

**APPENDIX 5 REVIEW OF CARGO FLOWS (SHIPPING)**



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Table A.5-1 Coastal Shipping Cargo Flow (Petroleum Products and Dry Cargoes)

Unit: Tons

Year	Petroleum Products		Dry Cargoes		Total	
	Tons	%	Tons	%	Tons	%
1974	397,588	69	175,865	31	573,453	100
1975	417,544	71	167,446	29	584,990	100
1976	494,706	77	150,026	23	644,732	100
1977	545,026	79	144,818	21	689,844	100
1978	698,402	86	115,227	14	813,629	100
1979	689,230	79	179,531	21	868,761	100
1980	718,284	86	120,812	14	839,096	100
1981	708,167	83	142,479	17	850,646	100
ii) the South → Bangkok						
Year	Petroleum Products		Dry Cargoes		Total	
	Tons	%	Tons	%	Tons	%
1974	524		162,393	100	162,917	100
1975	28		118,943	100	118,971	100
1976	0		101,556	100	101,556	100
1977	0		109,048	100	109,048	100
1978	1,810	2	74,747	98	76,557	100
1979	0		70,805	100	70,805	100
1980	26		62,539	100	62,565	100
1981	180		45,768	100	45,948	100

Source: MOC, Statistics

Table A.5-2 Coastal Shipping Cargo Flows (Major Commodity - Dry cargoes)

Unit: Tons

i) Bangkok -> the South										
Commodity Year	Rice	Agricultural Products	Food (%)	Fertilizer (%)	Construction Materials (%)	Wood Products	Rubber	Vegetable Oil	Miscellaneous (%)	Total Volume of Dry Cargoes
1974		23	3,144(2)			21			172,677(98)	175,865(100)
1975	3,140	7,746	6,925(4)	18,841(11)	1,675(1)	39	1	1	129,073(77)	167,446(100)
1976			5,798(4)	1,475(1)					142,753(95)	150,026(100)
1977			13,419(9)	11,467(8)	2,080(2)			9	117,634(81)	144,818(100)
1978			90	10,393(9)	2,069(2)				93,263(81)	115,227(100)
1979			3,694	78,537(44)	25				97,275(54)	179,531(100)
1980	952	1,953		30,715(25)	2,100(2)				85,092(70)	130,812(100)
1981	376	7,488	4,000(3)	55,035(39)	6,253(4)				69,327(49)	142,479(100)
ii) the South -> Bangkok										
1974		3,133	3,970(2)	13	43,796	77,455(48)	4,195	4,132(4)	25,699(16)	162,393(100)
1975		1,892	6,028(5)	5	11,900	67,399(57)	2,622	13,079(11)	13,406(11)	118,943(100)
1976		1,592	7,462(7)			56,629(56)	3,109	9,847(10)	22,917(22)	101,556(100)
1977		271	10,387(10)			65,124(60)	3,144	8,873(8)	20,954(19)	109,048(100)
1978			8,219(11)		78	37,085(50)	1,698	2,209(3)	25,453(34)	74,747(100)
1979		1,207	7,463(11)			45,378(64)	1,800	1,207(2)	13,750(19)	70,805(100)
1980		1,064	280			38,698(62)			22,487(36)	62,539(100)
1981		346	2,681(6)		1,995	18,973(41)			21,773(48)	45,768(100)

Source: MOC, Statistics

Table A.5-3 Coastal Shipping Cargo Flows (Main Ports)

All Cargoes except Petroleum Products  
Unit: Tons

(i) Bangkok → Southern	Bandon	Pak Phanang	Songkhla	Pattani
Year				
1974	21,729	12,921	78,986	47,613
1975	22,603	12,067	95,178	36,873
1976	23,038	10,753	70,060	35,476
1977	24,567	13,571	68,034	35,885
1978	17,179	9,786	52,008	35,558
1979	12,327	8,611	128,670	25,700
1980	9,261	6,243	85,164	9,506
1981	3,938	7,091	121,558	97
(ii) Southern → Bangkok	Bandon	Pak Phanang	Songkhla	Pattani
Year				
1974	49,844	7,639	67,148	34,709
1975	54,368	8,788	23,446	29,162
1976	50,539	9,043	11,286	27,200
1977	53,748	11,404	16,517	24,480
1978	41,126	11,578	13,097	6,498
1979	28,571	12,759	9,986	7,913
1980	20,346	10,499	4,985	11,524
1981	12,948	11,676	5,511	3,196

Source: MOC, Statistics

Table A.5-4 (1) Coastal Shipping Cargo Flows, Year 1974

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	11,195 (11,195)	37,144 (15,415)	22,384 (9,463)	79,386 (400)	47,613	16,605 (1,989)	214,327 (38,462)
Si Racha	0	5,196 (5,196)	61,755 (61,755)	81,603 (81,603)	210,202 (210,202)	260 (260)	110 (110)	359,126 (359,126)
Chumphon	0	-	500 (500)	0	0	0	19	519 (500)
Bandon	49,844	350 (350)	-	5,896 (4,265)	456	0	33,780 (2,314)	90,326 (6,929)
Pak Phanang	7,639	0	1,710 (1,565)	-	90	0	602 (412)	10,041 (1,977)
Songkhla	67,148	0	7,992 (7,966)	1,622 (580)	-	37	604 (20)	77,403 (8,566)
Pattani	34,733 (24)	0	0	0	0	-	212 (166)	34,945 (190)
Others	3,553	1,495 (1,282)	9,293 (2,417)	5,803 (1,092)	10,007 (6,573)	1,340 (1,340)	16,670 (12,045)	48,161 (24,749)
Total	162,917 (24)	18,236 (18,023)	118,394 (89,618)	117,308 (97,003)	300,141 (217,175)	49,250 (1,600)	68,602 (17,056)	834,848 (440,499)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (2) Coastal Shipping Cargo Flows, Year 1975

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	9,035 (9,035)	38,103 (15,500)	30,517 (18,450)	99,985 (4,807)	36,873	1,895 (1,170)	216,408 (48,962)
Si Racha	0	6,580 (6,580)	74,869 (74,869)	93,083 (93,083)	194,050 (194,050)	0	0	368,582 (368,582)
Chumphon	0	-	0	0	0	0	439 (2)	439 (2)
Bandon	54,379 (11)	135 (135)	-	6,401 (5,334)	358 (250)	0	28,150 (6,697)	89,423 (12,427)
Pak Phanang	8,788	0	995 (673)	-	51	0	213 (8)	10,047 (681)
Songkhla	23,463 (17)	200 (200)	2,179 (2,079)	2,590 (2,590)	-	1,200 (1,200)	19	29,651 (6,086)
Pattani	29,162	0	0	0	0	-	692	29,854
Others	2,189	391 (10)	8,271	3,934 (332)	2,661 (103)	0	24,688 (12,679)	42,134 (13,124)
Total	117,981 (28)	16,341 (15,960)	124,417 (93,121)	136,525 (119,789)	297,105 (199,210)	38,073 (1,200)	56,096 (20,556)	786,538 (449,864)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (3) Coastal Shipping Cargo Flows, Year 1976

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	30,240 (30,240)	51,186 (28,148)	30,490 (19,737)	81,424 (11,364)	36,899 (1,423)	12,699 (2,000)	242,938 (92,912)
Si Racha	0	2,980 (2,980)	95,347 (95,347)	89,672 (89,672)	213,795 (213,795)	0	0	401,794 (401,794)
Chumphon	0	-	0	0	0	0	1,862 (240)	1,862 (240)
Bandon	50,539	580 (580)	-	1,762 (810)	10,794 (350)	2,918	27,928 (957)	94,521 (2,697)
Pak Phanang	9,043	0	607 (540)	-	68	0	2,132 (25)	11,850 (565)
Songkhla	11,286	0	3,885 (3,885)	9,080 (9,080)	-	0	1,056	25,307 (12,965)
Pattani	27,200	0	0	0	0	-	0	27,200
Others	3,488	311	9,826 (2,518)	2,843	1,056	0	2,296 (2,027)	19,820 (4,545)
Total	101,556	34,111 (33,800)	160,851 (130,438)	133,847 (119,299)	307,137 (225,509)	39,817 (1,423)	47,973 (5,249)	825,292 (515,718)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum



Table A.5-4 (4) Coastal Shipping Cargo Flows, Year 1977

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	12,764 (12,764)	72,505 (47,938)	41,429 (27,858)	86,806 (18,772)	35,885	2,982 (221)	252,371 (107,553)
Si Racha	0	805 (805)	116,669 (116,669)	92,024 (92,024)	227,975 (227,975)	0	0	437,473 (437,473)
Chumphon	0	-	1,254 (1,254)	390 (390)	200 (200)	0	31	1,875 (1,844)
Bandon	53,748	80 (80)	-	1,707 (870)	0	0	26,298 (3,513)	81,833 (4,463)
Pak Phanang	11,404	0	670 (580)	-	2	0	1,129 (843)	13,205 (1,423)
Songkhla	16,517	-	1,742 (1,740)	5,150 (5,150)	-	0	0	23,409 (6,890)
Pattani	24,480	0	0	0	0	-	1,071	25,551
Others	2,899	73	9,129 (2,343)	3,067 (450)	3,191 (1,000)	0	11,789 (7,800)	30,148 (11,593)
Total	109,048	13,722 (13,649)	201,969 (170,524)	143,767 (126,742)	318,174 (247,947)	35,885	43,300 (12,377)	865,865 (571,239)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (5) Coastal Shipping Cargo Flows, Year 1978

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	38,312 (38,312)	104,774 (87,595)	51,337 (41,551)	65,969 (13,961)	35,558	996 (300)	296,946 (181,719)
Si Racha	0	9,890 (9,890)	151,907 (151,907)	89,919 (89,919)	264,967 (264,967)	0	0	516,683 (516,683)
Chumphon	111	-	1,560 (1,550)	840 (840)	0	0	108	2,619 (2,390)
Bandon	41,126	0	-	8,945 (7,376)	0	0	47,590 (1,61)	97,661 (8,937)
Pak Phanang	13,358 (1,780)	0	3,950 (3,870)	-	2,330 (2,330)	0	3,405 (1,561)	23,043 (9,741)
Songkhla	13,127 (30)	0	5,650 (5,650)	5,385 (5,385)	-	0	0	24,162 (11,065)
Pattani	6,498	0	0	0	0	-	0	6,498
Others	2,337	10	10,064 (4,884)	1,204 (120)	0	0	6,773 (5,568)	20,388 (10,572)
Total	76,557 (1,810)	48,212 (48,202)	277,905 (255,456)	157,630 (145,191)	333,266 (281,258)	35,558	58,872 (9,190)	988,000 (741,107)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (6) Coastal Shipping Cargo Flows, Year 1979

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	40,232 (40,232)	158,247 (145,920)	52,281 (43,670)	148,851 (20,181)	25,700	2,677	427,988 (250,003)
Si Racha	0	9,890 (9,890)	116,891 (116,891)	78,450 (78,450)	233,996 (233,996)	3,694	0	442,921 (439,227)
Chumphon	0	-	800 (800)	1,010 (1,010)	470 (470)	0	531 (120)	2,811 (2,400)
Bandon	28,571	0	-	1,023 (570)	410 (410)	0	19,265 (2,253)	49,269 (3,233)
Pak Phanang	12,759	0	1,050 (1,050)	-	665 (665)	0	1,857 (712)	16,331 (2,427)
Songkhla	9,986	468 (468)	7,560 (7,560)	5,690 (5,690)	-	0	450 (450)	24,154 (14,168)
Pattani	7,913	0	0	0	0	-	1,228	9,141
Others	9,428	250	11,980 (66)	2,743	630	0	4,538 (3,547)	29,569 (3,613)
Total	68,657	50,840 (50,590)	296,528 (272,287)	141,197 (129,390)	385,022 (255,722)	29,394	30,546 (7,082)	1,002,184 (715,071)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (7) Coastal Shipping Cargo Flows, Year 1980

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	46,341 (46,341)	209,612 (200,351)	63,340 (57,097)	116,146 (30,982)	9,506	4,138	449,083 (334,771)
Si Racha	0	2,800 (2,800)	87,683 (87,683)	87,053 (87,053)	212,477 (205,977)	0	0	390,013 (383,513)
Chumphon	0	-	1,970 (1,970)	1,470 (1,470)	250 (250)	0	1,415 (1,216)	5,105 (4,906)
Bandon	20,346	0	-	1,411 (1,370)	0	0	12,440 (889)	34,197 (2,259)
Pak Phanang	10,499	0	1,240 (1,240)	-	210	3 (3)	391 (132)	12,343 (1,375)
Songkhla	4,996 (11)	730 (730)	4,700 (4,700)	810 (560)	-	0	6	11,242 (5,990)
Pattani	11,524	0	0	0	882	-	814	13,220
Others	15,200 (15)	182	22,057 (4,940)	372 (222)	5,850 (5,850)	0	2,860 (130)	46,521 (11,157)
Total	62,565 (15)	50,053 (49,871)	327,262 (300,884)	154,456 (147,772)	335,815 (243,059)	9,509 (3)	22,064 (2,367)	961,724 (743,971)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-4 (8) Coastal Shipping Cargo Flows, Year 1961

Unit : Tons

Destination Origin	Bangkok	Chumphon	Bandon	Pak Phanang	Songkhla	Pattani	Others	Total
Bangkok	-	40,295 (40,295)	114,655 (110,717)	55,132 (48,041)	164,258 (42,700)	114,382 (114,285)	9,892	498,614 (356,038)
Si Racha	0	3,455 (3,455)	81,927 (81,927)	87,047 (87,047)	179,700 (179,700)	0	0	352,129 (352,129)
Chumphon	180 (180)	-	1,760 (1,760)	838 (838)	750 (750)	0	267 (250)	3,795 (3,778)
Bandon	12,948	440 (440)	-	130 (130)	1,250 (1,250)	0	23,492 (674)	38,260 (2,494)
Pak Phanang	11,676	0	28 (28)	-	75	0	524 (212)	12,303 (240)
Songkhla	5,511	150	0	0	-	0	0	5,661
Pattani	3,196	0	0	0	0	-	226	3,422
Others	12,437	109	23,939 (13,050)	3,810 (2,800)	6,041	0	4,897	51,233 (15,850)
Total	45,948 (180)	44,449 (44,190)	222,309 (207,482)	146,957 (138,856)	352,074 (224,400)	114,382 (114,285)	39,298 (1,136)	965,417 (730,529)

Source: MOC, Statistics

Note: Figure in bracket shows volume of petroleum

Table A.5-5 (1) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1974

Unit: Tons

Commodity Destination	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)		23	426							77,170	21,280	98,899
Pak Panang (Nakhon Si Thammarat)			2,408				21			91,066	10,492	103,987
Songkhla										210,602	78,986	289,588
Pattani										260	47,613	47,873
Others			310							18,490	14,306	33,106
Total		23	3,144				21			397,588	172,677	573,453

Source: MOC, Statistics

Table A.5-5 (2) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1975

Unit: Tons

Commodity Desti- nation	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)						271				90,369	22,332	112,972
Pak Panang (Nakhon Si Thammarat)	178	1	2,613		1,122	121	39	1	1	111,533	7,991	123,600
Songkhla	1,400	7,745	3,532		17,178	867				198,857	64,456	294,035
Pattani	1,562		780		396	416					33,719	36,873
Others					145					16,785	580	17,510
Total	3,140	7,746	6,925		18,841	1,675	39	1	1	417,544	129,078	584,990

Source: MOC, Statistics

Table A.5-5 (3) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1976

Unit: Tons

Commodity Desti- nation	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)			50							123,495	22,988	146,533
Pak Panang (Nakhon Si Thammarat)			3,360							109,409	7,393	120,162
Songkhla			1,100							225,159	68,960	295,219
Pattani			1,288		1,475					1,423	32,713	36,899
Others										35,220	10,699	45,919
Total			5,798		1,475					494,706	142,753	644,732

Source: MOC, Statistics



Table A.5-5 (4) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1977

Commodity Destination	Unit: Tons											
	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)			2,242		969	335				164,607	21,021	189,174
Pak Panang (Nakhon Si Thammarat)			3,748	209	702	224				119,882	8,688	133,453
Songkhla			6,559		8,698	604			4	246,747	52,169	314,781
Pattani			870		1,098	917			5		32,995	35,885
Others										13,790	2,761	16,551
Total			13,419	209	11,467	2,080			9	545,026	117,634	689,844

Source: MOC, Statistics

Table A.5-5 (5) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1978

Unit: Tons

Commodity Destination	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)										239,502	17,179	256,681
Pak Panang (Nakhon Si Thammarat)										131,470	9,786	141,256
Songkhla			90	4,275	8,132	1,929				278,928	37,582	330,936
Pattani				5,137	2,249	140					28,032	35,558
Others					12					48,502	684	49,198
Total			90	9,412	10,393	2,069				698,402	93,263	813,629

Source: MOC, Statistics

Table A.5-5 (6) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1979

Unit: Tons

Commodity Desti- nation	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)					1,139	20				262,811	11,168	275,138
Pak Panang (Nakhon Si Thammarat)					878	5				122,120	7,728	130,731
Songkhla					75,575					254,177	53,095	382,847
Pattani				3,694	945						24,755	29,394
Others							2,148			50,122	529	52,799
Total				3,694	78,537	25	2,148			689,230	97,275	870,909

Source: MOC, Statistics

Table A.5-5 (7) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1980

Unit: Tons

Commodity Desti- nation	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)										288,034	9,261	297,295
Pak Panang (Nakhon Si Thammarat)										144,150	6,243	150,393
Songkhla		1,953			30,715					236,959	58,996	328,623
Pattani						750					8,756	9,506
Others	952					1,350				49,141	1,836	53,279
Total	952	1,953			30,715	2,100				718,284	85,092	839,096

Source: MOC, Statistics

Table A.5-5 (8) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

i) Bangkok/Si Racha → the South, Year 1981

Unit: Tons

Commodity Desti- nation	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)						10				192,644	3,928	196,582
Pak Panang (Nakhon Si Thammarat)						10				135,088	7,081	142,179
Songkhla		7,488	4,000		55,035					222,400	55,035	343,958 121,558
Pattani										114,285	97	114,382
Others	376					6,233				43,750	3,186	53,545
Total	376	7,488	4,000		55,035	6,253				708,167	69,327	850,646

Source: MOC, Statistics

Table A.5-5(9) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1974

Commodity		Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Origin													
Bangon (Surat Thani)			3,115	116				41,522	13	1,152		3,926	49,844
Pak Panang (Nakhon Si Thammarat)				3,331		13		1,096	2	1,565		1,632	7,639
Songkhla				490			43,796	4,460	4,121	433		13,848	67,148
Pattani				33				27,015	59	982	524	6,120	34,733
Others			18					2,132				173	3,553
Total			3,133	3,970		13	43,796	77,455	4,195	4,132	524	25,699	162,917

Unit: Tons

Source: MOC, Statistics

Table A.5-5 (10) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1976

Unit: Tons

Commodity Origin	Rice	Agricul- ture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)		1,792	17	2,612			43,187		3,197	11	3,563	54,379
Pak Panang (Nakhon Si Thammarat)		100	5,345		5				1,554		1,784	8,788
Songkhla			666			11,900	2,082	1,021	2,006	17	5,771	23,463
Pattani							19,998	611	6,318		2,235	29,162
Others							3,132		4		53	2,189
Total		1,892	6,028	2,612	5	11,900	67,399	1,632	13,079	28	13,406	117,981

Source: MOC, Statistics

Table A.5-5 (11) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1976

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)		1,445	1,239				37,490		539		9,826	50,539
Pak Penang (Nakhon Si Thammarat)			6,035						1,147		1,861	9,043
Songkhla				48				2,222	851		8,165	11,286
Pattani		122	140				15,778	887	7,310		2,963	27,200
Others		25					3,361				102	3,488
Total		1,592	7,462				56,629	3,109	9,847		22,917	101,556

Source: MOC, Statistics



Table A.5-5 (12) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1977

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)		271	3,313	50			41,100	8	4,818		4,188	53,748
Pak Panang (Nakhon Si Thammarat)			6,981	35			777		409		3,202	11,404
Songkhla			80				1,306	2,775	615		11,741	16,517
Pattani				210			19,107	359	3,031		1,773	24,480
Others			13				2,834	2			50	2,899
Total		271	10,387	295			65,124	3,144	8,873		20,954	109,048

Source: MOC, Statistics

Table A.5-5 (13) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1978

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)							29,418				11,708	41,126
Pak Panang (Nakhon Si Thammarat)			8,207	5			1,196		738	1,780	1,432	13,358
Songkhla							457	1,671	427	30	10,542	13,127
Pattani							3,665	27	1,044		1,762	6,498
Others			12			78	2,349				9	2,448
Total			8,219	5		78	37,085	1,698	2,209	1,810	25,453	76,557

Source: MOC, Statistics

Table A.5-5 (14) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1979

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Sarat Thani)							26,369				2,202	28,571
Pak Panang (Nakhon Si Thammarat)		1,207	7,463				1,189		1,207		1,693	12,759
Songkhla								600			9,386	9,986
Pattani							6,244	1,200			469	7,913
Others							9,428					9,428
Total		1,207	7,463				43,230	1,800	1,207		13,750	68,657

Source: MOC, Statistics

Table A.5-5 (15) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1980

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)							18,426				1,920	20,346
Pak Panang (Nakhon Si Thammarat)			280				90				10,129	10,499
Songkhla										11	4,985	4,996
Pattani							11,445				79	11,524
Others		1,064					8,737			15	5,384	15,200
Total		1,064	280				38,698			26	22,497	62,565

Source: MOC, Statistics

Table A.5-5 (16) Coastal Shipping Cargo Flows (Major Commodity - Main Ports)

ii) the South → Bangkok, Year 1981

Unit: Tons

Commodity Origin	Rice	Agri- culture Pro- ducts	Food	Feed	Fer- til- izer	Con- struc- tion Mate- rials	Wood Pro- ducts	Rubber	Vegeta- ble Oil	Petro- leum Products	Miscel- laneous	Total
Bandon (Surat Thani)		96				90	10,148				2,614	12,948
Pak Panang (Nakhon Si Thammarat)			2,681			470	30				8,495	11,676
Songkhla							570				4,941	5,511
Pattani						1,435	1,761					3,196
Others		250					6,464			180	5,723	12,617
Total		346	2,681			1,995	18,973			180	21,773	45,948

Source: MOC, Statistics

Table A.5-6 Fleet of Thai Flag Seagoing Vessels Over 60 GT

Source: Number of Seagoing Vessel,  
Size over 60 GT in 1980,  
Published by Harbour Dept.,  
on Dec. 15, 1983

Year 1980

Trade Area		Cargo Vessel	Tanker	L.P.G.	Tug	Passenger Vessel	Total Commercial use	Official Use	Fishery
Foreign Limited over 1,500 GT	Nr. of vessel	63	6	-	-	-	69	-	-
	GT	300,500	95,300	-	-	-	395,800	-	-
	DW	397,800	166,700	-	-	-	564,500	-	-
	Nr. of crew	2,087	222	-	-	-	2,309	-	-
Foreign Limited over 500 GT	Nr. of vessel	14	18	6	-	-	38	-	-
	GT	31,700	30,900	6,000	-	-	68,600	-	-
	DW	53,500	49,100	4,100	-	-	106,700	-	-
	Nr. of crew	334	349	93	-	-	776	-	-
Home Limited over 150 GT	Nr. of vessel	23	34	2	-	9	68	5	-
	GT	26,600	40,100	1,200	-	6,145	74,000	739	-
	DW	40,800	71,000	1,000	-	9,000	121,800	-	-
	Nr. of crew	453	627	27	-	108	1,215	193	-
Home Limited over 60 GT	Nr. of vessel	51	32	-	8	-	91	4	395
	GT	9,500	13,200	-	1,100	-	22,800	550	47,300
	DW	14,700	26,400	-	-	-	41,100	-	-
	Nr. of crew	462	402	-	67	-	931	232	4,010
Total	Nr. of vessel	151	90	8	8	9	266	9	395
	GT	367,300	179,500	7,200	1,100	6,100	561,200	1,289	47,300
	DW	506,800	313,200	5,100	-	9,000	834,100	-	-
	Nr. of crew	3,336	1,600	120	67	108	5,231	425	4,010

Source: HD (All Types of Vessel in Kingdom of Thailand)

Year 1981

Total	Nr. of vessel	163	49	-	10	19	241	22	570
	GT	243,743	84,973	-	1,365	11,432	341,513	11,189	64,508

Table A.5-7 (1) List of Domestic Merchant Vessels in Thai, 1980  
(Cargo Vessels Registered as Home Trade Area Vessel - Over 150 GT)

No.	Vessel Name	GT	NT	DWT	No. of Crew	Year of Const.	Age of Vessel	Owner
1	Tinnokorn Konsang	605	364	*1,030	16			Siam Merchant Marine Co., Ltd./BKK
2	Sian Vanich 3	1,475	825	2,501	22	1969	14	" / "
3	Sian Vanich 1	470	367	755	16	1980	3	" / "
4	Thai Wang	470	386	879	17			" / "
5	Sang Thai 2	1,000	499	1,699	20	1963	20	Sang Thai Navigation Co., Ltd./BKK
6	Sang Thai 3	825	468	1,525	20	1967	16	" / "
7	Sang Thai 5	1,465	763	*2,200	21	1961	22	" / "
8	Arissara	681	413	*1,160	18			Mr. Bassett Wong Pattarakun/BKK
9	Bang Mod	1,998	1,128	3,250	25	1964	19	Tor Phaiboon Transport Ltd. Part/BKK
10	Alga	2,558	1,563	3,835	32	1957	26	Theptida Shipping/BKK
11	Thidamare	1,998	1,209	1,204	24	1965	18	Coastal Shipping Co., Ltd./BKK
12	Yod-Anong	529	319	725	18	1945	38	Yod Pattanakran Co., Ltd/BKK
13	Thanchan	579	276	* 980	18			West Thai Marine Co., Ltd/BKK
14	Suppanava 15	917	561	*1,560	16			Mr. Prataf Navasuppanich/BKK
15	Suratnava	3,366	1,866	5,265	32			Suratnava Ltd. Part/BKK
16	Thankee	497	262	661	16			Thai Gulf Shipping/BKK
17	Tong Samut	3,675	2,150	5,467	34			K. Marine Line Co., Ltd./BKK
18	Thara-Phan	379	276	* 640	15			Vill and Co., Ltd./BKK
19	Kallithver	345	196	* 580	12			Tal Thai Navigation/BKK
20	Xua Koon	988	603	*1,680	14	1967	16	Miss Napalai Pasatika/BKK
21	Spring Horse	1,050	545	1,699	20			Luum Lum Ung Konsang Thailand/S.K.
22	Srinopa	499	322	1,181	15			Prajak Pukdee Co., Ltd./BKK
23	Tanl	186	123	* 280	12			Mrs. Somboon Trang Premehit/BKK
	Total	26,555	15,484	*40,756	433			

Source: HD

\* Estimated by the study team.

Table A.5-7 (2) List of Domestic Merchant Vessels in Thai, 1980  
(Cargo Vessels Registered as Home Trade Limited Area Vessel - Over 60 GT)

No.	Vessel Name	GT	NT	DWT	No. of Crew	Year of Const.	Age of Vessel	Owner
1	Captain 5	105	71	-	16			Captain Co., Ltd./BKK
2	Captain 4	105	71	-	10			" / "
3	Captain 6	105	71	-	10			" / "
4	Animesha	124	84	-	8			Italian-Thai Co., Ltd./BKK
5	Armimosho	99	41	-	12			" / "
6	Port Sittichai	184	125	-	10			Porn Sittichaipanich Ltd. Part/BKK
7	Chor Vanakit	67	36	-	8			Chor Vanakit Ltd. Part/BKK
8	Daechang 41	391	266	-	4			Narayana Co., Ltd./BKK
9	Tare-Noi	107	-	-	15			Sea Trans Co., Ltd./BKK
10	C.P. 101	104	40	-	8			The C.P. Co., Ltd/BKK
11	Pai boon Varadit	320	225	-	10			
12	S-N	482	328	-	10			Mr. Suchin Uwananon/S.R.
13	Sirikosin	61	42	-	18			Mrs. Yuwadee Pi boon/BKK
14	Suppanava	328	223	-	10			Mr. Prafak Navasuppanich/BKK
15	Samut Kiri 2	111	64	-	8			Mr. Sumpus Rattanapaichit, Mr. Boonchoi Kiet-Udon
16	Somboon Sin	62	42	-	6			Mrs. Ampa Sea-Tong/T
17	Chonthep Kongsong	60	41	-	6			Mr. Songkiet Sea-Lim/BKK
18	Krissada	81	55	-	8			Mr. Prel Luerochwong/BKK
19	Kuwi-Panich	66	45	-	6			Mr. Kumchai Intarasuwan/T
20	Konglevrapa	63	43	-	8			Mr. Lim Singhapan/T
21	Chaiwarin	146	99	-	10			Mr. Nipon Kongkravian/T
22	Charoenpanich	99	66	-	8			Mr. Prafak Vorapak/BKK
23	Haheng	155	106	-	10			Mr. Chokle Yung Yun/NKR
24	Kittipom	146	99	-	10			Mr. Yong Yut/BKK
25	Fortune	66	45	-	10			Mr. Suchart Prunk Krang/BKK
26	Chok-Udon	79	54	-	15			Mr. Somsak Sucha Punyakul/BKK
27	Chor-Chok Ummui	105	72	-	6			Mr. Saifee Sea Kao/BKK
28	Hydrocraft	133	90	-	6			Mrs. Sutti Songtrakul/NY
29	King-Cruiser	118	80	-	8			Mr. Charnehai Songtrakul/BKK
30	Udenrai	138	94	-	12			Mr. Sawaddee Jaichareon/P.B.
31	Chok Rungreveng	113	77	-	10			Mr. Arkan Kamiso-Sakun/CH.S.
32	Pang Panich	101	69	-	12			Mr. Somchai Horhut/Pucket
33	Pang Sawadee	132	90	-	10			Mr. Somkiet Kenchana/P.B.
	Total	4,556	2,954	* 7,700	318			

Source: HD



Table A.5-7 (3) List of Domestic Merchant Vessels in Thai, 1980  
(Cargo Vessels Registered as Home Trade Limited Vessel - Wooden Vessels)

No.	Vessel Name	GT	NT	DWT	No. of Crew	Year of Const.	Age of Vessel	Owner
1	Harine-3	217	147		8 1/11	Nov. 1976	7	Harin Phanich Co., Ltd./BKK
2	Harine-5	217	147		8 1/11	Sep. 1978	5	
3	Harine-8	231	157		8 1/11	Dec. 1980	3	
4	Harine-11	317	215		8 1/11	Dec. 1982	1	
5	Harine-20	241	195		8 1/11	Sep. 1964	19	
6	Harine-44	218	139		8 1/11	May 1968	15	
7	Harine-49	218	139		8 1/11	Aug. 1968	15	
8	Harine-54	217	148		8 1/11	Jan. 1970	14	
9	Harine-56	210	142		8 1/11	Jan. 1971	13	
10	Harine-59	236	160		8 1/11	Jun. 1972	12	
11	Harine-2	152	103		8 1/11	Jan. 1964	20	
12	Harine-23	181	123		8 1/11	Sep. 1963	20	
13	Harine-33	142	* 96		8 1/11	1961	22	Harin Phanich Co., Ltd./BKK
14	Harine-48	162	110		8 1/11	Mar. 1961	23	
15	Harine-31	174	118		8 1/11	Oct. 1962	21	
16	Harine-37	138	94		8 1/11	Oct. 1959	24	Operator: Tharoe Chakrward Co., Ltd.
17	Harine-35	285	201		8 1/11	Oct. 1959	24	Harin Phanich Co., Ltd./BKK
18	Harine-46	355	250		8 1/11	May 1961	23	
	Total	*3,911	2,684	*7,000	*144			Operator: Srithamaraj Trans- port Co., Ltd.

Source: HD

Table A.5-7 (4) List of Domestic Merchant Vessels in Thai, 1980  
(Tanker Registered as Home Trade Area Vessel - Over 150 GT)

No.	Vessel Name	GT	NT	DWT	No. of Crew	Year of Const.	Page of Vessel	Owner
1	C.P. 15	1,989	1,343	3,513	25	1969	14	The C.P. Co., Ltd./BKK
2	C.P. 8	696	239	*1,390	16	1960	23	" / "
3	C.P. 12	2,170	1,199	4,054	24	1964	19	" / "
4	C.P. 7	1,525	782	2,741	19	1964	19	" / "
5	C.P. 1	478	235	960	17	1966	17	" / "
6	C.P. 18	568	321	1,000	18	1965	18	" / "
7	C.P. 17	3,447	1,769	5,331	25	1968	16	" / "
8	Mae Abong	500	329	900	14	1964	19	Tor Phai boon Transport Ltd. Part/BKK
9	Mae Yom	349	200	505	14	1961	22	" / "
10	Mae Nan	946	593	1,364	18	1961	22	" / "
11	Mae Wang	719	367	1,077	18	1961	22	" / "
12	Visahakit 3	1,600	987	3,411	24	1969	14	Investment Promotion Enterprise Co., Ltd./BKK
13	Visahakit 1	2,894	2,018	5,314	22	1971	12	" / "
14	Visahakit 2	994	549	1,607	24			" / "
15	Lanna Thai	1,511	657	2,079	24	1964	19	Thai Petroleum Transport Co., Ltd./BKK
16	Srivichai	1,511	657	*2,770	24	1972	11	" / "
17	Suvarna Phumi	3,139	1,450	4,174	24	1969	14	" / "
18	Siam Mica	998	698	2,573	21			Siam Kij Service Co., Ltd./BKK
19	Siam Mallin	449	377	1,000	12			" / "
20	Siam Natchee	700	392	*1,400	12			" / "
21	Pattaya	1,998	1,215	3,353	20			Sea Tran Shipping Co., Ltd./BKK
22	Bongsaen	2,256	1,212	3,911	25	1969	14	" / "
23	North Eastern	492	200	310	11			North Eastern Oil Co., Ltd./BKK
24	North Eastern Star 1	699	407	544	15	1968	LPG	" / "
25	Phai-pho-Kanon	1,512	580	*2,770	24			Electricity Generating Authority of Thailand(EGAT)/BKK
26	Chatchawin 2	492	317	980	12			Tawatchai Tung Chai Trong/BKK
27	Naraporn	500	263	1,098	11			The TLT Service Co., Ltd./BKK
28	Cholate	499	254	824	14			Coastal Shipping Co., Ltd./BKK
29	Sam San Pan Wang	1,781	917	3,000	22			Sam San Pan Wang Ltd. Part/BKK
30	Ratsame	474	206	1,000	13			Chaikul Import & Export Co., Ltd./BKK
31	Choknavy	499	298	1,009	14			The CSK Marine Co., Ltd./BKK
32	Pechde	632	338	1,072	14			The T. Land Co., Ltd./BKK
33	Siam Varich	794	590	2,031	18	1972		Siam United Service Co., Ltd./BKK
34	Thai Tallow 1	498	300	1,233	20	1970		Thai Tallow and Oil Co., Ltd./BKK
35	Taga	498	280	1,228	14			T.S.T. Service Co., Ltd./BKK
36	Nawakun	497	262	432	12	1966	LPG	Jurairat Ltd. Part/BKK
	Total	41,304	22,801	71,978	654			

Source: HD

Table A.5-7 (5) List of Domestic Merchant Vessels in Thai, 1980  
(Tankers Registered as Home Trade Limited Area Vessel - Over 60 GT)

No.	Vessel Name	GT	NT	DWT	No. of Crew	Year of Const.	Page of Vessel	Owner
1	C.P. 10	994	572	2,066	17	1967	16	The C.P. Co., Ltd./BKK
2	C.P. 6	827	539	1,559	17	1964	19	" / "
3	C.P. 10	997	560		17			" / "
4	C.P. 11	997	560		17	1969	14	" / "
5	C.P. 3	422	256	550	16	1969	14	" / "
6	C.P. 2	469	289	975	18	1965	18	" / "
7	C.P. 9	997	494	1,505	17	1967	16	" / "
8	C.P. 14	999	580	2,505	18	1969	16	" / "
9	C.P. 1	392	288		16			" / "
10	C.P. 16	889	501	1,956	14	1969	14	" / "
11	C.P. 5	314	132	450	12	1965	18	" / "
12	Chock Anan Chumporn 2	159	106		8			Mr. Prajack Pinrattana/BKK
13	Pook Mittra Chumporn	159	109		8			" / "
14	Pak-Mittra Chjmporn	159	106		8			" / "
15	P.T.T. 5	254	173		20			Petroleum of Thailand/BKK
16	P.T.T. 6	254	173		20			" / "
17	P.T.T. 7	61	41		6			" / "
18	P.T.T. 1	257	137		13			" / "
19	Phai-Pha-Kanon 2	695	320		20			Electricity Generating Authority/N.T.
20	Phai-Pha-Kanon 1	695	320		20			" / "
21	Electricity Generating Authority	91	62		6			" / "
22	Electricity Generating Authority	118	80		8			" / "
23	Sin Charoen Laph 2	109	75		8			Tor Faiboon Transport Ltd. Part/BKK
24	Sin Charoen Laph	94	64		8			" / "
25	Prajack Peckde 1	493	289	1,200	10			Prajack Peckde Co., Ltd./S.R.
26	Chock Anan Chumporn	159	106		8			Nai Anan Tiasewanakool/C.P.
27	Sunenava	381	202		13			Union Thai Navigation/BKK
28	Sri-Sawad 4	195	115		5			Mr. Tienchai Srisawad/BKK
29	Serika	188	128		8			Cultrick Transport Co., Ltd./BKK
30	F.C.I. 1	81	* 55		8			Mr. Suvit Panchet/BKK
31	Wattana-navi	148	101		9			Mrs. Kanhana Dussudee-Wanich/BKK
32	Krung Kao	159	96		10			Mr. La-ong Punsawadee/BKK
	Total	13,206	7,629	*26,400	402			

Source: HD

Table A.5-8 (1) Cargo Flow of Sub-Regional Trade

## SOUTH THAILAND/INDONESIA - TOTAL

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Petroleum								
Sea	-	-	-	-	2	4	3	15
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	2	4	3	15
Agriculture								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Food								
Sea	-	-	-	-	-	2	2	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	2	2	-
Rubber								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Others								
Sea	22	14	18	39	-	1	1	-
Land	-	-	-	-	-	-	-	-
Total	22	14	18	39	-	1	1	-
Total								
Sea	22	14	18	39	2	7	6	15
Land	-	-	-	-	-	-	-	-
Total	22	14	18	39	2	7	6	15

Source: MOC, Statistics

Table A.5-8 (2) Cargo Flow of Sub-Regional Trade

## SOUTH THAILAND/INDONESIA - SONGKHLA

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Petroleum								
Sea	-	-	-	-	-	1	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	1	-	-
Agriculture								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Food								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Rubber								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Others								
Sea	4	-	-	2	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	4	-	-	2	-	-	-	-
Total								
Sea	4	-	-	2	-	1	-	-
Land	-	-	-	-	-	-	-	-
Total	4	-	-	2	-	1	-	-

Source: MOC, Statistics

Table A.5-8 (3) Cargo Flow of Sub-Regional Trade

## SOUTH THAILAND/MALAYSIA - TOTAL

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Sea	-	-	-	-	-	-	-	-
Land	96	139	187	142	-	-	-	-
Total	96	139	187	142	-	-	-	-
Agriculture								
Sea	3	2	5	3	-	-	1	-
Land	93	78	61	70	31	85	73	-
Total	96	80	66	73	31	85	74	-
Food								
Sea	9	11	14	15	3	3	-	-
Land	20	16	17	22	17	50	68	107
Total	29	27	31	37	20	53	68	107
Rubber								
Sea	13	8	3	2	-	-	-	-
Land	15	19	20	15	-	-	-	-
Total	28	27	23	17	-	-	-	-
Others								
Sea	4	5	4	7	2	1	1	1
Land	135	147	226	212	89	197	98	38
Total	139	152	230	219	91	198	99	39
Total								
Sea	29	26	26	27	5	4	2	1
Land	359	399	511	461	137	332	239	201
Total	388	425	537	488	142	336	241	202

Source: MOC, Statistics

Table A.5-8 (4) Cargo Flow of Sub-Regional Trade

SOUTH THAILAND/MALAYSIA - SONGKHLA

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Sea	-	-	-	-	-	-	-	-
Land	96	139	187	142	-	-	-	-
Total	96	139	187	142	-	-	-	-
Agriculture								
Sea	-	-	-	-	-	-	-	-
Land	93	78	61	70	31	85	73	56
Total	93	78	61	70	31	85	73	56
Food								
Sea	-	-	-	-	3	3	-	-
Land	18	15	16	20	1	8	9	-
Total	18	15	16	20	4	11	9	-
Rubber								
Sea	-	-	-	-	-	-	-	-
Land	1	-	-	2	-	-	-	-
Total	1	-	-	2	-	-	-	-
Others								
Sea	1	2	-	-	-	-	-	-
Land	134	146	226	207	89	195	97	37
Total	135	148	226	207	89	195	97	37
Total								
Sea	1	2	-	-	3	3	-	-
Land	342	378	490	441	121	288	179	93
Total	343	380	490	441	124	291	179	93

Source: MOC, Statistics

Table A.5-8 (5) Cargo Flow of Sub-Regional Trade

SOUTH THAILAND/SINGAPORE - TOTAL

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Petroleum								
Sea	-	-	-	-	39	71	58	68
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	39	71	58	68
Agriculture								
Sea	3	1	-	-	-	1	1	-
Land	3	3	5	4	-	-	-	-
Total	6	4	5	4	-	1	1	-
Food								
Sea	4	3	6	11	-	-	-	1
Land	-	-	-	-	-	-	-	-
Total	4	3	6	11	-	-	-	1
Rubber								
Sea	52	52	31	16	-	-	-	-
Land	24	20	14	15	-	-	-	-
Total	76	72	45	31	-	-	-	-
Others								
Sea	41	50	42	54	1	4	1	4
Land	1	-	-	3	-	-	-	1
Total	42	50	42	57	1	4	1	5
Total								
Sea	100	106	79	81	40	76	60	73
Land	28	23	19	22	-	-	-	1
Total	128	129	98	103	40	76	60	74

Source: MOC, Statistics



Table A.5-8 (6) Cargo Flow of Sub-Regional Trade

SOUTH THAILAND/SINGAPORE - SONGKHLA

Unit: Thousand tons

	Export				Import			
	1978	1979	1980	1981	1978	1979	1980	1981
Petroleum								
Sea	-	-	-	-	2	-	2	3
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	2	-	2	-
Agriculture								
Sea	1	-	-	-	-	-	-	-
Land	3	3	5	4	-	-	-	-
Total	4	3	5	4	-	-	-	-
Food								
Sea	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-
Rubber								
Sea	16	25	23	6	-	-	-	-
Land	24	20	14	15	-	-	-	-
Total	40	45	37	21	-	-	-	-
Others								
Sea								
Land								
Total								
Total								
Sea	44	56	47	26	3	1	2	4
Land	28	23	19	22	-	-	-	-
Total	72	79	66	48	3	1	2	4

Source: MOC, Statistics

Table A.5-9 Minimum Demand of Licensed Ship's Officers in 1983

Type and Trade of Vessel				Navigators					Engineers										Total			
Major Trade	Registered Trade Area	Kind of Vessel	No. of Vessel	No. of Vessel per Size		Foreign Master	1st Class Navigator	2nd Class Navigator	Local Master	Total	No. of Vessel per Size and Engine Power					1st Class Engineer	2nd Class Engineer	3rd Class Engineer	Special 1st Class Eng. Driver	1st Class Eng. Driver	Total	
				Over 1000 GT	Less 1000 GT						Over 1500 PS	Over 1000 PS	Less 1000 PS	Over 1500 PS	Over 1000 PS							Less 1000 PS
				Over 250 GT	Less 250 GT					Over 1500 PS	Over 1000 PS	Less 1000 PS	Over 450 PS	Less 450 PS						Total		
International	Foreign	Cargo	63	63	-	63	63	126	63	345	Over 1500 ps					63	63	63	63		276	
		Tanker	6	6	-	6	6	12	6								6	6	6	6		
		Total	69	69		69	69	138	69		69						69	69	69	69		
	Foreign Limited				Over 1000 GT	Less 1000 GT						Over 1500 PS	Over 1000 PS	Less 1000 PS								
		Cargo	14	9	5	14	14	14	9	134	10	4				10	4	14	24			
		Tanker	18	10	8	18	18	18	10		7	11				7	11	18	25			
		LPG	6	1	5	6	6	6	1			6					6	6	6			
Total	38	20	18	38	38	38	20	17	21					17	21	38	55					
Domestic	Home			Over 1000 GT	Less 1000 GT						Over 1500 PS	Over 1000 PS	Less 1000 PS									
		Cargo	23	9	14	-	23	23	32	238	8	7	8				8	23	31			
		Tanker	34	9	25	-	34	34	43		13	5	16				13	34	39			
		LPG	2	-	2	-	2	2	2		-	1	1				-	2	3			
		Passenger	9	1	8	-	9	9	10		-	3	6				-	9	12			
		Official	5	-	5	-	5	5	5		-	2	3				-	5	7			
	Total	73	19	54	-	73	73	92	21		18	34				21	73	92				
	Home Limited				Over 250 GT	Less 250 GT						Over 1500 PS	Over 1000 PS	Less 1000 PS	Over 450 PS	Less 450 PS						
		Cargo	51	7	44	-	7	44	7	120	-	-	7	3	41	-	-	10	48	44		
		Tanker	32	18	14	-	18	14	18		4	-	-	2	26	-	3	3	38	14		
		Tug	8	-	8	-	-	8	-		-	-	-	3	5	-	-	3	5	8		
		Official	4	-	4	-	-	4	-		-	-	-	-	4	-	-	-	4	4		
Total		95				25	70	25	4		-	7	8	76		3	16	95	70			
G. Total		275			107	205	319	206	837		111	39	41	8	76	86	114	196	311	70	777	

These figures are estimated from:

- Appendix Chart A.5-1, (1)^(2) Kind and Grade of Existing Certificates
- Appendix Table A.5-10, (1)^(3) Number and Quarification of Officers required per Trade and Size of Vessel
- Appendix Table A.5-6, Fleet of Thai Flag Seagoing Vessels, 1980

Source: Harbour Dept.

Table A.5-10(1) Number and Qualifications of Officers Required per Trade and Size of Vessel

Deck Dept.-1

Trade Area Position	Foreign Trade over 1500 GT					Foreign Limited over 500 GT				Home over 150 GT		
	Master	Chief Mate	2nd Mate	3rd Mate	4th Mate	Master	Chief Mate	2nd Mate	3rd*(1) Mate	Master	Chief Mate	2nd Mate
Master	o					o						
1st Class Navigator		o					o			o		
2nd Class Navigator			o	o				o			o	
Local Master					o				o			o

\*(1) Only for vessel over 1000 GT

Trade Area Position	Home Limited over 60 GT													
	Over 5000 GT			Over 2000 GT			Over 1000 GT			Over 500 GT		Over 250 GT		Less 250 GT
Certificate	Master	Chief	2nd	Master	Chief	2nd	Master	Chief	2nd	Master	Chief	Master	Chief	Master
Master														
1st Class Navigator	o			o			o			o		o		o
2nd Class Navigator		o			o			o			o			o *(2)
Local Master			o			o			o				o	

\*(2) shall have experience over one year as 2nd Mate of Foreign or Home trade vessel.

Trade Area Position	Local Trade											
	Over 5000 GT			Over 2000 GT		Over 1000 GT		Over 500 GT		Over 250 GT		Less 250 GT
Certificate	Master	Chief	2nd	Master	Chief	Master	Chief	Master	Chief	Master	Chief	Master
1st Class Navigator	o *(3)											
2nd Class Navigator		o *(4)		o *(5)								
Local Master			o		o *(6)	o *(7)	o *(8)	o *(9)	o *(10)	o *(11)		o
1st Class Skipper											o	

\*(3) shall have experience over 1 year as Master of Seagoing vessel which is over 1000 GT

(4) - " - 1 year as Chief or 2nd Mate - " - 1000 GT

(5) - " - 1 year as Master - " - 1000 GT

(6) - " - 1 year as Chief Mate - " - 1000 GT

(7) - " - 1 year as Master - " - 500 GT

(8) - " - 1 year as Chief Mate - " - 500 GT

(9) - " - 1 year as Master - " - 250 GT

(10) - " - 1 year as Chief Mate - " - 250 GT

(11) - " - 1 year as Master - " - less 250 GT

Table A.5-10(2) Number and Qualifications of Officers Required per Trade and Size of Vessel

Deck Dept.-2

Certificate	Type of Vessel Position	Deep Sea Fishing Vessel				Local Fishing Vessel		Local Trade Vessel		Boarder Area Vessel	Boarder Area Sailing Junk
		1st class 150 ~ 500 GT		2nd class 60 ~ 150 GT		30 ~ 60 GT	Less 30 GT	15 ~ 60 GT	Less 15 GT	5 ~ 60 GT	60 ~ 250 GT
		Master	Mate	Master	Mate	Skipper	Skipper	Skipper	Skipper	Skipper	Skipper
Fishing VSL 1st Class Master		o	o	o	o			o	o	o	o
Finshing Area 2nd Class Master			o	o	o			o	o	o	o
Border Area VSL Skipper			o		o			o	o	o	o
Fishing VSL 1st Class Helm's Man			o		o		o	o	o		
Fishing VSL 2nd Class Helm's Man							o		o		
Seagoing VSL 1st Class Helm's Man				o			o	o	o		
Seagoing VSL 2nd Class Helm's Man									o		

	Special 1st Class River Vessel				1st Class River Vessel		2nd/3rd Class River Vessel		Local Junk	Seagoing Lighter		Lighter
	250 ~ 500 GT		60 ~ 250 GT		30 ~ 60 GT		Less 30 GT		Skipper	Over 60 GT		
	Skipper	Mate	Skipper	Mate	Skipper	Mate	Skipper	Mate		Skipper	Steerman	
River VSL 1st Class Skipper	o											
River VSL 2nd Class Skipper			o									
River VSL 1st Class Helm's Man		o			o							
River VSL 2nd Class Helm's Man				o		o *(12)	o	o *(13)				
Local Sailing Junk Skipper									o			
Lighter Boatswain										o		
Lighter Steerman											o *(14)	o

\*(12) Only Vessel Navigated not less between Bangkok and Nakhon Sawan

\*(13) Only 2nd Class River Vessel (15 GT ~ 30GT) Navigated not less between Bangkok and Nakhon Sawan.

\*(14) Only Seagoing Lighter Over 250 GT

Table A.5-]0(3) Number and Qualifications of Officers Required per Trade and Size of Vessel

Eng Dept.

	Foreign Trade				Foreign Limited Trade				Home Trade					
	C/E	2/E		3/E	4/E	C/E		2/E	3/E	4/E*(1)	C/E		2/E	S/E*(2)
		Over 1500 ps	Other			Over 1500 ps	Other				Over 1500 ps	Other	Over 1500 ps	Other
1st Class Engineer	o					o								
2nd Class Engineer		o					o				o			
3rd Class Engineer			o	o				o				o	o	
Special 1st Class Eng.-driver					o				o	o				o

\*(1) Only for the engine over 1500 ps

\*(2) Only for the engine over 1000 ps

	Home Limited Trade						Local Trade							
	250 ~ 5000 GT				Less 250 GT		Over 1000 GT			250 ~ 1000 GT		60 ~ 250 GT		
	C/E		2/E		3/E*(3)	C/E		2/E	C/E		2/E	C/E	2/E	C/E
	Over 1500 ps	Other	Over 1500 ps	Other		Over 450 ps	Other		Over 1500 ps	Other		Over 1500 ps	Other	
2nd Class Engineer	o								o			o		
3rd Class Engineer		o	o			o			o			o		
Special 1st Class Eng.-driver				o	o		o			o			o	o
1st Class Eng.-driver								o						

\* Only for the engine over 1000 ps

	Deep Sea Fishing Vessel		Special 1st River VSL		Coastal/River/Fishing Vessel Less 60 GT				Border Area Vessel	
	150 ~ 500 GT		60 ~ 150 GT		C/E	2/E	Less 550 ps	Less 150 ps		Less 60 ps
	C/E	2/E	C/E	2/E				Over 1500 ps		Other
2nd Class Engineer					o					
3rd Class Engineer						o				
Fishing 1st Class Eng.-Driver	o									
Fishing 2nd Class Eng.-Driver			o							
Special 1st Class Eng.-Driver		o		o			o	o		
1st Class Eng.-Driver								o		
2nd Class Eng.-Driver									o	

Skipper and Eng.-driver of 3rd class Coastal/River/Rishing Vessel (less 15 GT) could be one and same person.

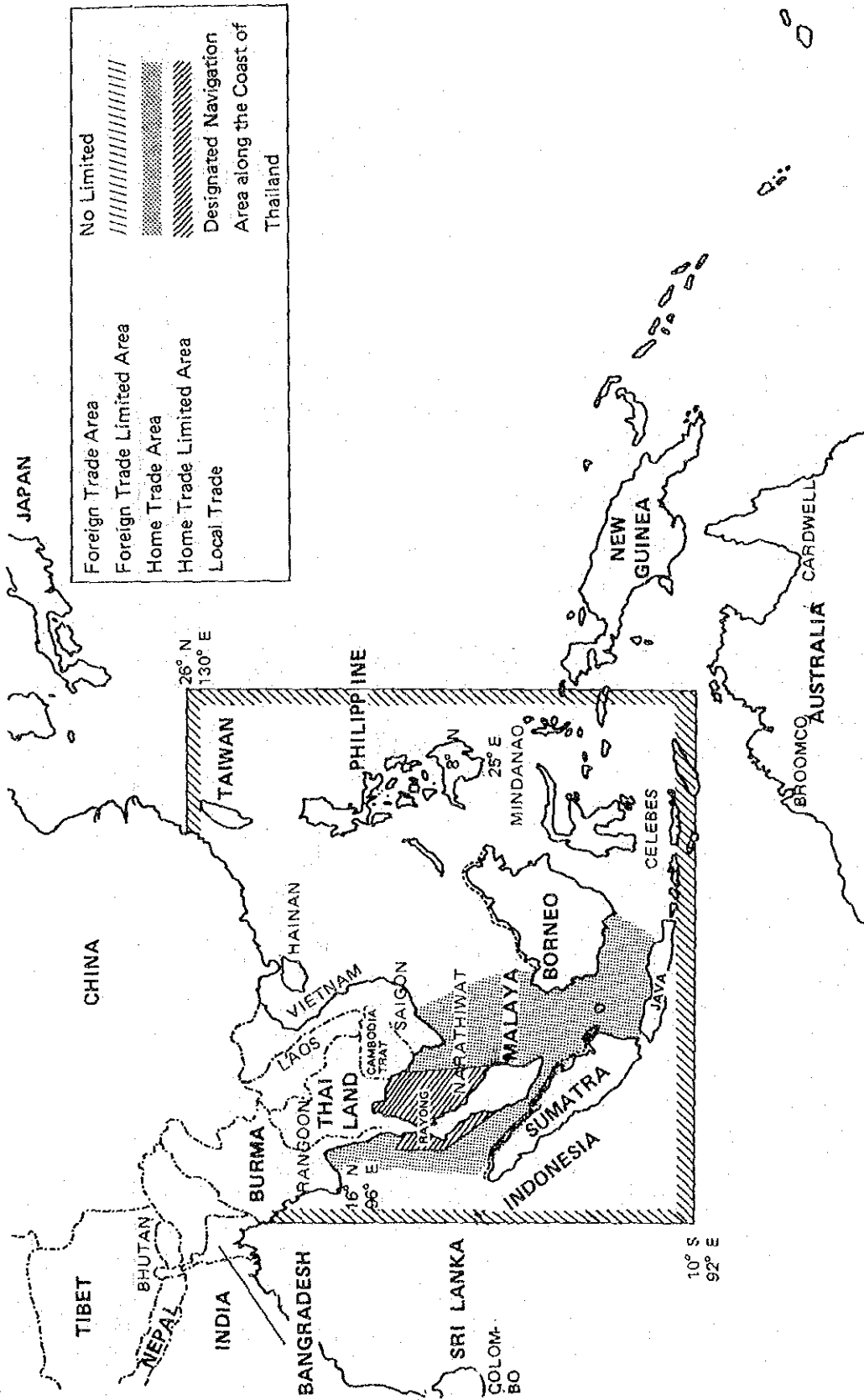


Fig. A.5-1 Trade Area of Thai Flag Vessel

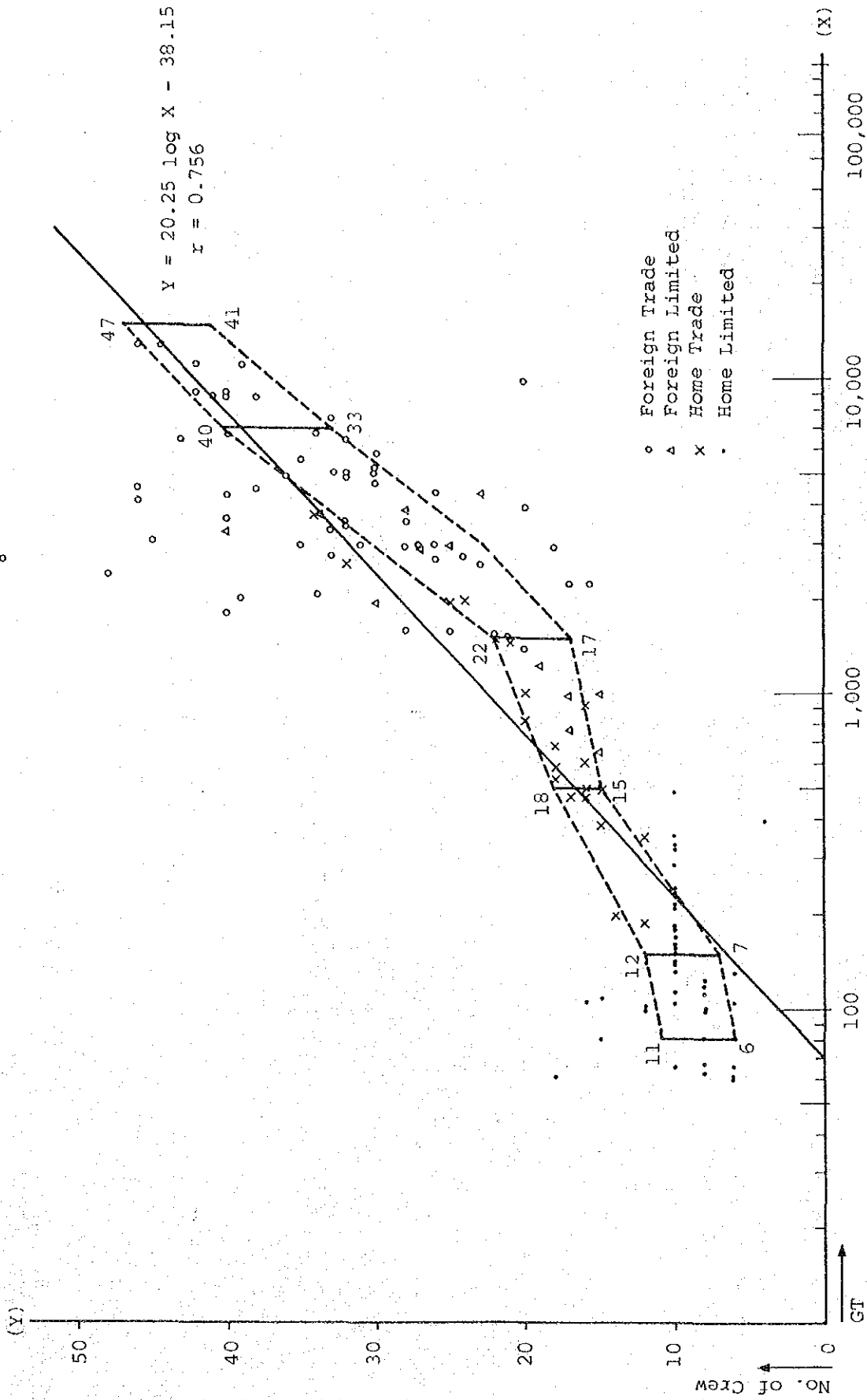


Fig. A.5-2 (1) Actual Number of Crew per Vessel, 1980 - Cargo Vessel - GT

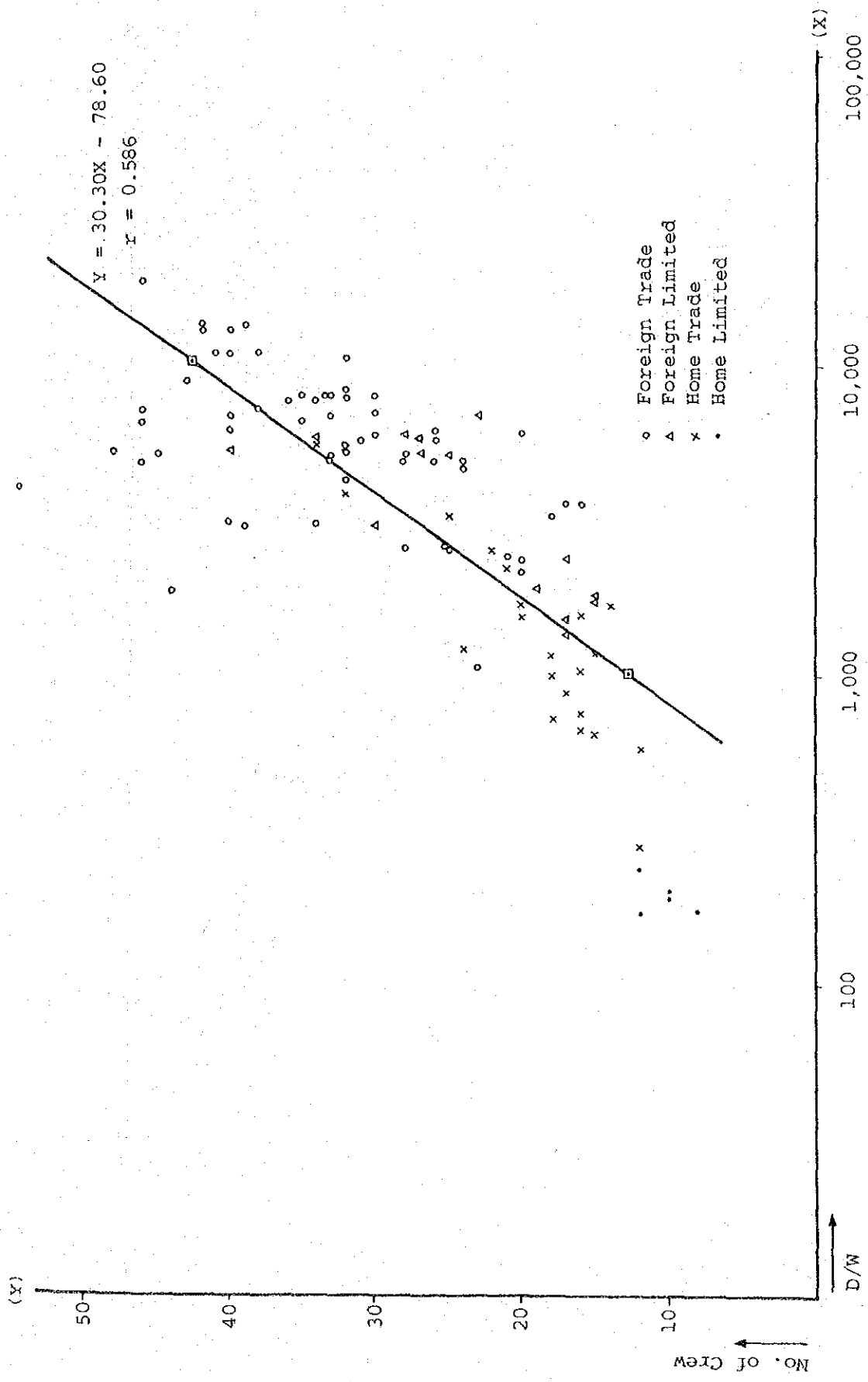


Fig. A.5-2 (2) Actual Number of Crew per Vessel, 1980 - Cargo Vessel - DWT



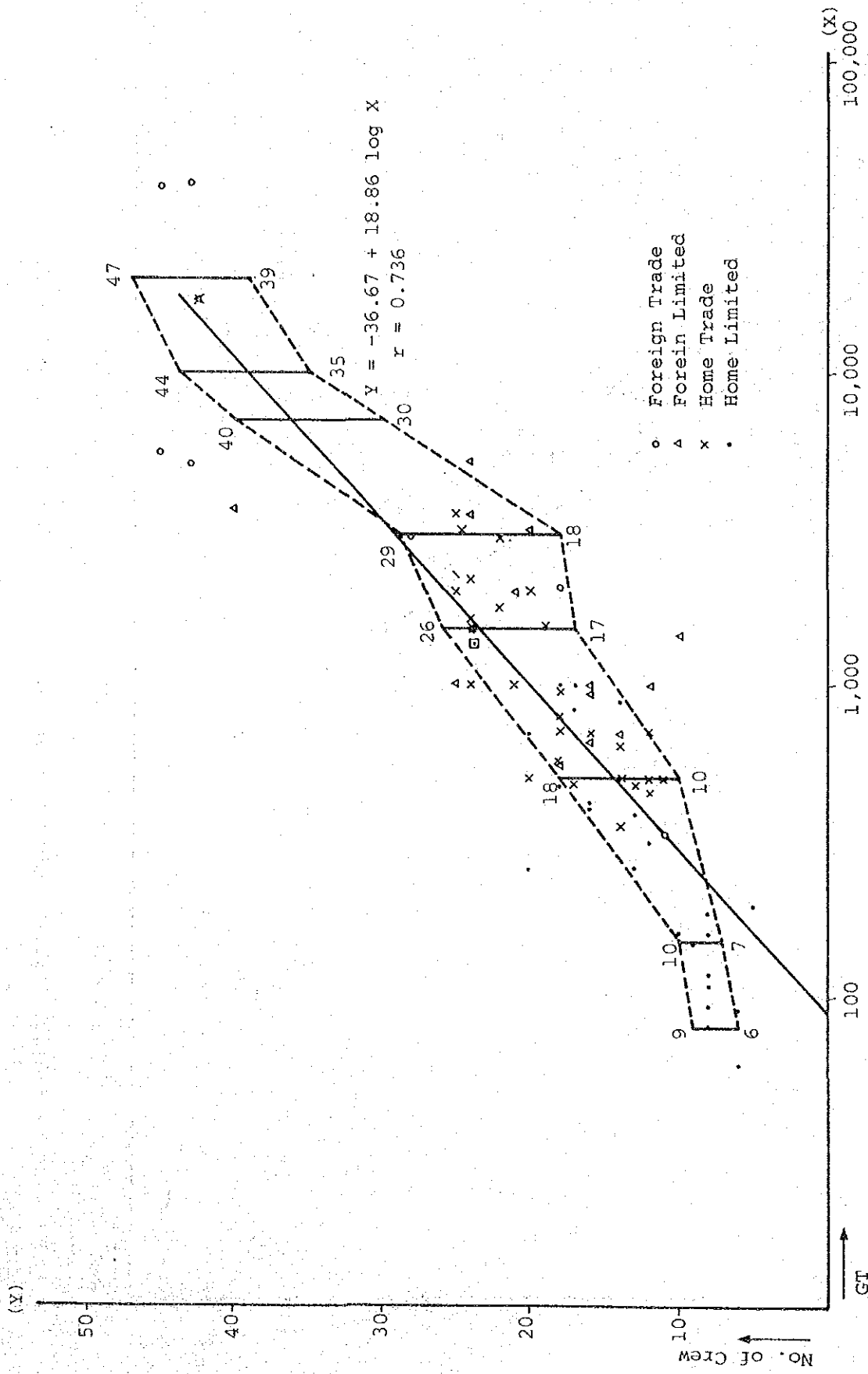


Fig. A.5-3 (1) Actual Number of Crew per Vessel - Tanker - GT

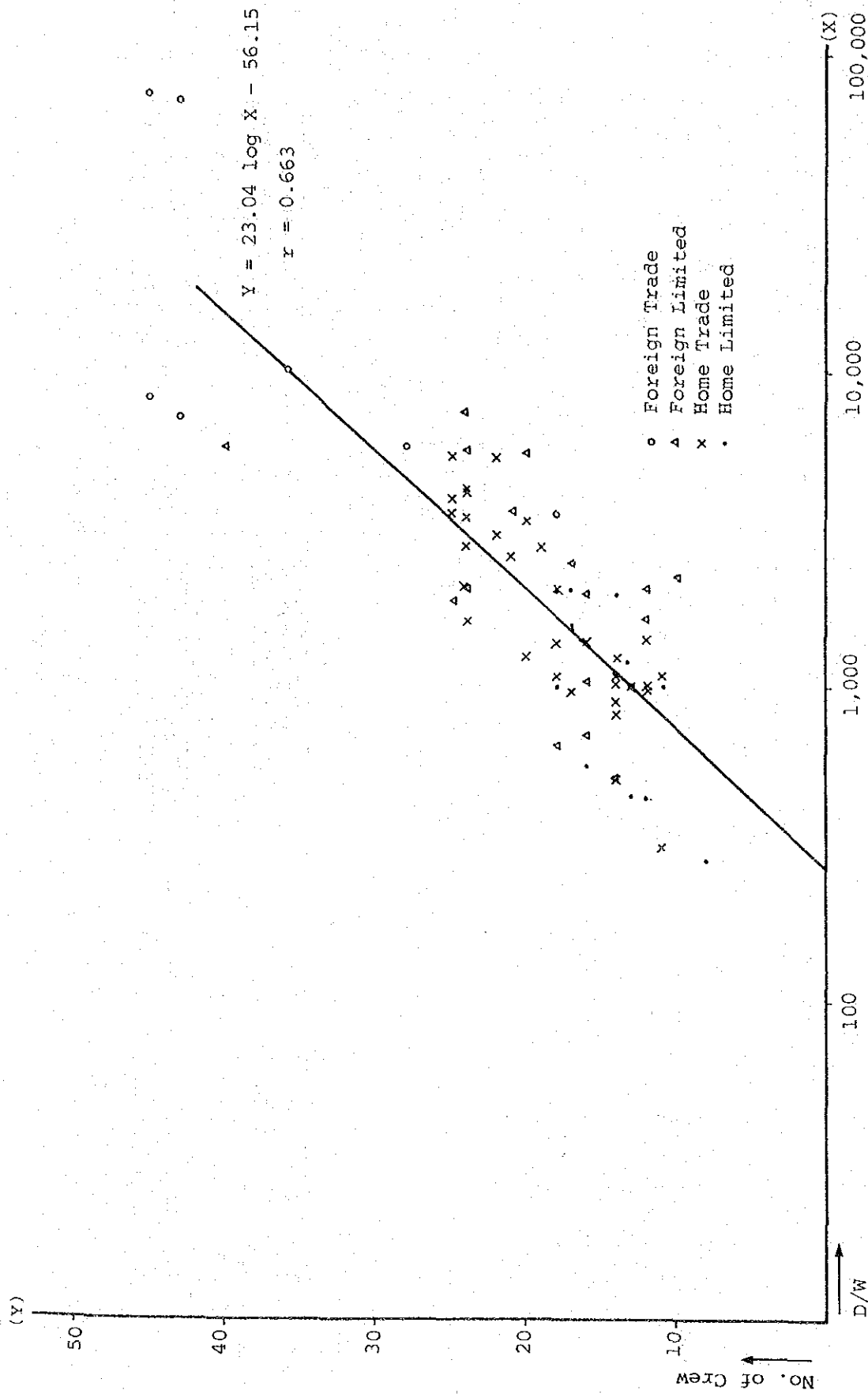


Fig. A.5-3 (2) Actual Number of Crew per Vessel - Tanker - DWT

Chart A.5-1 (1) Kind and Grade of Existing Certificates (Deck Dept.)

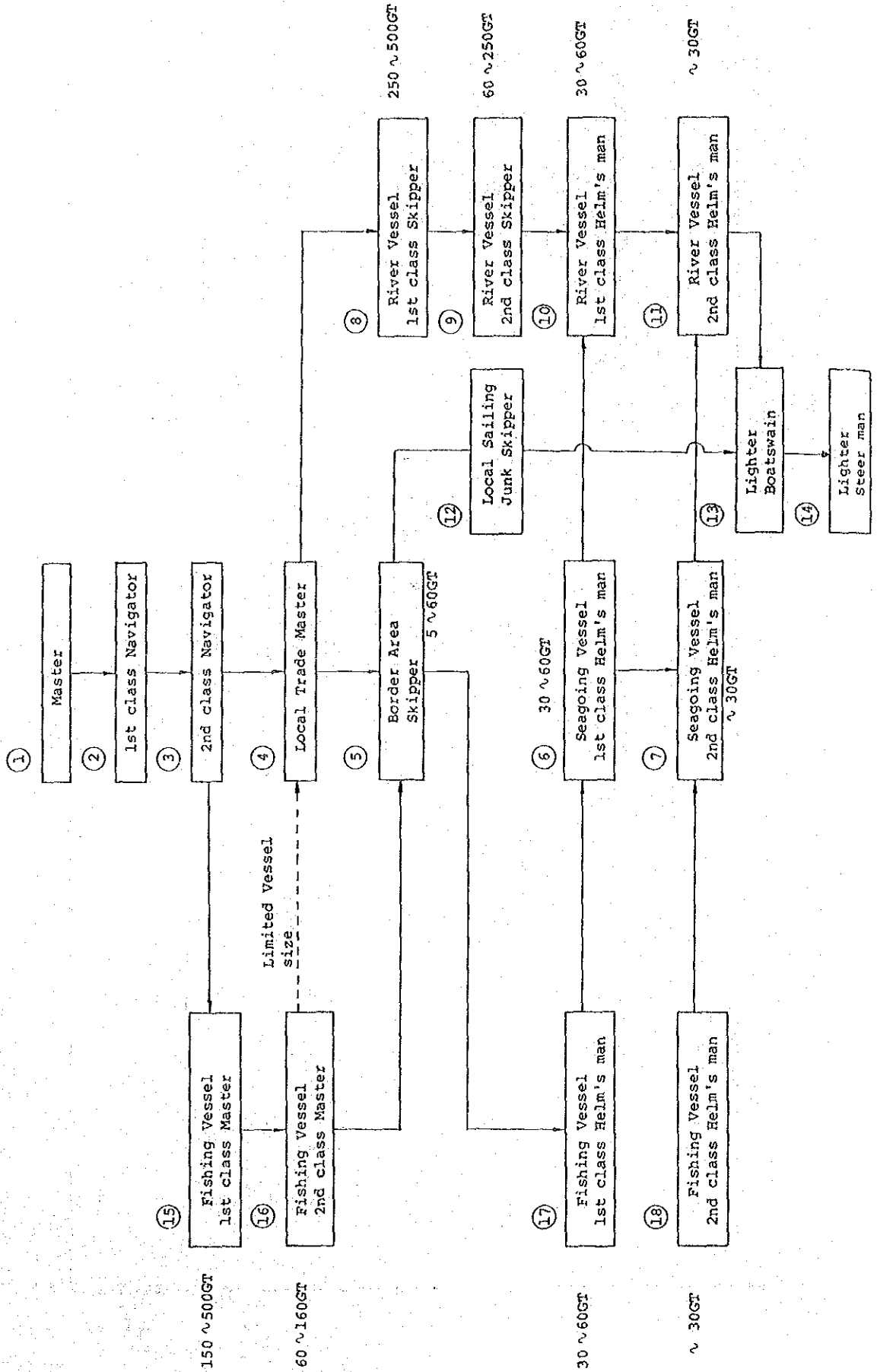
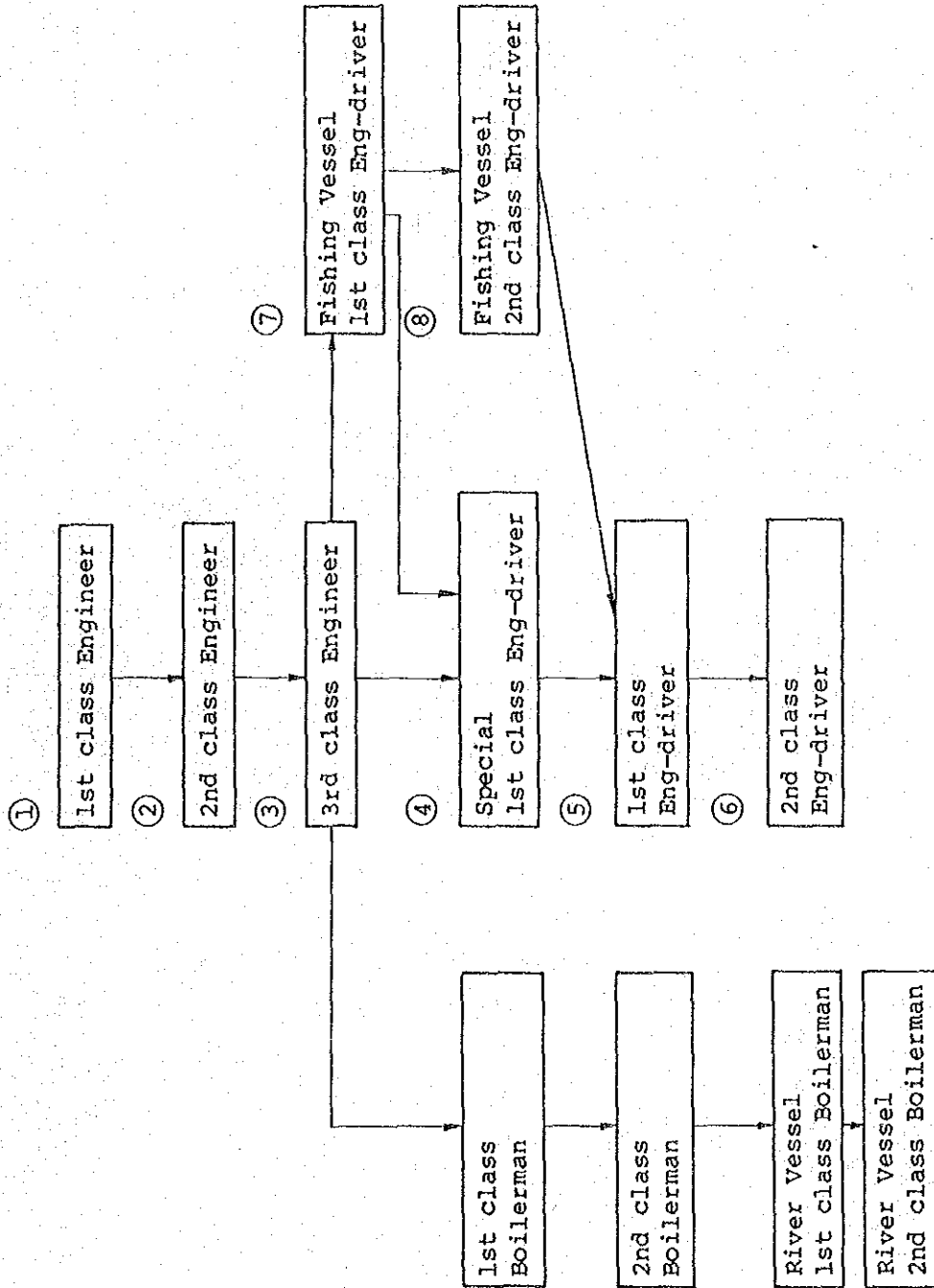


Chart A.5-1 (2) Kind and Grade of Existing Certificates (Eng. Dept.)





**APPENDIX 6 BUDGETS AND DREDGING OPERATIONS OF HD**



APPENDIX 6 BUDGETS AND DREDGING OPERATIONS OF HD

Table A.6-1 Budget Expenditure Appropriations  
(Fiscal Year 1979 ~ 1982)

Unit: Million Bahts

	1979	1980	1981	1982	Remarks
Harbour Department	175.5	165.8	239.9	342.7	As the whole
Port Project					
Tha Thong	6.9	7.4	5.0	20.5	
Laem-ngob	-	3.0	1.0	7.9	
Songkhla & Phuket	-	5.7	3.0	19.9	
Krabi	-	-	-	10.0	
Pattani	-	-	-	15.0	
Inland Waterways					Technical Division excluding general administration
Phase III.	-	1.1	8.0	50.0	
Study & Design of Rayong Breakwater	-	-	-	3.1	
Sub Total	6.9	17.2	17.0	126.4	
(%)*	(3.9)	(10.4)	(7.1)	(36.9)	
Maintenance & Capital Dredging	95.8	79.5	122.9	93.7	Dredging & Maintenance Division
(%)*	(54.5)	(48.0)	(51.2)	(27.3)	

Note 1. ( )\* indicates the percentage per the budget of H/D.

Note 2. The Dredging & Maintenance Division has the budget 139.9 M ฿ for 1983 and 84.6 M ฿ for 1984.

The budget of this Division up to 1983 is for 4 Dredging Centers (i.e. Eastern, Songkhla, Kan Tang and Ayuttaya).

And from fiscal year 1984, Ayuttaya Dredging Center shall be separated as Inland Waterways Division.

Source: Harbour Department



Table A.6-2 (1). Annual Dredging (Fiscal Year 1980)

Dredger's Name & Channel	Fiscal Year 1980					
	Dredged Volume(m <sup>3</sup> )		Length(km)		Total Cost(฿)	
	Target	Actual	Target	Actual	Target	Actual
K 1 (Don Sak)	316,000	164,854	2.000	1.500	1,858,500	1,890,837
K 1 (Lang Saun)	2,800	1,500	2.800	1.500	120,000	300,283
K 1 (Tha Sala)	90,000	12,154	0.700	0.700	1,156,910	563,128
K 3 (Tha Sala)	140,000	140,250	0.800	0.800	1,164,000	780,220
K 3 (Pattani)	360,000	232,745	2.000	0.600	1,429,890	1,056,132
K 3 (Narathiwat)	180,000	189,524	2.000	0.900	950,260	1,002,482
K 3 (Sai Buri)	80,000	16,838	0.600	0.200	517,000	176,296
K 5 (Satul)	700,000	274,450	3.500	2.589	3,341,800	2,238,052
K 7 (Ranong)	270,000	21,297	1.500	1.000	1,288,500	1,927,996
K 7 (Phuket)	187,500	87,010	4.000	2.000	797,650	1,176,362
K 7 (Krabi)	250,000	72,868	5.000	1.000	1,096,070	1,109,233
K 9 (Tha Lan)	210,000	162,860	0.900	1.011	1,029,850	957,512
K 9 (Pa Sak)	250,000	182,440	3.025	2.000	2,530,800	1,828,469
K 9 (Bang Pa-In)	50,000	38,400	0.180	0.092	351,950	262,742
K11 (Nakhon Sawan)	600,000	540,670	4.000	3.000	2,958,350	2,354,919
K15 (Chumporn)	270,000	262,834	5.000	2.500	1,132,470	1,128,716
K15, K17 (Bang Pakong)	1,190,000	474,298	8.500	8.500	6,562,700	4,688,307
K17 (Ban Laem)	300,000	285,991	2.000	2.000	1,580,000	1,313,079
K17 (Rayong)	180,000	94,810	1.600	1.000	636,110	887,050
K17 (Pang Rard)	300,000	76,025	1.800	1.800	1,487,000	676,707
K 2 (Phuket)	48,000	34,600	4.000	3.000	546,700	438,795
K 2 (Kan Tang)	120,000	107,825	27.000	9.000	2,186,340	947,821
K 4 (Ban Don)	600,000	148,154	32.500	13.500	3,107,800	1,237,218
<b>Total</b>	<b>6,694,300</b>	<b>3,622,398</b>	<b>115.405</b>	<b>60.192</b>	<b>37,830,650</b>	<b>28,942,356</b>

Source: Harbour Department

Table A.6-2 (2) Annual Dredging (Fiscal Year 1981)

Dredger's Name & Channel	Fiscal Year 1981					
	Dredged Volume (m <sup>3</sup> )		Length (km)		Total Cost (฿)	
	Target	Actual	Target	Actual	Target	Actual
K 1 (Narathiwat)	90,000	164,575	2.000	2.600	1,955,600	998,802
K 3 (Lang Saun)	240,000	210,160	2.500	0.673	2,590,000	1,266,419
K 5 (Satul)	525,000	446,550	9.000	6.274	3,321,000	3,157,739
K 7 (Krabi)	450,000	281,595	3.000	1.320	2,742,000	2,117,805
K 9 (Pa Sak)	300,000	118,860	1.350	0.421	1,875,800	734,408
K11 (Pa Sak)	300,000	564,260	1.350	2.012	1,875,800	2,116,617
K15 (Rayong)	225,000	107,349	1.600	0.443	1,888,200	1,136,485
K15 (Prasae)	225,000	123,185	2.000	2.000	1,960,200	1,181,935
K15 (Chantaburi)	225,000	143,645	0.800	0.518	1,228,000	1,186,341
K17 (Ban Laem)	375,000	195,775	2.500	1.908	2,018,000	1,195,871
K17 (Bang Pakong)	375,000	218,242	8.500	4.200	3,265,200	2,743,381
K19, K21 (Pak Phanang)	300,000	-	2.000	-	2,613,000	1,503,113
K 2 (Ban Don)	100,000	174,020	13.000	11.000	1,230,900	818,860
K 2 (Songkhla)	200,000	102,650	7.000	3.500	2,436,000	699,338
K 4 (Satul)	100,000	93,870	14.000	8.000	1,246,500	940,215
K 4 (Kan Tang)	168,000	119,183	27.000	15.000	2,030,500	927,274
Total	4,198,000	3,027,889	97.600	59.869	34,276,700	22,724,608

Source: Harbour Department

Table A.6-2 (3) Annual Dredging (Fiscal Year 1982)

Dredger's Name & Channel	Fiscal Year 1982					
	Dredged Volume (m <sup>3</sup> )		Length (km)		Total Cost (฿)	
	Target	Actual	Target	Actual	Target	Actual
K 1 (Sichol)	100,000	114,030	1.000	0.477	1,708,750	1,103,776
K 1 (Ban Don)	90,000	190,611	1.500	0.458	1,772,942	1,457,259
K 3 (Don Sak)	180,000	147,300	1.700	1.090	2,068,692	1,207,620
K 5 (Phuket)	225,000	117,200	4.000	3.900	2,005,750	1,381,628
K 7 (Krabi)	660,000	582,200	4.000	1.883	5,556,300	3,621,502
K 9 (Pa Sak)	437,500	373,080	1.167	2.211	3,362,741	2,354,589
K 9 (Bang Pa-In)	62,500	84,440	0.400	0.628	480,391	468,009
K11 (Pa Sak)	250,000	318,460	0.667	1.340	1,921,556	1,359,960
K15 (Rayong)	225,000	123,521	1.600	0.450	2,658,000	1,139,349
K15 (Samut Song- kram)	225,000	297,835	2.700	2.600	2,068,800	1,735,568
K17 (Samut Sakorn)	450,000	3,078	7.000	0.030	4,064,000	484,482
K19 (Pak Phanang)	600,000	627,500	4.000	4.609	5,046,312	3,669,214
K21 (Pak Phanang)	600,000	627,500	4.000	4.609	5,046,312	3,669,214
K 2 (Kan Tang)	100,000	103,925	27.000	10.000	1,604,200	1,374,934
K 2 (Satul)	67,000	30,825	14.000	8.000	962,800	123,204
K 2 (Phuket)	67,000	65,550	4.000	3.000	1,123,000	1,004,227
K 4 (Songkhla)	134,400	140,000	7.000	6.500	1,925,600	1,639,784
K 4 (Khanom)	88,903	97,000	1.364	1.400	1,977,000	1,278,059
<b>Total</b>	<b>4,502,303</b>	<b>4,044,055</b>	<b>87.098</b>	<b>53.185</b>	<b>45,353,156</b>	<b>29,078,383</b>

Source: Harbour Department

Table A.6-3 Dredgers Inventory, 1983

No.	Cutter	Country of Build	Age (year)	Dimension			Engine			Tender		Capacity (m <sup>3</sup> /hr)	Remarks
				Length (m)	Width (m)	Draught (m)	Dredging Pump (HP.)	Hydrau-lic (HP.)	Gene-rator (KVA)	Name	Engine (HP.)		
1	K 1	Germany	17	20	6.50	1.90	400	195	10KV.	HD. 23	125	100	At sea
2	K 3	U.S.A.	17	21	8	1.30	747	245	10KV.	HD. 21	145	215	"
3	K 5	Japan	13	24.60	8.60	1.30	850	550	115HP.	HD. 25	160	250	"
4	K 7	"	13	24.60	8.60	1.30	850	550	115HP.	HD. 27	160	250	"
5	K 9	U.S.A.	8	38.50	10	1.20	840	250	10KV.	HD. 29	120	290	At river
6	K 11	"	7	38.50	10	1.20	840	250	10KV.	HD. 221	120	290	"
7	K 15	Japan	4	27	8	1.25	850	360	25KVA.	HD. 215	120	250	At sea
8	K 17	"	4	27	8	1.25	850	30	25KVA.	HD. 217	120	250	"
9	K 19	Thailand	2	27	8	1.25	900SHP.	300SHP.	40KVA.	HD. 219	174SHP.	250	"
10	K 21	"	2	27	8	1.25	900SHP.	300SHP.	40KVA.	HD. 221	174SHP.	250	"
11	K 23	Japan	New Built	34	10.50	1.60	1,200PS.	600PS.	15KVA.	HD. 223	330PS.	450	"
12	K 25	"	"	34	10.50	1.60	1,200PS.	600PS.	15KVA.	HD. 225	330PS.	450	"
13	K 27	"	"	21	7	1.20	600	600PS.	45KV.	HD. 227	190	250	At river
14	K 29	"	"	21	7	1.20	600	600PS.	45KV.	HD. 229	190	250	"
No.	Hopper	Country of Build	Age (year)	Dimension			Capacity		Speed (knot)	Main Engine (HP.)	Hopper Capacity (m <sup>3</sup> )	Remarks	
				Length (m)	Width (m)	Draught (m)	Gross (ton)	Net (ton)					
15	K 2	Japan	16	57.75	13.50	3.30	823.08	324.06	9.75	510(2 sets)	400	At sea	
16	K 4	"	13	57.75	13.50	3.30	823.08	324.06	9.75	510(2 sets)	400	"	
17	K 6	"	New Built	40.90	10.00	1.40	309.00	Unknown	9.00	600(2 sets)	100	"	

Source: Harbour Department



**APPENDIX 7 PROFILES OF THE MAJOR PORTS IN THE SOUTH**



## APPENDIX 7 PROFILES OF THE MAJOR PORTS IN THE SOUTH

The Profiles of the Coastal Ports and the Present Condition of their Harbour Facilities are as follows.

### Port of Ban Don (including Tha Thong Port)

#### 1) Location

The Port of Ban Don is located in the provincial capital Surat Thani. The road distance from Bangkok is approximately 670 km.

#### 2) Physical Profiles (Existing Conditions)

##### a) Type of Port

Both inner & outer Ban Don Ports are river ports on the Tapi River, while Tha Thong Port is an estuary port at the confluence of the Tapi and Khlong Tathong rivers.

##### b) Port Approach

Capital dredging was completed in 1976 and the target depth for the maintenance dredging of the navigation channel is -4.0 m below LLW. The maximum size of vessels using the channel will be 600 GRT.

##### c) Port Facilities

###### Inner & Outer Ban Don

The port has the following facilities.

A municipal jetty for passenger traffic

The FMO Wharf & CSO Storage plant

Private jetties for fishing vessels, coasters and oil jetties with depots

Others: Ship repair yards, Fishmeal factories and so on.

###### Tha Thong Port

New wharves were completed in 1982 by the Harbour Department. The existing facilities are as follows:

Two Berths for 1,000 GRT cargo vessels.

A Cargo & Car Yard 5,000 m

Two Warehouses 50 m × 20 m.

The Administration and Customs house buildings



### 3) Development Proposals

- a) Using financial assistance from IBRD capital dredging to deepen the approach channel will be carried out by the end of 1984 at the latest.
- b) The Harbour Department is planning to expand Tha Thong Port and develop the following facilities.
  - Two more concrete piers for 1,000 GRT ships
  - A Cargo area of approx. 18,000 m
  - Ten Warehouses 50 m x 20 m
  - An Immigration office, a Maintenance and Repair House and ancillary buildings
- c) Using an AOB loan FMO Wharves and cold storage will be provided on a site adjacent to the existing Tha Thong Port.

### 4) Comments and Consideration for Future Development

At present, it is impossible for large vessels (1,000 GRT max. draft 4.5 m) to approach Tha Thong Port through the navigation channel.

Furthermore, after the completion of the above-mentioned capital dredging, the required volume of maintenance dredging will increase. This will present problems due to both the money and time required to carry.

### Ko Samui

#### 1) Location

The Island of Ko Samui is located in the Gulf of Thailand approx. 70 km from Ban Don and about 25 km from Khanom.

#### 2) Physical Profiles

The north & east coasts are mostly cliffs and are exposed to heavy waves during the NE-Monsoon.

The south & west coasts are mostly enclosed by coral reefs and face calm seas all year round.

Comparatively larger vessels can approach close to shore at some places along the south & east coasts.

The existing port facilities are;

A ferry jetty for the twice a day connection with Khanom

A municipal jetty at the town harbour

3) Development Proposal

Nothing known

4) Comment and Consideration for Future Development

There are a few suitable port sites on west side along the south coast, where it is possible to provide port facilities at low construction costs.

Port of Khanom

1) Location

The port of Khanom is located about 730 km from Bangkok by road and about 70 km from the neighboring provincial capital of Surat Thani.

2) Physical Profiles (Existing Conditions)

a) Type of Port

It is a river port on the Khanom River with facilities on both banks approx. 2 km upstream from the river mouth.

b) Port Approach

The depth around the river mouth is more than -5 m below LLW but the target depth for the inner port is -3 m below LLW. The maximum size of vessels using the port will be 300 GRT.

c) Port Facilities

at the river mouth

A training wall (to prevent the littoral drift from entering the port).

A private 1,000 DWT tanker berth behind the training wall.

at the inner port

A municipal jetty for the Ferry to Ko Samui (Max. 790 GRT).

Numerous private fishing boat berths.

at a separate location

A private ore jetty for loading Gypsum

3) Development Proposal

The owner of the existing ore jetty, Sum Pan Mines Co., Ltd., is planning to provide an additional jetty which will be capable of accommodating 20,000 30,000 DWT ore carriers.

4) Comment and Consideration for Future Development

From the technical point of view, it is considered that the Port of Khanom is a good site for further development.

Port of Pak Phanang

1) Location

The port is located about 30 km east of the provincial capital, Nakhon Si Thammarat, and approx. 800 km from Bangkok by road.

2) Physical Profiles (Existing Conditions)

a) Type of Port

It is a river port about 5 km upriver from the mouth of the Pak Phanang River.

b) Port Approach

Capital dredging was started in 1981 and is scheduled to be completed in 1984. The target depth is -3.0 m below LLW and the maximum size of vessel using the channel will be 300 GRT.

c) Port Facilities

Numerous fishing boat berths and some private wharves are provided on both banks.

The main facilities are a municipal jetty for landing fish, and private wharves for oil & cargo berths.

In addition to the above, fishmeal factories and ice factories are to be found.

### 3) Development Proposals

- a) The alternative of a coastal port with the capacity for 1,000 GRT ships has been proposed for Ban Pak Nakhon as well as Pattani and Krabi but the plan is not yet realized.
- b) An alternative navigation channel was investigated by SEATEC.
- c) New FMO facilities at Ban Pak Nakhon.

### 4) Comment and Consideration for Future Development

Notwithstanding the fact that the port area is sheltered from waves during NE-monsoon by the Leam Talumpkuk sand spit, the largest in Southern Thailand, there is the disadvantage that the required dredging volume to prevent channel shoaling will be enormous because of the extremely shallow sea.

### Port of Songkhla

#### 1) Location

The Port of Songkhla is located about 950 km from Bangkok by road near to the provincial capital of Songkhla.

The distance from Hat Yai is approximately 30 km.

#### 2) Physical Profiles (Existing Conditions)

##### a) Type of Port

This is an estuary port on the outlet of the Thale Sap Songkhla with its main facilities on the east bank.

##### b) Port Approach

Capital dredging was completed in 1967 and the target depth of the navigation channel is -5.5 m below LLW. The maximum size of vessels using it is 2,000 GRT.

##### c) Port Facilities

The main facilities are as follows.

The municipal jetties for ferry boats, FMO wharf, Navy pier, Harbour Department Pier, Marine Police pier and the State Railway pier for unloading oil.

In addition to the above, there are numerous fishing boat jetties and private cargo berths.

### 3) Development Proposals

#### a) The Deep-sea Port Project

The construction of a deep-sea port financed by ADB as well as Phuket will be commenced soon.

Both the detailed designs and the pre-qualifications prior to the international competitive bidding for the execution were finished by HD with the help of the consulting group of Sir William Halcrow and Ptns, Maunsell Consultants Ltd., and Sindhu Pulsirivong and Associates.

The proposed port work includes:

The Port Area Reclamation with Causeway 1 unit

A Quay Structure -9.0 m below CD, and 510 m long

The dredging of the Approach Channels and the Turning Basin to -9.0 m below CD.

The Transit Shed and Stacking Area, and Ancillary Administration Buildings.

#### b) The Bridge over Lake Songkhla (ADB Loan)

This project is being implemented by the Department of Highways (DOH), in accordance with the Songkhla deep-sea port proposal. The tender for the bridge construction has already been closed and the construction will be carried out from 1984 to 1986.

Descriptions of the work are as follows.

Two bridges 980 m long and 1,820 m long.

Access roads connecting Routes No. 407 and 4083 (The roadway embankment and subbase leveling have been completed).

### 4) Comments and Considerations for Future Development

Songkhla is a major port for not only that province but also the whole peninsular East-coast.

Accordingly, possibilities best corresponding its functioning as a coastal & deep-sea port should be taken into consideration. For

example, it is desirable that investigations and studies of such matters as the relocation of coaster & fishing boat berths and the suitable trial dredging described in 4.1.3 (3), be done after the completion of deep-sea port.

For reference, the key plans of Songkhla Deep-sea Port and the Bridges crossing Songkhla Lake are attached. See Figures A.7-1 & A.7-2.

### Port of Pattani

#### 1) Location

The port of Pattani is located at the provincial capital and is approx. 1,030 km from Bangkok by road. Songkhla is about 70 km to the north-west and Yala is about 40 km to the south.

#### 2) Physical Profiles (Existing Conditions)

##### a) Type of Port

This is a river port at the mouth of the Pattani River.

##### b) Port Approach

Capital dredging was executed from 1968 to 1970 and the target depth of the approach channel is -3.0 m below LLW. The maximum size of vessels using it is 300 GRT.

##### c) The Port Facilities

Facilities such as the FMO wharf, and private wharves for small cargo ships and fishing boats are dotted along both banks. A public wharf near the river mouth is presently under construction by HD and will be completed in 1984 with the following dimensions.

Wharf : 195 m long × 26 m wide (5,300 m<sup>3</sup>)

Backing Area : Stacking Yard (2,400 m<sup>2</sup>), Warehouse (1 × 2,000 m<sup>2</sup>)

Access Road and Administration Buildings

Design Vessel : 1,000 GRT × 2

### 3) Development Proposals

- a) HD intends to expand the above new port and the plan prepared by SEATEC is as follows.  
Two additional Berths (Dimensions are the same as above)  
Nine additional Warehouses (Dimensions are similar to the above)
- b) Using financial assistance from IBRD, HD is also planning to carry out capital dredging between 1984 and 1986.
- c) SEATEC's proposal concerning the alternative port and the dredged channel at Khlong Ka Lae.

### 4) Comments and Considerations for Future Development

The port is one of major coastal ports in the Southern region. Considering that the Provincial Government intends to be taken over this new port, it is desirable that private jetties not be provided in the port area as it is possible that it will be extended in the future.

From the operational point of view, the deepening and maintenance of the channel is the basic problem, therefore, the countermeasures described in 4.2.2 (4) will be necessary.

### Port of Narathiwat

#### 1) Location

The port of Narathiwat is located in the provincial capital and its distance from Bangkok is about 1,130 km.

#### 2) Physical Profiles (Existing Conditions)

##### a) Type of Port

It is a river port at the mouth of the Bang Nara River.

##### b) Port Approach

Capital dredging was completed in 1980 and the target depth of maintenance dredging is -3 m below LLW. The maximum size of vessels using the channel will be 300 GRT.

c) Port Facilities

Many fishing wharves and two private lighterage wharves exist on the west bank.

3) Development Proposal

None, except for maintenance dredging

4) Comments and Considerations for Future Development

The alignment of the navigation channel should be examined in order to minimize the volume of the maintenance dredging. At the same time, the breakwater of the river training wall should be studied to prevent the sand spit from growing and threatening the navigation channel.

There is some partly land for coastal port facilities by a small scale reclamation in front of existing fishing berths near the river mouth.

Port of Krabi

1) Location

The port of Krabi is located at the provincial capital and approx. 950 km from Bangkok by road.

2) Physical Profiles (Existing Conditions)

a) Type of Port

It is a river port on the Krabi River

b) Port Approach

Capital dredging was completed in 1974 and the target depth of the navigation channel is -5.0 m below LLW.

The maximum size of vessels using the channel is 300 GRT because the target is not achieved due to difficult dredging conditions. Therefore, dredging aiming at permitting the operation of the new coastal port has been continued for the last 3 years.



c) Port Facilities

A new coastal port was completed in 1984 by the Harbour Department with the following dimensions.

Wharf:	196 m long × 25 m wide (4,900 m <sup>2</sup> )
Backing Area:	Stacking Yard (2,400 m <sup>2</sup> ), Warehouse (1 × 2,000 m <sup>2</sup> ) Access Road and Administration Buildings
Design Vessel:	1,000 GRT × 2

Other facilities are as follows.

A municipal jetty (35 m long × 10 m wide with an access way)  
Private wharves for fish-landing

3) Development Proposal

Nothing known

4) Comments and Considerations for Future Development

It is considered that with the completion of the new port further development will be unnecessary for some time to come.

The important factor with respect to the effective utilization of the port is to maintain the required depth of the approach channel.

Port of Kantang

1) Location

The port of Kantang is located about 900 km from Bangkok by road and 27 km from the provincial capital of Trang.

2) Physical Profiles (Existing Conditions)

a) Type of Port

This is a river port on the east bank of the Trang River.

b) Port Approach

Capital dredging was started and completed in 1966.

Maintenance dredging is carried out every year and its target depth is -4.0 m below LLW.

The maximum size of vessels using the channel is 600 GRT but the vessels of 1,000 GRT can come into the port at high tide.

c) Port Facilities

The main facilities are as follows.

The municipal jetty

The jetty was constructed by the Harbour Department and handed over to the Municipality in 1971.

It has the following dimensions.

Rc wharf (144 m long 15.5 m wide) with access ways and -5.0 m deep berths.

Private wharves for fish-landing and oil berths

The Harbour Department Pier

3) Development Proposal

Nothing known

4) Comment and Consideration for Future Development

Considering that the port of Kantang has been a center of sea transportation between Thailand, Malaysia, Singapore and Indonesia as the major port on the Peninsula West Coast (Andaman Sea Side), it is advisable to fill up the port facilities in order to cope with the expected cargo increases.

Mineral exports will be important in the future in addition to traditional commodities such as imports of fuel & coal and exports of rubber & cement. Thus, the municipality hopes to lengthen the above-mentioned jetty to 200 m instead of 144 m but it is considered that the improvement of the approach channel is a prerequisite.

In short, the deepening of the critical section along Ko To Island should be accomplished so as not to keep large-sized vessels waiting due to tidal conditions.

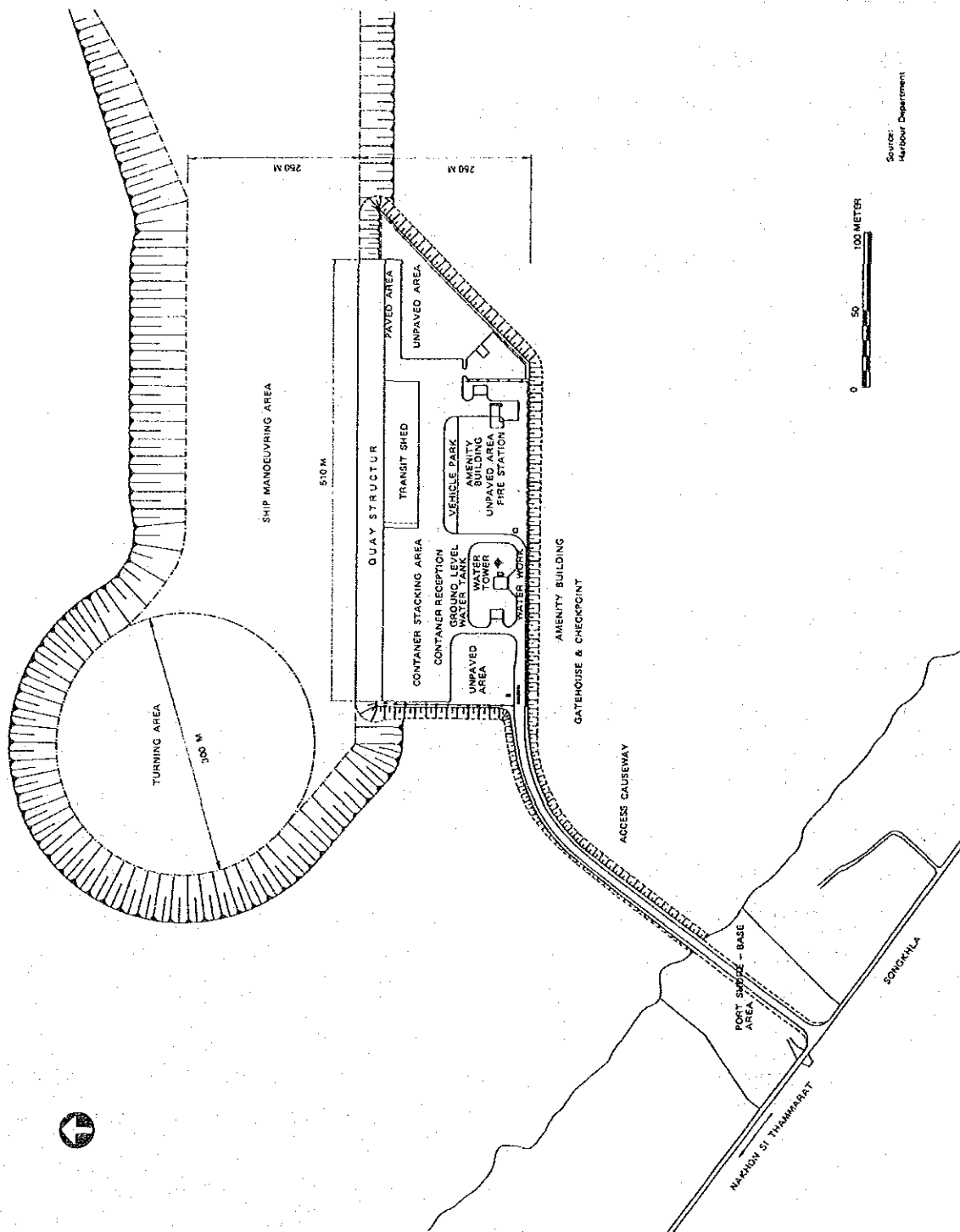
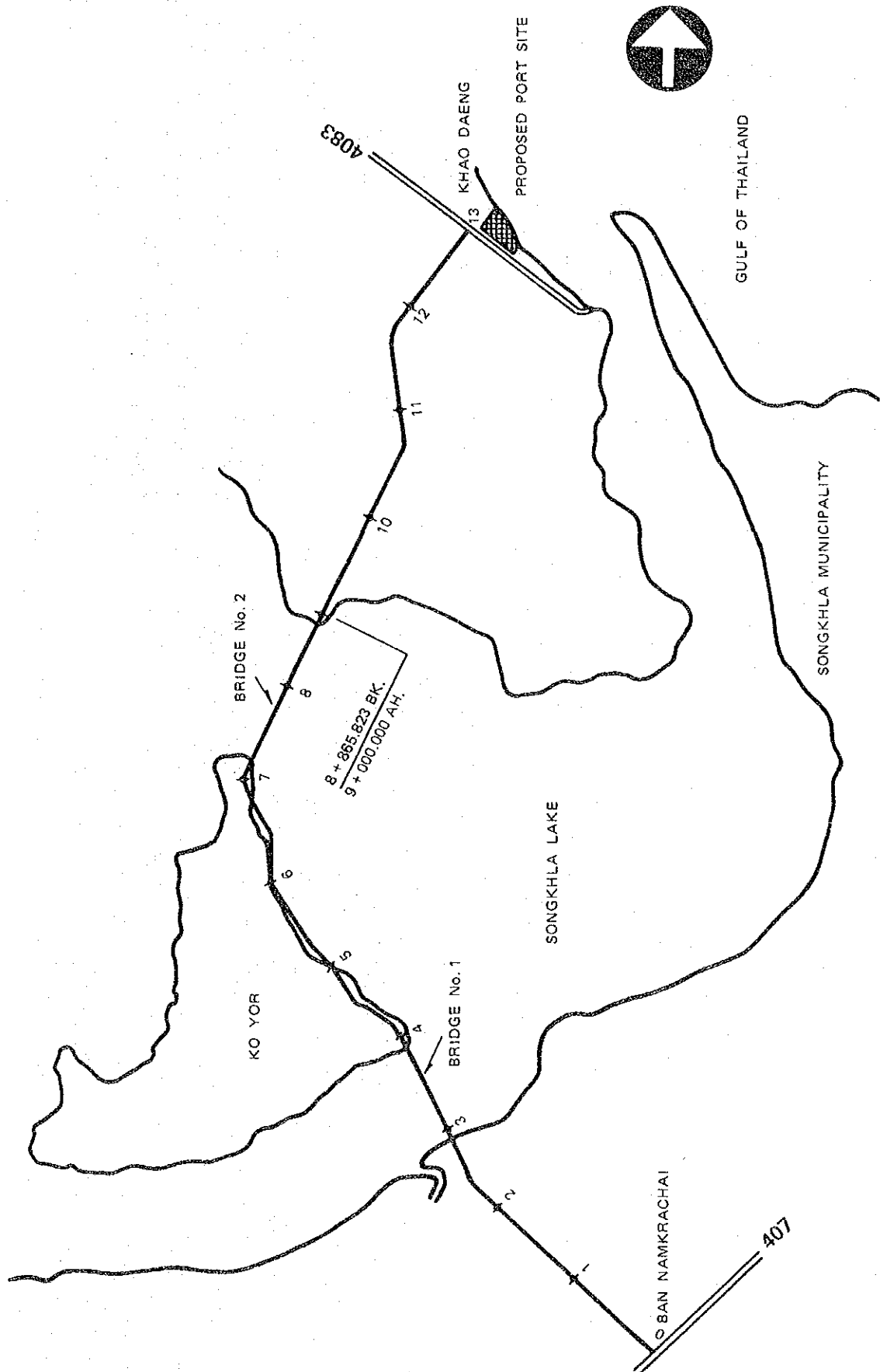


Fig. A.7-1 Songkhla Deep-sea Port



Source: Department of Highways

Fig. A.7-2 Songkhla Bridges

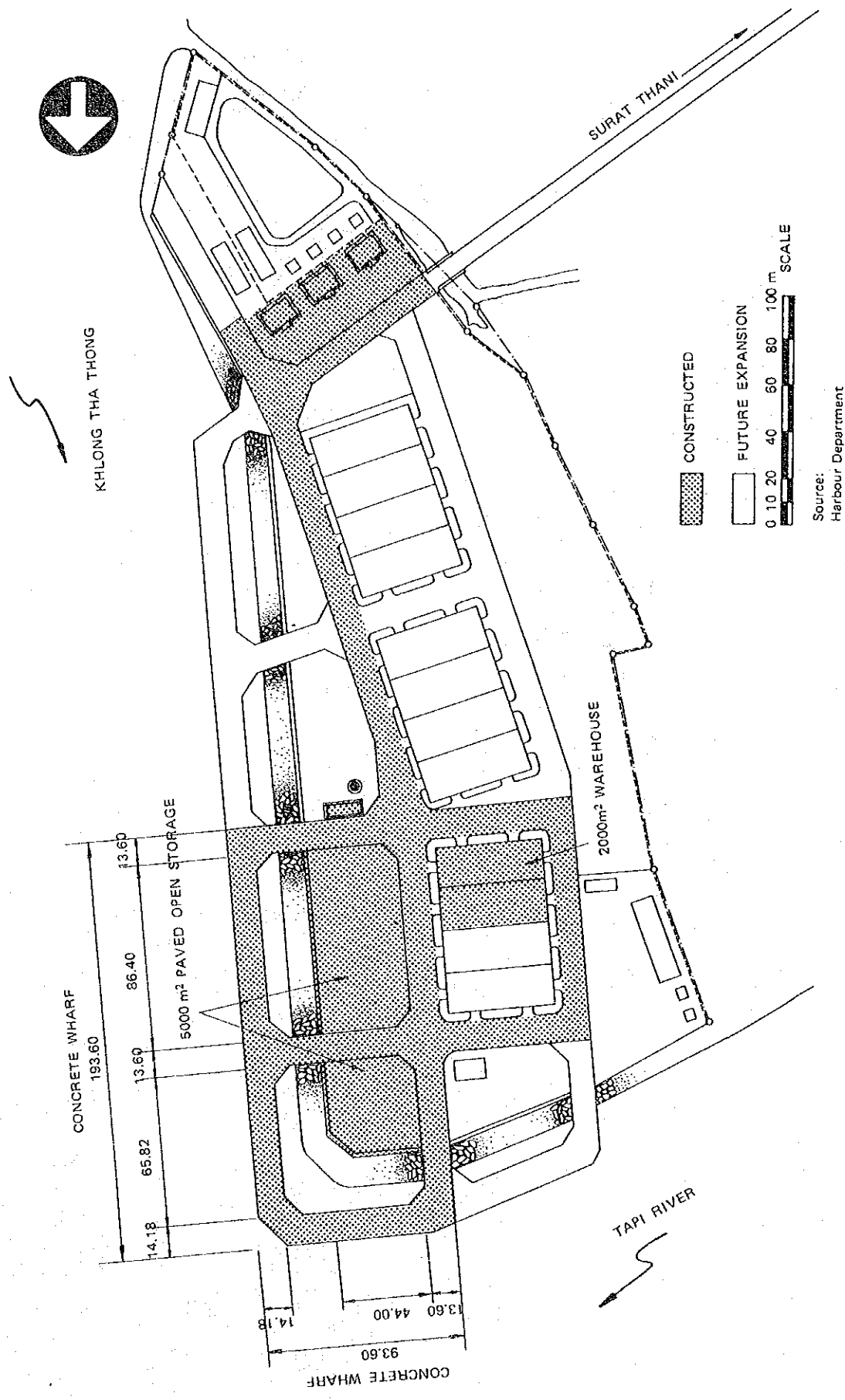
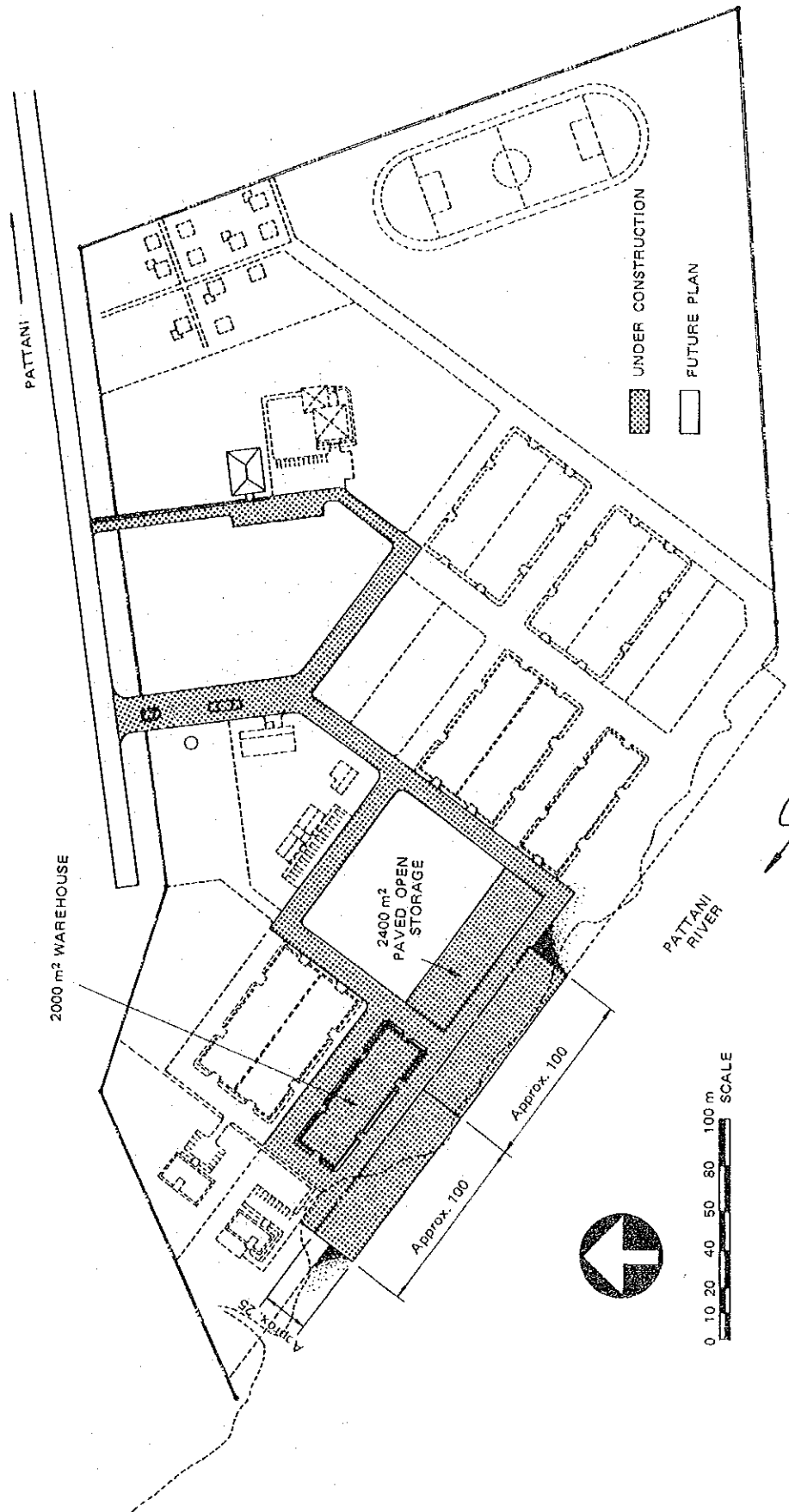
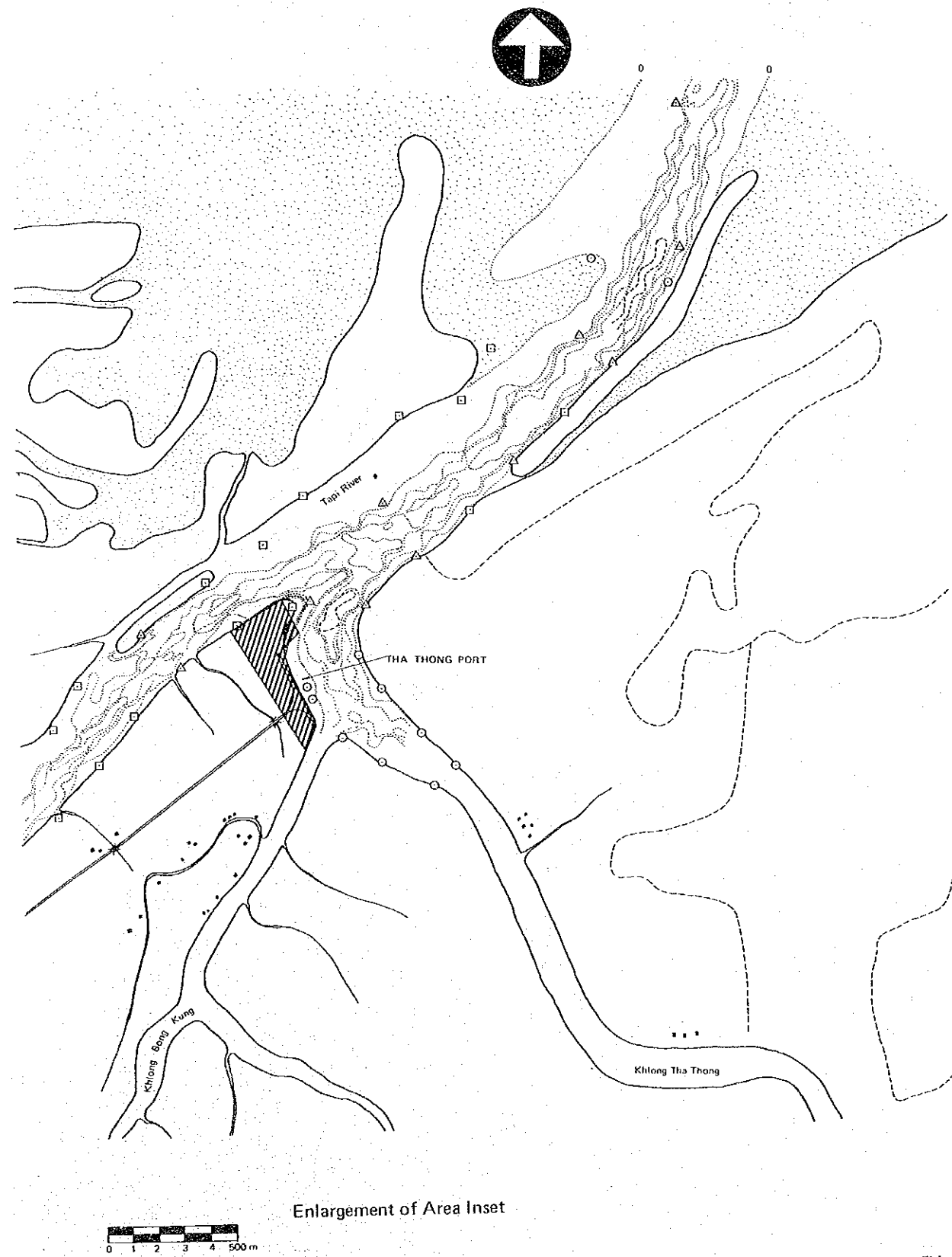


Fig. A.7-3 Tha Thong Port



Source:  
Harbour Department

Fig. A.7-4 New Coastal Port in Pattani



Enlargement of Area Inset

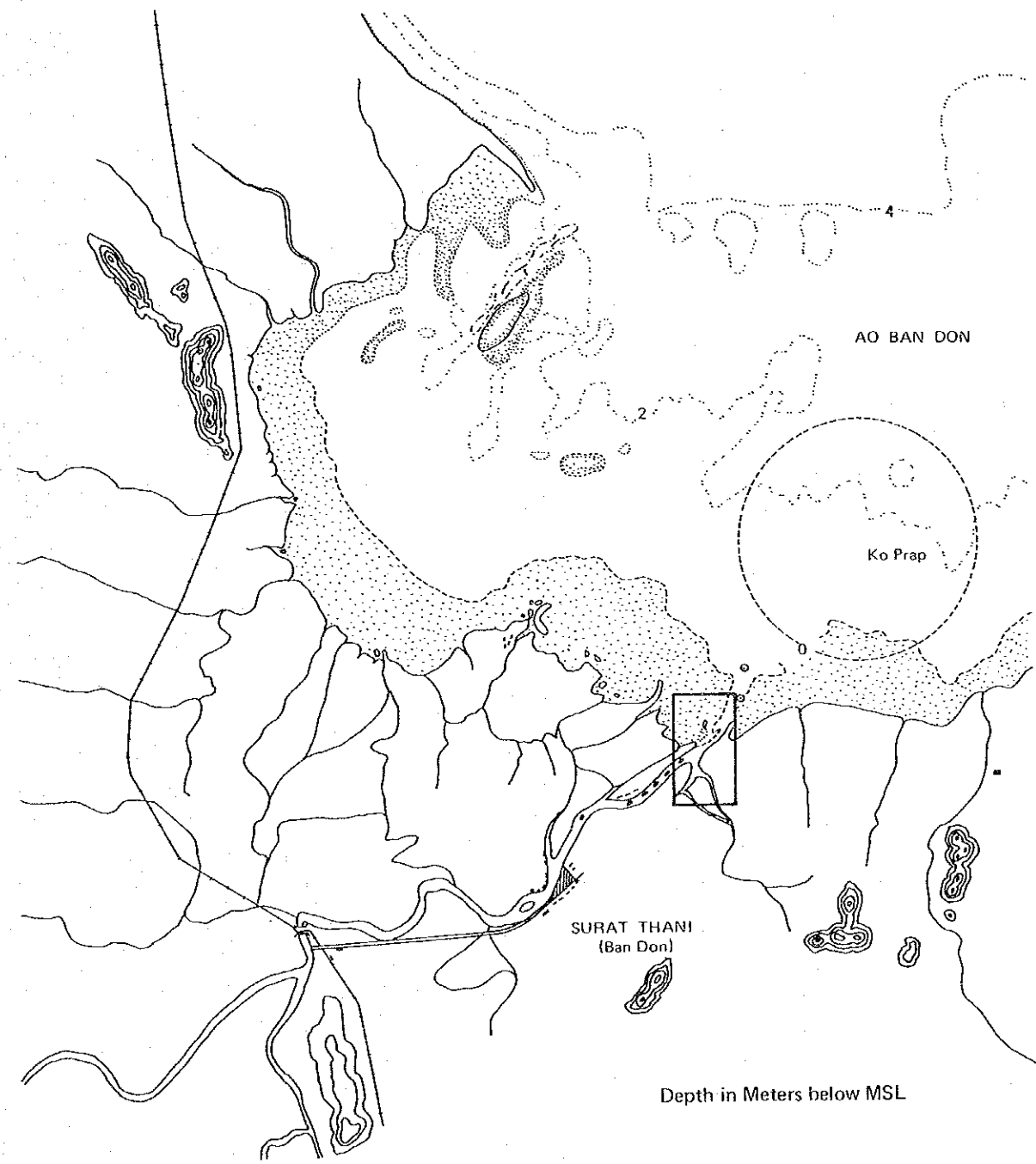
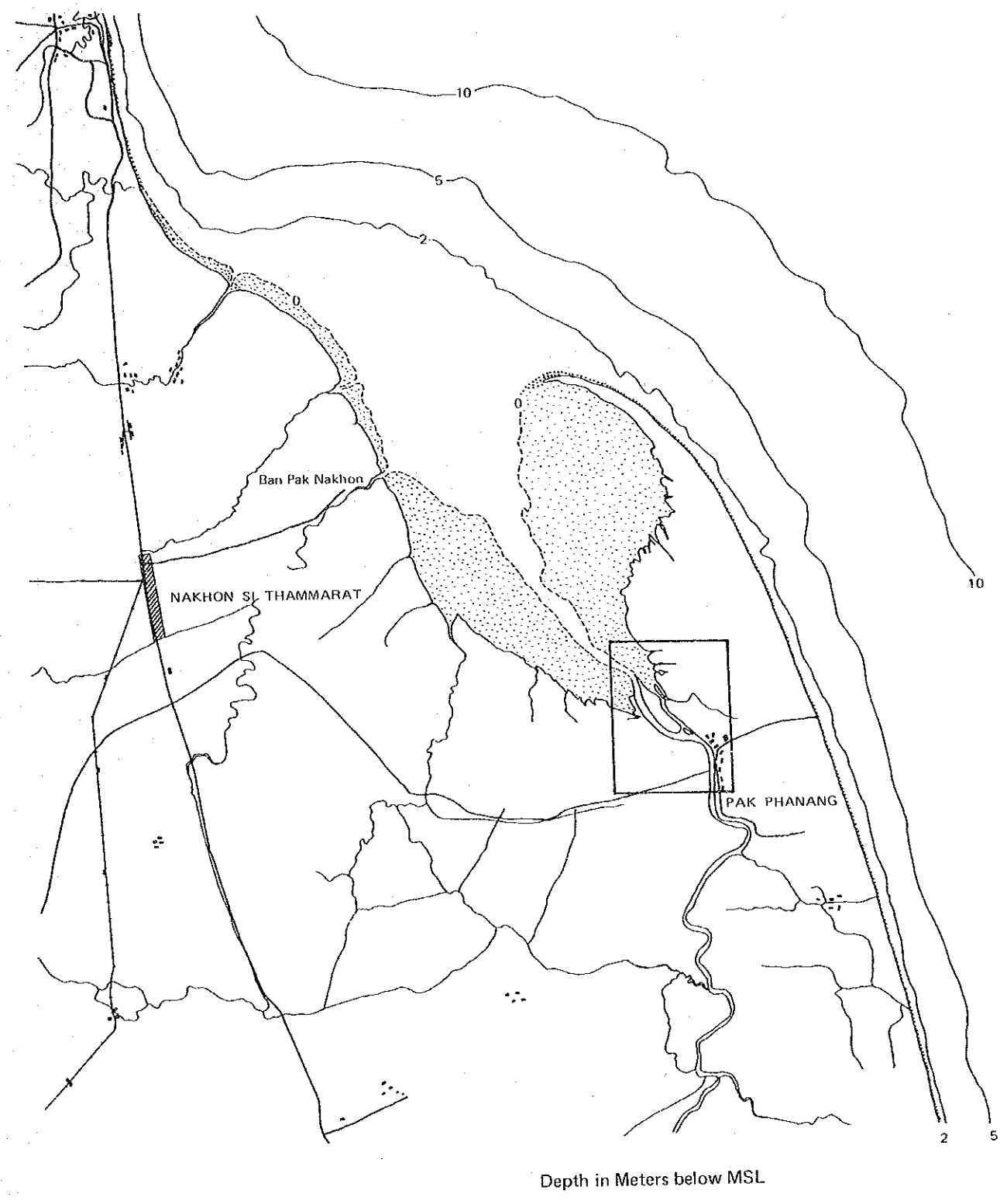


Fig. A.7-5 Ban Don



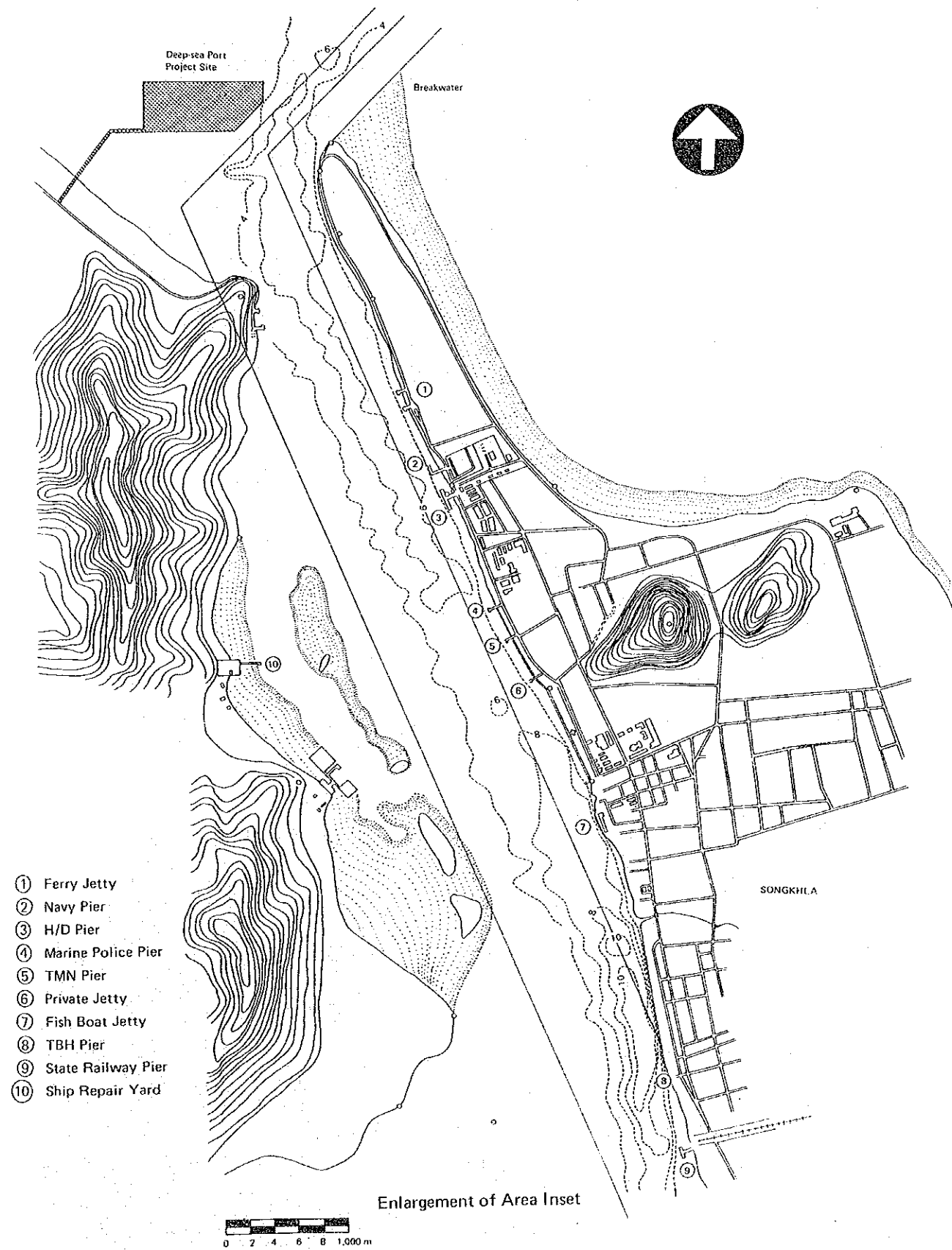
Enlargement of Area Inset



Depth in Meters below MSL

Fig. A.7-6 Pak Phanang

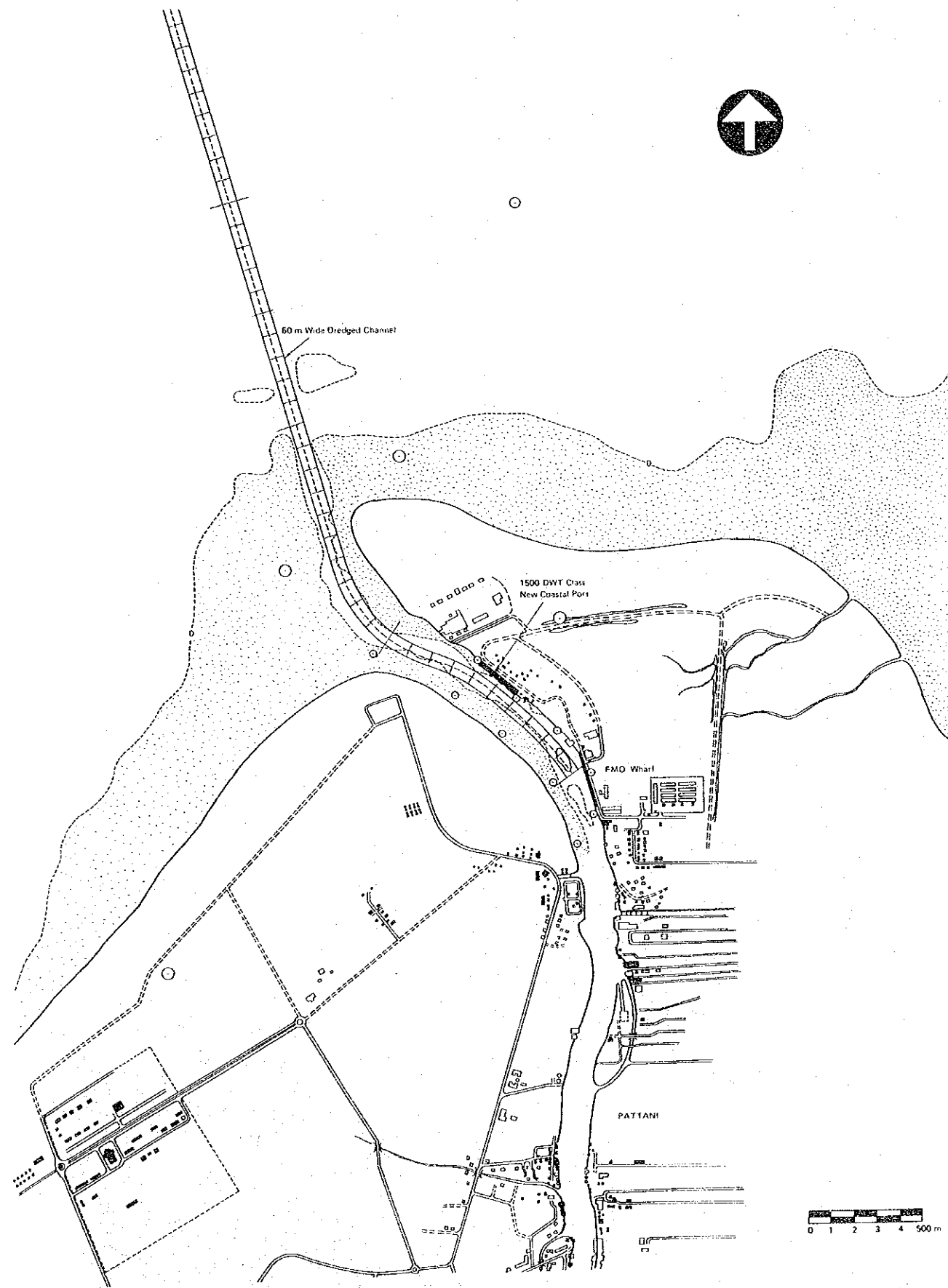




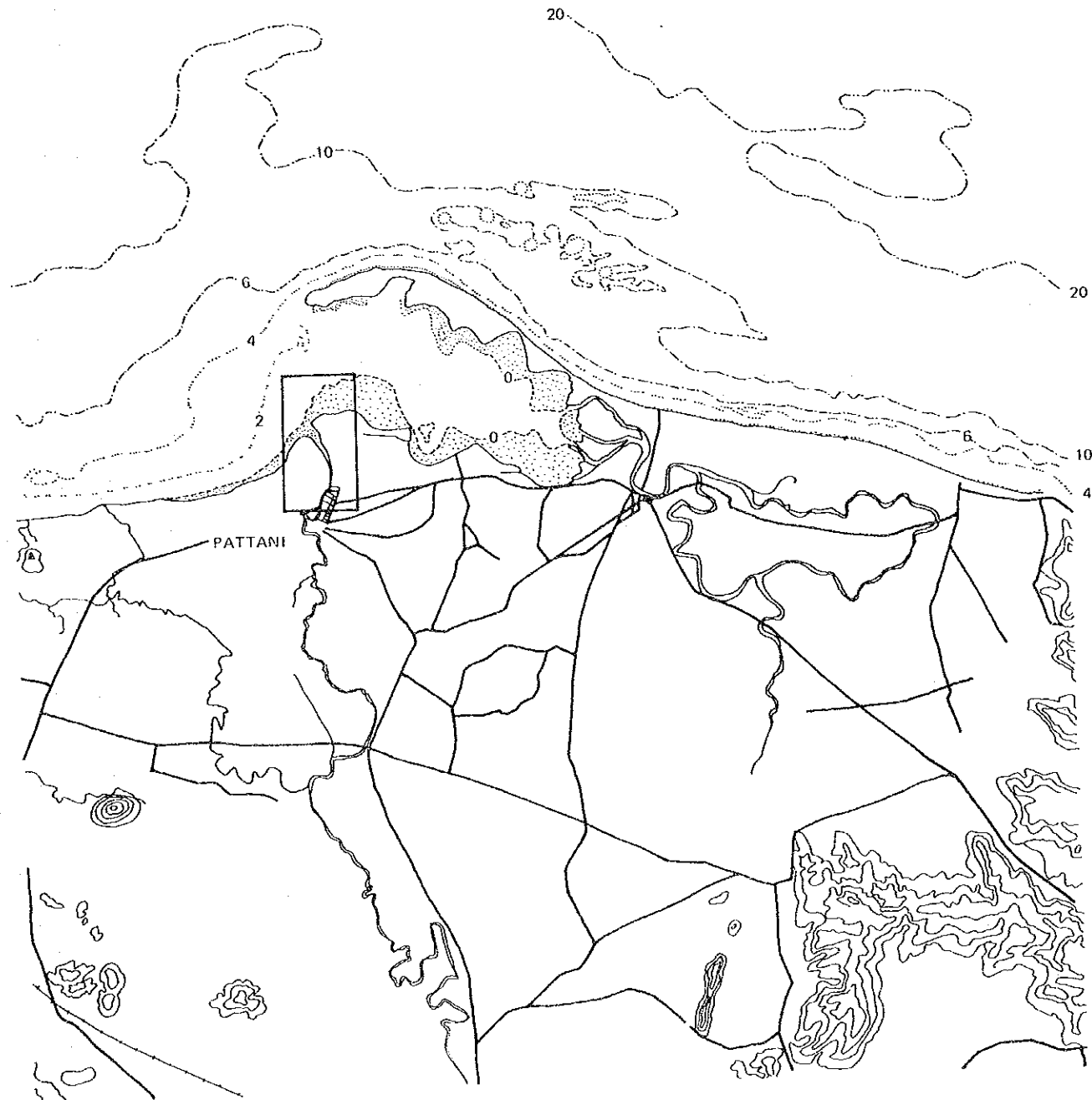
- ① Ferry Jetty
- ② Navy Pier
- ③ H/D Pier
- ④ Marine Police Pier
- ⑤ TMN Pier
- ⑥ Private Jetty
- ⑦ Fish Boat Jetty
- ⑧ TBH Pier
- ⑨ State Railway Pier
- ⑩ Ship Repair Yard



Fig. A.7-7 Songkhla



Enlargement of Area Inset



Depth in Meters below MSL

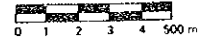


Fig. A.7-8 Pattani