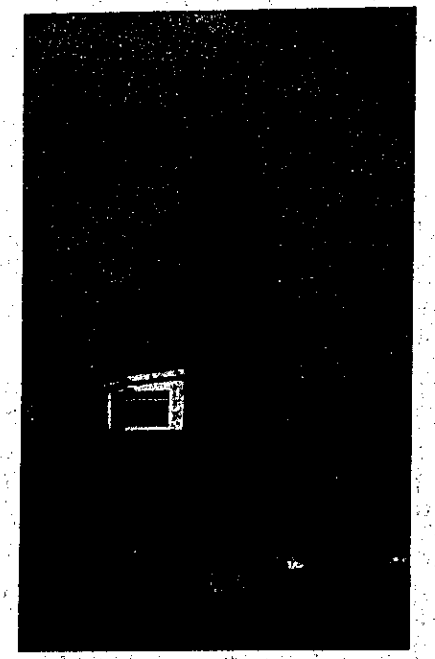
THE KINGDOM OF THAILAND

EFFECTIVE PORTS MANAGEMENT AND OPERATION SYSTEM STUDY



PROGRESS REPORT II

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JAPAN INTERNATIONAL COOPERATION AGENCY

TABLE OF CONTENTS

Table List

Figure List

ABBREVIATION

ADB	The Asian Development Bank
ASEAN	The Association of Southeast Asian Nations
B	Baht
CFS	Container Freight Station
CKD	Car Knock Down
CY	Container Yard
DWT	Dead Weight Tonnage
ETO	The Express Transport Organization of Thailand
FCL	Full Container Load
HD	The Harbour Department of the Ministry of Communications
IBRD	The International Bank for Reconstruction and Development
IEAT	The Industrial Estates Authority of Thailand
IMO	The International Maritime Organization
LCL	Less than Container Load
MOC	The Ministry of Communications
MOI	The Ministry of Interior
Navigation Act	The Navigation in Thai Waters Act, its Amendment Acts and the Ammouncement of the National Executive Council No. 50
NEC 281	The Announcement of the National Executive Council No. 281 or the Alien Business Law
NESDB	The National Economic and Social Development Board
OECF	The Overseas Economic Cooperation Fund
OESB	The Office of the Eastern Seaboard Committee
OPS	The Office of the Permanent Secretary of the Ministry of Communications
PAT	The Port Authority of Thailand
PAT Act	The Port Authority of Thailand Act
$	U.S. Dollars
SRT	The State Railway of Thailand
TEU	Twenty Foot Equivalent Unit

the U.K.	The United Kingdom
the U.S.	The United States of America
¥	Yen

I. INTRODUCTION

1. The objectives of the Study on Effective Ports Management and Operation System in the Kingdom of Thailand are summarized as follows: i) to analyze the present situation of ports in Thailand; ii) to formulate the fundamental concepts of the port development policy; iii) to establish the fundamental framework for port administration; iv) to prepare the principles for the management and operation of the deep-sea ports; v) to recommend management and operation systems for Laem Chabang Port, Map Ta Phut Port, Songkhla Port and Phuket Port; and vi) to comment on the present management and operation systems of the existing deep-sea ports.

2. Following Progress Report I, which was submitted to the Thai Government in December 1986 and covered items i) and ii) of the study objectives enumerated in Paragraph 1 above, the Study Team presents analyses on item iii) in this Progress Report II.

3. There are many kinds of business conducted by various bodies in ports. Table 1.1 lists those activities which are indispensable in every port throughout the world. The body responsible for each business, however, differs greatly by port according to the historical background of the port and the social, economic, industrial and administrative setting of the region and the nation. These bodies responsible for these works can be broadly classified into three groups: government, port management bodies and private sector firms.

4. Through a careful review of the present division of responsibilities for port-related business, appraisal of actual performance, and reference to foreign ports, the Study Team formulates and proposes an idea of the appropriate administrative framework for the Thai ports. It is needless to say that

due consideration is paid to the government's policy on privatization and also to the intentions and capabilities of private companies.

5. Four major subjects are discussed in the following chapters: the fundamental role of the government in Chapter III, the role and business of port management bodies in Chapter IV, the financial system in Chapter V, and the privatization of port operations in Chapter VI.

Table 1.1 List of Businesses Conducted in Ports

I. Port Development

1. Planning the port development
2. Fund raising for the port development
3. Construction and acquisition of port facilities and equipment
4. Control of disorderly private development

II. Port Management

1. Preservation of Maritime Safety

(1) Navigation control
- i) Construction and maintenance of navigation channels
- ii) Installation and maintenance of navigation aids
- iii) Pilotage
- iv) Tug service
- v) Marine communications
- vi) Traffic control

(2) Search and rescue
(3) Prevention of marine pollution

2. Preservation of Port Safety

(1) Port police
(2) Port fire fighting
(3) Security service

3. Management of the Port Facilities

(1) Use of the port facilities
(2) Maintenance of the port facilities

4. Trade Control

(1) Foreign exchange control
(2) Restriction on trade
(3) Collection of dues on exports and imports
(4) Control of bonded areas
(5) Control of smuggling
(6) Quarantine for persons, plants and animals
(7) Immigration control

5. Control of the Private Sector

(1) Restriction of and assistance to the private sector
(2) Training of sailors, cargo handling laborers and equipment operators

III. Port Operation

1. Maritime Transportation

(1) Main business
  i) Ship operation

(2) Supporting business
  i) Shipping agency
  ii) Ferry service

iii) Ship chandling
iv) Ship repair

2. Cargo Handling

(1) Main business

i) Freight Forwarding
ii) Stevedoring
iii) Longshoring

(2) Supporting business

i) Tallying
ii) Measurement
iii) Surveying
iv) Customs clearance
v) Leasing of cargo handling equipment
vi) Maintenance and repair of containers and cargo handling equipment
vii) Warehousing

3. Inland Transportation

(1) Vehicle transport
(2) Rail transport
(3) Barge transport

4. Other Services

(1) Water supply
(2) Electricity supply
(3) Fuel supply
(4) Telephone service
(5) Insurance on ships and cargo
(6) Cleaning of holds and port area
(7) Catering service

II. PORT ADMINSTRATION SYSTEM

A. Roles of Ports

Main Characteristics of Ports

1. Ports have many characteristics which are similar to or distinct from those of another traffic facilities such as highways, railways, airports and so on. The similarity mostly comes from the essential nature of traffic facilities, namely, they all contribute to the promotion of economic activity through supporting and securing mobility of cargo and passegers. On the other hand, ports are distinct from other traffic facilities in the following points.

i) Ports are major transportation nodes for overseas trade.
ii) Ports greatly affect regional development.
iii) Ports require sophisticated management.
iv) Ports require a vast amount of investment in advance.
v) Ports benefit every individuals indirectly.

These conceptions will be very useful and important to advance our study.

Gateways to Foreign Countries

2. There are three alternative transportation mode for foreign trade: land, air and maritime transportation. Land transportation plays a minor role in Thai foreign trade considering the small volume of trade with neighbouring countries and the big volume of trade with such distant

partners as countries in Europe, the U.S., and Japan. Air transportation can be utilized for the trade with distant countries, but is not suitable for massive transportation as the cost is too high. Air transport is only suitable for certain commodities which can bear high transportation costs and require rapid transportation. Maritime transportation is best suited for ordinary trade because of its capability of massive transport to/from far-off trade partners on lower freight.

3. As gateways to foreign countries, ports are important i) for the import of the necessities of life and the materials for industries, and ii) for the export of many kind of products to obtain foreign currency and to promote the domestic industry. If a nation neglects to develop ports to accommodate modern carriers, she must use some ports under the control of other nations and entrust her major traderoutes to foreign concerns. Even though the international situation is presently stable, ports also have strategic value as there is always a possibility that foreign trade routes might be interrupted accidentally or intentionally. Thus it is said that a major port within the national territory of a country is the best possible guarantee of economic and even political independence. Deep-sea ports in Thailand are presently utilized as feeder ports. However, full-scale ports where mother vessels can accommodate would be required in order not only to secure national security but also to effectively achieve the governmental strategic policy for the promotion of export-oriented industialization. Direct call of mother vessels at the Thai ports would make it possible to lower both import and export prices through the reduction of ship operation and cargo handling cost, resulting in improved competitiveness on the international market. Even for feeder service, using larger size vessels than those calling at Bangkok Port today may have the same effects.

Effects on Regional Development

4. The magnitude of effects on regional development brought by ports is outstanding compared with other various transport infrastructures. As ports provide their individual hinterland with easy accessibility to water transportation, not only port transportation industriers and their supporting service suppliers but also littoral industries tend to locate around ports. This agglomeration of such kinds of industries in areas close to ports also encourages the development of other service sectors like finance, commerce, catering, dispensary, communications, etc. (the multiplier effect).
This regional development is a real and tangible economic benefit of port development projects, but is difficult to measure and does not directly generate revenue for the port. Therefore, in many nations, ports are considered as essential infrastructures which support the regional economies rather than considered as profit-making entities which must support themselves financially per se, and accordingly ports are supported with tax revenues which make up for the inefficiencies of the market mechanism.

Necessity of Sophisticated Management

5. There is no such other transport infrastructures as ports where many kinds of business are conducted. As shown in Table 1.1, many types of services must be offered daily for vessels during navigating, anchoring and mooring, and for cargo and passengers during handling, storing and transporting. Therefore, ports can only function efficiently through close cooperation and smooth coordination among various businesses concerned. The sohpisticated and continuous management of whole services is necessary and important in the case of ports.

Investment in Advance

6. Transport facilities generally have the special feature of indivisibility of investment which means that at least certain kinds and quantity of facilities have to be developed at once. This character makes it difficlut to invest continuously little by little to cope with marginal increase of demand. As for port construction, especially in the case of new port, it is more expensive because of the necessity of vast investment, in supporting facilities. For example, without necessary breakwaters a quay can not function safely and efficiently due to lack of protection, and without adequately prepared access roads and bridges, cargo cannot be transported between the quays and the hinterland. Thus, not only facilities directly used by vessels and cargo but also supporting facilities like breakwaters, basins and revetments must be constructed and completed at the same time. At the primary stage of port development favorable sites can be chosen so as to limit costs, but at the next stage, new port construction tends to require more investment, because the remaining sites are usually not so advantageous.

7. Major port facilities generally have a physical lifetime of 30 ~ 100 years, and once they are completed it is difficult and expensive to change their functions or capacity. Moreover, the development must take place in advance to cope with the rapidly changing demands for services in terms of both quality and quantity in a timely fashion. Therefore, deep consideration and accurate forecast on future demands are especially required to make an adequate development and investment plan.

Hidden Beneficiaries of Ports

8. As far as cargo transportation is concerned, the beneficiaries of ports seem to be limited only to relevant service suppliers such as ship operators, cargo handlers and

land transporters. However, actual beneficiaries furthermore include shippers and consignees because service suppliers conduct their business being entrusted by them. Specified service suppliers contribute to realize efficient utilization of ports with their special assets, requisit knowledge and experience, and nationals can enjoy price price reduction of goods and market expansion through transport cost reduction. Thus, ports apportion their benefit to all the nationals, even though the direct users are limited only to specific kinds of service supplier. Ports make it possible to encourage the economic growth through this process.

B. Port Administration System in Thailand

Port Administration

9. Ports essentially require port administration for themselves, because of:

i) Their importance is national development and secutity,
ii) Preferentially occupying limited and publicly used water areas and coast/bank lines,
iii) Being required fair management strictly based on public interest.

Objects of the port administration may be dividied into two fields as i) to develop and manage physical structures of ports, and ii) to control activities of vessels, cargo, passengers, transporters and others concerning ports. To carry out them, three means are adopted generally as i) to decide policy including assignment of organizations, enactment and planning, ii) to supervise or control port related bodies and activities and iii) to act or supply services by oneself.
Critical review of the present administration in Thailand is given below.

Classification of Existing Ports

10. The Port Authority of Thailand Act (PAT Act) actually consists of the original Act B.E.2494 (1951) and three amendments (No.2 to No.4). The Act gives no clear definition of port, but PAT's main object is defined as management and development of ports in the interest of the state and the public, and the Authority Area that means the port area is defined as the area of land and water which is under the control and maintenance of PAT which shall be determined by a Royal Decree. Within the Authority Area, the Board of Commissioners of PAT shall have the power and duty to fix the rates of various dues and charges and also the Authority shall have the power to control that whoever violates or fails to comply with the Ministerial Regulations concerning the control, development and provision of facilities, and safety to port undertakings and navigation shall be punished with fine. The Ministerial Regulations require the registration of any person wishing to conduct the business of loading or unloading and also wishing to load or unload cargo into or from foreign-going vessels, namely, stevedoring contractor and stevedore man, and provide some controls over stevedoring by PAT. At present, these regulations are applied only for the port areas of PAT.

11. The Navigation in Thai Waters Act B.E. 2456 (1913) amended by ten Amendment Acts and the Announcement of the National Executive Council No. 50 (collectively referred to as the Navigation Act) legislates water transportation. This Act aims to secure safe water traffic and provides rules and procedures concerning such items as the following:

i) Rules of navigation and anchorage
ii) Control of utilization of water area
iii) Quarantine
iv) Pilotage
v) Certification of seamen and vessels

12. In the Navigation Act, four limits of the harbors and

anchorages are specified, all of which are off-shore of the central region: Harbours of Bangkok and Koh Sichang and Anchorages of Anghin and the Bar. Within these limits, some additional controls by the Harbor Department (HD) of the Ministry of Communications (MOC) are provided to secure vessel safety because of the greater traffic and the larger size of vessels.

13. Though the clear classification of port is not legally provided as mentioned above, the Thai ports are usually classified into two groups: deep-sea ports and coastal or inland ports. Deep-sea ports are sometimes called international ports and, in the same way, coastal and inland ports are reffered to as domestic ports.

14. Among the international ports, Bangkok Port and Sattahip Commercial Port are managed by PAT. Four additional ports are being planned or constructed: Laem Chabang and Map Ta Phut on the Eastern Seaboard and Phuket and Songkhla in southern Thailand.

15. Thailand has an estimated 30 shallow draft coastal ports spread along the Siam Gulf, the east coast and the west coast of the Peninsula. Many long navigable waterways stretch inland, and more than 100 terminals and a number of minor loading points are constructed along these waterways. Most of these are privately owned and operated, usually for handling only a single commodity.

Present System in Thailand

16. MOC is responsible for fundamental policy and plan making of the transport sector including ports, and realizes them through its own departments and through supervising transport enterprises as shown in Fig. 2.1 and 2.2.

Fig. 2.1 Summary Organization Chart of the Ministry of Communications

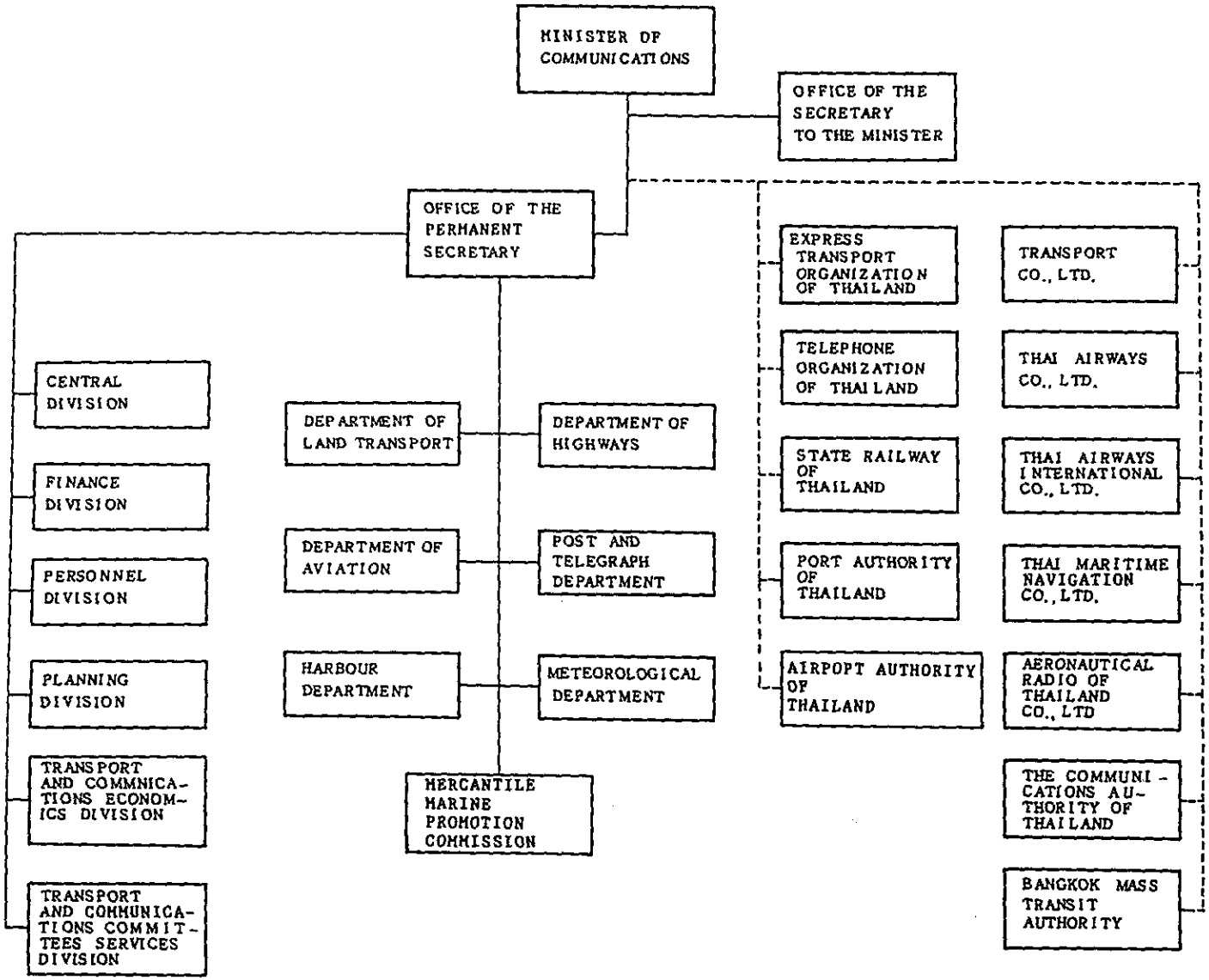
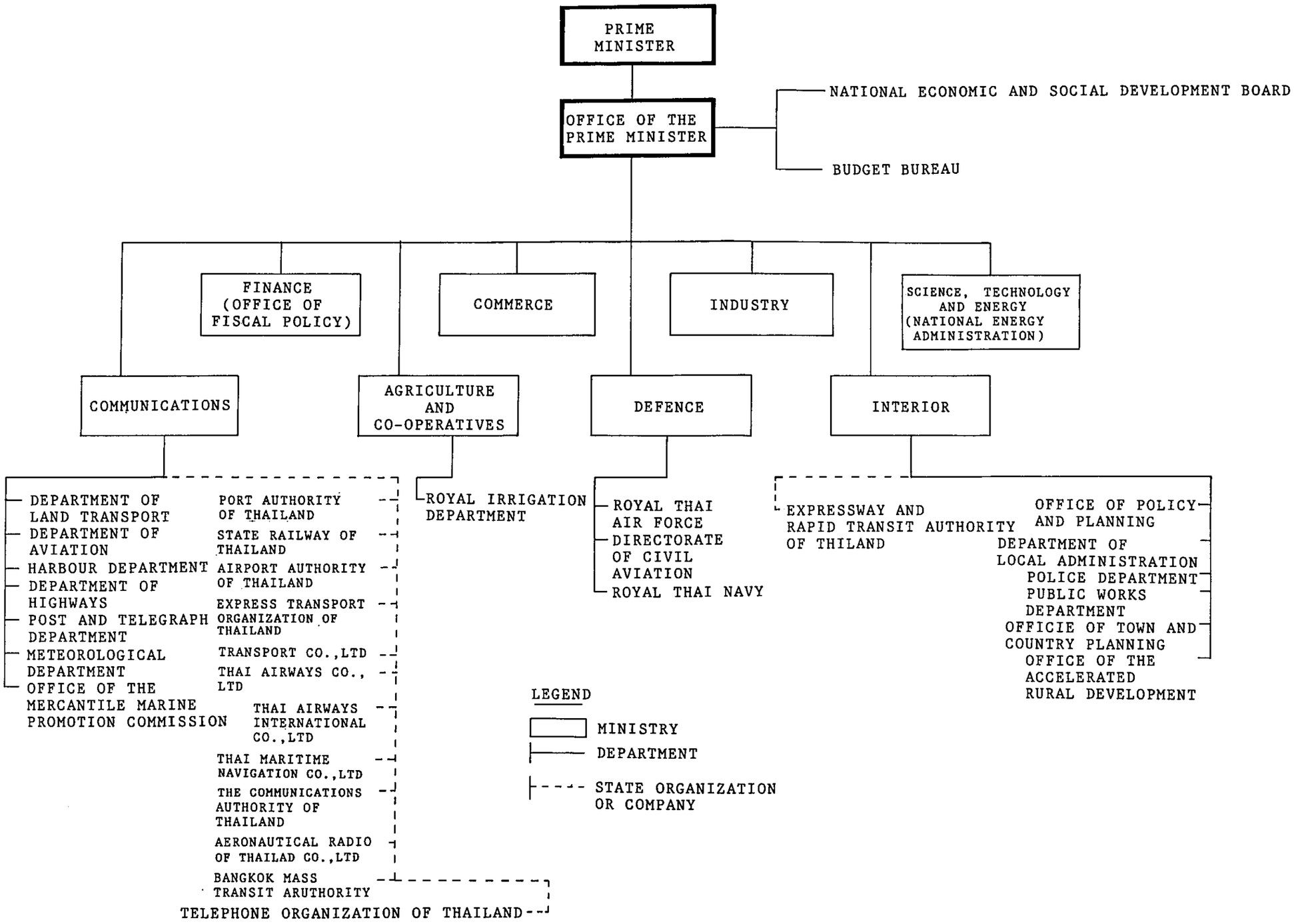


Fig. 2.2 Summary Organization Chart of the Central Government



17. As for the projects and investment plans concerning the existing two deep-sea ports (Bangkok and Sattahip Commercial Ports), PAT has complete responsibility and it submits these plans directly to the Minister.

18. But in the case of planned deep-sea ports along the Eastern Seaboard, the National Economic and Social Development Board (NESDB) has more concern and plays an active role to promote these projects as a core of its regional development projects. Specialized organizations for the Eastern Seaboard Project have been established and strengthened, namely, the Center for Integrated Plan of Operation in NESDB succeeded by the Office of the Eastern Seaboard Committee (OESB) in 1986. The Eastern Seaboard Committee is chaired by the Prime Minister and OESB shares responsibility from planning through implementation with the Industrial Estates Authority of Thailand for the Map Ta Phut Project, and with PAT for the Laem Chabang Project.

19. However for another two deep-sea ports, the Port of Phuket and the Port of Songkhla, the construction works are executed by HD just like coastal ports, under similar procedures.

20. The development and investment plans of the coastal and inland ports, including channel dredging, are prepared and proposed by HD in MOC, often based on requests from its local offices or provincial governors who are appointed by the Minister of Interior. After receiving HD's proposals, the Office of the Permanent Secretary (OPS) of MOC, in practice the Planning Division of OPS, reviews and evaluates the plans and submits them to NESDB to have a check on their feasibility and suitability to the national development plan. For the financial check, MOC sends the plans to the Budget Bureau in the Office of the Prime Minister, and the final decision is made by the Cabinet. All the projects have to be submitted to the Parliament annually to get budgetary approval.

21. Existing two deep-sea ports were originally developed by the government and PAT has borned only their expansion, improvement, management and operation costs. However, the government intends to ask PAT to bear additionally all or part of the initial development costs of new deep-sea ports: Laem Chabang, Phuket and Songkhla Ports. On the other hand, the cost sharing system for the development and management of coastal and inland ports still remains unchanged that is the government spends its funds for their initial construction, expansion and improvement, while the port management bodies take over the facilities without consideration and share only managment costs.

22. Thus, the planning processes and cost sharing system do not seem to be unified and some parts of the implementation programs are occasionally not clear enough for the smooth cooperation among the related agencies.

23. Port management is carried out at Bangkok and Sattahip Commercial Ports by PAT. Coastal and inland ports are constructed by HD and are principally transferred thereafter to local administrative organs concerned, which are provincial governments, provincial administrative organizations and municipalities, in order to be managed. However, some of those ports remain under the direct management of HD due to the insufficient administrative, financial and technical ability of relevant local administrative organs. In the case that local administrative organs take charge of managing ports, they usually ask assistance and participation of their general supervisor: the Ministry of Interior (MOI). MOI, however, is not suited to this job due to the lack of own special section and accumulated know-how for port management affairs. Therefore, coastal and inland ports are practically managed individually without any standardized ways. For example, publicly constructed facilities are leased together to a company in Pattani Port, while in Kan Tang Port facilities are managed directly by the municipality and cargo handling is

conducted by private firms. As for the management bodies of newly developed deep-sea ports such as Laem Chabang, Map Ta Phut, etc., confirmed policy is not yet established.

24. Businesses which are concerned with the overland movement of seaborn cargo in Thailand from ship to shore, barge, shed or warehouse, and onto inland conveyances, and vice versa, include shipping agency, freight forwarding, stevedoring, longshore cargo handling, tallying, measurement, surveying, customs clearance, road transport rail transport, barge transport, warehousing and export commodity standards inspection.

25. PAT is responsible for all longshoring works at Klong Toei Wharves and Sattahip Commercial Port, and road transport out of Klong Toei Wharves is conducted exclusively by the Express Transport Organization of Thailand (ETO) based on an agreement between PAT and ETO. The entry into other parts of business is completely open to private sector except for the following safeguards:

i) The controlling share in any company which carries out one of these businesses must be owned by Thai nationals under National Executive Council Announcement No. 281;

ii) Registration with the Commercial Registration Division, Ministry of Commerce under the Commercial Registration Act B.E. 2499 (1956) and business tax registration under the Revenue Code are required;

iii) Registration of stevedoring companies with PAT under Ministerial Regulations issued in accordance with PAT Act B.E. 2494 (1951) and permission under the Byelaw of PAT for businesses whose operation is carried out in PAT areas are required;

iv) A license from the Customs Department, Ministry of Finance is required for persons dealing with customs

matters under Thai Customs Law;

v) A license for land transport is required under the Transport Act B.E. 2522 (1979);

vi) A license for bonded warehouse operation is required from the Customs Department under Thai Customs Law;

vii) A license is required under the Export Standard Act B.E. 2522 (1979), as amended, for commodity standards inspectors;

viii) The Mercantile Marine Promotion Act contains provisions for the registration of maritime operators, port operators and shipyard operators. However, this is merely for recording purposes and defunct companies have not been removed from the register.

26. Pilotage is compulsory only at Sattahip Commercial Port and Bangkok Port (from the river mouth of the Chao Phraya River to the Memorial Bridge). Pilots are provided by HD, which has responsibility for regulating maritime traffic. But for search and rescue activities on the waterways no special agency has yet been established. The Department of Aviation of MOC has presently the responsibility together with responsibility for similar activities on land.

27. PAT is responsible for navigation channels dredging within the Authority Area of Sattahip Commercial Port and Bangkok Port. PAT also installs and operates navigational aids at the same area. For these services, all vessels except for some small crasts are liable for payment of channel dues to PAT. However, those businesses in other ports are conducted by HD without charging any due on vessels.

28. The Police Department of MOI takes of charge port police and fire fighting in general. A special branch of it (the Port

Police) is stationed within Klong Toei Wharves and PAT compensates salaries of its officers. The Security Center, a division of PAT, conducts its business in cooperation with the Port Police to ensure the safety of persons and properties at Klong Toei Wharves.

29. The basic laws governing customs are the Customs Law B.E. 2469 (1926), as amended, and the Customs Tariff Decree B.E. 2503 (1960), as amended. Customs excise is conducted under the regulations laid down by the Director General of the Customs Department. Quite a number of regulations concerning customs duties and procedures exist only in the Thai language and in complicated form. In addition to customs duties, business tax under the Revenue Code is payable on many imports and exports, and foreign trade transactions are subject to the exchange control law (the Exchange Control Act B.E. 2458 (1915) and Ministerial Regulations and Bank of Thailand Notification thereunder) and various licencing requirements including the Import and Export of Commodity Act B.E. 2522 (1979), the Export Standardization Act B.E. 2503 (1960), as amended, and the Rice Trade Act B.E. 2489 (1946).

30. Plant and animal quarantine are governed by the Plant Quarantine Act B.E. 2507 (1964) and the Animal Epidemics Act B.E. 2499 (1956), respectively. The importation or bringing in transit of prohibited or restricted plants, which the Minister of Agriculture specifies in order to prevent the spread of any kind of plant pests into Thailand, has to be made after the inspection by the plant quarantine officer. The plant quarantine officer is also empowered to have them fumigated or treated with chemical by means of spraying or by other means as deemed necessary at the owener's expenses, to seize or hold them at the plant quarantine station or at any other place for a period of time as thought necessary, and to destroy them if necessary when there is reasonable ground to believe that plant pests exist.

31. The animals or animal remains are allowed to be unloaded only when the veterinarian has examined and given permission in the case of import. If the veterinarian has reasons to doubt that the imported animals or animal remains are infected or they come from an infected group, the veterinarian detains them for a maximum of ten days in quarantine for examination. Any person wishing to export animals or animal remains are required to have them examined and disinfected by the veterinarian prior to the application for export licence. Procedures for transit animals or animal remains through Thailand are similar to those for importation and exportation.

32. Not only public wharves but also privately owned or operated port facilities perform an important role especially for export of agri-bulk cargo, petroleum import and their domestic trade in Thailand. There are at present more than 70 private terminals along the Chao Phraya River and more than 100 private landing points along the inland waterways. HD can restrict the engineering works on and occupation of the water area for their construction, improvement and operation from the viewpoint of securing navigation, but no governmental agency or no port management body has the power to control the development of private port facilities collating with the nation-wide or individual port develoment. Even in the big port of Bangkok where disorderly development directly affects the congestion of the port and navigation channel, the port management body (PAT) is not enpowered to control them because both banks of the River are excluded from the Authority Area except for Klong Toei Wharves.

33. Reviewing complehensively the port administration system in Thailand, some major issues can be pointed out as follows:

i) Lack of the core organization which takes the full responsibility for port administration affairs
ii) Ununified policy and plan making process
iii) Lack of control over the disorderly private

development

iv) Lack of the established policy for port management bodies

v) Confused systems for maritime traffic control and rescue

vi) Unsatisfactory supervision of private participants

vii) Inconsistency of financial policy for port development

Details of these problems are discussed below: the first to third issues in Chapter III, the fourth to sixth in Chapter IV and the final problem in Chapter V.

III. FUNDAMENTAL POLE OF THE GOVERNMENT

A. Port Enviroment

1. As a result of the natural and social conditions, the situation of ports in Thailand has certain characteristics additionally to those mentioned in Paragraph 1 - 8 of Chapter II, as follows;

i) Number of large ports is limited.
ii) Capability of local agencies is not sufficient.

2. In Thailand potential areas for port facilities are widely distributed due to the development of inland waterways over a long time. But the size of the vessels coming to the facilities is usually limited because of limitations of the width and the depth of natural rivers or artificial klongs.

3. For large vessels, the Chao Phraya River offers a wide navigation channel, but requires a large volume of annual dredging to maintain the necessary depth. Along the east coast of the Peninsula and the inner Gulf there is significant littoral drift, and on the west coast of the Peninsula rather high waves come across the Andaman Sea. In the open sea, it is easier to obtain deeper facilities, but, on the contrary, these require more investment to protect them from natural conditions.

4. The economic activities and population of Thailand are concentrated in the central region followed by the north region. From these two regions the most inner part of the Gulf provides the best location for international trade. This means convenient places for major international ports might be limited. Therefore, the suitable sites for large vessels are

limited to a few places, but appropriate facilities would still require a considerble amount of investment.

5. The limitation of the number of ports tends to cause, without any controls, lower efficiency due to the lack of competetion among ports. It is important and essential for the national economy to maintain the services of existing ports constantly because the total ability to handle the cargo is limited due to the relatively small number of ports. Therefore, adequately controlled competetion is desirable and some public controls for this purpose will be necessary.

6. On the other hand, as effects from the construction of new ports, the nation and the regions can gain many remarkable benefits. Especially for underdeveloped regions, only ports can serve as the center of major economic development. Consequently port development is an important and precious strategy for creating balanced national growth and decentralization, and it is reasonable to control the projects on the basis of the national interest, naturally by the central government.

7. Without good port administration no port can function well to meet social demands. And port administration is requaired to meet local conditions and to promote regional ecomomic development.

8. If considering these facts only, the local organizations seem to be the appropriate bodies to administer the every ports. However, observing the actual situation of the local organizations such as provincial organizations, municipalities and the like in Thailand, the lack of personnel and finance renders these organizations unsuitable, and they are not capable of playing a major role in this field at present.

9. These facts suggest that the central government must play the leading role at present, but local agencies may be able to play a greater role in the future.

B. Organization for Port Administration

Public Sector and Private Sector

10. Among all port concerned matters, some roles can be played by the private sector but the public sector's role is still essential. There are many fields which should belong to the public sector and besides them some fields which reuqire public sector's aids due to lack of vitality of the private sector. Concerning the latter, we will deal it in the study of privatization of operating ports. In the former sence, the public sector must retain strong control over developing and managing ports.

11. This is because basic decisions concerning port development and management must be made in the public interest considering what is best for the national development, because port devlopment is central to the national economic growth and security.

12. Additionally, certain aspects of the planning and managing process are definitely within the purview of government as they may restrict or control the activities of individuals and groups within and nearby ports and may determine the direction of regional development and public investment.

13. Additional reasons are as follows:

(1) Port planning and managing require comprehensive knowledge and information including highly political matters. The experience of managing ports of a certain size has been limited to public sector until today, although the private sector bodies has a lot of experiences in operating specialized and limited port facilities.

(2) Maintaining port service is essential for the national interest, especially beacuse of the small number of ports in Thailand. The normal and essential behavior of the private sector is to stop supplying existing services when unable to gain a profit, and the private sector is not in a position to pay attention to the national interest or to provide unprofitable services. Port development generally is not an attractive field for the private sector, as the conditions of investment are comparatively hard.

Central and Local Organization

14. There are many types of public sector bodies including both central and local organizations. And noted above, under the current conditions in Thailand the local organizations are not in a position to play a main role, and the degree of their participation in port administration will differ according to local circumstances, including the expected effects of the port development, the local experience of port administration and the understanding of port functions by local residents and agencies.

15. Reviewing the situation in other countries, central public sector port administration bodies can be categorized as follows:

i) Central government
ii) State enterprise
iii) Independent commission

Independent Commission

16. Independent commissions are sometimes called Port Authorities or Trusts in the United Kingdom and the United

State, but they are different from the Port Authorities very often found in developing countries. Independence from the established administration system is fundamental. Thus, these independent commissions are autonomous bodies which independently manage ports and act as public bodies without the control of other administrative agencies in principle. In a particular case, The Port of Seattle levies many kinds of taxes on persons and companies in the port district under the authority given by the laws relating to the public port district.

17. They are suitable for ports which are socially and economically well-established and with steady and stable cargo throughput. But for most developing countries, the strong leadership of the central government is desirable to make the most of port facilities and premature independence of port administrative bodies away from the government tends to bring inefficiency.

Government and State Enterprise

18. There are a few cases of government owned port in developed countries, but the daily management of these ports is usually entrusted to other bodies. For example, French national ports are generally managed by the local chambers of commerce.

19. In the developing countries, most ports are owned by port authorities and in some countries governments directly administer the ports. Most of the port authorities in developing countries, also in Thailand, are essentially state enterprises, and seem to be able to operate successfully financially. Various fortunate conditions make this possible:

i) Large amounts of property appropriated for port use in the past (in many countries during the colonial stage)

ii) small amounts of investment for non-profitable facilities as a result of preferable natural conditions.

iii) High tariffs made possible by lack of competition and monopolies on port services.

However hereafter, in general, it will be difficult to expect such favorable conditions for all ports in devloping countries.

20. Among these countries, successful port development has generally been realized through the strong leadership and sponsership of the government in the actual developing process even if the authority of developing is legally vested in the port authorities. And in some countries, the industrial ports are controlled directly by the central government, in spite that the port authorities manage non-industial ports.

21. These facts indicate that in many developing countries ports are being regarded as industrial capital, not as social capital, namely, the ports are being managed to obtain the maximum profit, and the port authorities are functioning as profit-making enterprises. Newly developed industrial ports, which are clearly social capital, can not be managed by port authorities based on that conception.

22. The purpose industrial port projects may be to promote the new location of factories and to realize the economic growth of the region and the nation. Then, the benefits of the port development are not enjoyed exclusively by those factories, and this is a planned and expected process. But the development of industrial ports generally requires a large amount of investment, so if the tariffs are set based on the condition that the port authority must be financially self-supporting, that is that the port must pay for itself directly through user fees, the resulting transportation cost will be excessively high and this will prevent the location of industries near the site, and

thus the utilization of the port will be relatively low and the investment will be relatively inefficient.

23. This is true not only for industrial ports but also for commercial ports. The ports in one of the most developed countries are practically operated on a self-supporting basis in general and this seems to result in certain undesireable tendencies: i) costs to port users become high, and ii) new development of ports tends to be slow. If the port authority is required to maximize profit from the management of the port like a privatesector enterprise, the authority may not be in a position to respond to the actual demand or real needs of all the port users. As independent financial centers, these port authorities must compare the new investment and additional operation cost of any proposed project with the possible additional revenue, and the additional services will only be supplied when they will be profitable. Thus, ports run on a self-sustaining basis may actually limit the potential foreign trade and economic activity of the nation. Especially in countries with limited port facilities, it is desireable to subsidize port development to promote maximum usage of port ability. Because low tariffs result in lower prices of the commodities consumed in the country and also in strengthening the competitive power of exports, which increase the amount of cargo volume and the national product further. Thus financially self-sustaining port authorities are not always appropreate, especially in developing countries. There are two alternative methods of administering ports under such circumstances.

24. The first method, as discussed above, is for the ports to be administered directly by the central government. This system has several advantages.

i) The government can consider the ports as social capital and take any necessary measures according to the public interest.

ii) The ports can be managed exactly following government policy.
iii) Coordination with related agencies is easy and convenient.

25. On the other hand, this system also has various disadvantages.

i) Lack of motivation to improve efficiency
ii) Lack of flexibility
iii) Tendency to be affected by political interference
iv) Difficulty in increasing the number of government employees

26. In Thailand, the government has to play a leading role in port administration and wide cooperation among several government agencies is important for the smooth implementation of port developoment and management. The advantages of direct administration are helpful, but the disadvantages, especially points i) and ii) in daily performance, may possibly present problems for such a system.

27. The second system is for the port authorities to be responsible for the daily management of the ports and also to formulate their own plans for improvement and expansion subject to government approval. Also the important financial decisions require government approval and if necessary, the government aids the port authorities with financial subsidies or otherwise. This system is to reduce the disadvantages of government organizations by introducing the state enterprise mind in the daily management of the ports.

C. Centralized Organization for Port Administration

General

28. Though, the Ministry of Communications (MOC) principally takes the overall responsibility for the port administration, the management of coastal and inland ports are actually under the control of the Ministry of Interior (MOI), and the National Economic and Social Development Board (NESDB) and the Industrial Estates Authority of Thailand (IEAT) have a strong concern and power in the development of new deep-sea ports along the Eastern Seaborad. Moreover, the control of the Port Authority of Thailand (PAT) by the Minister of Communications is not so strong compared with the Council of Ministers as discussed in Chapter IV. This causes such various problems as mentioned in Paragraph 33 of Chapter II, e.g., ununified policy and plan making process and inconsisitency of financial policy for port development.

29. Whichever bodies practically manage or operate the individual ports, the government should assign its own organization in charge of port administration. Although there are many agencies concerned, a unified organization is desirable to take care of all the administrative affairs of all the Thai ports.

30. The management and development of all the national ports has to be carefully coordinated to ensure a national distribution of limited investment capital. The number of ports will always remain limited and the services supplied by different ports are not always interchangeable only a centralized adminstrative agency can realize the type of coordinated planning and allocation of funds that is necessary to supply the best possible port services throughout the nation on a limited budget.

31. As comprehensive port administration covers a wide field from planning to operating, extensive data and experience are necessary for making proper judgements concerning port management and development. There are four potential alternatives for the said agency in the Royal Thai Government: the Office of the Permanent Secretary (OPS), the Harbour Department (HD), the Mercantile Marine Promotion Commission (MMPC) and PAT all of which belong to MOC.

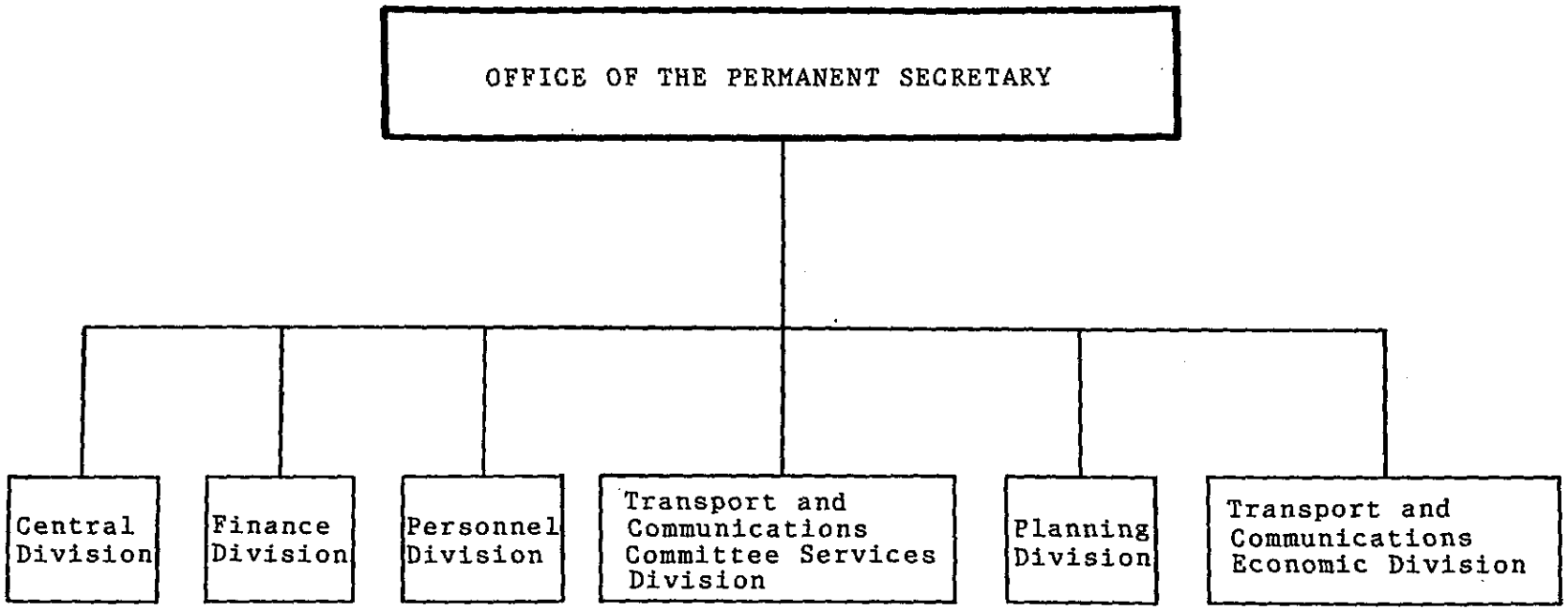
OPS

32. OPS consists of six divisions (see Fig. 3.1), and is responsible for all kinds of traffic and for formulating the fundamental policy of the comprehensive transportation system of Thailand. Their main jobs are i) project evaluation for highways, railways, land, water, marine and air transport, ii) considering of the plans and budgets of departments and state enterprises under the Ministry, iii) transport marketing including the consideration of service fees of state enterprises, iv) data collection, and v) studying and analyzing various transportation matters concerning transportation systems, taxation and so on.

33. The daily administration of an individual transport sector is outside the responsibility of OPS except for big projects requiring wide coordination among transport sectors or among related sectors of various ministries. However, their advice to the individual departments of MOC in charge of each transport sector will be valuable, as OPS workers are accustomed to examining items from the viewpoint of nationwide transport development including the effects of such development on economic growth.

HD

Fig. 3.1 The Office of the Permanent Secretary, MOC



34. HD has hitherto mainly been concerned with port administration. Their knowledge about natural conditions and construction in water areas is the best among the government organizations. HD has the duties of controlling, supervising and administering work concerning water transport in general, pursuant to the authority provided under the Navigation in Thai Waters Act, the Thai Vessels Act and the Act for the Prevention of Collisions at Sea. These are as follows:

i) To supervise, control and inspect vessel navigation

ii) To supervise and consider permission concerning the use of waterways of all kinds, as well as ports, dockyards and buildings

iii) To define the lines of the banks of waterways

iv) To supervise, control and protect the operation of water transport, vessel navigation and fishing

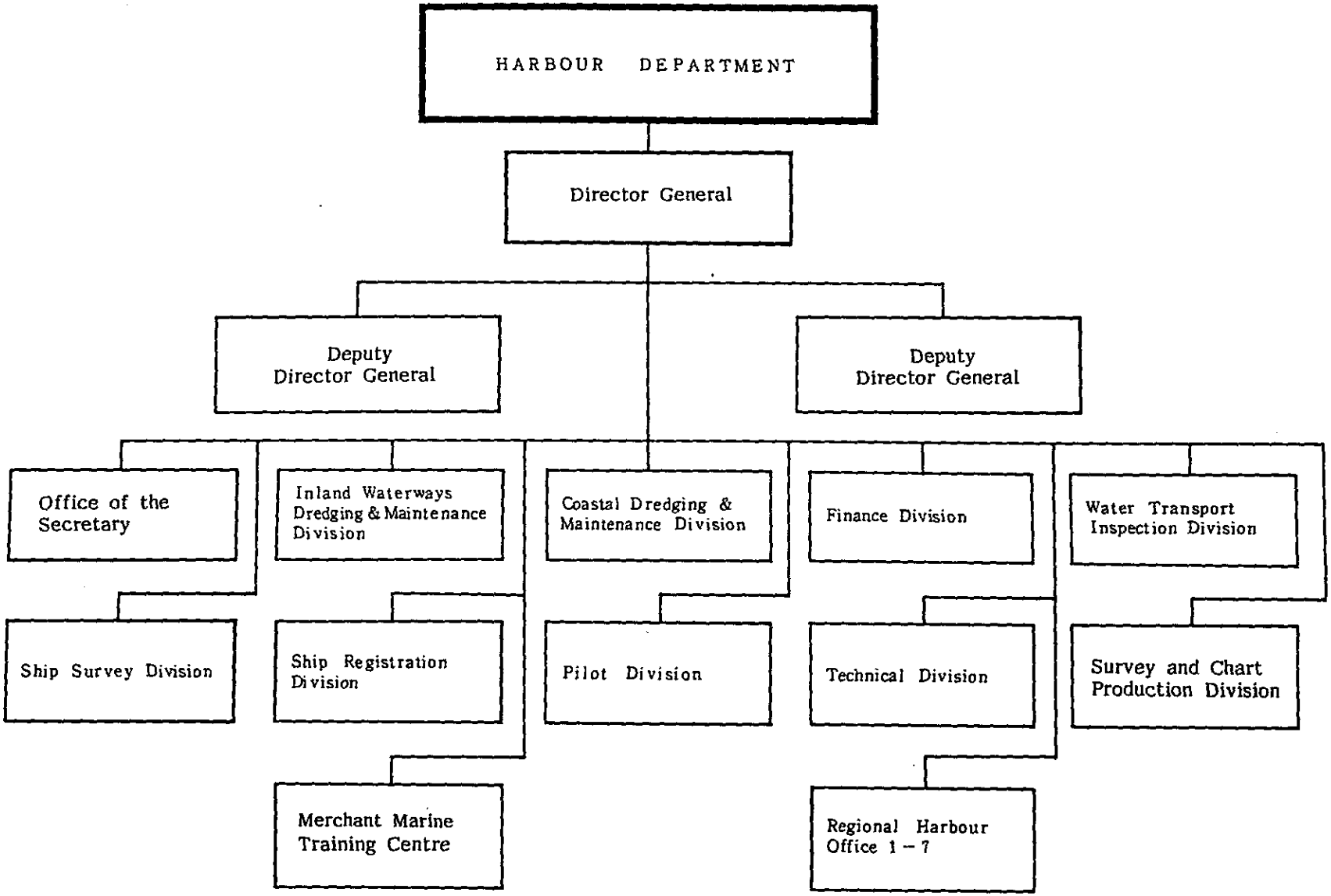
v) To determine courses of study and to examine and evaluate knowledge of individuals for the purpose of issuing professional and occupational certificates concerning vessel navigation, and controlling and supervising the use of machinery

vi) To determine rules, criteria and procedures concerning business operations and transport by water

vii) To control, supervise and take action to dredge and maintain vessel-navigation channels, including the maintance of shorelines for convenience and safety in vessel navigation

viii) To perform care and maintenance of lighthouses, lighted buoys and markers

Fig. 3.2 The Harbour Department, MOC



ix) To study projects to improve ship-navigation channels

x) To register waterway vehicles and conveyances

xi) To register operations engaging in transport and concerning equipment in transport by water

xii) To issue permits to use vessels in an appropriate manner to ensure safety according to conditions

xiii) To control and supervise vessel models, building of vessels, and the installation of machinery in vessels

xiv) To determine water-displacement lines on loading

xv) To control, supervise and conduct operations concerning piloting in the piloting zone throughout the Kingdom

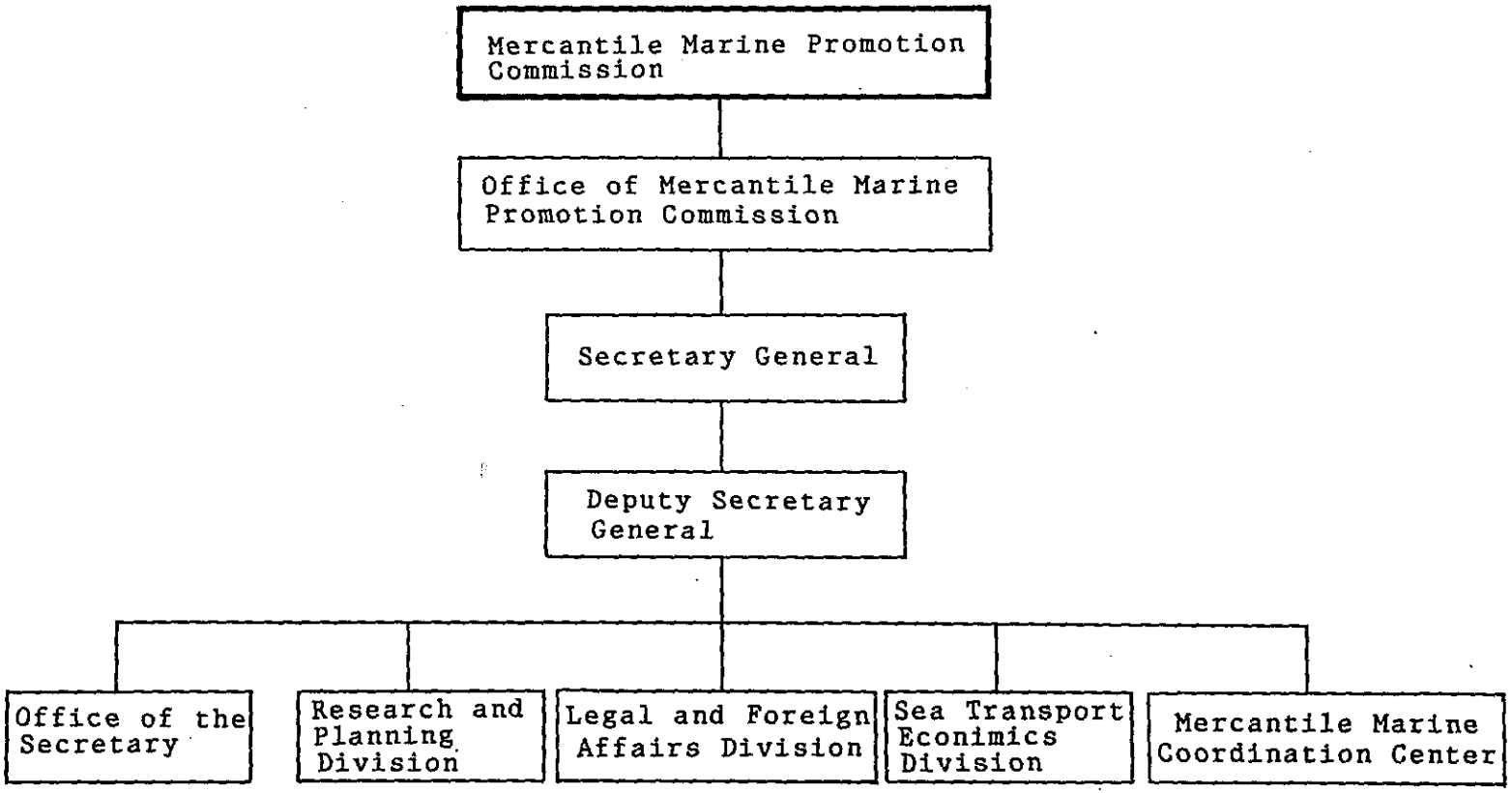
xvi) To survey and seek data and statistics concerning vessels and transport by water.

These duties are concerned with general traffic in public water areas and some of them are also closely related with port. But, security of marine traffic is somewhat different from proper port administration, and HD is not really directly involved with port management except at some small inland ports, and therefore its knowledge about actual port management is not sufficient at present.

MMPC

35. MMPC was established in 1978 by the Royal Decree B.E. 2521 called the Mercantile Marine Promotion Act which aims at promoting Thai flag vessels. MMPC consists of five divisions (see Fig. 3.3). One of them, the Sea Transport Economic

Fig. 3.3 The Mercantile Marine Promotion Commission, MOC



Division, is concerned with port functions, and its duty is to study activities in the shipping industry and future trends, to plan ahead to secure a larger share of the sea freight for Thai ships and to acquire new techniques in shipping from industrial countries.

36. The MMPC's interest is the potential role of ports to promote the mercantile marine of Thailand, and accordingly ports are regarded as a component of marine transportation from the economic point of view. It is important to analyze ports in this way and for this purpose, but MMPC's purview is insufficient for the comprehenisve administration of the national ports.

PAT

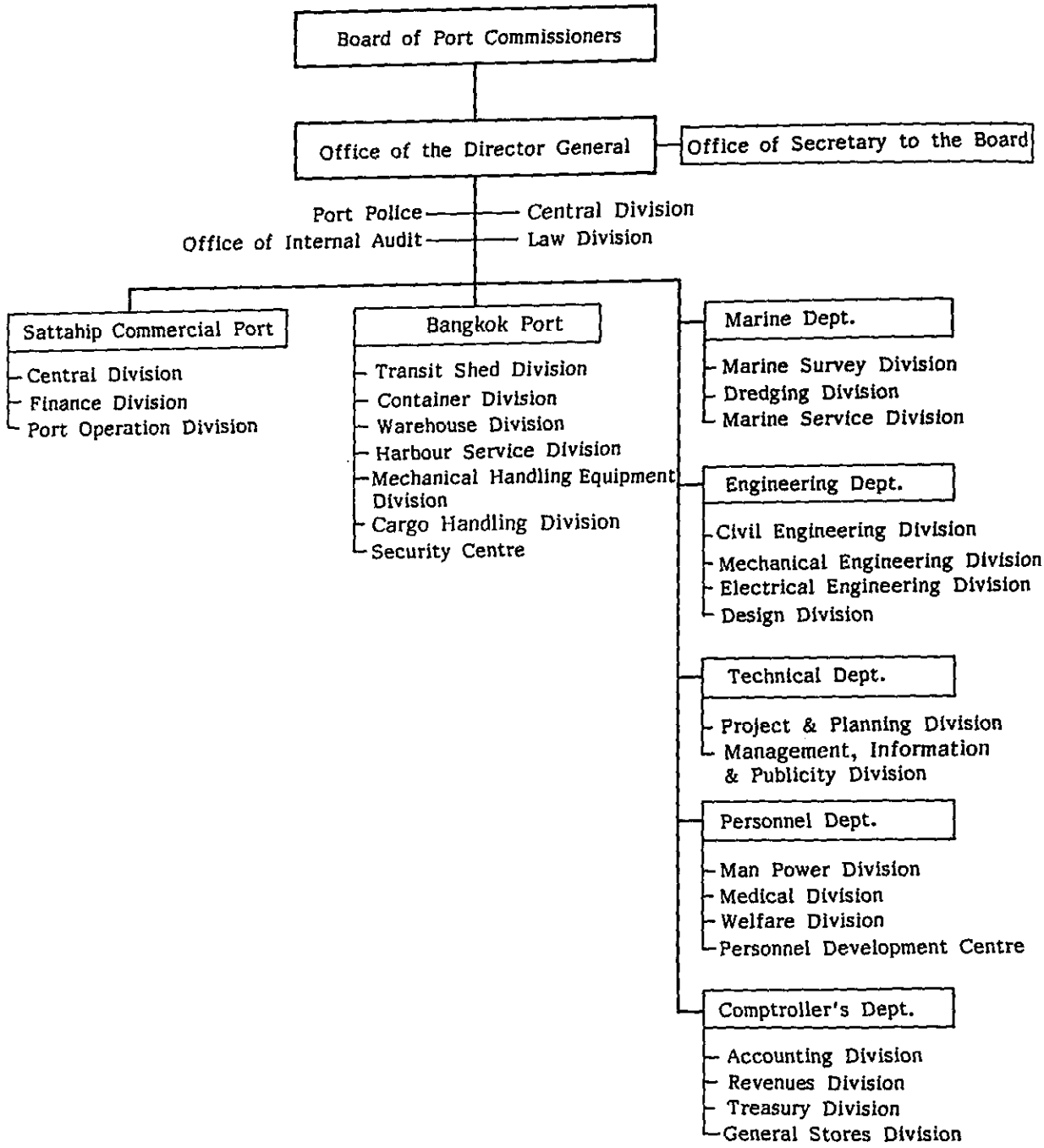
37. PAT is one of the state enterprises under MOC, and is the only agency which manages and operaters the deep-sea ports: Bangkok Port and Sattahip Commercial Port. According to the Port Authority of Thailand Act, PAT was established to manage and develop ports in the interest of the state and the public and to carry out related businesses which were previously carried out by the Office of the Port of Bangkok under the Department of Transportation. The Act also specially enpowers PAT:

i) To construct, purchase, acquire, dispose of, hire, let and operate port equipment, services and facilities;

ii) To purchase, acquire, lease, hire, let, own, possess, dispose of or operate in connection with movable and immovable properties;

iii) To determine charges for the use of its ports, services and facilities, and to issue regulations regarding the method of payment of such charges;

Fig. 3.4 The Port Authority of Thailand



iv) To issue regulations regarding safety, the use of its ports services and facilities;

v) To borrow money;

vi) To dredge and maintain channels in the Authority Area;

vii) To control, develop and provide facilities and safety in port undertakings and navigation in the Authority Area; and

viii) To fix the rates of various dues and charges within the Authority Area.

38. Out of relevant agencies, PAT's knowledge on the daily management and operation is outstanding at present, but even PAT performs a minor roll in the field of planning and development. PAT tends to hesitate to intake new port projects due to its constraints on the financial management which is to be discussed later in Chapter V.

Centralized Organization

39. Generally reviewing MOC organizations concerning ports, the shortage of highly-trained and experienced port administrative personnel is the central problem. One solution would be to establish a temporary committee for comprehensive port administration, with members gathered from all the concerned sections in MOC. Under this ad hoc committee, working-groups could be organized to discuss and make up drafts for the committee discussions. In this process, the members of the working groups would gain valuable knowledge and experience, and these committee members could become leading officials of a centralized port administrative agency in the future.

D. Planning Process of Ports and Harbours

Importance of Port Planning

40. Cereful port planning not only of new ports but also of expansion or rehabilitation of existing ports is essential, because port development is an important and precious strategy for national and regional development as mentioned in the preceding chapter.

41. From the viewpoint of realizing the efficient investment of limited funds and also the efficent use of land, deep consideration and agreement among related bodies should be pursued in the process of port planning. A clear stipulation of planning forms and procedures is useful to avoid confusion and to show the government intention to the public.

Planning Forms

42. The Five-Year National Economic and Social Development Plan is the basic plan which shows the direction of the social and economic development of Thailand, including the fundamental policy of the transport sector and of regional development. This plan is prepared and published by the National Economic and Social Development Board (NESDB) with the approval of the Cabinet.

43. The present sixth plan aims at the restoration of the country's economic and financial position, intending to make Thailand one of the newly industrialized countries in possibly near future, and also aims at the decentralization of economic activities away from the Bangkok metropolitan area. In the Plan, major strategies for the industrial sector are:

i) Restructuring of specific industries

ii) Industrial export promotion
iii) Promotion of small scale industry and industrial development in provincial areas
iv) Promotion of foreign investment
v) Development of basic industry especially in the Eastern Seaboard area

44. As for the transport sector, the imbalance in the structure of the transportation system due to too much emphasis on road transportation is recognized, and the Plan aims to form a less energy consumptive transport system and to improve coordination among the various modes of transport. Along these lines, improvement of the inland waterway system and the coastal shipping system as well as construction of new deep-sea ports are considered and related studies have been executed.

45. Based on the fundamental transport sector policy shown in the Five-Year Plan, a specialized Comprehensive Transport Plan is formulated by the Ministry of Communications (MOC). This Comprehensive Transport Plan includes basic policy concerning the role of transportation, the principle of the combination of various transport modes, the direction of each mode development, the framework of management bodies responsible for each transport sector and the necessary measures to implement these ideas.

46. Although the port development is included in the Comprehensive Transport Plan and the National Economic and Social Development Plan, they are not satisfactory because they show only the outline of the port development. Detailed planning which covers the full range of issues is essential to assure the effective and timely development. Formulation of the following plans would be required for this purpose.

i) By area coverage
- National port development planning
- Regional port development plan

- Individual port development plan

ii) By time frame
- Long-term plan
- Short-term plan

iii) By subject
- Physical plan
- Financial plan
- Management and operation plan

For item i), regional port planning is not very important in Thailand because of the small number of ports and the weakness of regional administration.

National and Individual Port Development Plans

47. A national port development plan should play an effective role in the following aspects of port development:

i) to establish an efficient nationwide port system, which must be consistent with national policies on the overall transport system of the country;
ii) to avoid the over-investment or duplications of port facilities which can result from free competition among ports;
iii) to take advantage of the economies of scale by channeling the flow of a specific product, especially bulk commodities, through a single or a few designated port terminals; and
iv) to better coordinate port development with the national development policies of other sectors such as industry, mining, agriculture, fishery, etc.

48. In a national plan, not only the physical plan but also the fundamental policy concerning all the features of port

administration which includes financial, managerial and operational issues must be clearly consolidated, and the policy should be broken down into an understandable shape. For the purpose of realizing the policy, the distribution of ports in the country and their functions should be clearly determined and carefully coordinated.

49. As international ports are crucial for the national and regional development of Thailand, the central planning of international ports must take place from the viewpoint of maximizing the national economic development. Similarly, the centralized planning of demestic ports must take place in an effort to form an efficient domestic maritime transport network which will cooperate with the international ports by feeder service.

50. Examining the problems found at various ports, the plan should include concrete measures to promote port development, and the cooperation of the related agencies and smooth implementation may be ensured by submitting the plan to such agencies for their approval.

51. The development of each individual port must be comprehensively planned within the framework of a national plan.

Long-term and Short-term Plans

52. As mentioned in Paragraph 11 of this Chapter, there are normally two different time frames for national and individual port planning, namely, long-term and short-term planning. Although they are naturally linked with each other, the scope and nature of each planning frame are clearly different.

53. The long-term plan, which is often called the master plan, describes the future situation of ports after a series of individual development projects have been carried out. The

master plan provides a framework within which the short-term plan can be drawn up and specific projects defined. Normally it has a time frame of 10 to 20 years or more. Therefore, more emphasis is placed on what is desirable than on what the trends seem to show to be likely in the short term. The land and water area uses are the most vital features of the long-term plan. The long-term plan commonly includes:

i) Future social and economic situation
ii) Purposes and targets of the port development
iii) Rough physical plan
iv) Outline of development schedule
v) Necessary measures for the achievement of development goals

54. The long-term plan may have special meaning as follows:

i) To provide the basis for the control of activities of individuals and companies within and near the port area
ii) To encourage private investment in and near the port area by officially showing the government's and port management bodies' intention to develop the port over the longterm
iii) To ensure proper coordination with many related long-term projects like highways, railways, irrigation works, industrial development, urban development and so on

55. In addition to this, it becomes easy to periodically re-examine the plan according to changes of the social and economic situationsm, because the basic conditions and initial recognitions are clearly indicated in the plan.

56. The short-term plan is far more detailed in all technical aspects. It usually takes the form of a feasibility study to determine the best way to satisfy a particular requirement

expected to arise within a time period of about 5 to 10 years. The short-term plan must be consistent with the master plan and it must be considered as one step in its implementation.

57. The control of the private port development is not satisfactorily conducted at present as mentioned in the preceding chapter, but it is an indispensable task because the private development is usually carried out disorderly and affects directly or indirectly the public port development. The control of the activities in surrounding areas of the port is also important for the safe and efficient operation and future expansion of the port. In this meaning, at least the following areas should be integrated into the port area where the government and port management bodies have the power of overall control and a system should be formulated that any development conducted there has to be approved as a part of the port development plan prior to the implementation:

i) The area where port facilities are constructed and the area influenced in some extent by these facilities

ii) The area mainly used for port activities and the neighboring area to secure them. This usually means channels, basins and neighbouring water areas, and the primary movement area of cargo and passengers on land.

iii) The necessary area for the activities which strongly relate to the port. For example, land for port related businesses, inland depots, linking transportation facilities, free trade zones, and land for port-oriented industry, but excluding areas developed by other public bodies concurrently with the port development project.

58. Considering the purposes and functions of long-term individual port plans, all publicly constructed ports should have such plans and be developed based on the plans. And for

privately owned and operated facilities, they should also be developed within the framework of such planning system, because public water areas including coastlines and riverbanks should be under the strict control of the public sector, not only for the security of navigation but also for the efficient and fair usage of the public space.

Procedure of Port Planning

59. Port planning is divided into two levels: national level and individual port level. Even though it is normal that each port management body makes its own port development plan based on the detailed knowledge and information about the problems and users' demand of the individual port, the government has to ratain the authority of final decision on plans in order to avoid confusion among ports and to realize harmonious nationwide development.

60. National port planning process comprises two stages: draft making and decision making. Efficient planning is assured by the appropriate procedure for both stages.

61. A committee is usually formulated within the government in order to achive timely, fair, proper and smooth decision because ports strongly impact national and regional development and many relevant agencies have concerns in ports development. Two ways are possible for the establishment of the committee or the council: to formulate committees by project and to formulate a permanent committee which deals with all the matters concerning port administration. The latter committee, which the Thai Government does not have at present, is advantageous as the nationwide port development requires consistent policy as well as deep consideration on the relation among ports.

62. This type of committee is usually empowered in developed

countries to give advice on important matters to the minister in charge, i.e., the National Ports and Harbour Council to the Minister of Transport in Japan and the United Kingdom. However, it is also possible to give this committee the power of making final decisions depending on the governmental policy and the consitituent members. This committee could play an important roll in either case through discussions on the following matters:

i) Basic conception of port development, management and operation, indluding long-term national port development plan
ii) Individual port development plans
iii) Priority of major port projects

63. As the committee members are required to discuss and judge port issues properly, the committee should consist of experts with high level knowledge in their respective fields. Though fields to be covered are wide, the Board of Commissioners of PAT and the Coorinating Committee on the Coastal and Inland Port Management headed by the Permanent Secretary of MOC might provide samples in the process of actual formulation. In the case of developed countries, representatives of port users and port laborers often take part in such committees. This system, however, is not advisable for developing countries, because i) port administration should be strongly led by the government during the period of consolidating the foundation of the port administration system, ii) the demand for ports is not yet fixed, as a result of the immaturity of port development and usage and iii) discussion between the public sector and private sector in official committees is not usually the custom.

64. As a defined planning procedure will make the decisions of the government easier to understand for all parties concerned, it is better to establish this committee by law with the prescription of essential points like authorities, duties, number and qualification of members, etc.

65. The national committee cannot work effectively unless it does not have and is not adequately supported by a secretariat. Considering that the secretariat must timely prepare discussion papers for the national committee, it requires enough power to cover continuously all the aspects concerning port development, management and operation of all ports. Thus, it is better to assign the centralized port administrative organization to take the charge of the said secretariat in this sense.

IV. PORT MANAGEMENT AND OPERATION

A. Port Management Bodies

1. Conception of port management body is widely accepted in the world. Basically these bodies are defined as organizations being primarily responsible for management of single or plural port/s. Practical shapes and functions vary considerable with the historical background and economic and social setting of the individual ports and nations. In our study, it would be helpful to use this conception for analyzing the present situation, comparing with other countries and formulating an idea of future system.

Port Management Bodies in the World

2. Throughout the world, there are four basic types of port management bodies:

i) Central government
ii) Local government
iii) Independent port authority
iv) Private firm

3. When private firms act as port management bodies, they usually manage only their own port facilities. No private firm manages public-use ports anywhere in the world. The three other types of management bodies can be found all over the world, and in many countries ports are managed by more than one type of port management body.

4. In France, ports are classified into two groups: Ports Maritimes Autonomes and Ports Maritimes non-Autonomes. The

former group which includes major ports like Marseille and Le Havre was institutionalized in 1924 to dissolve the abuses of the bureaucracy and the political interference which occurred under the direct management of the central government. Although those ports are managed by autonomous authorities, they are still under the strong control of the central government, namely, each authority needs the approval of the government on budget, tariff, salaries, investment, bond issuing, fund raising and disposal of profit. The latter group which consists of smaller ports is further classified into two: those managed by the central government directly and those managed by local governments.

5. In Holland and Belgium, major ports such as Rotterdam, Amsterdam and Antwerp are managed by local governments and minor ports are managed by independent port authorities established by both the central government and the local governments concerned, and in the case of Belgium private companies are also involved as organizers. Minor ports in these countries are under the warm patronage of the central government in general, but the major ports of Belgium are also under the strong influence of the central government through subsidies which amount to up to 100% of infrastructure development cost and 60% of superstructure construction cost. The Dutch Government, on the contrary, presently takes only a small role in the development of its major ports. It gives only small subsidies for the construction and maintenance of certain selected facilities. Rotterdam Port was directly managed by the central government before 1900.

6. The management bodies of ports in Japan changed drastically from the central government to local governments in 1951 in order to decentralize the administrative power as a part of the postwar reformation. Nearly all the ports are presently managed by local governments, but they are still under the warm patronage and strong control of the central government through financial aid and the centralized authority to approve or

disapprove the port development plans of each port.

7. Ports in the Federal Republic of Germany are also managed by local governments, but the central government's participation is limited only to the construction and maintenance of navigation channels in the rivers.

8. The port management system in the United Kingdom is very complicated. British ports were historically developed by the private sector, but after the middle of the 19th century the management of more than half of those ports was taken over by neutral bodies organized by both public and private interests in order to break operational deadlocks. Others which had functioned as railroad ports were nationalized in 1947 together with the railroad business itself. Out of these ports, major commercial ports have been managed by the British Transport Docks Board (BTDB), smaller ports along the inland waterways have been managed by the British Waterways Board (BWB), and ferry boat ports have been managed by the British Railways Board (BRB). These Boards are governmental organizations but they can manage ports independently. BTDB has recently been partially privatized through the formulation of a joint venture between the government and the private sector. There are also municipally owned ports and statutory company owned ports. Generally ports in the United Kingdom are managed on a commercial basis, therefore, the government seldom gives subsidies to port management bodies.

9. Ports in the United States were originally developed by private companies just as in the United Kingdom. However, public port authorities were established along with the increase of disorderly port development in the 19th century. Public port authorities were municipalities at the earlier stage, but later such variations as independent commissions founded by the states or counties or port districts, and public corporations established by municipalities or states were also established. The independent commissions and public corpora-

tions were established in order to ease heavy financial burdens and the severe competition among ports. Some of the public corporations were established by two or more municipalities or states like the Port Authority of New York and New Jersey. The Federal Government has no direct interest in port development and management, because these businesses are regarded as the state matter. But channels and inland waterways are constructed and maintained by the Federal Government based on the so-called pier head line principle.

10. Summarizing the above discussion, the following characteristics of port management bodies in the advanced countries can be pointed out:

i) Privately developed and managed ports tend to require the participation of the public sector in order to control disorderly development and to dissolve the financial problems.

ii) Publicly developed and managed ports can be classified into two groups: those developed and managed by central governments and those by public management bodies which are local governments or indipendent port authorities. Public management bodies tend to take over the port management from the central government in considerably grown ports.

iii) Local governments generally serve as port management bodies in nations with strong regional economic and administrative development.

iv) Central governments to a greater or lesser degree take part in the activities of public port management bodies, even in the activities of independent port authorities, through financial assistance and authorization of important matters.

11. In the countries described above, each port generally has its own management body except for those ports which are managed directly by the central government and some exceptions in the United Kingdom and the United States, i.e. BTDB manages 19 ports, BWB manages 6 ports and BRB manages 8 ports in the United Kingdom, and some of the independent commissions and public corporations in the United States manage two or more ports.

12. Table 4.1 shows the number of major ports and the types of management bodies in developing countries. The following characteristics are observed from this table.

Table 4.1 Number of Major Ports and Types of Management Bodies

Area	Country	Number of Major Ports	Management Bodies
Asia	Indonesia	4	Plural
	Philippines	18	Single
	Malaysia	5	Plural
	Burma	4	Single
	Singapore	2	Single
	China	36	Central Government
	Hong Kong	1	Central Government
	South Korea	10	Central Government
Oceania	Papua New Guinea	15	Single
	Western Samoa	1	Central Government
Africa	Ivory Coast	2	Single
	Guinea	1	Single
	Kenya	1	Single
	Ghana	2	Single
	Liberia	1	Single
	Egypt	3	Plural
Central and South America	Argentina	18	Single
	Peru	8	Single
	Mexico	5	Central Government

Note: 'Plural' and 'Single' indicate the number of independent port authorities.

i) Every nation which has only one port has a single port management body. If an additional port is developed in these countries, the existing port management body usually takes charge of managing the new port because the establishment of a new management body is disadvantageous in terms of cost, efficiency and smooth start-up.

ii) Every port has its own management body in these nations which have about 3 to 5 major ports. This has the advantages that each body can manage the port in conformity with its own conditions, and efficiency can be promoted through competition among ports. Moreover, easier start-up of new bodies becomes possible based on the accumulated know-how and skilled staff of established port management bodies.

iii) In developed countries, each port usually has its own management body even when a nation has comparatively many ports. However, it is common for developing countries to have a single body which manages all the ports, because port by port bodies would not be satisfactorily supported by their regional beneficiaries.

Port Management Bodies of Deep-sea Ports

13. The combination of port management bodies in Thailand is similar to the French case. Major ports (deep-sea ports) are managed by an independent port authority and minor ports (coastal and inland ports) are managed by local governments.

14. In developing countries it is unusual for a local government to manage a major port, because the administrative and financial basis of local government is generally not strong enough for managing such ports satisfactorily.

15. The Port of Bangkok has long functioned as the only

gateway of international trade in Thailand due to the excessive centralization of economic activities in the Bangkok Metropolis. The central government had constructed and managed this major national port, but transferred its duties to the Port Authority of Thailand (PAT) in 1951.

16. PAT was established based on the advice of the International Bank for Reconstruction and Development in 1951, which aimed at i) improving the management efficiency, ii) making the operation more flexible and iii) protecting the business from political interference, etc.

17. Sattahip Commercial Port was additionally placed under the control of PAT in 1979. This port has been underutilized up to now due to its locational disadvantage, 180 km apart from the central business district of Bangkok. However, PAT plans to promote the utilization of this port through tariff reduction in order to cope with the rapid increase of container cargo at Klong Toei Wharves. The reduction of the empty container storage charge by 50% was announced as the first step in January, 1987. The cross-subsidizing system makes this plan possible.

18. Though PAT was established as an autonomous body, the government participates extensively in the management of PAT.

19. The Minister of Communications has the power and duty to control the affairs of PAT. For this purpose, he may instruct PAT to state facts, give opinions, submit reports, or stop any act which is contrary to the policy of the government or to the resolution of the Cabinet. He also has the power to order inquiries into the facts concerning PAT's management. Moreover, any matter that is to be submitted by PAT or its Board for the consideration of the Council of Ministers must first be presented to the Minister of Communications for subsequent submission to the Council of Ministers.

20. The power of the Council of Ministers is stronger than

that of the Minister of Communications. The Council of Ministers has the authority on following issues:

i) Appointment of the chairman and members of the Board of Commissioners of PAT

ii) Approval of the appointment of the Director General by the Board of Commissioners

iii) Approval of the construction of new ports

iv) Approval of termination of business in any port under operation

v) Approval of the capital budget

vi) Approval of the increase or reduction of capital

vii) Approval of the disposal of immovable properties

viii) Receipt of reports on the operating budget

ix) Approval of loans

x) Decision of the maximum and minimum limits of the tariff

21. In addition, the government gives financial aid to PAT, which is discussed in detail in Chapter V, below.

22. This participation of the government in the management of PAT seems indispensable, because ports should be developed, managed and operated harmoniously with other sectoral development such as urban, inland transportation and industrial development under the strong leadership of the government in present Thailand.

23. Though PAT may have nurtured port specialists and accumulated valuable know-how, the management, operation and improvement of transferred facilities (Klong Toei Wharves) occupy a large part of its business, and PAT still lacks sophisticated planning ability of new port as discussed in the preceding chapter.

24. PAT is the only management body of deep-sea ports in Thailand, and it can be observed that this monopoly has caused the same disadvantages as are found in direct management by the central government: inefficiency, lack of flexibility and political interference.

25. Thailand will have six deep-sea ports in the near future: Bangkok, Sattahip Commercial, Laem Chabang, Map Ta Phut, Songkhla and Phuket Ports. The location, role and function of these ports varies considerably, and therefore it would not be effective or appropriate that a single body (PAT) manages all these ports.

26. In order to manage each port in conformity with its own conditions, to dissolve disadvantages caused by PAT's monopoly and to rationalize the management body's business through competition among ports, new port management bodies should be established. A new port management body might be established for each port, or some bodies might manage two or more ports which have similar function. The latter way would have such advantages as to ease excessive competition among ports and enable the port management bodies to flexibly manage their organization, employees and financial problems.

27. The new port management bodies would not be local governments because they do not have sufficient administrative and financial power to manage deep-sea ports. The new port management bodies would also not be departments of the Ministry of Communications (MOC) as this way have some disadvantages mentioned before. Thus, the new bodies would be independent

Table 4.2 A Tentative Proposal of the Port Management System

Port	Function	Management Body
Bangkok	Commercial Port National Gate for Foreign Trade	PAT
Sattahip Commercial	Commercial Port Supplementary Port to Bangkok	
Laem Chabang	Commercial Port Core Infra.of ESB Development (Outer Port of Bangkok)	New Management Body
Map Ta Phut	Industrial Port Core Infra. of ESB Development	New Management Body
Songkhla	Commercial Port Core Infra.of Regional Development	New Management Body
Phuket	Commercial Port Core Infra.of Regional Development	

Note: ESB indicates 'Eastern Seaboard.'

bodies, but they should be in the form of state enterprises because the central government will still have to take part strongly in the development of ports in Thailand as discussed in Paragraphs 22 and 23, above. Table 4.2 shows a tentative idea of the port management system based on the above-mentioned primary analysis, but matters which require the government's participation will be discussed in detail at the later stages of this Study.

28. The new port authorities should adopt new management and operation methods including privatization in order to cope with the new stages of industrial and economic development.

Port Management Bodies of Coastal and Inland Ports

29. Coastal and inland ports in Thailand are presently managed by local governments. This may be appropriate because of the following reasons:

i) Coastal and inland ports mainly serve the local economy and society.

ii) These ports are usually not big enough to be managed by independent bodies.

iii) It would also not be efficient or effective for the central government to set up a branch office at each port and conduct management business.

30. Local governments, however, do not have sufficient technical and financial capacity to construct ports. Therefore, the central government presently constructs facilities and then transfer them to local governments. After taking charge of the facilities, the local governments manage and operate them freely without any participation by the central government. As a result, facilities are sometimes left underutilized or are poorly maintained due to the lack of management know-how and funds.

31. It might be better for the central government to retain the ownership of facilities, take the responsibility for large-scale maintenance and repairs, and entrust local governments with the management of facilities and give assistance on technical and managerial issues. A working group or an empowered existing agency of MOC or newly founded agency which is mentioned in Paragraph 39 of Chapter III is expected to be engaged in this task utilizing concentrated information and know-how.

B. Responsibilities of Port Management Bodies

General

32. The scope of business of port management bodies varies considerably based on their historical background and national socioeconomic situation. However, in general port management bodies in developed countries do not conduct cargo handling business directly, but those in developing countries do. Port management bodies in developing countries generally conduct cargo handling directly on a monopoly basis because the private sector firms are often not considered capable of engaging in such a business. But even in developing countries, some central governments and port management bodies have begun to privatize the cargo handling business in order to utilize the advanced technical and managerial know-how and financial power of larger firms.

Development related Business

33. The coverage of the business of port management bodies is wide from development to management and operation. Development related business involves i) planning, ii) fund raising, iii) construction and acquisition of port facilities and equipment, and iv) control of disorderly private development. The second item is to be analyzed in Chapter V and other items are already discussed in detail in Chapter III.

Management related Business

34. Management related business includes the following

i) Preservation of maritime safety
   - ° Navigation control
   - ° Search and rescue
   - ° Prevention of marine pollution

ii) Preservation of Port Safety

- ° Port police
- ° Port fire fighting
- ° Security service

iii) Utilization of port facilities

iv) Maintenance and repair of port facilities

v) Trade control
- ° Foreign exchange control
- ° Restriction on trade
- ° Collection of dues on exports and imports
- ° Control of bonded areas
- ° Control of smuggling
- ° Quarantine
- ° Immigration control

vi) Control of the private sector
- ° Restriction of and assistance to the private sector
- ° Training of sailors, cargo handling laborers and equipment operators

The current status of these management related businesses in Thailand is considered below.

Navigation Control

35. Navigation control involves the following tasks:

i) Construction and maintenance of navigation channels
ii) Installation and maintenance of navigation aids
iii) Pilotage
iv) Tug service
v) Marine communications
vi) Trafic control

36. 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 International Regulations for Preventing Collisions at Sea, 1972 have been in force since 1977, while the 1974 International Convention for the Safety of Life at Sea came into force on May 25, 1980. To suit the variety of trades, 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.

37. In Thailand, the Act for the Prevention of Collisions at Sea B.E. 2522 (1979) and the Navigation in Thai Waters Act B.E. 2456 (1913) have been laid down, and both of these apply not only to Thai vessels but also to all vessels navigating in Thai waters.

38. The term Harbour Master refers to the Director General of the Harbour Department (HD) or the Acting Director General of HD and includes any person appointed by the Minister of Communications as Harbour Master or Acting Harbour Master. The Harbour Master is responsible for:

i) enforcing laws on navigation
ii) taking care of waterways to ensure safety and to facilitate smooth navigation
iii) inspecting vessels and instigating legal action against violators of the law on navigation in Thai waters and related laws

39. There are presently seven Harbour Master's Offices located at Nakon Sawan, Ayutthaya, Samuth Sakorn, Songkhla, Trang, Chachoengsao and Nongkai. 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.

40. PAT also takes partial charge of the Harbour Masters' work at the ports under its control: Bangkok Port and Sattahip Commercial Port.

41. HD bears the duty of dredging navigation channels in principle. However, PAT takes over this task at Bangkok and Sattahip Commercial Ports including Bar Channel and no subsidy is given by HD. PAT collects channel dues from vessels of 500 net registered tons and more in compensation for the cost, but its rate is not so high as to recover the cost fully.

42. On the other hand, HD bears all the dredging cost without charging channel dues on vessels. 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 net registered tons 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 as mentioned in Paragraphs 4-9 of this Chapter.

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

44. In accordance with the resolution adopted at the 10th Conference of the International Association of Light House Authorities (IALA) 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. HD and PAT have gradually modified their existing buoys to conform to the new rules, and as far as Bangkok Port is concerned, the new system was completed in May 1983.

Navigation aids are well located as shown on the "Harbor Chart and List of Lights and Buoys of Bangkok Port," and they are maintained and repaired satisfactorily. In the event of any changes, mariners are informed by a notice issued by the Hydrographic Department of the Royal Thai Navy (RTN).

45. Pilotage is a unique service based upon local knowledge and special conditions prevailing in the pilotage area. It may be performed in coastal waters, estuarial waters, rivers, ports, harbours, lakes or enclosed dock systems or any combination of these areas which may come within a port's jurisdiction.

46. A pilot's function is to combine technical knowledge concerning the operation of a vessel with local knowledge concerning special conditions which exist in the port 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 local knowledge of the special regulations and unique conditions which exist in the port area.

47. According to the Navigation in Thai Waters Amendment Act B.E. 2477 (1934), pilotage is compulsory for vessels of 500 gross registered tons or more (overall length 50 meters or more) sailing between the entrance of the Bangkok Bar Channel and the upper limit of the Port in the River (the Memorial Bridge). Vessels with an overall length of 50 meters or more also have to be piloted through the entrance channel to or from Sattahip Commercial Port. Recommended navigation is limited to only daytime and advance notice is required 4 hours prior to arrival on the working day. Vessels requiring pilots at Bangkok Port are required to approach the Pilot Station within

a radius of 600 meters in the sheltered direction and to reduced speed or stop so as to facilitate pilot boarding. Vessels calling at other ports are not compelled to be piloted and no official pilots are available there.

48. The pilotage is performed by HD. The Pilot Division of HD comprises 64 pilots of which 54 pilots work for Bangkok Port, 4 for Sri Racha and 6 for Sattahip Commercial Port. These pilots have been well trained either in European or American schools or in RTN.

49. Tug boats, rope boats and linemen are always provided by PAT promptly to facilitate berthing at the time of vessel's arrival at Bangkok and Sattahip Commercial Ports. At present, five tug boats are provided with fire fighting and salvage equipment and are ready for full service at the Port of Bangkok. Two tug boats are available at Sattahip Commercial Port. However, there are no tug boats at the other ports.

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

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

51. After obtaining approval 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 tug boat to assist pilotage along the navigational channel at Bangkok Bar and within the port area (for both entering and leaving) and for another tug

boat required to assist in docking and undocking

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

52. 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 the Ministry of Interior (MOI) and PAT to render assistance for traffic control.

53. HD is responsible for the establishment of an international marine communications network to facilitate contact among sea-going vessels, shore radio stations and land radio stations. The port radio station, radio telegraphy in medium frequency and in high frequency, VHF and single side band radio telophony and telex service are available at Bangkok Port. Of these, the port radio station and telex services are provided by PAT. The radio telegraphy in medium frequency and radio telephony services are utilized at Sattahip Commercial Port. However, messages to and from vessels at sea are transmitted via Bangkok from/to Songkhla Port. To Phuket Port messages can be sent via Penang Radio for vessels at sea on the west coast of the Malayan Peninsula and via Bangkok or Singapore for vessels in other areas.

54. There is presently no standardized vessel traffic control system. Therefore, vessel navigation presently relies only on

the technical abilities of the pilots at Bangkok Port. Communications among the pilots and officers of HD and the Marine Police is made through VHF radio, and PAT operator also communicates with pilots on vessels by radio telephony to give berthing and other related information.

55. The following Tables 4.3 and 4.4 were obtained based on an analysis of the records of accidents at Bangkok Port covering the 2-year period from 1982 to 1983.

56. There were various dangerous factors which contributed to 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.

57. Most of the accidents in the Klong Toei area and the stream were due to the environmental situation, support of tug boats and maneuvering techniques. The percentage of accidents in the Klong Toei area and the stream 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.

Search and Rescue

58. Presently, the Department of Aviation under MOC is in charge of search and rescue affairs for both land and sea missions. There is also coordination between HD and the other agencies concerned such as RTN, the local government agencies, etc.

59. Previously, the International Maritime Organization (IMO) purposed the establishment of a search and rescue organization which would take care of sea missions. The primary purpose of the IMO Search and Rescue Manual is to assist governments in

Table 4.3 Number of Accidents by Location, Kind and Cause

	1982	1983
Total Number of Accidents	38	38
Location:		
Klong Toei Area	12(32%)	9(24%)
Bangkok Bar Channel	16(42%)	13(34%)
Stream	10(26%)	16(42%)
Types 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%)

Table 4.4 Accidents at Bar Channel

	1982	1983	Total
Grounding	7	12	19
Meeting	(5)	(5)	(10)
Overtaking	(1)	(0)	(1)
Crossing	(1)	(7)	(8)
Collision	9	1	10
Meeting	(1)	(0)	(1)
Overtaking	(4)	(1)	(5)
Crossing	(4)	(0)	(4)
Total	16	13	29

Note: Figures in parentheses show the breakdown.

implementing the objectives of the International Convention on Maritime Search and Rescue, 1979, and of Article 12(2) of the Convention on High Seas, 1958, which requires that every coastal state shall promote the establishment and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea and - where circumstances so require - by way of mutual regional arrangement cooperate with neighbouring states for this purpose. The IMO has already contacted HD and the program is proceeding.

Prevention of Marine Pollution

60. The International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL Convention) 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.

61. The Regulation for the Prevention of Pollution by Garbage from Ships and the Regulation for the Prevention of Pollution by Oil and Garbage from Marine Equipment were formulated in 1969. The Ocean Dumping Convention was written in 1972. The Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, which includes standards for discharge and for construction and equipment, was adopted and put into force in October, 1983.

62. The Royal Thai Government has not yet ratified these treaties and there is no special regulation for marine pollution in Thailand; however, there are some sections in the Improvement and Conservation of National Environmental Quality Act B.E.2518 (1975) as well as the Navigation in Thai Waters Act B.E.2456 (1913) which apply. The details are as follows:

The Improvement and Conservation of National Environmental Quality Act, B.E.2518 (1975)

Section 20. If there is an emergency arising from environmental pollution, which, if left unremedied, will be dangerous to life, or will cause personal injury or damage to the properties of the people or the State, the Prime Minister shall have the power to issue an order prohibiting the person from causing such danger or damage or the person who may be in danger or suffer any damage from acting in any way which will intensify the severity of such environmental pollution, or issue an order that certain acts be carried out in order to stop or reduce the severity of the environmental pollution during the emergency.

Section 26. Whoever violates or fails to comply with an order issued under section 20 shall be liable to imprisonment for a term not exceeding six months or to a fine not exceeding ten thousand Baht or to both.

In the case where the person who violates or fails to comply with the said order is the person who causes danger or damage, he shall be liable to imprisonment for a term not exceeding five years or to a fine not exceeding fifty thousand Baht or to both.

Navigation in Thai Waters Act, B.E. 2456 (1913)

Section 117. Within the limits of the Province of Bangkok, it is strictly forbidden to encroach on the River Chao Phraya without permission from the Harbour Master or other competent authority.

Section 118. Any person offending against the provisions of Section 117 shall be punished with a fine not exceeding one hundred Baht and shall be ordered to remove the encroachment at his own expense within a specified time. In the event of non-compliance with this order, the Harbour

Master or other competent authority may remove the same at the expense of the person so offending.

Section 119. Any person who, without the consent of the Harbour Master, or other competent authority, throws stones, gravel, ballast, mud or any other substance in or near the channel, over the bar of a navigable river or in any part of such a river or in any harbour or anchorage shall be punished with a fine not exceeding one thousand Baht and shall repay the expenses which may be incurred in removing the same.

Section 120. No person shall dredge below the Northern Limit of the Harbour of Bangkok or in any harbour or anchorage without the permission of the Harbour Master or other competent authority. Any person offending against any of the provisions of this section shall be punished with a fine not exceeding one thousand Baht and shall repay any expense which may be incurred in consequence of the offence.

Section 204. No discharge of petroleum whether mixed with water or not, shall be permitted into the harbour or river from any tank ship, or from the licensed premises.

Section 208. Every person who shall violate or refuse or fail to comply with any of the provisions of this chapter shall be punished with a fine not exceeding five hundred Baht or imprisonment for any period not exceeding six months.

63. 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 terminal.

Ports of Refuge

64. Ports of refuge provide sheltered safe anchorage for vessels sailing in coastal areas. When coastal ships suddenly encounter typhoons or heavy storms and they are still in a long distance from the next destination, ports of refuge provide safe emergency anchorage for the vessels until the weather improves. Generally, ports of refuge are not used as commercial ports, so the ports are not well equipped with various facilities. However, it may be possible to utilize an existing port as a port of refuge.

65. There is no standard set for the distribution of ports of refuge. The actual intervals should vary depending on the density of the maritime traffic and the local topography.

66. Following is a tentative proposal for the location of ports of refuge along the coast of Thailand based on the navigation chart.

Ports:	Sattahip Commercial Port
	Songkhla Port
	Phuket Port
Anchorages:	East Side Area of Ko Kut
	Around Ko Phangan and Ko Samui
	Phuket Ocean Vessel Anchorage

67. However, there are many other factors which should be considered when selecting ports of refuge. Consequently, it would be advisable to collect the opinions of numerous experts including commanders of RTN, chief pilots, and masters who have a lot of experience in navigation in identifying port of refuge.

Problems with the Preservation of Maritime Safety

68. It might be effective for the search and rescue business and the prevention of maritime pollution to be conducted by the

government because these businesses are not limited to port areas.

69. One common and reasonable method employed in many countries is for the government and the port management bodies to share the cost and responsibility for the construction, installation and maintenance of navigation channels and navigation aids taking their beneficiaries into consideration. From this viewpoint, the present system should be changed as discussed in Paragraphs 41 and 42 of this Chapter.

70. 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 a standardized control system.

Port Police and Fire Fighting

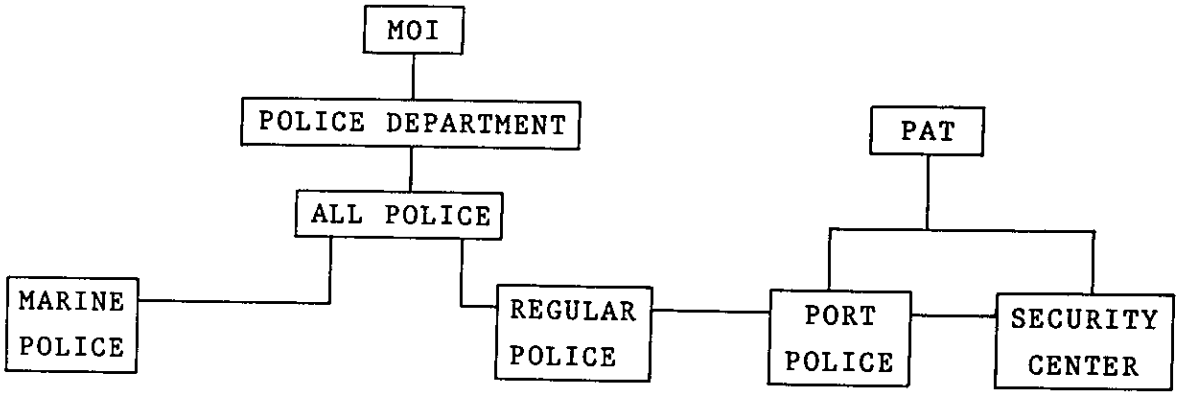
71. The Police Department of MOI takes charge of port police and fire fighting in general. But their system is unique at Bangkok Port. PAT has a division of Port Police which is responsible for the prevention and suppression of crimes, search and arrest of criminals, patrol around the port, and operation of the PAT fire brigade at Klong Toei Wharves. The Port Police are actually under the control of MOI, consists of proper officers of MOI and have the same authority as regular police, but PAT pays the salaries of the port policemen. The Security Center, 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.

72. Fire prevention and fire extinguishment 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 Center and the Port Police cooperate with each other for fire patrol, fire prevention and in putting out fires.

73. 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 Center 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 tug boats moored near Shed No.1 are also used for fire fighting activities.

Fig. 4.1 Fire Fighting Organization



74. 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.

75. The record of accidents and fires at Klong Toei Wharves is shown in Tables 4.5 and 4.6.

76. Though the port facilities are public facilities open to common users, those under the control of PAT also have the characteristic of productive facilities because PAT exclusively conducts longshoring utilizing those facilities. Present police and fire fighting system at Klong Toei Wharves can be understood as reasonable only on this basis.

77. It is obvious that this system cannot be applied to underutilized ports like Sattahip Commercial Port and to ports like the coastal and inland ports where the port management body does not conduct cargo handling business.

Putting the Port Facilities to Use
Maintenance and Repair of Port Facilities

78. The utilization, maintenance and repair of port facilities are the main management work of the port management body. These issues, however, are discussed below in the section on port operation.

Trade Control

79. Governments take full responsibility for conducting trade control in all countries because trade control is closely connected with governmental policy. Therefore, trade control issues are only considered in this report in as much as they relate to the proper management and operation of ports.

Operation related Business

Table 4.5 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

Table 4.6 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 named MAERSK
1975	barge (for oil)	Oct. 24	opposite the quay No. 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	-

80. At deep-sea ports, which mean ports under the control of PAT at present, cargo handling is the major port operation related business of the port management body. It is understood that all the shoreside cargo handling at these ports is, in principle, conducted on an exclusive basis using equipment, labourers and drivers owned or employed by PAT. Shoreside labourers and drivers of cargo handling equipment belong to the Cargo Handling Division and the Mechanical Handling Equipment Division, respectively. As for shoreside labourers, they are actually stationed in each shed, warehouse, open storage and container freight station (CFS), e.g., there are 39 labourers presently stationed at Shed No.2. The total number of shoreside labourers amounts to 710 including 41 temporary workers in addition to 325 forklift drivers, 230 truck and tractor drivers and 60 crane drivers (January, 1987).

81. Cargo handling at deep-sea ports, however, consists of many stages and involves various bodies other than PAT. The flow of different types of cargo handling is presented below.

(1) Conventional Cargo Handling of Imports

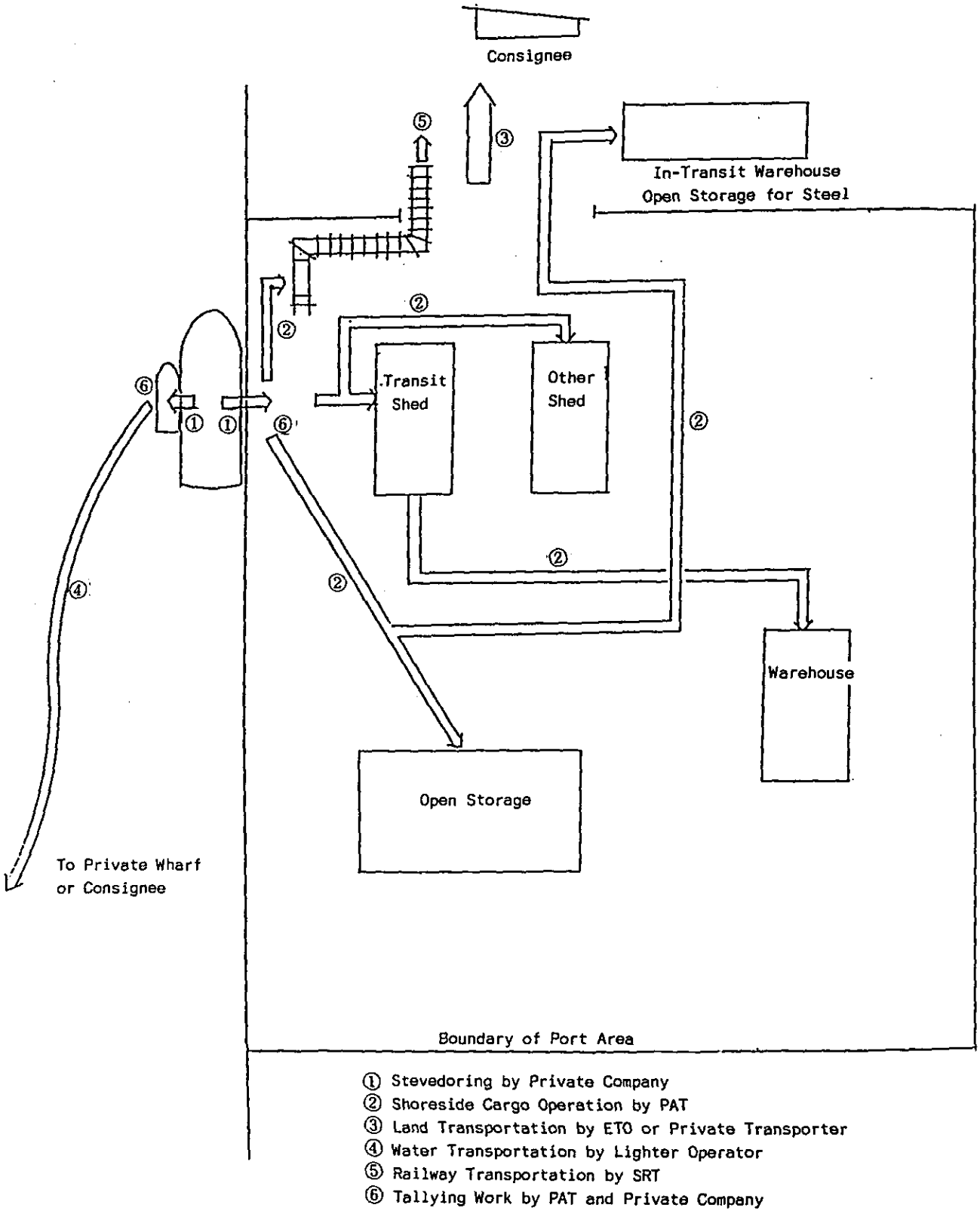
As shown in Fig. 4.2, present import cargo handling is divided into six parts.

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 storage 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

Fig. 4.2 Flow of Conventional Cargo Handling (Import)



port area is conducted by both the Express Transport Organization of Thailand (ETO) and private companies. This business, however, is monopolized by ETO at Klong Toei Wharves. 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.

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

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

(2) Conventional Cargo Handling of Exports

As shown in Fig. 4.3, export cargo loading is also divided into six parts, and the cargo flow is almost exactly the same as for import cargoes. 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 through warehouses and some are carried directly to shipside by trucks or rail, but most of the export cargoes are loaded from lighters at Klong Toei Wharves.

(3) Import Container Cargo Handling

Fig. 4.4 shows the system of import container cargo handling, which is divided into seven parts.

Fig. 4.3 Flow of Conventional Cargo Handling (Export)

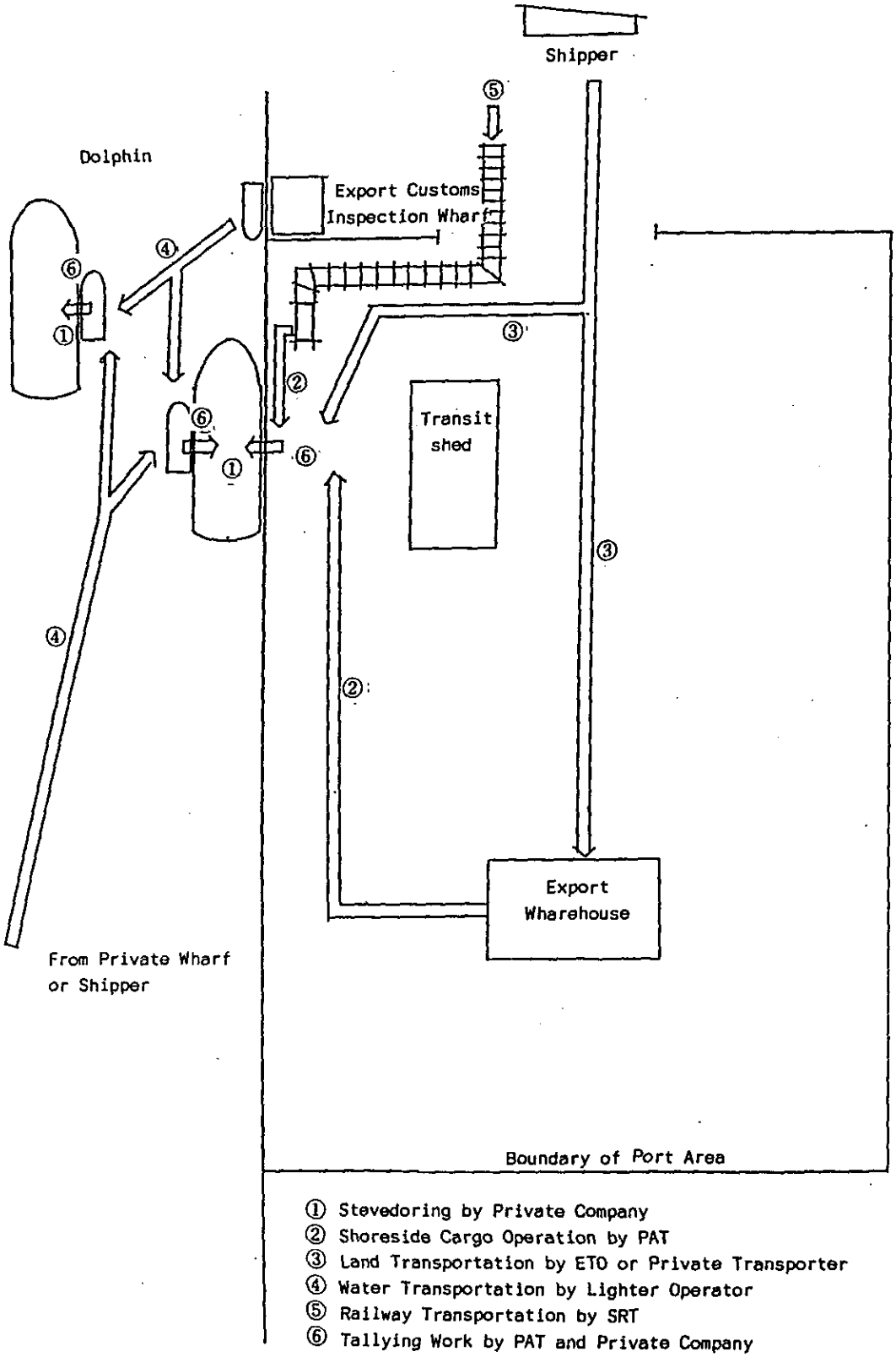
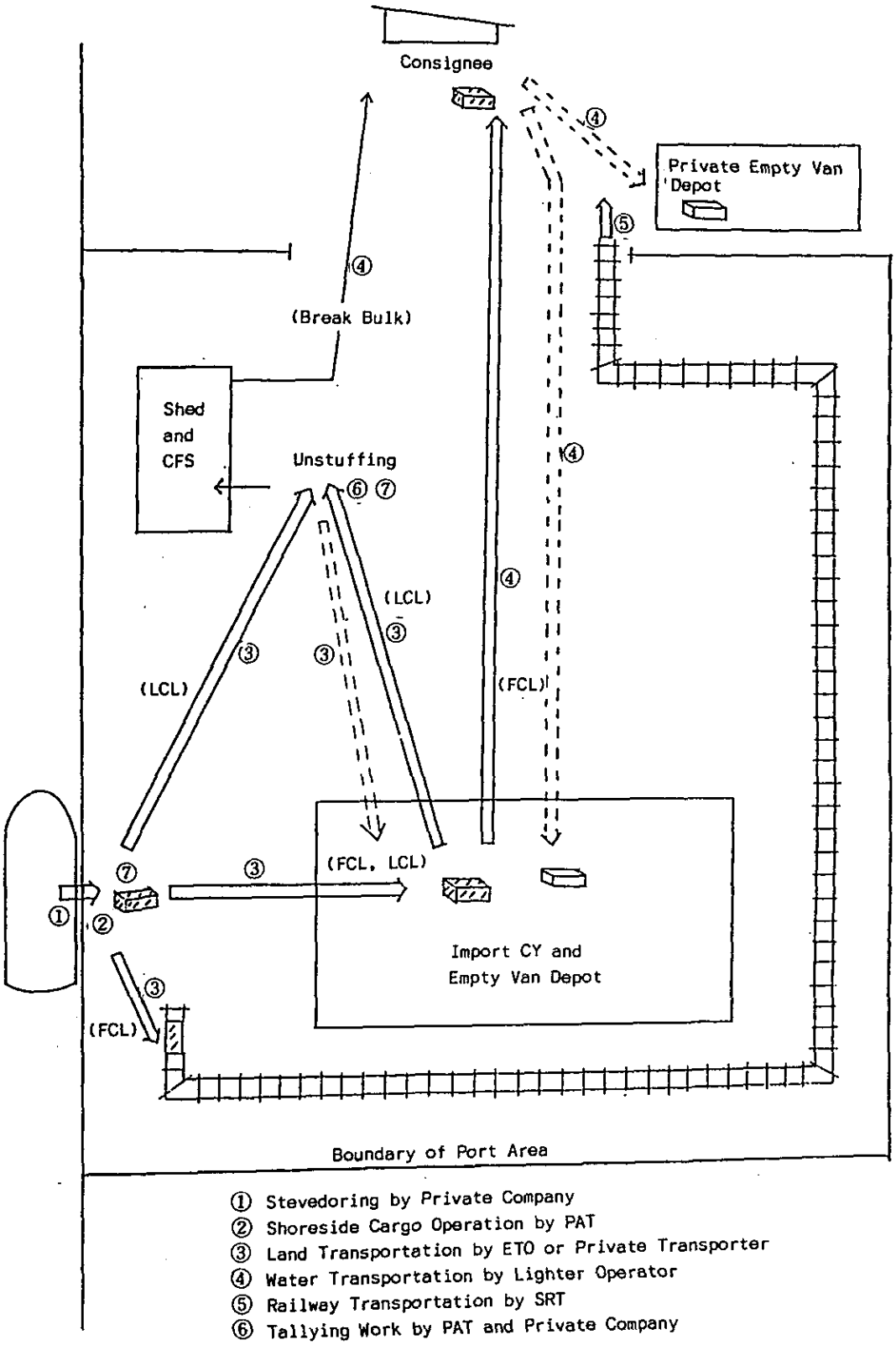


Fig. 4.4 Flow of Container Cargo Handling (Import)



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.

iii) Hauling containers from the quay to container yard (CY) or CFS or from CY to CFS and vice versa, and delivery to inland transporters is, in principle, carried out by PAT. But actually this is carried out mainly by private companies.

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. In Sattaphip Commercial Port, this work is carried out by both ETO and private companies.

v) Rail transportation is carried out by SRT.

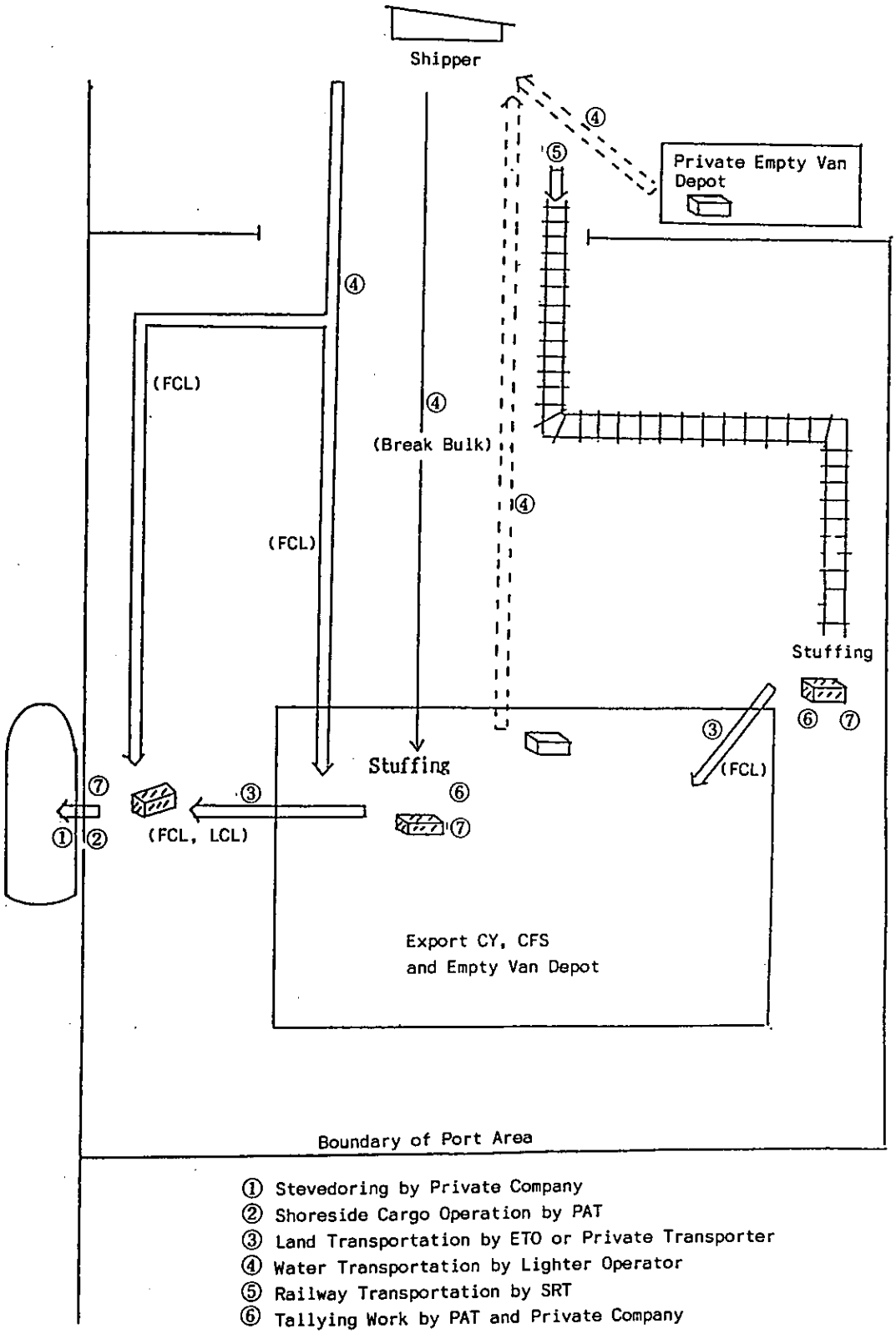
vi) Unstuffing work of loaded containers is carried out by PAT.

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

(4) Export Container Cargo Handling

As shown in Fig. 4.5, the export container cargo handling also consists of seven parts. The flow of the

Fig. 4.5 Flow of Container Cargo Handling (Export)



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

82. Container ships berthing at Klong Toei Wharves are grouped into gearless ships and a self-sustained ships. According to the survey carried out by the Study Team, the handling efficiency of gearless ships using mobile cranes is somewhat lower than that of self-sustained ships. This is because the manipulation of mobile cranes is comparatively difficult for drivers even though these cranes are powerful. The efficiency of discharging containers from ships is 14.3 boxes per gang hour on average except for gantry type ship gear, while the loading efficiency is at a considerably lower level of 8.5 boxes per gang hour.

83. One of the reasons might be that there is no export marshalling yard at East Quay. When a ship commences loading, export containers are transferred to the shipside apron by trailers and chassis in accordance with the loading sequence, which is planned considering the containers' destination, size, status, weight, kind of cargo and required customs procedure. Though in each yard containers are stacked estimating the sequence to some extent, it is hardly possible to achieve exact sequential stacking in this manner. Therefore, sorting work is required in order to pick up the appropriate containers in order. This situation generally makes the loading efficiency low.

84. The other reason is that there is serious traffic congestion in the port area due to the full use of yards by

Table 4.7 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	3
	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.

Table 4.8 Handling Efficiency of Break Bulk Cargo (1)

Kind of Operation		Commodity	Form	Efficiency (Tons/Gang/Hour)	Remark
Discharge	Landside	General Cargo	Case	6.4	Jib Crane
		Chemical	Bag	32.0	Jib Crane
		Chemical	Bag	19.0	Union Purchase
		Chemical	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
	Waterside	Steel Beam	Bundle	16.0	Union Purchase
		Steel Coil	Coil	37.0	One Boom
Load	Landside	Sugar	Bag (Cutting Bag)	50.0	Jib Crane (Private Wharf)
	Waterside	Tapioca	Bag	21.0	Union Purchase

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

shipping lines as import/export CY, export CFS, empty van depot and repair shops. It is not normal that CY functions as an export CFS. This is partially because of the lack of proper export CFS and partially because of the unpopular bounded transportation system. The latter condition results in the high percentage of export cargo stuffed in the port area. When receiving, delivering, stuffing, shifting or repairing works are carried out simultaneously in adjacent areas, large equipment like mobile cranes, top loaders, trailers and so on are moved frequently, limiting each other's passage. Large share of import LCL cargo which is caused by the said unpopular bounded transportation and the distortion of tariff structure of ETO gives an impetus to the congestion.

85. According to the survey carried out by the Study Team, the handling efficiency of break bulk cargoes discharged to landside is 17.1 tons per gang hour except for steel goods. Though this rate is obtained within a short period, it is comparatively good. In particular, pallets which are well used in handling operations may contribute to this high efficiency. However, according to the data from the Stevedore Daily Report in October 1986, shown in Table 4.9, the rate is 15.3 tons per gang hour, which is lower than in some other ASEAN countries as noted in Table 4.10.

86. If the handling efficiency of break bulk cargo is lower, the following factors are considered to be the major reasons.

i) Wasted time in choosing necessary equipment when the kind of cargo changes, in opening hatch covers and in standing by derricks.

ii) Lack of previous arrangement of the cargo handling sequence.

iii) Lack of skilled labourers

Table 4.9 Handling Efficiency of Break Bulk Cargo (2)

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

Source: Stevedore Daily Report, October 1986, PAT.

Table 4.10 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
Chemical in Bag (Discharge)	28.45			
Bulk Cargo (Load)	122.97	21.5		26.0
Liquid bulk (Load)		17.0		
Containers	20 boxes			7-16 boxes

Note: Cargo handling efficiency at Manila Port shows the average of loading and discharging.

Source: Survey done by The Study Team

87. Though the above-mentioned problems concern stevedoring, they affect the efficiency of shoreside operations because these two operations are closely related. Indeed, it is observed that the PAT labourers are obliged to wait for cargo from the ship when stevedore labourers are discharging cargo into lighters. However, the said PAT labourers do not give assistance to works at busy berths, even if these berths are adjacent to their own, and they waste time idly. This shows the lack of flexibility in personnel management at PAT.

88. Generally, the stevedore labourers do not observe proper safety precautions. They do not wear safety helmets and shoes even when they are engaging in dangerous work. Then they occasionally deal with cargo roughly. Regrettably, there are no data, but it is supposed that the number of accidents and the amount of cargo damage must be significant.

89. Private stevedoring companies engage in loading and discharging to and from ships. There are around 240 companies and they are required to be registered with PAT. In addition, all stevedore labourers working in PAT areas are registered with PAT and must have an identity card with a personal number and a photograph. Though there are 10,990 stevedore labourers registered (August, 1986), it is said that only 4,000-5,000 persons among them are actually working at Klong Toei Wharves.

90. Stevedorage is paid on a tonnage basis for break bulk cargo and on a box basis for containers. No authorized tariff exists and the charge is determined on a case by case basis in contracts between shipping lines or their agents and stevedoring companies.

91. Stevedore labourers are paid by stevedore companies at a daily wage rate, and they are paid not only for ordinary work but also for waiting time standing by for ship's arrival, or waiting on board for commencement of cargo handling. At present there are 6 labour unions in the Port of Bangkok. As a

result of cooperating, together and making a 7-hour strike in January 1983, they gained power versus their employers and successfully negotiated an agreement on their employment status.

Problems Concerning Operation related Business

92. The major problems concerning the operation-related business of the deep-sea port management body can be summarized in the following three points:

i) low productivity
ii) lack of assistance to private operators for their labour training
iii) poor registration system for stevedoring companies

93. According to the Ministerial Regulations of PAT B.E. 2500 (1957), any person wishing to conduct the business of loading or unloading of cargo onto or from foreign-going vessels or any person 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.

94. Though 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 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) to select any other company to take over the work or to take over the work 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 poorly regulated as follows:

i) The applicant who wishes 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.

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

95. Checking the applicant's business ability from the following viewpoints should be added to the licensing process.

i) Quantity and quality of facilities, equipment and labourers

ii) Productivity

iii) Expected business scale

iv) Financial plan

v) Total demand-supply balance for the service

96. 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 and the fifth point to avoid excessive competition. The follow-up of these points including training of labourers and equipment operators is, of course, necessary and effective. The necessity of training is already mentioned in the discussion of the Training Center of PAT in Progress Report I.

97. If privatization at deep-sea ports proceeds, this registration or licensing procedure would become one of the main duties of the management body. However, this may not be

necessary at coastal and inland ports even if longshoring works are already being carried out by private firms, because the cargo throughput is small and only a few firms conduct such business there.

V. FINANCIAL MANAGEMENT

A. Present Financial System and Situation

General

1. The Port Authority of Thailand (PAT) was established in 1951 with the Port Authority of Thailand Act (PAT Act) based on a recommendation by the International Bank for Reconstruction and Development (IBRD). Before PAT's foundation, Bangkok Port had been managed by the Office of the Port of Bangkok under the Department of Transportation, Ministry of Communications (MOC).

2. Established as an autonomous body, PAT is required to be financially independent. However, the annual revenue of PAT remaining after deducting operating expenses and allowing for proper charges, such as charges for maintenance and depreciation; bonuses; provident funds for staff; ordinary reserve funds; and reserves for expansion and investment are turned over to the Treasury as revenue of the State. If the revenue, on the contrary, should be insufficient to meet the said expenses excluding the reserves for contingencies and expansion, and if PAT should be unable to obtain funds from other sources, the deficiency is covered by the State.

3. The annual amount turned over to the Treasury which is referred to as a "contribution to the government" is actually calculated as follows referring to the PAT Act. A certain percentage of the net profit in the previous fiscal year is taken for the contribution to the government just as at other state enterprises. This percentage which is decided by the government in advance varies greatly depending on the financial situation of each state enterprise. As for PAT, the percentage has gradually been raised from 30% before 1975 and 40% during

1976 - 78 to 60% after 1979.

Investment

4. 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. The operating budget of PAT is decided by PAT itself, while the capital budget (investment for port development) must be submitted to and approved by the Council of Ministers.

5. Investment funds for projects are raised from international aid loans, government subsidies, bond issues and internal reserves. In the case of borrowing money, PAT must obtain the prior approval of the Council of Ministers. But PAT has no experience in issuing bonds up to the present.

6. Table 5.1 shows all the port development projects since the foundation of PAT. Klong Toei Wharves and Sattahip Commercial Port were developed using government funds, and PAT bore only the cost for improvement of these ports.

7. PAT plans to invest at least Baht 690 million for the improvement of the container terminal and the purchase of gantry cranes, dredgers and computers at Klong Toei Wharves in the near future. If PAT is to be appointed as the investor of the counterpart fund (local currency portion fund) for the Laem Chabang Port construction, PAT will have to bear an additional Baht 1,533 million. However, the amount of the PAT's reserve fund for expansion at the end of fiscal 1985 is only Baht 1,574 million which cannot meet the required total of Baht 2,223 million. This shortage is related to the higher percentage of contributions to the government, and therefore, it may be reasonable to understand that the government allows PAT to reserve funds only for the improvement of existing ports.

Table 5.1 List of Deep-sea Port Development Projects

Year	Project	Project cost	Loan included	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.	Governmnet
1980	Sattahip Commercial Port (repair, purchase of equipment)	N.A.	$15,500,000(IBRD)	PAT
1980-1985	Laem Chabang (land acquisition)	B233,819,458	———	Government
1982	Phuket & Songkhla (construction)	N.A.	$71,400,000 (ADB)	Government *1
1983	Laem Chabang Port (Detailed Design)	¥528,840,820+B33,794,000	¥650,000,000 (OECF)	PAT
1984	Laem Chabang Port (construction)	¥23,697,000+ B1,532,900,000	¥4,172,000,000 (OECF)	undecided
1986			¥12,283,000,000 (OECF)	
Scheduled			¥7,242,000,000 (OECF)	
Scheduled	East Quay (purchase of gantry cranes)	B690,000,000	———	PAT
Scheduled	Purchase of Dredgers			
Scheduled	Purchase of Computers			

Note: The loan agreement for the constructin of Phuket and Songkhla Ports was concluded between the Asian Development Bank (ADB) and the Thai Government on the condition that PAT would be responsible for the management of these two ports and the repayment of the loan.
B = Baht
$ = U.S. Dollars
¥ = Yen
OECF = The Overseas Economic Cooperation Fund

Source: PAT

Operating Account

8. Table 5.2 shows the actual operating account of PAT in fiscal 1985. The categorization is not appropriate to check the cost-revenue balance because administration and depreciation costs and interest on loans are classified separately from the services concerned. However, some issues can be pointed out based on this table.

9. PAT has the power to fix the charges for the use of its ports, services and facilities within the maximum and minimum limits determined in advance by the Council of Ministers.

10. Revenue from the port operations which consist of cargo handling, ship handling and other services covers their costs as a whole, but the cost-revenue balance of each service is not necessarily good because PAT gains a large amount of profit from the cargo handling and makes a big loss on the ship handling and other services. To put it differently, PAT imposes a disproportionately heavy burden on shippers and consignees and a lower burden on ship owners or operators.

11. Depreciation cost occupies a small share (9%) of the total expenses owing to the utilization of superannuated facilities.

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, which contributes to the reductin of the depreciation cost in recent years.

12. It can also be pointed that the share of interest on loans is very small (1%) due to the reasons mentioned in Paragraph 6, above.

13. Summarizing the above, it can be concluded that PAT has maintained a good financial balance in the operating account due to the following favorable factors:

Table 5.2 Operating Account of PAT in Fiscal 1985

(Unit: Thousand Baht)

	Revenues	Expenses	Profit or Loss	Payer of Charge
Cargo Handling	1,223,064 (78%)	456,605 (40%)	766,459	Shipper and Consignee
Ship Handling	136,326 (9%)	200,376 (17%)	- 64,060	Ship Owner or Operator
Other Service	24,739 (2%)	114,597 (21%)	- 89,858	Ship Owner or Operator Shipper and Consignee
Administration		243,371 (10%)	-243,371	
Depreciation		108,242 (9%)	-108,242	
Interest on Loans		10,716 (1%)	- 10,716	
Others	176,597 (11%)	17,434 (2%)	159,163	
Total	1,560,716 (100%)	1,151,341 (100%)	409,375	

i) Project costs for new port development were totally born by the government and PAT was not asked to provide funds for such development.

ii) PAT's depreciation burden has been light because many of its facilities are older, and have already been completely depreciated.

Coastal and Inland Ports

14. The central government bears all the construction cost of coastal and inland ports, while the local governments bear all the operation cost in principle. However, the central government sometimes bears maintenance and repair cost when their scale exceeds the financial capability of the local governments. The local governments do not set special accounts for port management and operation. Therefore, revenues and expenses are managed as a part of the general account. Data which enable the Study Team to check the financial viability of the port sector in each local administration are not available at this stage of the Study.

B. Future Direction of Port Financing

15. The prospective scale of investment in port development in Thailand may become larger as new port construction may play a major role, surpassing the improvement of existing facilities. Moreover, the new ports may operate at a loss at least for several years during their start-up period due to their location apart from the central business district of Bangkok. Therefore, an appropriate financial system must be established to promote the development of these ports as essential infrastructure for regional development.

16. At ports, it is easy to identify the direct users. It might be simple for port management bodies to introduce a self-supporting accounting system, and to require the direct users to pay all the development and operating costs. However, there are hardly any port management bodies anywhere in the world which adopt a completely self-supporting accounting system because of the following reasons:

i) A large scale of investment is required for the initial port construction.

ii) Recovery of the investment cost takes a long period.

iii) Port users usually cannot accept the higher charges which would cover the full costs, sometimes due to sharp competition and sometimes due to financial weakness, even when they can finally recover the higher costs from their customers.

iv) Almost all governments recognize that the beneficiaries of ports are not only the direct users like ship operators, shippers, consignees and their representatives, and that the ports play an important role in national and regional economic and social development.

17. Based on these unique characteristics of ports, nearly all the port management bodies in the world are given subsidies by their governments to a greater or less extent. In the case of PAT, it has actually received subsidies from the Royal Thai Government as discussed in Paragraph 6 above, even though PAT is, in principle, managed on a financially self-supporting basis.

18. The subsidy system varies greatly from country to country based on the relations between the government and port management bodies, the degree of interest of the government in

ports, the estimated economic and social effect of the ports, the character of the port management bodies and so on.

Typical examples of subsidy systems are presented below.

i) In the Kingdom of the Netherlands, smaller ports are under the warm patronage of the government just like in Thailand. Bigger ports such as Rotterdam and Amsterdam, however, also enjoy subsidies from the government, though in the case of Rotterdam Port, the subsidies are limited only to two-thirds of the navigation channel dredging cost up to 57 feet in depth, two-thirds of the construction and maintenance cost of canals and breakwaters and half of the construction and operation cost of railways inside the port area. The financial situation of the Port Authority of Rotterdam has been continuously poor, and it has asked the government to increase subsidies in order to ease its heavy financial burden.

ii) In Japan, ports are managed by local governments. The central government, unlike the Thai and Dutch Governments, gives substantial subsidies to bigger ports which mainly serve for foreign trade rather than to smaller ports which mainly serve for domestic trade based on the consideration that the contribution of bigger ports to the national economic and social development is greater than that of smaller ports. subsidies, which are limited only to the construction and improvement works, are spent in accordance with the standards set forth in the Port and Harbour Law. Other than the subsidies from the central government, each local government allocates some amount of its general revenue to port sector administration annually in order to make up for shortages of revenue from port operation. This is based on the reasoning that the local society also benefits from the ports, and this contribution from local governments covers around 25%

of the required expenses on average at the eight biggest Japanese ports as of 1984.

iii) As for the United States, there is no direct subsidy system by the government. But the channels and inland waterways outside of the pier head lines are improved and maintained by the Federal Government using public funds. This can also be considered as a subsidy to port management bodies.

Table 5.3 Standards for Subsidies in Japan

Facilities	Specially designated Major Ports	Other Major Ports	Minor Ports	Ports of Refuge
Water Facilities (Waterways, Anchorages and Basins for small crafts)	up to 100%	50%	up to 40%	75%
Protective Facilities (Breakwaters, Revetments, Parapets, etc.)	up to 100%	50%	up to 40%	75%
Mooring Facilities (Wharves, Buoys, Dolphins, etc.)	up to 75%	50%	up to 40%	-
Port Transport Facilities (Roads, Railways, Canals, etc.)	up to 75%	up to 50%	up to 40%	-
Port Pollution Control Facilities (Buffer Zones, etc.)	up to 50%	up to 50%	up to 50%	-
Port Environment Protection Facilities (Greens, Open Spaces, Landscapes, Rest Rooms, etc)	up to 50%	up to 50%	up to 50%	-
Dikes for Water Dump Areas	up to 25%	up to 25%	up to 25%	-
Marine Waste Treatment Facilities (Waste Incinerators, Waste Oil Disposal Facilities, etc.)	up to 25%	up to 25%	up to 25%	-

19. It is generally understood that ports have such functions as i) to promote the location of littoral industries, ii) to increase job opportunities through the location of littoral industries and multiplier effect, iii) to increase the regional population through the growth of economic activities, iv) to accelerate decentralization through the growth of regional society, and v) to contribute to the social and economic development of the nation as a whole. In Thailand, ports will play a similar role. Laem Chabang Port, for instance, is expected to promote the development of port related industries and the activation of regional economy as well as to promote national economic growth (Final Report for the Study on the Development Project of Laem Chabang Coastal Area, Japan International Cooperation Agency, 1985).

20. Consequently, it may reasonably be concluded that the Royal Thai Government should share the cost for port development and operation, if it intends to promote the national and regional economic and social growth. Though in most countries governments subsidize only the construction, improvement and maintenance of selected facilities, it is essential for the Thai Government to establish an appropriate subsidy system based on a careful consideration of the role and ability of the government itself, the port management bodies and private sector participants, and the potential role of ports in the national and regional socioeconomic development.

21. The Study Team presents a case study in Section C of Chapter VI, and will formulate suggested principles through the accumulation of case studies in the later stages of this Study.

VI. PRIVATIZATION IN PORT OPERATIONS

A. Government Efforts for Privatization

Definition of Privatization

1. 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 disciplines, 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.

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

3. 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 competitions. 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.

4. 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 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.

5. 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, because of their inefficiency, losses, size, importance, or tendency toward monopoly, have become attractive candidates.

Government Privatization Policy

6. Concerning the State Enterprises Development Program, the Sixth National Economic and Social Development Plan is summarized in substance as follows:

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-reliant. 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 necessarily contains these important policies:

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

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

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 loan sources.

v) To reduce the role of industrial state enterprises or other types of state enterprises which provide basic services 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 enterprise that generate income or those that 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

7. 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 at 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 enterprises as shareholders or management officials
v) To sell state enterprises

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

i) The Cabinet acknowledged the report of the National Economic and Social Development Board (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.

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

The First Corporate Plan of PAT

10. Based on the forecast of economic growth, PAT set its port development strategy as follows:

i) PAT must improve various facilities at Bangkok Port to handle about 8 million tons of cargoes a year in the future.

ii) PAT needs to improve Sattahip Commercial Port to support the Eastern Seaboard Development Program and natural gas supply and oil resources survey.

iii) PAT will construct Laem Chabang Port to serve vessels for general cargo, containerized cargo, agri-bulk cargo and non-polluting industrial cargo.

iv) PAT is scheduled to manage Songkhla and Phuket Ports to serve agricultural and mineral export cargo and some import cargo.

11. Even if PAT makes its best effort to raise the required investment funds for these goals through cost reduction, tariff adjustment, etc., PAT will still have insufficient capital reserves for the expansion and development of the services including the provision of modern equipment for the users, because PAT presently is required to turn over 60% of its

profit to the government. Since the deep-sea ports will contribute greatly to the national economic and social development and PAT is not financially capable to accept this burden, PAT requests the government to invest in constructing new ports and to subsidize the loss incurred from the operation of the new ports during the start-up period.

12. In response to the government's privatization policy, PAT has decided to allow the private sector to participate in the operation of Sattahip Commercial Port and other future ports provided that the private sector can operate more economically. There is no clear system yet, but this Corporate Plan shows one possible pattern of privatization as a preliminary consideration under which the government conducts the planning, design and construction of the basic facilities and the private sector takes the responsibility for the investment in other facilities such as mechanical equipment and operation under the control of PAT. As the first case, PAT intended to lease three out of a total of five berths at Sattahip Commercial Port to a private firm and to let the lessee operate these terminals.

13. PAT's Corporate Plan also stresses the improvement of organization and personnel management. In order to create flexible and efficient management, PAT plans to cut down the unnecessary positions or to employ outsiders, to improve staff performance through adequate training, to promote the participation of employees in the process of administration and management, and to speed up operations by means of the revision of regulations, orders and working procedures.

Trial at Sattahip Commercial Port

14. 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 years successively.

15. 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

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

Appraisal of the Effort for Privatization of Port Operations

17. 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.

18. Indeed there may be other possible methods applicable to the privatization of Sattahip Commercial Port operation. 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 (See Paragraph 21 below). Though it is not certain that these two alternative methods could have led the trial to success, some lessons may be learned from the failure at Sattahip Commercial Port.

19. 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 potentialities of each method carefully. Our proposed guidelines on this issue are explained below.

B. Methods of Privatization

20. It is generally understood that there are three alternatives for privatization of port operation. These three are; i) turnkey method, ii) modified turnkey method, and iii) leasing of completed facilities. However, the Study Team adds another alternative as suggested in Paragraph 18 of this chapter, which we call the participation method.

Definition of Each Method

21. Each method is defined as follows:

(1) Turnkey Method

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

(2) Modified Turnkey Method

This method involves some development of the facilities by the government and/or port management body. Sharing of responsibilities and cost in the development should be decided case by case, for example as mentioned in Table 6.1.

Although the ownership of facilities, especially of those constructed by private firms, must be studied and discussed at the later stages of this Study, the facilities constructed by the government and/or port management body, excluding public-use facilities, are leased out to private firm for their exclusive use. Ministry of Communications (MOC) and PAT attempted to implement this method at Sattahip Commercial Port as presented above.

(3) Leasing of Completed Facilities

With this method, the government provides all the infrastructure, superstructure and equipment, which are to be leased out. This method is similar to a bare-boat charter in the shipping industry where the private operators would enjoy the use of an operational entity for the duration of the lease.

(4) Participation Method

Under this method the government and/or port management body constructs all the infrastructure and super-

Table 6.1 Responsibilities and Cost Sharing Patterns under Modified Turnkey Method

Case	Government and/or 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 superstructure and procurement of cargo handling equipment
3	Construction of some infrastructure	Construction of some 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

structure. The port management body allows many private firms to conduct cargo handling business including stevedoring and longshoring instead of conducting it directly. Private firms bear the cost of equipment procurement and rent necessary space of cargo sorting and storage facilities only for the required period of their cargo handling operation. This is different from the present PAT system at Klong Toei Wharves, but is basically a variation of the first come, the first

served system for both ships and cargo handling companies.

Form of Facilities Usage and Suitable Method for Privatization

22. The most effective management system of port facilities for port management bodies, or in other words, the most effecient form of facilities usage for port users, that is determined by the characteristics of the facilities, receipt and delivery system of cargo and also the volume of cargo per user or user group, is the basis to select the appropriate method for privatization. Table 6.2 is a summary of our analyses on this issue.

23. A conventional berth functions as a distribution center of commodities and serves liner vessels. However, there are two kinds of cargo receipt and delivery systems: one is the system whereby a ship operator receives cargo from shippers and delivers to consignees at shipside and the other system is to receive and deliver at the transit shed or open storage. As for the former system (hereinafter referred to as "System 1"), a ship operator has no interest in docking at a specified berth regularly. Accordingly, the "First Come, First Served" principle is appropriate for this system and the suitable method for privatization is limited only to the participation method.

24. In the latter system (hereinafter referred to as "System 2"), a ship operator must take responsibility for storing and sorting cargo at the transit shed and open storage area during the period between unloading from a ship and delivering to consignees or receiving from shippers and loading onto a ship. Two cases of berth usage would be appropriate for this system. If the cargo volume is big enough for a ship operator or group using one terminal, exclusive use of a terminal by the said user is appropriate because it can be said to be the best way

Table 6.2 Form of Facilities Usage and Suitable Method for Privatization

Kind of Berths	Kind of Ships	Cargo Receipt and Delivery System *1	Function of Terminals	Cargo Volume per User*2	Applicable Form of Facilities Usage	Appropriate Privatization Method*3	Expected Participants*4	Remarks*5
Conventional Berth	Liner Vessels	at shipside	Distribution Center		Common Use	P		
		at Transit Shed or Open Storage	Distribucion Center	Big enough for one Terminal	Exclusive Use	O	Ship Operator Terminal Operator A	
				Not Big enough for one Terminal	Exclusive Use	O	Terminal Operator B	"First Come, First Served"
					Common Use	P		
Container Berth	Liner Vessels	at Transit Shed (CFS) or Open Storage (CY)	Distribution Center	Big enough for one Terminal	Exclusive Use	O	Ship Operator Terminal Operator A	
				Not Big enough for one Terminal	Exclusive Use	O	Terminal Operator B	"First Come, First Served"
					Common Use	P		
Special Berth	Tramper Vessels	at shipside	Distribution Center	Big enough for one Terminal	Exclusive Use	O	Shipper Consignee Terminal Operator C	
				Not Big enough for one Terminal	Exclusive Use	O	Terminal Operator B	"First Come, First Served"
					Common Use	P		
			Part of Plant		Exclusive Use	O	Factory	

Note:
1. The place where a ship operator receives cargo from shippers and delivers to consignees is shown in this column.
2. The user means a ship operator or group at conventional and container berths, and a shipper or a consignee or group at a special berth.
3. 'O' includes turnkey, modified turnkey and leasing of completed facilities methods and 'P' indicates the participation method in this column.
4. Terminal Operator A conducts his business as a representative of a ship operator or group, Terminal Operator C as a representative of a shipper or a consignee or group, and Terminal Operator B conducts his business independantly from a specific ship operator or shipper or consignee or group.
5. "First Come, First Served" means that ships must follow this principle.
6. CFS = container freight station
   CY = container yard

from the viewpoint to minimize the total transportation cost including ship, terminal and operation costs. Turnkey, modified turnkey, and leasing of completed facilities methods are desirable for the privatization in this case and either a ship operator (including a group) or his terminal operator (also including a group) is an expected participant.

25. If the cargo volume is not big enough for one terminal, the "First Come, First Served" principle and the participation method should be applied in principle with some exceptions that preferential berthing be implemented to users with a high frequency of ship call and a constant cargo volume. However, if an independent terminal operator who conducts his business independently from a specific ship operator is expected to operate one terminal, turnkey, modified turnkey and leasing of completed facilities methods are suitable, but ships should follow the "First Come, First Served" principle. In this case, careful and strong control over the business of the said independent terminal operator should be required to keep the public-use principle for ships.

26. The usage form and appropriate privatization method for container terminals are just the same as those for System 2 of conventional berths.

27. Special 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 ship operators but shippers, consignees, groups 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. Consequently the appropriate form of facilities usage has to be studied based on the cargo volume per shipper or consignee or group.

28. As far as these terminals have function for the

distribution of commodities, their form of use and method of privatization would be basically the same as in System 2 of conventional berths. The difference is only that the expected user of the exclusive-use terminal is a shipper or consignee or group or their representative in this case. But, if these berths function as a part of plants, they should be managed and operated by factories themselves or by their contractors. Exclusive use is the best suited management style and turnkey, modified turnkey and leasing of completed facilities methods can be applicable for the privatization.

Advantages and Disadvantages of each Method

29. The advantages and disadvantages of each privatization method are summarized in Table 6.3 and explained below:

(1) Suitable Port

The turnkey method is applicable only to new ports but the other methods suit both existing and planned ports.

(2) 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 government and/or port management body. But, on the contrary, considerable pre-planning and supervision in the construction stage by the government and/or 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.

(3) Financial Burden

The turnkey method under which the private firm must bear all the investment and operation cost puts the severest strain on its finances, followed by the

Table 6.3 Advantages and Disadvantages of each Privatization Method

Item		Turnkey Method	Modified Turnkey Method	Leasing of Completed Facilities	Participation Method
Suitable Port		× Applicable only to the newly planned ports	○ Suitable to both existing and planned ports		
Planning, Design and Construction	for the Private Firm	○ The private firm can develop facilities and equipment to suit its intended operation.	× Design of facilities and equipment may not necessarily suit the intended operation of the private firm.		
	for the Government and/or Port Management Body	× Considerable pre-planning and supervision in the construction stage are required to avoid unnecessary slippage.			
Financial Burden	for the Private Firm	× Heaviest	× Heavier	○ Lighter	○ Lightest
	for the Government and/or Port Management Body	○ Lightest	○ Lighter	× Heavier	× Heaviest
Government and/or Port Management Body Control on the Operation of the Private Firm		Weakest	Weaker	Stronger	Strongest
Degree of Public Use of the Facilities Usage		Lowest	Lower	Higher	Highest
Continuance of the Use of Facilities		○ Best	○ Better	Normal	Worse

Note: ○ - evident advantage
× - evident disadvantage

modified turnkey, leasing of completed facilities and finally participation methods. On the contrary, the financial burden of the government and/or port management body is lightest under the turnkey method and heaviest under the participation method.

(4) Government and/or Port Management Body Control
The government and/or port management body control of the operation of the private firm grows weaker in inverse proportion to the financial burden of the private firm.

(5) Public Use and Continuance of the Use of Facilities
The degree of public use of the facilities usage is highest under the participation method, followed by exclusive use by an independent terminal operator and finally by exclusive use by a ship operator or shipper or consignee or group or representative. But the stability of the use of facilities is in just the opposite order.

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

i) Suitability to the usage form of facilities

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

iii) Capability of cost bearing by the private firm

31. Item i) is clear as presented in Table 6.2 and Paragraphs 23-28, and item ii) is also not so difficult to resolve. It may be best for the government and/or port management body to prepare both common-user and exclusive-user terminals. This method has already been proposed at the trial privatization at Sattahip Commercial Port where PAT intended to lease out four

out of a total of five berths and to reserve the remnant for common use.

32. However, it is difficult to set a general guideline for item iii) because it is affected by various factors like investment scale, criterion of cost sharing, business condition of the private firm, etc. Therefore, the Study Team conducts a case study taking Laem Chabang container terminal operation as an example and the results are shown in the next section.

C. Possibility of Privatization -A Case Study -

Inquiry to Related Companies

33. At the suggestion of MOC, the Study Team forwarded a questionnaire to 22 firms via MOC and received a reply from 13 firms as shown in Table 6.4.

34. These 22 companies include almost all the major companies which have some connection with cargo handling and port operation in Thailand. According to the replies all the five joint ventures which showed interest in the port operation are companies with the major shares owned by Thai nationals.

35. By the size of the paid-up capital the 13 companies which replied are categorized in Table 6.5.

Financial Analysis of the Laem Chabang Container Terminal Operation

36. The purpose of the financial analysis is to appraise the financial viability of a private firm to be engaged in port operation at the Laem Chabang Container Terminal. The financial viability of or the effects on the financial status

Table 6.4 Replies to the Questionnaire

	Questionnaires Sent	Number of replies	Breakdown				Number interested
			Shipping Agent	Transport Co.	Terminal Operator	Others	
Thai Co.	8	(3)	2 (2)	4 (1)	0 (0)	2 (0)	3
Joint Venture	11	(8)	11 (8)	0 (0)	0 (0)	0 (0)	5
Foreign Co.	3	(2)	1 (0)	0 (0)	2 (2)	0 (0)	2
Total	22	(13)	14(10)	4 (1)	2 (2)	2 (0)	10

Note: Figures in parentheses show the number of firms which replied.

Table 6.5 Capital Amount of the Companies Concerned

	More than Baht 50 million	More than Baht 10 million	More than Baht 1 million	Less than Baht 1 million	Total
Thai Co.	0	3	0	0	3
Joint Venture	0	1	4	3	8
Foreign Co.	2	0	0	0	2
Total	2	4	4	3	13

Table 6.6 Projected Cargo Volume in a Laem Chabang Container Terminal

Year	1987 - 1989	1990	1991	1992	1993	1994	1995	after 1996
Cargo Volume (TEU)	Under construction	72,500	91,000	109,500	128,000	146,500	165,000	183,000
		(including empty containers)						

of a private firm to be engaged in port operation is appraised using the projected financial statements and some indices.

37. The preconditions are as follows:

(1) Cargo Volume

Cargo handling volume per terminal is projected considering the capacity of Klong Toei Wharves and the demand forecast in the Detailed Design Study for Laem Chabang Port (See Table 6.6).

The percentage of 20-foot containers is calculated as 54% of the total container volume on a TEU basis based on the actual results at Klong Toei Wharves in 1985.

(2) Privatization Method

The modified turnkey method is applied in this study.

(3) Project Cost, Fund Raising and Cost Sharing

The project cost for the basic facilities is calculated based on the Feasibility Study (Final Report for the Study on the Development Project of Laem Chabang Coastal Area, Japan International Cooperation Agency, 1985) and the cost of the operation equipment is estimated by the Study Team. The figures are shown in Table 6.7 together with the assumed fund raising and cost sharing plan.

(4) Terminal Rent

Terminal rent will be paid to the port management body by the private firm. The rent is set considering that the total cost including loan interest, depreciation, maintenance and repair cost, and land acquisition cost would be recovered in 30 years after the port management body starts construction. The above land cost is estimated at Baht 157,500 thousand per terminal. However, personnel and other administrative costs in the port management body are excluded from the cost calculation because they are negligibly small.

Table 6.7 Project Cost for a Laem Chabang Container Terminal

(Unit: Thousand Baht)

Classification		Amount	Fund Raising	Bearer
Basic Facilities	Terminal Facilities	(F) 393,452	Loan from OECF Loan Period: 30 Years including Grace Period of 10 Years Interest Rate: 3.5% per annum	Government and/or Port Management Body
		(L) 268,308	Loan from Commercial Banks Loan Period: 10 Years without Grace Period Interest Rate: 12.25% per annum	
	Public-Use Facilities	(F) 197,117	Loan from OECF	
		(L) 118,843	Loan from Commercial Banks	
Operation Equipment		(L) 317,752	Loan from Commercial Banks Loan Period: 5 Years without Grace Period Interest Rate: 12.25% per annum	Private Firm

Note: 1. Terminal facilities include quaywall, pavement, terminal office, CFS, lighting, gantry cranes and water supply & sewerage facilities, and the constructin cost includes engineering service fee and contingency.

2. Cost for the construction of public-use facilities includes dredging, filling and construction of breakwater, revetment, road and railway. Engineering service fee and contingency are also included.

3. Land acquisition cost is excluded here.

4. All the funds are raised before the construction work and the purchase of equipment starts.

5. (F) indicates the foreign currency cost and (L) indicates the local currency cost.

6. OECF = The Overseas Economic Cooperation Fund

(5) Other Costs for the Private Firm

i) Maintenance and Repair Cost
The annual maintenance and repair cost is calculated at 3% of the purchase value of the operation equipment.

ii) Cost for the Depreciation of the Fixed Assets
The annual depreciation cost is based on the purchase value of operation equipment divided by the life span of the equipment which is determined by the Revenue Code under the straight line method with no salvage value.

iii) Personnel Cost
The number of personnel required at the private firm for the terminal operation and the average personnel cost per capita are estimated by the Study Team referring to the actual performance at Klong Toei Wharves and at other ports in the world.

iv) Other Administrative Cost
Other administrative cost for the private firm is set at 50% of the personnel cost.

v) Business Tax
Business tax is set at 0.5% of the operating revenue.

vi) Corporate Income Tax
Corporate income tax is set at 35% of annual net profit, taking the case of a Thai company not registered with the Securities Exchange of Thailand.

(6) Revenue Basis for the Private Firm
The major revenue source of the private firm is the container handling fees. The tariff is set at the same level as at Klong Toei Wharves:

20-foot container: Baht 1,400 per unit
40-foot container: Baht 2,400 per unit

(7) Size of the Private Firm
The private firm is supposed to have a paid-up capital of Baht 50 million, referring to other cases like the invitation to Sattahip Commercial Port and Bang Sue Inland Depot the operation of and also considering the borrowing scale.

(8) Financial Management of the Private Firm
Any cash shortage should be covered by short-term loans with interest at the rate of 12.25% per annum, which will be repaid whenever there remains an annual cash surplus. Any cash surplus remaining thereafter will be deposited with banks at 5% interest per annum.

(9) Effect of Inflation
In this analysis, revenues and costs are basically calculated at constant 1987 prices, because no one can predict the inflation rate over a long period.

38. Projected financial statements in the Base Projection are shown in Tables 6.8, 6.9 and 6.10. Operating profit takes a favorable turn in the sixth year of operation but the net income including the non-operating account fluctuates within a negative area (See Fig. 6.1) because the interest burden, especially on the short-term loan, is too heavy. Due to the insufficient revenue and cash shortage, the private firm has to utilize short-term loans on a big scale as shown in Table 6.9. As a result its debt repayment ability remains far below the appropriate level during the study period.

39. The projected financial indices are given in Table 6.11 and Fig. 6.2. The operating ratio shows the proportion of the operating cost including depreciation to the operating revenue and the working ratio indicates the proportion of the operating

Table 6.8 Projected Profit and Loss Statement

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
PROFIT & LOSS STATEMENT																											
OPERATING REVENUE																											
20 HANDLING FEE	54,810	68,796	82,782	96,768	110,754	124,740	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348	138,348
40 HANDLING FEE	40,020	50,232	60,444	70,656	80,868	91,080	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016	101,016
TOTAL REVENUE	94,830	119,028	143,226	167,424	191,622	215,820	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364
OPERATING COST																											
TERMINAL RENT	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405	102,405
MAINT. & REPAIR	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533	9,533
DEPRECIATION	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550	63,550
PERSONNEL	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738	12,738
AGMN. COST : INDIRECT	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349
: DIRECT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUSINESS TAX	474	595	716	837	958	1,079	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197
OTHER COST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL COST	195,070	195,191	195,312	195,433	195,554	195,675	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792	195,792
NET OPERATING PROFIT	(100,240)	(76,163)	(52,086)	(28,009)	(3,932)	20,145	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572	43,572
(PROFIT BEFORE DEPRECIATION)	(36,689)	(12,613)	11,463	35,542	59,619	83,696	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122	107,122
NON-OPERATING REVENUE																											
FUND MANAGEMENT INCOME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON-OPERATING COST																											
INTEREST ON L-T LOAN	38,925	31,140	23,355	15,570	7,785	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST ON S-T LOAN	0	2,778	14,499	27,997	37,001	43,205	85,191	82,734	79,746	76,393	72,628	107,327	107,353	107,381	107,413	107,448	146,413	151,226	156,629	162,693	169,501	216,667	229,412	244,393	261,268	280,084	340,196
NET INCOME BEFORE TAX	(139,164)	(110,060)	(91,939)	(71,576)	(48,718)	(23,060)	(41,619)	(39,162)	(36,175)	(32,821)	(29,057)	(63,756)	(63,781)	(63,809)	(63,841)	(63,876)	(102,841)	(107,654	(113,057)	(119,121)	(125,929)	(172,495)	(185,841)	(200,821)	(217,637)	(236,512)	(296,625)
INCOME TAX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET INCOME AFTER TAX	(139,164)	(110,060)	(91,939)	(71,576)	(48,718)	(23,060)	(41,619)	(39,162)	(36,175)	(32,821)	(29,057)	(63,756)	(63,781)	(63,809)	(63,841)	(63,876)	(102,841)	(107,654	(113,057)	(119,121)	(125,929)	(172,495)	(185,841)	(200,821)	(217,637)	(236,512)	(296,625)
CUM. NET INCOME	(139,164)	(249,245)	(341,184)	(412,760)	(461,478)	(484,538)	(526,157)	(565,319)	(601,494)	(634,315)	(663,371)	(727,127)	(790,909)	(854,717)	(918,558)	(982,435)	(1,085,276)	(1,192,930	(1,305,987)	(1,425,108)	(1,551,037)	(1,723,532)	(1,909,372)	(2,110,193)	(2,327,830)	(2,564,342)	(2,860,967)

Table 6.9 Projected Cash Flow Statement

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
CASHFLOW STATEMENT																											
CASH IN																											
OPERATING REVENUE	94,830	119,028	143,226	167,424	191,622	215,820	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364	239,364
EQUITY	50,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRAKDOWN : L-T LOAN	317,752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
: S-T LOAN	22,679	112,007	93,865	73,502	50,844	342,738	0	0	0	0	283,258	205	231	259	291	318,078	39,291	44,104	49,506	55,571	380,130	108,944	122,290	137,271	154,086	490,714	33,853
A/C PAYABLE	10,522	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(10,579)
FUND MANAGEMENT INCOME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	495,782	231,044	237,101	240,936	242,276	558,568	239,373	239,364	239,364	239,364	522,622	239,569	239,595	239,623	239,655	557,442	278,655	283,468	288,870	294,935	619,494	348,308	361,654	376,635	393,450	730,078	262,638
CASH OUT																											
INVESTMNET	317,752	0	0	0	0	317,752	0	0	0	0	317,752	0	0	0	0	317,752	0	0	0	0	317,752	0	0	0	0	317,752	(190,651)
REPAYMENT : L-T LOAN	0	63,550	63,550	63,550	63,550	63,550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
: S-T LOAN	0	0	0	0	0	0	20,057	24,388	27,376	30,729	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INTEREST ON L-T LOAN	38,925	31,140	23,355	15,570	7,785	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ON S-T LOAN	0	2,778	16,499	27,997	37,001	43,205	85,191	82,734	79,746	76,393	72,628	107,327	107,353	107,381	107,413	107,448	146,413	151,226	156,629	162,693	169,501	216,067	229,412	244,393	261,208	280,084	340,196
TAX	474	595	716	837	958	1,079	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197
OPERATING CASH EXPENSES	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045	131,045
A/C RECEIVABLE	7,586	1,936	1,936	1,936	1,936	1,936	1,884	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(19,149)
TOTAL	495,782	231,044	237,101	240,936	242,276	558,568	239,373	239,364	239,364	239,364	522,622	239,569	239,595	239,623	239,655	557,442	278,655	283,468	288,870	294,935	619,494	348,308	361,654	376,635	393,450	730,078	262,638
NET CASHFLOW	0	0	(0)	0	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)	0	0	0	0	(0)
CUM NET CASHFLOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.10 Projected Balance Sheet

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BALANCE SHEET																											
CASH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A/C RECEIVABLE	7,586	9,522	11,458	13,394	15,330	17,266	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	19,149	0
OPERATION EQUIPMENT	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	317,752	127,101
- DEPRECIATION	63,550	127,101	190,651	254,202	317,752	63,550	127,101	190,651	254,202	317,752	63,550	127,101	190,651	254,202	317,752	63,550	127,101	190,651	254,202	317,752	63,550	127,101	190,651	254,202	317,752	63,550	127,101
TOTAL ASSETS	261,788	200,173	138,559	76,944	15,330	271,467	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	0
A/C PAYABLE	10,522	10,531	10,541	10,551	10,560	10,570	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	10,579	0
S-T LOAN	22,679	134,685	228,551	302,053	352,897	695,435	675,378	650,990	623,614	592,885	876,143	876,348	876,579	876,837	877,128	1,195,206	1,234,497	1,278,600	1,328,107	1,383,678	1,763,808	1,872,753	1,995,043	2,132,314	2,286,400	2,777,114	2,810,967
L-T LOAN	317,752	254,202	190,651	127,101	63,550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL LIABILITIES	350,952	399,418	429,743	439,704	426,808	706,005	685,957	661,569	634,193	603,464	886,722	886,927	887,158	887,417	887,707	1,205,785	1,245,076	1,289,180	1,338,686	1,394,257	1,774,388	1,883,332	2,005,622	2,142,893	2,296,979	2,787,693	2,810,967
EQUITY	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
RETAINED EARNINGS	(139,164)	(249,245)	(341,184)	(412,760)	(461,478)	(484,538)	(526,157)	(565,319)	(601,494)	(634,315)	(663,371)	(727,127)	(790,908)	(854,717)	(918,558)	(982,435)	(1,085,276)	(1,192,930)	(1,305,987)	(1,425,108)	(1,551,037)	(1,723,532)	(1,909,372)	(2,110,193)	(2,327,830)	(2,564,342)	(2,860,967)
NET WORTH	(89,164)	(199,245)	(291,184)	(362,760)	(411,478)	(434,538)	(476,157)	(515,319)	(551,494)	(584,315)	(613,371)	(677,127)	(740,908)	(804,717)	(868,558)	(932,435)	(1,035,276)	(1,142,930)	(1,255,987)	(1,375,108)	(1,501,037)	(1,673,532)	(1,859,372)	(2,060,193)	(2,277,830)	(2,514,342)	(2,810,967)
TOTAL LIAB. & CAPITAL	261,788	200,173	138,559	76,944	15,330	271,467	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	209,800	146,250	82,700	19,149	273,351	0

Fig. 6.1 Projected Net Income

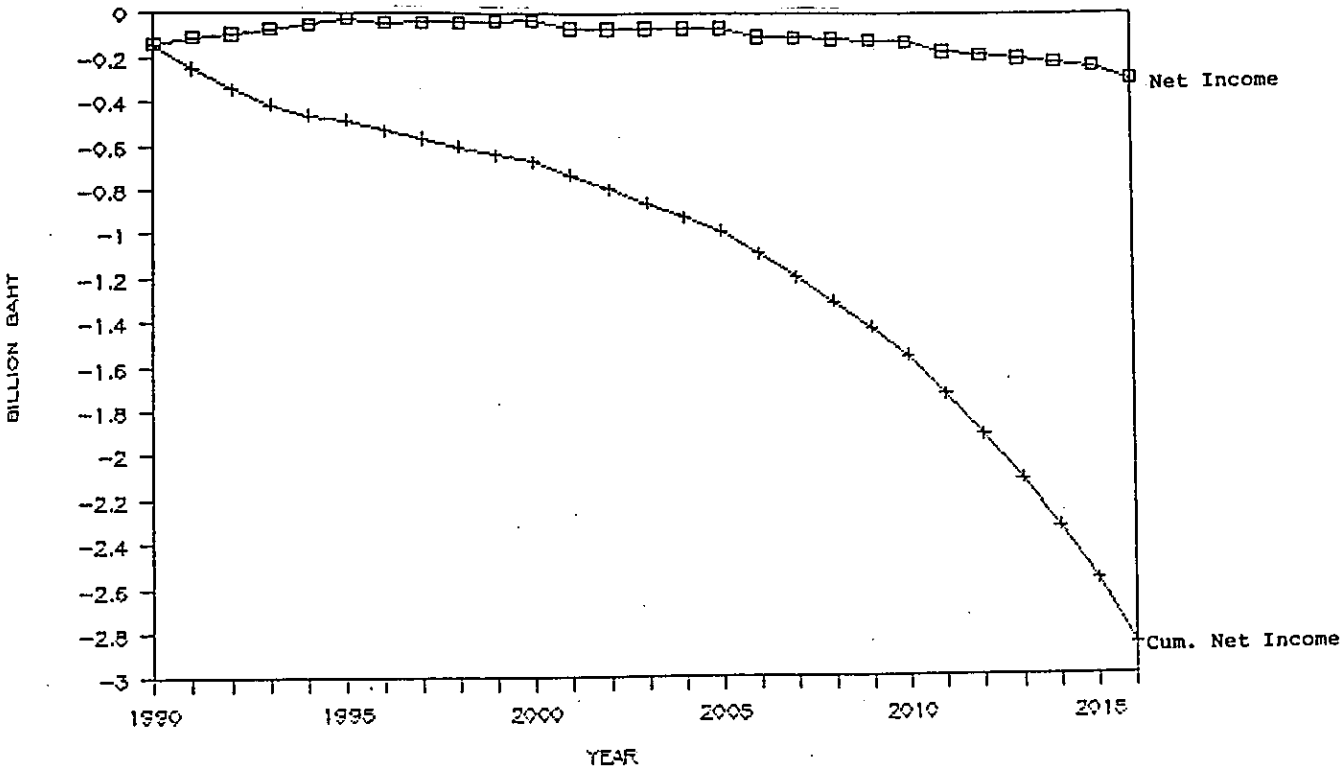


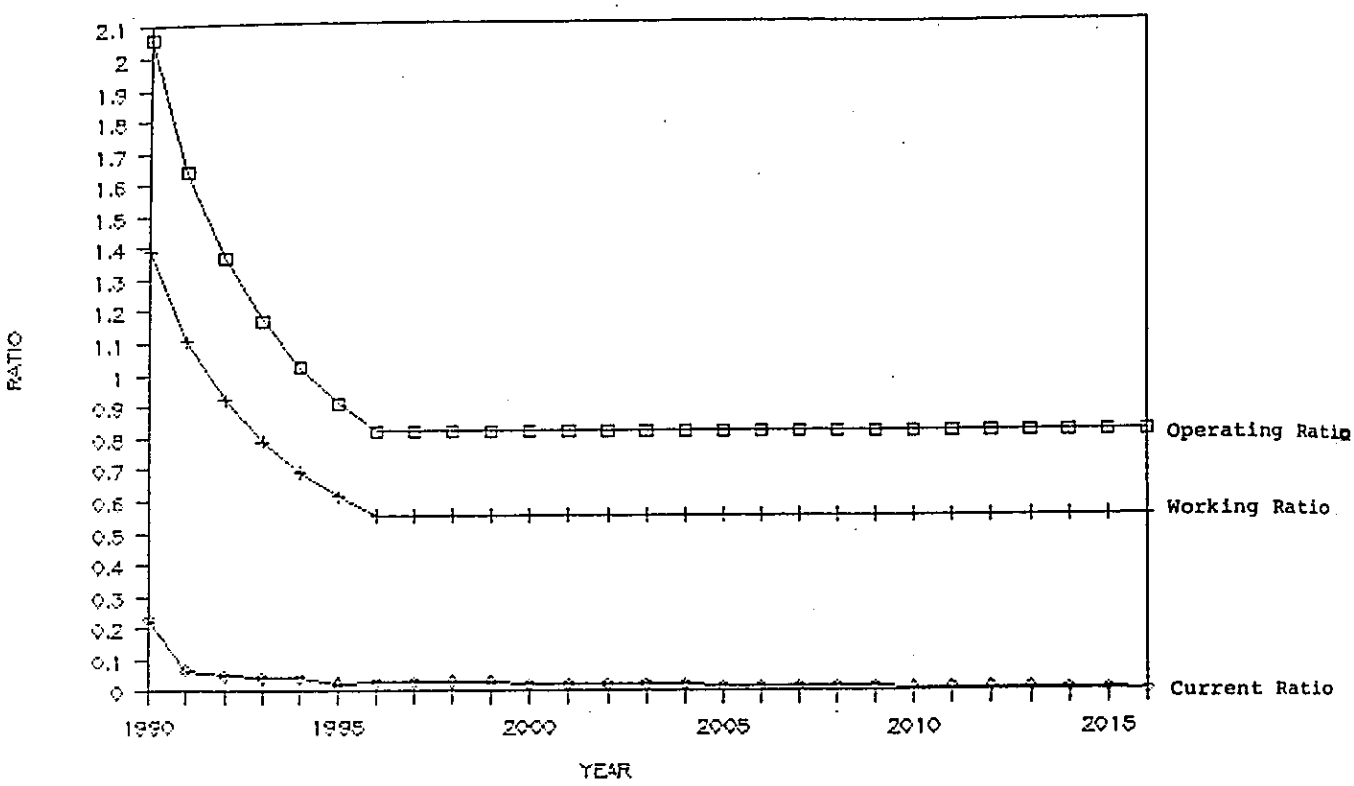
Table 6.11 Financial Indices

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998
STATISTICS									
OPERATING RATIO	2.06	1.44	1.36	1.17	1.02	0.91	0.82	0.82	0.82
WORKING RATIO	1.39	1.11	0.92	0.79	0.69	0.61	0.55	0.55	0.55
CURRENT RATIO	0.23	0.07	0.05	0.04	0.04	0.02	0.03	0.03	0.03
DEBT-EQUITY RATIO	-0.34	-1.00	-2.10	-4.71	-26.84	-1.60	-2.27	-3.52	-6.67

YEAR	1999	2000	2001	2002	2003	2004	2005	2006	2007
STATISTICS									
OPERATING RATIO	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
WORKING RATIO	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
CURRENT RATIO	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
DEBT-EQUITY RATIO	-30.51	-2.24	-3.23	-5.07	-9.73	-45.36	-3.41	-4.93	-7.81

YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016
STATISTICS									
OPERATING RATIO	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
WORKING RATIO	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
CURRENT RATIO	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
DEBT-EQUITY RATIO	-15.19	-71.81	-5.49	-7.98	-12.71	-24.91	-118.95	-9.20	0.00

Fig. 6.2 Financial Indices



cash expenses to the operating revenue. These ratios decrease gradually until the seventh year because of the higher increase rate of the operating revenue compared with the cost. They level off thereafter at around 82% and 55% respectively, as the cargo volume reaches its ceiling. The current ratio is the proportion of the current assets to the current liabilities. The current ratio converges to nil gradually because of the heavy loan burden. The debt-equity ratio is the proportion of the net worth to the total of the net worth and the liabilities. The debt-equity ratio remains negative throughout the study period because the liabilities always exceeds the net worth, which is always below zero.

40. Consequently the Study Team has to conclude that the privatization under the above-mentioned conditions would not succeed and the government and/or port management body should

give incentives to the private firm if they have a strong intention to promote the Laem Chabang Port development through privatization.

41. In view of the heavy financial burden especially in the beginning years the following seven incentives are considered.

(1) Reduction of Terminal Rent

i) Reduction of terminal rent in proportion to the projected cargo volume

ii) Absolute reduction of the terminal rent by excluding the cost for the public-use facilities (dredging, land reclamation, breakwater, revetment, roads and rail tracks)

iii) The exemption of interest on all the local cost financing.

(2) Low Interest Rate Loans

iv) 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 the export country. Some creditworthiness is required to issue an import letter of credit, etc. for such a purchase on a long-term basis.

(3) Tax Reduction or Exemption
In view of the tax incentives for a company promoted by the Board of Investment, the following incentives might be suggested.

v) The exemption of import duty and import business tax on the operation equipment

vi) The reduction of 90 percent of business tax on the revenue for the first five years

vii) The exemption of corporate income tax for the first eight years

In this study, the Study Team checks the financial viability of the private firm under three different cases based on the implementatin of some of these incentives as outlined below.

42. If the government and/or port management body set the terminal rent in proportion to the projected cargo volume in each year in order to ease the financial burden of the private firm in the earlier years of operation, the projected financial status would be as shown in Fig. 6.3 (Sensitivity Analysis I).

43. Financial indices are indicated in Fig. 6.4. The operating ratio and the working ratio show a little improvement in the beginning years and will level off at around 85% and 59% respectively after the seventh year. The current ratio will diminish gradually to the level of around 5%. Compared with the Base Projection considered in Paragraph 38 and 39 above, the financial situation is sligtly more favorable. However, the annual cost is still higher than the revenue in almost all the years throughout the study period and the private firm cannot dissolve the accumulated loss.

44. The financial situation of the private firm becomes much better if the government and/or port management body bear the construction cost of public-use facilities and exclude this cost from the calculation basis of the rent (Sensitivity Analysis II). The private firm can make a profit annually from the fifth year of operation and can dissolve the accumulated deficit in the 11th year (See Fig. 6.5).

45. The financial indices show some improvements as noted in Fig. 6.6. The operating ratio and the working ratio show

Fig. 6.3 Projected Net Income (Sensitivity Analysis I)

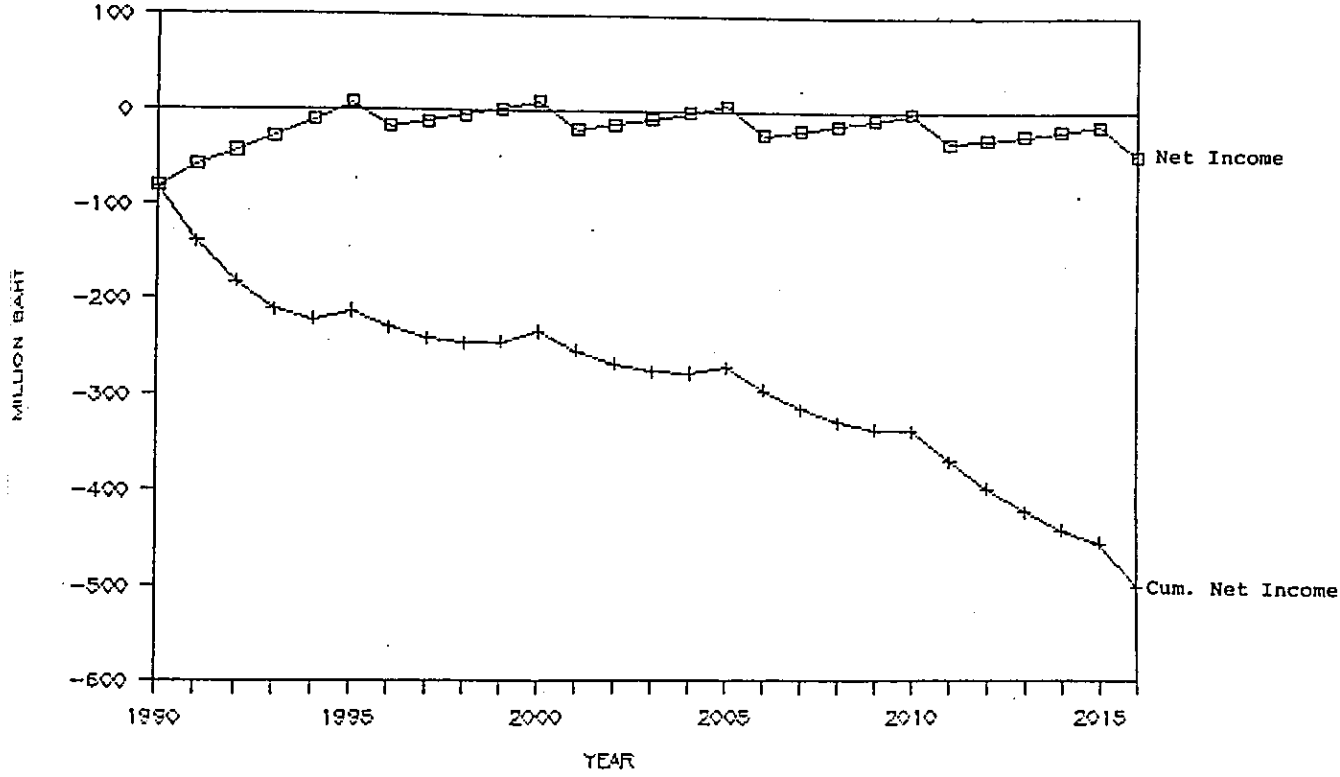


Fig. 6.4 Financial Indices (Sensitivity Analysis I)

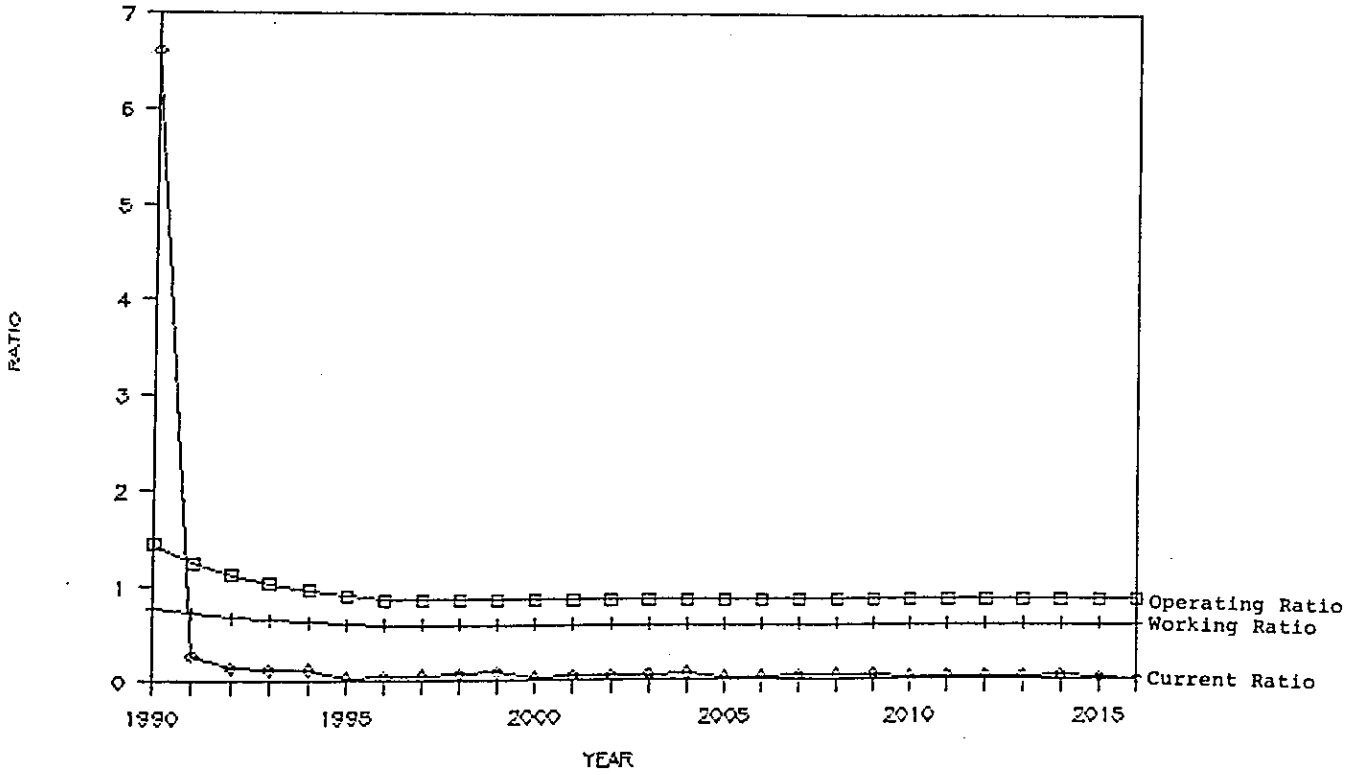


Fig. 6.5 Projected Net Income (Sensitivity Analysis II)

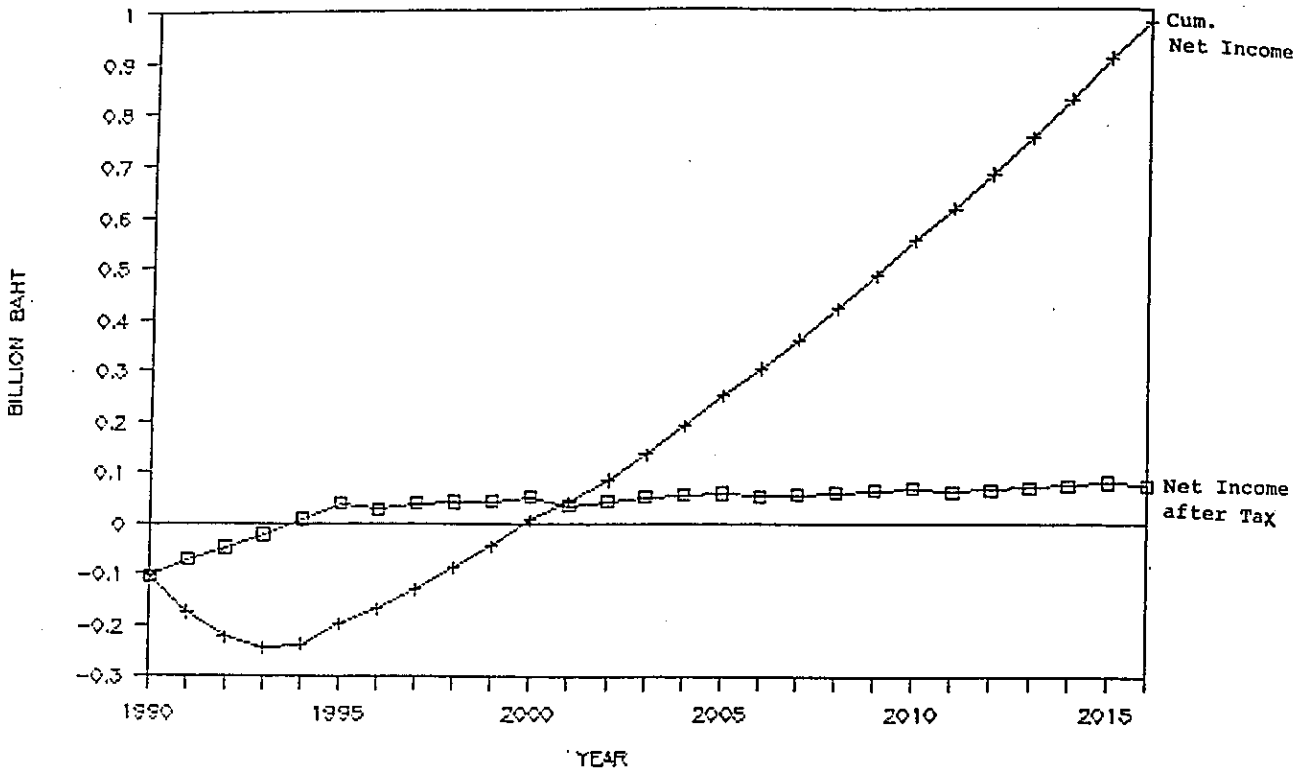
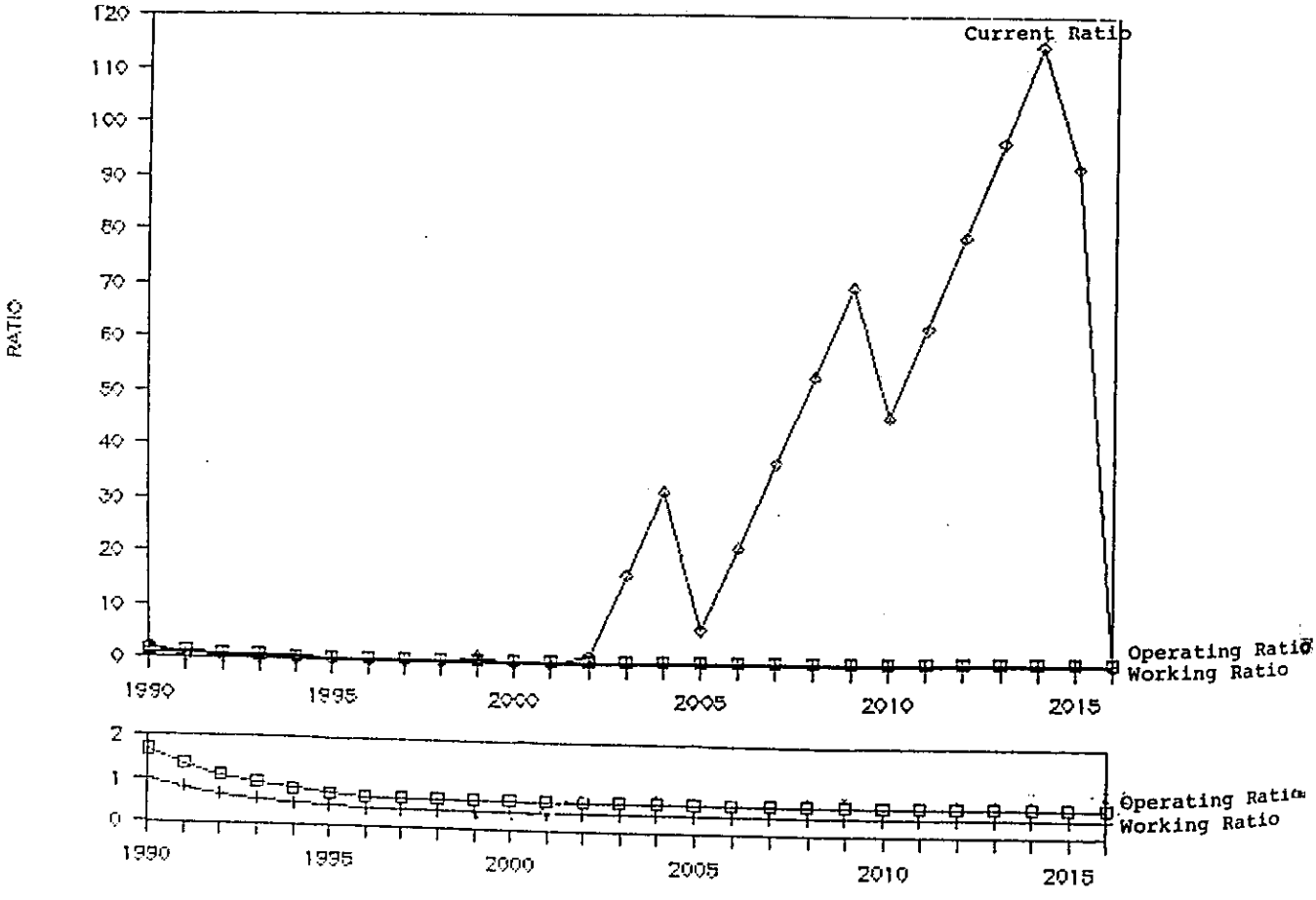


Fig. 6.6 Finfinial Indices (Sensitivity Analysis II)



considerable improvement and will level off at around 67% and 43% after the seventh year. The current ratio will hit the bottom in the sixth year but will improve remarkably with a cycle of five years. The debt-equity ratio will turn to the black in the 10th year and will approach a good index of 99%. However, some more incentives seem to be necessary, considering the deficit scale and the length of period when the deficit accumulates.

46. A third case is examined where the interest on the local cost financing is excluded from the calculation basis of the terminal rent (Sensitivity Analysis III). But in this case the result would not be better than in Sensitivity Analysis II. The results are as shown in Table 6.12.

Table 6.12 Cost Comparison of the Four Cases

(Unit:Thousand Baht)

Case	Cost			
	Common Cost	Public-use facilities	Local finance interest	Total
Base Projection	1,623,816	833,120	308,006	2,764,942
Sensitivity Analysis I	1,623,816	833,120	308,006	2,764,942
Sensitivity Analysis II	1,623,816	0	180,773	1,804,589
Sensitivity Analysis III	1,623,816	833,120	0	2,456,936

Potential Firms

47. It will be essential for prospective private companies to have a financial background including a substantial sum of paid-up capital in order to borrow money or enjoy other credit facilities including renting of terminals, bank guarantees and

letters of credit, etc., for the operation of a container terminal at Laem Chabang Port. Although the minimum required amount of a capital will be decided depending on the business conditions, it is generally understood that it should be at least Baht 50 million. However, there is no suitable Thai company which has such capital as shown in Table 6.5.

48. In order to meet this financial condition one alternative is that more than two Thai companies form a joint venture. The second alternative is that a Thai company or some Thai companies form a joint venture with a foreign company, and the third alternative is that foreign investor is allowed to hold all the registered capital. Even in the second alternative there is also the possibility that the minimum percentage of the required Thai shares would be lowered.

49. A joint venture of more than two Thai companies may still lack technical and/or management skill especially for container terminal operation because Laem Chabang Port will provide the first full-scale container terminal in Thailand. In that case, such a company or companies should form a joint venture with a foreign company which has experiences in port operation, technical expertise and managerial skill in this field.

50. If more than half of a company's shareholders are Thai nationals, and more than half of a company's shares are owned by Thai nationals, then the company does not fall under the Announcement of the National Executive Council No. 281 or the Alien Business Law (NEC 281). Such a company could operate a port in Thailand without any of the restrictions which are applicable to foreign companies.

51. If at least half of a Thai corporation's shareholders are aliens, or at least half of its shares are owned by aliens, then such a corporation falls under NEC 281 and would be subject to all the restrictions which apply to foreign companies. Such a corporation falls within the definition of

'Alien' or 'Alien Business' under NEC 281; and it could not operate a port in Thailand without an Alien Business License.

52. Even if a foreign company were operating a port and holding an Alien Business License, such a License would not apply to every activity involved in the operation of the port. Such foreign company would, therefore, have to sub-contract activities for which it did not have the requisite permission but which were covered under NEC 281 and/or were not subject to one of the exemptions or exceptions.

53. In any case, it is recommended that at least one of the major Thai partners should have some connection with port cargo handling or operation so that the company could benefit from technical transfer.

54. Even an experienced local subsidiary of a foreign company could have the necessary experience and receive technical transfer for the actual cargo handling and port operation. Therefore, the government and/or port management body should keep open the possibility that a company with 100% foreign capital be allowed to lease the terminal.

VII. FUTURE COURSE OF THE STUDY

1. The study of the administrative framework for ports will be supplemented by the formulation of principles of management and operation for international ports.

2. The Study Team will clarify and classify the activities required for managing and operating international ports into two groups: those to be executed by the port management body and those to be undertaken by other bodies including private sector.

3. As for the port management body;

(1) The Study Team will study the organization structure of the port management body based on its scope of business in which at least the following items will be considered:

i) Organization structure
ii) Division of duties
iii) Number of workers

(2) The Study Team will also study the financial management system from the following points of view:

i) Basic policy or principle of the financial management of the port management body
ii) Accounting system
iii) Budget making and account settlement system
iv) Fund raising system
v) Distribution of profit and deficit
vi) Management of Assets
vii) Audit system

(3) A reasonable tariff structure (kind of dues and charges which will be collected by the port management body) will be studied together with the rate setting method for each due and charge.

4. As for the operating bodies; an outline of the major operation bodies under the port management body which provide services such as terminal operation, stevedoring and other various services for vessels and cargoes, will be studied from the following points of view:

(1) Suitable bodies

Grouping the business which should be executed by operating bodies under the port management body, suitable kind of bodies for each business group will be nominated together with the appropriate number of participants, organization, and required kinds and number of equipment and manpower.

(2) Relationships with the port management body

The appropriate relationships between the port management body and various operating bodies (for instance, financing, subsidizing, leasing of facilities and/or equipment, permission, licensing, authorization and entrusting by the port management body) will be studied in accordance with the characteristics, degree of public use, number of participants and their financial performance and the restrictions by laws, regulations and rules of each kind for business.

(3) Business conditions

A rough analysis of the business conditions of major operating bodies will be executed focusing on the following points:

i) Tariff structure and rate

ii) Revenue and expenditure projection

iii) Appraisal of the projected financial performance from the viewpoint of profitability, debt repayment ability, etc.

5. The necessary legal framework will also be studied through a classification of the items considered above into such categories as those which should be stipulated by law, by regulations, those by internal rules, and by custom. This study will be executed referring mainly to the PAT Act and its relevant regulations, rules and so on.