CHAPTER 5

CURRENT WATER TRANSPORTATION PROFILE

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5.1 Sea and Inland Water Transportation in Bangladesh

5.1.1 Transport Sector Demand in Bangladesh

While the Gross Domestic Product (GDP) increased steadily during '89/'90 - '95/'96 at an annual average rate of 4.5 %, the demand for the transport sector has shown a moderate increase, 2.2 % for passenger transport and 2.7 % for cargo transport per annum, during '92/'93 - '96/'97. The elasticity index of transport demand against the GDP had been more than a unit in 1980s, though this was not the case in the recent several years. The demand for transport is shown in Table 5.1.1

Table 5.1.1 Demand for Transport in Bangladesh : 1974/75 - 1996/97

(Figures in Billion)

Year	Total Passenger (PKMS)	Total Freight (TKMS)
1974/75	17	2.6
1984/85	35	4.8
1988/89	57	6.3
1992/93	66	9.0
1996/97	72	10.0

Notes: PKMS --- Passengers x Kilometers
TKMS --- Tons x Kilometers
Source: Bangladesh Integrated Transport System Study, 1998

Although the transport demand for passengers and freight has increased over the years, the share of each mode has not increased at the same proportion. Table 5.1.2 shows the transition of each mode's share from 1974-1997. The predominance of the road sector has continued up to the current year but rail and water transport have made slight gains during 1996/97.

Water transport has been losing its share, presumably due to a preference for faster service provided by road transport, but seems to have bottomed out these days. The railway sector has lost not only its share but also its real figure in ton-kilometers in freight transport.

Table 5.1.2 Share of Different Modes of Transport : 1974/75 - 1996/97

(Figures in the Percentage)

Year	Passenger				Freight			
	Modal Distribution (%)				Modal Distribution (%)			
	Road	Rail	Water	Total	Road	Rail	Water	Total
1974/75	54	30	16	100	35	28	37	100
1984/85	65	20	16	100	48	17	35	100
1988/89	68	17	15	100	59	11	30	100
1992/ 93	75	12	13	100	61	7	32	100
1996/97	73	13	14	100	63	7	30	100

Source: Bangladesh Integrated Transport System Study

Assuming a future GDP growth rate of 4.5% per annum, "Bangladesh Integrated Transport System Study" projected the growth rate of passenger transport demand is at 5.5% per annum, while that of freight is at 6.5 % per annum up to 2014/15. According to this projection, the passenger transport demand will increase from 72 billion PKMs in 1996/97 to 196 billion PKMs in 2015, and the freight transport demand will increase from 10.0 billion TKMs in1996/97 to 30 billion TKMs in 2015.

To meet the growing demand for the transport sector, the aforementioned study recommends various programmes for the future. The following extracts are related to the sea ports.

--- development of Chittagong Port by expansion of two container terminals and bunkering facilities, procurement of container handling equipment including gantry crane and high powered tug,

--- increasing the draft of the port and developing a deep sea port at Chittagong,

--- for the development of the Mongla Port, programmes will include dredging of the Passure River channel, replacement of cargo/container handling equipment, construction of multipurpose berth with backup facilities and light tower, installation of beacon signaling device at fair-way buoy.

5.1.2 Cargo Throughput of Sea Transport

Table 5.1.3 shows cargo throughput statistics of the two sea ports in Bangladesh. The total cargo throughput in these ten years shows an average increase of 3.2 % per annum, with exports showing a slightly higher annual growth rate (3.8 %) per annum than that of imports (3.1 %). The cargo throughput had fluctuated depending on the economic and industrial conditions, however, since it reached a 13 million-ton level in '93/'94, the ports have maintained that level with an increasing trend.

The cargo throughput of Mongla Port has not greatly increased, registering only 1.4 % per annum, compared with 3.7 %, for Chittagong Port. Moreover, exports of Mongla Port have decreased, partly due to more than 50% reduction in exports of jute goods. It is assumed that Mongla Port has been losing its significant role as an export and import base, partly because the traditional industries in its hinterland have not adopted to modern world trade and partly because Mongla Port lacks in efficient inland transport infrastructure to distribute its cargo to/from its hinterland.

Table 5.1.3 Cargo Throughput in Bangladesh Ports

(Figures in Thousand Metric Tons)

Year	Mongla Port			Chittagong Port			Total		
	Import	Export	Total	Import	Export	Total	Import	Export	Total
88/89	1,882	637	2,519	7,122	836	7,958	9,004	1,473	10,477
89/90	1,892	695	2,587	6,798	695	7,493	8,690	1,390	10,080
90/91	1,904	557	2,461	6,282	919	7,201	8,186	1,475	9,661
91/92	2,054	596	2,650	6,267	770	7,038	8,322	1,366	9,688
92/93	1,758	621	2,379	6,496	1,120	7,616	8,254	1,741	9,995
93/94	1,463	467	1,931	6,728	1,169	7,897	8,192	1,637	9,828
94/95	2,120	706	2,826	8,925	1,354	10,279	11,045	2,061	13,140
95/96	2,443	396	2,839	8,851	1,450	10,301	11,294	1,846	13,740
96/97	2,171	521	2,692	9,117	1,437	10,554	11,289	1,957	13,244
97/98	2,339	528	2,867	9,561	1,527	11,087	11,900	2,055	13,954

Note: Commodity-wise statistics are shown in Table C-5.1.1 in Appendix C.
Source: Statistics of Mongla Port Authority and Chittagong Port Authority

5.1.3 Container Throughput of Sea Ports

Container transportation has been one of the most important means of maritime transportation for these twenty years. Almost all the general cargo and break bulk cargo that can be containerized is now transported with container vessels up to 70,000-80,000 DWT in the major sea routes in the world. The Bangladesh ports have not handled a big volume of containers, partly because the potential demand for container transport has not been large due to the trade structures of the nation, and partly because the ports have not had enough facilities to accommodate full-size container vessels.

Table 5.1.4 shows the recent trends of container cargo handled at the two sea ports in Bangladesh. The handling volume of containers shows remarkable growth, 17.2 % per annum on a tonnage basis, and 17.0 % per annum on a TEU (Twenty Equivalent Units) basis. It should be noted that these figures are significantly higher than that of the total volume handled at both ports, 3.2%. This means that containerization is surely developing in Bangladesh, though some future problems can be identified, such as the need for a deep sea port, and development of an inland transport system suitable for container transportation.

Mongla Port has played only a limited role in container transport. While its share in the total sea transport is approximately 20%, the share of Mongla Port in container transport has remained at 5-6 %. Chittagong Port is a major player for container transport, because it is well linked to Dhaka, the major origin and destination of containers, and modern industries are located in the Chittagong area, which are the major sources of export containers. On the other hand, Mongla Port is rather export oriented and its role in import transport regarding containers is very limited. This may come from the fact that the road and railway links to other regions, especially to Dhaka, to/from Mongla Port, are not sufficiently developed, and moreover Mongla Port is not equipped with modern container handling facilities.

Table. 5.1.4 Container Throughput in Bangladesh Ports

(Figures in thousand metric tons and thousand T.E.U.s)

Year		Mongla Port			Chittagong Port			Total		
		Import	Export	Total	Import	Export	Total	Import	Export	Total
88/89	TEU	7.1	6.9	14.0	40	38	78	47	45	91
	Tons	4.8	79.0	83.8	473	240	713	477	319	797
89/90	TEU	8.8	9.0	17.8	57	54	111	65	63	128.
	Tons	11.2	96.4	107.7	668	306	974	679	403	1,080
90/91	TEU	7.5	7.7	15.2	51	51	101	58	58	116
	Tons	6.1	82.2	88.3	546	343	889	552	425	977
91/92	TEU	6.8	6.8	13.6	61	60	121	68	67	135
	Tons	5.6	79.2	84.7	680	403	1,082	685	482	1,167
92/93	TEU	6.4	6.3	12.7	76	74	151	83	80	163
	Tons	7.5	72.3	79.8	845	534	1,379	852	606	1,459
93/94	TEU	7.6	7.6	15.2	90	86	175	97	93	190
	Tons	16.4	85.7	102.1	1,005	621	1,627	1,021	707	1,729
94/95	TEU	8.1	9.1	17.2	115	113	227	123	122	244
	Tons	19.5	92.0	111.5	1,341	773	2,114	1,361	865	2,225
95/96	TEU	9.5	9.2	18.8	127	124	251	137	133	270
	Tons	56.5	91.4	147.9	1,534	801	2,336	1,591	893	2,483
96/97	TEU	10.4	6.3	16.7	146	144	290	157	150	307
	Tons	56.6	105.2	161.8	1,772	898	2,670	1,828	1,003	2,832
97/98	TEU	9.6	9.9	19.5	163	166	329	173	176	349
	Tons	27.8	116.2	143.9	n.a.	n.a.	3,018	n.a.	n.a.	3,162

Source: Statistics of the MPA and the CPA

5.1.4 Cargo Movement to/from Nepal

It is a rather difficult task to study the cargo movement to/from the land-locked third countries through the Bangladesh ports. Nepal is a target country to study because Bhutan, which is also land-locked country located near Bangladesh, has a much smaller population than Nepal. Nepal, of course, has a large trading volume with adjacent countries, Bangladesh, India, and China, however, the analysis is again concentrated on the trade, or cargo movement between Nepal and the third countries which do not have land access to Nepal.

Calcutta Port, including its sub-port, Haldia Port, is currently a dedicated port to handling the Nepalese sea cargo. The total throughput of port cargo handled at Calcutta Port has been within a range of 300 to 500 thousand tons in these years. Other Indian ports are reported to also handle the Nepalese cargo, though their handling volume is assumed much less than that of Calcutta Port. The Bangladesh ports are now sharing the Nepalese cargo with Calcutta Port, however, with much less volume, namely, 68 thousand in '97/'98. Table 5.1.5 shows cargo throughputs to/from Nepal of the three major ports, Calcutta, Mongla, and Chittagong.

Table 5.1.5 Nepalese Cargo Throughput of Three Ports

(Figures in Thousand Metric Tons)

Year	Calcutta Port (incl. Haldia)			Mongla Port Import	Chittagong Port Import	Total
	Import	Export	Total			
90/91	297	7	303	0	0	303
91/92	362	9	371	0	0	371
92/93	319	39	358	0	0	358
93/94	265	37	302	0	0	302
94/95	381	72	453	0	0	453
95/96	396	64	460	0	0	460
96/97	399	86	485	0	27	512
97/98	319	89	408	41	27	476

Notes: Commodity-wise statistics are shown in Table 5.1.6
Source: Statistics of Calcutta Port Trust, MPA, and CPA

As shown in the table, the Nepalese port cargo through these three ports has steadily increased in these years, growing at a rate of 6.7% per annum. Although imports represent 78% of the total throughput in '97/'98, the export volume has shown a significant increase. And though the Bangladesh ports have not played an important role in these years, they have the potential to handle the Nepalese cargo as seen in '96/'97 and '97/'98.

Table 5.1.6 shows commodity-wise handling volume of the Nepalese cargo. While bulk cargo such as fertilizer has not increased much, and some commodities have even shown a decreasing trend, general cargo shows significant growth.

Because the Nepalese cargo may be handled at ports other than these three ports, it is difficult to precisely determine the volume of the Nepalese port cargo. Moreover, as shown in the table, Calcutta Port reportedly handled 570 thousand tons of cargo throughput per annum in 1980s, so the situation may have been fluctuating. However, for the demand forecast in the

following stage of the study, it is reasonable to assume that the volume of the Nepalese third country cargo is within a range of 500 and 600 thousand tons per annum at present, taking into account the possible handling at other ports.

Table 5.1.6 Commodity -wise Handling Volume of the Nepal Cargo in Three Ports

Unit: thousand tons

Import Commodity		89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98
1	Foodgrain	3	0	0	0	18	0	19	0	8
2	Cement	64	24	44	9	0	0	0	0	0
3	Fertilizer	185	77	164	151	133	61	78	68	119
4	Sugar	12	0	0	0	0	11	0	0	0
5	Coal	22	14	6	7	3	0	0	0	0
6	General Cargo	69	71	73	84	68	242	248	313	201
7	Steel	14	54	44	41	7	10	1	12	2
8	Explosive	0	0	0	0	0	0	0	0	0
9	Edible Oil	8	23	31	28	37	52	49	33	55
10	Non Edible Oil	0	6	0	0	0	0	0	0	0
11	POL	189	27	0	0	0	0	0	0	0
12	Bitumen	1	1	0	0	0	5	0	0	2
	Total Import	567	297	362	319	265	381	396	426	387
	Total Export	4	7	9	39	37	72	64	86	89
	Total Volume	571	303	371	358	302	453	460	512	476

Source: Calcutta Port Trust, Mongla Port Authority, Chittagong Port Authority and Calcutta Port Trust

5.2 Cargo Movement in Mongla Port

5.2.1 Trends of Port Cargo Volume

As previously explained and shown in Table 5.1.3, the cargo handling volume at Mongla Port has not greatly increased. However, statistics on import and export as well as by commodity tell a different story. The detailed commodity-wise statistics and container statistics are shown in Tables C-5.2.1 and C-5.2.2 in Appendix C, and Figs 5.2.1 and 5.2.2.

The import cargo has favorably increased at a growth rate of 2.4 % per annum. Manufactured "cement" and "clinker" showed a tremendous increase with the combined growth rate of 10.5 % per annum. This comes from the fact that construction demand has been tremendously expanded corresponding to the economic development of Bangladesh. Volume of "fertilizer" is the next to that of cement and clinker, but the volume in each year has fluctuated, perhaps in line with domestic demand and supply. "Foodgrain" also occupies a large portion of the

import but again has fluctuated depending on the scale of the domestic harvest. These four commodities have a share of more than 96 % of the total import cargo.

While the volume of "general cargo" has a share of 42 % at Chittagong Port, the general import cargo at Mongla Port is negligibly small, 65 thousand tons, or 2.8 % of the total.

The export volume has decreased by 17 % in these nine years. While 613 thousand tons of "jute" and " jute goods" were recorded to be handled in '88/'89, the volume decreased to 504 thousand tons in '97/'98, another 17% decline. The stable or even falling demand for jute and jute goods in the world market and harsh competition between jute industries in India are thought to be the reasons for the decline. The two commodities have a share of more than 95 % of the export volume.

Though its volume is not so large, "frozen shrimp" has shown significant growth, 9.2 % per annum. It will be one of the leading export industries in Khulna area. The export volume of "general cargo" is also negligibly small.

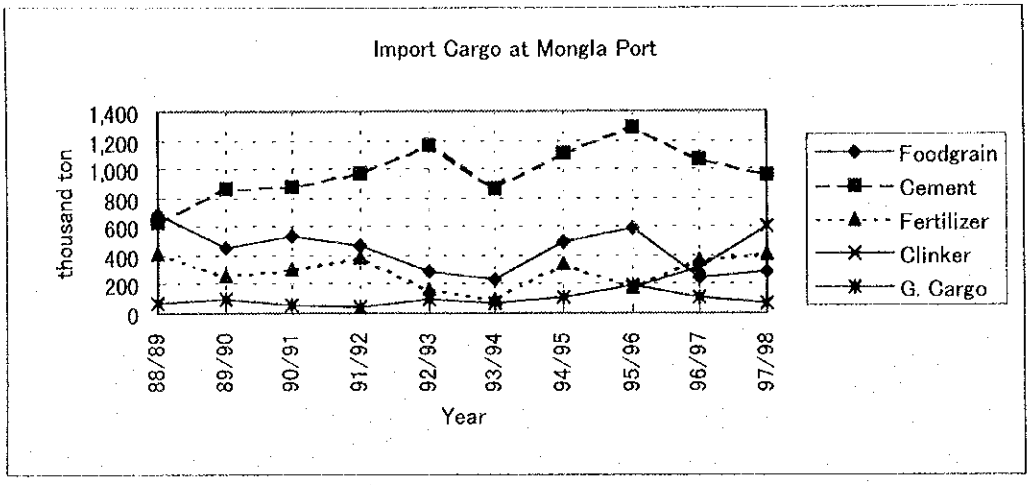
Some fertilizer to Nepal was handled at Mongla Port in '97/'98 for the first time in these 9 years, though reportedly the cargo had been handled in 1980s at Mongla Port. Forty-one thousand tons of fertilizer were reportedly transshipped to the river port of Khulna as well as a private port of Nawapara by barges and was reportedly transported to Nepal by train. This may show some possibility for Mongla to be one of the major players for the Nepalese transit cargo in the future.

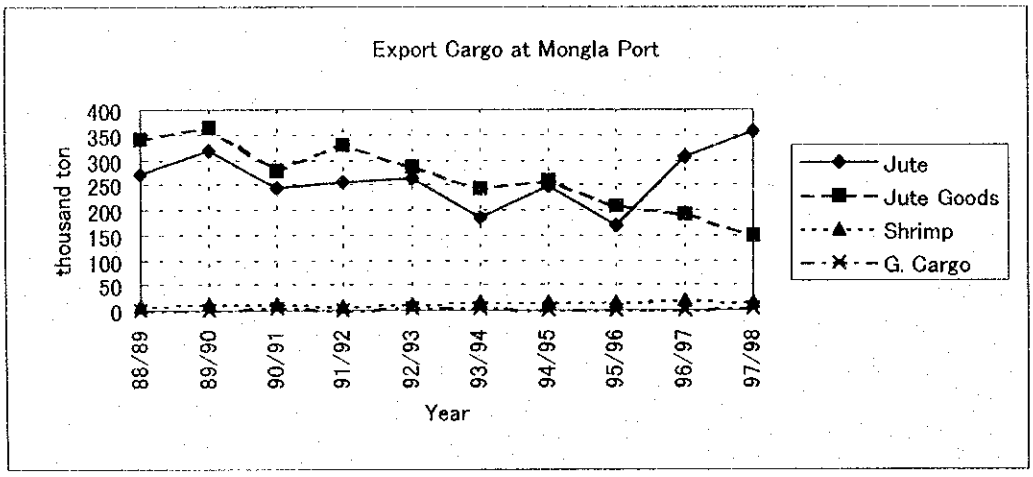
In '97/'98, 144 thousand tons of containers, or 19 thousand TEUs were handled at Mongla Port, as shown in Table 5.1.4. Although the number of container boxes is almost the same for export and import, the cargo volumes in containers are quite different from each other. While the volume of import containers was 28 thousand tons, the export container volume was 116 thousand tons in '97/'98. This is because the import containers include a lot of empty container boxes due to lack of container boxes for export. Statistics of commodity-wise container cargo are shown in Tables C-5.2.3 and C-5.2.4 in Appendix C.

This situation of Mongla Port is quite the opposite story to that of Chittagong Port, where the volume of import containers is approximately two times larger than that of export and a variety of imported goods is handled and distributed to the major areas in Bangladesh such as Dhaka.

Handling of many empty container boxes has a negative impact on container transport efficiency. Sometimes this inefficiency may lead to increased container transportation costs. As a matter of fact it is reported that some empty container boxes are transported to Mongla Port from Chittagong Port for stuffing exported jute goods. It will be necessary to try to balance the volume of the import and export at each port, thereby minimizing container transport cost.

It may be concluded, as far as container transport is concerned, that Mongla Port has served its limited customers in its hinterland as a distribution base to/from foreign countries, but has not served in a way that Chittagong Port has done as a distribution base for the whole nation.





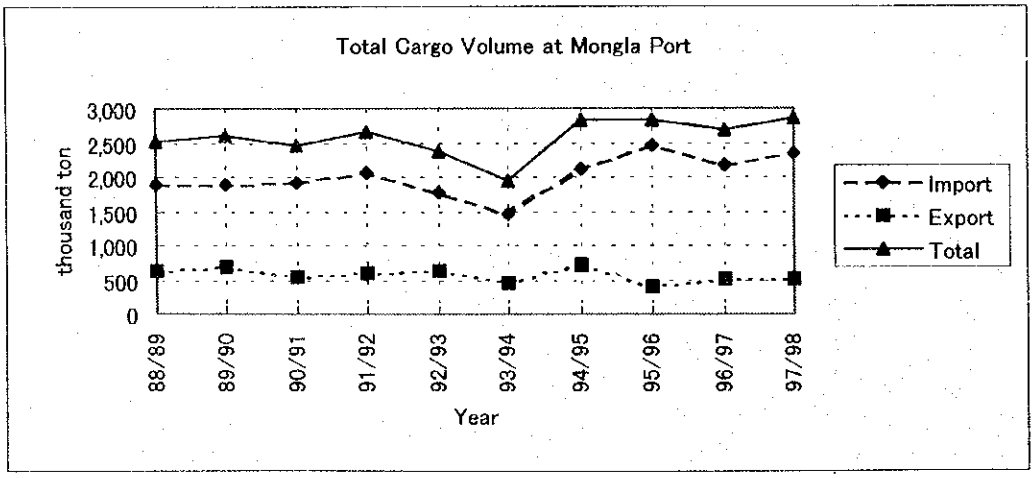


Fig. 5.2.1 Main Commodity of Import and Export at Mongla Port

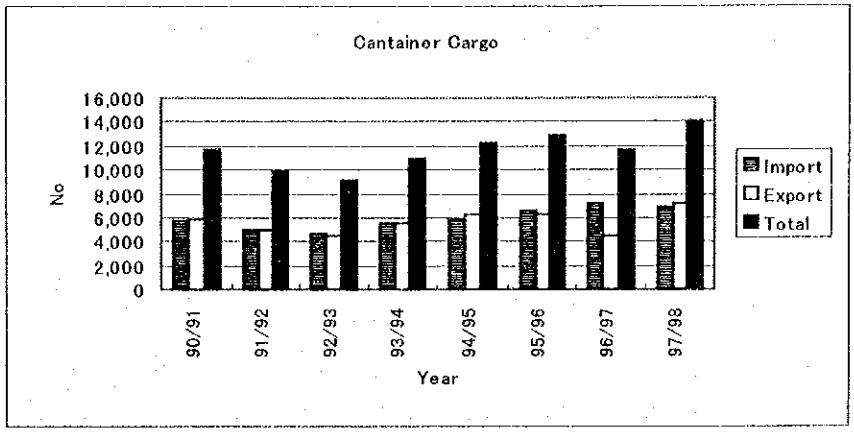


Fig. 5.2.2 Container Cargo at Mongla Port

5.2.2 Vessels Calling the Port

The number of vessels calling the Port is around 300-400 per annum with a declining trend (see Table C-5.2.5 in Appendix C). Due to the increased size of vessels, this is a common trend at most ports of the world.

The most important thing to bear in mind is that the sizes of vessels calling Mongla Port are restricted by the water depths of the navigation channels as well as the berthing areas. The water depths of various places have often been changed depending not only on dredging works but also on natural siltation phenomenon of the river. In fact, most vessels calling Mongla Port often use tides as an additional allowance of water depth; moreover, some of them are forced to reduce their draft without loading fully.

5.2.3 Cargo Handling at the Port

Mongla Port is virtually an anchorage port, since more than 94 % of the cargo volume is presently handled at either mooring buoys or anchorage areas in the river. All of the cargo handled this way (most of bulk cargo), is charged and discharged to/from river boats or barges. No means of land transportation to/from a certain place up or down the rivers, such as Khulna Port, Nawapara Private Port, and even Dhaka Port are used. Though this handling method needs much more time and seems to be inefficient, it costs much less than land transportation and is suitable for bulk cargo, which in general is not time sensitive.

On the other hand, all the container cargo and a small volume of non-containerized general cargo is handled at the jetty. The contents of container are such commodities as jute, jute goods, frozen shrimp, and general cargo including machinery and other manufactured goods as previously shown in Tables C-5.2.3 and C-5.2.4. in Appendix C All of this cargo is presently transported to/from Mongla Port by trucks. Table 5.2.1 shows the volume of cargo handled at the jetty.

Table 5.2.1 Cargo Handled at the Jetty in '97/'98

(Figures in Thousand Metric Tons)

Year	Cargo Handled at the Jetty			Total Cargo of the Port
	Container	Non-Container	Total	
90/91	88	23	111 (4.5 %)	2,461
91/92	85	20	105 (4.0 %)	2,650
92/93	80	26	106 (4.6 %)	2,379
93/94	102	22	124 (6.4 %)	1,931
94/95	111	30	142 (5.0 %)	2,826
95/96	148	26	174 (6.1 %)	2,839
96/97	162	19	181 (6.7 %)	2,692
97/98	144	16	160 (5.6 %)	2,867

Source: Information from the MPA

5.2.4 Road Traffic Related to Mongla Port

Although no statistics on the truck traffic related to the port activities are available, the number of truck trips is, in theory, calculated in the following manner;

--- Average tonnage per truck is reported to be 7.01 tons / truck for export
9.20 tons / truck for import
7.30 tons / truck on average

--- There is reportedly little possibility to load a truck for round trip, which means the number calculated by the above formula should be doubled for the actual number of truck trips, or a load factor of 0.5 should be assumed.

--- Appropriate related trips such as trips of port business vehicles should be included.

As for the jetty cargo in '97/'98, the actual number of trucks transporting port cargo is calculated as approximately 22,000 trucks / year (160,000 divided by 7.30), and the number of trips is 44,000 trips / year for a round trip, which yields 120 trips / day.

The cement factories located inside the Mongla Port area also generate truck traffic, which can be calculated as follows; (the details are described in 5.5.2)

--- production scale	390 thousand combined
--- inland transport	about a half of manufactured cement is transported by trucks, so approximately 500 tons/day is transported by trucks
--- number of trips	100 trips/day, assuming 10 tons/truck and 0.5 load factor

It is tentatively concluded, therefore, that the truck traffic related to Mongla Port is a range of 220 trips / day at present, though the number does not include other port related traffic.

5.2.5 Inland Port Cargo Distribution of Mongla Port

1) Movement of the Port Cargo

The inland movement of port cargo is basic information for port planning, but is sometimes very difficult to grasp because of lack of proper statistics. Construction of the integrated O-D tables (Origin-Destination Table) has been carried out for the major commodities, by integrating the existing statistics and data obtained from interviews done for this study. On the other hand O-D table for containers was provided by the MPA. Although some contradictions may be found in the two kinds of tables, no practical problems are encountered in grasping the cargo distribution pattern of Mongla Port.

Inland transport of the major commodities, namely, imported cement, clinker, fertilizer, and food grain and exported jute including jute goods and frozen shrimp, were studied in collaboration with a Bangladesh consultant. The results of the analysis were again scrutinized in detail, and are summarized in Tables 5.2.2 and 5.2.3;

Table 5.2.2 Destinations of Major Imported Cargo in '97/'98

(Figures in Thousand Metric Tons)

Commodity	Khulna City	Other Khulna Division	Barisal	North-Western Region	Dhaka	Total	(Nepal)
Cement	117 (12%)	58 (6%)	0	428 (45%)	352 (37%)	955 (100%)	0
Clinker	443 (73%)	23 (4%)	0	0	138 (23%)	604 (100%)	0
Fertilizer	86 (21%)	209 (51%)	14 (4%)	17 (4%)	86 (21%)	412 (100%)	41
Food Grain	44 (15%)	68 (24%)	62 (22%)	51 (18%)	59 (21%)	285 (100%)	0

Notes: All cargo is transported by inland water from Mongla Port.
Source: Original survey through interviews and other statistics

Table 5.2.3 Origins of Major Exported Cargo in'97/'98

(Figures in Thousand Metric Tons)

Commodity		Khulna City	Rupsa East	Other Khulna Div.	Barisal	North-West Region	Dhaka	Total
Jute, Jute goods	River	182	0	10	5	15	181	393
	Road	107	0	5	0	0	0	112
	Total	289 (57%)	0	15 (3%)	5 (1%)	15 (3%)	181 (36%)	505 (100%)
Shrimp	Road	3 (18%)	13 (76%)	1 (6%)	0	0	0	17 (100%)

Notes: All the shrimp is transported by road to Mongla Port.
Source: Same as above

Cement is widely distributed; in particular, a large volume goes to the North-western region, partly due to the construction project of the Jamuna Bridge. Most of clinker goes to the cement factories in Mongla and Khulna, while a certain portion is distributed to the Dhaka area. A substantial portion of fertilizer goes to Nawapara by river, a private river port 35km north of Khulna City, and from there is transhipped to the final destinations by trucks and/or railway. Food grain is widely distributed to many areas, according to the demand of food

supply.

Exported jute and jute goods come to Mongla Port primarily from Khulna City but also from the Dhaka area. One third of Khulna originated jute and jute goods is transported to Mongla Port by trucks, which corresponds to the container cargo and non-container cargo handled at the jetty of Mongla Port. Frozen shrimp comes to Mongla Port 100% by road and is stuffed in containers inside the Port. Most of shrimp cargo comes to Mongla Port from East Rupsa, where a lot of food processing plants are operating.

2) Movement of Container Cargo

The statistics on container cargo inland movement is provided by the MPA. Tables 5.2.4 and 5.2.5 show the origin and destination of container cargo handled at Mongla Port. As mentioned earlier, all the cargo is transported by trucks.

Table 5.2.4 Origin of Export Container Cargo in '97 /'98

(Figures in Metric Tons)

Origin of Cargo	Volume (share)	Major Commodities
Khulna	60,748 (52.3%)	jute goods, frozen shrimp
Jessore	17,447 (15.0%)	jute goods
Kushtia	3,418 (2.9%)	tobacco leaf
Faridpur	25,283 (21.8%)	jute goods
Barisal	2,609 (2.2%)	jute goods
Dhaka	6,615 (5.7%)	jute goods , others
Total	116,120 (100.0%)	

Source: Information from the MPA

Table 5.2.5 Destination of Import Container Cargo in '97/'98

(Figures in Metric Tons)

Destination of Cargo	Volume (share)	Major Commodities
Khulna	13,232 (81.3%)	machinery, general goods
Jessore	1,301 (8.0%)	general goods
Kushtia	27 (0.2%)	machinery
Faridpur	176 (1.1%)	textile
Barisal	49 (0.3%)	machinery
Dhaka	1,400 (8.6%)	machinery, general goods
Katmandu, Nepal	85 (0.5%)	not known
Total	16,270 (100.0%)	

Note: The cargo movement of 11,001 tons to Bhuyanpur is excluded, because it was for the Jamuna Bridge construction and not considered to show the ordinary distribution pattern.

Source: Information from the MPA

Although, in general, container cargo is widely distributed/collected to/from various areas in most ports, this is not the case with Mongla Port. More than half of the export containers comes from the Khulna area, and more than 80 % of the import containers goes to Khulna. Moreover, almost all the containers are distributed within the southwestern region, which is defined as the area surrounded by the Ganges River and the Padma River. Only Dhaka with 5.7% and 8.6% shares for export and import respectively and Katmandu with a negligible share are beyond this area. The average travel distance is very short for container transportation. The important regions such as Dhaka are assumed to be served by Chittagong Port.

5.2.6 Rates of Different Modes

Inland transport is the predominant means of transport at Mongla Port, as already explained. Whereas this substantially comes from the nature of Mongla Port, there remains some room for economic considerations. Table 5.2.6 shows the comparison among the rates of the three modes.

Table 5.2.6 Rate Comparison among Modes from Mongla Port

(Figures in TK / Metric Tons)

Mode	Khulna	Nawapara	Dhaka	Rajshahi	Dinajpur
Inland Water	100	120	190	---	---
Road	120	150	440	---	---
Railway	265*	265*	---	375	525

Notes; Handling charge is included; inland water ----- 25-30 TK/ton
road ----- 30-40 TK/ton
railway ------15 TK/ton

Railway rate between Mongla and Khulna is estimated on the basis of the existing rate since there no railway system now.

Railway has the minimum charge even for a short distance transport.

Source; Original Survey

It is difficult to compare the rates among modes in general, because choice of modes is made depending on the actual situations, e.g. size and volume of the cargo, the destination, time sensitivity, and so forth. In this sense, all that can be said is that inland water is inexpensive for long distance transport and may be the best choice for bulk cargo in terms of cost.

5.2.7 Proposed Routes to/from Nepal

An overview of institutional aspects and multimodal cross border trade arrangements are described in Appendix J.

Though all of them have not been put to use yet, proposed routes to/from Nepal are shown by the transport mode in Figs. 5.2.3, 5.2.4 and 5.2.5.

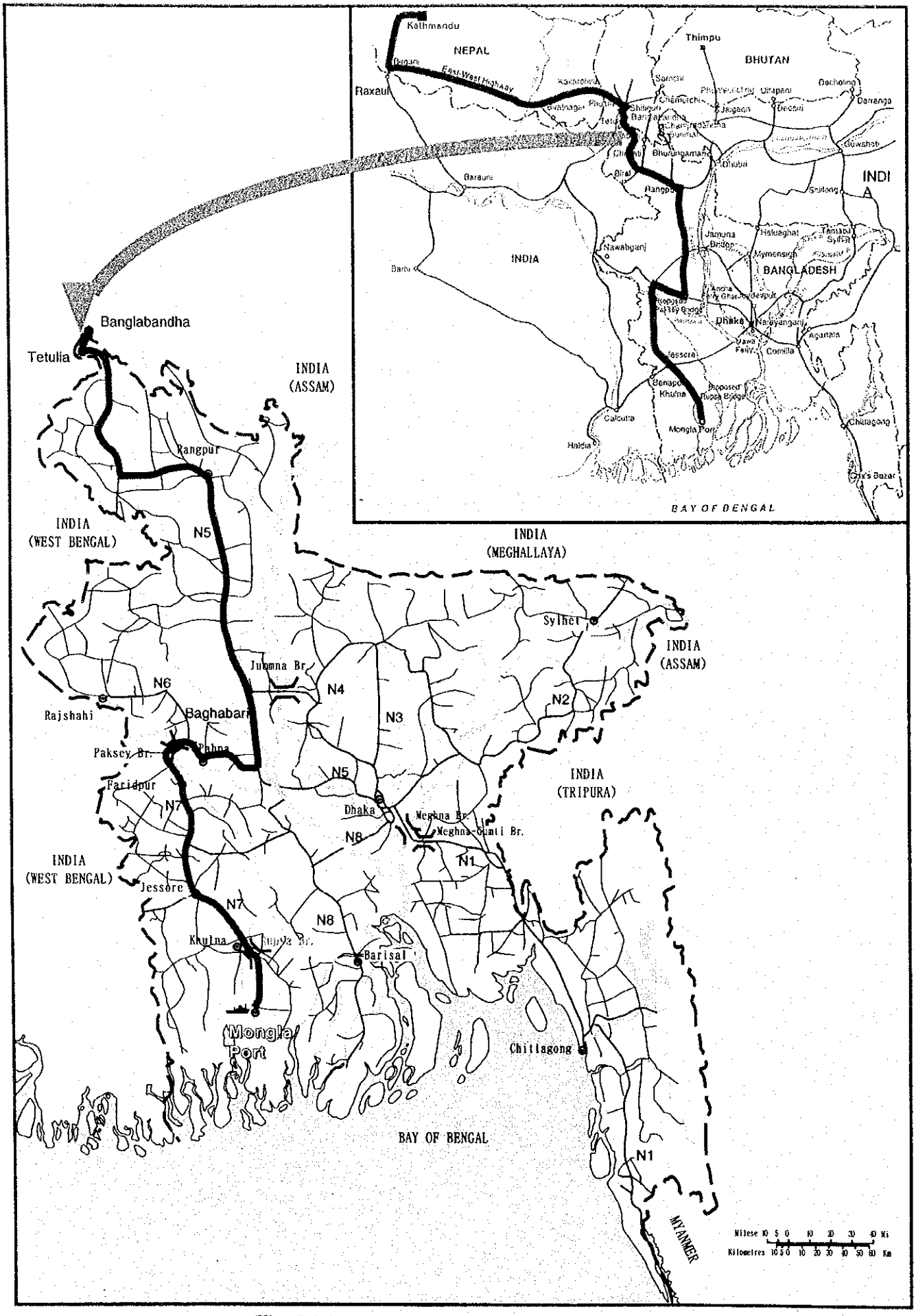


Fig. 5.2.3 Road Transport Route for Nepal Transit Cargo

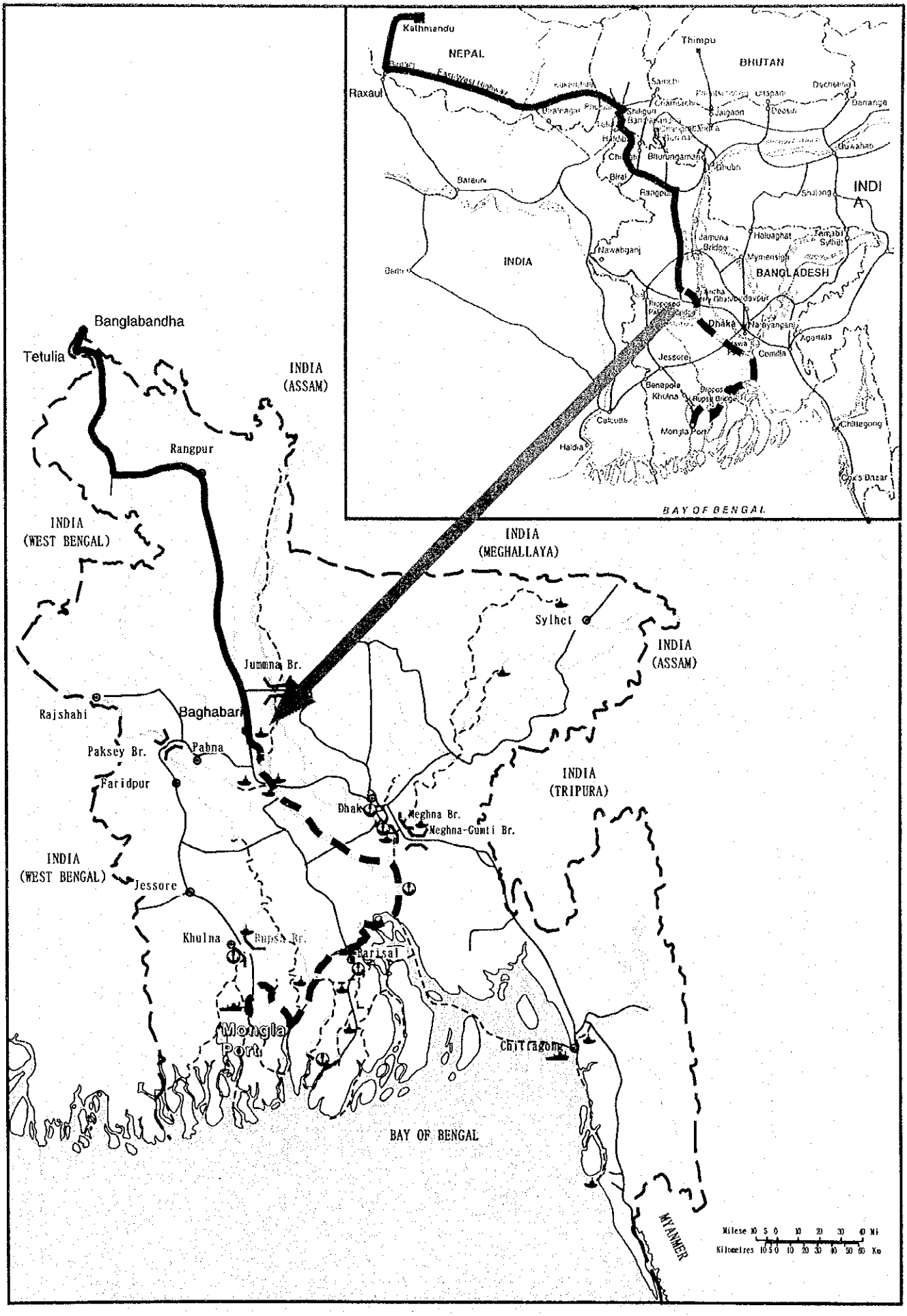


Fig. 5.2.4 Inland Water plus Road Transport Route for Nepal Transit Cargo

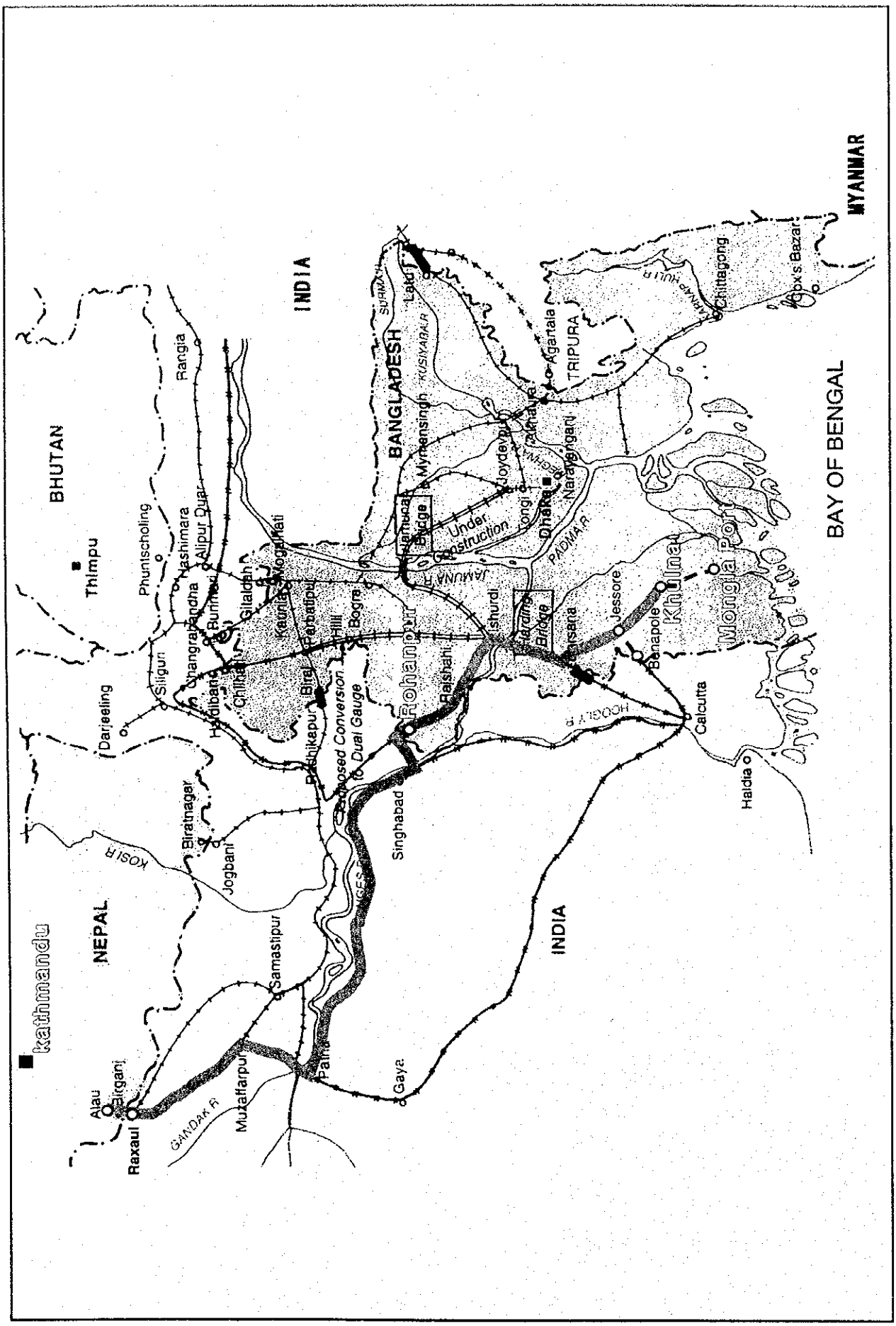


Fig. 5.2.5 Rail Transport Route for Nepal Transit Cargo

5.3 Port Facilities of Mongla Port

5.3.1 Location and Natural Conditions of the Port

Mongla port is situated at the East Bank of Pussur River near the confluence of Pussur River and Mongla Nulla at a distance of 65 nautical miles from the fairway buoy situated in the Bay of Bengal.

For entering into the Port, vessels have to cross the bar at the Port entrance. According to the " Port Information " published by the MPA, " ships drawing up to 7m can cross the bar all seasons. During S.W Monsoons vessels up to 8.0m can cross the outer bar in the spring tide.". Then vessels have to go through the channels in the River to reach anchorage berths, mooring berths, and jetty berths as shown in Fig. 5.3.1.

The entrance fairway is called " Mongla Fairway " which is fitted with a radar reflector as a visible sign. From the fairway to pilotage ground the channel is marked by 9 pairs of lighted buoys with radar reflectors. The channels in the River is marked by buoys at various points with conical shapes to be passed on the starboard hand and can shapes on the port hand when entering the main stream of flood.

The main features of the natural conditions in Mongla Port are as follows;

--- Tides	max. 2.80m in winter and max. 3.35m in monsoons 0.5m difference of water level between dry and wet seasons
--- Weather	April-May preceding monsoon Sept-Oct succeeding monsoon
--- Waves	no significant waves in the River high waves possible at the entrance in monsoon seasons
--- Velocity of the River	max. 6 knots in monsoon and rainy seasons

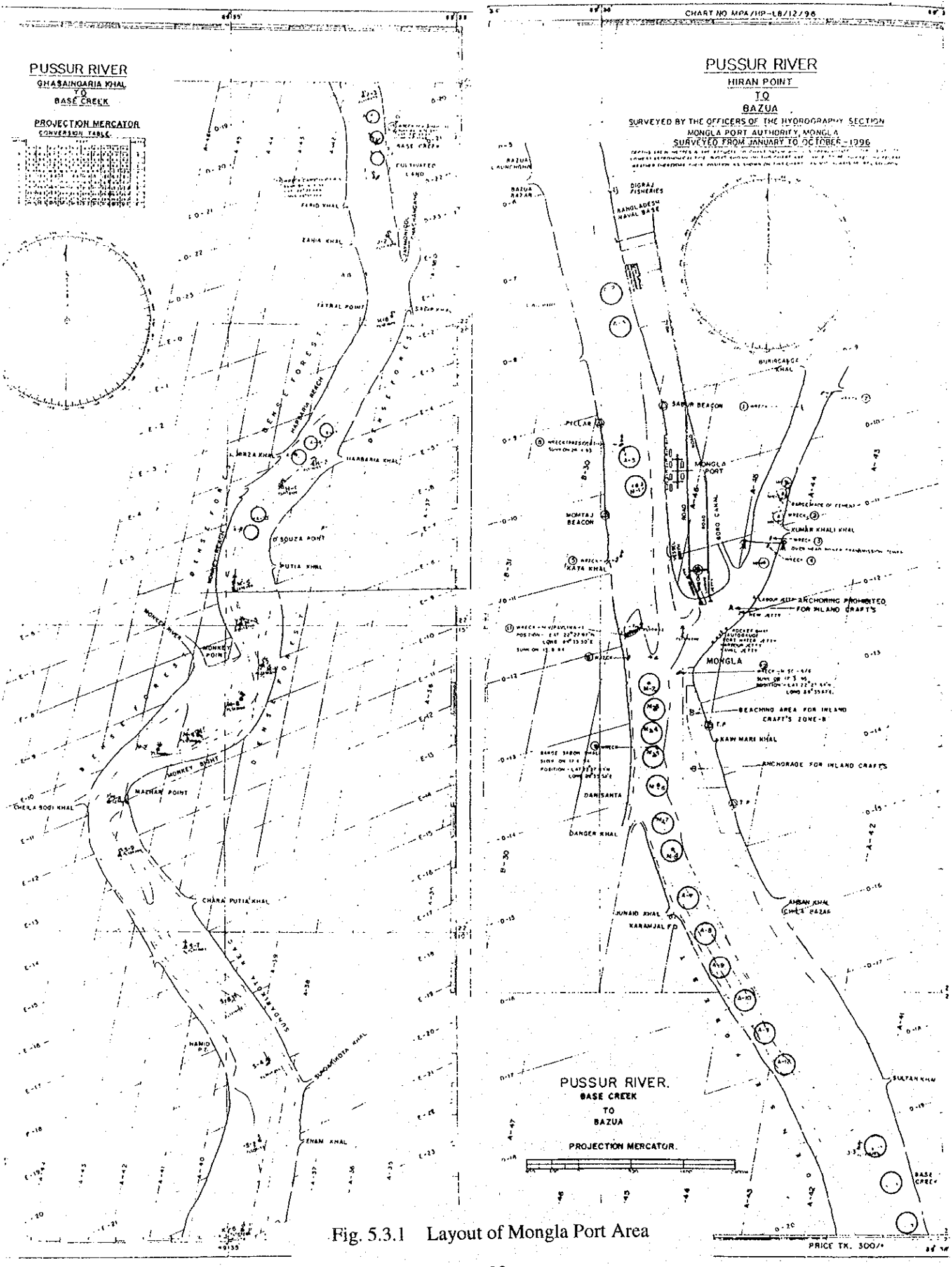


Fig. 5.3.1 Layout of Mongla Port Area

5.3.2 Berthing Facilities

Mongla Port has 5 jetty berths , 8 single moorings, and 21 anchorage berths officially. However anchorage-1 berth is not in use, and anchorage-4 berth is used for a turning basin, thus the number of available berths is 32 berths in total. Table C-5.3.1 in Appendix C shows the dimensions of berths.

Being in the River and suffering from sever siltation, the drafts of berths vary from time to time depending on siltation conditions and frequency of maintenance dredging. Moreover, as some vessels take advantage of tides, it is often seen that a berth accommodates a vessel with a draft more than the official maximum depth of the berth. Table C-5.3.1 in Appendix C also shows the permissible vessels' dimensions and actual water depth in C.L.D. as of 1998 for the jetty berths, mooring berths, and some anchorage berths, and 1996 for the other anchorage berths.

The MPA thinks the relationship between permissible drafts and water depths should be as follows, which is quite different from the standards of many countries but may be suitable for river ports like Mongla Port.

--- Jetty Berths	actual water depth plus tides is equal to the permissible drafts without allowance, because of soft sea bed and scoring effects of vessels
--- Mooring and Anchorage	actual water depth plus tides and 0.3m for allowance is equal to the permissible drafts

5.3.3 Facilities for Cargo Storage

Cargo storage facilities are summarized in Table 5.3.1.

Table 5.3.1 Storage Facilities in Mongla Port

Description	Unit Number	Area
Transit shed	4	4,907 sq. m (each)
Warehouse	2	9,815 sq. m (each)
Open stack yard	3	35,752 sq. m (each)
Reefer plug point	60	

Source: MPA

Four transit sheds, each with an area of 4907 sq. m, and 2 warehouses, each with an area of 9815 sq. m are located at the jetty.

Open stack yard with an area of 35,752 sq. m is used mainly for container handling. Sixty reefer plug points are equipped for reefer containers.

Jetty-9 is the only berth which does not have a transit shed right behind the berth. This berth is dedicated to container handling with open yard. Containers are handled by ships' gears and are transferred by mobile cranes and straddle carriers, and are stacked in two tiers.

As mentioned earlier the volume handled at the jetty is very limited (only 160 thousand tons in '97/'98), because these facilities are not fully utilized.

The Fig. C-5.3.1 in Appendix C shows the layout map of the jetty area.

5.3.4 Handling Equipment

Mongla Port presently owns 58 pieces of handling equipment, 11 quay side cranes, 7 mobile cranes, 22 fork lifts, 3 straddle carriers, and so forth as shown in Table C-5.3.2 in Appendix C. Handling equipment is not modern, nor is the handling system itself, depending on human labour to a great extent. However, again with the limited handling volume, at present no particular problems can be found.

5.3.5 Berth Productivity

Table 5.3.2 shows the berth productivity of Mongla Port. As can be seen, almost all the indicators have been improved due to the MPA's efforts.

However, it should be noted that the handling system of the Mongla Port is quite different from those of other ports, as 94% of cargo is transshipped at the river by barges. Careful examination shall be needed for the future.

Table 5.3.2 Port Productivity at Mongla Port

Efficiency Indicator	Unit	1992	1993	1994	1995	1996	1997
1.Cargo Type							
General Cargo	tons/ship-day	393	413	978	922	886	863
Container	Boxes/ship-day	37	48	96	170	207	229
2.Productivity							
General Cargo	tons/gang-hours	16	17	41	38	37	18
Container	tons/gang-hours	2	2	4	7	9	9
3.Vessel Time							
Service Time	ship-days	11.43	12.13	5.16	6.43	6.97	6.58
Waiting Time	ship-days	3.47	3.04	1.29	1.61	1.73	1.64
Turn-Round	ship-days	14.90	15.17	6.45	8.04	8.70	8.22
General Cargo	ship-days	16.46	17.88	7.86	9.21	9.94	9.91
Container	ship-days	4.63	3.63	2.01	1.39	1.68	1.26
4.Berth Occupancy Rate	%	56.16	57.31	34.79	46.24	56.38	34.85
5.Equip. Availability	%	75.25	75.01	75.72	75.51	75.98	n.a.

Source: Port Efficiency and Access Improvement Project, 1998, ADB

5.3.6 Capacity of the Existing Facilities

Assessment of the existing facilities is an important issue, because the future berth requirement shall be theoretically calculated by subtracting the existing capacity from the future cargo demand which will be forecast in a later stage.

The capacity of the jetty shall be assessed by using mathematical models. A study by the WB, Bangladesh Port System Development Project, estimated a capacity of approximately 50,000 TEUs , or 400,000-500,000 tons per annum for Jetty-9, which is dedicated to container handling, but has no definite assessment for the other berths of the Jetty.

Assuming the proper efficiency improvement shall be made, the future capacity of J9 can be estimated as 66,000 boxes, 90,000 TEUs or 700,000-900,000 tons per annum as is shown in the Chapter 7.

As a conventional berth with these dimensions handles around 100,000 tons or so in other ports in general, if a proper handling system is introduced, it might be concluded at the moment that the Jetty of 5 berths has the capacity of 1,000,000-1,300,000 tons per annum. Again the issue shall be examined further, since the potential capacity of the Jetty is also related to the cargo demand itself. Currently the Jetty has an excess capacity for cargo demand or is underutilized.

According to interviews with the MPA personnel, the capacity of the existing jetty ranges from 500,000 to 1,500,000 tons per annum. The capacity of mooring berths and anchorage berths is also assessed. Because the berth occupancy rates of these berths are not high and it is rather easy to increase the number of berths by just designating anchorage areas or installing buoys, it is preliminarily assumed that the existing mooring and anchorage facilities will be able to cope with the future demand, even if the bulk cargo demand is to be more than doubled in the future.

5.4 Siltation Problems in Mongla Port

5.4.1 Present Situations of Water Depths of Mongla Port and Dredging Works

Mongla Port was constructed in the 1960s along the left bank of the Pussur River. The situation of siltation or water depth of the River has varied from time to time depending on the natural conditions as well as dredging efforts of the MPA.

As the navigation channels in the River extends for 80-90 km and water depths have been largely changed depending on the natural conditions, it is difficult to grasp " the water depth of the Port "at any specific time. The situations of water depths in the River can be roughly understood through water depths of berthing facilities, which were shown in Table C-5.3.1 in Appendix C, because the anchorage berths are extended to almost the middle point between the Bay of Bengal and the Jetty. The water depths around berthing facilities and the channels range from 4.0m to 7.0m CDL from the records of 1996 and 1998, which do not necessarily show the permissible drafts of vessels which usually take advantage of tides.

It has to be pointed out that the water depths of the channels are less important than those of berthing facilities, since the channels can be passed in several hours with the help of tides, but vessels usually have to stay at berths for several days and cannot necessarily take advantage of tides. In order to streamline the analysis hereafter, the siltation issues are to be examined in terms of permissible drafts of vessels not real water depth, since it is a rather straightforward manner to examine the future development of Mongla Port.

Though the target vessels' draft for the Port was 8.5m when Mongla Port first began operation, maintenance dredging has been required since the start of the utilization of the berths. Table 5.4.1 shows the required maintenance dredging volume in these years.

Table 5.4.1 Maintenance Dredging Volume in Mongla Port

Year	Location	Dredging Volume (cu. m)
1979-81	Jetty Front	325,000
1983	Jetty Front	345,000
1984	Confluence	127,000
1985	Jetty Front	62,000
1986	Jetty Front	52,000
1987	Jetty Front	109,000
1988-89	Sabur Beacon, Jetty Front Confluence	210,000 1,000
1990	Jetty Front	313,000
1991-92	Sabur Beacon Jetty Front Confluence Southern Anchorage	1,420,000 414,000 706,000 1,010,000 total ------3,550,000
1994	Southern Anchorage	100,000
1994-95	Jetty Front	200,000
1996	Jetty Front	200,000
1997	Jetty Front	200,000
Total		5,794,000

Source: Mongla Port Area Development Project, and Information from the MPA

The annual dredging volume is not substantial, considering that adjacent ports such as Chittagong Port and Calcutta Port have carried out maintenance dredging of 1 million cu. m and 10-20 million cu. m each year respectively. Though the water depth of the entrance bar at the Bay of Bengal was once a major problem, this has reportedly been solved through natural phenomena.

5.4.2 Interview Survey on Siltation

An interview survey on siltation of Mongla Port was carried out for this study. The interviews were conducted on a face to face basis with the interviewees carefully selected among many shipping companies, shipping agencies, shippers and so forth. Interviewees are listed in Appendix C-5.4.2.

The results of the survey are summarized as follows;

1) Opinions on Utilization of Mongla Port

Eighteen out of 20 persons interviewed expressed that the performance of the Port is good. Fourteen felt that the water depth should be further increased to allow for more diverse port activities. Ten responded that the port facilities and services should be improved. Only one person was of the opinion that the port performance is not satisfactory due to inadequate water depth and facilities. All agreed that the port charges are reasonable compared with other ports in the region.

2) Opinions on Siltation or Water Depth

Nineteen out of 20 persons interviewed expressed that siltation is not a serious problem, but the areas suffering from siltation should be dredged deeper. Two persons stated that siltation is the main problem of the Port and that the channel needs to be dredged deeper. One person was of the opinion that siltation is not a problem at all.

3) Areas Affected by Siltation

Persons interviewed cited the channel entrance, southern anchorage, jetty front, and turning basin north of jetty front as the areas suffering from siltation.

4) Troubles Experienced due to Siltation

Thirteen out of 20 persons interviewed said that on some occasions vessels had to wait for the rise of tide. Three persons stated that their vessels arrived late due to siltation and one person said that their cargo arrived late due to draft restriction.

5) Recommendation for Improvement in Port Operation

All agreed that the depth of water in the channel and the harbour areas affected by siltation should be dredged deeper. Three persons said that port facilities need to be improved. Another two persons said that container handling equipment at the jetty should be improved. One person said that tug facilities of the Port should be improved.

6) Opinions on how to Cope with Siltation

All twenty persons said that frequent maintenance dredging is required to cope with the siltation of Mongla Port.

5.4.3 Areas Suffering from Siltation

Major areas which have been suffering from siltation are identified through examining the results of the aforementioned survey as well as the existing sounding data. It is assumed that Mongla Port is to be maintain its present target for vessels' draft of 7 to 8m. If the target draft were to be much larger than that, the picture would be completely changed, for example, if the target draft were 10m, almost all the areas in the River as well as the jetty front area would suffer severe siltation.

Siltation areas are conceptually shown in Fig. 5.4.1. Although the entrance channel was pointed out to be one of such areas in the interview survey, its water depth has been gradually improved due to a natural phenomenon. The MPA stated in the tender document for dredging works during '98/'99 and '99/'00 that " With the existing depth in the outer bar, maximum 8.46 meter draft vessels can cross the outer bar and enter the Port. But due to deterioration of depth in harbour areas these vessels cannot be berthed in the harbour area.".

As for the southern anchorage the MPA also stated that " the depth at the Southern Anchorage areas has been reduced to about -4.5m CD. which has created an inner bar in the Southern Anchorage. The depth of the Southern anchorage channel should be improved to about -6.0m CD., otherwise 7.5m draft vessels would not be able to enter the jetty area in normal high water."

The jetty front area must be dredged almost every year to maintain the water depth as can be seen in Table 5.4.1.

Therefore, the major areas severely suffering from siltation are identified as follows;

--- the southern anchorage area including anchorage channel, and
--- the jetty front area including the nearby northern turning basin

5.4.4 Dredging Works of the MPA in '98/'99 and '99/'00

The MPA plans to carry out dredging works of 3.0 million cubic meters in '98/'99 and '99/'00, and has already issued the tender document for implementation.

The contents of the works are summarized as follows;

--- Target	to accommodate 7.5m draft vessels at the jetty and mooring buoys
--- Volume	1.8 million cubic meters in '98/'99
	1.2 million cubic meters in '99/'00
--- Areas dredged	shipping channel of southern anchorage in '98/'99
	southern anchorage, jetty front, Sauber Beacon, confluence, and jetty/confluence approach channel in '99/'00

Furthermore the MPA plans to acquire a dredger for carrying out the maintenance dredging by itself. The MPA knows from experience that the dredged water depth would become 2 to 3 m shallower even in a single year if it were not for proper maintenance works. It is well recognized that even if the aforementioned dredging work is carried out successfully as planned, the water depth will soon decrease without proper maintenance effort.

As for a dredger, it has been recommended by the ADB through the study of Ports Upgrading Project that the dredger presently owned and operated by Chittagong Port Authority should be co-used by the MPA as well as the CPA. It was learned through the interviews with the CPA that the operation would be possible because the dredger is currently used approximately three months a year for maintenance dredging of ChittagongPort.

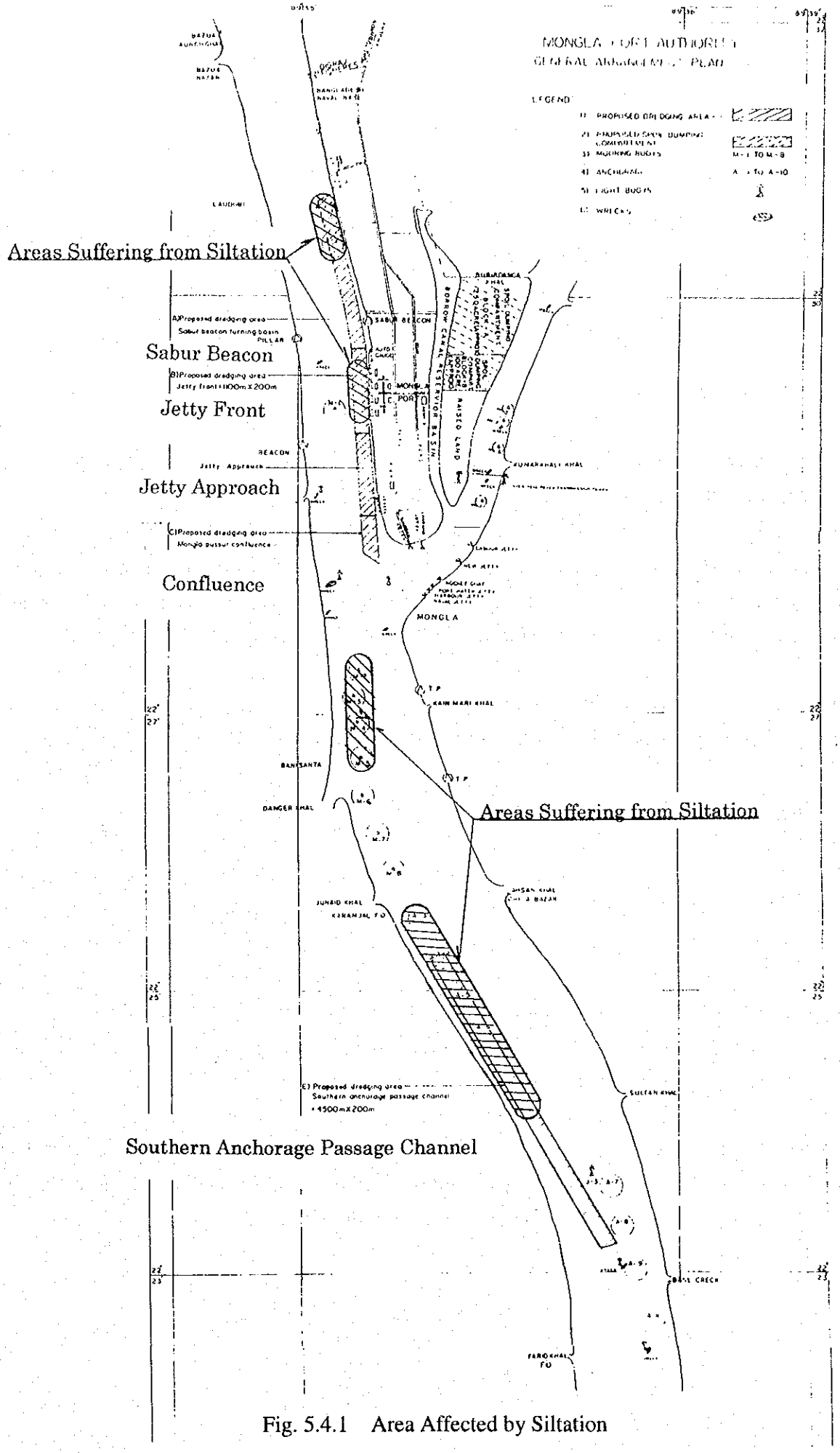


Fig. 5.4.1 Area Affected by Siltation

5.5 Future Development of the Port and Port Area

5.5.1 Future Port Development

The Port currently has no formal development plans for the future, though an informal and aggressive one does exist. Other than the MPA's unofficial plan, the WB and the ADB have carried out three studies in these several years, the outcomes of which are quite different. Brief summaries of these preceding plans and studies are given as follows.

1) Layout Plan of Mongla Port Town by the MPA

This is an informal development plan for the Mongla Port Town as well as the Port itself, which was obtained from the MPA. Covering the total jurisdictional area of the MPA, the plan indicates that additional 12 jetty berths will be required in the future with railway extension to the port area and new industries including EPZ will be introduced in the port area. The plan also lays out a land use plan comprising cargo handling area, and housing area for port workers. Fig. 5.5.1 shows the unofficial plan of the MPA.

It is not easy to evaluate this type of rough plan, because the detailed bases for planning are not made clear. However, this may serve as a future target of the MPA.

2) Mongla Port Area Development Project by the ADB in1996

This study shows large development will be required for Mongla Port up to the target year of 2010. The cargo throughput of the Port is projected to be approximately 6 million tons including 136,700 TEUs of containers in 2010 for one of the economic growth scenarios. In addition to the five existing berths, the study concluded that five new berths including a container berth would be required in 2010. The Project was judged to be good for implementation under condition that the investment for the jetties should be made after construction of the Rupsa Bridge is made certain.

One of the issues to be raised is assessment of the capacity of the existing berths. This important issue has not been clearly examined in the study. Depending on the estimated capacity of the existing berths, the berth requirement for the future might be quite different.

3) Ports Upgrading Project by the ADB in 1998

This study, which is closely coordinated with the WB study mentioned thereafter, aims to formulate a project which can be implemented in the short term to meet urgent needs for Mongla Port as well as Chittagong Port, putting a special emphasis on container handling. Though the projection of container cargo is made to be 44,000 TEUs in 2005/2006, 63,000 TEUs in '10/'11, and 84,000 TEUs in '16/'17 for Mongla Port, it concluded that no additional container berths would be required in the short term, up to 2005/2006, because the existing jetty-9 berth dedicated to container handling has the estimated capacity of 48,000 TEUs.

Alternatively, it recommends that certain efficiency improvement should be implemented by acquiring container management system, and so forth. A part of the project is now being appraised by the ADB for implementation.

4) Bangladesh Port System Development Project - Master Plan and Trade Facilitation Study by the WB in 1998

After the detailed demand forecast is made including that of the Nepalese cargo, the cargo throughput of Mongla Port in 2016/2017 is projected to be 5.79 million tons including container cargo of 84,000 TEUs. Though the methodology of forecast is mentioned to take into account the functional allotment between Mongla Port and Chittagong Port, the detailed analysis is not found to be undertaken. In conclusion, no additional berths are required except one additional clinker berth which should be constructed by the private sector.

Being a newly finalized study, the outcome of the study is to be carefully examined. One of the points might be how to evaluate the hinterland expansion of the Mongla Port due to the operation of two bridges.

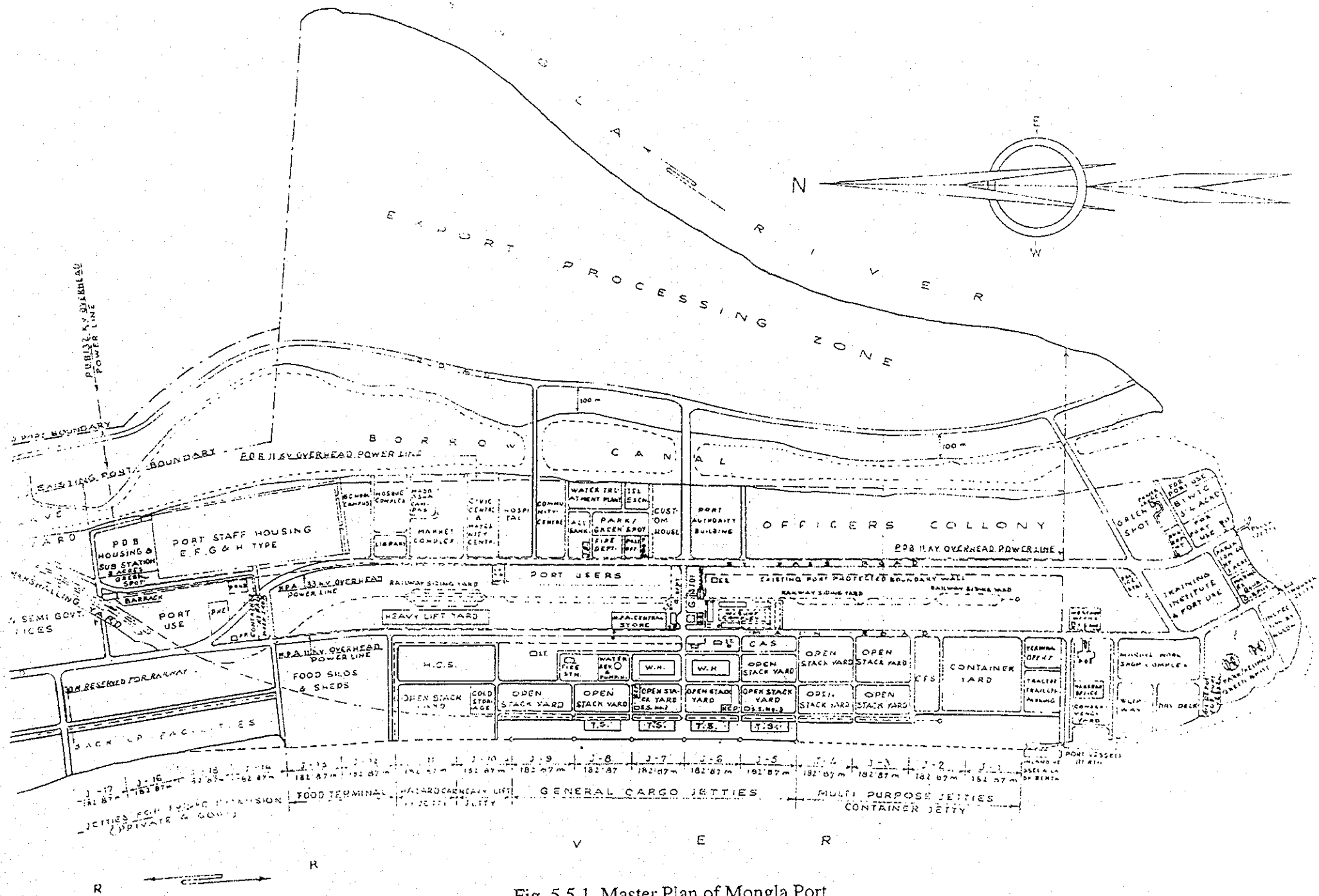


Fig. 5.5.1 Master Plan of Mongla Port

5.5.2 Industrial Development in the Adjacent Area

Variety of development will take place in the area adjacent to the Port. Several interviews were conducted in the course of the study concerning factories which are currently in operation. Brief summaries of the interviews are presented in Appendix C-5.5.2, but it should be reminded that other industrial development can take place at any moment, corresponding to development of Bangladesh as a nation and that of the world economy. Impact on the port activities accrued by this kind of development should be carefully studied, though the detailed plan has not yet been clarified.

5.6 Port Administration of Mongla Port

5.6.1 Institutional Setting of Mongla Port

Mongla Port Authority (MPA), an autonomous body under the Bangladesh Government, administers Mongla Port. The MPA is headed by a chairman who is the chief executive three other members. There are also 10 departments and other sections. The MPA manages not only Mongla Port but also the Roosevelt Jetty at Khulna and the Dry Port at Benapole. Being financially independent, the MPA has some restrictions as a quasi-governmental organization.

The Bangladesh Government policy calls for management of many maritime functions by the Ministry of Shipping. The Ministry has responsibility for policy determination, planning and regulatory activity for all its component organizations. In addition to the MPA, the Ministry includes the Chittagong Port Authority (CPA), Bangladesh Inland Water Transport Authority (BIWTA), Bangladesh Inland water Transport Corporation (BIWTC), Bangladesh Shipping Corporation (BSC) and so forth.

Each of these organizations including MPA must get the approval of the Ministry in order to go forward on specific projects. Approval requires that either the Engineering and Development Division or the Planning Division review proposals. Once reviewed, these recommendations are passed to the Secretary who in turn advises the Minister. The Minister will often consult members of the government before approving or denying a proposal.

Though being advocated as an autonomous body and financially independent, MPA's authority is quite limited in terms of decision making for port planning, tariff setting, and so forth.

5.6.2 Financial Status of MPA

The financial condition of the MPA has been good shape, for example, the MPA showed a net profit of almost TK 178 million in '94/'95 (Table C-5.6.1 in Appendix C). While governments in other countries sometimes subsidize port authorities, the MPA is not only financially self-sustaining, but also provides the government with funds.

This financial soundness, of course, comes from the best possible efforts of the MPA management, but is also due to the fact that the MPA has not invested much in infrastructure development. In this sense, the future development plans, if a huge investment is involved, should be carefully examined from the financial viewpoint.

5.6.3 Tariff Structure of Mongla Port

The port charge is levied under the ordinance of MPA. The port charge is of course posted in the tariff book, which consists of 9 sections. The following is a brief summary of the structure of the tariff, though Sections VII and VIII are not applicable to Mongla Port.

--- Section I	Account of agent of owner of ship (port dues, pilot fees, and etc.)
--- Section II	Dues and charges on ship (berth occupancy charge, mooring occupancy charge, jetty crane charge, and etc.)
--- Section III	Account of the shipper or consignee (river dues, landing charge, wharf handling charge, hoisting charge, and etc.)
--- Section IV	Container charges to the account of agent or charterer or owner of the vessel (discharging charge, equipment charge, and etc.)
--- Section V	Dues and charges on goods for conventional cargo (wharf rent, space rent, and etc.)
--- Section VI	Charges to any party (mechanical equipment hire charge, craft hire charge, and etc.)
--- Section VII	Charges for Roosevelt jetty
--- Section VIII	Charges for dry port Benapole
--- Section IX	Charges for entering the jetties (entrance fee for truck, lorry, taxi, rickshaw and etc.)

The basic charges as well as those of Chittagong Port and Calcutta Port are shown in Table 5.6.1. Though careful examination is needed, it does not seem that the tariff of Mongla Port is high compared with those of ports in other Asian countries. The tariff has almost the same structure and same rates as those of Chittagong, because the tariff is to be approved by the government. The future scale of development should be carefully examined in view of the tariff setting so as to favorably compete with other ports and attract more port cargo.

Table 5.6.1 Basic Tariff of Mongla Port Authority, Chittagong Port Authority and Calcutta Port Trust

	Tariff Heads	Per unit		MPA Rate	CPA Rate	CPT	Rate	Remarks
1	Port Dues (Seagoing vessel)	GRT	US $	0.241	0.241	US $	0.15	
2	River Dues (Import cargo)	1000 kg	Tk	33.00	34.10	Rs		
3	Berth Occupancy (Container)	GRT/day	US $	0.03	0.00125	US $	0.06	CPT Min. Charge US$ 210
4	Berth Shifting (berthing)	Movement	US $	88.50	88.50	US $	0.08	CPT Min. Charge US$ 160
5	Mooring (fixed)	GRT/day	US $	0.03		US $	0.03	CPT Min. Charge US$ 105
	Mooring (fixed)	vessel	US $		167.00			
6	Mooring (own anchor)	GRT/day	US $	0.015		US $	0.015	Min. Charge US$ 52.5
	Mooring (own anchor)	vessel	US $		100.00			
7	Jetty Crane Use	8 hr. period	US $	45.00	42.00	US $	145.00	
8	Water Supply by Barge	1000 Liters	US $	15.00	0.923	US $	2.20	
9	Water Supply at Jetty	1000 Liters	US $	7.00	3.42	US $	2.75	
10	Wharf Rent (bagged Import) Sec. Week	1000 kg	Tk	4.62	6.15	Rs	120	
11	Warehouse (1st month)	sq. m	Tk	37.5	50.00	Rs	35.00	
12	Pilotage	5000GRT, 30'	US $	995	178.75	US $	0.65	CPT Min. Charge US$ 3,500
13	Tug Service	Over 5000GRT	US $	440.00	440.00	US $	165	CPT Min. Charge US$ 500
14	Landing (Bagged rice/wheat)	1000 kg	Tk	40.00	46.00	Rs	50	
15	Shipping (Jute)	1000 kg	Tk	21.00	36.00	Rs	50	
16	Container River Dues	20ft container	Tk	408.00	408.00	Rs		
17	Container River Stuffing	1000 kg	Tk	75.00	92.00	Rs		
18	Container River Unstuffing	1000 kg	Tk	92.00	92.00	Rs		
19	Loading or Discharge (FCL)	20ft container	US $	43.40	43.40	Rs	6,000	
20	Loading or Discharge (LCL)	20ft container	US $	130.00	130.00	Rs	4500-6000	
21	Loading or Discharge (Empty)	20ft container	US $	22.10	22.10	Rs	500	

Source: Port Tariff Schedule of Charges 1988, Mongla Port Authority
Schedule of Charges 1990, Chittagong Port Authority
Scale of Rates 1996, Calcutta Port Trust
Rate US$ 1=Taka 46.7=Rs. 41.6 (Aug. 1998)

5.7 Inland Water Transport around Khulna and Mongla

5.7.1 Overview of Inland Water Transport in Bangladesh

Inland water transport plays a significant role in the Bangladesh transport system because the nation is a riverine country and infrastructure for land transportation has not yet been fully developed. Inland water transport is also a reasonable means of transportation, that is, transport cost is low and it is environmentally friendly, though sometimes the transport time is longer than other modes.

Presently, some 5,968 km of the river routes remain navigable by mechanized vessels during monsoon seasons but this figure is reduced to 3,865 km in the dry period. Mechanized and non-mechanized country boats numbering approximately 800 thousand ply throughout the entire river network.

According to the traffic and economic importance the inland waterways have been classified into four classes of routes, namely, Class I, Class II, Class III, and Class IV. Routes comprising the perennial waterways where the water depth of 12 to 13 feet is to be maintained all the year round normally fall under the Class I category. However, certain routes having water depth less than 12 feet are placed under this category due to their considerable economic and traffic importance. The route between Mongla and Khulna, and the route between Khulna to Dhaka via Mongla, of course, are classified into this category.

Modern river port facilities were first created at five places, Dhaka, Narayanganj, Chandpur, Barisal, and Khulna. In the later stage, such facilities were extended to Patuakhali, Baghabari, Ajmiriganj, and Narsingdi. Generally the first five ports are called Major Inland River Ports and the other four as Secondary Inland River Ports. Significant difference between river ports and the two sea ports is that river ports are more passenger oriented, in consequence the first priority for their development is put on passenger facilities such as terminal buildings and passenger pontoons.

River ports are managed by the Bangladesh Inland Water Transport Authority (BIWTA), whose areas, or port limits, are designated for respective ports. The port areas comprise not only public facilities of BAIWTA but also lots of private facilities, for which BIWTA does not take direct responsibility but simply charges some occupation fees. In Khulna Port, the RHD and the MPA also own and manage some port facilities in the river port area in addition to these private facilities. Moreover, some ports are even managed by the private sector,

Nawapara Port near Khulna is one of the largest examples.

A total of 5.69 million tons cargo was handled in river ports in '95/'96, out of which approximately 73% was transported between the two sea ports and the river ports of Dhaka, Narayanganj, and Khulna. The statistics by river ports show that out of 5.69 million tons of the total cargo, 28% was handled at Dhaka and Narayanganj Port and 11% was handled at Khulna Port.

5.7.2 Outline of Khulna Port

Khulna Port, which was formally opened in1967, is situated on the right banks of the rivers Bhairab and Rupsa. The main BIWTA facilities, or public river port facilities, are as follows;

--- a two storied terminal building (for passengers)
--- a 665 meter long quay wall constructed with sheet-piles
--- a concrete jetty
--- a landing pontoon with steel gangway
--- six pontoons with wooden shore connection
--- three wooden jetties
--- two warchouses

Other than BIWTA facilities, the Port comprises the concrete jetty named Roosevelt jetty owned by the MPA, Rupsa ferry ghat owned by the RHD, and many private industries and commercial establishments such as oil distribution companies, which were interviewed for this study (see preceding chapter).

Roosevelt jetty, which was constructed mainly for food grain handling a half century ago with 450 m of berthing space, collapsed several years ago due to erosion of the river bank. Urgent reestablishment of a jetty has been required for efficient cargo handling, though floating pontoons are tentatively used for accommodating vessels upon completion of river training works of the site.

5.7.3 Cargo Movement around Khulna and Mongla

Khulna Port handled 1.2 million tons of combined inbound and outbound cargo in '95/'96. The major commodities handled at Khulna Port are cement (141 thousand), food grain (132 thousand), Gewa Subdari Wood (46 thousand), fertilizer (46 thousand), jute (26 thousand), and so forth.

Among the total cargo, approximately 489 thousand, or 40%, of cargo goes/comes to/from Mongla Port, this means that river route between Khulna and Mongla plays an vital role for regional transportation as well as local consumption Other significant cargo movements to/from Khulna Port are as follows;

--- a lot of petroleum oil comes from Chittagong Port
--- large volume of various cargo moves between Dhaka and Narayanganj Port and Khulna Port
--- moderate cargo movement can be seen between Barisal Port and Khulna Port

The O-D pairs with cargo volume equivalent to that of Khulna to/from Mongla (489 thousand) are; Narayanganj to/from Chittagong (828 thousand), Dhaka to/from Chittagong (722 thousand), and Narayanganj to/from Barhabari (265 thousand).

As Mongla Port largely depends upon inland water transport, it also has a significant role in the whole inland water transportation system. The distribution pattern of cargo of Mongla Port through inland water system has already been presented in the preceding chapter.

The maximum size of vessels calling Khulna Port is 1,500 to 1,700 DWT oil tankers with draft of 13 feet and mast height of approximately 53 feet. For the purpose of bridge design, BIWTA has already submitted a proposal in which a would-be bridge over the main channel of Khulna Port should have 60 foot clearance for vessels' masts, which was approved by the government. The official of BIWTA stated that even if the oil companies which hire oil tankers are to move to other places such as Mongla Port, a 60 foot clearance would be required for contingent accidents and so forth.

5.7.4 Future Development of Inland Water Transport

The overall master plan for inland water transport was formulated by a Dutch consultant in 1989. While the major recommendations are presented below, BIWTA has implemented the policies generally following these recommendations.

--- strengthening of the BIWTA organization, particularly with respect to its planning and monitoring functions

--- coordination between BIWTA and the Master Plan Organization for the National Water Plan, particularly regarding ways and means to halt or reserve the dry-season-shortage of water for navigation in classified river-routes

--- definition of a network of classified IWT routes, and strategies for conservancy and for possible improvement of these routes

--- improvement of river port operation and facilities, and related port user charges needed to better the financial performance of the BIWTA

--- adaptation of the IWT fleet to the changing draft conditions in many of the waterways, and determination of the role of the public sector

--- improved control on the IWT-vessel construction industry, and related licensing of vessels and launches

--- viability of IWT of containers, and the facilities needed therefore

While a new policy for inland water transportation will be hopefully formulated by BIWTA in the near future, some improvements of river port facilities are urgently needed at Khulna Port area.

5.8 Status Quo of the Adjacent Ports (Chittagong Port, Calcutta and Haldia Port)

Mongla Port is adjacent to Chittagong Port in the east and to Calcutta and Haldia Port in the west. Ports per se are competing with one another domestically and internationally in terms of their rendering services, e.g., their handling capability, transportation efficiency, port charges, and so forth. Mongla port is not an exception for this kind of competition.

A brief overview of the major adjacent ports of Mongla Port, based on field surveys and interviews with the personnel concerned, is given below.

5.8.1 Chittagong Port

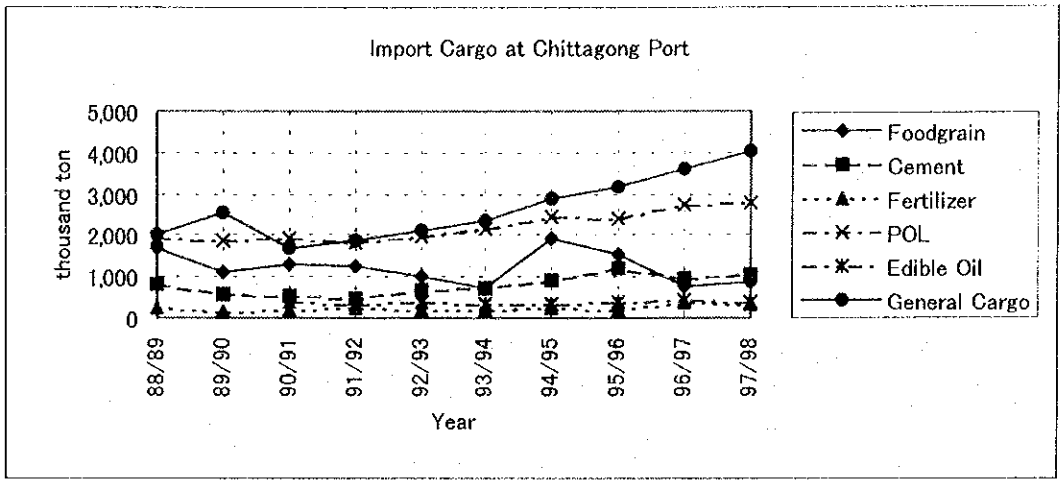
1) Location and Natural Conditions

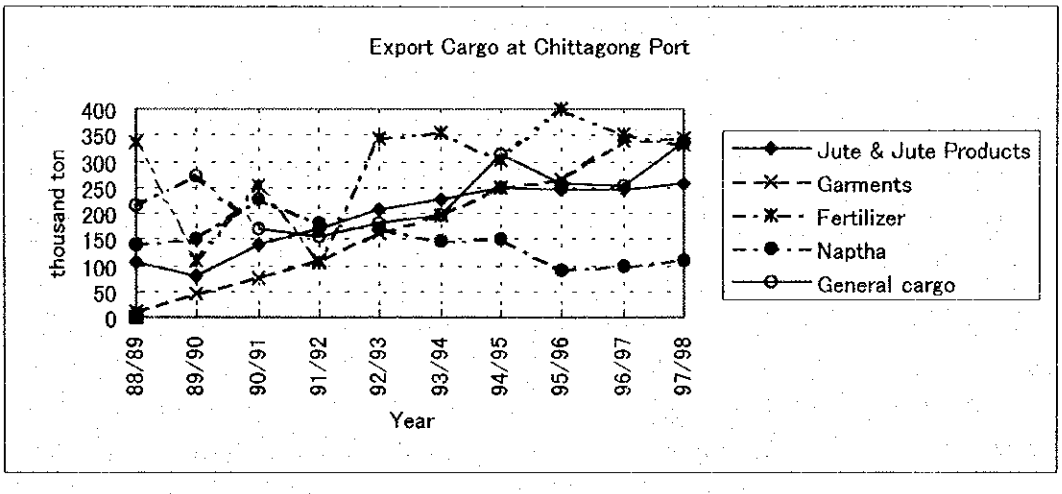
Located approximately 300km to the east of Mongla Port, Chittagong Port is by far the largest port of the two. This Port is also a quasi river port, on the right hand side of the Buriganga River upstream 19km from the river estuary. Being a quasi river port, Chittagong Port also suffers from siltation to some extent, necessitating Chittagong Port Authority (CPA) to perform annual maintenance dredging in the order of 1 million cubic meters to secure the drafts of the berthing facilities as well as the fairways.

Though some cyclones attack the Port in monsoon seasons, serious damages have not been reported recently except when port activities were totally hampered by a sunken vessel and stormy weather because of a cyclone.

2) Port Activities

The cargo throughput of the Port was more than 11 million tons in '97/'98, including approximately 3 million tons or 329 thousand TEUs of containerized cargo. The Port is rather an import-oriented one compared with Mongla Port; nearly 9.6 million tons or 86 % is cargo to be imported. Major commodities are POL, cement, food-grain, iron materials, garment, fertilizer, jute product, and general goods (the detailed statistics are shown in Tables C-5.8.1 and C-5.8.2 in Appendix C and Figs. 5.8.1 and 5.8.2).





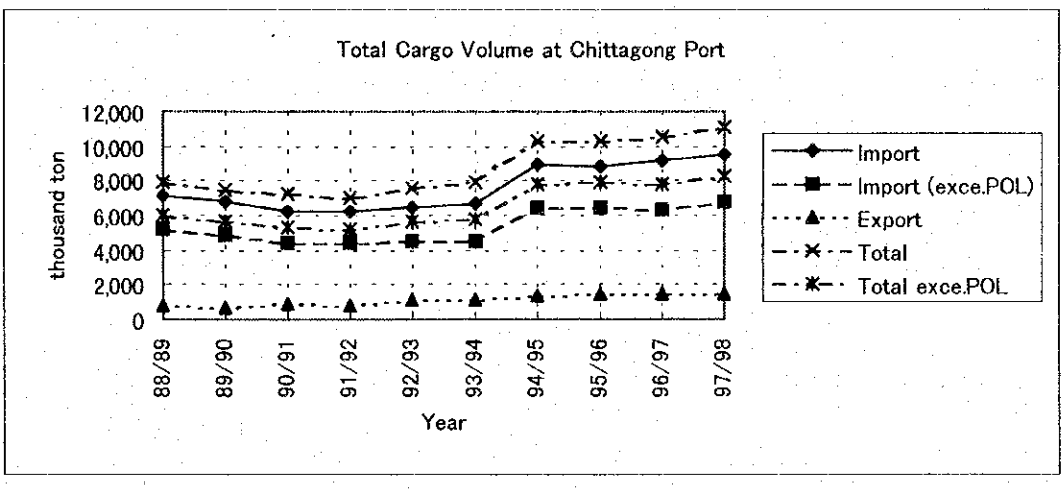


Fig. 5.8.1 Main Commodity of Import and Export at Chittagong Port

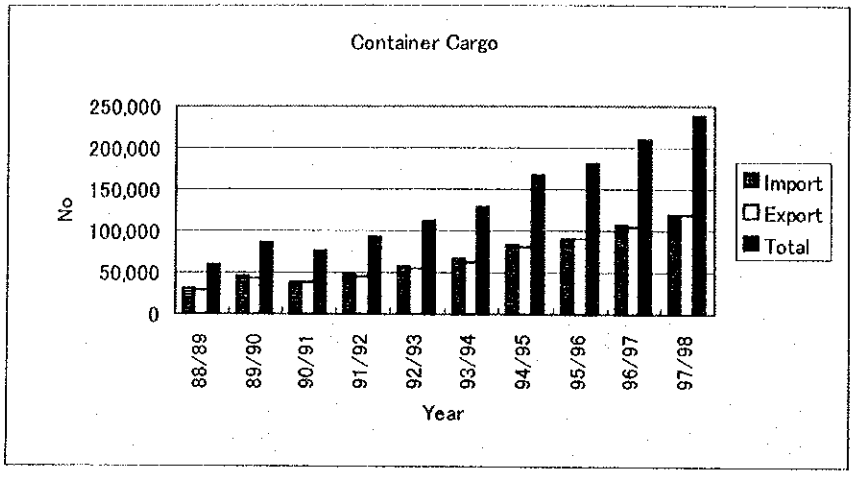


Fig. 5.8.2 Container Cargo at Chittagong Port

A small portion of the Nepalese cargo is handled at the Port, ranging from 16-60 thousand tons per annum in these ten years. Customs clearance of this type of cargo is done at Chittagong Port, and then cargo is transported to/from Nepal by means of trucks to/from Benapole or inland water vessels to/from Calcutta Port, and finally transported through India by either trucks or railway.

Whereas almost all of industrial cargo seems to be destined and originated to/from Chittagong area, 70% of containerized import cargo is reportedly for Dhaka area and 90 % of containerized export cargo is from that area.

Transportation to/from Chittagong Port is mainly carried out by trucks, and the other major transportation mode is inland water way, while railway plays only a limited role these days.

Chittagong port facilities, port administration and development of the surrounding area are presented in Appendix C-5.8.1

5.8.2 Calcutta and Haldia Port

1) Location and Natural Conditions

Calcutta Port and Haldia Port are located approximately 150km west of Mongla Port. Since both ports are jointly managed by Calcutta Port Trust (CPT) and Haldia Port has been developed as a kind of a supplementary port to Calcutta Port, both ports are sometimes called Calcutta Port as a whole and jointly counted as one of the major 11 ports in India. Both ports

have their own dock systems each of which comprises more than 10 berths, constituting a much larger port complex than Mongla Port and Chittagong Port.

Located approximately 200km and 100km upstream of the Hooghly River respectively, both Calcutta Port and Haldia Port have also the problem of siltation; in fact Haldia Port was constructed rather downstream to cope with the increasing vessels' sizes and drafts. Now the CPT carries out huge scale maintenance dredging of more than 10 million cubic meters per annum to maintain navigable draft of 7.5m to Calcutta Port and 8.0m to Haldia Port. Since both ports are dock-system ports, no significant problems have arisen in terms of vessel berthing and cargo handling.

2) Port Activities

The combined port cargo throughput of Calcutta and Haldia Port was nearly 30 million tons in '97/'98 (from April 1997 to March 1998), of which 8 million tons was handled at Calcutta Port. As neither port has an advanced container handling system, container cargo throughput was only 2.4 million tons or 172 thousand TEUs in '97/'98.

The major commodities of port cargo are POL, coal, timber, edible oil, fertilizer, and general goods. A large portion of POL and dry bulk cargo is handled at Haldia Port, while containerized cargo is mainly handled at Calcutta Port, because Haldia Port has some advantage of river navigation and was planned to be an industrial port which can accommodate oil tankers, ore carriers, and so forth. Though Calcutta Port is very congested, it has some advantages such as its vicinity to the urban area for handling container cargo and general cargo. Detailed throughput statistics are shown in Tables C-5.8 3, C-5.8.4, and C-5.8.5. in Appendix C.

Calcutta Port is the most important base for Nepalese import/export cargo; the total volume of the Nepalese cargo handled at Calcutta and Haldia Port has reached about a half million tons per annum. Among the two ports Calcutta Port is dedicated to the Nepalese cargo, and only 30 thousand tons of such cargo was handled at Haldia in '97/'98. The major commodities of the Nepalese cargo comprise such basic items as fertilizer, edible oil, and general goods. The Nepalese cargo at Calcutta is mainly transported to/from Nepal by trucks, leaving railway transportation to handle only 70-wagon train service several times a year. Calcutta Port provides the Nepalese Government with a lot of beneficial treatment such as the exclusive-use of transit shed, prolonged free time for storage at the transit shed, and some specific facilities at the Indian-Nepalese boarder area.

Inland transportation of port cargo is carried out by all modes. While 95% of container cargo is transported by trailers (unlike in Bangladesh, a large portion of containers is distributed as form of container box not being stuffed/unstuffed at the port area in India, which enjoys door to door transportation.), approximately 50 % of dry bulk cargo is transported by railway at Haldia and a small percentage by railway at Calcutta. Inland water transport is vigorously used (7 or 8% of total cargo) and pipeline distribution is also used for POL and other liquid cargo.

Calcutta and Haldia port facilities, port administration and development of the surrounding area are described in Appendix C-5.8.2