORTS & SHIPPING
FACILITIES AND INFRASTRUCTURE

NTRC-181

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Deputy Chief.

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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 350

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INVENTORIES OF PORT FACILITIES AND INFRASTRUCTURE

1.1 Introduction

Inventories of Port infrastructure and facilities are the take-off points for future actions in order to provide the port service to customers with variable demands, minimize idle time of equipment and operator stabilize employment, allow for break down changes and maintenance in cargo handling equipment and floating craft, declaring surplus past due and obsolete inventory conditions.

As a first step in port planning coordination and review of operational performance the necessity of this inventory study was required about data collection for the data bank of transport statistics for formulation of policies concerning replacement, renewal or addition of infrastructure and equipment and performance evaluation.

1.2 Objective of the Study:

The objective of the study is to update the Inventory of Port Infrastructure, Facilities and Services. The report have been organised into 4 chapters as follows: Chapter-I is about introduction, objective/scope of study, the methodology used for data collection, preparation of questionnaire, and it also gives

information about coast line of country, size of sea area, main ports of country, historical back ground of Port and their location, Anchorage, draft/Length restriction for berthing and sailing, Pilotage, Temperature, relative Humidity, precepitation, Season/Weather, Wind/Stroms, tidal water level/tidal currents and visibility. Chapter-II,III shows the State of Infrastructure for Karachi Port and Port Qasim and Chapter-IV shows the information about Karachi Shipyard, Pakistan National Shipping Corporation, Pen Islamic Steamship Company and National Tanker Company. The main conclusions drawn and recommendations based on these conclusions are included in the summary.

1.3 Scope of Study.

The data have been collected mainly from Karachi Port Trust, Port Qasim Authority, Pakistan National Shipping Corporation, Karachi Shipyard & Engg Works Ltd. The information/data collected and compiled for this study is as follows:

- 1) Number of sea ports in the country.
- 2) Navigational channels, their length, width, depth and protection.

- 3) Break Waters/Jetties, their number, types, lengths and widths.
- 4) Buoys, their number and types.
- 5) Navigational Aids/Telecommunications etc. their number and types.
- 6) Light houses, their number, height, visibility limits.
- 7) Moorings, their number and types.
- 8) Dry bulk cargo berths, their number, types, lengths and widths.
- 9) Dry bulk cargo piers, their number, types and capacities.
- 10) Oil/Liquid bulk cargo berths, their number, types, lengths and widths.
- 11) Oil/Liquid bulk cargo piers, their number, types, and capacities.
- 12) Open Plinths, their number and areas.
- 13) Warehouses/Sheds, their number and areas.
- 14) Workshops, their number and areas.
- 15) Shipyards and repair docks, their number and capacities (handling maximum size of ship).
- 16) Cargo handling machinery and equipment, their number types and capacities.
- 17) Rail, road inland transport system (being used at the ports).
- 18) Fire stations, their equipments.
- 19) Management/Number of employees working at the ports indicating supervisory, technical/labour staff position.

- 20) Land area
- 21) Port anchorage
- 22) Draft and length restriction for berthing and sailing
- 23) Pilotage
- 24) Harbour facilities
- 25) Oil handling/storage facilities
- 26) Pipe line net work for oil storage
- 27) Towage/Tugs for shipping duties.
- 28) Harbour craft/floating craft.
- 29) Dangerous goods/explosive storage/barges
- 30) Pilot boats.
- 31) Dredging craft.
- 32) Ships fleet with Shipping Companies and data regarding their type, capacity in DWT, horse power, speed in knots, maximum draft, year of construction, year of purchase, where built etc.
- 33) Fuelling facilities.
- 34) Fresh water supply
- 35) Electric power supply
- 36) Medical facilities
- 37) Other facilities provided by the ports if any

1.4 Methodology/Approach:

The project was undertaken in coordination with the organizations operating at the sea ports, particularly Karachi Port Trust (KPT) Port Qasim Authority (PQA) Karachi Shipyard & National Shipping Corporation. The relevant data from the concerned agencies have been collected. The installations/facilities of port agencies were visited. Various reports and brief about ports facilities presented to federal Minister Communications were also obtained. Interviews with Port Officers were also held. Questionnaire was prepared to obtain the data/information regarding inventory of port facilities and infrastructure based on which solutions/suggestions and recommendations has been proposed to the concerned organizations (A draft Questionnaire is enclosed at annexure 1).

General Information about Ports

1.5 Coast Line of the Country along with Map of Pakistan

Pakistan's coastline is approximately 1,100 km in length, of which 330 km is in Sind Province and 770 km is in Baluchistan Province.

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1.6 Size of Sea Area

The size of the sea area under the jurisdiction of Pakistan as a result of the recognition of 200 NM as Exclusive Economic Zone" is almost 40% of our total area of Pakistan and measures about 2,50,000 sq kms besides the 10,000 sq kms of continent shelf. Pakistan along with 119 nations is a signatory to the third UN convention on sea, adopted on 30th April 1982. Pakistan has the sovereign rights on the economic resources of this area of the sea.

1.7 Main Ports of the Country

Along the coastline there are several ports including two international ports: Karachi and Port Qasim. Almost all foreign trade passes through these two ports. Other ports are mostly small fishery ports such as Jiwani, Gwadar, Pasni, Kalmat, Ormara, Sonmiani and Nagar Parkar. People in these areas depend on coastal fishery for their livelihood. With the exception of Gwadar (mini-port) these ports are not used for international or domestic trade due to the lack of fundamental port facilities.

1.8 Historical Back Ground of Karachi Port

The port of Karachi KPT is the premier port of Pakistan. The development of Karachi Port started taking shape since 1854, with the projects of dredging the Main Navigable Channel and the construction of a mole or causeway. About 5 years later, construction of Manora Breakwater, Keamari Grovne, the Napier Mole Bridge, Native Jetty and the China Creek Stoppage, were started which carved out the existing shape of the Port in its initial stage.

The construction of the Wharves started from 1882 and by 1914, the East Wharves of the Port had been completed. During the period between 1927 and 1944, the West Wharves of the Port, the Lighterage Berths and the Ship Reporting Berths were constructed. However, most of these constructions were carried out between 1854 and 1914.

1.9 Location of Karachi Port

Port Karachi is located to the west of the mouth of the Indus River. The port is situated between the so-called Western and Eastern backwaters. Western Backwater is an area of approximately 35 sq. kms. The surface is mostly covered with mud and many shallow creeks. Eastern Backwater is an area of about 6 sq. km. and some of the area is covered with mangroves.

1.10 Anchorage of Karachi Port

Proposed designated anchorages of Karachi Port.

Western Anchorage

a)	Latitude	24	46.00	North	Longitude	66	50.80	East
b)	Latitude	24	46.00	North	Longitude	66	53.80	East
c)	Latitude	24	42.40	North	Longitude	66	50.80	East
d)	Latitude	24	42.40	North	Longitude	66	53.80	East

Tanker Anchorage

a)	Latitude	24	41.60	North	Longitude	66	50.80	East
b)	Latitude	24	41.60	North	Longitude	66	53.80	East
c)	Latitude	24	39.50	North	Longitude	66	50.80	East
d)	Latitude	24	39.50	North	Longitude	66	53.80	East

Southern Anchorage

a)	Latitude	24	41.60	North	Longitude	66	57.20	East
b)	Latitude	24	41.60	North	Longitude	66	59.40	East
c)	Latitude	24	39.00	North	Longitude	66	57.20	East
d)	Latitude	24	39.00	North	Longitude	66	59.40	East

Safe area is marked as Outer Anchorage, where ships can wait before entry. Depth of water at the anchorage is about 9 fathoms. However, during the S.W. Monsoon from Mid May to September, ships need to keep constant anchor watch and to take necessary precautions. Anchoring in S.W. Monsoon is not considered safe and are therefore, not recommended for prolonged periods.

A safe outer anchorage area with more than 54 ft. of water is demarcated in open sea where incoming vessels await entry into the port.

The total area of Karachi harbour available within contour of 6.10 Meters is 305.65 hectare.

1.11 Draft & Length Restriction for Berthing and Sailing for Karachi Port

Datum Depth is 8.23 Meters Vessels going to upper harbour are allowed a maximum of 9.75m draft for entry into the port. Berthing is done at any time, draft permitting. Vessels exceeding 167.5m in length are handled during day light hours only. Sailings are permitted during flood tide only. Tankers over 244m in length are permitted to sail on flood tide during day light hours only.

1.12 Pilotage at Karachi Port

Pilotage is compulsory for ships of 200 NRT and above. Pilots board vessels at the outer anchorage. Vessels are piloted day and night, subject to tide, length and draft, to berths lying on the East and West of the fairway, which is 6.83 km long Pilotage distance is about 8 to 9.6 km.

1.13 Temperature

The extreme maximum temperature of 118 F and minimum temperature of 39 F were observed in Karachi city area over the period of last 80 years. However, the extreme temperatures near sea-side as recorded at Manora observatory were maximum 96 F and minimum 51 F. The mean monthly temperature variations at sea-side during summer months are between 90 F and 75 F and during winter months are between 75 F and 60.F.

1.14 Land Area for Karachi Port

The total area vested in Karachi Port extends over 32 sq. miles, i.e., about 20,000 acres; 85% of which is covered by harbour water. The land area under KPT control is about 28,000 acres (43.75 sq. miles). This area covers all port installations including customs bounded areas and cargo storage yards. A large portion of KPT land has been leased out to private and public sectors agencies for setting up of port related warehousing, storages, tankages and industries. The port also accommodates within its precincts the naval installations including Dockyard, the Karachi Shipyard & the Karachi Fish harbour.

1.15 Relative Humidity

The relative humidity regularly higher in the mornings than in the evenings. The observations at 8.00 am. gave values between 63% in January and 90% in August, and at 5.00 pm., humidity varies between 44% in January and 77% in August.

1.16 Precepitation

Karachi belongs to the dry zones of Pakistan. The mean annual rainfall is only 7.70". Of this, approx. 3.20" alone fall during the rainy months of July/August. The average number of rainy days in the year with precipitation of over 0.10" or more is 10, of which 3 are to be expected in July. Substantial deviations from the above mean values are also possible through extraordinary meteorological conditions. Accordingly, because of excessive rains during the months of March, July and August of 1967, the annual precipitation of about 38" was recorded for the full year of 1967.

1.17 Season/Weather

Summer starts from middle of May to end of August, tropical comes during the period September to middle of February climate is moderrate, average temperature in January is 80 F (26 C), July 90 F (32 C).

1.18 Wind and Storms

The prevalent wind direction in the months of April to October is south-west to west. In other months, it fluctuates between northwest and north-east. The predominant wind force is in the range 4-7, which is observed during the months of May to August, with average wind velocity of upto 16 knots. Individual wind force in the Beaufort scale 8 had also been observed during these months. Cyclonic storms with forces of Beaufort 10 and more have also been observed but their frequency is once in two years.

The prevailing wind from the West and South-West blows for most of the year, including the monsoon season, at about 6 to 15 mile/h. In the winter a drier wind blows from the North-East and East at about 4 to 6 mile/h for a period of 7 to 10 days at a time.

1.19 Tidal Water Level and Tidal Currents at Karachi Port

The water levels in relation to Karachi Port datum, are as under.

- Mean higher high water	+ 8.8 ft.
- Mean lower high water	+ 7.2 ft.
- Mean sea level	+ 5.4 ft.
- Mean higher low water	+ 3.6 ft.
- Mean lower low water	+ 1.4 ft.

- Highest high water spring	+ 9.4 ft.
- Lowest low water springs	- 0.7 ft.

- Highest astronomical tide	+ 10.5 ft.
- Lowest astronomical tide	- 1.4 ft.

- Highest high water	+ 12.2 ft. (recorded on 23.05.1959)
- Lowest low water	- 2.4 ft. (recorded on 25.12.1953)

The highest tidal water level of + 14.3 ft. Karachi Port was recorded during a cyclonic storm in June 1902.

The Tidal Currents at Karachi Port are as under:

Flood current	1.02 knot or 1.73 ft. per second.
Ebb current	1.30 knot or 2.20 ft. per second.

The maximum tidal currents are not likely to exceed a velocity of 2 knots or 3.38 ft. per second at extreme spring tides in the lower harbour of the navigable channel.

1.20 Chronological Summary for Development of Port Qasim

- Creation of Port Qasim Authority by an Act of Parliament. June, 1973
- Foundation Stone of Port Qasim Project laid. August, 1976
- Commissioning of Iron Ore & Coal Berth for Pakistan Steel. September, 1980
- Partial Operation of Multi-purpose Terminal (Berth 1-4 only). November, 1981
- Multi-purpose Terminal Fully Operational. March, 1983
- Temporary Oil Terminal No. 1. February, 1990

1.21 Location of Port Qasim and Port Limits

Port Qasim, situated 53 kms South East of Karachi Port, is sited on the northern side of Gharo Creek about 26 kms from sea through Phitti and Korangi Creeks.

The Port is situated on Longitude 67 21' East and
Latitude 24 46' North

Its Fair Way Buoy is Longitude 67 03' East
situated on Latitude 24 33' North

The Port Limits are as under:-

- a) Latitude 24 47'35" N; Longitude 67 06'56" E
- b) Latitude 24 42'0" N; Longitude 66 56'0" E
- c) Latitude 24 28'0" N; Longitude 67 05'0" E
- d) Latitude 24 43'0" N; Longitude 67 35'0" E

1.22 Tides, Tide Levels and Tidal Currents at Port Qasim

The flow pattern within this port is dominated by the influence of tides and the presence of extensive inter-tidal flats. These tides are predominantly semi-diurnal with a substantial diurnal component. Tidal heights and ranges at the outfall gauge on Bundal Island are similar to Karachi entrance, but increase slightly with distance upstream as shown below:

	Height (m) above CD			
	MHHW	MLHW	MHLW	MLLW
Port Qasim	3.38	2.65	1.43	0.97

Note: (Severe cyclonic storms, force wind, are recorded occasionally during period May to June or October to November and can raise sea levels by up to 0.8m).

Tide Levels at Port Qasim are as under:

<u>Port Qasim</u>	
Highest Astronomic	+ 3.84
Mean Higher High Water	+ 3.18
Mean Lower High Water	+ 2.65
Mean Higher Low Water	+ 1.43
Mean Lower Low Water	+ 0.97
Lowest Astronomic Tide	- 0.49

Source: Chart No. 1284 and PQA Tidal Records.

Note: - Storm surges, caused by cyclonic storms, can raise sea levels by up to 0.8m.

Tidal Currents:-

These tides generate reasonably high spring tidal currents which peak at 2.5 to 3 knots throughout the inner channel and, with no freshwater input and correspondingly low suspended loads (not exceeding 100ppm), have doubtless been responsible for the preservation of such good depths. Within the lower reaches of Zulfiqar bank the spring tide ebb maximum velocity is boosted to 5 knots, but this is probably a localised phenomena of short duration associated with drainage from the Chanan Waddo/Chara Creek network. The maximum current recorded at the site proposed for the oil piers during the hydrographic survey was 2.5 knots.

1.23 Port Visibility

Visibility of Port Qasim is reduced due to suspended dust during SW monsoon and also fog or mist at dawn and at dusk in winter.

1.24 Land Area

The total land area vested in Port Qasim extends over 12000 acres. The development strategy of this land is based on the concept of Port Qasim Maritime Industrial Development Area (MIDA) which implies that areas around seaports are preferred location for such industries and commercial undertakings whose imports and exports pass through the port and require direct access to waterfront. As a refinement and specialization of MIDA, part of the area at Port Qasim can be converted within the frame work of Maritime Industrial Development Area (MIDA) into Maritime Industrial and Commercial Zone (MICZ), as is the pattern in the Ports of developed countries.

From this land 105 acres have been allotted to Toyota car Manufacturing Plot, 110 acres to Rice Export Corporation, 223 acres to Karachi Electric Supply Corporation 370 acres to Korangi Fishers Harbour Authority and 250 acres to Ministry of Defence.

Chapter II

STATE OF INFRASTRUCTURE FOR KARACHI PORT

Figure 2.1
Karachi Port
Infrastructure
Development
Program

Figure 2.2
Karachi Port
Infrastructure
Development
Program

1.25 Port Anchorage

- a) Latitude 24 35' North, Longitude 67 00' East
- b) Latitude 24 35' North, Longitude 67 02' East
- c) Latitude 24 32' North, Longitude 67 00' East
- d) Latitude 24 32' North, Longitude 67 02' East

Holding ground good (Medium sand), During SW monsoon heavy swell.

1.26 Draft and Length Restriction for Berthing

Ships/vessels of 25000 DWT for entry at berths No. 1,2,3 and 4 are allowed to a maximum of 10m draft where as ships of 35000 DWT for entry at berths No. 5,6 and 7 are allowed draft of 11 meters.

Maximum Draft in Meters	Berth Numbers	DWT of ship/ vessel allowed for berthing	Remarks
10	1,2,3 & 4	25,000	Nil
12	5,6,7 & Iron Ore & Coal Berth	35,000	

1.27 Pilotage

Compulsory Licensed Pilots board on miles off Fairway Buoy. Notice of ETA require 48 hours & 24 hours in advance and later contact Port control on VHF channel No. 16, 12 hours prior to arrival.

Chapter-II

State of Infrastructure for Karachi Port

2.1 Navigational Channels, their Length, Width and Depth.

Table No. 1

Name of Channel	Length in Meters	Width in Meters	Depth in Meters	Remarks
Entrance Channel	3900 M	183 M	12.2 M	See Note
Outer Channel	3000 M	180 M	12.2 M	
Channel Bend	1500 M	150 M	12.2 M	
Lower Harbour	2650 M	180 M	11.3 M	
	550 M	350 M	9.1 M	
Upper Harbour	3050 M	300-400 M	9.1 M	
	800 M	230 M	9.1 M	

Note: The channel is marked with port and starboard lit buoys, & leading lights, adequate for night navigation. However, vessels exceeding 167.5m in length are only permitted to enter port and berth in daylight. Sailings are only permitted on the flood tide and sailings of tankers over 244mm long are restricted to daylight hours only. At present the channel is used on a one way basis only, i.e. ships depart on the ebb tide, both being programmed on the vessels draft. This is itself causes delay and inhibits maximum use of the ports facilities. The reason for this is the relatively narrow delineation of the channel, permitting only smaller vessels to pass one another and the difficulties of navigating large vessels in the SW monsoon where a large allowance may have to be made for wind and sea state.

2.2 Break Water Jetties, their Number, Types, Length and Widths.

Table No. 2

Number	Length in Meters	Width in Meters	Remarks
Break Water	472.4	7.3	Constructed in 1873 and rehabilitated in 1968 by armour blocks of 1,11 & 28 tons.

2.3 Buoys, their Number and Types

Table No. 3

Number	Type	Remarks
22	Tail Tube Type Marker	Filled with gas operated lights and radar reflectors. Also See Note.

Note: KPT intend for modernising the bupoyage in the approach channel to the port in line with IALA requirements, reducing maintenance and the marking of certain isolated dangers. Consultants has recommended that fairway buoy should be replaced with a high focal plane buoy fitted with a Racon and Radar reflector and moved further seaward.

2.4 Telecommunications/Navigational Aids

Table No. 4

Number	Type	Remarks
	VHF radio telephone System fixed and	Operation on channels no 12 and 16 subject to overall
		Mobile control of Manora Pilot Control Station.

Note: There is requirement for a number of flame proof portable VHF sets to be used in hazardous area of oil berths and on board tankers carrying low flash point petroleum products.

2.5 Light Houses, their Number, Height, Visibility Limits

Table No. 5

Number	Height in Meters	Visibility Limits in kms	Remarks
1	30.2 m high & 45.5 m above sea level	112 kms	Built in year 1887

Note: Manora Light House is conspicuous during day and flashes white light during night. It is a very poor radar target. Generally vessels approaching Karachi look for and rely on fairway buoy. With the present facilities, night navigation and navigation during rough weather is not possible.

2.6 Moorings, their Number and Types

Table No. 6

Number	Type	Length in Meters	Draft in Meters	Remarks
3	-	213	8.84	For all type of Vessels
1	-	304.8	9.76	Reserved for lash ships. On wester side of Main Harbour Channel.

2.7 Dry Bulk Cargo Berths/Piers their Number, Types, Lengths and Widths

Table No. 7 The Length and Depth for Shipping Berths

Wharf	Berth No	Length (m)	Depth (m)	Construction Year	Remarks
East Wharf	No.1-4	625.76	10.36	1975	See Note.
	No.5-7	462.48	8.53	1964	
	No.8	167.44	9.44	1964	
	No.9-17	1,387.44	10.36	1964	
Total:		17	2,643.12		
West Wharf	No.18	164.44	9.75	1930	
	No.19-21	540.82	10.36	1930	
	No.22	182.88	11.58	1973	
	No.23	213.56	11.58	1973	
	No.24	152.20	11.58	1973	
Total:		7	1,256.90		
Juna Bunder	No.25-28	376.48	9.44	1981	
Barge Wharf					
East	No. 17 A	36.58	8.05	1960	
West	No. 24 A	37.80	5.49	1973	
	No. 18 A	374.60	7.32	1968	
Total:			448.98		

- * - From above mentioned berths none of which are identified other than on Plans & Charts.
 - At present the reconstruction of aprons, quay side in front of berth No. 12 and 13 is under process.
 - Berths 5 to 8 are being operated as multipurpose berths.

Note: The west wharf area contains 11 shipping berths, 2 lighterage berths and also provides facilities for the Pakistan Navy. The Keamari (East Wharf) area contains 17 shipping berths.

2.8 Oil/Liquid Bulk Cargo Berths/Piers, their Number, Types, Lengths and Widths

Table No. 8

No. of Berth/Piers	Length (m)	Depth (m)	Max. size !dwt of vessels	Year of construction	Remarks
OP-1	196.24	11.3	35000	1966	See Note
OP-4	321.56	13.41	75000	1978	

At present only two oil piers OP-1 & OP-4 are being used OP-4 has been partially damaged. Piping Net Work from Oil Piers to Storage Tanks is congested.

Oil Pier No. 2 (OP-2) and oil Pier No.3 (OP-3) which were constructed in year 1957 and 1910 are now under replacement. At present their super structure construction is under process.

2.9 Open Plinths, their Number and Area

Table No. 9

Number of Plinths	Open Area in Sq. Meters	Remarks
15	4,81,576	East Wharf
10	4,37,061	West Wharf
4	1,09,265	Juna Bunder
39	7,68,903	TPX
17	1,05,218	New TPX
	19,02,023	

2.10 Ware Houses/Sheds their Number and Area Covered.

Table No. 10

Number of sheds	Covered Area in Sq. meters	Remarks
18	2,23,749	East Wharf
03	64,750	Keamari Groyne
06	52,609	M. I. Yard
07	2,14,484	West wharf
02	40,469	Juna Bunder
89	5,50,373	T.P.X
125	11,46,434	

Item 2.10 (Cont.).

Table No. 10-A Storage Area/in Acres for Dry Cargo (Covered/Uncovered)

	No of Sheds	Covered Area (Acres)	No of Plinth	Open Area ()	Container Parks	Total Area (Acres)
East Wharf	18	80	15	119	93	292
Keamari Groyne	3	16	-	-	79	95
M.I. Yard	6	13	-	-	60	73
West Wharf	7	53	10	108	-	161
Juna Bunder	2	10	4	27	7	44
T.P.X	89	136	39	190	-	326
New T.P.X	-	-	17	26	-	26
G. Total	125	308	-	470	239	1017

2.11 Workshops, their Number and Areas

Table No. 11

No. of Workshops	Area in Sq. meters	Remarks
01	N/A	This small workshop is available for undertaking minor repairs for ships not requiring dry docking. Major repairs are undertaken by Karachi Ship Yard and Engineering Works Ltd. (KSEW).

2.12 Cargo Handling EquipmentTable No. 12 Details of Cargo Handling Equipment.

S. No.	Description of Equipment	No. of Equipment	Make Year & country of origin	Lifting capacity in M.ton	Economic useful life years	Operational condition	Remarks
1.	Shore/Portal cranes (Electrical)	73	N/A	2-3	15	30% Operational	70% Obsolete
2.	- do - Heavy lift cranes	01	1961 France	30	30	Operational	Need maintenance
3.	- do -	01	1983 Belgium	40	25	- do -	70% obsolete (See Note)
4.	Fork Lifts	68	1975-81 Bulgaria	N/A	8-10	30% Operational	70% obsolete (See Note)
5.	Towing Units	110	1973-78 Bulgaria	N/A	8-10	64% Operational	36% Obsolete
6.	Shunting Tractor	04	1973-74 U.K.	N/A	10	Obsolete	The use has been reduced due to their bad condition.
7.	Motor Trucks	22	1968-74 U.K.	N/A	10-12	Obsolete	They have been write-off.
8.	Motor Trucks	16	1984-88 Japan	N/A	-do-	Operational	They are in serviceable condition.
9.	Trailers	374	Local	3	5	73% operational	27% Obsolete (See Note).
10.	Trailers	74	Local	5	5	74% operational	26% Obsolete (See Note).

Note:

- Out of 68 Fork Lifts, 21 are in working condition (S.No.4).
- Out of 110 Towing Units 71 are operational (S.No.5).
- From 374 Trailers (3 ton capacity) 274 are operational (S.No.9).
- From 74 trailer (of 5 ton capacity) only 55 are operational (S.No.10).

Item No. 2.12 (b))

Details of Cargo handling Equipment Floating Cranes/Barges.

Table No. 13

S. No.	Description of Equipment	No. of origin	Make Year & country of origin	Lifting capacity in M.ton	Economic useful life years	Operational condition	Remarks
1.	PEHLWAN (Floating crane)	1	1922 U.K	30	30	Obsolete	Craft has been write off.
2.	PEELTAN (Floating crane)	1	1964 Holland	60	30	Operational	Reported satisfactory
3.	HATHI (Floating crane)	1	1966 Holland	125	30	Operational	Lifting capacity of craft has been reduce to 100 tons.
4.	Explosive Barge	1	1968 Pakistan	N/A	25	Operational	The barge is in serviceable condition
5.	Dangerous Cargo Barge	4	1-1969 1-1978 2-1988 Pakistan	N/A	25	Operational	do
6.	Dump Cargo Barges	13	3-1959 1-1960 2-1980 3-1981 4-1983	250	20		4 Barges of 1959-60 are obsolete. 5 barge needs repair.

Item No. 2.12 (c).

Details of cargo Handling Equipment (Weigh Bridges).

Table No. 14

S.No.	Description	No	Make Year & Origin	Weighing Capacity in tons	Operational Condition	Remarks
1.	Weigh Bridge NOB Gate	1	1963 (Pak)	20 tons	Obsolete	
2.	-do- B.No.23	1	1976 (Pak)	40 tons	OK	
3.	-do- M.I Yard	1	1987 (Pak)	60 tons	OK	
4.	Weigh Bridge at GYCC	1	1989 (Pak)	60 tons	OK	From available 8 weigh Bridges 7 are operational 1 is obsolete.
5.	-do- NOB Gate	1	- do -	60 tons	OK	
6.	-do- CL Gate	1	1992 (Pak)	60 tons	OK	
7.	-do- T. Series	1	- do -	60 tons	OK	
8.	-do- at B.No.18	1	- do -	60 tons	OK	

2.13 Rail road Inland Transport System being used at the Port

a) Rail Network (Yards/Lines) inside Karachi Port

Table No.15 The Holding, Working and Placement Capacity of Karachi Port

Sl. No.	Location	Placement Holding Capacity (Wagons)	Working Capacity (Wagons)	Remarks
1.	Keamari	1750	1400	See Note
2.	West Wharf	1300	930	
3.	Oil Terminal	395	325	
4.	Keamari Groyne	1185	789	
Total:		4630	3444	

Note: In the existing system of rail working 2 yards are provided in the East Wharf known as North Marshalling Yard and South Marshalling Yard. The North portion of the Marshalling Yard is linked with the rail working of berths 8 to 16 and the South portion of the Marshalling Yard is connected with the berth system of 1 to 4.

This large rail yard existing within port area is often found to be calm and silent. This railway network at port remains the same as it was before the completion of Pipri rail yard. At present more than 80% sea borne cargo in Karachi Port are transported by trucks in the presence of large rail yard. It is apparant that there is an imbalance in land use productivity between rail yard and loading/unloading area for trucks. Consequently there is need for facility redevelopment based on a reasonable land use plan for the Karachi Port.

2.14 Fire Stations, their Equipment

Table No. 16 Details of Fire Fighting Appliances

S.No.	Name of Fire Fighting Equipment	Number	Remarks
1.	Fire Tenders (Water)	12	See Note
2.	Fire Tenders (Foam)	04	
3.	Fire Tenders CO2 & Dry Chemical Powder	01	
4.	Fire Tenders CO2 & Dry Chemical Powder	01	
5.	Fire Engines	04	
6.	Fire Trailer Pumps (Heavy)	04	
7.	Fire Trailer Pumps (Medium) (26	
8.	Submerisable Pumps	04	
9.	Dry Chemical Powder's Units	02	
10.	Halon BCF-1211 Unit (500 Kgs)	02	
11.	Special Equipment Carriers	02	
12.	High Expansion Foam Generating Set (Turbex)	02	
13.	High Expansion Foam Generating mini(Turbex)	02	
14.	Multiple Jet Foam Inductor	01	
15.	Mobile Foam Units	02	
16.	Remote Control Monitor	01	
17.	Mobile Foam/Water Monitors	02	
18.	Portable Ground Monitors	02	
19.	Fire Floats (SABII) and SNORFEL	02	
20.	Fire Extinguishers of various type	5000	
21.	Diesel Pump Units for Delivering 1000 gallons per minutes for fire fighting	03	
22.	Electric Pump Units for fire fighting	02	
23.	Fire Hydrants	200	
24.	Radio Fire Alarm System with 4 receiving sets and 80 No call boxes.	01	

Note: There are six Fire Stations.

2.15 Management/Number of Employees at the Port their Number indicating Supervisory Staff and Labour (Technical)

Table No. 17

Years	Total No.	Officers/ Supervisory Staff	Labour/ other employees	Yearly Increase/ Decrease
1982	13,627	341	13,286	- 92
1983	13,535	357	13,178	+ 363
1984	13,898	357	13,541	+ 410
1985	14,308	373	13,935	- 126
1986	14,182	386	13,796	+ 123
1987	14,305	398	13,907	+ 04
1988	14,303	392	13,911	+ 12
1989	14,318	395	13,923	- 35
1990	14,282	394	13,888	00
1991	14,282	394	13,888	

2.16 Oil Handling Storage Facilities

Table No.18 Oil Storage Tankage Facilities in Keamari East Wharf Karachi.

S.No.	Type of Fuel	Capacity of Tankage in m. tonnes	Name of Establishment	Remarks
1.	Black Products	9,000	CTX	See Note
2.	- do -	10,500	PBS	
3.	- do -	25,000	PBS	
4.	- do -	20,500	PRL	Figure No. shows
5.	- do -	38,600	NRL	the oil storage facilities.
Total:		1,03,600		
6.	Crude Oil	87,200	PRL	See Note for
7.	- do -	88,300	NRL	details.
Total:		1,75,500		
8.	White Products	37,100	PBS	
9.	- do -	18,800	CTX	
10.	- do -	87,600	PSO	
Total:		1,43,500		

Note: The oil handling facilities at the larger of two oil berths (OP-IV) are provided by KPT and include marine loading arms with common-user pipelines. This berth handles the entire crude and furnace oil imports and 50% of POL products. At the second oil berth, oil handling facilities are provided by individual companies. This berth handles oil non-POL liquids, i.e., molasses and edible oils, and the balance of POL products.

The present bulk storage, both for imported oil and that produced by Korangi refineries is directly adjacent to the ship terminal at Keamari, covering an area of 140 ha. The facilities provide adequate handling arrangement for the receipt, storage and distribution for a variety of mineral and vegetable oils and molasses. This storage system at Keamari is divided into blocks which are occupied by oil refining and distributing companies. The oil is pumped from the ships through pipelines into the storage tanks from which it is taken for transfer throughout Pakistan.

2.17 Pipe Line Net Work for Oil Storage

Table No. 19

Sl. No.	Length Meters	Diameter inches	Type of Fuel Handled	Year of Installation	Remarks
1.	15000	12"	Crude Oil	N/K	From Keamari to Korangi Refinery. PRL
2.	16000	14"	Crude Oil	N/K	- do - NRL Refinery.
3.	15000	8"	Furance Oil	N/K	Keamari Korangi Refinery. PRL
4.	16000	6"	- do -	N/K	- do - NRL Refinery.
5.	N/K	6"	- do -	N/K	Keamari to West Wharf Power Station.
6.	15000	8"	White Products	N/K	Korangi PRL Refinery to Keamari.
7.	16000	6"	- do -	N/K	Korangi NRL Refinery to Keamari.
8.	19000	6"	- do -	N/K	Keamari to PARCO Korangi.

See Note:

Note: Existing pipelines going to the storage tanks from the OP1 have not been developed in a systematic manner which prevents their maintenance and replacement.

2.18 Towage/Tugs for Shipping Duties

Table No. 20

Sl. No.	Year of Make & Origin	Name of Tug	Bollard Pull in tons	Horse Power	Speed in Knots	Age in Year	Remarks
1.	1985 Germany	SIND BAD	35	3200	12	07	Reliable
2.	1985 Germany	SHANAWAR	35	3200	12	07	Reliable
3.	1983 KSEW	SOHRAB	35	2200	12	09	Require Maintenance
4.	1978 KSEW	BAHADUR	26	2200	12	14	- do -
5.	1970 KSEW	TAWANA	35	3200	10	22	Un-reliable
6.	1970 KSEW	CHABUK	---	3200	10	22	- do -
7.	1962 KSEW	PURJOSH	19	1500	10	30	- do -
8.	1960 Italy	TANOMAND	--	265	10	32	- do -
9.	1960 Italy	ZORAWAR	--	265	10	32	- do -
10.	1959 Yugoslavlia	FIRDOUSI	18	265	10	33	- do -

Note: Towage is rendered by the port tugs on command from the pilots. Towage is not provided outside the breakwater except in very special circumstances at the direction of the Deputy Conservator.

The percentage of Tugs in reliable condition comes only 30%. So there are inadequate tuggage facilities at Fort.

2.19 Ancillary Craft (Floating Craft)

Table No. 21

S. No.	Year of Make & Origin	Name of Craft	Capacity in tons	Age in Years	Economic Useful Life Years	Remarks
1.	1968 KSEW	SHERDIL	200	24	20	Obsolete
2.	1963 KSEW	M.B SAQQA	200	29	20	- do -
3.	1958 Belgium	SEA ELEPHANT ELEPHANT	200	34	20	- do -

Note: The present position of ancillary craft in reliable condition is nil.

2.20 Cargo Barges and Storage Barges for Dangerous Goods

Table No. 22

Sl. No.	Type of Barge	Capacity in tons	Remarks
1.	Dump Cargo	18250	Used for dumping dry Cargo
2.	Water	1200	Oil barge which has been converted in water barge.
3.	Hazardous	50	Used for dangerous goods
4.	Hazardous	100	" " " "
5.	Hazardous	200	" " " "

2.21 Pilot Boats/Survey Boats/Passenger Ferries

Table No. 23

S. No.	Year of Make	Name of Boats	Use of Boats	Speed in Knots	Age in Years	Remarks
1.	1988 KSEW	AMINA	Pilot Boat	15	04	Reliable
2.	1988 KSEW	ASMA	Pilot Boat	15	04	- do -
3.	1980 Holland	ZEENAT	Survey Boat		12	
4.	1966 KSEW	F.B. SEEKKHPER	Passenger Ferry	10	26	
5.	1965 KSEW	F.B. SURKHAB	-do-	10	26	
6.	1964 U.K	SHAMSI	Pilot Boat	12	28	Un-reliable
7.	1964 U.K	QAMRI	Pilot Boat	12	28	- do -
8.	1950 U.K	SAMEERA	Pilot Boat	07	42	- do -
9.	1950 U.K	UMAIMA	Pilot Boat	07	42	- do -

2.22 Dredging Craft and its Conditions

Table No. 24

S. No.	Year of Make & Origin	Particular Name	Dredging Capacity ! tons/hour	Age ! in Years!	Remarks
1.	1980 KSEW	MAHMOODUL HASAN	1000	12	Reliable
2.	1971 Holland	SARAS	1000	21	Un-reliable
3.	1971 Holland	NEELSAR	1000	21	- do -
4.	1969 KSEW	AMINUDDIN	1000	23	- do -
5.	1968 Germany	KARAMAT	1250	24	- do -
6.	1965 U.K.	FATEH	1250	27	- do -
7.	1965 U.K.	IZHAR	1250	27	- do -
8.	1965 KSEW	RAJHANS	800	27	- do -
9.	1959 KSEW	WHIMBREL	800	33	- do -
10.	1959 KSEW	CURLEW	800	33	- do -

Note: The percentage of KPT dredgers in reliable condition comes to 10% only.

2.23 Fuelling Facilities

Furance oil can be supplied by Pipe line at all berths from 1 to 28 where as diesel oil by pipe line is being supplied at berths 1 to 4 only. At the rest of berth from 5 to 28 diesel oil is being supplied through oil tankers. There is also a private owned oil fuel barge of 800 tons capacity which is available for supply of bunker oil at outer anchorage and moorings.

2.24 Medical and other Facilities

Table No. 25

Name of Facility	Capacity	Remarks
KPT Hospital	400 Beds	Patients are also referred to other Hospitals of Karachi.
Housing Units	2000	Including all type of small units flats and bungalows at Manora, Keamari and West Wharf etc.
Mosque	13	
Schools	02	
Canteen	07	

2.25 Environmental Protection Equipment

At present there is no equipment for environmental protection at our ports. However under the OP-V containment booms and an oil skimmer have been included. Procurement of floating reception facility is also under planning stage. Under the Karachi Port modernization project, KPT has agreed to employ consultants within a month after the effectiveness of the loan, (world bank loan 3335 pak) to study the environmental protection measures and equipment required to implement these measures in Karachi Port. In this regard KPT has invited proposals on September 5, 1992. Contract for above study is expected to be signed in 1993 as specified in the project agreement.

2.26 Extracts from the briefing of Chairman, KPT regarding the Condition of Port Infrastructure

During the visit of Federal Minister Communications on 27th July, 1991. The following information was presented by Chairman KPT to the Minister regarding operational condition of berths, harbour craft, cargo handling equipment and dredging craft etc. the slides were shown to Federal Minister in which various factors of low productivity and poor performance of port were discussed. Some extracts from the presentation related to the condition of port facilities are reproduced as under:-

Description of Infrastructure/Equipment

- i) Berths non-operational - 25%
- ii) Oil Piers non-operational - 50%
- iii) Berths require reconstruction of infrastructure facilities - 50%
- iv) General cargo berths in order - 20% - 25%

Chapter-III

STATE OF INFRASTRUCTURE FOR PORT QASIM

The infrastructure for Port Qasim is being developed in a phased manner. The first phase includes the construction of the port terminal, the approach canal, and the berthing facilities. The second phase involves the development of the port area, including the construction of roads, bridges, and other infrastructure. The third phase is the development of the port city, including the construction of housing, schools, and other facilities. The port is expected to be operational by the end of the year.

- i) Shipping tugs and barge tugs. - 30%
(In reliable condition)
- ii) Pilot boats - 50%
(In reliable condition).
- iii) Floating cranes - Nil
(In reliable condition).
- iv) Ancillary craft - Nil
(In reliable condition)

- i) 3-ton capacity shore cranes - 68% non-operational
To be replaced.
- ii) Heavy lift cranes - 100% non-operational
To be replaced
- iii) Mobile cranes, fork lifts - 80% non-operational
and towing units

As per the slides shown to Minister of Communication the various factors of low productivity and poor performance of port were declared as under:-

- i) Congestion due to dilapidated berths and lack of infrastructure.
- ii) Delayed project approvals.
- iii) In-disciplined & high labour cost.
- iv) Old techniques & equipments.

Chapter-III

3.1 State of Infrastructure for Port Qasim

Table No. 26 Navigational Channels, their Length, Width & Depth

Length (Kms.)	Width (Meters)	Depth (Meters)	Number	Remarks
14 }	280-185	12.4	Approach channel }	Constructed during 1979-80
31 }	180	11.3/10.0	Inner channel }	

3.2 Jetties/Wharfs their Number, Types, Lengths and Widths

Table No. 27

Type	Length (Meters)	Width (Meters)	Number	Remarks
i) Utility Wharf	75	30	01	It was made during construction of Multi purpose terminal (in year 1979).
ii) Fit out Jetty	100	10	01	
Small Craft Jetty	a) 111.1	14.9 m	01	Concrete Jetty
	b) 88.4 x 2	3.4	02	Floating Jetty made (in year 1983).

3.3 Buoy, their Number and Types

Table No. 26

S. No.	Type of Buoy	Number	Focal Height (Metres)	Draft (Metre)	Dia in (Metres)	Remarks
1.	Fairway Buoy	02	6.6	6.7	3.0	Repair required as per details below.
2.	Skirt Keel (Steel Buoy)	24	4.5	2.2	3.0	- do -
3.	G.R.P Buoy	57	4.1	2.1	2.3	- do -
4.	Tail Tube Light Buoy	08	6.0	5.2	3.0	- do -
5.	Cylindrical Buoy	06	-	-	-	- do -

Note: Two Fair way Buoy Need repair in tail tube, counter weights wing type pipes cylinder pocket fittings (S.No. 1).

Twenty Four Skirt Keel Steel Buoy Need repairs in cage, radar reflectors, lifting and mooring eyes, swing bolts, pocket covers, cylinder holding blocks, lantern hood (S.No. 2).

Fifty Seven GRP Buoy Require repair/renewal of super-structure, lifting and mooring eyes, buoy body, radar reflectors, gas pipes, lantern hood (S.No.3).

Eight Tail Tube Light Buoy, Require repair of tail tube, counter weights, super structure, wing type cylinder pocket fittings, gas pipes, lantern hood (S.No.4).

Six Cylindrical Buoy, Require repair of Buoyancy chamber for leakage and replacement of tender (S.No.5).

3.4 Navigation Aids

Table No. 29 Details of Navigational Aids

S. No.	Year of Make	Name of Equipment	Number	Height in Metres	Range in N.M	Other Particulars	Remarks
1.	1979	Front leading Light	01	10.15	10.9	Solar operated Duplex type equipped with 12 Volt, 3.4 Amps, 6 No. Batteries, 200 A.H and emergency gas light	See Note
2.	1979	Rear Leading Light	01	31.0	16.2	- do -	
3.	1980	Light beacons	10	-	-	Gas operated mounted with lantern.	

Note: Repair is required for solar pannels, accessories of solar system, relay system and gas pipes of Front and Rear Leading Lights (S.No.1 to S.No.2).

Repair is required for lantern hoods, gas pipe valves for light beacons (S.No.3).

N.M stands for Nautical Mile.

Control tower, light house and all port crafts have been equipped with V.H.F communication set. A continuous round the clock watch is maintained on channel No.16.

3.5 Light Houses their Number, Height & Visibility

Table No. 30

S. No.	Year of Built	Height in Meters	Visibility Limits in Nautical Miles	Type	Remarks
1	1979	39.00	17:00	(Solar)	Repair is required for solar pannels, accessories of solar system, relay system, gas pipes and two diesel generators (10 kw each) of light house.

3.6 Moorings their Number & Types

Table No. 31

Type	Number	Year of Construction	Remarks
Fixed Mooring	1	1989	For vessels upto 25,000 DWT
- do -	1	1991	For vessels upto 50,000 DWT

3.7 Dry Bulk Cargo Berths/Piers their Number, Types, Lengths and Widths

Table No. 32 Berth Facilities at Port Qasim

Wharf	Berth No	Length (m)	Depth (m)	Construction Year
Iron and Coal Berth		279	12.0	1980
Multi Purpose Berths	No. 1-4	4 x 200	10.0	1980
	No. 5-7	3 x 200	12.0	
Total:	7	1,400		

3.8 Oil/Liquid Bulk Cargo Berths/Piers their Number, Types, Length and Widths

One temporary oil terminal on multipurpose terminal berth No.1 (MPT-1) has been equipped to accept tankers with a draft of 9.0 metres.

3.9 Open Plinths, their Number and Areas

Table No. 33

Number	Area (Sq. m)	Remarks
1	150,000	From Berth 1 to 7
1	180,240	Term storage area - A
1	249,750	Term storage area - B
Total 3	5,79,990	

3.10 Warehouses/Sheds, their Number and Areas/Storage Facilities

Table No. 34

Location	Transit Shed sq.meters	Marshalling Yard sq.(m)	Remarks
Multi Purpose Terminal			
Berth No. 1 - 4	20,000	116,000	
Berth No. 5 - 7		116,000	
	Total: 20,000	232,000	

3.11 Workshops, their Number and Area

Table No. 35

Number	Description	Area (Sq. meters)	Remarks
01	a) Building No. 1,2 &3	1016	See Note
	b) Equipment maintenance building	2249	
	c) Auto shop	578	
	Total:	3843	

Note:- Limited ship repair facilities are available at Port Qasim through shipping companies and private contractors. other services like compass adjusting, radio, radar repairing and tank cleaning etc can also be arranged through shipping agents.

3.12 Cargo Handling Equipment

Table No. 36

S. No.	Name of Equipment with Capacity	No.	Year of Make	Age in Years	Remarks
1.	Cranes 35 tons	01	1976	16	Operational
2.	Cranes 8-30 tons	03	1977	15	02 obsolete, 1 under utilized (see Note for details).
3.	Cranes 24,32 & 40 tons	2+2+2=6	1980	12	Operational
4.	Cranes 24 tons	02	1986	06	- do -
5.	Fork Lift Trucks (1000-3200 Kg.)	20	1976	16	100% obsolete need replacement.
6.	Fork Lift Trucks (FLT Climax) (3500-9000 kg)	34	1981	11	30 obsolete and 4 OK (See Note).
7.	Fork Lift Trucks Hyster 4000 kg	15	1986	06	Operational
8.	Towing Units (2000-4500 kg)	95	1981	11	Surplus (See Note)
9.	Suction Sweepers	02	1986	06	-

Note: (S.No.2), Two cranes (Model 1977) of 8 tons (Jones 565-C) aged 15 years are obsolete but the one crane of same lot (capacity 30 tons) has been under utilized consequently it is OK.

S.No. 6 From the lot of 34 FLT climax model 1981 (aged 11 years) the thirty fork lift trucks of 3500 kg are obsolete and rest of four fork lifters (9000 kg) of same age group are still in good condition due to the reason that they have been underutilized.

(S.No.8) All the 95 towing units has been under utilized. Infact there was no need of these unites. At prestn Port Qasim is trying to dispose off these surplus towing units.

3.13 Railway Facilities at the Port.

Table No. 37

Name of Yard	No. of Rail Lines (B.G)	Capacity in Wagons!	Remarks
A	06	400	Two lines in each yard each having a capacity of 60 wagons are utilized for loading purpose.
B	06	360	

3.14 Fire Stations their Equipments

Table No. 38 Details of Fire Fighting Equipment.

S.No.	Description	No	Remarks
1.	Fire tenders	2	Berth and Port Area is provided with Fire Hydrants.
2.	Trailer Pumps	5	
3.	Sea Water fire pumps	2	
4.	Foam Generators	2	Port has one Fire Station only.
5.	Fresh water fire pumps	3	
6.	Tug with fire monitor	2	

3.15 Management Number of Employees at the Port their Number indicating Supervisory Staff and Labour Technical.

Table No. 39

Years	Total Number	Supervisory Staff	Labour (Technical)	Percentage Increase/Year
1975	72	21	51	
1976	90	27	63	25
1977	147	44	103	63
1978	262	55	268	78
1979	393	71	322	50
1980	460	78	382	17
1981	658	90	568	43
1982	754	100	597	08
1983	818	105	713	08
1984	888	116	772	08
1985	907	117	790	02
1986	979	131	858	07
1987	997	133	864	01
1988	1127	138	889	13
1989	1434	171	1263	27
1990	1972	275	1697	38

From the table No.39 it may be seen that 78% increase in recruitment from the year 1987 to 1990 have been made but production level during that period has almost remained the same where as there was only 9% increase between the period 1984 to 1987 as compared to the previous three years period.

3.16 Details of Tugs/Dredgers/Buoy tenders (Floating Craft)

Table No. 40

S. No.	Year of Built & Origin	Name of Vessel	B.H.P	Age in Years	Type/usage of Vessel	Remarks
1.	1987 Pakistan	KETI	-	05	Dredger	Operational
2.	1979 U.K	SONA	495x2	13	Tug	- do -
3.	1979 U.K	MONA	495x2	13	Tug	- do -
4.	1978 U.K	MAZDOOR	800X2	14	Buoy Tender	(See Note)
5.	1978 U.K	CHARA	1760X2	14	Tug	Operational
6.	1977 U.K	KADIRO	1760X2	15	Tug	- do -
7.	1977	GHARO	1760X2	15	Tug	- do

Note: One vessel Buoy Tender (at serial No. 4) has been under utilized due to the limited scope of specialized maintenance work. This Buoy tender can generate money by making it available for hiring to other nearby Ports like Karachi Port.

3.17 Details of Pilot/Service Boats and Survey Launches
(Floating Craft)

Table No. 41

S. No.	Year of Built & origin	Name of Boat	B.H.P	Age in Years	Type of Boat	Economic usefull life years	Remarks
1.	1987 Pakistan	SEEMA	90	05	Survey Lunch	20	Operational
2.	1987 Pakistan	AAB-E-PAIMA	336X2	05	"	20	- do -
3.	1981 U.K	JATLI	350X2	11	"	20	- do -
4.	198 U.K	AMBER	100	12	Service Boat	20	- do -
5.	1980 U.K	ANJUM	100	12	"	20	- do -
6.	1980 U.K	SADAF	124	12	"	20	- do -
7.	1978 U.K	LAHOOT	400X2	14	Pilot Boat	20	- do -
8.	1978 U.K	YAQOOT	400x2	14	"	20	- do -
9.	1978 U.K	HOORI	193	14	Service Boat	20	- do -
10.	1978 U.K	NOORI	193	14	"	20	- do -
11.	1978 Pakistan	HALEJI	180	14	Water Supply	20	- do -
12.	1977 U.K	MAKLI	370	15	Survey Boat	20	Obsolete
13.	1977 U.K	ISARO	400x2	15	Chairman Boat	20	Reserved for Inspection
14.	1975 U.K	MEENA	120	17	Service Boat	20	Need Repair

3.18 Pipe Line Net Work
Table No. 42

Length Meters	Dia in inches	Type of Fuel Handled	Discharge Capacity of Pipe	Remarks
300	16	Furnale Oil	1000 Tons/ Hours	See Note

Note: Pipe line net work has been installed from Port Qasim marginal Wharf Berth No. 1 to Storage Tanks at Bin Qasim Power Plant.

3.19 Facilities for Water Supply at the Port.

Table No. 43

Description of Tankage	No.	Capacity in gallons	Remarks
Over Head Tank	01	65,000	Water is also being supplied through barges.
Ground Reservoirs	02	500,000	

3.20 Facilities For Electric Power Supply

Connected Load in Mega Volt Amperes = 30 MVA.

Stand by facilities = Generator of 125 KVA.

Chapter-IV

State of Infrastructure for Karachi Shipyard & Engineering Works Ltd. and National Shipping Corporation

4.1 Repair Docks of Karachi Shipyard their Capacities and Size of Ship being Handled

Table No. 44

Number of dry docks	Area of dry docks length & breadth (meters)	Maximum DWT of vessel	Draft limits in meters	Remarks
2	189 x 27 m 171 x 24 m	26,000 26,000	6 6	

4.2 Workshops of Shipyard, their Number & Area

Table No. 45

Number	Nature of Workshop	Area in			Remarks
		Covered Acres	Un-covered Acres	Area in Acres	
1	Ship Building/Repair Gen. Engg.	71	43	28	

4.3 Management/Number of Employees at the Shipyard for Year 1992 their Number Indicating Supervisory/technical Staff.

Table No. 46

Total Number	Supervisory Staff	Labour (Technical)	Remarks
3746	574	3172	

SHIPS FLEET WITH PAKISTAN NATIONAL SHIPPING CORPORATION

**4.4
Table No. 47**

S.No.	Name of Ships	Age in Years	Capacity DWT	H.P	Speed (Knots)	Oil Consumption/day at service	Maximum Draft (Meters)	Year of Make & Origin	Remarks
1.	M.V. Islamabad	9	18,204	11,200	16.50	24.30	9.70	1983 Pakistan	
2.	M.V. Sibi	11	16,436	11,400	15.40	23.30	9.70	1981 Poland	
3.	M.V. Khairpur	11	16,430	11,400	15.46	23.70	9.70	1981 Poland	
4.	M.V. Ayubia	11	18,050	11,400	15.24	23.10	9.40	1981 U.K	
5.	M.V. Kaghan	11	18,050	11,400	15.48	22.80	9.70	1981 U.K	
6.	M.V. Multan	12	18,257	11,200	16.30	24.80	9.70	1980 Japan	
7.	M.V. Bolan	12	18,153	11,200	17.00	30.20	9.70	1980 Japan	
8.	M.V. Chitral	12	18,144	11,200	15.20	24.90	9.70	1980 Japan	
9.	M.V. Hyderabad	12	18,257	11,200	15.75	24.00	9.70	1980 Japan	
10.	M.V. Malakand	12	18,224	11,200	16.20	29.30	9.70	1980 Japan	
11.	M.V. Sargodha	12	18,242	11,200	16.10	22.90	9.70	1980 Japan	
12.	M.V. Makran	13	23,490	9,900	14.10	24.60	10.20	1979 Denmark	
13.	M.V. Lalazar	18	13,539	9,800	12.76	24.40	9.19	1974 Pakistan	
14.	M.V. Hunza	20	15,928	6,885	11.70	14.60	9.42	1972 Japan	
15.	M.V. Hinglaj	20	15,928	6,885	11.63	12.30	9.42	1972 Japan	
16.	M.V. Ocean Envoy	20	15,215	7,500	10.76	10.35	8.86	1972 U.K	
17.	M.V. Shalamar	22	13,391	9,600	14.20	21.50	9.24	1970 Pakistan	
18.	M.V. Sunderbans	24	13,069	9,600	15.00	17.80	9.34	1968 Yougoslavia	
19.	M.V. Terbela	24	13,330	10,500	14.75	24.50	9.27	1968 Germany	
20.	M.V. Kaptai	24	13,330	10,500	14.66	22.40	9.27	1968 Germany	
21.	M.V. Ohrmazd	24	13,277	9,900	13.51	23.40	8.87	1968 U.K	
22.	M.V. Shams	32	5,772	10,400	16.52	23.40	6.80	1960 Japan	

M.P.C = MULTIPURPOSE CARGO.
G.C.C = GENERAL CARGO CONVENTIONAL
P.C.C = PASSENGER-CUM-CARGO.

4.5 SHIPS FLEET WITH PISC

Table No. 48

Name of Ship	Year Built	Age in Years	Speed in Knots	DWT in vessels/ Ship	Remarks
SAFINA-E-ARAB	1962	30	14	6,857	Passenger cum cargo vessel (PCCV)
SAFINA-E-ABID	1951	41	14	5,240	- do -
SAFINA-E-HAIDER	1963	29	14	12,655	General Cargo conventional
SAFINA-E-REHMAT	1958	34	14	12,313	- do -
SAFINA-E-ISMAIL	1958	34	14	11,893	- do -
				Total DWT:	48,958

4.6 Ships Fleet with National Tanker Company

Table No. 49

No.	Name of Ship	Year Built	DWT of Ship	Type of vessels
1.	JOHAR	1975	89,941	Crude Oil Tanker
Total:			89,941	

4.7 Management/No of Employees at (PNSC) Pakistan National Shipping Corporation

Category	Number
Officer (Shore-based)	400
Officers (A-Float)	549

1.7 Questionnaire

- 1. Name of the Port :-----

- 2. Navigational Channels :-----
 :Sl. No. ! Length ! Width ! Depth !
 : (M) ! (M) ! (M) ! Remarks :
 :-----

- 3. Bouys :-----
 : Number ! Types ! Remarks :
 :-----

- 4. Break Water/Jetties :-----
 : Num-ber ! Length ! Width ! Depth !
 : (M) ! (M) ! (M) ! Remarks :
 :-----

- 5. Light Houses :-----
 : Num-ber ! Height ! Visibility !
 : (M) ! Limits (K.M) ! Remarks :
 :-----

- 6. Navigational Aids/
 Tele-Communications
 etc. :-----
 : Number ! Types ! Remarks :
 :-----

Annexure 1/2

7. Moorings

Number	Types	Remarks

8. Dry Bulk Cargo

(a)

Berth				
Number	Types	Length (M)	Width (M)	Remarks

(b)

Piers			
Number	Types	Capacity	Remarks

9. Oil/Liquid Bulk Cargo

(a)

Berths				
Number	Types	Length (M)	Width (M)	Remarks

(b)

Piers			
Number	Types	Capacity	Remarks

Annexure 1/3

- 10. Multi purpose Berths : : : : :
: : : Length ! Width !
: : Number ! (M) ! (M) ! Remarks :
: : : : :
: : : : :
: : : : :

- 11. Plinths : : : : :
: : Number ! Area (Sq.m) ! Remarks :
: : : : :
: : : : :

- 12. Ware-Houses : : : : :
: : Number ! Area (Sq.m) ! Remarks :
: : : : :
: : : : :

- 13. Sheds : : : : :
: : Number ! Area (Sq.m) ! Remarks :
: : : : :
: : : : :

- 14. Workshops : : : : :
: : Number ! Area (Sq.m) ! Remarks :
: : : : :
: : : : :

- 15. Shipyards and Repairs : : : : :
Docks : : Number ! Max. size of Ship ! Remarks :
: : : : :
: : : : :

Annexure 1/4

16. Cargo Handling Equipments
(a)

Quay Cranes			
Number	Types	Lifting Capacity (M. Tons)	Remarks

(b)

Floating Cranes			
Number	Types	Lifting Capacity (M. Tons)	Remarks

(c)

Coveyar Belts			
Number	Types	Capacity (M. Tons)	Remarks

(d)

Evacuators			
Number	Types	Capacity (M. Tons)	Remarks

(e)

 Other Cargo Handling Equipment if any
 :-----
 : ! Capacity !
 : Number!Types! (M. Tons) ! Remarks :
 :-----
 :-----

17. Fire Stations

Number:-----
 :-----
 : Fire Fighting Equipments :
 :-----
 : Number ! Area (Sq.m) ! Remarks :
 :-----
 :-----

18. Management/Number of Employees at the Port

 :-----
 : !Supervisory! Labour !
 : Number! Staff !Technical!Remarks :
 :-----
 :-----

19. Other Facilities at the Port

 : Name ! Number ! Types ! Remarks :
 :-----
 :-----

20. Ports Own Vehicles

Sl. No.	Road vehicles	Make/Type	Size/Model	Year of Purchase	Remarks
---------	---------------	-----------	------------	------------------	---------

1. Trucks
2. Trailers
3. tractors
4. Others Carrier

- i)
- ii)
- iii)

21. Dredging Equipment of the Port

Sl. No.	Dredger (Type)	Horse Power	Maximum Digging Depth	Max. Width of Cut.	Dredging Capacity	Other Information if any	Remarks
---------	----------------	-------------	-----------------------	--------------------	-------------------	--------------------------	---------

22. Ships/tugs/crafts Owned by the Port

Sl. No.	Name of the Craft	Category	Type	Horse Power	Capacity	Speed in Knots	Year of Make	Year of Purchase	Where Built	Remarks
---------	-------------------	----------	------	-------------	----------	----------------	--------------	------------------	-------------	---------

Tugs, Pilot boats, Work boats, Personnel boats, etc.

23. Roads at the Port

Sl. No.	Roads	Number	Remarks
	Length (Km.)	Width (qtres)	

24. Railway Facility at the Port

Sl. No.	Railway Tracks	Number	Remarks
	Length (K.m)	Guage (Metres)	

25. Ships Fleet with PNSC

Sl. No.	Name of the Ships	Type	Capacity D.W.T	Horse Power	Speed Knots	Oil Consumption per day at Service
1.	2.	3.	4.	5.	6.	7.
	Maximum Draft	Year of Construction	Year of Purchase	Where Built		Remarks
	8.	9.	10.	11.		12.

Bulk carrier, Conventional General Cargo Carrier, Multi Cargo Carrier, Container Ship, Passenger Carrier, Mineral Tanker, Edible Oil Tanker, Oil Tanker, etc.

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