presented to him for subsequent submission to the Council of Ministers.

Financial Management

26. PAT was established in 1951 based on recommendations by the International Bank for Reconstruction and Development (IBRD). Since its establishment, PAT has been aiming at realizing a self-supporting accounting system in principle. This financial management policy is based on the provision of the PAT Act that the revenue resulting from its operation shall accrue to PAT for the purpose of meeting expenses.

27. The annual revenue of PAT from its operations after deducting operating expenses and allowing for proper charges, such as charges for maintenance and depreciation; bonuses and salaries for the staff; an ordinary reserve fund; and a reserve for expansion and investment as approved by the Board of Commissioners, is turned over to the Treasury. This is referred to as the "contribution to the Government", which amount is actually calculated conveniently as a certain percentage of the net profit in the previous fiscal year. This percentage has gradually been raised from 30% which is decided based on the rate of corporation tax before 1975, to 40% during 1976-1978, and finally to 60% since 1979. On the contrary, if the revenue should be insufficient to meet the expenses excluding the reserve for contingencies and the reserve for expansion, and if PAT is unable to obtain funds from other sources, the deficiency is covered by the Government (Table 4.4).

Fund Raising and Investment

28. PAT is responsible for the development of ports in the interest of the state and the public, which comprises the improvement of existing ports and the construction of new ports.

29. The funds for the construction and improvement of Thai ports mainly consists of: i) loans from overseas financial institutions such as IBRD and

Table 4.4 Balance Sheet of PAT in Fiscal 1981-1985

(Unit: Baht)

Account Title \ Fiscal Year	1981	1982	1983	1984	1985
Assets					
Current Assets	598,516,851	488,038,993	718,174,447	975,292,125	996,841,020
Cash on Hand and at Bank	456,831,764	364,196,105	558,175,714	742,093,868	776,739,936
Accounts Receivable	49,339,307	43,368,797	92,430,701	102,348,612	97,952,672
Other Receivable	63,272,139	51,258,398	34,470,163	92,979,097	78,175,277
Inventories	3,212,810	29,215,693	33,097,869	37,870,548	43,972,135
Refund from Government	25,860,829				
Fixed Assets	1,790,786,343	1,833,259,009	1,991,414,885	1,985,646,636	2,000,085,427
Land, Buildings and Facilities	1,790,786,343	1,833,259,009	1,991,414,885	1,985,646,636	2,000,085,427
Other Assets	240,874,292	349,241,122	254,561,714	217,532,605	304,653,468
Construction work in Progress	75,404,263	154,245,702	49,900,845	18,748,849	35,653,468
Deferred Assets	160,598,703	191,893,609	194,256,301	189,661,628	261,593,061
Unused Assets	4,871,326	3,101,810	10,404,568	9,112,128	7,040,336
Total Assets	2,630,177,486	2,670,539,124	2,964,151,046	3,178,471,366	3,301,212,312
Liabilities					
Current Liabilities	150,460,657	219,240,834	230,166,791	226,332,256	224,358,418
Vouchers Payable	45,591,581	40,271,817	27,283,627	29,175,475	27,447,223
East Quay Development Loan (IBRD)	16,319,400	17,425,800	18,716,600	20,030,450	24,531,850
Other Debts	88,549,676	161,543,217	184,166,564	177,126,331	172,379,345
Long Term Debt	175,523,643	151,656,049	131,687,147	104,988,478	150,962,206
East Quay Development Loan (IBRD)	191,843,043	169,081,849	150,403,747	125,018,928	175,494,056
(Less) Loans due within 1 year	(16,319,400)	(17,425,800)	(18,716,600)	(20,030,450)	(24,531,850)
Total Liabilities	325,984,300	370,896,883	361,853,938	331,320,734	375,320,624
Equity					
Contribution from Government	530,396,559	652,850,595	696,323,903	698,039,539	724,250,211
Contribution for Bangkok Port	47,793,966	47,793,966	47,793,966	47,793,966	47,793,966
Contribution for Sattahip Commercial Port	356,694,703	422,211,704	461,025,936	460,790,444	460,790,444
Contribution for Laem Chabang Port	125,907,890	182,844,925	187,504,001	189,455,129	215,665,801
Reserved Fund	253,751,986	249,391,674	245,487,732	241,578,990	237,800,589
Total Equity	784,148,545	902,242,269	941,811,635	939,618,529	962,050,800
Earned Surplus					
Net Earnings for the Year	203,554,399	14,073,597	271,535,501	432,711,022	409,375,053
Reserve for Expansion	1,316,490,242	1,383,326,375	1,388,949,972	1,474,821,081	1,574,443,468
Total Earned Surplus	1,520,044,641	1,397,399,972	1,660,485,473	1,907,532,103	1,983,818,521
Deferred Exchange Loss	—	—	—	—	19,977,633
Total Liabilities, Equity and Earned Surplus	2,630,177,486	2,670,539,124	2,964,151,046	3,178,471,366	3,301,212,312

Source: PAT

The Overseas Economic Cooperation Fund (OECF), ii) investments or contributions from the Government and iii) internal reserves. As for the procedure of fund raising, it is prescribed in the Act that PAT has the competence to borrow money, obtaining the approval of the Council of Ministers in advance. PAT is also able to issue bonds or other instruments for the purpose of investment, but has never issued such bonds or instruments. The long-term loans of PAT presently consist of the IBRD loan and the OECF loan.

30. Table 4.5 shows all the port development projects since the foundation of PAT. In the case of Bangkok Port, when PAT took over the business of the Office of the Port of Bangkok, all transferred assets from the Office after deducting liabilities and an amount of Baht 3 million for the required Bar dredging, construction works and purchase of equipment were provided by the Government as the initial capital of PAT. The Government also bore the initial development cost of Sattahip Commercial Port as a contribution to PAT. But the Government did not bear the cost for improvement of these ports. These costs were fully borne by PAT. This was the former pattern of cost sharing between the Government and PAT.

31. This Government contribution assisted the financial management of PAT, and PAT's finances were bolstered by the loan and the small interest burden as shown in Table 4.6. However, the Government intends to change this pattern, namely, the Government is going to ask PAT to bear a part of the initial development costs of new deep sea ports. The Government, for example, will bear the land acquisition cost but will ask PAT to share a part of the other costs required for the initial development of Laem Chabang Port.

Management of Assets

32. Concerning the management of PAT assets/property, the Act states:

i) PAT has the competence to purchase, acquire, lease, hire, own, possess, dispose of or operate assets in connection with movable and immovable properties.

Table 4.5 List of Deep Sea Port Development Projects

(As of March, 1988)

Year	Project	Project cost	Loan fund	Bearer
1950-1951	Establishment of PAT (reconstruction, purchase of equipment)	B142,905,921	$4,400,000(IBRD)	Government
1956	Purchase of Dredgers	$3,259,078	$3,400,000(IBRD)	PAT
1959	Purchase of Dredgers	$1,750,000	$1,750,000(DLF)	PAT
1970	Construction of East Quay	$11,945,455+B398,779,334	$12,500,000(IBRD)	PAT
1970	Sattahip Commercial Port (reconstruction, purchase of equipment)	B460,790,444	n.a.	Government
1980	Sattahip Commercial Port (repair, purchase of equipment)	n.a.	$15,028,000(IBRD)	PAT
1980-1989	Laem Chabang Port (Land Acquisition)	B294,591,465.48 (including SAL)	B105,000,000.-(SAL)	Government
1986-1988	Songkhla & Phuket Ports (Construction)	(CONTRACT) Songkhla: B401,039,527.50(LOAN) B235,531,149.- Phuket: ¥ 1,854,836,363(LOAN) B9,727,736.-(LOAN) B133,258,033.-	$ 71,400,000(ABD)	Government
1983	Laem Chabang Port (Detailed Design)	¥ 528,840,820(LOAN) B33,794,000	¥650,000,000(OECF)	PAT
1984-1986 1987-1991 (Construction Period)	Laem Chabang Port (Construction)	(CONTRACT) Supervision: ¥ 542,522,283(LOAN) B77,989,322.- Construction: ¥ 7,930,204,430.60(LOAN) B608,827,730.81 Handling Equipment Advisor: ¥ 20,740,856 (LOAN) B730,739.-	(OECF) ¥ 4,172,000,000 ¥ 12,283,000,000 ¥ 7,242,000,000	Government and PAT
1987-1989	East Quay (Purchase of gantry cranes)	(CONTRACT) B348,747,065.-	----------	PAT
1988-1990 Scheduled	Purchase of Dredgers	B527,000,000.- (Lowest bidding price including tax)	---------- ----------	PAT PAT
1989-1991	Hire of Computer (mini-computer)	B11,100,000	----------	PAT
1990-1993	Development of Computer System	B73,400,000.-	----------	PAT

Source: PAT

Table 4.6 Operating Account of PAT in Fiscal 1981-1985

(Unit: Baht)

Account Title \ Fiscal Year	1981	1982	1983	1984	1985
Revenues					
Cargo Handling	885,634,731(84%)	824,824,904(83%)	1,105,810,295(84%)	1,228,901,049(81%)	1,223,063,786(78%)
Ship Handling	77,318,039(7%)	79,011,094(8%)	114,215,714(9%)	138,516,341(9%)	136,315,469(9%)
Service	8,965,860(1%)	12,388,008(1%)	17,724,960(1%)	24,079,586(1%)	24,738,906(2%)
Other	78,383,840(8%)	78,817,491(8%)	74,834,981(6%)	131,399,380(9%)	176,598,144(11%)
Total Revenues	1,050,302,470(100%)	995,041,497(100%)	1,312,585,950(100%)	1,522,896,356(100%)	1,560,716,305(100%)
Expenses					
Cargo Handling	343,836,869(40%)	408,859,064(41%)	438,080,085(42%)	465,513,938(43%)	456,605,111(40%)
Ship Handling	158,835,286(19%)	182,022,303(18%)	186,145,071(18%)	184,763,262(17%)	200,375,892(17%)
Service	65,618,091(8%)	78,384,526(8%)	83,550,094(8%)	81,498,525(7%)	114,597,370(10%)
Administration	167,242,673(20%)	203,927,435(21%)	215,783,676(21%)	234,641,314(21%)	243,370,696(21%)
Depreciation	72,817,199(8%)	85,425,699(9%)	96,129,368(9%)	104,444,556(10%)	108,241,705(9%)
Interest on Loans	14,985,309(2%)	15,747,323(2%)	11,460,027(1%)	9,939,816(1%)	10,715,697(1%)
Other	23,412,642(3%)	6,601,548(1%)	9,911,124(1%)	9,383,921(1%)	17,434,779(2%)
Total Expenses	846,748,069(100%)	980,967,898(100%)	1,041,059,445(100%)	1,090,185,332(100%)	1,151,341,250(100%)
Profit	203,554,401	14,073,599	271,526,505	432,711,024	409,375,055

Source: PAT

ii) PAT is exempted from payment of taxes and duties under the Revenue Code.

iii) PAT must obtain approval of the Council of Ministers prior to the disposal of immovable properties.

iv) PAT sets up and maintains an appropriate accounting system and keeps books on properties/debts as well as revenues/expenditures.

33. In general the depreciation of fixed assets is based on the provisions of the Revenue Code. However, PAT is exempted from payment of any taxes, duties or fees under any other law and, therefore, the deduction for depreciation under the Revenue Code is not necessarily applicable to PAT assets. The Ministry of Finance (MOF) has set forth the method for calculation of depreciation for this case. According to MOF, the deduction for depreciation is made on the percentage of original cost after deducting salvage value in accordance with 20 categories of assets (Table 4.7). The deduction is in proportion to the period of time since the acquisition of the assets.

34. The policy of depreciation of fixed assets is based on the straight-line method. The main advantages of the straight-line method are that the calculation method is comparatively simple and that assets can be depreciated on an even basis annually over a comparatively long term. This method is more suitable for ports than the fixed percentage method, because port facilities require enormous amounts of initial investment.

35. The structures and buildings such as quays, dolphins, roads and so on constitute the main infrastructure of the port. The durable lives of these fixed assets are usually longer than the depreciation period and they are seldom replaced until they become irreparable. Moreover, PAT possesses a considerable number of cargo handling equipment and they are also used until they become irreparable. For superannuated equipment, PAT sets up a committee to investigate whether the equipment can be repaired. If the equipment is irreparable, the committee then reports to the Director General of PAT for his approval to dispose of such equipment. Under these circumstances old equipment not only causes frequent breakdowns and

requires high repair cost, but also results in inefficient operations.

36. There are many old facilities at Klong Toei Wharves, especially at West Quay, which were transferred from the Office of the Port of Bangkok. They may have already been completely depreciated, and this has contributed to diminishing depreciation cost in recent years.

Table 4.7 Depreciation Ratios and Durable Years of PAT Assets

Item	Depreciation Ratio (%)	Durable Years	Salvage Value(%)
1. Buildings & Structures	3.5	28	2
2. Cranes	7.5	13	2.5
3. Forklifts	9	11	1
4. Trucks & Trailers	11	9	1
5. Pallets	30	3	10
6. Other Handling Equipment	5	20	0
7. Buses	11	9	1
8. Cars	15	6	10
9. Motorcycles	18	5	10
10. Other Vehicles	11	9	1
11. Marine Service Div.'s Ships	4.5	22	1
12. Survey Div.'s Ships	4.5	22	1
13. Dredging Div.'s Ships	4.5	22	1
14. Other Ships	4.5	22	1
15. Surveying Instruments	9	11	1
16. Printing Instruments	8	12	4
17. Office Equipment	10	10	0
18. Medical Equipment	10	10	0
19. Car Repairing Equipment	10	10	0
20. Other Equipment	15	6	10
East Quay	2	50	-

Source: PAT

Accounting System

38. PAT has adopted a corporate accounting system which is generally accepted. The advantages of such a system for state enterprises is to grasp the present financial conditions by providing exact data in the forms of financial statements including the balance sheet and the profit and loss statement for proper financial decisions. Under this system, fixed assets are depreciated, differing from the government (municipal) accounting system.

39. PAT prepares an annual budget classified into the capital account and the operating account. The capital account is submitted to the Council of Ministers for consideration and approval. The operating account is submitted to the Council of Ministers for their information.

40. PAT Budget Committee, chaired by the Deputy Director General in charge of operations, was established in January 1985. The purpose of this Committee, consisting of 18 members from related departments, is to set up the budget properly in accordance with the PAT development plan and the National Economic and Social Development Plan as well as Cabinet resolutions concerning the measures for state enterprises. There is also a Sub-committee (consisting of 15 members from the sections concerned) chaired by the Director of the Technical Office.

41. By the Act, PAT must publish an annual report showing the balance sheet, operating account and profit and loss statement together with the report of an auditor appointed by the Board within 120 days after the end of each fiscal year.

Audit System

42. PAT maintains an appropriate accounting system with classifications under major categories to be subjected to an internal audit at regular intervals annually. The Board appoints one or more auditors to certify the accounts of PAT annually, but members of the Board, the Chairman, the Director General, the staff and persons who have a personal interest in the

business of PAT cannot be appointed as auditors. The auditor is authorized to examine all books, accounts and documents at any time. In the exercise of his duty, he can question or investigate the chairman and members of the Board, the Director General and the staff of PAT.

43. The auditor submits a report concerning not only the statements received in the course of auditing, but also the extent of the completeness of the books and accounts which are kept by PAT, and states whether the balance and accounts that were examined are consistent with the books and accurately reflect the existing financial condition of PAT. At the request of the Minister, the Auditor General can examine the accounts of PAT. The Office of Auditor General is an independent government organization, and auditors from the Office have a duty to audit the accounts of all the government agencies and state enterprises.

44. In the Office of Internal Audit, there are auditors who have certificates for professional auditing given by the Professional Auditing Control Committee established in the Ministry of Commerce. This Office is a division under the direct control of the Director General, and it consists of three sections, namely, Internal Audit Section, Bill Verification Section and Document Verification Section. The Internal Audit Section is responsible for the control and examination of documents and reports concerning finances, accounting and so on. The Bill Verification Section is responsible for the control of cargo clearance procedures and port charges by examining the documents concerned. The Document Verification Section is responsible for the examination of documents concerning ships, cargo flow and overtime cargo in the warehouses.

45. The existing procedure and measurement of controlling and checking are comparatively watertight and detailed, particularly concerning inventory, maintenance, overtime payment and so on. There seems to be some overlap of the business and procedures among the three sections of the Office of Internal Audit and those of the Formalities Verification Section which belongs to the Comptroller's Department. It is desirable to reexamine the function of each section systematically and readjust jurisdiction as necessary in order to streamline the complicated procedures.

Tariff System

46. PAT has the competence to determine charges for the use of its facilities and services, to issue regulations regarding the method of payment, and also to fix the rates of the dues and charges within the Authority Area. To be concrete, the Board of Commissioners can fix the rates of dues and charges for the use of the facilities and services provided by PAT between the maximum and minimum rates determined by the Cabinet.

47. The present tariff system is classified into five categories, namely i) charges on ships, ii) charges on cargoes (other than containers), iii) charges on service users, iv) charges on containers, and v) charges on hiring PAT handling equipment.

48. In respect of the rate setting, the dues and charges are not necessarily established in accordance with the calculation of the costs of each facility or service, nevertheless the accounts keep balance as a whole. This means that the fundamental tariff system is based on the principle of general cost accounting, partly introducing specific cost accounting which is applied to towage, mobile crane charge, overtime charge and so on.

49. PAT has a monopoly in the shoreside cargo handling at Klong Toei Wharves, and the tariff structure has remained basically unchanged since 1975, with only partial amendments. Therefore, it is difficult to cope with the present situation, particularly including the rapid progress of containerization. It is necessary to update the tariff structure, possibly by introducing a throughput charge, taking advantage of the container system.

50. For users' information, "Tariff of Port Charges of PAT (English version)" is published every year, but this does not cover the entire tariff system. It is desirable to publish a tariff book which covers all the tariffs in English for the convenience of users.

51. The revenue from the port operations which consists of cargo

handling, ship handling and other services covers the costs as a whole, but the cost-revenue balance of each service is not necessarily good, because PAT gains a considerable amount of profit from the cargo handling and makes a big loss on ship handling and other services. That is to say PAT imposes a relatively heavy burden on shippers and consignees rather than on shipping companies. The existing tariff structure and rate do not cover certain annual operating costs such as dredging and maintenance of the channel, that is, Baht 200 million, while the revenue from channel dues is Baht 61 million. Therefore, it is necessary to reconsider the current structure including the channel dues.

52. One of the characteristics of the present tariff structure is that the charges on export cargoes are lower than those on import cargoes in such cases as landing charges or quay dues, handling charges and storage rent. This situation may be in accordance with the export promotion policy of the Government. This policy may be advocated in light of the present balance of payments in Thailand, however, for the future, it would be desirable to consider the tariff structure in relation to the appropriate portion of the burden to be covered by various users such as shipping companies, shippers and consignees, taking the future trends of the export and import cargoes, particularly the rapid increase of container cargoes, into consideration.

53. In establishing charges which are based on the specific cost calculation principle for the various services such as towage and the use of mobile cranes, a considerably high rate of return on investment is estimated. It is desirable to consider a reasonable and appropriate level of return on investment.

C. Ship Handling at Bangkok Port

54. Operational safety and efficiency are preserved by proper traffic control, well maintained channel depth, adequately installed navigation aids and good assistance by pilots and tugboats, etc. As these factors are closely interrelated, an unreasonably heavy burden would be imposed if some factors fail to comply with the requirements.

Traffic Control

55. The safe passage of all vessels upon the high seas and in all navigable waters connected therewith is governed by the International Regulations for Preventing Collisions at Sea, 1972 and the International Convention for the Safety of Life at Sea, 1974. The former has been in force since 1977, while the latter came into force in 1980. To suit the variety of trade, the volume of traffic being handled and particular geophysical characteristics and peculiarities of individual ports, it may be necessary to supplement the aforementioned regulations and convention with additional local rules.

56. There are two basic navigation acts in Thailand to secure the safety of navigation and to improve traffic flow as follows:

(1) Act for Prevention of Collision at Sea, B.E. 2522 (1979)
The high seas are open to all states under the principle of freedom of navigation, so it is necessary to enact international navigation rules. The Act for Prevention of Collision at Sea, B.E. 2522 is the domestic legislation of the Thai Government conforming to the International Regulations for Preventing Collisions at Sea, 1972 and applies to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels.

(2) Navigation in Thai Waters Act, B.E. 2525 (1982)
In most cases, port areas are narrow and congested with numerous vessels moving, anchored and conducting cargo handling. There are so

many kinds of risks in port areas and if ships are involved in an accident, this creates an extremely serious situation. Navigation in Thai Waters Act is a special legislation enacted by the Thai Government in order to improve the safety of navigation and the efficient flow of traffic in ports.

57. Both of these Acts apply not only to Thai vessels but also to all foreign vessels navigating in Thai waters. The authority of enforcing these acts is vested in the Harbour Master. The term Harbour Master refers to the Director General or the Acting Director General of HD and includes any person appointed by the Minister of Communications as Harbour Master or Acting Harbour Master. There are presently seven Harbour Master's Offices located at Nakhon Sawan, Ayutthaya, Samuth Sakhon, Songkhla, Trang, Chachoengsao and Nongkhai. However, in a locality where there is no Harbour Master, the commissioner of the province has the power to issue rules for the control of navigation in any river or canal within his area.

58. In Thailand, safe navigation control services are provided legally by the Harbour Master or commissioner of the province often in cooperation with PAT. The Marine Police Division is a similar organization to the Coast Guard in the U.S.A. and the Maritime Safety Agency in Japan which has the purpose of protecting life and property and preventing, detecting and suppressing violation of laws at sea.

59. In order to ensure navigation safety for large vessels at Bangkok Port, HD has established special procedures and regulations including the following:

i) Check of individuals' qualifications
ii) Maneuvering speed of not more than 12 knots
iii) Wharf owner's agreement
iv) Arrangement of two tugs

60. After obtaining approval by HD for entrance of a large vessel for which pilotage service and a suitable time are fixed, the shipping agent is required to undertake the following:

i) To arrange for a berthing space

ii) To arrange for one tugboat to assist pilotage along the navigational channel at Bangkok Bar and within the port area (for both entering and leaving) and for another tugboat required to assist in berthing and unberthing

iii) To arrange for special permission to pass through the Paknam Guard Station without stopping for inspection by the Health Office and the Customs Officer

61. Actions to be undertaken by HD and officers concerned are as follows:

i) If a specified vessel has been judged eligible for entry, the Pilot Division will assign senior pilots on a rotating basis to perform pilotage duty completely for the entrance, berthing, unberthing and exit out to sea of each vessel.

ii) When the time of entering or leaving is fixed, the Pilot Division contacts the Marine Police (which belongs to MOI) and PAT to render assistance for traffic control.

62. Generally, traffic control of small ships is very difficult because they have almost no communication apparatus on board and also they often violate navigation rules consciously and sometimes unconsciously. So, the following measures should be considered:

i) Monitoring and training
ii) Restriction of maximum length of barge trains
iii) Restriction of passing and overtaking
iv) Provision of waiting anchorages
v) Construction of visual traffic control signals and leading lights

VTS (Vessel Traffic Service)

63. Shore-based radar stations have long been employed as a supplementary safety measure in developed countries, and are used for the following purposes:

i) To monitor seaways
ii) To keep masters and pilots informed as to all dangers to navigation
iii) To organize and coordinate useful assistance in the case of an accident
iv) To collect data of every kind relating to vessels
v) To anticipate maneuvering requirements

64. These are quite useful to communicate detailed and timely information from shore based facilities to vessels to ensure safe navigation, especially in narrow and long areas with high traffic density such as Bangkok Port.

Communications

65. To ensure safety of movement in port areas and an exchange of information between vessels and on-shore personnel, a good communication network is indispensable. This generally involves VHF (very high frequency) and UHF (ultrahigh frequency) radio which are sometimes supplemented with port traffic signals, enabling the VTS authority to convey instructions to vessels. A number of VHF-UHF channels are used in busy ports to ensure unhindered communications between ships and their tugs, linesmen, etc.

Channel Dredging

66. HD bears the duty of dredging navigation channels in principle. However, PAT takes over this task at Bangkok Port including the Bar Channel and Sattahip Commercial Port. PAT collects dues from vessels over 500 NRT in compensation for the cost, but the rate is not high enough to recover the cost fully.

67. On the other hand, HD bears all the dredging costs without charging channel dues. Thus the Government's tariff policy lacks consistency. Considering that the beneficiaries of the channel especially in the Chao Phraya River are not limited to vessels of 500 NRT and more, the Government

should take measures to ease the financial burden imposed on PAT. In other countries, the governments actually take full or partial responsibility for the construction and maintenance of navigation channels even where the governments do not give much financial aid to port management bodies.

68. At Bangkok Port, the channel depth is well maintained but the existing bar channel is not wide enough for the current traffic conditions, so expansion and improvement (from a curved line to a straight line as much as possible) of the channel should be considered.

Aids to Navigation in Thailand

69. PAT also takes its share of the responsibility for the installation, maintenance and repairs of navigation aids at Bangkok Port and Sattahip Commercial Port.

70. In accordance with the resolution adopted at the 10th Conference of the International Association of Lighthouse Authorities at Tokyo in 1980, the rules for System A were agreed upon for use by countries in Europe, Australia, New Zealand, Africa, the Gulf and some countries in Asia including Thailand. System A is a buoyage system using the color red to mark the port side of channels and, while System B is the other one using the color red to mark the starboard hand side of channels. HD and PAT have gradually modified their existing buoys to conform to the new rules, and the new system was completed in May 1983.

71. As for Bangkok Port, navigation aids in the Bar Channel are mostly installed properly. The current channel marking buoys are installed only on one side of the channel because of its narrowness. For the safe utilization of the channel, a pair buoy system is preferable. Expansion of the channel is required also from this viewpoint. However, there are no navigation aids along the Chao Phraya River. There were formerly navigation aids along the River, but PAT stopped maintaining them due to frequent theft and destruction of these facilities. The lack of navigation aids together with the lack of a control center in the Port of Bangkok places a serious burden on the pilots in terms of safe navigation.

Pilotage

72. Pilotage is a unique service based upon territorial and peculiar conditions prevailing in the pilotage area. It may be performed in coastal waters, estuary waters, rivers, ports, harbors, lakes or enclosed docks or any combination of these areas which may come within a port's jurisdiction.

73. A pilot's function is to combine technical knowledge concerning the operation of a vessel with knowledge concerning conditions which exist in the navigational area and with which the Master of the vessel cannot be expected to be conversant. In this respect, pilots must first of all be technically capable of piloting vessels of all types which call at the port. They must be well versed in the latest equipment and navigational aids as well as the regulatory and environmental requirements. The second and perhaps most important part of the pilot's function, however, is an overall appreciation due to his knowledge of the regulations and unique conditions which exist in the port area.

74. According to the Navigation in Thai Waters Act (No.2) B.E. 2477 (1934), pilotage is compulsory for vessels of 500 GRT or more (overall length 50 meters or more) at Bangkok and Sattahip Commercial Ports in order to ensure navigational safety and to prevent the damage of port facilities. Vessels calling at other ports are not required to utilize local pilots, and no official pilots are available there.

75. Pilots are public officials who belong to the Pilot Division of HD. There are 64 pilots as of 1987 who are working for Bangkok Port, Si Racha and Sattahip Commercial Port. These pilots have been well trained either in European or American schools or in RTN.

76. The required qualifications of pilots are:

i) Being from 30 to 60 years old
ii) Having seafaring experience as a master for more than two years or as a lieutenant of RTN
iii) Passing the examination and being apprenticed thereafter for six months

77. The majority of the pilots are naval officers because few civil mariners gain the requisite experience due to the small size of the Thai commercial fleet.

Tug and Rope Boat Service

78. Tug and rope boats are always provided by PAT promptly to facilitate berthing at the time of vessel arrival at Bangkok and Sattahip Commercial Ports. Five tugs are available at Bangkok Port and two at Sattahip Commercial Port. They are also utilized for non-commercial activities such as fire fighting and are on stand-by during critical weather, oil spills or other emergencies. However, there are no tugboats at the other ports.

Accidents at Bangkok Port

79. There are various dangerous factors which have caused accidents such as strong current, crossing of towing barges, sailing in poor visibility, passing in narrow and shallow areas and failure of ship's equipment. However, according to the data collected this time, there were no serious accidents during these two years (1982, 1983).

80. Most of the accidents in the Klong Toei Area and the stream were due to the environmental situation, support of tugboats and maneuvering techniques. The percentage of accidents in the Klong Toei Area and the streams were about 58% in 1982 and 66% in 1983, while the percentage at the Bar Channel was reduced from 42% in 1982 to 34% in 1983 (See Tables 4.8 and 4.9).

Berth Allocation

81. Berth allocations are made everyday at 10:00 a.m. by a PAT committee under the chairmanship of the Deputy Director (Operations) of Bangkok Port. The port follows a "first come, first served" policy within certain conventions. Warships are given first priority when necessary.

Table 4.8 . Number of Accidents by Location, Kind and Cause

Year	1982	1983
Total Number of Accidents	38 (100%)	38 (100%)
Location of Accident:		
Klong Toei Area	12 (32%)	9 (24%)
Bangkok Bar Channel	16 (42%)	13 (34%)
Stream	10 (26%)	16 (42%)
Type of Accident:		
Touched Wharf	13 (34%)	13 (34%)
Touched Dolphin	1 (3%)	1 (3%)
Touched Vessel	6 (16%)	8 (21%)
Touched Tow Barge	8 (21%)	3 (8%)
Grounded	10 (26%)	13 (34%)
Cause of Accident:		
Impediment of Passage	15 (40%)	7 (18%)
Maneuvering	16 (42%)	19 (50%)
Failure of Equipment	5 (13%)	8 (21%)
Miscellaneous	2 (5%)	4 (11%)

Source: Pilot Division, HD

Table 4.9 Accidents at Bar Channel

Year	1982	1983
Grounding	7	12
Meeting	(5)	(5)
Overtaking	(1)	(0)
Crossing	(1)	(7)
Collision	9	1
Meeting	(1)	(0)
Overtaking	(4)	(1)
Crossing	(4)	(0)
Total	16	13

Note : Figures in parentheses show the breakdown.

Source: Pilot Division, HD

82. Ships with break bulk import cargoes are berthed at West Quay. The dolphins and buoys are used to moor vessels loading export cargo or undergoing minor repairs, etc. Vessels on completion of discharge and with cargo to load are moved to the dolphins. Container ships, which include combo and feeder ships, are berthed at East Quay. This is the general pattern of berth allocation but there may be exceptions from time to time to meet the exigencies of the day.

Other Services for Ships

83. Other services necessary for ship operation are provided by both PAT and private companies. Fresh water supply, garbage collection, and telephone service are executed by PAT and ship chandlery, fuel supply, ship repairs, cleaning of holds, etc. are provided by private firms under the supervision of PAT. Among the latter, fuel supply is allowed only by barges, while ship chandlery is allowed only at quayside.

D. Cargo Handling at Bangkok Port

General

84. The shoreside cargo handling at Klong Toei Wharves is exclusively conducted using equipment, laborers and drivers owned or employed by PAT. The total number of shoreside laborers amounts to 710 including 41 temporary laborers in addition to 325 forklift drivers, 230 truck and tractor drivers and 60 crane drivers as of January 1987. Cargo handling, however, consists of many stages and involves various bodies other than PAT.

85. The flow of conventional cargo handling is presented below:

(1) Import

As shown in Fig. 4.5, present import cargo handling is divided into six parts.

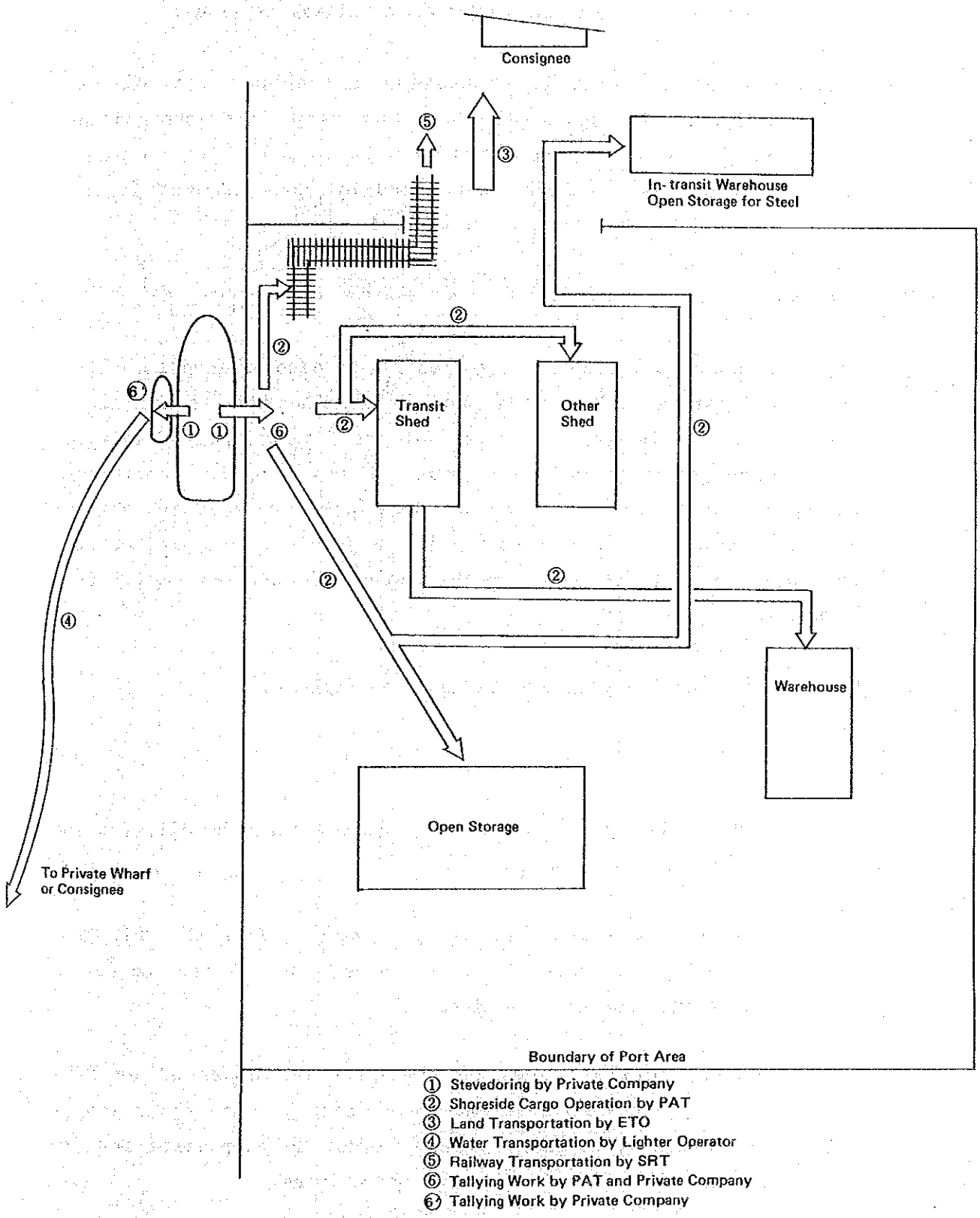
i) Stevedoring involves discharging cargo from arriving ships to landside or waterside using ship gear or wharf cranes. This is carried out by private stevedoring companies.

ii) Shoreside cargo operation, which is carried out by PAT, involves transferring cargo from the quay to sheds, warehouses and open storages by forklifts, trucks and trailers. This also involves cargo sorting, storage and delivery to inland transporters.

iii) Land transportation of all cargo brought out of the port area is monopolized by ETO. ETO maintains its monopoly even when its own trucks cannot meet the demand. In this case, ETO charters trucks from private firms.

iv) Water transportation is carried out by lighters based on contracts between lighter operators and consignees.

Fig. 4.5 Flow of Conventional Cargo Handling (Import)



v) The State Railway of Thailand (SRT) is responsible for railway transportation from the port to the railway terminal.

vi) Tallying work involves checking the number and external conditions of cargo at the time when cargo is discharged onto the quay or onto barges and when it is delivered to inland transporters. This is performed by both PAT and private companies.

(2) Export

As shown in Fig. 4.6, export cargo loading is also divided into six parts, and the cargo flow is almost exactly the same as for import cargo. The only difference is that ETO does not hold a monopoly for the transport of cargo into Klong Toei Wharves. Private transporters can compete with ETO in this case. Some export cargoes are shipped via warehouses and some are carried directly to shipside from outside by trucks or rail, but most of the export cargoes are loaded from lighters.

86. The flow of container cargo handling is as follows:

(1) Import

Fig. 4.7 shows the system of import container cargo handling, which is divided into seven parts.

i) Stevedoring involves discharging containers from the ship onto the quay by ship gear or mobile cranes. This is carried out by private stevedoring companies.

ii) However, mobile cranes on the quay are operated by PAT. Similar equipment owned and operated by private companies is sometimes used for this work in order to compensate for the shortage of PAT's own equipment and drivers.

Fig. 4.6 Flow of Conventional Cargo Handling (Export)

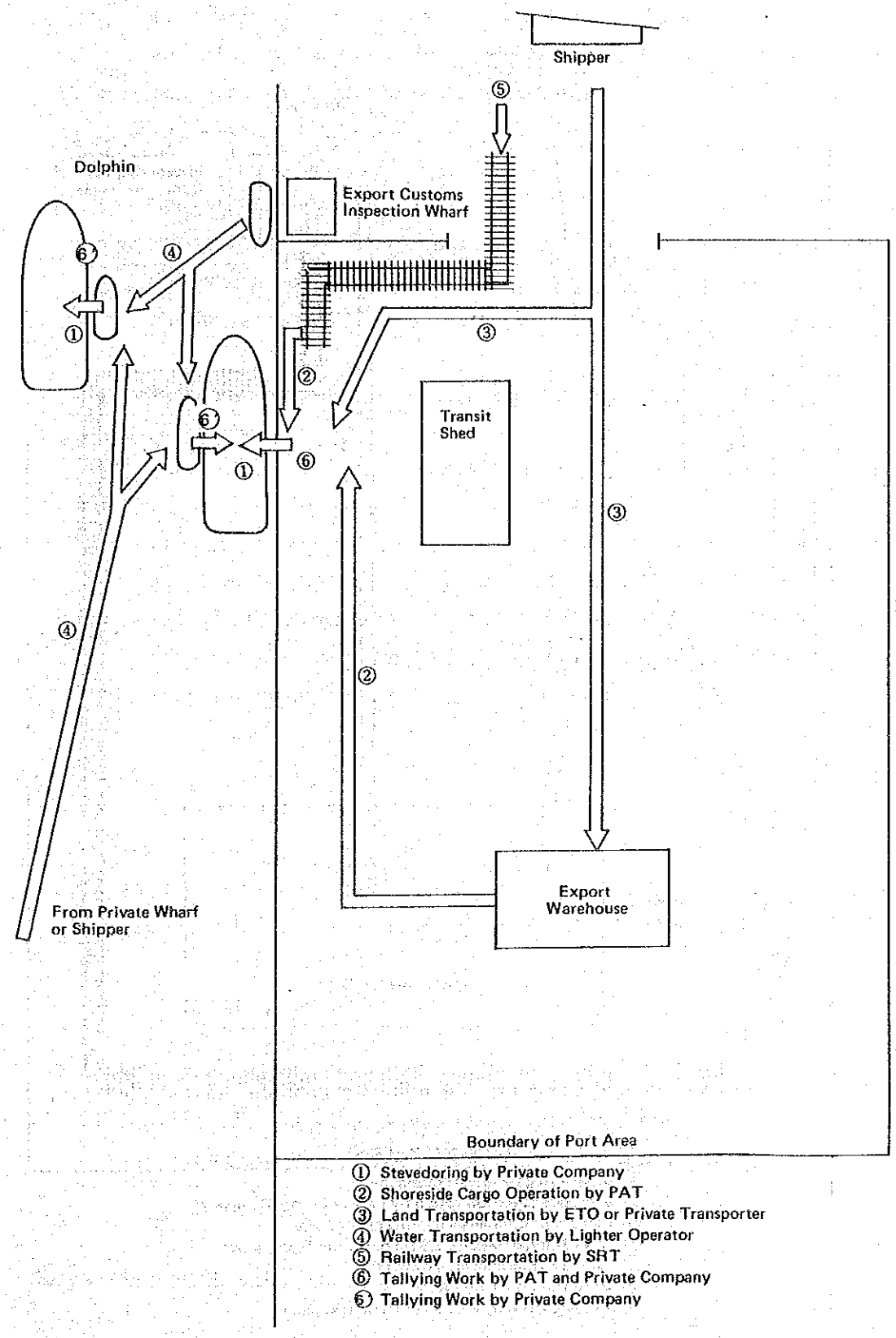
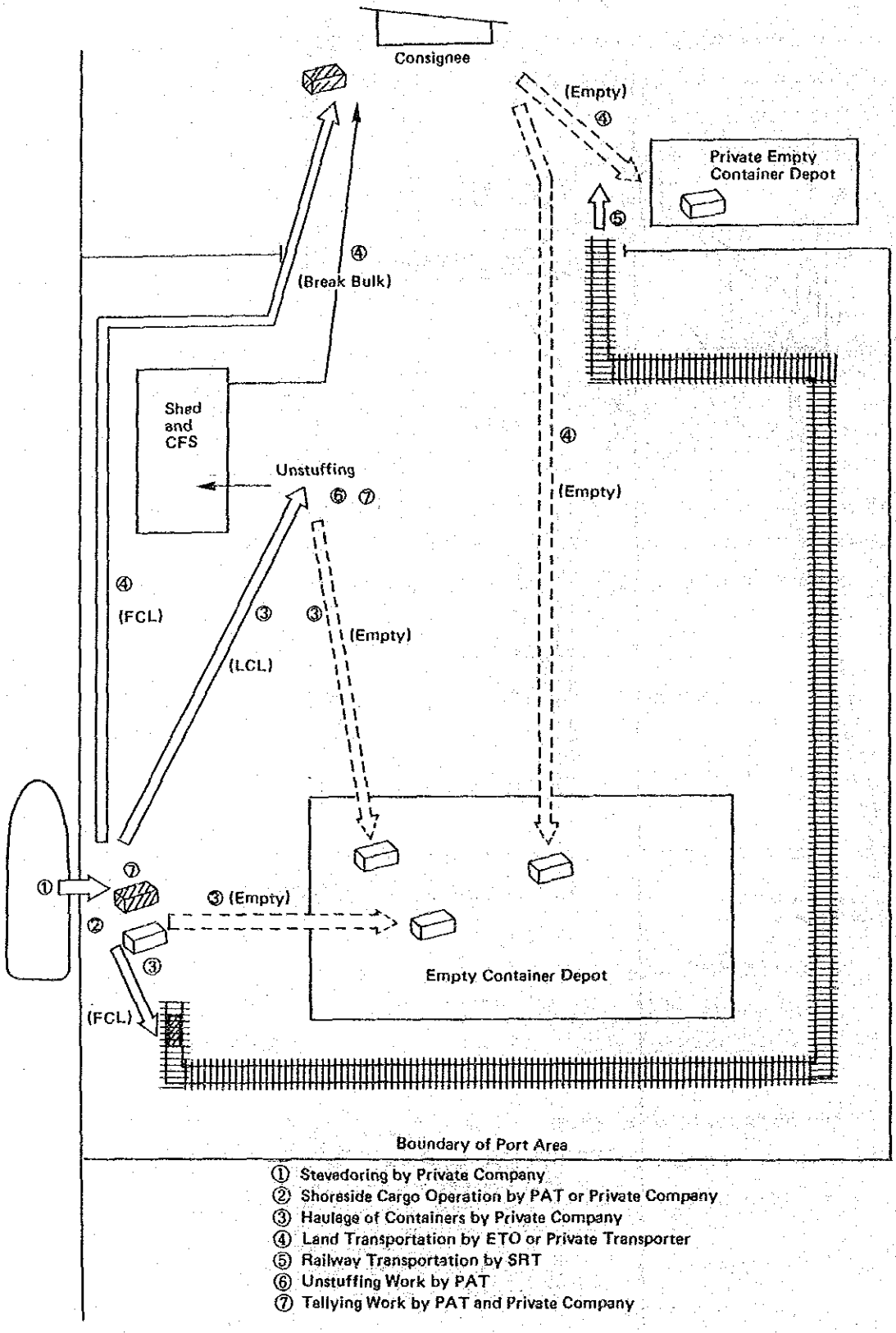


Fig. 4.7 Flow of Container Cargo Handling (Import)



iii) Hauling loaded containers from quay to shed or CFS for customs inspection, and delivery from shed or CFS to inland transporters are, in principle, carried out by PAT. But actually these are carried out mainly by private companies. Imported empty containers are hauled to the CY without customs inspection.

iv) Land transportation of containers out of Klong Toei Wharves is monopolized by ETO. Due to a lack of trailers and chassis, however, equipment owned by private transporters is being chartered by ETO.

v) Rail transportation is carried out by SRT.

vi) Unstuffing of loaded containers is carried out by PAT.

vii) Tallying is conducted at the time when containers are discharged onto the quay from the ship, when they are unstuffed and when containers or unstuffed cargo are delivered to land transporters by both PAT and private companies which are mostly shipping agents.

(2) Export

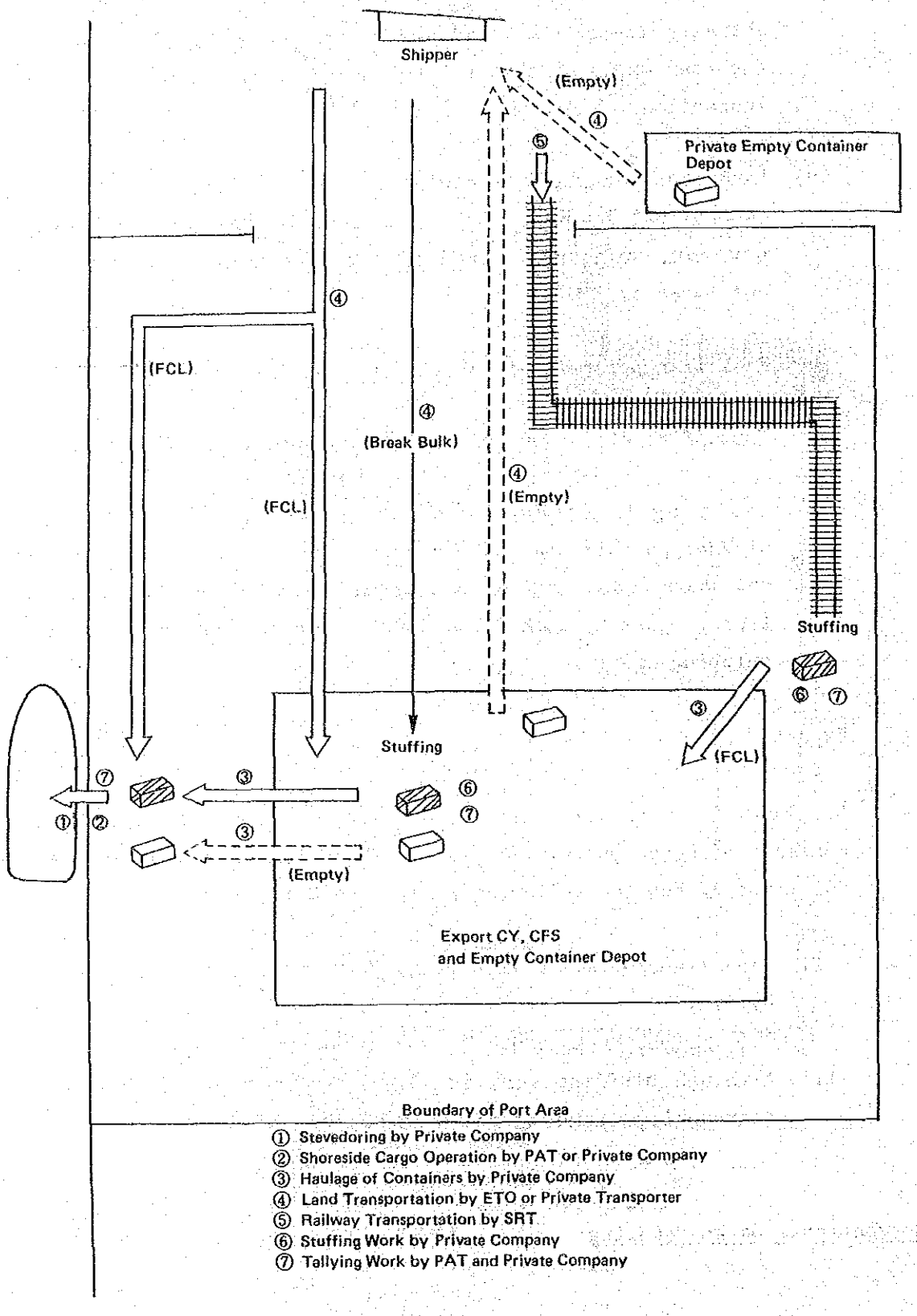
As shown in Fig. 4.8, the export container cargo handling also consists of seven parts. The flow of the work is almost the same as for imports, but the following points are different:

i) Land transportation into Klong Toei Wharves is not monopolized by ETO.

ii) Although stuffing work is under the control of PAT, private stevedoring companies actually conduct this business.

Conventional Cargo Handling

Fig. 4.8 Flow of Container Cargo Handling (Export)



87. PAT has various cargo sorting and storage facilities such as transit sheds, warehouses and open storages, and they are utilized functionally.

88. At West Quay nine transit sheds are located just behind the berths, and function as the main sorting and storage facilities for cargo unloaded from ships. However, large lot cargo is stored at three supplementary sheds located behind the transit sheds. In both kinds of sheds cargoes are block-stored in accordance with the capital letter of consignees' names. This system facilitates easy location of cargoes at the time of delivery. There are two more sheds utilized exclusively for imported cotton, jute and kapok near the fire station. These cargoes are directly transferred from shipside, mainly by trucks.

89. In addition, there are four kinds of warehouses. A bonded warehouse at West Quay is utilized for the storage of alcohol and valuable cargoes. Dangerous cargoes have to be stored in five dangerous warehouses separately subject to the International Maritime Organization (IMO) Code. One overtime cargo warehouse (auction warehouse) is located adjacent to Supplementary Shed No.2 and cargoes which remain in sheds or open storages beyond 75 days are moved here. An In-transit Warehouse which is located outside the Customs fence is provided to deal with all the transit cargo to/from Laos based on the agreement between the Thai Government and the Laotian Government concluded in 1959.

90. At West Quay there is an imported automobile storage area.

91. Outside the Customs fence there is a steel storage area where all steel goods imported by conventional ships are transferred directly after discharging onto quays. Among the various sorting and storage facilities for break bulk cargo, only this facility causes troubles, because PAT's trailers and trucks pass the gate post and carry cargoes for a distance of 1-3 km. The following problems are observed:

i) Traffic congestion around the gate post of West Quay is getting worse and worse.

ii) During the handling operation, stevedore gangs are forced to

wait for trailers and trucks coming back from the steel storage area, so the handling efficiency drops considerably.

92. The low efficiency of stevedoring affects longshoring for the handling of various commodities. According to the physical survey carried out by the Study Team, the handling efficiency of break bulk cargo discharged onto quays is 17.1 tons per gang hour except for steel goods (calculation based on Table 4.10). Although this rate is realized within a short period, it is comparatively good. In particular, pallets which are well used in handling operations may contribute to this reasonable efficiency. However, according to the data from the Stevedore Daily Report in October 1986 shown in Table 4.11, the calculated rate is 15.3 tons per gang hour, which is lower than in some other ASEAN countries as noted in Table 4.12.

93. The following factors are considered to be the major reasons for the low stevedoring efficiency of break bulk cargo:

i) Wasted time in choosing proper equipment for different cargo items, in opening and closing hatch covers and in the standing-by of derricks

ii) Lack of pre-arrangement of the cargo handling process

iii) Shortage of skilled workers due to the lack of stability of the port industry and the lack of a training system for laborers

94. The problems mentioned above, especially the waste of time in changing equipment and in the standing-by of derricks, may be caused by the lack of a preplanned cargo handling procedure, and this may be due to the shortage of skilled workers who can properly prepare sequential plans for cargo handling.

95. This problem inevitably affects the efficiency of shoreside operations because the two operations are closely related. Further, it is observed that the PAT laborers are obliged to wait for cargo from ships when stevedores are discharging cargo onto lighters. However, the said PAT laborers do not give assistance to works at busy berths, even if these

Table 4.10 Handling Efficiency of Break Bulk Cargo (1)

Kind of Operation		Commodity	Form	Efficiency (Tons/Gang/Hour)	Remarks
Discharge	Land Side	General Cargo	Case	6.4	Jib Crane
		Chemicals	Bag	32.0	Jib Crane
		Chemicals	Bag	19.0	Union Purchase
		Chemicals	Drum	23.0	One Boom
		Auto Parts	Case	13.0	Jib Crane
		Cotton	Bale	12.0	Crane
		Copper	Bundle	36.0	Crane
		Pipe	Bundle	26.0	One Boom
		Hide	Bag	14.0	One Boom
	Water Side	Steel Beam	Bundle	16.0	Union Purchase
		Steel Coil	Coil	37.0	One Boom
Loading	Land Side	Sugar	Bag (Cutting Bag)	50.0	Jib Crane (Private Wharf)
	Water Side	Tapioca	Bag	21.0	Union Purchase

Source: Survey carried out by the Study Team on September 24, 27 and 29, 1986

Table 4.11 Handling Efficiency of Break Bulk Cargo (2)

Kind of Operation		Commodity	Form	Efficiency (Tons/Gang/Hour)
Discharge	Land Side	General Cargo	Package	13.4
		Canned Tuna	Carton	11.9
		Cotton	Bale	14.9
		Fertilizer	Bag	24.8
		Chemicals	Bag	12.0
		CKD (Vehicles)	Case	14.7
		Steel Coil	Coil	43.5
		Wire Rod	Bundle	15.9
	Water Side	CKD (Vehicles)	Case	16.0
		Steel Coil	Coil	34.0
		Wire Rod	Bundle	36.5
Loading	Water Side	Maize	Bag	42.4
		Tapioca	Bag	33.0
		Rice	Bag	37.1
		Gypsum	Bulk	42.6

Source: Stevedore Daily Report, October 1986, PAT.

Table 4.12 Cargo Handling Efficiency in ASEAN Countries

(Unit: Tons/Gang/Hour)

Cargo/Operation	Jakarta	Ujung Pandang	Singapore	Manila
General Cargo (Discharge)	20.75	13.5	21.0	15.0
Chemicals in Bags (Discharge)	28.45	—	—	—
Bulk Cargo (Loading)	122.97	21.5	—	26.0
Liquid Bulk (Loading)	—	17.0	—	—
Containers	20 boxes	—	30-35 boxes	7-16 boxes

Note : Cargo handling efficiency at Manila Port shows the average of loading and discharging.
Source: Site Survey by the Study Team

berths are adjacent to their own, and they waste time idly. This is said to be caused by the lack of flexibility in personnel management at PAT.

96. A ship operator's liability conventionally ends when cargoes are free of the ship's tackles. PAT requests shipping companies to take responsibility for import cargo conditions up to the shed. In accordance with international trade rules, this request should be abandoned and PAT should take responsibility for the landing and handling of discharged goods.

97. There are 12 wharf cranes with a capacity of 3 - 5 tons, which can be moved on the rail along the quay line. They are over 30 years old. The utilization rate of these cranes is only 9% in two recent years as shown in Table 4.13. The reasons why the utilization is very low are that the capacity of the wharf cranes is limited as compared with the recent cargo trend and that the recent performance of ship gear has been improved. In addition to the above, the wharf cranes are sometimes an obstacle to ship berthing operations.

Table 4.13 Downtime and Utilization of Equipment

(Unit: %)

Downtime of Equipment	1985	1986 (11 months)
Wharf crane	16	19
Mobile crane	15	14
Side loader	100	100*
Top loader	10	16
Forklift	15	21
Container shifter	11	21
Yard hustler	16	18
Utilization of Equipment	**1985**	**1986 (11 months)**
Wharf crane	9	9
Mobile crane	70	68
Side loader	0	0
Top loader	97	93
Forklift	77	66
Container shifter	13	38
Yard hustler	87	83

Note : * 2 units under repair for a long time

Source: PAT

Container Cargo Handling

98. Containerization at Klong Toei Wharves has rapidly proceeded, especially in exports. The share of the containerized cargo increased from 11% in 1976 to 38% in 1980 to 61% in 1985, and almost all the export cargo was containerized in 1985. On the other hand, the total volume of break bulk and bulk cargo decreased remarkably from 3,365 thousand tons in 1977 which was the maximum volume recorded in the 10 year period to 2,479 thousand tons in 1985.

99. PAT has not yet successfully caught up with this remarkably rapid containerization in such aspects as systems, laborers, facilities and equipment.

100. The container transportation system has unique characteristics in comparison with the traditional transportation system of break bulk cargo. Namely, a shipping company takes responsibility for cargoes from CY to CY, CY/CFS, CFS/CY and CFS/CFS instead of "from tackle to tackle". In this sense, shipping companies utilize not only berths but also the CY, CFS, cargo handling control office building, maintenance shop, etc., all of which are collectively called the container terminal.

101. In order to secure smooth container cargo flow, a terminal operator is required to engage in all the necessary activities in the container terminal which include stowage planning, arrangement of loading/discharging sequence, stacking planning, stuffing/unstuffing planning, empty container inventory, physical cargo handling, maintenance, repairs, documentation, etc. A terminal operator entrusts other entities with physical cargo handling in some cases. At Klong Toei Wharves, shipping agents take charge of terminal operations and they entrust physical cargo handling to PAT and stevedoring companies. The sharing of responsibility for these tasks is, in principle, as follows:

Shipping Agents -- Various planning, arrangement and inventory works, documentation, etc.
Stevedores ------- Cargo handling on board
PAT ---------- Shoreside cargo handlong including crane driving for loading/discharging

102. Nevertheless, PAT's actual tasks are limited to all the unstuffing works and a small part of haulage and loading/unloading crane driving. This is caused by the shortage of larger equipment which is utilized for container loading, unloading and haulage, and also by the delay of transferring laborers, drivers and clerks from the declining conventional sector to the growing container sector. Other tasks which PAT does not actually take charge of are conducted by stevedoring companies.

103. Such facilities as the container yard, container freight station, empty container depot, marshalling yard and maintenance shop normally collectively function as the container terminal. There are, however, only container yards and import container freight stations at present at Klong

Toei Wharves. Therefore, the container yards function not only as a proper container yard for stacking stuffed containers but also as an empty container depot for stacking empty containers, a marshalling yard for sorting loaded containers according to the handling sequence, a maintenance shop for maintenance and repairs of containers and an export container freight station for stuffing export cargo. Container yards are allocated to around 50 shipping companies and shipping agents. As various kinds of tasks are conducted in each small yard, the yard becomes congested and does not work efficiently. The physical defect of poor pavement condition which limits the stacking capacity to a level of one or two tiers also increases the congestion.

104. There are two CFS at East Quay and two new CFS at the east end of West Quay being used exclusively for import containers. Transit sheds and supplementary sheds, which are located at West Quay, are also frequently used as import CFS when the existing CFS cannot provide sufficient space. In this case containers are unstuffed around these sheds, causing a serious traffic jam.

105. During January to April 1987, 70% of the total import container cargo and 80% of the total export container cargo were unstuffed or stuffed within the port area. Around half of the above imports and nearly all of the above exports are estimated as potentially full container load cargo (FCL cargo).

106. It seems that there are many reasons for the high percentage of stuffing/unstuffing of FCL containers at the port area. For one, the customers' sites are not sufficient to accept containers as there are physically narrow roads which do not allow container passage between the customers' sites and Klong Toei Wharves. There is also a limitation of both time and route for trailers and tractors in Bangkok Metropolitan Area according to the Land Traffic Act, B.E. 2522 (1979). The fee rates of ETO, which holds a monopoly for the transportation of cargoes out of Klong Toei Wharves, may be another reason. For some exporters, the ETO rate for carrying empty containers from the port area to their sites is not attractive compared with private trucking company rates. And for some importers, ETO's trailer and chassis rates are higher than their truck

rates which make unstuffing of the imported containers in the port area less costly than draying the containers on trailer chassis. In addition, the bonded transportation system has not yet become popular due to the necessity of whole cargo inspection for preventing smuggling. By stuffing/unstuffing FCL containers in the port area the original packing cost of goods becomes comparatively higher, cargo damage or pilferage may occur, and the merits of door to door transportation are lost.

107. Due to the insufficient site space of customers, the fact that bonded transportation is not popular, and the distortion of the tariff structure with transport rates for trailer and chassis higher than truck rates, some exporters bring laborers together with export cargo for stuffing goods in the containers by themselves. This work is conducted at container yards allocated to shipping companies or shipping agents and they as well as PAT allow this activity. This makes the congestion in the port area still severer.

108. It is said that the handling efficiency of container ships is, in general, 25-30 boxes per hour by gantry crane, and 15-20 boxes per hour by ship gear or mobile crane.

109. As a result of all the above-mentioned unusual aspects, the container handling efficiency drops considerably. Container ships berthing at Klong Toei Wharves are grouped into gearless ships and self-sustained ships. According to the survey carried out by the Study Team, the handling efficiency of discharging containers from ships is 14.3 boxes except for gantry type ship gear, while the loading efficiency is at a considerably lower level of 8.5 boxes per gang hour, as calculated from Table 4.14.

Table 4.14 Handling Efficiency of Container Ships

Kind of Gear		Kind of Work	Efficiency (Boxes/Gang/Hour)	Number of Tractors (Units/Gang)	Number of Gangs engaged
Mobile Crane	A	Load 20'	10	4	2
	B	Load 20'/40'	11	2	2
Ship Gear (Gantry Type)	C	Load 40'	22	10	1
	C	Dis. 40'	28	10	1
	D	Dis. 20'	15	6	1
Ship Gear (Jib Crane)	E	Load 40'	4	3	2
	F	Load 20'	9	3	3
	G	Dis. 20'	13	4	2
	H	Dis. 20'	15	5	2

Note : A-H indicate individual ships.
Source: Survey carried out by the Study Team on September 24, 27 and 29, 1986.

Other Problems

110. Among cargo handling equipment, forklifts play a major role in the handling of both break bulk cargo and containers. There are 436 forklifts presently owned by PAT, most of which have a 3 ton capacity, and they are suitable for sorting cargoes in transit sheds, loading onto and unloading from trucks and trailers and also stuffing and unstuffing containers. The mechanical breakdown of the forklifts is somewhat high as shown in Table 4.13. According to information from some shipping companies and agents, they sometimes have to use the equipment of private companies due to a shortage of PAT's forklifts. Table 4.15 shows that there is some equipment which is too old to use. Especially as for forklifts, the ratio of machines which are over 13 years old is 50%, though PAT has adopted 11 years as their service life which is still long compared with international standards.

111. In order to utilize sheds and open storages efficiently, PAT moves unclaimed cargoes which remain there beyond 75 days to the overtime warehouse for storage for another 145 days. Thereafter, the Customs is authorized to sell these cargoes at auction. However, many unclaimed cargoes actually remain over four months in transit sheds and open storages due to the full occupation of the overtime warehouse caused by delays of the auction procedure (Table 4.16).

Control and Supervision of Private Sector Activities

112. According to the Ministerial Regulation of PAT B.E. 2500 (1957), any company wishing to conduct the business of loading or unloading of cargo onto or from foreign-going vessels or any individual workers wishing to load or unload cargo onto or from foreign-going vessels within the Authority Area of PAT must be registered in the offices of PAT.

113. Although PAT requires licensed companies to employ an experienced foreman to supervise the work throughout the course of operations and to submit a report to PAT on the loading or unloading of cargo upon completion of the daily work, and PAT holds the power i) to order modification of

Table 4.15 Age of Cargo Handling Equipment at Bangkok Port (As of 1986)

Kind of Equipment \ Year	0 - 3	4 - 6	7 - 9	10 - 12	13 - 15	16 - 20	21 -	Total	Remarks
Semi Portal Crane (Wharf Crane)							12	12	31 years old
Container Shifter (Transtainer)	6	2	1					9	
Mobile Crane (5 - 10 Ton)	5					7		12	
- do - (30 - 50 Ton)	2					2	5	9	
- do - (149 - 165 Ton)		2						2	
Mobile Crane Sub-total	7	2				9	5	23	
Forklift (5,000 lbs)	5	22	10		1			38	
- do - (7,000 lbs)	85	60			63	134		342	
- do - (10,000 lbs)	18	14			15	7		54	
- do - (10 ton)		2						2	
Forklift Sub-total	108	98	10		79	141		436	
Top Loader (6 - 16 Ton)	6							6	
- do - (30 - 35 Ton)	11							11	
Top Loader Sub-total	17							17	
Fifth Wheel		5	2					7	
Tractor (8,000 - 12,000 lbs)		4			10	15		29	
Trailer (5 - 30 Ton)	9				19	11	1	40	
Chassis (30 Ton Container)	20	24	16	8				68	
Tractor (for Trailer)					1	6		7	
- do - (for Chassis)		17		8				25	
Tractor Sub-total		17		8	1	6		32	
Truck (5 - 7 Ton)		6	18		30	90		144	

Source: PAT

Table 4.16 Unclaimed Cargo (surveyed at the end of each month in 1979 and 1985)

(Unit: Tons)

Division	Period	from Free Time Period to 1 Month	from 1 Month 1 Day to 2 Months	from 2 Months 1 Day to 3 Months	from 3 Months 1 Day to 4 Months	Over 4 Months	Total
Transit Shed Division	(1979)	22,463.8	5,249.6	1,478.2	677.8	440.6	30,310.0
	%	74.1	17.3	4.9	2.2	1.5	100%
	(1985)	23,337.2	5,390.3	1,985.5	775.7	2,177.5	33,662.2
	%	69.3	16.0	5.9	2.3	6.5	100%
Warehouse Division	(1979)	1,370.1	451.7	312.7	200.2	5,888.9	8,223.6
	%	16.7	5.5	3.8	2.4	71.6	100%
	(1985)	0.3	33.9	190.8	87.3	4,053.0	4,365.3
	%	0.0	0.8	4.4	2.0	92.8	100%
Container Division	(1979)	12,064.2	3,458.9	835.5	252.6	576.1	17,187.3
	%	70.1	20.1	4.9	1.5	3.4	
	(1985)	12,754.0	4,541.7	1,774.1	909.1	435.2	20.414.1
	%	62.5	22.2	8.7	4.5	2.1	
Total	(1979)	35,898.1	9,160.2	2,626.4	1,130.6	6,905.6	55,720.9
		64.4	16.4	4.7	2.1	12.4	
	(1985)	36,091.5	9,965.9	3,950.4	1,772.1	6,665.7	58,445.6
		61.8	17.1	6.8	3.0	11.4	

Source: PAT

unreasonably inefficient or unsafe methods of operation or the equipment employed, ii) to temporarily supervise the employment of such equipment until the defects have been remedied, and iii) either to select any other company to take over the work or to take over the work by itself in the case that a licensed person fails to perform his duty or performs it with such delay that may result in damage, the qualifications of applicants are only marginally regulated as follows:

i) The applicants who wish to conduct the business of loading or unloading cargo onto or from foreign-going vessels must not be fraudulent or immoral.

ii) Whoever wishes to load or unload cargo onto or from foreign-going vessels must have the following qualifications:

- o Good behavior
- o Not being insane or mentally deranged
- o Not being so defective bodily as to be unable to carry out his duty properly
- o Not suffering from leprosy or advanced tuberculosis and not addicted to harmful narcotics or suffering from alcoholism

114. These minimal qualifications may not be sufficient to ensure a supply of highly skilled workers, and this causes low productivity as mentioned above. The following items should also be required to make the registration system more effective:

i) Quantity and quality of facilities, equipment and laborers
ii) Productivity
iii) Expected business scale
iv) Financial plan

115. To check the first point would contribute to improving safety. The second point is useful to increase productivity. The third and fourth points can be utilized to secure the stability of service supply in the port. The follow-up of these points including the training of laborers and equipment operators is, of course, necessary and effective.

Training of Workers

116. The Personnel Development Centre (PDC) of PAT has implemented all PAT training programs since its foundation in 1976. The training courses conducted by PDC include operational or "on-the-job" training courses on cargo handling documentation, equipment operation, containerization, mechanical technique, carpentry, quality control, computer, etc.

117. However, these courses are closed to stevedoring companies. Considering that the stevedoring companies do not have sufficient operational and financial background to give adequate training to their employees and that a significant part of the cargo handling which PAT should conduct is actually carried out by them, PDC should conduct joint training programs with those private companies, or possibly train their employees directly.

E. Other Port Services

SAR (Search and Rescue)

118. The International Convention on Maritime Search and Rescue, 1979, and the Convention on High Seas, 1958 require that every coastal country shall promote the establishment and maintenance of an adequate and effective SAR service regarding safety on and over the sea and where circumstances so require by way of mutual regional arrangement cooperate with neighboring countries for this purpose.

119. The Royal Thai Government has not yet ratified the International Convention SAR 1979, but the SAR and Aircraft Accident Investigation Branch is working to promote the establishment and maintenance of an adequate and effective service for both sea and land areas. Presently, there are no formal mutual regional arrangements with neighboring countries, but SAR operations are actually carried out in cooperation with neighboring countries, and mutual assistance is provided.

120. The Search and Rescue and Aircraft Accident Investigation Branch is directly under the Air Safety Division and is divided into two sections:

i) Search and Rescue Section
ii) Aircraft Accident Investigation Section

The Branch was recently established with a staff of nine including the chief, and is still on the way to promoting a systematic organization including both existing and additional service.

121. At present, the Rescue Co-ordination Centre (RCC) is located in Bangkok and there are plans to establish a Rescue Sub-Centre (RSC) in the South Thailand region. Rescue operations will mainly be carried out by RSC which will be controlled and directed by RCC taking account of probable areas of distress. Sattahip, Songkhla and Phuket shall be serviced by RSC.

The division of the responsible areas is as follows:

- Royal Thai Navy:
  generally outside territorial waters
- Marine Police Division:
  generally inside territorial waters
- HD, PAT and other public and private authorities, etc:
  within port areas or rivers

Prevention of Marine Pollution

122. The International Convention for the Prevention of Pollution of the Sea by Oil, 1954 was adopted with the prime objective of protecting the environment, and the Convention has made a significant contribution towards preserving the seas and coastal environment from pollution. Additional agreements were signed thereafter from the viewpoint of protecting the marine environment, including the following.

123. The scope of oil discharges into the sea which are regulated was enlarged to cover petroleum including crude oil, fuel oil, sludge oil refuse and refined products, and also all kinds of victual, domestic, and operational waste.

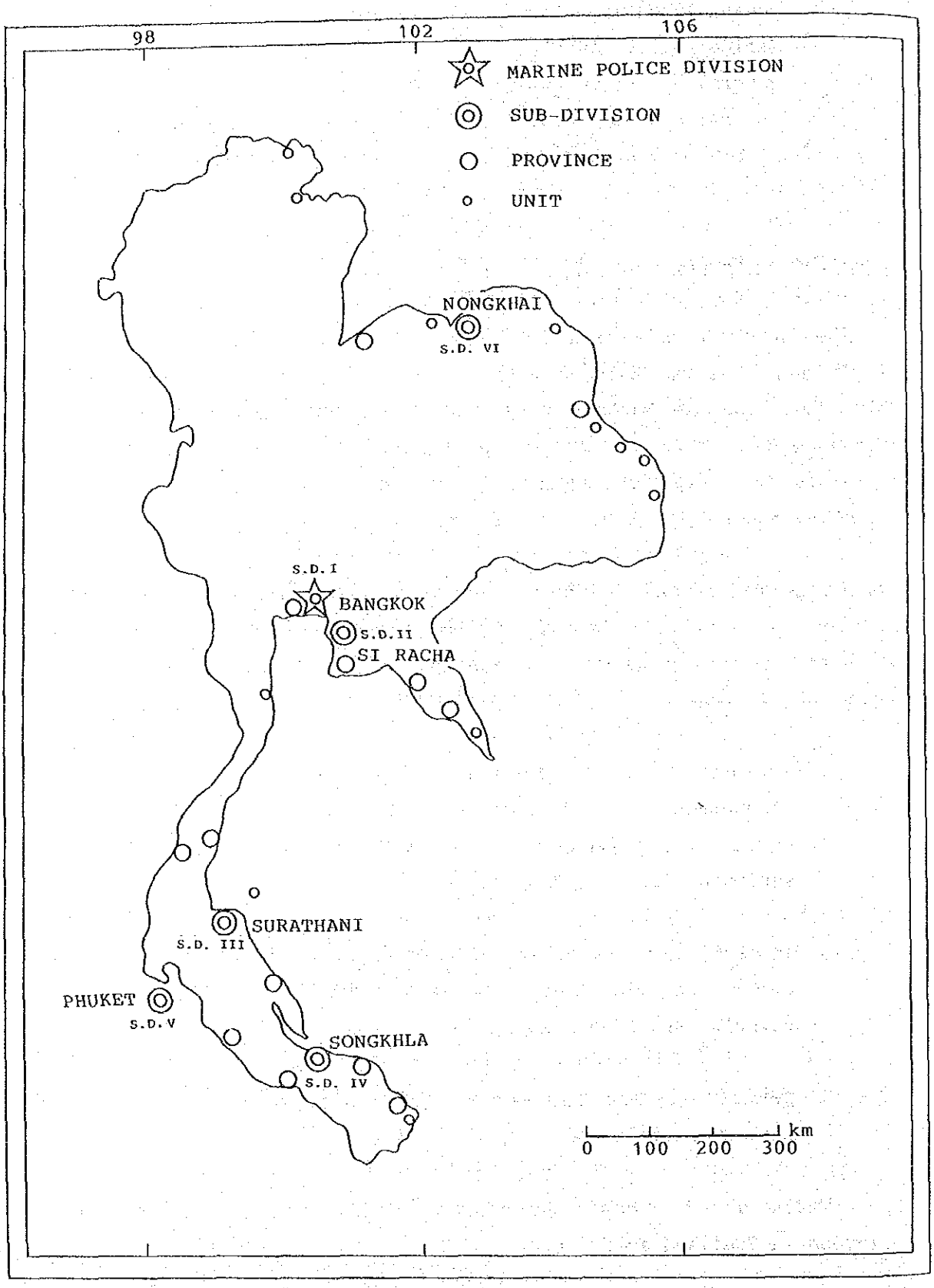
i) An obligation to provide bilge control equipment and a strengthening of the rules for providing water ballast control equipment, segregated ballast tanks and crude oil washing equipment for specified tankers

ii) International Oil Pollution Prevention Certification issued after survey in accordance with the provision of the regulations covering specific ships

iii) Regulation for the control of pollution by noxious liquid substances in bulk

124. There are two basic pollution control acts to prevent marine pollution in Thailand as follows:

Fig. 4.9 Location of Marine Police Offices



Source: Marine Police Division, HD

i) Navigation in Thai Waters Act, B.E. 2525 (1982)
   - To regulate all discharges into the sea of oil and waste from ships

ii) The Improvement and Conservation of National Environmental Quality Act, B.E. 2518 (1975)
   - To maintain national environmental standards; provides an appropriate plan for enforcement

As mentioned before, the exclusive purpose of the convention is the improvement of safety at sea and the prevention of marine pollution from ships. So more detailed and cooperative actions shall correspond to the Convention (Fig. 4.10).

125. As for the prevention of oil pollution, owners and operators of oil terminals at Bangkok Port express their opinion that an Environmental Pollution Control Committee should be set up consisting of related government officers and representatives of oil terminals to further improve the prevention and control of marine pollution from ships (See Table 4.17). It is definitely advisable to organize a cooperation system for the prevention of marine pollution and marine incidents as early as possible.

126. It might be effective for search and rescue and the prevention of marine pollution to be conducted more positively by the Government because these items are not limited to port areas.

127. In many other countries, the government takes full responsibility for traffic control. Thailand adopts the same system at present, but a standardized vessel traffic control system has not yet been instituted and, therefore, pilotage is managed by the Government directly to compensate for the lack of such a standardized system.

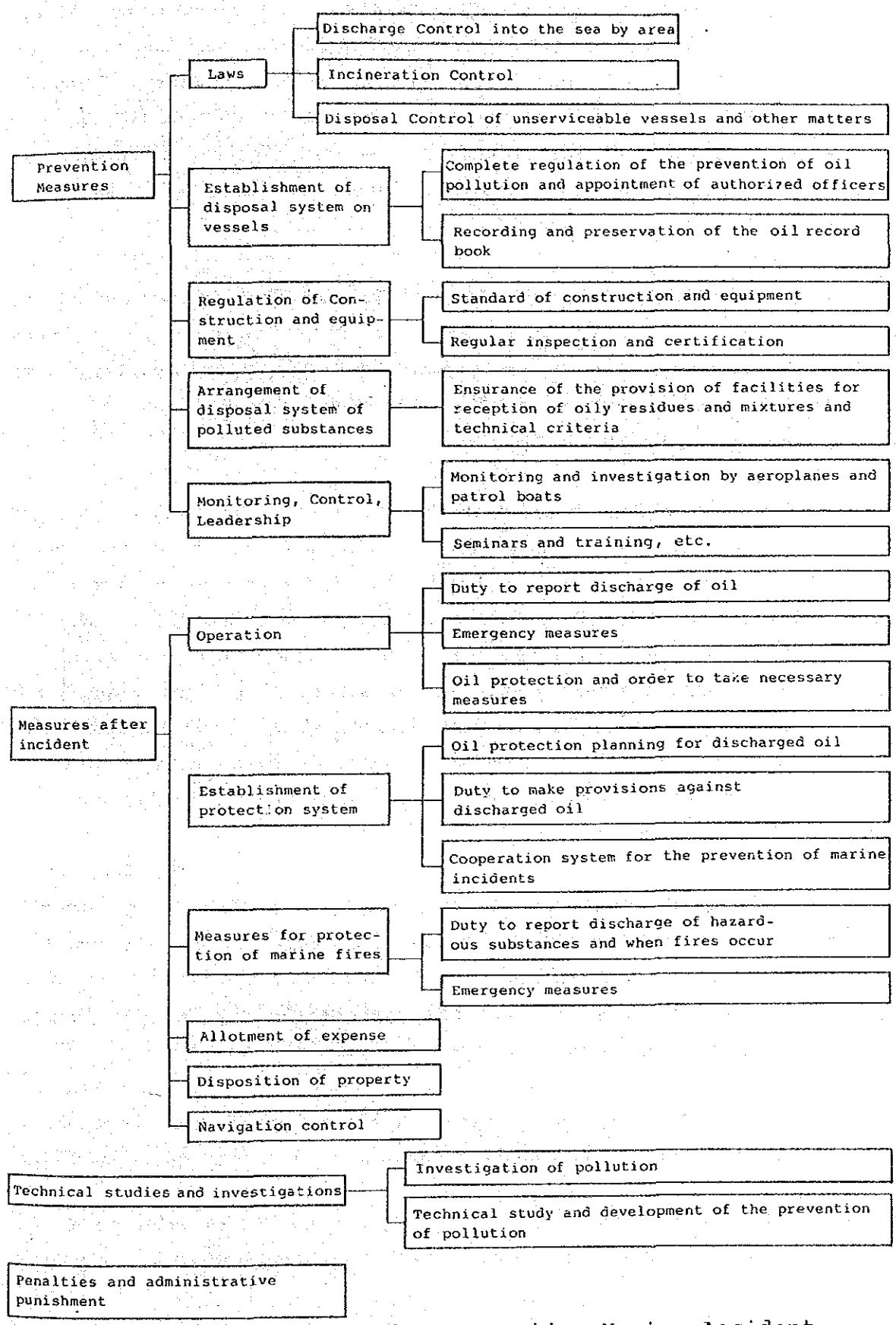
Port Police and Fire Fighting

128. The Police Department of MOI takes charge of port police and fire fighting in general. But their system is unique at Bangkok Port. PAT has

Table 4.17 Movement of Tankers and Protection Provisions for Tanker Operators

Tanker Operator	Esso Standard	Shell Company	North Eastern Oil	Bangkok Petroleum	Petroleum Authority	Siam Gas Inc.
1. No. of Calls per year	< 1,000 dwt 1,000 1,000 3,000 200 3,000 5,000 160 > 5,000 280	140 610 280 25	2 20 - 1	- 450 250 96	740 217 169 232	- 12 - -
2. Maximum size and draft	22,000dwt 26ft	n.a. 7 - 8 m	n.a.	20,000dwt 26ft	100,000dwt 40ft	4,220 dwt 6 m
3. No. and frequency of oil barges for transport	No	dwt barge month 101-300 2 3 301-500 1 2	No	> 1,000 6 66	> 1,000 82	No
4. Oil spill accidenst at oil jetty	No	No	No	1 Pipeline leakage	No	No
5. Tanks for oil ballast	4 tanks-23,000 bbs in Si Racha		No	No	No	No
6. Oil fence	Bangkok 30" x 500 ft 12" x 600 ft Si Racha 38" x 1,000 ft	25" x 660 ft		No	36" x 1,100 ft IESG 36" x 720 ft PFT	No
7. Chemicals for oil control (Unit : liter)	Bangkok COREXIT(9527) 6,800 COREXIT(9600) 1,000 Si Racha COREXIT(9527) 17,400 COREXIT(7664) 1,000	Shell Dispersant 200 " " 1,120		Chemical 7,000	Dispersant 9,600	Chemical and detergent 200
8. Fire brigade or fire fighting equipment	F.B. on each berth with 15 persons each	F.F.E and fighting team	No fire brigade	Fire brigade with skilled staff	Fire brigade with 8 persons	No fire brigade
9. Comments on the safe navigation of oil tankers	(1) Oil tankers should use low speed when sailing in the Chao Phraya River. (2) VHF communication is very busy, so it should be limited to only essential information of ship movements. (3) Control is required to ensure that HD regulations concerning lighter towage are strictly observed. (4) Ferries crossing the river do not always observe the Navigation in Thai Waters Act. (5) Safety check lists should be developed for oil tanker facilities. (6) A safe navigation of oil tankers committee and an environmental pollution control committee should be set up consisting of related government officers and oil terminal operators, and should promote their objectives effectively.					

Fig. 4.10 An Outline of the Measures to Prevent Marine Pollution and Marine Accidents



Source: Japan Association for Preventing Marine Accident

a division of Port Police which is responsible for the prevention and suppression of crimes, search and arrest of criminals, patrol around the port, and operation of the PAT fire brigade at Klong Toei Wharves. The Port Police are actually under the control of MOI, consist of proper officers of MOI and have the same authority as regular police, but PAT pays the salaries of the Port Policemen. The Security Centre, a division of PAT, conducts its business in cooperation with the Port Police to ensure the safety of persons and property at Klong Toei Wharves.

129. Fire prevention and fire fighting at Bangkok Port is carried out in accordance with the PAT Regulation on Fire Prevention and Fire Extinguishment Measures in PAT Areas B.E.2528 (1985). The Security Centre and the Port Police cooperate with each other for fire patrol, fire prevention and in putting out fires.

130. The PAT fire brigade situated at the west end of West Quay operated by the Port Police provides 24 hour fire fighting service within and nearby Klong Toei Wharves. When a fire breaks out there the Police Department also cooperates with the Port Police in putting out the fire. So, the local police, the Port Police and the Security Centre which has about 300 well-trained guards together guarantee the safety of calling vessels and cargo both day and night. Three fire engines stand by at the port fire brigade, and each shed is equipped with portable fire extinguishers and other fire fighting equipment. The tugboats moored near Shed No.1 are also used for fire fighting activities.

131. Out of many state enterprises, only the Electric Generating Authority of Thailand has a similar system for fire fighting. It has its own fire fighting unit to cope with smaller fires. In other state enterprises there is no specific fire brigade, and they contact the regular public fire brigade if a fire happens to break out.

132. The record of accidents and fires at Klong Toei Wharves is shown in Tables 4.18 and 4.19.

Table 4.18 Accidents and Fires at Bangkok Port

Year	1983	1984	1985	1986
Injured (No. of persons)	5	1	1	2
Killed (No. of persons)	-	-	1	7
Fires (No.)	4	2	2	3
Other accidents (No.)	18	8	10	4
Total	27	11	14	16

Source : PAT

Table 4.19 Record of Fires at Bangkok Port

Year	Ship	Date the Fire Occurred	Place
1972	ESSO CHITTAGONG	May. 6-8	-
1973	lighter	Sept. 3	Dolphin
1974	TREBARTHA	Mar. 12	Dol. 26-31
1974	lighter	Nov. 12	alongside the ship
1975	barge (for oil)	Oct. 24	opposite quays 6 & 7
1976	ZAANKERK	Oct. 15	East Quay
1977	-	-	-
1978	-	-	-
1979	-	-	-
1980	-	-	-
1981	KOTA GAJAH	Jul. 5	-
1982	HALLDORSTAR	Mar. 30	-
1983	BENGAL STAR	Jul. 23	-

Source : PAT

Security Service

133. In order to secure orderly port use and to ensure the safety of persons and property at Klong Toei Wharves and Sattahip Commercial Port, PAT provides 24 hour security service. At Klong Toei Wharves, this business is conducted in cooperation with the Port Police.

Water and Electricity Supply and Telephone Service

134. Water, electricity and telephone service are supplied in the city area by special state enterprises: Metropolitan Water Works Authority (MWWA),

Metropolitan Electricity Authority (MEA) and Telephone Organization of Thailand (TOT), respectively. PAT takes responsibility for laying pipes and cables and installing necessary equipment inside the port area. PAT buys water and electricity from MWWA and MEA and resells them to private users. Water charges are set at the same rate as that of MWWA, but electricity charges are fixed differently from the tariff of MEA. For the telephone service fees, users pay fees directly to TOT but PAT collects additional charges for the utilization of cables.

Cleaning of the Port Area

135. PAT is responsible for the cleaning of the Authority Area. The Sanitary Section of the Engineering Department takes charge of daily cleaning of every building, toilet, shed, warehouse, open storage and quay, but they do not clean the water area.

F. Customs Procedures

Official Procedures for Ship Entry and Exit

(1) Bangkok and Sattahip Commercial Ports

136. The procedures shown in Table 4.20 are similar to those at international trade ports all over the world. Namely, the master of a vessel or the shipping company or agent is required to contact the following five offices for approval for ship entry and exit from the port:

- o Port Authority
- o Harbour Master
- o Customs House
- o Quarantine
- o Immigration

(2) Phuket and Songkhla

137. The port procedures at these ports are more simple because there is no Port Authority or Harbour Master at these ports. In this regard, the Customs House fulfills the roles of Port Authority and Harbour Master at these ports. At the new terminal, these five offices including Quarantine and Immigration offices are expected to work independently (Table 4.21).

138. The following documents are required by PAT, Customs, Immigration, Quarantine, HD and OMPC upon vessel's arrival at Bangkok.

Customs	- 8	copies	Crew List
	6	"	General List
	6	"	Crew's Property List
	6	"	Store List
	6	"	Bonded Store List
	6	"	Foreign Currency List
	6	"	Engine and Deck Store Lists
Immigration	- 4	copies	Passenger List (Immigration form MT.3)
	4	"	Crew List (" " MT.4)
	2	"	Immigration form No.35
	2	"	Immigration form No.5

Table 4.20 Official Procedures For Ship Entry/Exit Bangkok and Sattahip Commercial Ports

SHIP MOVEMENT	PORT AUTHORITY	HARBOUR MASTER	CUSTOMS HOUSE	QUARANTINE	IMMIGRATION
TO SHIP ENTRY 10 DAYS PRIOR	A C • APPLICATION FOR VESSEL ETA BANGKOK FOR DIS-CHARGING/LOADING PURPOSE		• APPLICATION FOR VESSEL ETA BANGKOK FOR DIS-CHARGING/LOADING PURPOSE AND LAST PORT OF CALL		
7 DAYS PRIOR	A C • APPLYING BERTH APPLICATION				
72 HOURS PRIOR	• INFORMATION FROM MASTER THROUGH PAT RADIO	A C • APPLICATION FOR VESSEL ETA BANGKOK FOR DIS-CHARGING LOADING PURPOSE		A C • INFORMATION FROM MASTER THROUGH BANGKOK RADIO	
48 HOURS PRIOR	O • MEETING FOR ARRANGING VESSEL BERTHING				A C • APPLICATION FOR VESSEL ETA BANGKOK
24 HOURS PRIOR	A C • FINAL MEETING FOR ARRANGING VESSEL BERTHING O • APPLICATION FOR TUGBOAT, GODOWN AND DANGEROUS LIST • APPLICATION FOR SHIFT X • APPLICATION FOR ANCHORAGE	O • APPLICATION FOR ARRANGING PILOT BOARDING	O • APPLICATION FOR VESSEL BERTHING	O • APPLICATION FOR VESSEL BERTHING	O • APPLICATION FOR VESSEL BERTHING
ENTERING & MOORING AT BERTH	• ATTENDANCE ON BERTHING	• PILOT ATTENDING BANGKOK BAR FOR VESSEL RUN TO ALONGSIDE BERTH	• INSPECTION ON INWARD VESSEL • PRESENTING VARIOUS LIST USED FREE FORMS EACH SEVEN COPIES CREW LIST, PASSENGER LIST, CREW LIQUOR & TOBACCO LIST, FOREIGN CURRENCY, MEDICINE LIST, PERSONAL EFFECTS, STORES LIST, DECK ENGINE STORES LIST, PROVISION STORE LIST, TV, RADIO INSTALLED SALOON, ARMS, ANNUNITION, OPIUN, HARMFUL HABIT LIST, INWARD CARGO MANIFEST, THROUGH CARGO MANIFEST, PORT OF CALL BEFORE ARRIVE LIST	• INSPECTION ON INWARD VESSEL • PRESENTING DECLARATION OF HEALTH, CREW LIST, CONTAINER LIST VACCINATION LIST ISSUING OF FREE PRATIQUE IF REQUIRED	• INSPECTION ON INWARD SHIP • PRESENTING SPECIAL FORM TM35 (CREW SIGNATION) TM3 (PASSENGER LIST) TM4 (CREW LIST)
BERTHING & BEFORE SAILING	• MEETING AT PAT OF VESSEL SCHEDULE ON WORKING, SAILING • APPLICATION FOR AMENDMENT VESSEL SAILING & ARRANGE TUGBOAT	• APPLICATION FOR ARRANGING PILOT BOARDING ON SAILING AND MAKING HARBOUR OUTWARD CLEARANCE	• APPLICATION FOR VESSEL SAILING AND MAKING OUTWARD CLEARANCE		• APPLICATION FOR VESSEL SAILING
UNMOORING & SAILING	• PAYMENT OF CHANNEL DUE AFTER VESSEL SAILING & ATTENDANCE ON SAILING	• PILOT BOARDING ON SAILING	• INSPECTION BEFORE SAILING, AND PRESENTING OUT-WARD CARGO MANIFEST		• INSPECTION BEFORE SAILING

Remarks:–
A: Cont. Ship (Public)
B: Cont. Ship (Private)
C: Conv. Ship
O: All Ships
X: In case, it is requested or seems necessary
ETA: Expected Time of Arrival

Table 4.21 Official Procedures For Ship Entry/Exit
Songkhla and Phuket Ports

SHIP MOVEMENT	PORT AUTHORITY	HARBOUR MASTER	CUSTOMS HOUSE	QUARANTINE	IMMIGRATION
7DAYS PRIOR TO BERTHING			• APPLICATION FOR VESSEL ETA FOR DISCHARGING/ LOADING PURPOSE AND LAST PORT OF CALL		• APPLICATION FOR VESSEL ETA FOR DISCHARGING/ LOADING PURPOSE AND LAST PORT OF CALL
4 DAYS PRIOR				• INFORMATION FROM MASTER THROUGH BANGKOK RADIO	
24 HOURS PRIOR			• APPLICATION FOR VESSEL ANCHORE		• APPLICATION FOR VESSEL ANCHORE
ENTERING & MOORING AT ANCHORAGE			• INSPECTION ON INWARD VESSEL • PRESENTING VARIOUS LIST USED FREE FORMS EACH SEVEN COPIES CREW LIST, PASSENGER LIST, CREW LIQUOR & TOBACCO LIST, FOREIGN CURRENCY, MEDICINE LIST, PERSONAL EFFECTS, STORES LIST, DECK ENGINE SORE LIST, PROVISION STORE LIST, TV, RADIO INSTALLED SALOON, ARM, AMMUNITION, OPIUM, HARMFUL BABIT LIST, PORT OF CALL BEFORE ARRIVE LIST INWARD CARGO MANIFEST	• INSPECTION ON INWARD PRESENTING DECLARATION OF HEALTH, CREW LIST, VACCINATION LIST ISSURING OF FREE PRATQUE IF REQUIRED	• INSPECTION ON INWARD VESSEL • PRESENTING SPECIAL FORMS TM35 (CREW SIGNATION) TM3 (PASSENGER) TM4 (CREW LIST)
BERTHING & BEFORE SAILING			• APPLICATION FOR VESSEL SAILING AND MAKING OUTWARD CLEARANCE		• APPLICATION FOR VESSEL SAILING
SAILING		• APPLICATION FOR MAKING HARBOUR OUTWARD CLEARANCE (SONGKHLA)	• INSPECTION BEFORE SAILING AND PRESENTING OUTWARD CARGO MANIFEST • APPLICATION FOR MAKING HARBOUR OUTWARD CLEARANCE (PHUKET)		• INSPECTION BEFORE SAILING

Quarantine	- 1 copy	Ship's Crew List
	1 "	Vaccination List
	1 "	Maritime Declaration of Health
HD	- 1 copy each of the following:-	

General Declaration
Crew List
License Certificates of All Officers
Registration Certificate
Safety Equipment Certificate
Safety Radio Certificate
Port Clearance
Loadline Certificate
Derating Exemption Certificate
Construction Certificate

OMPC	- 1 copy	General Declaration

Cargo Manifest

Outward Cargo Manifest	-	Customs	5 copies
		OMPC	1 copy
Inward Cargo Manifest	-	PAT	5 copies
		Customs	5 copies
		OMPC	1 copy
Through Cargo Manifest	-	Customs	3 copies
Transit Cargo Manifest	-	PAT	10 copies
		Customs	5 copies

Import/Export of Break Bulk Cargo and Containers

139. Present documentation and procedures at Bangkok Port are grouped into four types as shown in Tables 4.22 - 4.25.

140. For import break bulk cargo, for example, consignees or their forwarding agents must carry out all the necessary procedures, making contact with related bodies such as PAT, shipping companies and agents, Customs and Quarantine so as to remove their cargo from the PAT Port Area in a timely manner. The consignees or their agents are inevitably forced to make the rounds of the concerned sections such as the Transit Shed Section and Revenues Section whenever they seek the necessary approvals for cargo removal. These formalities are time consuming. Further, the procedures exacerbate traffic congestion on main roads in the PAT Port Area because consignees and their agents use their private vehicles for this purpose.

Table 4.22 Documentation and Procedures - Import Break Bulk Cargo

Movement	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body
Ship's Arrival Commencement of Work Finish of Work	Shipping Agent	To submit Application for Vessel Entering the Port To submit · Cargo Manifest · Application for Discharging · Application for Labor Arrangement To submit Dangerous Cargo List To submit Delivery Order in exchange for Bill of Lading	Berth Committee of PAT Transit Shed Section of PAT Stevedoring Control Section of PAT Consignee or Forwarding Agent	To allocate Berth & Transit Shed	Shipping Agent		
	Stevedoring Company	To submit · Application for Stevedore Working · Cargo Stowage Plan · Heavy Cargo List	Stevedoring Control Selection				
	Consignee or Forwarding Agent	To submit · Application for Overside	Customs	To approve Overside	Consignee or Forwarding Agent	To arrange Lighter, Tallyman Laborer in Lighter	Lighter Operator and Stevedoring Company
	Shipping Agent	To submit Cargo Manifest	Customs				
	Stevedoring Company	To submit · Stevedore Daily Report · Daily Discharging & Loading Report To submit · Overside Cargo List · Hatch Cover Handling Report To pay Stevedore Admission Fee	Stevedoring Control Section Stevedore Control Section Revenues Section of PAT				
	Chief Officer of Ship	To sign · Receipt for Cargo · Short and Overland Cargo List · Damage Cargo List · Tally Sheet for Unpacked Motor Car To sign Delivery Order of Lighter (Bote Note)	Transit Shed Section Consignee or Forwarding Agent	To submit for approval	Customs		
	Transit Shed Section	To interchange Tally Sheet	Shipping Agent				
	Consignee or Forwarding Agent	To declare Import Entry To submit Delivery Order To apply for Import Animal and Plant Inspection To pay Landing Charge, Handling Charge and Rent	Customs Transit Shed Section Quarantine Office Revenues Section	To approve Import Entry and issue · Customs Delivery Order · Customs Pass for Gate Post To issue Statement of Weight & Measurement and Survey Note To stamp on Delivery Order	Consignee or Forwarding Agent Consignee or Forwarding Agent	To submit Statement of Weight & Measurement	Weight & Measurement Inspection Section of PAT
Bring-out of Cargo	Transit Shed Section	To issue Wharf Receipt, Cargo Slip for Gate Post	Consignee or Forwarding Agent	To request Truck	ETO in PAT Area		

Table 4.23 Documentation and Procedures - Export Break Bulk Cargo (From Lighter)

Movement	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body
Ship's Arrival Commencement & Work	Shipping Agent	To sumbit Application for Vessel Entering the Port To submit Dangenous Cargo List	Berth Committee of PAT Stevedoring Control Section of PAT	To allocate Berth	Shipping Agent		
	Shipper or Forwarding Agent	To declare Export Entry	Customers	To approve Export Entry	Shipper or Forwarding Agent		
	Stevedoring Company	To submit Application for Stevedoring Working	Stevedoring Control Section				
	Shipper or Forwarding Agent	To arrange Ligher, Tallyman, Labores in Lighter	Lighter Operator & Stevedoring Company				
	Shipping Agent	To submit Cargo Manifest	Customs				
	Stevedoring Company	To submit · Stevedore Daily Report · Daily Discharging & Loading Report	Stevedore Control Section				
Finish of Work	Shipping Agent (Tallying Company)	To make · Stowage Plan · Loading List · Hatch Summary · Dangerous Cargo List · Exception List	Ship and Shipping Company				
	Stevedoring Company	To pay Stevedore Admission Fee	Revenues Section of PAT				
	Chief Officer of Ship	To sign Mate's Receipt	Shipper or Forwarding Agent	To submit Export Entry & Mate's Receipt for Verification	Customs		

Table 4.24 Documentation and Procedures - Import Containers

Movement	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body
Ship's Arrival Commencement of Work	Shipping Agent	[LCL] To submit Application for Vessel Entering Port To submit · Import Container List · Cargo Manifest · Application for Discharging & Unstuffing · Application for Labor Arrangement To submit Dangerous Cargo Lirt To issue Delivery Order in exhange for Bill of Lading To submit Application for Opening Container	Berth Committe of PAT Transit Shed Section of PAT and Container Control Section of PAT Stevedoring Control Section of PAT Consignee or Forwarding Agent Customs	To allocate Berth and Transit Shed (CFS) To provide Tally Clerk	Shipping Agent Shipping Agent		
	Stevedoring Company	To submit · Application for Stevedore Working · Cargo Stowage Plan	Stevedoring Control Section				
	Shipping Agent	To submit · Cargo Manifest · Import Container List	Customs				
Finish of Work	Stevedoring Company	To submit · Stevedore Daily Report · Daily Discharging & Loarding Report To submit · Report of Container After Finishing Work · Hatch Cover Hardling Report To pay Stevedore Admission Fee	Stevedoring Control Section Stevedoring Control Section Revenues Section of PAT				
	Chief Officer of Ship	To sign Bote Note	Shipping Agent				
	Transit Shed Section	To interchange Tally Sheet To issue · Receipt for Cargo · Short and Overland Cargo List · Damage Cargo List To submit the above documents for approval	Shipping Agent Shipping Agent Customs				
	Shipping Agent	To submit Empty Container List	Transit Shed Section Container Control Section and Container Section I or II of PAT				
	Consignee or Forwarding Agent	To declare Import Entry To submit Delivery Order To apply for Import Animal and Plant Inspection To pay Landing Charge, Handling Charge and Rent	Customs Transit Shed Section Quarantine Office Revenues Section	To approve Import Entry and Issue · Customs Delivery Order · Customs Pass for Gate Post To issue Statement of Weight & Measurement and Survey Note To stamp on Delivery Order	Consignee or Forwarding Agent Consignee or Forwarding Agent Consignee or Forwarding Agent	To submit Statement of Weight & Measurement	Weight & Measurement Inspection Section of PAT
	Shipping Agent	To pay Handling Charge, Rent	Revenues Section				
Bring-out of Cargo	Transit Shed Section	To issue Wharf Receipt, Cargo Slip for Gate Post	Consignee or Forwarding Agent	To request Truck	ETO in PAT Area		
	Shipping Agent	[FCL] To submit Application for External Inspection To submit Permission to Remove Container from the Port	Customs Corresponding Section of Bangkok Port				
	Consignee or Forwarding Agent	To submit Delivery Order and Import Entry To request Trailer	Shipping Agent ETO in PAT Area				
	Shipping Agent	To issue Equipment Interchange Receipt	Consignee or Forwarding Agent				

Table 4.25 Documentation and Procedures - Export Containers

Movement	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body	Documentation & Procedures	Related Body
Ship's Arrival Commencement of Work	Shipping Agent	[LCL, FCL] To submit Application for Vessel Entering the Port To submit · Export Container List · Application for Loading and Stuffing · Application for Labour Arrangement	Berth Committee of PAT Container Section I or II of PAT	To allocate Berth To provide Tally Clerk	Shipping Agent Shipping Agent	To make Booking List	
	Shipper or Forwarding Agent	To declare Export Entry To submit Permission to Bring Cargo into PAT for Export Stuffing To pay Quay Dues and Handling Charge	Customs Container Section I or II and Container Control Section of PAT Revenues Section of PAT	To approve Export Entry	Shipping Agent	To submit Packing List	Revenues Section of PAT
	Stevedoring Company	To submit Application for Stevedore Working	Stevedoring Control Section				
	Shipping Agent	[FCL] To submit Request to Take Container Outside Port To submit Permission to Pass Gate Port To submit Container Form 8, Request for Permission to Bring Container into PAT	Container Section I or II and Container Control Section Customs Container Section I or II and Container Control Section	To issue Cargo Slip To issue Customs Pass	Shipping Agent Shipping Agent		
	Shipper or Forwarding Agent	To request Trailer To submit Export Entry, Dock Receipt, Container Load Plan, Declaration of Dangerous Goods	ETO or Private Transporter Shipping Agent	To issue Equipment Interchange Receipt	Shipper or Forwarding Agent		
	Shipping Agent	To submit Container Form 10b, Request for Direct Receiving from Outside [LCL, FCL] To submit Container Form 10a, Request for Loading onto Ship To make · Stowage Plan · Dangerous Cargo List · Reefer Cargo List · Special Cargo List · Terminal Departure Report To submit Container Loading List	Container Section I or II and Container Control Section Container Section I or II and Container Control Section Ship and Shipping Company Container Control Section				
Finish of Work	Chief Officer of Ship	To sign Dock Receipt	Shipping Agent				
	Stevedoring Company	To submit Report of Container after Finishing Work	Stevedoring Control Section				
	Shipping Agent	To submit Cargo Manifest and Final Loaded Report To pay Handling Charge and Rent	Customs Revenues Section				

141. It might be advisable for PAT to allow consignees and agents to contact the authorities by telephone. This would tremendously reduce unnecessary vehicle movement within the Port Area. Of course, the telephone system should be permitted for all the four types of procedures.

Customs for Cargoes

(1) General

142. Goods may be imported and exported upon completing customs procedures and paying duties, if any. However, goods which are obscene, dangerous to life or health, or harmful to the national economy may be prohibited from import or export altogether. Certain goods may be placed under restriction where prior government permission must be sought before such goods can be imported or exported.

143. The import tariff is based upon the Brussels tariff nomenclature and is first classified into 21 major sections according to similarities in character, origin, or use. Each section consists of one or more chapters where imports are further classified. There are altogether 99 chapters starting from Chapter 1 (live animals) to Chapter 99 (art objects and antiques). Both specific and ad valorem rates are prescribed. The export tariff comprises only seven items: rice, iron scrap, raw hide, rubber, wood, raw silk, and powdered fish. The Customs Tariff Decree also contains a section on goods exempted from duty.

144. In addition to customs duties, business tax is payable on many imports and exports and foreign trade transactions are subject to provisions of the exchange control law and various licensing requirements.

145. Of national governmental revenues in 1985, import and export duties account for 19.8% (import duties 19.1% and export duties 0.7%). Other major sources for revenues are selective sales taxes (23.4%), income taxes (21.9%) and business taxes (18.4%).

(2) Tariff Rates

146. There are many occasions when the tariff rates actually applied to imports and exports differ from those specified in the Customs Tariff Schedule, for tariff rates are recognized as one of the most powerful instruments of adjustment in international trade and other economic policies. As for Thailand, the following are the salient features of how tariff rates can be changed, and the situations under which special tariff rates are applied:

i) Basically, the tariff rates as specified in the Customs Tariff Decree, B.E. 2503 (1960) can be increased, reduced, or otherwise adjusted only by Royal Decree.

ii) However, the law also provides that, for the sake of national economy or public welfare, the Minister of Finance, with the approval of the Cabinet, is empowered to reduce, by notification, up to 100% of the specified tariff rates.

iii) Similarly, when it appears to the MOF that imported goods have been subsidized by any country or person by any means other than the drawback or compensation of duties and/or taxes, and that the subsidy causes or may cause damages to national agriculture or industries, the Minister of Finance with the approval of the Cabinet is empowered to levy, by notification, a special duty upon the goods at the rate he thinks fit in addition to normal import duty, but the rate of this special duty must not be over the amount of subsidy that the Minister of Finance believes has been given to the goods. This provision is normally known as an anti-dumping measure.

iv) There are other laws which are not customs laws but have the power to alter some provisions of customs laws including various exceptions to the obligation to pay duties on imported goods. The most notable are the exceptions provided in the Investment Promotion Act, B.E. 2520 (1977), the Petroleum Act, B.E. 2514 (1971), and the Industrial Estate Authority of

Thailand Act, B.E. 2522 (1979).

Value for Customs Purposes

147. The definition of value for customs purposes is "the wholesale cash price exclusive of duty, for which goods of a like kind and quality are capable of being sold without loss at the time and place of importation or exportation, as the case may be, without any deduction or abatement." Generally, value is based on the CIF price for imports and the FOB price excluding duty for exports. "Wholesale price" is taken to mean the landed price as described above. The term "of a like kind and quality" admits of suitable adjustment where exact comparison is impossible. When no comparison is possible, the particular transaction is considered on its merits. Cash and trade discount, which are normal in the ordinary course of trade, are allowed. The term "without any deduction or abatement" means without any special, extraordinary deduction.

148. The first step to determine the value of goods consists of an examination of the entry form and supporting documents. Insurance and freight must be added when the unit price is based upon FOB terms. An importer should submit all relevant documents together with his entry form, and should obtain any further information requested by the customs officers. As a matter of practice, values on entry forms are often compared with standard values of similar goods in the customs officers records.

(3) Customs Formalities for Import

149. The clearance process is similar whether the imports arrive by sea, air or land. Generally, the practice resembles that found in most other countries for items arriving by sea. However, under the advanced entry system, the import entry and supporting documents may be filed and processed at any time prior to the arrival of the goods.

150. When a shipment of imported goods arrives at a port or a customs station whether by sea, land, air, or mail, the master of the ship or

ship's agents or operator of whatever means of transportation must submit the cargo manifest and other necessary documents such as passenger list, lists of weapons, provisions, and so on to the competent officer within 24 hours after the arrival. At the port or customs station, the goods may be removed from the ship and stored in a landing godown or a warehouse for later inspection.

151. Meanwhile, the importer must prepare to file an import entry with the competent officer in order to obtain the release of such goods. An entry form with all necessary information concerning the shipment of imported goods such as name of vessel, date of arrival, port of embarkation, name of importer and address, marks, numbers and description of goods, quantities, weights, country of origin, country of purchase and value of the goods, is to be accompanied by appropriate documents, such as:

i) Bill of Lading
ii) Invoice
iii) Packing List
iv) Import Declaration
v) Exchange Control Form (E.C. Form 21 issued under the Exchange Control Act)
vi) Import Permit (in the case of restricted goods)
vii) Other documents that may be required such as Certificate of Origin. If the goods are subject to the business tax, the importer is required to have a business tax registration number. In the case of certain goods, an import license is also required.

152. After processing these papers and after the arrival of the vessel within the port limits, the importer must pay the duties and business tax. In those cases in which total duties have not been determined, or where urgent clearance is warranted, a deposit may be paid. Payment can be made by cheque only if it is a bank cheque, or if certain other conditions have been met. Otherwise, payment must be made in cash. Upon payment, documents are rechecked and stamped.

153. These documents are then taken to the warehouse where they are presented to the Inspector, who will order the goods prepared for customs

examination. On the average, one-tenth of the packages are opened for examination, although the ratio may be higher or lower depending on relevant circumstances. A report of the examination is entered on the entry form and if any discrepancy appears, the goods will be retained until additional duty is paid or placed on deposit or a fine is paid, as the case may require.

154. PAT then collects its landing and storage charges which are based on the measurement or gross weight of packages. After paying these charges, the importer submits his receipts, release order, or delivery order, and receives a wharf receipt. With this receipt he can claim the imported goods. A Customs Officer's Order is issued to the Checking Post Officer for final checking at the exit gate of Customs fence.

155. When the goods are of a type which do not permit inspection at the docks, appropriate arrangements can be made with the Customs Department to have the goods delivered directly to the importer's premises where they can be inspected after having been unpacked or installed.

156. If goods are not cleared within two months they are liable to forfeiture upon 15 days notice. Forfeiture can often be avoided by paying either a deposit or a sum equal to highest duty chargeable on the goods. This procedure may also be adopted where clearance is delayed owing to a dispute as to the correct duty payable or for any reason. Moreover, the Director General may accept guarantees from MOF or from a bank subject to such conditions as he deems necessary. Interest may be charged on any duty which is assessed but unpaid within the prescribed period.

157. To compute time for customs purposes, goods are deemed to have been imported when the ship carrying the cargo actually comes within the limits of the port of discharge or consignment.

(4) "Overside" and "Discharge into Lighter"

158. "Overside" refers to the method of unloading into a lighter goods that are easy to inspect such as bulk cargo, for example, fertilizer, etc. There are no written laws or regulations concerning "Overside" but the

practice exists whereby the importer files a petition with the Customs Department requesting permission to unload by "Overside".

159. All documents concerning the import entry must be supplied and a guarantee deposit covering the possible duties as assessed by the official must be made. If all documents are in order, the official will check the goods in the lighter to see if they conform. If everything is in order, the lighter is given permission to land the goods.

160. "Discharge into Lighter" refers to the method of unloading into a lighter goods which are intended to be checked at a factory. There is no limit on the types of goods that may use this method.
There are no written laws or regulations concerning " Discharge into Lighter" but the practice exists whereby the importer files two petitions, i) similar to "Overside" and ii) for checking the goods at the factory. All documents and guarantee deposits are similar to "Overside". If the petitions are approved, the goods will be checked first superficially on discharge into the lighter and then fully at the factory. The goods must remain under seal until checked and then only the designated officials (at least two) at the designated time may check the goods.

(5) Advance Entry System

161. An advance entry system is in force in Thailand. The entry form, documents and a copy of the bill of lading can be submitted at any time prior to the arrival of the goods. The customs officers check the entry form against the bill of lading instead of the ship's manifest. The amount of the duty to be paid can be approved if the customs officers are satisfied with the documentation. If there are problems, a deposit equal to the amount of duty as determined by the customs officers may be required. The duty is paid or a deposit is made only after the arrival of the vessel. If a deposit is paid or there are other problems, settlement will be made by specialists in the Customs Department after clearance of the goods. The advance entry system has proved very successful and allows time to settle most problems prior to the arrival of the goods.

(6) Bonded Warehouse

162. The importer can store his imported goods for up to one year in a specially authorized warehouse without having to pay import duty first, provided that the import entry is filed within 10 days after the goods arrive and the goods are moved to the warehouse within 15 days after the entry is approved. This warehouse is called a bonded warehouse and most goods can be kept there except duty-paid goods, goods on which security deposits have already been made, or goods which such a warehouse is not authorized to keep. At present, there is only one such warehouse in Thailand; Bonded Warehouse No.1 located at Klong Toei Wharves.

163. By virtue of NEC Announcement No.359 of 13th December B.E. 2515(1972), the Director General of the Customs Department is empowered to approve the establishment of two other types of bonded warehouses. These are duty-free shops where goods are stored and sold for the purpose of exportation, and manufacturing factories where imported goods are stored and used in the process of producing, mixing with or assembling into other goods mainly for export.

164. As for the bonded warehouse of the manufacturing plant type, the plan and the capacity of the plant must be submitted for approval first, a certain amount of bank guarantee is required, a certain fee is paid each year, and formulas for mixing, assembling, or manufacturing the product of the factory must be given to the Director General for the purpose of assessing the portion of tax exempted. In practice, the Department of Customs may send a customs officer to keep control over the raw materials imported and the finished products at the bonded factory.

(7) Customs Formalities for Export

165. For the most part, customs formalities for export are similar to those for import. Apart from the seven groups of commodities mentioned earlier and goods not listed under governmental prohibitions and restrictions, all other exported goods are exempted from export duty. However, some may be subject to non-export tariffs such as business and local taxes and special surcharges.

In brief, the customs procedures for exports are:

i) To check to see whether export is under prohibition or restriction. If under restriction, prior permission must be sought from the appropriate authority before the goods can be exported.

ii) To obtain the exchange control form -E.C. Form 61- endorsed by an authorized commercial bank where the exporter will receive the payment for the goods when they have been exported.

iii) To file an export entry with the customs officer together with necessary supporting documents such as an export permit and the export control form mentioned above, and to pay export duty as well as business and local taxes, if any, or make the necessary security cash deposit.

iv) When the export entry is approved, the exporter can proceed to load his goods on board a ship.

(8) Business Tax

166. A business tax is payable on most categories of imported goods and some categories of exported goods. The same exemptions which apply to customs duties on goods to be re-exported apply also to the business tax. In the case of imports, the business tax is administered by the Customs Department rather than by the Revenue Department.

167. In order to calculate the business tax on imported goods, the value of the goods plus the duty is multiplied by a certain percentage to obtain a "standard profit". The business tax is usually paid on the sum of the landed value, duty and standard profit except for cars, alcoholic drinks, cigarettes and certain other items for which a different basis is used. For exported goods, the business tax is calculated by reference to the FOB value of goods on the date of dispatch at the point of export exclusive of export duty.

Customs Duties for Containers

168. Customs Tariff Decree B.E. 2503 (1960) as amended exempts containers from customs duties. The rules require that for an exemption from duties the importers or agents must guarantee by posting cash or a bank guarantee that the containers will be re-exported within 3 months from the time of import. Extension of the period of re-export may be approved on a monthly basis up to a maximum of three times. These rules are detailed in Customs Notifications Nos. 9/2514, 4/2521 and 9/2522.

G. Government Policy for Privatization

Definition of Privatization

169. Usage of the term "privatization" varies considerably. It embraces a wide range of means by which the state sector is exposed to market forces. Privatization covers a wide spectrum of different policies currently being pursued by governments around the world affecting state enterprises, government-owned activities and governments themselves. The ultimate goal of most privatization schemes is to incorporate some private sector management discipline, particularly competition and efficiency. At its most simple level, privatization represents the introduction of competition or competitive forces into the public sector by relaxing some government controls. At the other end of the spectrum, privatization means the transfer of assets from government-owned enterprises to private companies or investors.

170. Privatization may also refer to the formation of subsidiary companies or separate company entities using the assets owned by state enterprises. It may entail the development of new joint ventures between state enterprises and the private sector, with some combination of private and public shareholding in the new ventures. This is certainly the case with the new petrochemical industries in Thailand. It may also entail the provision of public services under contract from private companies where these services have previously been supplied directly by state enterprises.

171. Upon reviewing current literature on privatization, two distinct concepts can be identified. The first concept consists of those elements of public policy which expose publicly-owned enterprises to competition, otherwise known as "liberalization". This means the promotion of competition with state enterprises which previously enjoyed a statutory monopoly or were otherwise protected from competition. An example is the liberalization of coach transport in Thailand where private bus services can now provide a variety of inter-urban and intra-urban services. The state enterprise in this field is still operating, but private competition has been introduced.

172. The second concept consists of the transfer of ownership from the public to the private sector, by offering a variety of financial incentives to potential private investors. Joint ventures between public and private sector firms are in an intermediate position. Transfers of ownership may be advocated on the grounds that they increase efficiency. Organizations which are accountable to private shareholders may be under greater pressure to reduce costs. Asset sales also realize government revenue as a partial substitute for taxation.

173. Privatization is one of the major elements in the Thai Government's economic and financial management strategies in the Sixth National Economic and Social Development Plan. This is likely to affect those state enterprises which have become candidates because of their inefficiency, losses, size, importance, or tendency toward monopoly.

Government Policy for Privatization

174. Following is a summary of the State Enterprises Development Program under the Sixth National Economic and Social Development Plan.

175. It is necessary that state enterprises operate more efficiently. State enterprises must be administered in a businesslike manner to be able to compete and become self-supporting. All this is to lessen the government's financial burden and is an important factor in improving the competitive status of the country in economics and trade in the future. Therefore, the State Enterprises Development Program contains the following important policies:

i) To seriously reduce the cost of production to increase income and to achieve self-support so as to reduce subsidies and loans.

ii) To adjust the prices of goods and services of some state enterprises to create self-support.

iii) State enterprises must adjust their investment plans to have an appropriate debt-service ratio and must increase the proportion of investments using their own income.

iv) To decrease or to eliminate loan guarantees for state enterprises so as to encourage investments only in projects with a high return acceptable to the funding sources.

v) To reduce the role of industrial state enterprises or other types of state enterprises which provide basic services so that the private sector can operate better by letting the private sector jointly invest, rent, or receive partial or total transfer.

vi) As for some new main industries that require government participation in the initial stages, usually activities which need high investment capital and technology, state enterprises may invest in such industries during a set time period.

vii) To proceed to transform ineffective state enterprises.

viii) To maintain total or partial government control in certain types of state enterprises which generate income or those which provide social services.

ix) To improve the efficiency of the state enterprise administration system by having a central organization administering at the policy level and the ministries in charge of administration at the implementation level.

Past Performance for Privatization - Cabinet Resolutions

176. In the Cabinet Resolution dated October 18, 1983, the Royal Thai Government approved in principle five measures to resolve the problems concerning inefficiency and losses in state enterprises as follows:

i) To replace the management team
ii) To establish a corporate plan
iii) To improve marketing policy
iv) To allow the private sector to participate in state enterprtises as shareholders or management officials
v) To sell state enterprises

177. To follow up this Resolution, the Cabinet resolved on January 3, 1984 further as follows:

i) The Cabinet acknowledged the report of NESDB concerning the operating and financial status of state enterprises.

ii) The Cabinet designated all ministries controlling state enterprises to follow the Cabinet Resolution dated October 18, 1983.

iii) The Cabinet designated the National Administrative Revolution Committee to consider the establishment of a central organization which will take charge of all state enterprises.

In accordance with the above-mentioned Resolution, each state enterprise has set up a corporate plan. PAT, for instance, established its corporate plan covering the five year period from 1985 to 1989.

Trial at Sattahip Commercial Port

178. In March 1985 and February 1986 PAT invited private firms to participate in the investment and operation of Sattahip Commercial Port under a modified turnkey method. The conditions set forth in the announcement of February 24, 1986 include, among other things, the following:

i) PAT would allow a private company to rent four berths including an area of 190,000 m^2 behind the docks, two rail gantry cranes with 45 tons and 23.5 tons capacity respectively and six

buildings for 10 years.

ii) The applicant should be a juridical person with paid-up capital of not less than Baht 50 million. It must have an objective to operate a commercial port and experience in such an operation of not less than five consecutive years.

179. On that occasion six groups of companies were prequalified and were asked to submit proposals, as follows:

i)	Thai companies	2
ii)	Joint venture of Thai and Singapore companies	1
iii)	Dutch company	1
iv)	U.K. company	1
v)	Philippine company	1

180. This was the first step towards privatization of deep sea port operation, although this project was suspended later due to many restrictions imposed on Sattahip Commercial Port in the naval area.

Appraisal of the Effort for Privatization of Port Operations

181. There are two major reasons why the trial for privatization at Sattahip Commercial Port did not succeed. First, the conditions themselves were unfavorable for private applicants although this was at any rate inevitable because of the stringent naval restrictions. Moreover, the Government and PAT confined the possible private sector participation to only the modified turnkey method without pursuing other possibilities.

182. Indeed there may be other possible methods applicable to the privatization of operations at Sattahip Commercial Port. For instance, either leasing of completed facilities or allowing private firms to conduct longshoring work would be more suitable because these methods could ease the financial burden of participants arising from the limitation of the leasing term. Although it is not certain that these alternative methods could have led the trial to success, some lessons may be learned from the failure of the privatization at Sattahip Commercial Port.

183. In order to promote privatization of port operations effectively, the government and the port management bodies have to choose the best options from a wide variety of methods, and for this purpose the Government and port management bodies should consider the advantages, disadvantages and potential of each method carefully. Our proposed guidelines on this issue are presented in Section B of Chapter V.

V. Framework for Port Management

A. Functions of the Port Management Body

1. Ports are characterized as essential infrastructures for trade activities, and serve as the junction between water and land transportation. Various activities take place at ports which directly or indirectly affect ship and cargo flow (Fig. 5.1). These activities are primarily conducted by terminal operators.

2. A terminal is a functional unit including various facilities such as quays, transit sheds, open storage areas, etc. which are necessary for providing ship service and handling cargoes. Some terminal operators construct their own facilities, while other operators rent these facilities, usually on a long-term basis.

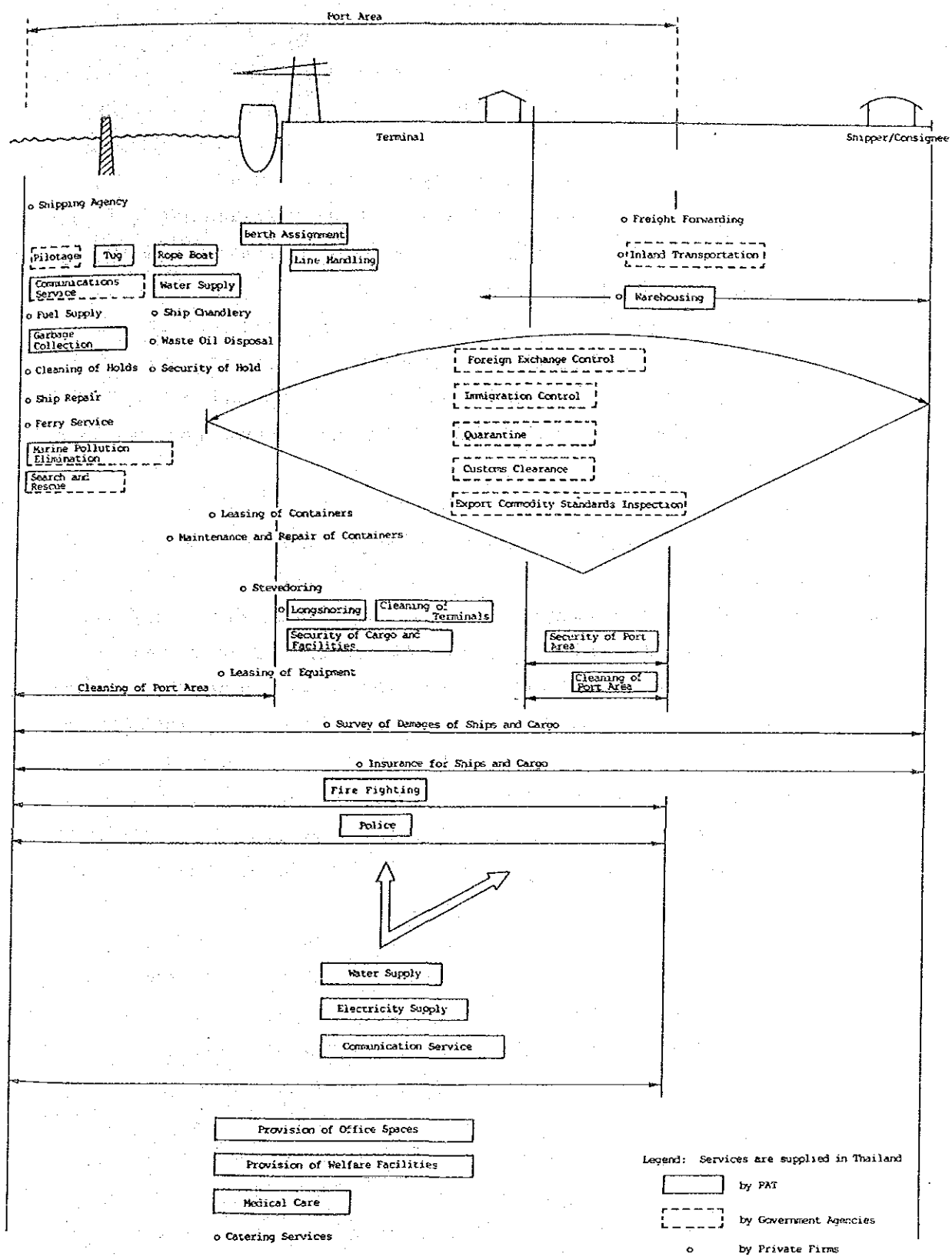
3. However, at many ports, particularly those ports with multiple terminals, entities other than terminal operators take charge of the provision and maintenance of certain facilities and services such as navigation channels, pilotage, tug and security services, fire fighting, etc. These facilities and services are generally used by all the users of the various terminals.

4. In addition to the primary services required for ship and cargo handling, ports usually include a wide variety of other activities carried out by the public and private sectors including customs, quarantine, immigration, police activities, and so forth. These activities are also crucial to the overall functioning of the port, and proper areas must be provided for these activities at each port.

5. The duties of the port management body include to oversee the overall activities which are carried out by various other bodies at the port, to ensure safe and efficient operations, and to promote the orderly growth of the port. In this context, the primary responsibility for port planning generally rests with the port management body.

6. The duties of the port management body can be summarized as follows:

Fig. 5.1 Activities at a Port



i) Maintenance and utilization of own facilities

ii) Control of traffic within the port

iii) Provision of services for vessels such as pilot, tug, search and rescue, etc.

iv) Coordination among individual terminal operations

v) Supervision and control of terminal operations and other commercial activities

vi) Port sales activities

vii) Restriction of the disorderly use of land and water areas in and nearby the port

viii) Drafting and implementing their own port development plans

7. However, the scope of business of the port management body differs greatly according to the historical and socioeconomic background. For example, port management bodies in some countries directly conduct terminal operations, and the kind of services which the port management body directly provides varies from port to port (e.g., some port management bodies conduct tug service directly but others do not). In the case of PAT, it executes not only port management business but also longshoring, and does not conduct pilotage, search and rescue and harbor master services.

B. Privatization of Port Activities

Effects of Privatization

8. One of the major goals of the present policy of the Thai Government is to promote the privatization of government-owned activities and state enterprises when their performance is inefficient. Privatization is generally understood to be effective through the introduction of competition and businesslike administration. In the case of the port sector, PAT has maintained a positive financial condition since its foundation, but many problems have arisen as analyzed in Chapter IV including operational inefficiency, monopolistic business practices, etc. This is the reason why the Study Team suggests that it will be effective to allow the private sector to participate in port activities in Thailand.

9. There are two ways for privatization: i) to allow private companies to participate in business fields where the public sector presently maintains a monopoly (the introduction of competition) and ii) to transfer partial or complete ownership of existing assets from the public sector. If a state enterprise conducts its business as a monopoly, the mere transfer of assets to the private sector may not be so effective as this may simply result in the transfer of the monopolistic power to the private sector.

10. Under free competition, private firms may be able to provide services better than public sector entities because of the following reasons:

i) Private companies conduct their businesses aiming at profit maximization and, if they fail to win the competition, they have to go bankrupt. Therefore, their market research is generally superior and their decision making process quicker, resulting in improved operational efficiency and flexibility.

ii) On the other hand, public sector entities are obliged to conduct business to a greater or lesser degree emphasizing fairness and evenness to all users, and therefore decisions on business issue

tend to take more time, resulting in lower operational efficiency and flexibility.

11. Although private companies have the disadvantage that they may not always operate in the public interest, their superior market research ability and efficiency and flexibility of business execution are worth utilizing. Methods, advantages, disadvantages and possibilities of the privatization of port activities are analyzed below separately for terminal operation and individual service supply in this Section and for the port management in Section D of this Chapter.

Form of Terminal Operation

12. The most efficient terminal operation system is determined by the kinds of berths and ships, the receiving and delivery system of cargo and also the volume of cargo per user or user group as summarized in Table 5.1.

13. A conventional berth functions as a distribution center of commodities and serves liner vessels. In this case the shipping company receives cargo from shippers and delivers to consignees at shipside and the shipping company is not so keen on docking at a specified berth regularly. Accordingly, the "first come, first served" principle is appropriate for ships under this system.

14. As for a container terminal, a terminal operator on behalf of a shipping company must take responsibility for storing and sorting cargo at the CY and CFS during the time between discharging from a ship and delivering to consignees or receiving from shippers and loading onto a ship. If the cargo volume is big enough for a shipping company or group to use one terminal, exclusive use of a terminal by it or them may be appropriate because it can be said to be the best way from the viewpoint of providing better services to customers and eventually minimizing the total transportation cost including ship, terminal and operation costs. In this case, a shipping company (or group) rents (or sometimes owns) the terminal. This type of operation includes the case where a leading company may realize sufficient cargo volume by permitting sub-users.

Table 5.1 Expected Private Participants in Terminal Operation

Kind of Berths	Kind of Ships	Cargo Receipt and Delivery System *1	Function of Terminals	Cargo Volume Per User *2	Applicable Form of Berth Usage	Appropriate Terminal Operation System	Expected Private Participants *3
Conventional Berth	Liner Vessels	at Shipside	Distribution Center		First Come, First Served with/without Preferential Use	LAQ	Terminal Operator B
						LUP	Stevedores, Longshoremen, etc.
Container Berth	Liner Vessels	at CY or CFS	Distribution Center	Big enough for one Terminal	Exclusive Use	LAQ	Shipping Company Terminal Operator A
				Not Big enough for one Terminal	First Come, First Served with/without Preferential Use	LAQ	Terminal Operator B
						LUP	Stevedores, Longshoremen, etc.
Special Berth	Tramper Vessels	at Shipside	Distribution Center	Big enough for one Terminal	Exclusive Use	LAQ	Shipper, Consignee Terminal Operator C
				Not Big enough for one Terminal	First Come, First Served with/without Preferential Use	LAQ	Terminal Operator B
						LUP	Stevedores, Longshoremen, etc.
			Part of Plant		Exclusive Use	LAQ	Factory

Note: *1. The place where a shipping company receives cargo from shippers and delivers to consignees is shown in this column.
*2. The user means a shipping company or group at a container berth, and a shipper or a consignee or group at a special berth.
*3. Terminal Operator A conducts his business as a representative of a shipping company or group, Terminal Operator C as representative of a shipper or a consignee or group, and Terminal Operator B conducts his business independently of specific shipping company or shipper or consignee or group.

15. If the cargo volume is not enough for one terminal, the "first come, first served" principle is applicable with some exceptions that preferential berthing may be implemented to users with a high frequency of ship calls and a constant and regular cargo volume. In this case, careful and strong control over the terminal operator, which is generally independent of any specific shipping company, would be necessary to maintain fair usage of the terminal. All these operation systems are regarded as the Lease-a-quay (LAQ) system.

16. Under the LAQ system, the port management body simply builds the facilities and then leases them out to a single user or to a consortium on an annual basis or on a longer-term lease with reversionary clauses.

17. Normally the rent would be quite independent of the extent to which the facilities are used, although there may be a clause in the lease agreement to allow for use intensity. Under the LAQ system any form of exclusive or preferential or "first come, first served" berth usage is applicable.

18. The License-to-use-the-port (LUP) system is another possible terminal utilization system under the "first come, first served" form of berth usage. LUP is generally given to shippers or to a well-defined group who exercise control over most of the shipping operations or to stevedoring and handling companies who offer their services to their own customer shipping companies.

19. One advantage of the LUP system is that the port is assured of fixed users and can expect the effective use of the facilities. The advantage of LUP to stevedoring companies is that they offer services under a competitive situation. However, this system may cause managerial difficulties, especially for allocating space in the yard.

20. Specialized berths such as agri-bulk, timber, and iron and steel berths are commonly required to be equipped with special handling, sorting and storage facilities. Not shipping companies but shippers, consignees and their representatives have interest in regularly using these specific berths, because such kinds of cargoes are generally transported by tramper

vessels and their operators receive cargo from shippers and deliver to consignees at shipside.

21. As far as these terminals function for the distribution of commodities, their form of berth usage and terminal operation system would be basically the same as those of container terminals. The difference is only that a shipper or consignee or group sometimes owns or rents an exclusive-use terminal in this case. But, if these berths function as a part of a plant, they should be managed and operated by the factory itself or by its contractors, and exclusive-use by use contract is the most suitable management style.

Privatization Methods of Terminal Operation

22. It is generally understood that there are four alternatives for privatization of terminal operation.

23. The LAQ system includes three possible alternatives as follows:

(1) Turnkey Method

This method requires the private operators to undertake the entire development project, including the construction of all the infrastructure and superstructure and the procurement of cargo handling equipment. This implies that the private operators concerned obtain a plot of land (or seabed) and quay for port facility development to suit their commercial operation, subject to the conditions imposed by the port management body.

(2) Modified Turnkey Method

This method involves some development of the facilities by the port management body. Sharing of responsibilities and cost in the development should be set on a case by case basis. Some examples are presented in Table 5.2.

Although the ownership of facilities, especially of those constructed by private firms, will be discussed later, the facilities constructed by the port management body, excluding

public-use facilities, are leased out to a private firm for operation. The Ministry of Communications (MOC) and the Port Authority of Thailand (PAT) attempted to implement this method at Sattahip Commercial Port.

(3) Leasing of Completed Facilities
With this method the port management body provides all the infrastructure, superstructure and cargo handling equipment and leases them out.

24. Under the LUP system, the port management body constructs all the infrastructure and superstructure. The port management body as a terminal operator allows many private firms to conduct cargo handling business including stevedoring and longshoring instead of conducting such activities directly.

Table 5.2 Responsibilities and Cost Sharing Patterns under Modified Turnkey Method

Case	Port Management Body	Private Firm
1	Construction of all the infrastructure and superstructure	Procurement of cargo handling equipment
2	Construction of all the infrastructure	Construction of the superstructure and procurement of cargo handling equipment
3	Construction of some of the infrastructure	Construction of some of the infrastructure and all the superstructure, and procurement of cargo handling equipment
4	Bearing some percentage of the total construction and procurement cost	Bearing some percentage of the total construction and procurement cost

Private firms bear the cost of equipment procurement and rent the necessary space for cargo sorting and storage only for the required period of the cargo handling operation. The Study Team calls this the "participation method".

Advantages and Disadvantages of Each Method

25. The advantages and disadvantages of each privatization method are considered below:

(1) Planning, Design and Construction

The turnkey method has the advantage that the private firm can develop facilities to suit its intended operation subject only to certain restrictions imposed by the port management body. But, on the contrary, considerable pre-planning and supervision in the construction stage by the port management body are required to avoid unnecessary slippage. Design of facilities and equipment under other methods may not necessarily suit the intended operation of the private firm.

(2) Financial Burden

The turnkey method under which the private firm must bear all the investment and operating cost puts the severest strain on its finances, followed by the modified turnkey and leasing of completed facilities methods and finally by the participation method. On the contrary, the financial burden of the port management body is lightest under the turnkey method and heaviest under the participation method.

(3) Port Management Body Control

It may be said in principle that the control of the port management body over the operation of the private firm grows stronger in proportion to the financial burden of the public sector.

(4) Public Use and Utilization Efficiency of Facilities

The degree of public usage of facilities mostly depends on the berth

usage form of the terminals. It is highest at terminals managed under the "first come, first served" principle. In contrast, exclusive-use terminals offer a lower degree of public usage, but such terminals, especially for container ships and cargo, are more advantageous in minimizing the total transportation cost (which consists of the port terminal expenses and the ship operating cost) due to the reduction of waiting time and efficient terminal operations.

26. Above all, the following points are important for the choice of the appropriate privatization method:

i) Suitability of the facilities

ii) The government and/or port management body policy on public use

iii) Capability of cost bearing and technical performance of the private firm

27. However, it is difficult to set a general guideline on the capability of private firms because this is affected by various factors like investment scale, criterion of cost sharing, business condition of the private firm, necessary technique, etc.

Privatization Possibility of the Terminal Operation

28. If the terminals in the Study are leased out under the LAQ system, the modified turnkey method would be most suitable in general because of the following reasons:

i) The lessee's investment in the facilities is smaller than in the case of the turnkey method.

ii) The equipment procured by the lessor under the leasing of completed facilities method may not necessarily suit the intended operation of the lessee.

iii) Operation equipment is more easily used for other purposes during idle time.

iv) From the viewpoint of lightening the financial burden imposed on the lessee, the economic merit of the lease is not large for equipment with a shorter depreciation period.

v) It is reasonable for the lessee to bring equipment already in its possession to a new terminal and to procure only missing equipment and minor immovable properties at its own expense in line with the operation plan.

29. The objects of the lease under the modified turnkey method are usually limited to immovable properties and some large movable properties (gantry cranes, etc.) even when the port management body bears the heaviest financial burden. The lessee should procure at its own expense the other movable properties like smaller operation equipment. However, when the financial burden on the lessee is considered to be heavy especially in the start-up period, it would be helpful and effective for the lessor to procure even such movable properties in accordance with the intended operation scheme of the lessee under the leasing of completed facilities method. If the financial burden of private firms is still heavy even in this case and/or private companies have insufficient experience or knowledge of terminal operation, the possibility of privatization will be limited to the participation method.

Financial Analysis of the Terminal Operation

30. The following financial analysis is conducted to appraise the financial viability of a private firm to engage in terminal operation under the modified turnkey method. The assumptions are shown in Appendix II. To calculate the total expenditure in the base case, the cost for public-use facilities is allocated to each terminal as a part of the rent.

Incentives

31. In order to lessen the heavy financial burden especially in the beginning years the following incentives are considered. Among them items i), iii), iv), v) and vii) are based on government assistance, which is fundamentally justified on the basis of the port development policy discussed in Chapter III.

(1) Reduction of Terminal Rent

i) The exemption of interest on the local cost financing for the lessor

ii) Reduction of terminal rent in proportion to the cargo volume

iii) Absolute reduction of the terminal rent by excluding the cost for the public-use facilities (dredging, breakwater, revetment, navigation aids, roads, etc.)

iv) Absolute reduction of the terminal rent by excluding the rent of land

v) Absolute reduction of the terminal rent by excluding the local financing cost itself

(2) Low Interest Loans

vi) Loans with a lower interest rate might be obtained from the export credit facility system in an export country for the purchase of operation equipment from that country.

(3) Similar Incentives to Those Given by the Board of Investment (BOI)

vii) It is recommended that the port and terminal operation including loading and discharging of cargo at international ports is to be included in the "List of Activities Eligible for Promotion" compiled by BOI. Then such an operator could enjoy various incentives including among other things the following:

- o Exemption of corporate income taxes from 3 to 8 years with permission to carry forward losses and deduct them as expenses for up to 5 years after the expiration of such an exemption

period

- o Exemption of up to 5 years on withholding tax on goodwill, royalties or fees remitted abroad
- o Exclusion of dividends derived from promoted enterprises from taxable income during the income tax holiday
- o Exemption or reductions of import duties and business taxes on imported machinery

Financial Forecast for the Terminal Operation

32. A financial forecast for the operation of each terminal (base case) is given in Table 5.3 with only the incentive mentioned in (1) i) of Paragraph 31 above, which would exempt the interest on the local cost financing from the terminal rent calculation. In this forecast, the prospective operator would not be able to sustain heavy losses except in the operation of the Laem Chabang container and tapioca terminals and Map Ta Phut agri/mineral terminal.

33. Therefore, sensitivity analysis is made with the addition of incentives as follows:

Reduction of terminal rent by excluding the cost for the public-use facilities, but including the maintenance and repair cost for the public-use facilities.

As shown in Table 5.4 even the results of the sensitivity analysis are not very good for the operation of the Laem Chabang break bulk and coastal shipping terminals and Songkhla and Phuket Ports. The profitability in the fifth year of operation in each case is compared in Table 5.5. The fifth year would be appropriate timing to check the profitability, considering the usual practice of operational forecast made by private companies. The detailed financial forecast for terminals is tabulated in Appendix II.

Present Status of Potential Operators

34. At the suggestion of MOC, the Study Team forwarded a questionnaire to 22 firms through MOC and received a reply from 13 firms as shown in Table

Table 5.3 Financial Forecast for Terminal Operation -- Base Case

(Unit: 1,000 Baht unless otherwise specified)

Port Terminal	Laem Chabang Container Terminal	Laem Chabang Break Bulk Terminal	Laem Chabang Coastal Shipping Terminal	Laem Chabang Tapioca Terminal	Laem Chabang Sugar/Molasses Terminal	Map Ta Phut Agri/Mineral Terminal	Songkhla 3 berths	Phuket 2 berths
Total Project Cost	1,762,446	1,334,927	854,255	801,535	697,223	2,446,753	2,214,872	813,322
Projected Cargo Volume in the 5th Year	20' Container 40,500 units 40' Container 17,250 units CFS 75,000 t	Rice Export 194,000 t Steel Import 96,000 t Other Import 18,000 t	Outward 91,700 t Inward 275,000 t	Tapioca Export 1,300,000 t	Sugar Export 550,000 t Molasses Export 230,000 t	Tapioca Export 607,000 t Grain Export 400,000 t Potash Export 1,250,000 t General Cargo Export 137,500 t General Cargo Import 137,500 t	Container 64,000 TEU CFS 10,600 t Bulk Export 173,000 t Bulk Import 50,000 t	Container 14,000 TEU CFS 1,400 t Bulk Export 185,000 t Coke Bulk Import 8,000 t Other Bulk Import 16,000 t
Operating Revenue in the 5th Year	112,650	25,748	20,198	45,500	32,150	120,714	62,623	19,919
Rent	65,276	49,442	31,639	29,686	25,823	90,620	82,032	30,123
Operating Cost in the 5th Year	102,031	79,976	55,652	50,535	42,471	120,717	121,445	55,132
Operating Profit in the 5th Year	10,619	-54,228	-35,454	-5,035	-10,321	-3	-58,822	-35,213
Income after Tax in the 5th Year	1,572	-74,088	-48,497	1,030	-7,317	4,052	-76,957	-47,822
Income after Tax in the 26th Year	69,716	-677,453	-473,902	4,731	12,881	5,967	-617,047	-465,875
Long-Term Loan Balance in the 1st Year	135,371	36,767	38,099	162,771	126,703	36,951	89,487	47,940