

## **Appendix**

As a reference for the development of Mexican Industrial ports, we include "Appendix" in this report for the items;

1. Ports and Harbours Laws of Japan (extraction)
2. The Authority's System for Rent Determination and Income and Expenditure Plan  
(Reference for establishment of Port Authority)
3. Dangerous Cargo Handling Wharf and Operation



**Appendix 1. PORTS and HARBOURS LAWS of JAPAN**



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## Chapter I. General Provisions

### (Objective)

Article 1. The purpose of this Law is to provide means for orderly development and appropriate management of ports and harbors, as well as for development and preservation of waterways, to contribute to the improvement of communication and appropriate utilization and balanced development of national land.

### (Definitions)

Article 2. In this Law "port management body" means a Port Authority which is to be established under the provisions of Section 1, Chapter II or a local public entity under the provisions of Article 33.

2. In this Law "major ports" mean those ports which will be specified by Government Ordinance as having great importance to the national interest and "minor ports" mean those ports other than major ports.

3. In this Law "port area" means a water area for which authorization has been given under the provisions of Article 4 Paragraph 4 (including the case in which these provisions apply mutatis mutandis to the provisions of Article 9 Paragraph 2 and Article 33 Paragraph 2).

4. In this Law "waterfront area" means an area which has been designated as such under the provisions of Chapter 2 of the City Planning Law (Law No. 100 of 1968) or an area which has been designated by the Port Management Body with authorization under the provisions of Article 38.

5. In this Law "port facilities" mean the facilities located within a port area and a waterfront area, specified in item (1) through item (11) and other facilities necessary for the utilization or management of a port, specified in item (12) through item (14).

- (1) Water facilities: Waterways, anchorage and basins for small craft.

- (2) Protective facilities: Breakwater, sand groins, sea walls, training walls, sluices, locks, revetment, dikes, jetties and parapets.
- (3) Mooring facilities: Wharve, mooring buoys, dolphins, lighters' wharves, floating piers, landing stages and slip ways.
- (4) Port transport facilities: Roads, parking lots, bridges, railways, tramways, canals and heliports.
- (5) Navigation aid facilities: Navigation aids and signals and lighting and port communication facilities for the entry and clearance of ships.
- (6) Cargo handling facilities: Stationary cargo handling equipment, overhead rail cranes, cargo sorting area and transit sheds.
- (7) Passenger facilities: Fixed type passenger loading and unloading facilities, baggage offices, lounges and temporary living quarters.
- (8) Storage facilities: Warehouses, open storage yards, timber yards and ponds, coal storage yards, hazardous materials and oil storage facilities.
- (8)-2. Ship service facilities: Water supply facilities, fuel supply facilities, coal supply facilities (excluding those facilities specified in item (13) ), ship repair facilities and small craft storage facilities.
- (9) Port pollution control facilities: Driving channels for purification of contaminated waters, buffer zones for pollution control and other facilities designed for pollution control in the port.
- (9)-2. Waste disposal facilities: Dikes for waste dumping area, waste receiving facilities, waste incinerators, waste crushers, waste oil disposal facilities and other facilities designed for disposal of wastes (excluding those facilities specified in item (13) ).

(9)-3. Port and harbor environmental protection facilities: Beaches, greens, open spaces, landscapes, rest rooms and other facilities designed for the protection of port and harbor environment.

(10) Port welfare facilities: Rest rooms and temporary living quarters, clinics and other welfare and recreational facilities for ships' crew and harbor workers.

(10)-2. Port management facilities: Port administration offices, warehouses for materials necessary for port management and other facilities necessary for port management (excluding those facilities specified in item (14) ).

(11) Land for port facilities: Land for facilities specified in each of the preceding items.

(12) Mobile facilities: Mobile cargo handling equipment and mobile passenger loading and unloading facilities.

(13) Mobile facilities for port services: Tugboats used for assisting docking and undocking ships, vessels and vehicles used for supplying water, fuels and coal to ships and vessels and vehicles used for handling and transportation of wastes.

(14) Mobile facilities for port management: Port cleaning boats, port ferries and other mobile facilities necessary for port management.

6. Those facilities specified in item 1 through items 11 of the preceding paragraphs which are not located in the port area or waterfront area but are authorized by the Minister of Transport upon application by the Port Management Body shall also be regarded as port facilities.

7. In this Law "port and harbor work" means construction, improvement, maintenance or rehabilitation of port facilities and other works



necessary for the removal of deposits of wastes and other polluting materials in ports, purification of contaminated seawater, removal of floating materials and preservation of ports.

8. In this Law "waterways to be developed and preserved" mean waterways which require development and preservation works in order to secure navigation of ships in water areas other than port areas and river areas specified in Article 3 paragraph 1 of the River Law (Law No. 167 of 1964) (hereinafter referred to as the river area) including the facilities necessary for the protection of structures and the safety of navigation, the scope of which shall be specified by Government Ordinance.

9. In this Law "port of refuge" means a port the main object of which is to give refuge to small craft in case of a storm which is not used for loading or unloading of cargo or passengers under normal circumstances and which is specified by Government Ordinance.

(Provisions Concerning Finishing Ports)

Article 3. The provisions of this Law shall not apply to the ports which are designated by other laws as ports for fishery purposes.

Provided that this shall not apply to the ports which are specified otherwise by Government Ordinance.

Chapter I-1. Port and Harbor Plan

(Basic policy for Development of Ports and Waterways to be Developed and Preserved)

Article 3-2. The Minister of Transport must lay down a basic policy for the development, utilization and preservation of ports and harbors and for the development of waterways to be developed and preserved (hereinafter referred to as the basic policy).

2. The basic policy shall cover the following matters.

- (1) Matters concerning the measures for the development, utilization and preservation of ports and harbors.
- (2) Basic matters concerning the location, functions and capabilities of ports and harbors.
- (3) Basic matters concerning the location and development of waterways specially designated for development and preservation.

3. The basic policy shall be worked out by taking into account the role of ports and harbors and waterways specially designated for development and preservation to be played for the improvement of transport systems, appropriate utilization and balanced development of national land and for the welfare of the nation.

4. The Minister of Transport, when intending to lay down or make changes in the basic Policy, must consult with the heads of other administrative agencies concerned and also seek the views of the Council for Ports and Harbours.

5. The Port Management Body may present its views concerning the basic policy to the Minister of Transport.

6. The Minister of Transport, after laying down or making changes in the basic policy, must make public the fact without delay.

(Port and Harbor Plan)

Article 3-3. The Port Management Body of a major port must work out a plan for the development, utilization and preservation of the port and for the preservation of areas adjacent to the port as specified by Government Ordinance (hereinafter referred to as Port and harbor plan).

2. The port and harbor plan must conform to the basic policy and must also meet the standards as specified by Ministry of Transport Ordinance for the capacity of the port for cargo handling and other capacities,

the scale and arrangement of port facilities corresponding to the capacity of the port, improvement and protection of port environments and other basic matters.

3. The Port Management Body of a major port must seek the opinion of a local port and harbor council when intending to establish or make changes in the port and harbor plan.

4. The Port Management Body of a major port, after establishing or making changes in the port and harbor plan must submit the said plan to the Minister of Transport without delay.

5. The Minister of Transport must seek the opinion of the Council for Ports and Harbours on the port and harbor plan submitted to him under the provisions of the preceding paragraph.

6. When the Minister of Transport considers the port and harbor plan submitted to him under the provisions of the preceding paragraph 4 not to be in conformity with the basic policy or the standards specified by Minister of Transport Ordinance under the provision of paragraph 2 or to be extremely inappropriate for the development, utilization or preservation of the said port, he may request the Port Management Body concerned to alter the plan.

7. The Minister of Transport, when he considers that there is no need to take steps provided for in the preceding paragraph on the port and harbor plan submitted to him under the provision of paragraph 4, must make public the outline of the said port and harbor plan in accordance with the provisions of Ministry of Transport Ordinance.

8. The Port Management Body of a minor port, after establishing or making changes in the port and harbor plan, must make public the outline of the said port and harbor plan without delay in accordance with the provisions of Ministry of Transport Ordinance.

9. The provisions of paragraph 3 shall apply mutatis mutandis to the case in which the Port Management Body of a minor port establishes or make changes in the port and harbor plan.

## Chapter II. Port Authority

### Section 1. Establishment of Port Authority

#### (Establishment)

Article 4. The local public entity which actually manages facilities in a port or the local public entity which has borne the cost of installation and management of facilities in a port or the local public entity whose water area is scheduled to be designated as a port area (hereinafter referred to as "local public entity concerned") may establish Port Authority independently or jointly with others after providing the articles of association.

2. The provisions of the preceding paragraph shall not apply to the port where all or most of water facilities and protective facilities are maintained and managed by a party or parties other than the State or local public entities, except the case in which such party or parties have requested any of the local public entities concerned to establish Port Authority.

3. Any local public entity which intends to establish Port Authority shall, after the decision of its assembly, make public its intention to establish Port Authority independently or jointly with others, and the scope of the proposed port area and the period in which other local public entities concerned are to give their opinion concerning the matter, and shall consult with any local public entity which has expressed its opinion.

The period in which the local public entities concerned are to give their opinion shall not be less than one month.

4. If, during the period specified by the preceding paragraph, other local public entities concerned have not expressed their opinion in accordance with the provisions of the preceding paragraph or when an agreement is

reached between the local public entities concerned after the decision of their respective assemblies as provided for in the same paragraph, the local public entity intending to establish Port Authority must, with respect to the scope of the proposed port area, obtain approval of the Minister of Transport or the prefectural governor concerned according to the following classification in accordance with the formalities specified by Ministry of Transport Ordinance.

- (1) Approval of the Minister of Transport in the case of a major port.
- (2) Approval of the Minister of Transport in the case of a minor port where a prefecture or prefectures are a party to the establishment of Port Authority.
- (3) Approval of the prefectural governor who has jurisdiction over the area bordering the water area scheduled for the port area in the case of a port other than those specified in the preceding two items.

5. The Minister of Transport or the prefectural governor concerned, when intending to give approval under the preceding paragraph for the river area or the coastal preservation area specified in the provisions of Article 3 of the Coast Law (Law No. 101 of 1956), must consult with the local administrative agency having the jurisdiction over the said river or the coast administrative agency having the jurisdiction over the said coastal preservation area, concerning the scope of the proposed port area.

6. The Minister of Transport or the prefectural governor concerned may not give approval under paragraph 4 unless the area scheduled to be a port area is the minimum area required for the economic operation and management of the said water area as an independent port and is not in conflict with the interest of the local public entities whose water area borders the proposed port area and does not exceed the limit where the physical

limits of the port is provided for in the Harbour Regulation Law (Law No. 174 of 1948). Provided that approval may be given for the scope of a port area in excess of the physical limits of the port specified by the provisions of the same law when it is unavoidable to exceed such limits to secure the minimum area necessary for the economical operation and management of the port as an independent port.

7. If an agreement referred to in paragraph 3 has not been reached, the local public entities concerned may apply to the Minister of Transport or the prefectural governor concerned for mediation according to the classification specified in paragraph 4. In this case, "a party to the establishment of Port Authority" under item 2, paragraph 4 shall read "a party to the issue".

8. The application for mediation under the preceding paragraph must be substantiated by a full account of the negotiation between the parties concerned and views of the local public entities concerned.

9. When an application is made under paragraph 7, the Minister of Transport or the prefectural governor concerned shall undertake mediation while taking into account the background of the issue, financial positions of the local public entities concerned, future development plans and the degree of utilization of the said port and the relationship between the proposed port and the local public entities concerned and, in case of a major port, after consultation with the Minister of Home Affairs.

10. The prefectural governor shall, after taking actions under paragraph 4 or undertaking mediation under the preceding paragraph, report the matter to the Minister of Transport without delay.

(Status of Juridical Person)

Article 5. The Port Authority shall be a non-profit, juridical person in public law.

(Articles of Incorporation)

Article 6. The articles of incorporation of Port Authority must stipulate the following.

- (1) Title
- (2) Names of local public entities establishing Port Authority.
- (3) Address of office
- (4) Functions
- (5) Scope of port area
- (6) Number, term of office, appointment and dismissal of and remuneration for members of the Board of Directors and matters concerning the business of the Board of Directors.
- (7) Matters concerning the organization and staff of the Secretariat.
- (8) Matters concerning the property and finance of the Port Authority.
- (9) Matters concerning the investment or sharing of cost by local public entities establishing Port Authority.
- (10) Matters concerning the disposal of surplus and losses.
- (11) Method of public notice.
- (12) Matters concerning the dissolution of Port Authority.

2. The articles of incorporation or revisions thereof shall take effect only when approved by the assembly of the local public entity establishing Port Authority.

(Registration)

Article 7. The Port Authority must register its establishment, changes in the address of its main office and other matters specified by Government Ordinance in accordance with the formalities specified by Government Ordinance.

2. Any matter required to be registered in relation to the Port Authority shall not have effect against a third party until it has been registered.  
(Establishment)

Article 8. Establishment of Port Authority shall be effected when its establishment is registered.

(Public Notice on Port Area)

Article 9. The Port Authority shall, immediately after coming into being, give a public notice concerning its establishment and the scope of port area. The same shall apply when changes are made in the scope of port area.

2. The provisions of paragraph 4 through paragraph 6 of Article 4 shall apply mutatis mutandis to the case in which the Port Authority intends to change the scope of port area.

(Special Provisions for Dissolution)

Article 10. Dissolution of Port Authority shall not take effect until a local public entity becomes a port management body for the said port in accordance with the provisions in the last half of paragraph 1, Article 33. Provided that this shall not apply to the case in which the local public entities which established the Port Authority have obtained approval of the Minister of Transport for dissolution of the said Port Authority.

2. The local public entities which established the Port Authority shall, when there is any obligation on the bonds under Article 30 paragraph 1 or any other liabilities specified by Government Ordinance at the time of dissolution of the Port Authority, perform their obligation jointly in accordance with the provisions of the articles of incorporation.

(Application of Civil Code and Other Laws)

Article 11. The provisions of Articles 44, 50, 54, 57, Article 68 paragraph 1, Article 72 through Article 80, Articles 82 and 83 of the



Civil Code (Law No. 89 of 1896) and the provisions of Articles 35, 37 and 37b of the Law of Non-Legal Case Proceedings (Law No. 14 of 1898) shall apply mutatis mutandis to Port Authority.

## Section 2. Functions of Port Authority

### (Functions)

Article 12. Functions of Port Authority shall be as follows.

- (1) Prepare port and harbor plans.
- (2) Maintain port area and port facilities under the management of Port Authority in good operating conditions (including the removal of floating materials, abandoned ships and other materials which may hinder the navigation of ships in the port area, clean water areas and prevent pollution within the port area).
- (3) Execute port and harbor works for construction and improvement of port facilities (excluding waste disposal facilities other than those specified under paragraph 11-3) necessary for the development, utilization and preservation of the port and protect and preserve the areas adjacent to the port area.
- (3)-2. Create or improve land in the port area or waterfront area through reclamation of water area or ground raising or leveling of ground, in addition to the works specified in the preceding item.
- (4) Manage on commission the port facilities (including the land necessary for the operation of the port) owned by the State or local public entities which are designed for public use.
- (4)-2. Enforce necessary regulation on the use of water facilities.
- (5) Manage directly specific mooring facilities which are specially important for the convenience of general public and designate locations for mooring of ships utilizing these facilities or con-

trol on the use of mooring facilities.

- (5)-2. Process entrance notice and clearance notice received from the ships entering or clearing the port.
- (6) Install facilities necessary for fire-fighting, rescue and security and provide oil fences, chemicals and other materials necessary for the removal of oils discharged into the port area.
- (7) Conduct surveys and studies and compile statistics necessary for the development, utilization and preservation of the port, and promote publicity of the port.
- (8) Provide services to ships, including water supply, aid in docking and undocking of ships and treatment of waste oils generated by ships and other services for ships when these services are not provided properly and adequately by others.
- (9) Lease out port facilities under the management of Port Authority which are not required for public use or which are not appropriate for management by Port Authority.
- (10) Regulate the use of port facilities such as transit sheds and cargo handling equipment under the management of the Port Authority by those who render services necessary for the operation of the port using these facilities, in order to ensure smooth traffic of cargo and effective utilization of port facilities.
- (11) Lend its good offices in providing services necessary for the operation of the port.
- (11)-2. Lend its good offices in the improvement of the efficiency of loading and unloading, storage, sorting and transportation of cargo in the port area and waterfront area in addition to the services specified in the preceding item.

(11)-3. Manage and operate dikes for disposal of waste materials, marine waste treatment facilities (facilities for the treatment of waste materials discharged from ships or offshore facilities specified by the provisions of Article 3 paragraph 6, of the Marine Pollution Prevention Law (Law No. 136 of 1970) or waste materials generated as a result of the work or the measures taken for the prevention of marine pollution as specified in the provisions of paragraph 2 of the same article. The same shall apply hereinafter) and waste oil disposal facilities (waste oil disposal facilities specified in the provisions of paragraph 3, Article 3 of the same law).

(12) Provide or manage such facilities as rest houses or temporary living quarters for ships' crew and harbor workers for the promotion of their welfare.

(13) Prepare and publicize the latest tariff showing the rates and charges for services and facilities necessary for the utilization of the port.

(14) Other activities necessary for providing services specified in the preceding items.

2. Matters related to the entrance notice or clearance notice specified in item (5)-2 of the preceding paragraph shall be stipulated by ordinance of the local public entity specified by the articles of incorporation from among the local public entities which established the Port Authority.

3. The ordinance under the preceding must be legislated while paying due respect to the original draft prepared by the Port Authority.

4. The tariff under item 13, paragraph 1 must include the rates which have been reported or have been made known to the Port Authority under the provision of Article 45, in addition to the rates determined by the Port Authority.

5. The Port Authority must make public the outline of port facilities under its management in accordance with the provisions of Ministry of Transport Ordinance.

(Regulations)

Article 12-2. The port authority may establish regulations concerning the matters within its authority insofar they do not conflict with laws, ordinances or regulations of the local public entities which established the Port Authority.

(Non-intervention with Private Enterprises)

Article 13. The Port Authority must not obstruct or interfere with the fair activities of private enterprises in port transportation business, warehousing business and other businesses related to transportation and storage of goods or must not operate business in competition with therewith.

2. The Port Authority must not give a discriminatory treatment to any party with respect to the use of facilities and the operation and management of the port.

Section 3. Organization of Port Authority

(Board of Directors)

Article 14. The Port Authority shall have a Board of Directors.

(Authority and Responsibilities of Board of Directors)

Article 15. The Board of Directors shall be responsible for the formulation of policies of Port Authority and shall direct and regulate the administration of the Port Authority.

(Organization of Board of Directors and Appointment of Members)

Article 16. The Board of Directors shall be composed of members less than seven in number in accordance with the articles of incorporation.

2. The number of members may be increased up to eleven (11) for the Board of Directors of the Port Authority which is established by more than three local public entities, regardless of the provisions of the preceding paragraph.

3. The members of the Board of Directors under the preceding two paragraphs shall be appointed from among persons with an extensive knowledge and wide experience in the matters relating to ports and harbors or persons of high reputation, by the heads of local public entities establishing the Port Authority with the consent of their respective assemblies.

4. The total number of members of the Board of Directors specified in paragraphs 1 and 2 shall be more than twice the number of members under the proviso to item (2), paragraph 1 of the following article.

(Persons not Eligible for Members)

Article 17. Any person coming under any of the following items shall not be eligible as a member of the Board of Directors.

(1) Member of the National Diet.

(2) Member of the assembly of a local public entity. Provided that this shall not apply when only one member is appointed for each local public entity from among assemblymen recommended by the assemblies of the local public entities establishing the Port Authority.

(3) A contractor for the work of the Port Authority or in case the contractor is a corporation, an officer of the corporation or any person, regardless of his title, who has authority or power equivalent to or exceeding that of the officer (including those who fell under this category during the period of one year prior to the date of appointment under consideration).

(4) An officer of an organization of contractors specified in the

preceding paragraph or any person, regardless of his title, who has authority or power equivalent to or exceeding that of the officer (including those who fell under this category during the period of one year prior to the date of appointment under consideration).

2. Any member of the Board of Directors who, during his term of office, has fallen under any of the items of the preceding paragraph must resign from the Board of Directors.

(Term of Office for Members)

Article 18. The term of office of a member of the Board of Directors shall not exceed three years, provided that the term of office of a member who has filled a vacancy shall be for the remainder of his predecessor's term of office.

2. The member of the Board of Directors shall not be precluded from being reappointed.

3. The term of office of the members first taking office following the establishment of the Port Authority shall be determined by the heads of local public entities establishing the Port Authority at the time of their appointment in such a manner as to prevent the expiration of the term of office of many members at the same time.

(Dismissal of Members)

Article 19. The head of the local public entity establishing the Port of Authority may dismiss any member of the Board of Directors with the consent of its assembly when he considers the said member is unable to perform his duties owing to physical or mental disabilities or when he considers the said member has acted contrary to this duties or the behavior of the said member is not acceptable as a member of the Board of Directors.

(Chairman)

Article 20. The Board of Directors shall have chairman who shall be elected from among the members.

2. The chairman shall preside over the meetings of the Board of Directors.

(Method of Decision-making)

Article 21. All decisions of the Board of Directors shall be made by a majority vote of the members of the Board of Directors.

2. No member of the Board of Directors shall exercise his vote in a decision of the Board of Directors on the matters in which he has special interests as determined by the Board of Directors.

(Auditors)

Article 22. The Port Authority may have an auditor or auditors in accordance with the provisions of the articles of incorporation.

2. The provisions of Article 16, paragraph 3 and Articles 17 and 19 shall apply mutatis mutandis to the appointment and dismissal of auditors.

(Duties and Authority of Chairman)

Article 23. The chairman, as a representative of the Port Authority, shall preside over the functions of the Port Authority as the head thereof and shall conduct business related to the development, utilization, preservation and management of the port placed under his authority by law or under the provisions of Article 45-2.

2. The member of the Board of Directors other than chairman, as a representative of the Port Authority, shall assist the chairman in directing the functions of the Port Authority, act on behalf of the chairman in his absence and perform the duties of the chairman when the post is vacant in accordance with the provisions of the articles of incorporation.

3. The auditor shall audit the business of the Port Authority.

(Secretariat)

Article 24. The Port Authority shall have the Secretariat with a necessary staff to perform administrative works, in accordance with the provisions of the articles of incorporation.

(Local Port and Harbor Council)

Article 24-2. A local port and harbor council shall be established within the Port Authority of each major port for the purpose of investigating and deliberating important matters related to each port upon inquiries by the chairman of the Board of Directors and a local port and harbor council shall be established within the Port Authority of each minor port as necessary in accordance with the provisions of Article 12-2.

2. The matters concerning the title, organization and management of the local port and harbor council shall be stipulated by the provisions of Article 12-2.

(Remuneration for Chairman and Others)

Article 25. The Port Authority must pay salary to the members of the Board of Directors, Auditors and its employees who are in full-time service.

2. The amount of salary under the preceding paragraph shall be determined in proportion to the nature and responsibilities of the assignment and on the same level as that for persons engaged in similar works in the district concerned, provided that it shall not exceed the amount of salary of the head of a local public entity establishing the Port Authority (or whichever the higher remuneration when two or more persons come under this category).

3. The members of the Board of Directors and the Auditors who receive salary under the preceding paragraph shall not engage in any work for remuneration.



(Status as Public Service Personnel)

Article 26. The members of the Board of Directors, the Auditors and employees of the Port Authority shall be regarded as public service personnel in accordance with law insofar as the application of penal laws is concerned.

(Appointment and Dismissal of Members of the Board of Directors when the Port Authority is Established by More than Two Local Public Entities)

Article 27. When the Port Authority is established by more than two local public entities, the matters concerning the execution of authority of the heads of local public entities and their assemblies concerning the appointment and dismissal of the members of the Board of Directors under the provisions of Article 16, paragraph 3 proviso to item 2, Article 17 paragraph 1, Article 18 paragraph 3, Article 19 and Article 22 paragraph 2 must be provided for in the articles of incorporation of the Port Authority.

#### Section 4. Finance of Port Authority

(Investment)

Article 28. No person other than the local public entities establishing the Port Authority shall be entitled to invest in the said Port Authority.

(Principles of Finance)

Article 29. All expenses incurred by the Port Authority for the performance of its functions (excluding the cost of port and harbor works) shall be covered by charges and rent of port facilities under its management, charges for such services as water supply provided by the Port Authority and other revenues derived from the operation and management of the port.

(Issuance of Bonds)

Article 30. The Port Authority may issue bonds to raise funds to be appropriated for construction, improvement or rehabilitation of port facilities.

2. The provisions of Article 250 of the Local Autonomy Law (Law No. 67 of 1947) shall apply mutatis mutandis to the case under the preceding paragraph.

3. The Port Authority must, in accordance with the provisions of the articles of incorporation, put aside in each fiscal year as a reserve to be appropriated for redemption of bonds issued under the provisions of paragraph 1.

4. The reserve for redemption under the preceding paragraph shall not be used for any purpose other than for redemption of bonds.

(Disposition of Profit and Loss)

Article 31. When there is still a balance after appropriation of surplus for reserve for redemption as stipulated in the preceding paragraph and for loss compensation, the Port Authority must transfer the balance to the local public entities establishing the Port Authority in accordance with the provisions of the articles of incorporation.

2. When the loss incurred by the Port Authority cannot be covered adequately by the reserve referred to in the preceding paragraph, the local public entities establishing the Port Authority must make up the deficiency in accordance with the provisions of the articles of incorporation.

(Inventory of Property)

Article 32. The Port Authority must prepare an inventory of property, a balance sheet and a statement of profit and loss and submit them to the local public entity establishing the Port Authority within two months following the end of each fiscal year.

Chapter III. Local Public Entity as Port  
Management Body

(Establishment of Local Public Body as Port Management Body)

Article 33. In the case of a port where no Port Authority has been established, the local public entity concerned may become a Port Management Body by itself or establish a local public body prescribed in Article 284 paragraph 1 of the Local Autonomy Law as a Port Management Body. The same shall apply to the case in which the Port Authority is to be dissolved in the port where Port Authority has been established, in accordance with the provisions of the articles of incorporation.

2. The provisions of paragraphs 2 through 10 of Article 4 shall apply mutatis mutandis to the case under the preceding paragraph, the provisions of paragraphs 4 through 6 of the same Article to the case in which the local public entity as a Port Management Body makes changes in the scope of the port area and the provisions of Article 9 paragraph 1 to the case in which the local public entity as a Port Management Body obtains approval for the designation of or changes in the scope of the port area. In these cases, "the local public entity which proposes the establishment of Port Authority" shall read "the local public entity concerned which intends to become a Port Management Body or proposes the establishment of a local public body specified in Article 284 paragraph 1 of the Local Autonomy Law which acts as a Port Management Body".

(Functions)

Article 34. The provisions of Articles 12 and 13 shall apply mutatis mutandis to the functions of the local public body which acts as a Port Management Body.

(Commission)

Article 35. The local public body which acts as a Port Management Body may establish the Board of Directors an organ to carry out the functions under the preceding article.

2. The title, organization and authority of the Board of Directors shall be stipulated by the ordinance of the local public entity concerned.

3. When the Board of Directors under paragraph 1 is established, the local public body which acts as a Port Management Body must notify the Minister of Transport of the effect establishment.

(Local Port and Harbor Council)

Article 35-2. A local port and harbor council shall be established within the local public entity acting as a Port Management Body of a major port for the purpose investigating and deliberating important matters concerning the said port upon inquiries by the head of the local public entity acting as a Port Management Body (or the Board of Directors under the provisions of paragraph 1 of the preceding Article if such is established within the local public entity) and a local port and harbor council shall be established within the local public entity as a Port Management Body of a minor port, as necessary, in accordance with the provisions of ordinance of the local public entity concerned.

2. The matters concerning the title, organization and management of the local port and harbor council shall be provided for in ordinance of the local public entity concerned.

(Effects of Establishment of Port Authority)

Article 36. When a Port Authority is established or a local public entity becomes a Port Management Body under the provisions of Article 33 in the port where another local public entity has been the Port Management Body under the same provisions, the local public entity which has hitherto been

the Port Management Body shall lose its position as Port Management Body insofar as the port area under the jurisdiction of the new Port Management Body is concerned.

2. The provisions of the preceding paragraph shall apply mutatis mutandis to the case in which a local public entity becomes a Port Management Body under the provisions in the last part of paragraph 1, Article 33 for the port where the Port Authority has hitherto been the Port Management Body.



**Appendix 2. The AUTHORITY'S SYSTEM for RENT DETERMINATION and INCOME and EXPENDITURE PLAN**





THE AUTHORITY'S SYSTEM FOR RENT DETERMINATION  
AND INCOME AND EXPENDITURE PLAN

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## 1. Outline of the Authority's Leasing System

The Authority (Keihin (Tokyo Bay) Port Development Authority) is engaged in leasing of "a quay and related facilities", which may be termed financial leasing. The characteristics of financial leasing are listed below in order to clarify the leasing method adopted by the Authority.

When an enterprise needs new machines or equipment, but lacks funds for purchasing them, there are several methods that can be used to obtain them. The first method is to take a loan from a banking organ. The second method is to purchase the items from a supplier on a deferred payment basis. **However, the first method requires security and credit, while the second method requires a supplier with fund raising ability. For this reason, the option of leasing is worth considering as a third method.**

### 1) Characteristics of Financial Leasing

From a formal view point, leasing is a type of rental contract provided for in the Civil Law Act. But it should be understood that it is a new way of transaction which cannot be completely explained completely by previous legal concepts. Here, financial leasing means "leasing" in its narrow sense. A leasing company (the Authority) lends machines and equipment instead of funds. Under this system of "material loan", a leasing company (the Authority) plays the role of a banking organ rather than a lessor of machines and equipments.

Generally, the fees to be collected in installments by a leasing company during the period of a leasing contract should be equivalent to the result obtained by subtracting (4) from (1) (2) (3) of the following four factors.

- (1) Funds required for purchasing (or constructing) machines and equipment to be leased
- (2) Interest on this fund
- (3) Charges of the leasing company (general management cost etc. in the case of the Authority)
- (4) Residual value at the end of the leasing period

The Authority's leasing business consists of constructing "a quay and related facilities", leasing them to a lessee for a long period in compliance with a contract and collecting the entire construction and management costs as leasing charges (rent) during a leasing period. Another of the characteristics is that neither the Authority, nor a

lessee can cancel a contract, in principle, without any special reason during a contract period.

In other words, "a quay and related facilities" should be regarded as the medium of financing. The Authority concludes a leasing contract in consideration of a lessee's requests.

Therefore, a lessor completely sells the right of use to a lessee. A lessee pays it in the form of rent. However, their ownership belongs to the Authority both in name and in practise.

Financial leasing has various characteristics from the view point of funds material management and financial management etc. Professor Vancil of Harvard University pointed out the following advantages and disadvantages of financial leasing from the standpoint of a lessee.

(i) Advantages of Financial Leasing

- (a) Working capital can be used for more productive purposes  
(Capital freezing can be avoided.)
- (b) Occasionally, it costs less than other methods.
- (c) In some cases, depreciation requires fewer years than legal service life criteria (Example: Quay)
- (d) It provides an enterprise with larger fund raising capacity.
- (e) It can eliminate certain of the restrictions of a loan contract.
- (f) An enterprise has only limited liability to a leasing company at the time of insolvency or reorganization.
- (g) It is not entered as liability in a financial statement.
- (h) It has no effect on normal bank loan limits.
- (i) Substantially, this financing has 100% effects.
- (j) It works as a guard against the risk of holding antiquated facilities.
- (k) It can minimize the risk of introducing excessive facilities.
- (l) It ensures better services.
- (m) It only requires regular rent payments.
- (n) It meets a lessee's needs more completely than other types of financing.
- (o) It avoids the problem of selling facilities when they become unnecessary.
- (p) An enterprise can quickly introduce costsaving equipment.
- (q) An enterprise can obtain a long-term loan without weakening its ownership and management rights.

The above-listed advantages are generally given to lessees. The advantages to be enjoyed specially by an individual enterprise depend on its fund conditions, profitability, prospects and equipment investments. In other words, financial leasing allows composite and many sided uses for an enterprise.

(ii) Disadvantages of Financial Leasing

- (a) Its interests are higher than those of ordinary loans.
- (b) The residual value of facilities belong to a leasing company.
- (c) It imposes fixed payments.
- (d) A lessee cannot dispose of facilities even if they should be antiquated before the end of a leasing period. It lacks flexibility in this respect.
- (e) A lessee does not have the sense of satisfaction from ownership.
- (f) Facilities may be removed when a lessee can not make payments due to poor business.

These disadvantages are unavoidable no matter what method may be used for obtaining machines and equipment. A lessee must compare and study these advantages and disadvantages from his own particular standpoint before making a decision.

2) Selection of Lessee and Leasing System

The Authority's leasing system can be summarized as a system of leasing facilities constructed by the Authority to users under a leasing contract. When facilities are used by a small number of specific users, this system will provide them with primary control over the management of a terminal and increase the efficiency of terminal operations. This is briefly discussed below.

(i) Criteria for Selection of Lessee

The users of the Authority's wharves should be "ocean freight liner operators departing from, calling at or arriving at a port with the said quay and related facilities" or "licensed ordinary port transportation business operators for a port with the said quay and related facilities provided in Paragraph 3, Article 1 of the Port Transportation Business Law". These provisions indicate that the said foreign trade wharves are exclusively for container ships and liners.

(ii) Method for Selection of Lessee

The Authority invites prospective lessees to apply and then "fairly selects a lessee of a quay and related facilities in consideration of their financial credits, operation and handling of ocean freight liners and volume of related cargo handling etc".

(iii) Leasing Method

Concerning the use of a terminal, "a quay and related facilities" are leased together for each unit of use by ocean freight liners". In other words, facilities are leased by units, in principle.

(iv) Criteria for Determination of Rent for Quay and Related Facilities.

Rent is determined on the basis of prime cost. Since loans are used for construction funds, interest etc. required on the payment is also considered.

In other words, the sum of the costs to be added up for the profit and loss account of the Authority (including depreciation expenses, repairing costs, management costs, provision for accidents, interest payment etc.) is to be collected every year. (It will be discussed in detail later.)

(v) Change of Rent

"Rent can be corrected when it is considered necessary in view of cost increases or decreases due to changes of economic conditions or other reasons".

(vi) Reservation Contract

A lessee can be determined by reservation. At this time, earnest money is to be collected. It guarantees to the lessee exclusive leasing rights.

Like a formal contract, a reservation contract contains provisions on the date to start lease, prospective rent, premium for lease (deposit and earnest money), prohibition of transfer etc., financing to the Authority, structure installation and the right to cancel contract.

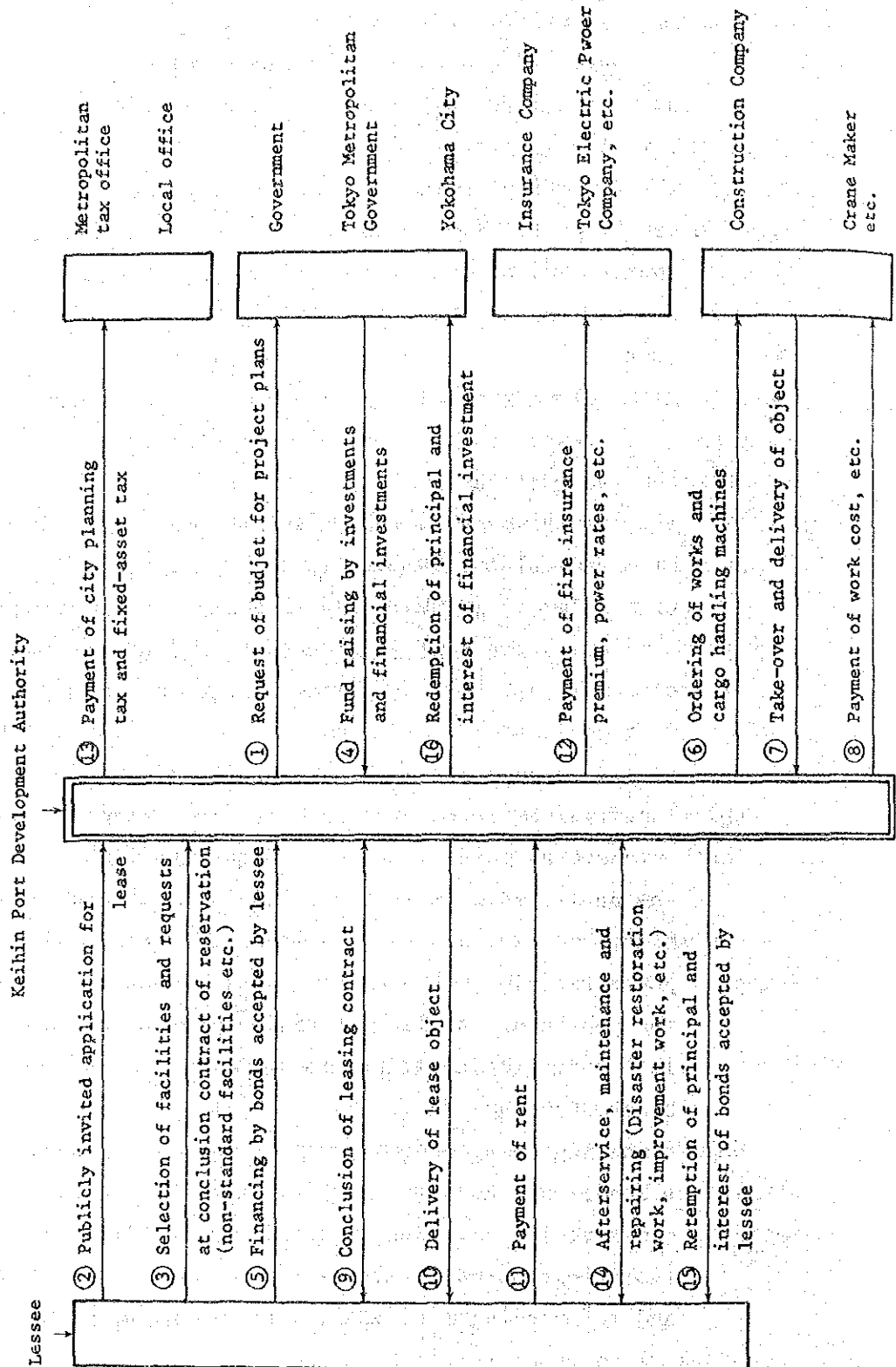
(v) Contract of Use

Since this system is fundamental to a leasing contract, a contract of use is to be concluded with a lessee. This contract includes the following terms.

- (a) Leasing period ... A leasing period is ten years. It can be extended at the time of expiration.
- (b) Collection of deposit ... A deposit is collected to ensure the performance of a leasing contract. The amount of a deposit is "equivalent to 3/12 of annual rent". The collection of deposit and earnest money gives some capital margin to the Authority which has been obliged to manage wharves with rents determined on the basis of strict prime cost calculations.
- (c) Maintenance and repairs of "quay and related facilities" and scope of cost bearing
  - A) The Authority maintains and repairs those facilities which have direct effects on service life and damages unattributable to a lessee ... maintenance and repairing of quay (excluding mooring posts, fenders, ladders etc.), maintenance and repairing of yard pavement, painting of gates and fences, maintenance and repairing of outer walls, roofs and frameworks of building, painting doors, lighting equipment, cranes, etc., etc.
  - B) The Authority is to maintain and repair common facilities and cranes so as to pass performance inspection, and a lessee is to bear these costs.
  - C) Excluding the above terms, a lessee is to regularly maintain and promptly repair "quay and related facilities" at his own expense.
  - D) In the case of natural disasters, the Authority is to carry out restoration work quickly at its expense.
  - E) When a lessee is responsible for damage to a quay and related facilities, he must immediately restore original conditions at his expense under the Authority's direction.
- (d) A lessee is to bear water and power rates as well as cost connected with the fire insurance contract.
- (e) Restriction on special uses ... A lessee must obtain approval from the Authority before taking the following actions.
  - A) To use a quay and related facilities for purposes other than vessel mooring and cargo handling.
  - B) To install a structure at a quay and related facilities.

- C) To paint, affix or install marks or signs for advertisement etc. at a quay and related facilities.
  - D) To change the original conditions of a quay and related facilities.
- (f) The Authority's right to cancel contracts and to impose penalties ... The Authority may cancel a contract if a lessee commits any of the following contract violations. A lessee may have to pay to the authority a penalty equivalent to its annual rent.
- A) A lessee ceases to be engaged as a licensed ordinary port transportation business operator at a port with a quay and related facilities.
  - B) It is revealed that a lessee acquires a lease on a quay and related facilities by unjust means.
  - C) A lessee fails to pay rent for more than three months or is frequently delinquent in rent payment.
  - D) A lessee is liquidated. (Liquidation due to merger is excluded.)
  - E) A lessee acts in contravention of the contract.
- (g) Instruction for general use ... "The Authority can instruct a lessee to offer the use of a quay and related facilities to the public when it is requested by a port management body to solve abnormal vessel stagnation at a port and for other urgent purposes. In such a case, a lessee must offer the facilities for public use as long as his own operations are not inhibited". This provision is stipulated to offer assistance in severe circumstances.
- (h) Financing carried out by the Authority ... Bonds accepted by a lessee are used to meet 40% of the funds required for construction of a quay and related facilities. Provisions on financing methods, interest, repayment terms repayment methods and refinancing etc. are given in the following chart.

(Fig. 1) The Keihin Port Development Authority's Process  
for Conclusion of Leasing Contract





### 3) Characteristics of Leased Facilities

Terminal facilities constructed by the Authority can be classified into projects under investments, projects under special utility bonds, and structure installations.

They are briefly described below.

#### (i) Projects under investment

The Authority is engaged in the services provided for in Paragraph 30 of the Port Development Authority Law. Those general facilities (standard facilities) which must naturally be provided for the performance of its services are constructed as projects under investments. In other words, facilities constructed under an investment project are listed in a resume to be published for public invitation of lessee applications as standard facilities in a basic plan on The Authority's terminals, prepared by the Ministry of Transportation. They are financed by the Government as primary services of the Authority (10%), by local public entities concerned (10%), financial investment and loans (40%) and private fund (lessee's fund, 40%). Therefore, perpetual loans bearing no interest account for 20% of the entire funds.

#### (ii) Projects under special utility bonds

On the other hand, the Authority has encountered requests for special facilities (non-standard facilities) for rational and efficient terminal operations. This situation arises from the fact that users of facilities are specific lessees and that lessees differ among themselves in management policy and operation policy. For this reason, the Authority has constructed non-standard facilities falling under the following conditions as projects under special utility bonds, and managed them as assets owned by the Authority since 1970.

- A) Facilities that cannot be separated from standard facilities.
- B) Facilities that have to be constructed simultaneously with standard facilities.
- C) Facilities that have universal property and are inadequate for lessee's property.

(Actually unremoval facilities or facilities that involve a lease of land.)

D) Facilities that are adequate as services of the Authority. For the costs of these facilities, special utility bonds are issued under an annual budget. Lessees quays and related facilities purchase all of these bonds. Therefore, a no interest-free fund (20%) is available for these facilities. The entire construction cost is financed by funds with interest raised by the lessee. The conditions for the issuing of special utility bonds are the same as those for "Type B Bond" for projects under investments.

(iii) Structure installation

Structure installation means to install structures within the Authority's terminal at a request from a lessee, like projects under special utility bonds. Such structures do not become assets of the Authority. A lessee installs them at his own expense and risk after obtaining approval from the Authority in advance. These installations have no relation to the rate of rents. The Authority gives its approval according to the following provisions.

- A) Structures that have no possibility of inhibiting the functions and efficient use of facilities belonging to an ocean liner terminal.
- B) Structures that do not inhibit the safety of facilities belonging to an ocean liner terminal.
- C) Structures that promote the primary uses of a quay and its related facilities.
- D) Structures that will not produce superficies, casement, purchase option and other rights by their installation, or by alteration of original conditions (i.e. restoration of original conditions should be relatively easy).

A lessee must restore the original conditions at the termination of its leasing contract for terminal facilities with the Authority. The following table shows general criteria for classifying standard facilities (investments) and special facilities (special utility bonds).

(Table 1)

Standards for CFS and Other Facilities

<u>Facility</u>	<u>Standard facilities</u> (Project under investment)	<u>Special facilities</u> (Project under special utility bonds)
Freight station		
a) Area	(Single berth) Total area 6,000 m <sup>2</sup> (Continuous berths) Total area 6,000 m <sup>2</sup> x (Number of berths)	Area exceeding the left
b) Air- conditioning		Buried structure under same work
Maintenance shop		
a) Area	(Single berth) Total area About 800 m <sup>2</sup> (Continuous berth) Total area 800 m <sup>2</sup> x (Number of berths)	Area exceeding the left
b) Air- conditioning		Buried structure under same work
Gate house, scale bit	(Single berth) Two places (Continuous berth) Two places x (Number of berths)	Number exceeding the left
Yard control room	Total area About 500 m <sup>2</sup>	Buried structure related to air-conditioning under same work

- Cont'd -

Facility	Standard facilities (Project under investment)	Special facilities (Project under special utility bonds)
Management house		
a) Area	Total area About 1,200 m <sup>2</sup>	Area exceeding the left
b) Air-conditioning	Buried structure under the same work	Mountable and dismountable Machineries
Freeseing facility	(Single berth) 40 units (160 connectors) (Continuous berth) 40 units x (Number of berths)	Number exceeding the left
Washing facilities Hazardous materials storage facilities Primary and secondary Electric power facilities Lighting equipments Fences, Gates, Guard Station Water supply and fuel supply facilities Water storage tank		A set of facilities of required scale
Transit shet	Total area 5,600 m <sup>2</sup>	Area exceeding the left
Office		
a) Area	Total area 400 m <sup>2</sup>	Area exceeding the left
b) Air-conditioning	Buried structure under same work	Mountable and dismountable machineries

## 2. Criteria for Determination of Rent

### 1) Basic Concept for Rent Determination

Rent for "a quay and related facilities" differs from marine fare and port charges in that it is not directly passed to shippers. However, it is naturally reflected in marine fare and port charges indirectly as one of the business factors pertaining to shipping companies or port transportation business operators. Therefore, its effects on shippers and, ultimately, on the public are not minor.

Rent must be determined by the following basic principle. To continue its business, the Authority must bear depreciation costs, repair costs, management costs, various reserves and interests, etc. These expenses must be covered entirely through rent, from the view point of the Authority's profit-loss calculations.

So, rent is determined by apportioning these expenses to each berth.

("The criterion is the sum of the amounts of expenses allocated to each unit of a quay and related facilities".) The repayment of the funds required for the construction of facilities is also considered. This is because the Authority depends on loans for 80% of its construction funds, and the remaining 20% is financed by the Government and local public entities. Considering depreciation of facilities alone is not sufficient. Since rent is determined for each unit, some adjustment must be made. This accounts for the following ordinance provision. "When rents of two units differ sharply, apportionment methods may be considered to correct the imbalance".

### 2) Criteria for Determination of Rent

Quay management cost is the basic factor in determining rents. The prime cost method is adopted for calculations. The method to be used for calculation of rent and apportionment must be approved by the Minister of Transportation. Rents are not under direct control, but under indirect control. In other words, it is not the value of rent, but the rent calculation method that is to be officially controlled to ensure public property.

#### (i) Criteria for Calculation

"Rents for a quay and related facilities should be determined on the basis of the sum of depreciation expenses repair costs, management costs, various reserves, interest payments, etc. in consideration

of the redemption of funds required for the construction of facilities".

The first half of the above sentence indicates the adoption of the prime cost method, namely, that costs of various expenses are totalled to obtain rents.

The second half of the sentence means that, generally the term for redemption of construction funds is shorter than service life (= depreciation years). For this reason, redemptions to be made are higher than depreciation costs. The difference between the two comes up as a shortage in funds. Interest payment increases if a new loan is made to cover this short-term fund shortage. This too should be included in rent calculations.

(ii) Depreciation Expense

"The straight line method should be used on the basis of the Ministerial Ordinance Related to Service Life etc. of Depreciable Assets (1965 Ordinance No. 15 of the Ministry of Finance)".

The declining balance method and the straight line method are available for depreciation. Generally, the declining balance method is preferred for tax calculations because of its higher rate of depreciation. The Authority is a special juridical person financed both by the Government and local public entities.

For this reason, it is exempt from corporation tax and income tax and has little reason for adopting a declining balance method.

For the Authority, the straight line method is preferable since it ensures a fixed depreciation expense and stable rents.

The depreciation expense is calculated on the basis of the depreciable asset (acquisition cost) of each facility, obtained from construction cost, management cost (Note), construction interest etc. in consideration of residual price (10%).

Concerning facilities constructed under special utility bond projects (special facilities) and with service lives under 30 years, their service lives are used for calculations. Concerning special facilities with service lives exceeding 30 years, a term of 30 years is used for calculation. Residual price is not calculated.

The ministerial ordinance provides for the following service life.

Quay, anchorage	50 years
CFS, maintenanceshop, other buildings	35 years or 45 years

Crane, washing facilities,  
electric corrosion proofing  
of quay 15 years

Gate, fence, pavement 10 years

- (Note) 1. Construction cost ... It includes not only the cost of main work paid directly for construction work, but also the cost of incidental office work, miscellaneous cost for work, cost of survey tests etc. Personnel cost required for the staff of the Construction Office, and cost of supplies are included in general management cost.
2. Management cost etc. .... It includes general management cost (personnel cost, cost of supplies etc.) and cost of investigation for project planning.

(iii) Repairing Cost

"Repairing cost is to be \_\_\_\_/100 of the cost required for construction (excluding cost related to site)".

Repairing cost is determined as a fixed percentage of the cost of construction for the following reason. Different methods are used for determining these costs because of the special circumstances of each berth. It is difficult to standardize them and make a uniform model. Since these costs are quite changeable, they should not be made the responsibility of the Authority, in order to prevent lax management. In other words, the Minister of Transportation must approve a change in the ratio of repairing costs.

In practise, the repair cost means the maintenance and repair cost borne by the Authority under the quay and related facilities leasing contract.

The repair cost is necessary in order to use the facilities effectively for the entire period of service life.

By referring to data of other terminals and by considering rises in the price of commodities.

It is determined on the basis of (1) maintenance and repair of quay, excluding mooring posts and fenders, (2) maintenance and painting of cargo handling machines, (3) maintenance and repair of outer walls, roof, framework of CFS, (4) maintenance and repair of pavement, excluding minor repairs, (5) maintenance and painting of gates and fences, (6) maintenance and repair of outer walls, roof and framework of guard room, (7) maintenance and painting of lighting tower etc.

(Table 2)

Determination of Maintenance and Repairing Cost

Maintenance and repairing item	Basic assumption
(1) Maintenance and repairing of quay excluding mooring posts and fenders	A lessee is to bear maintenance and repairing cost of auxiliary facilities. Therefore, power rates for electric corrosion proofing (external power system) alone are included.
(2) Maintenance and painting of cargo handling machines	They are repainted once every three years.
(3) Maintenance and repairing of outer walls, roof and framework of freight station	Maintenance cost and painting cost alone are considered since user-caused damages alone can be expected except the painting of outer walls, roof and framework. Outer walls and roof are repainted once every three years, while iron frames are repainted once every five years.
(4) Maintenance and repairing of pavement, except minor repairing	Secondary pavement for possible ground subsidence is excluded. Main pavement is to be maintained and repaired once every three years, overlaying about 1/2 of total pavement area. Asphalt concrete pavement alone is considered.
(5) Maintenance and painting of gates and fences	Like (3), they are to be repainted once every three years.
(6) Maintenance and repairing of outer wall, roof and framework of guard station	Like (3)
(7) Maintenance and painting of lighting tower	Like (3), it is to be painted once every three years.



iv) Management Cost

"Management cost is to be \_\_\_\_\_/100 of the cost required for construction (excluding costs related to site)".

A fixed ratio is also allowed for management costs to avoid disorderly increases. Management costs are to be used for the expense of management staff berths (3.6 men for a 250 m length berth and 3.6 x 1.2 men for a 300 m berth). Expenses per man are determined on the basis of past general management costs and in consideration of the rising rate of personnel expenses and supply costs.

v) Reserve for Accident Restoration

"The reserve for accident restoration is to be \_\_\_\_\_/100 of the cost required for construction (excluding costs related to site, quay body, revetment, anchorage and allotted amount)".

The reserve for accident restoration is reserved annually in provision for accidents. In the accounting record, it is added as surplus in the next year if no expenditure is necessary (if no accident occurs.)

Therefore, it is questionable as to whether a fixed ratio reserve is needed in the initial plan. However, this is a necessary measure in view of the nature of management and operation plans. The ratio has been determined by studying the data from public berths and other ports.

These three expenses are determined on the basis of the cost of construction work. But costs related to the site are excluded for the following reason. It is undesirable to include the cost of purchasing land and other costs related to the site as the basis for determining these expenses, in view of the nature of these expenses. The cost of land sharply differs locally and it is often difficult to determine whether the cost level at one location is reasonable in comparison to other sites.

The construction cost of so-called basic facilities (quay body, revetment, anchorage) is excluded in determining the reserve for accident restoration. This is because the past record shows almost no accident-caused damage to them, and because serious damages that exceeds the capacity of the Authority, will be restored through financial assistance from the Government and the local public entities concerned.

(vi) Interests

"The part of the facilities constructed through loans is assumed to depreciate as to principal and interest, at the annual uniform interest rate of the loan. Based on this assumption, the value obtained by dividing the part of the said loan by the number of durable years of the said facility is to be subtracted".

In other words, interest on loans (excluding investments) obtained for each facility, are calculated on the assumption of annual uniform redemption as to principal and interest. In this case, interest on depreciable assets alone is obtained. Interest on land is calculated separately.

Under the system of uniform redemption of principal and interest, payment is used mostly on interest and much less for principal at the beginning. However, the value obtained by dividing principal by the number of durable years is subtracted to standardize payments. Since both depreciation expense and interests are annually uniform, rents can be kept uniform

(vii) "Land Costs: Value obtained multiplying the loan made for the acquisition of a quay site by its interest rate".

a quay site by its interest rate.

The cost that is required for site acquisition, namely, land purchase cost (Ohi Wharf) or land reclamation and preparation cost (Honmoku Wharf), does not depreciate, since the cost of land does not decrease. For this reason, the appraisal value of land is added as an asset and remains permanently unchanged unless reappraisal is made. Since a long-term loan equivalent to the appraisal value of land always exists, its interest is transferred to rents as equivalent of the cost of land. The value produced by the land, namely, the cost of land, is usually used to pay the interest on the loan and not for the payment of the principal.

(viii) "Taxes: Amount fixed asset tax and city planning tax".

Amount fixed asset tax and city planning tax

City planning tax and fixed asset tax are imposed for the appraisal value of land or buildings (CFS, sheds etc.).

(ix) "Reserve for Bad Debts: Amount equal to 2/100 of the total of the expenses (ii)-(viii)" .

The reserve for bad debts is an allowance to be used when rents cannot be collected due to such causes as the liquidation of a lessee, etc. It takes a considerably long period to conclude a leasing contract with another lessee after the cancellation of a contract with one lessee. The reserve for bad debts is treated like the reserve for accident restoration. This reserve is necessary to make up for the loss of income during this period. The fixed ratio of 2/100 is based on the following assumption. Rent exemption and reduction equivalent to two months will arise during a leasing period (10 years = 120 months) due to disaster (damages by typhoon, etc., on approximately 10% of facilities above the ground are assumed.) and bad debt loss equivalent to 0.5 months rent, due to liquidation etc. are assumed.

$2.5 \text{ months} / 120 \text{ months} \div 2/100$

Ordinary enterprises determine reserve for bad debts on the basis of the balance of credits, including accounts receivable and loans. They determine anticipated bad debts in consideration of risks of various credits, the ratio of bad debts during the past several years and economic conditions in the immediate future. The tax law allows 2.5/100 (highest) for installment sales companies, but 1.2/100 (lowest) for some other enterprises.

The Authority has enjoyed smooth business operations owing to the rapid economic growth in Japan. Furthermore, lessees of quays and related facilities have large financial resources, high credit, and strong and able management. For this reason, no bad debt has as yet occurred with the reserves being carried over into the next fiscal year as surplus.

Rents are determined on the basis of the sum of the above eight items. However, the Authority may change rents even during a leasing period in the following cases.

- (A) A change may be regarded as necessary because of fluctuations in the prices of commodities and other economic conditions.
- (B) A change may be regarded as necessary in view of the balance of rents among quays.
- (C) Improvements are made on a quay or related facilities.

The real ratio that each of the eight cost items occupies in the determination of rents are shown approximately in Fig. 2.

(Reference) A survey concerning the rents of other corporations which offer similar services revealed the following fact. Only a limited number of corporations offer to lease facilities that they have constructed for a particular value, namely, the service of giving an exclusive right of use to a lessee for a fixed period on condition of the payment of a fixed equivalent.

An even more limited number of corporations offer the service of leasing a basic facility to parties specifically selected by the corporation.

The Japan Housing Corporation is the only such organization.

The Corporation determines rents by assuming uniform depreciation of principal and interest for a fixed term at a fixed rate and by adding repair costs, management costs, various taxes, etc.

Fig. 2 The Real Ratio of Each Cost Items Occupied in Rents

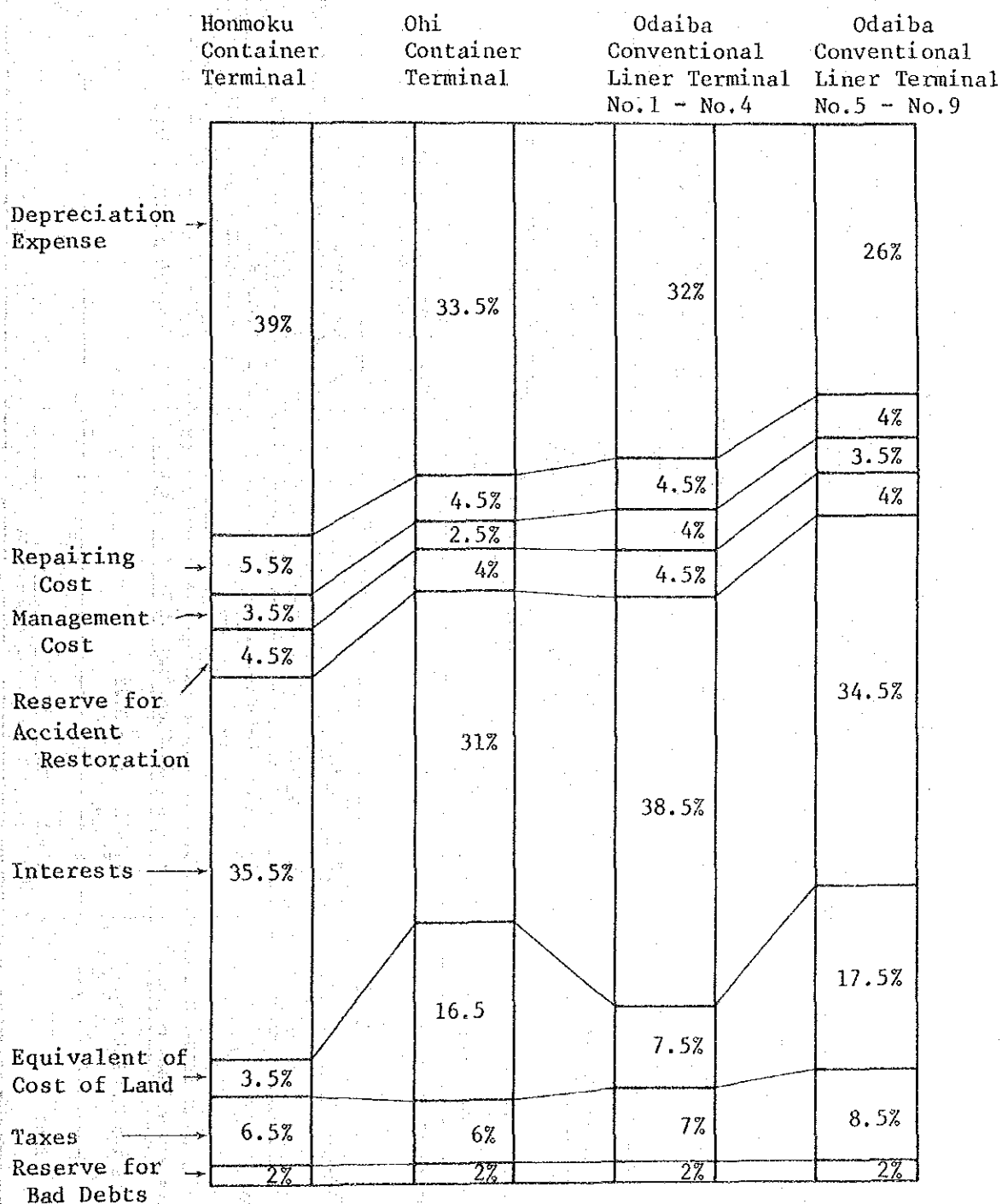
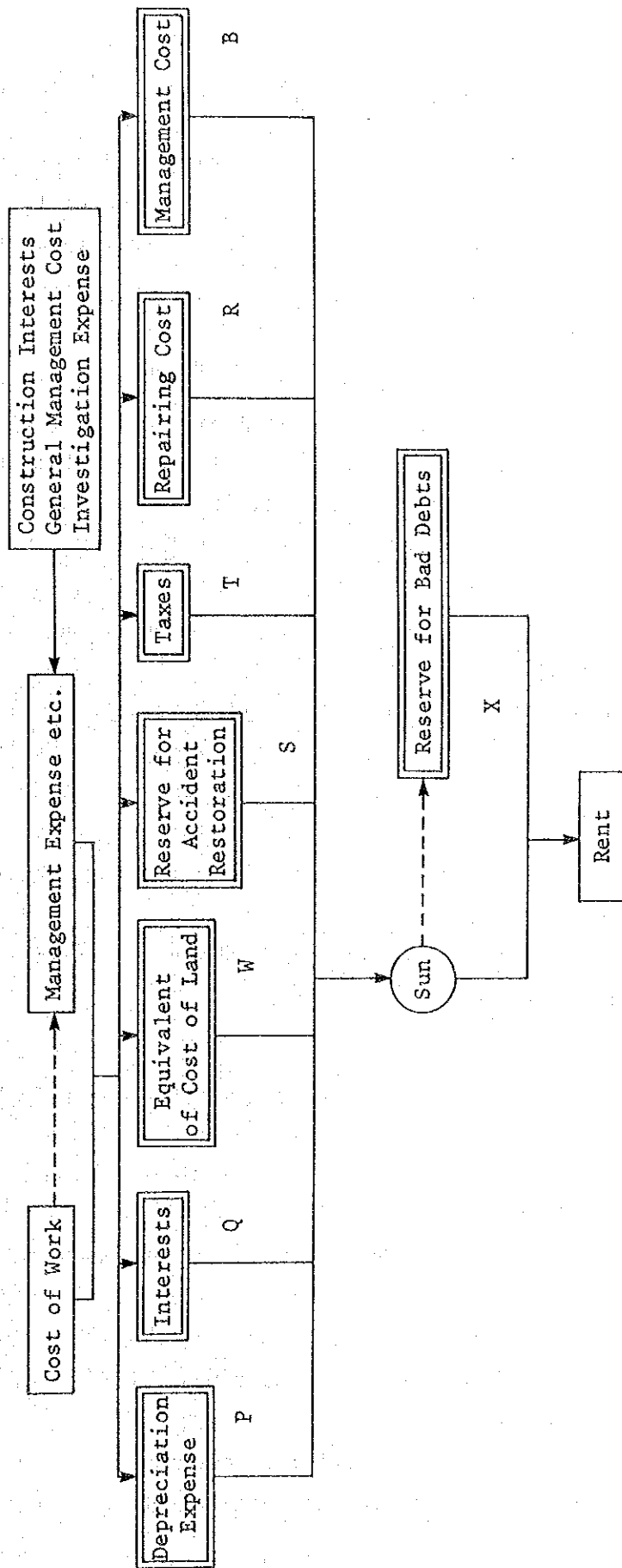


Table 3. An Easy Method of Rent Calculation

Item	Explanatory Equation	Remark
Durable Years	$t$ (years)	By Ordinance of The Ministry of Finance
Cost of Works	$j$ (yen)	Cost of Construction Works $\times$ 1.035 (assumed ratio) (including Adding Office Expense, etc.)
Acquisition Cost	$J$ (yen) = $j \times 1.25$ (assumed ratio)	Cost of Works + (Construction Interests, General Management Cost etc.)
Cost to Depreciate	$J \times 0.9 = j \times 1.125$	Residual Value = Acquisition Cost $\times$ 0.1
Depreciation Expense	$R_1 = J \times 0.9 \times 1/t = j \times 1.125 \times 1/t$	By The Straight Line Method
Interest	$R_2 = J \times 0.8 \times (\beta - 1/t) = j \times 1.0 \times (\beta - 1/t)$	By Equal Payment Method of Principal and Interest ( $\beta$ : interest ratio)
Reserve for Accident Restoration	$R_3 = j \times 0.01$	
Repairing Cost	$R_4 = j \times K_1$	$K_1$ : Repairing Cost Ratio 0.48/100-0.72/100 at Ohi, 0.59/100-0.97/100 at Honmoku
Management Cost	$R_5 = j \times K_2$	$K_2$ : Management Cost Ratio 0.36/100-0.54/100 at Ohi, 0.45/100-0.67/100 at Honmoku
Taxes	$R_6 = \text{Appraised Value} \times \alpha$	$\alpha$ : Ratio for tax Land and Houses 1.6/100 Others 1.4/100
Equivalent of Cost of Land	$R = \text{Acquisition Cost of Land} \times 0.8 \times Y$	$Y$ : Interest Ratio of Loan
Reserve for Bad Debts	$R_7 = \sum_{i=1}^7 R_i \times 0.02$	
Total = Rent	$R = \sum_{i=1}^8 R_i$	

Rent Calculation

Fig. 3 Flow Chart of Outline of Rent Determination



### 3. Structure of Income and Expenditure Plan

- 1) An income and expenditure plan has been prepared for every stage of construction and every aspect of management, in order to locate and remedy any possible problems concerning the Authority's expenditure and income status. Therefore, this plan will deal with project related activities for the entire period of the project.
- 2) Rent on the Authority's berths consists of eight items, including depreciation expenses, and repair and management costs as explained before. It is determined according to a system of repaying the loan for construction in 30 years. This requires that income and expenditure should have a long-term balance for each of the items and that invested funds must be collected in the form of rents, within the service life of each facility. (With regard to quays and buildings, such as CFS, whose service life exceeds 30 years, no collection is possible.) No collection has been planned for the loan made to purchase land, so a working profit of surplus money (e.g. from deposits, etc.) must be obtained as a resource of redemption. These are some of the important items that must be considered in understanding the relation of rents to the preparation of an income and expenditure plan for the Authority, which must operate on a self-supporting accounting system.  
The flow chart outlining calculations for the long-term income and expenditure plan is shown in (Fig. 4).

- 3) Generally, the income includes investments, long-term loans, assumed bonds of the Financial Funds Management Division (Type A bonds), bonds accepted by the lessee (Type B bonds, which are used as funds for construction), as well as business income (rent, which brings in income for management).

Other sources of income are deposits and earnest money and the interest on these, and interest on various other reserves.

Deposits and earnest money are not, however, listed in the income column, but listed in the adjustment column as funds for filling differences in income and expenditures.

Although they are ultimately treated as income, they should be listed in the adjustment column in view of their nature as long-term deposits received.

On the other hand, interest on deposits etc. is handled as an income increase.



- 4) Generally, expenditures include costs incurred during the construction stage and other management stage expenditures.

Expenditures of the management stage often get confused with expenditure factors in current transactions.

It should be noted that only actual expenditures should be entered.

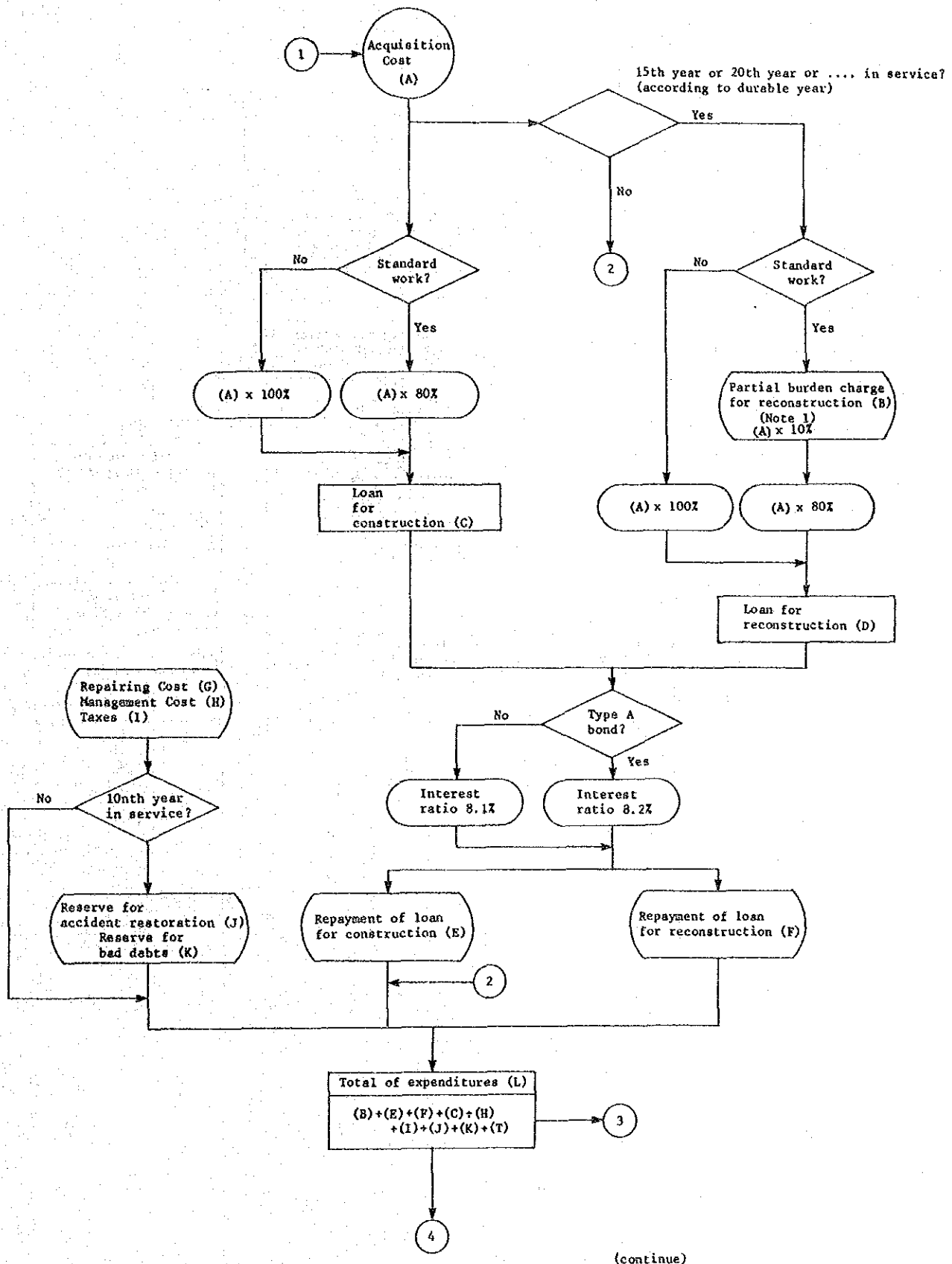
(For example, the depreciation expense is among expenditure items in current transactions. However, it is only an accounting operation, and does not involve actual expenditure in money. On the other hand, principal repayment is not among expenditure items in current transactions. However, it should be included in the expenditure column since it involves actual expenditure.)

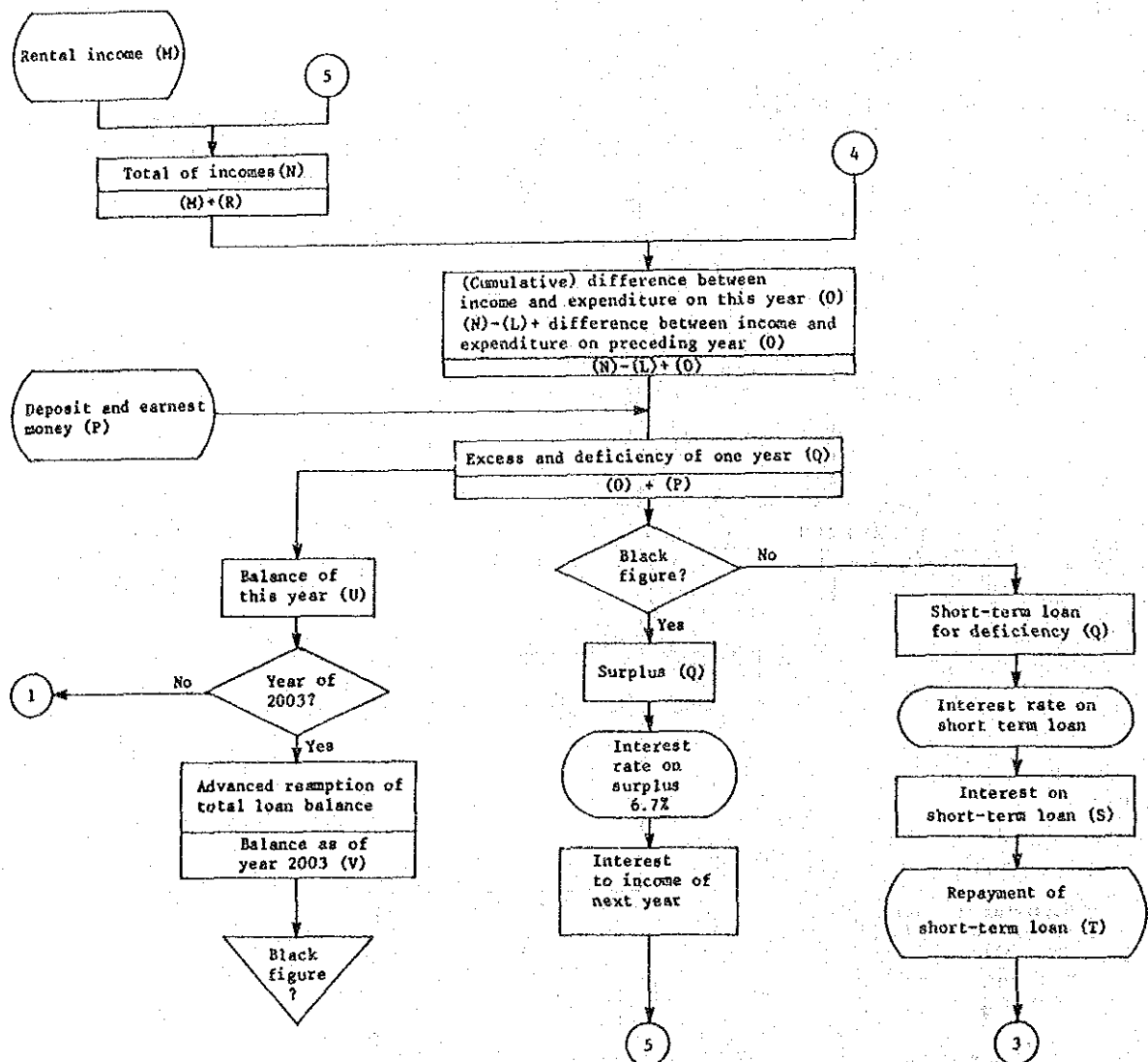
- 5) Generally, the income and expenditure items in an income and expenditure plan show correspondence both in itemization and absolute value. For example, construction cost is the sum of investments, long-term loans, and Type A and Type B Port Development Authority Bonds. Management cost is the sum equivalent to the management cost in rents. Accident restoration cost is the reserve for accident restoration in rents. However, the depreciation expense and principal repayment do not show correspondence in figures, since different periods are assumed in making the calculations. The absolute value of interests calculated in rents does not coincide with that of interests as an expenditure item, entered in an income and expenditure plan. This is because the former is a theoretical value calculated by the method of uniform principal and interest repayment, while the latter is an actual amount of payment.
- 6) The items in the expenditure column are classified into the following three groups according to their respective characteristics.

- (a) Management costs, maintenance costs, taxes etc. ... These are handled as expenditure factors both in current transactions, and in fund income and expenditure planning.
- (b) Reserves for accident restoration etc. ... These are reserved for expenses in current transactions, but they do not become actual expenditures unless there are accidents or other causes for payment. Therefore, the occurrence of accidents etc. must be predicted in advance for income and expenditure planning.
- (c) Repayment of principal ... This corresponds to the depreciation expense and interest payments, though their figures do not match. Actual principal repayments and interest payments are to be entered.

Generally, an income and expenditure plan is prepared along the lines of the form shown in (Fig. 5).

Fig. 4 Flow Chart for Calculation of Long-term  
Fund Income and Expenditure









### **Appendix 3. DANGEROUS CARGO HANDLING WHARF and OPERATION**





I N D E X  
for  
Dangerous Cargo Handling Wharf  
and Operation

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## Dangerous Cargo Wharf

### 1. General

A variety of dangerous goods is being handled in the port area. Sea born cargo includes explosives, inflammable materials, radioactive substances, high pressured gases, poisons and so on, they should be handled taking the highest care according to the indicated method by regulation for each material.

In a port layout plan, the dangerous cargo handling berths shall be planned assuming a possible accidental occasion in the area and considering to minimize its influences.

The vessels which carry dangerous cargo are restricted their movement in port by a law, for example in Japan, Japan Port Regulation Law. Port and Harbour Law has a clause that the Minister of Transport must make public a basic policy for the development, utilization and preservation of ports and harbours, according to this clause the Minister made public the basic policy in July 1974 which include an article for the dangerous cargo (described as the area where the dangerous cargo is handled) should be separated as far as possible from the other part of the port, and the damage should be minimized by careful preparations if an accident occurs unfortunately.

Laws and regulations consists of a system of the dangerous cargo handling control sustained by the each operational code and standard.

Petroleum is the most frequently handled dangerous cargo in Port. Petroleum and their products reached to an amount 758 million tons in 1978 Japan which was 29.4 per cent of total handling cargo of the country.

However, the petroleum and this products are mainly handled at the privately owned waterfront with the responsibility of the handling companies, the area of oil handling facilities is usually designated as the dangerous cargo handling area of the port.

Some bulk cargo handled in a private berth or in a public berth is also dangerous, grains are even flammable in handling operations, furthermore they have to be kept dry. Many chemical products shows more or less the same characteristics when handled in port.

General cargo sometimes contains the dangerous cargo, mainly they are handled through public berths. Recent increase is seen in Radio-active materials even at the container berths. Dangerous cargo at the general cargo terminal is not encouraged to welcome but they obligedly have to handle there, when there are no appropriate facilities in port.

This paper intends to introduce Japanese Laws and Regulations about the dangerous cargo handling mainly considering to apply them to the Mexican TUM planning project. The petroleum handling facilities are not included in this study as a consequence.

## 2. Definition of dangerous goods under the Port Regulations Law

The permission of the port captain (who is appointed from among the officers of the Maritime Safety Agency) is to be required for loading, transshipment or unloading of dangerous goods in any of the 73 specified ports of Japan.

A certain range of dangerous goods are determined, according to the criteria listed below, to be subject to this restriction. The selection of goods is made from those covered by the Regulations for the Carriage and Storage of Dangerous Goods in Ships, with reference to the purpose of the Port Regulations Law, i.e., to ensure safe and orderly shipping traffic within ports, and to the nature of the goods and the degree of risk they have.

### Criteria for Defining the Dangerous Goods

- (1) Materials whose main dangerous nature is explosive or flammable shall be defined as dangerous or other dangerous graded goods according to the degree of the danger.

For dangerous goods except explosives, high-pressure gases, infectious substances and radioactive substances, the IMDG Code specifies three Packaging Groups (I, II and III) according to the degree of danger of each particular material. In principle, this classification shall be applied in judging the degree of danger of individual dangerous goods. A small number of exceptions may be included, however, where this classification is difficult to apply.

- (2) Materials of a strongly toxic or corrosive nature have a risk to public safety and order within the port in the case of an accident, through the discharge and spread of dangerous spillages.

Therefore, materials with a high risk of toxicity or corrosiveness are defined as dangerous goods, using the Packaging Group classification as an index.

Further, some toxic or corrosive materials also present a subsidiary risk of explosion or combustion, etc. Therefore, in addition to those materials defined as above using the Packaging Groups as an index, those which present such subsidiary risks are also defined as dangerous goods on the basis of their ignition point and other

physical characteristics, even if their toxicity or corrosiveness is low.

- (3) The term "miscellaneous dangerous substances" covers all dangerous goods not contained in other categories of the classification. Since their properties are not uniform, however, they cannot be treated as a single category. Only those with explosive or flammable natures are defined here as dangerous goods.
- (4) Infections materials are excluded from the definition of dangerous goods since no need for restriction is seen in relation to the purposes of the Port Regulations law.
- (5) All radioactive substances are defined as dangerous goods in view of the special nature of the risk they include.
- (6) Materials being transported in small quantities are exempted from the restrictions by excluding from among "dangerous goods" those chemicals which are in individual packages of not more than 0.5 (or 1 ) 0.5 kg (or 1 kg) and which are transported under the name of medical drugs, cosmetics, etc.

Although there is no limit on the total amount of chemicals which can be transported, it is thought very unlikely that they would be handled in large volumes since the individual packages are restricted to a small size.

Enforcement Regulation for Port Regulation law shows a list of dangerous materials in its Appendix 3 which includes about 2400 substances.

### 3. Allocation of dangerous cargo handling wharves

It is important to allocate a dangerous cargo handling wharf in a port taking a consideration with the influence of the wharf to the environment conditions.

#### (a) Relation to the urban area

It is necessary to keep appropriate clearance to the dense populated area or other import urban facilities when the water facilities or mooring facilities are planned in order to prevent a huge disaster when it occurs accidentally.

The distance of this clearance has to be planned following the regulations for Port Regulations Law or Fire Service Act and their enforcements, furthermore be planned taking into consideration of the natural conditions and land use of the neighbouring area. A buffer zone is a concept to be introduced to make a clearance between the dense populated area.

#### (b) Location of dangerous cargo handling area in a port

Waterways, anchorage and basins for the dangerous cargo carriers have to be separately planned at the port selecting the area where especially passenger vessels encounter less to them.

The location should be chosen to facilitate the counter measures in case of spillage of dangerous substances.

Mooring facilities should be arranged to ease the safety handling and also to be kept enough clearance from the residential zone and school zone.

Unloading berths and loading berths, handling facilities and storage yards have to be arranged taking the safety best into consideration.

The first priority should be given to keep a distance enough to separate the facility from the other port facilities, in many case the dangerous cargo wharf situates at the port entrance or at the corner of a port.

Ordinance from Ministry of Transport to define the Technical Standard in Planning the port facilities

This ordinance was issued 16, July 1974 by Ministry of Transport to define the technical standard in planning port facilities of our country, the ordinance is following by a notice of the Bureau of Ports and Harbours in January 1975, which describes the standard more in detail.

The ordinance and the notice of the Bureau are tabled as follows;

## A. Water basin facilities

### A-1 Ministry ordinance, 1974 No. 30

Water basin facilities should be placed at an adequate location taking into consideration not only with natural conditions such as geographic, meteorological, maritime and others, but also with the navigation and water area utilization conditions of the surrounding area. (§3-2)

### A-2 The notification from Bureau for Ports and Harbours, 1975 No. 205

Mooring place or basin of the dangerous cargo carriers has to be allocated where the ship traffic is less, especially out of passenger vessels route, and separated from urbanized area with residential, school, hospital facilities.

Also the location has to be chosen considering to prevent the hazards at minimum area when an accident has happened unfortunately. (§4-(1)-1)

## B. Mooring facilities

### B-1 Ministry ordinance, 1974 No. 30

Mooring facilities should be arranged to facilitate the utilization of vessels safely and smoothly. (§9-1)

### B-2 The related notification to B-1 from Bureau for Ports and Harbours, 1975 No. 205

Mooring facility of the dangerous cargo carriers:

- 1) Countermeasures against the case of spillage of dangerous materials  
Considering the spillage accident occurring at the handling operation on a mooring facility, the structural components of it has to be selected to use unbreakable or anti-corrosion materials.

Considering to prevent an overflow of dangerous material into the sea, side ditch or embanked area has to be built when it is necessary. Countermeasures to clean the oil spillage is defined in the Antipollution of Ocean Law (1970, Law No. 136, §39-2) and its ordinance.

- 2) Fences, signs, placards

Not to allow the nonauthorized people to enter the area of dangerous cargo handling, it is ordered to enclose there by fences or to indicate the place by standardized signs or placards. (§6-(4)-2)

3) Firefighting and alarming facilities

Against the fire, the preparation of firefighting equipment is needed, such as foam distinguisher, usual distinguisher, sprinkler and so on. An alarming system to deliver the accident exactly and promptly to the appropriate stations for fire fighting or accident prevention. (§6-(4)-3)

B-3 Ministry ordinance, 1974 No. 30

Mooring facilities should be placed at an adequate location taking into consideration not only with natural conditions such as geographic, meteorological, maritime and others, but also with the navigation and water area utilization conditions of the surrounding area. (§9-3)

B-4 The related notification to B-3 from Bureau for Ports and Harbours, 1975 No. 205

Mooring facilities for the dangerous cargo handling has to be allocated separately to the urbanized area with residential, school hospital facilities .

Also the location has to be chosen considering to prevent the hazards at minimum when an accident has happened unfortunately. (§6-(1)-2- 5 )



### C. Handling and Marshalling facilities

#### c-1 Ministry ordinance, 1974 No. 30

Structures of handling and marshalling facilities have to be designed safely to the usual and special loads. They should function completely taking into consideration with the conditions such as wheather, maritime, conditon, cargo type or handling conditions. (§13-1)

#### c-2 The related notification to c-1, from Bureau of Ports and Harbours, 1975 No. 205

Petroleum products in liquid or gas conditions handled through pipe lines are controlled also by Fire Services Act, Petroleum Pipeline Law or Compressed Gas Law in Japan. The handling has to follow these laws and related rules. (§8-(5)-1)

### D. Storing facilities

#### d-1 Ministry ordinance, 1974 No. 30

Storing facilities should be designed to function completely taking into consideration with the conditions such as wheather, maritime, geographical conditions, and also the handling operation conditons. (§14-1)

#### d-2 The related notification to d-1, from Bureau of Ports and Harbours On Storing place of dangerous goods and oil tank facilities. (§9-(3))

Storing facilities of dangerous goods or oil tanks are controlled by also Warehouse Law and its ordinances, storage should be carry out follwoing the rules in the Law.

In some parts, Fire Services Act, Compressed Gas Law and then ordinances are applied. The preparation of facilities to recover the spilled oil to the sea is controlled by Antipollution of Sea Act and its rules. (§9-(3))

Based upon above mentioned ordinances, the Port Management authority may designate zone/zones for dangerous material handling within port area. In the dangerous material zone, dangerous cargoes such as explosives have to be loaded, transshipped or unloaded exclusively.

No buildings or structures which seriously affect the objective of this zone shall be constructed and/or altered without permission of the Port management authority.

#### 4. Regulation for the vessels which load dangerous goods

Ship Safety Law says that a ship must equip a facility for loading of dangerous goods as a compulsory facility of ordinary vessel. The law declares that the detail shall be decided by the notice of the Ministry of Transport on the transport and storage of dangerous goods or other special goods in order to keep safety at navigation.

The Transport Minister issued a notice of the Ministry as "the rule of sea transport and storage of dangerous goods".

In this order, dangerous goods is defined as follows;

##### Dangerous goods

##### (1) Explosives

Gunpowder, explosives, ammunition, others which has explosive nature and defined by the notice of Ministry.

##### (2) Compressed gas

The substances with more than  $2\text{kg/cm}^2$  at  $21^\circ\text{C}$  of ordinary temperature, or the substances with more than  $7\text{kg/cm}^2$  at  $51^\circ\text{C}$ , or the flammable liquid which has more than  $2\text{kg/cm}^2$  gas pressure at  $38^\circ\text{C}$  of temperature, shall be the high pressure gas goods, detail is defined by the notice of Ministry.

##### (3) Corrosive material

The material which has corrosive nature shall be defined by the notification of Ministry.

##### (4) Poisons

4-1. The substances which is poisonous for human being shall be defined by the notice of Ministry.

##### 4-2. Infectious substances

Live disease virus, or other substances which contain or keep live disease virus in it.

##### (5) Radioactive materials

Radioactive substances or infected material and their radiation density is higher than 0.002 micro Curie per gram.

(6) Flammable liquid

6-1. Flammable liquid with low flaming point

The liquid with the flaming point lower than  $-18^{\circ}\text{C}$ , and the liquid with the flaming point from  $-18^{\circ}\text{C}$  to  $23^{\circ}\text{C}$  but defined by Ministry notice for the sake of their own dangerous nature (other than flammable).

6-2. Flammable liquid with medium flaming point

The liquid with the flaming point between  $-18^{\circ}\text{C}$  and  $23^{\circ}\text{C}$ , but defined by Ministry notice and excluding liquid in 6-1.

6-3. Flammable required with high flaming point

The liquid with the flaming point between  $23^{\circ}\text{C}$  and  $61^{\circ}\text{C}$ , but defined by Ministry notice further.

(7) Combustible materials

7-1. Combustible solid

Materials easily flammable and burning, but defined by Ministry notice further.

7-2. Spontaneous ignite material

Materials which may be self heated or self ignited, but defined by Ministry notice further.

7-3. Other combustible materials

Material which reacts with water and generates flammable gases, but defined by Ministry notice in detail.

(8) Oxidizing materials

§128 of the ordinance shows a list.

The other than the listed materials are:

8-1. Oxidizing material

Material which has oxidizing nature and defined by Ministry notice.

8-2. Organic peroxide

Organiz material which oxide other material by generating active oxigen, but defined by Ministry notice.

(9) Poison

Material other than 1 to 8 aforementioned, which may injure the human being or destroy other materials, and defined by Ministry notice.

Furthermore, the ordinance includes articles such as:

- Prohibits to carry in any dangerous cargo without permission of a ship captain.
- Defines the containers, packing and their signs for the dangerous cargo transportation.
- Restricts for the loading of some dangerous material to the passenger vessels, and some other material completely not on board of any vessel.
- Regulates the loading method on board and handling method in port.
- Regulates the explosive storage, showing the maximum storing quantities both on board and in port.
- Restricts the structural design, construction works, light and air conditioning etc.
- Regulates the disaster preventing measures for dangerous cargo transportation.
- Indicates the penalties for the contravention to the regulations.

## 5. Regulations for the handling of dangerous cargo

One part of the Port Regulations Law's provisions refers to dangerous goods. In outline, the main stipulations are as follows:

- a) Before a ship carrying explosives or other dangerous goods enters a specified port, it must receive the captain of the port's instructions while still outside the port limits.
- b) In a specified port, a ship carrying dangerous goods must not berth or moor in any place other than that indicated by the captain of the port.
- c) The permission of the captain of the port is required for loading, transshipment or unloading of dangerous goods in a specified port.

To ensure safe handling of dangerous goods and to rationalize their administration, the captain of the port initially classifies the wharves at which they may be handled, taking into account the distance from built-up areas, congestion of shipping traffic, and other environmental conditions, and then decides the permissible handling volume of each type of dangerous goods for each of the wharf categories.

### (1) Classification of Berths

The captain of the port classifies each of the berths at each wharf of the port, using the standards shown in the table.

#### Standards for Berth Classification

Berth Class	Standards
A	Berths for passenger vessels, and nearby berths Berths at wharves frequented by sightseers Berths near harbor areas where shipping is congested Berths very close to built-up areas (standard distance: not more than about 100 m)
B	Berths other than A, C <sub>1</sub> , C <sub>2</sub> , and D (Standard distance from built-up areas: about 300 m)

	Berths at wharves designated as safety preservation areas under the Port and Harbor Law
C <sub>1</sub>	Berths in quiet locations at a considerable distance from built-up areas (Standard distance: not less than about 500 m)
C <sub>2</sub>	Exclusive berths for container ships
D	Exclusive berths approved as suitable by the captain of the port Berths for rail ferries

Note: Berths intermediate between A and B or between B and C<sub>1</sub> are classified as one or the other according to the permissible handling volume and any special conditions that apply in the port.

Since standard distances prescribed above are determined under situation of Japanese congested ports, it is recommendable to extend these distances as long as possible.

## (2) Handling of Dangerous Goods at Berths in Classes A, B, C<sub>1</sub> and C<sub>2</sub>

Where dangerous goods are to be handled at berths in classes A to C<sub>2</sub>, in order to limit the effects of any accident (fire, explosion, spillage, etc.) that might occur during the handling so that public safety in the port is not threatened, the permission of the captain of the port is required for each vessel in accordance with the criteria of permissible handling volume established for each class of berth and type of dangerous goods.

Where two or more types of dangerous goods are to be handled, the permissible handling volumes are set so that, when the volumes of each type of goods are divided by the respective permissible handling volumes, the sum of the quotients does not exceed 1.

(3) Handling of Dangerous Goods at Exclusive Berths Approved as Suitable by the Captain of the Port

In addition to the provisions for berths of classes A to C<sub>2</sub> outlined above, there is a system for exclusive berths at places of business where large volumes of special dangerous goods are handled. Under this system, the captain of the port gives prior approval for the maximum volume to be handled at one time and for safety measures, etc., and then permits handling of dangerous goods within these limits. This class of berth is shown as D in the table above.

This system has the advantage that it eliminates the need for complicated administrative work--inspecting and approving safety measures, etc.--for each load to be handled, and also enables the conditions at berths handling large volumes of goods to be ascertained in advance.

Strict standards have been set for the approval of exclusive berths by the captain of the port. A business operator who wishes to obtain such approval must submit an application specifying the name and location of the berth, its facilities, the plans for cargo handling, safety measures, and other items. The captain of the port then studies the application, making reference to the following criteria, and after giving directions for any necessary measures he approves the berth as an exclusive berth for dangerous goods.

Criteria Applied to Exclusive Berths for Dangerous Goods

a. Environment

- (i) The shoreline adjacent to a ship being loaded or unloaded, from its bow to its stern, must be contained within the premises of a place of business which handles the dangerous goods concerned or similar dangerous goods.

If any other place of business, i.e., one which does not handle the same or similar dangerous goods, is included, its fire precautions and other conditions must be approved as suitable.

In the case of a berth which is not within the premises of a place of business, the operator must have exclusive use of the berth area at all times or temporarily, and must take measures to prohibit unauthorized entry.



(ii) In principle, the agreement of other nearby places of business must be obtained.

(iii) In the case of berths handling ignitable dangerous goods, there must be a minimum distance of 30 m from the vessel and the cargo handling area on the berth to any oil tanks, boilers, or work areas where naked flames are used.

If, because of the topography or construction of the site, there is no risk of ignition in the event of leakage of the dangerous goods, the above distance may be reduced to about 15 m.

(iv) In the case of berths where ignitable dangerous goods are loaded or unloaded from tankers or tank vessels, there must be a minimum distance of 30 m from the vessel being loaded or unloaded to any other anchored vessels, and adequate room for vessels moving in the vicinity to pass by at a distance of at least 30 m.

However, these distances may be increased or decreased as appropriate depending on the size of the vessel being loaded or unloaded and the type, size, and degree of congestion of other vessels anchored or moving in the vicinity.

b. Electrical and Lighting Equipment

The lighting equipment and other electrical equipment used on a berth where ignitable dangerous goods are handled must be such that they will not cause ignition.

c. Fire-fighting Equipment, etc.

(i) The berth must be fully equipped with the fire-fighting equipment (adequate number of fire hydrants, hose lengths, etc.) required in the event of fire breaking out on a vessel being loaded or unloaded or in a nearby building, in order to extinguish the fire, prevent its spread, cool the tanks, concentrate streams of water on the dangerous goods, and so on. (Road access for fire engines and provision of private fire tenders will also be taken into account.)

(ii) In the case of certain types of dangerous goods, the berth must be equipped with chemical fire-fighting equipment, or with the equipment and materials required to remove hazards in the event of leakage of the dangerous goods.

(iii) Fire hydrants, fire-fighting equipment and other equipment, etc., required for the removal of hazards must be kept in clearly marked locations and in constant readiness for immediate use during loading and unloading operations.

(iv) The necessary equipment for sounding alarms and for communications during emergencies must be provided.

d. Supervision of Handling Operations

Handling operations must be conducted under the direct supervision of the employee of the place of business who is in charge of safety.

e. During handling operations, use of naked flames and unauthorized entry must be prohibited.

(i) Where ignitable dangerous goods are being handled, the items listed below must be prohibited on shore within 30 m of the cargo handling site and the vessel concerned. If necessary, a boundary fence must be erected, warning signs displayed, security personnel posted and other appropriate measures taken. Where it is judged that, because of the topography or other conditions, there is no risk of ignition in the event of a leakage of dangerous goods, the above distance may be reduced to about 15 m.

Items to be prohibited:

(i-a) Entry by persons without business at the berth and persons in an intoxicated state

(i-b) Entry by vehicles other than fire engines and vehicles used to transport the dangerous goods being handled

(i-c) Carrying of matches, lighters and other utensils which could give off flames or sparks

(i-d) Smoking and other use of fire

(ii) Where nonignitable dangerous goods are being handled, measures corresponding to those under (i) above, with appropriate modifications, must be taken in the vicinity of the cargo handling site on the berth.

(iii) A smoking area must be provided outside the "No Admittance" area, and precautions must be taken there to ensure fire safety.

f. Others

- (i) Precautions to be taken during handling operations must be determined, and all those concerned with the operations must be instructed accordingly.
- (ii) Methods must be determined for the following in the event of an emergency, and all those concerned with the operations must be instructed accordingly: alarms, communications within the premises, notification of berthed vessels, the captain of the port and the fire-fighting service, etc.
- (iii) Manuals must be prepared to explain the following, and made available to all those concerned with the operations: prevention of accidents; measures to be taken immediately in the event of an accident; evacuation, etc. (These are to include measures for assignment of wharf workers to assist emergency casting-off of berthed vessels, and permission for the crew of these vessels to enter the premises in order to return on board.)

- g. Where there are any conditions which prevent application of the criteria a. through f. (due to special features of the existing berths or other port facilities), the other measures may be strengthened as necessary to compensate, taking into account the types and quantities of dangerous goods which will normally be handled there.

6. Safety measures for loading and unloading of Dangerous Goods

In granting permission for the loading and unloading of dangerous goods, the captain of the port pays careful attention to safety measures, e.g., by specifying the necessary matters as conditions for the permit.

The main safety measures relating to loading and unloading of dangerous goods are as follows.

- (1) The following must be observed at berths where ignitable dangerous goods are loaded onto or unloaded from tankers:

- a. No engine repairs or other operations which might give rise to sparks shall be carried out on the vessel while it is berthed.
  - b. While the vessel is berthed its engines shall be kept in readiness for immediate operation.
  - c. While the vessel is berthed, emergency towlines shall be placed in readiness at the bow and stern with one end lowered to the water level.
  - d. While the vessel is berthed its wireless and radar equipment shall not be used.
  - e. No operations in which ignitable gas is vented (such as loading or unloading of cargo, filling of ballast water tanks, or discharging of gas) shall be carried on while there is no wind or while there is a severe electrical storm in the vicinity.
  - f. When loading or unloading ignitable liquids such as crude oil, an oil boom shall be laid down to prevent spreading of any spilled oil, and agents for treatment of spilled oil shall be placed in readiness for immediate use.
  - g. To prevent other vessels approaching within 30 m of the tanker while it is berthed, navigational markers shall be set out, or a patrol boat and patrol personnel shall be assigned to guard the area.
- (2) When vessels are loading or unloading dangerous goods at berths of classes A to C<sub>2</sub>, arrangements shall be made so that dangerous goods are not handled at the same time in the neighboring berths.
  - (3) When flammable dangerous goods are being loaded or unloaded, portable fire extinguishers and fire hoses shall be placed in readiness for immediate fire-fighting in the vicinity of the cargo handling area on the vessel.
  - (4) In the case of loading or unloading of fissionalbe materials, large quantities of explosives, or other materials for which the captain of the port so requires, the person responsible for making application for handling permission shall submit, together with the application, a plan of the handling operations.

Further, the captain of the port shall discuss safety measures in advance with the owner of the cargo, the handling operator, vessel operators and other persons concerned and also, where necessary, with the port manager, police and fire department, etc.

In such cases, as a rule, the captain of the port or the officer to whom his administrative duties are delegated will personally inspect the operations.

- (5) In cases where large quantities of explosives or ignitable dangerous goods are being loaded or unloaded from tankers or other vessels, where necessary general shipping traffic shall be restricted in the vicinity of the said vessels.
- (6) In cases where dangerous goods are being handled at an exclusive berth (class D) approved as suitable by the captain of the port, inspections shall be made at intervals to ascertain the handling conditions and strict enforcement of the necessary measures; particular attention shall be paid to any change in the conditions.
- (7) In granting permission for loading or unloading of a vessel offshore, i.e., not at a berth, the following shall be taken into consideration as required by the type and quantity of dangerous goods to be handled: the relationships between the vessel's position and the position of onshore safety equipment, coastal anchorages and other congested areas and traffic lanes, etc.

## 7. International Rules for dangerous cargo handling

### (1) IMCO IMDG Code

IMDG (International Maritime Dangerous Goods) Code completed 1971 from a recommendation of SOLAS in 1960, the most important code in transporting dangerous goods in international routes. Japanese code has been amended in April 1979, taking this IMDG code into it.

### (2) UN Transport of Dangerous Goods

UN ECOSOC, The Committee of Experts on the Transport of Dangerous Goods  
A recommendation for the transport of dangerous goods on any transport mode.

### (3) IAEA Regulations for the Safe Transport of Radioactive Materials

International Atomic Energy Agency's recommendation

### (4) Other rules

Almost every country accepts the IMCO IMDG Code for the dangerous cargo transport by sea. Some exceptions are the rules of United States of America and of Britains.

USA : Code of Federal Regulations Title 49. Transportation  
Chapter 1 Materials Transportation Bureau, Department of  
Transportation  
Hazardous Materials Regulations  
usually called as 49-CFR

Britain : The Merchant Shipping (Dangerous Goods) Rules, and Recommendations  
for the Carriage of Dangerous Goods in ship usually called as  
Blue Book

### (5) Japanese Handbook for handling the Dangerous Materials in Port indicates the Codes of Japan, IMCO, 49-CFR and Blue Book, at the same time.

A list of dangerous goods is attached which include about 200 dangerous Materials usually handled in port.

In case of containerized cargo, standard declaration forms are prepared by the shipping association of Japan, as shown in Table 1 and 2. Table 1 is applied for Radio-active materials and Table 2 is for other dangerous goods.

Table 1. Declaration form of dangerous cargo (Radioactive)

船名・航海番号 Ship's Name and Voy No.		船主名 Ship's Operator	
コンテナ番号 Container No.		引受船主名 Container Operator	
コンテナの種類 Type of Container		収納検査 Packing Survey	
船積港 Loading Port		検査結果 Not Yet Inspected	
品名 Correct Technical Name		検査結果 Not Yet	
放射線物質 Radioactive Material		固体 Solid	
放射性核種の種類 Type of Package		気体 Gas	
特別形 Special Form		液体 Liquid	
特別形 Yes		包装物の標記 Label on Package	
特別形 No		コンテナの標記 Label on Container	
輸送物の個数 Number of Package		輸送物個数 Allowable Number	
輸送物の種類 Transport Unit		専用積載 Yes	
放射線量 Activity		専用積載 No	
最大放射線量 Max. Radiation Level		輸送物表面から51m 1m from Package	
コンテナ表面 Container Surface		コンテナ表面から51m 1m from Container	
放射線以外の危険性 Other Hazard		重量 kg	
重量 Gross Weight		重量 kg	
荷主の名義又は名称 Shipper's Name		重量 kg	
荷主の住所 Shipper's Address		重量 kg	
荷主の名義又は名称 Consignor's Name		重量 kg	
荷主の住所 Consignor's Address		重量 kg	
緊急時連絡先 Emergency Communication		重量 kg	
緊急時連絡先 Emergency Communication		重量 kg	
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

上記放射能物質等もしくは上記放射能物質等を収めたコンテナは、「危険物取扱施設及び貯蔵施設」の指定に適合し又は同施設に基づく承認を受けたものであり、かつ透過に適合した状態であることを証明します。

This is to certify the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transporting according to the applicable regulations of the Department of Transportation.

It is certified that the goods are packed in a manner adequate to withstand the primary risks of handling and transport by sea having regard to the nature of the goods and the package or packages labeled as stenciled on the outside to indicate the identity of the goods and the nature of the danger; the foregoing in accordance with the requirements of the SOLAS and IAEA.

署名(Signature)

Table 2. Declaration form of dangerous cargo

危険物明細書  
コンテナ危険物明細書

DECLARATION OF DANGEROUS GOODS  
DECLARATION OF DANGEROUS GOODS IN CONTAINER  
(PACKING CERTIFICATE)

MESSRS. 御中 日付 Date

船名・社名 Ship's Name and Co.	1	船主 Ship's Operator	2
コンテナ番号 Container No.	3	引取会社 Container Operator	4
積積港/積積港 Loading/Discharge Port	5	積積検査 Vanning Survey	6
品名及びUN番号 Correct Technical Name and UN No.	7	化学式 Chemical Formula	8
危険物分類 Japanese MOT Rules	9	品名 Article	10
IMCO IMDG CODE	11	品名 Article	12
CFR TITLE 49	13	品名 Article	14
包装 Packaging	15	品名 Article	16
内装 Inner Receptacle	17	品名 Article	18
外装 Outer Package	19	品名 Article	20
貨物の性質 Nature of Goods	21	品名 Article	22
危険物の種類 Kind of Dangerous Goods	23	品名 Article	24
危険物の数量 Quantity of Dangerous Goods	25	品名 Article	26
危険物の性状 Characteristics of Dangerous Goods	27	品名 Article	28
危険物の包装 Packaging of Dangerous Goods	29	品名 Article	30
危険物の性状 Characteristics of Dangerous Goods	31	品名 Article	32
危険物の包装 Packaging of Dangerous Goods	33	品名 Article	34
危険物の性状 Characteristics of Dangerous Goods	35	品名 Article	36
危険物の包装 Packaging of Dangerous Goods	37	品名 Article	38
危険物の性状 Characteristics of Dangerous Goods	39	品名 Article	40
危険物の包装 Packaging of Dangerous Goods	41	品名 Article	42
危険物の性状 Characteristics of Dangerous Goods	43	品名 Article	44
危険物の包装 Packaging of Dangerous Goods	45	品名 Article	46
危険物の性状 Characteristics of Dangerous Goods	47	品名 Article	48
危険物の包装 Packaging of Dangerous Goods	49	品名 Article	50
危険物の性状 Characteristics of Dangerous Goods	51	品名 Article	52
危険物の包装 Packaging of Dangerous Goods	53	品名 Article	54
危険物の性状 Characteristics of Dangerous Goods	55	品名 Article	56
危険物の包装 Packaging of Dangerous Goods	57	品名 Article	58
危険物の性状 Characteristics of Dangerous Goods	59	品名 Article	60
危険物の包装 Packaging of Dangerous Goods	61	品名 Article	62
危険物の性状 Characteristics of Dangerous Goods	63	品名 Article	64
危険物の包装 Packaging of Dangerous Goods	65	品名 Article	66
危険物の性状 Characteristics of Dangerous Goods	67	品名 Article	68
危険物の包装 Packaging of Dangerous Goods	69	品名 Article	70
危険物の性状 Characteristics of Dangerous Goods	71	品名 Article	72
危険物の包装 Packaging of Dangerous Goods	73	品名 Article	74
危険物の性状 Characteristics of Dangerous Goods	75	品名 Article	76
危険物の包装 Packaging of Dangerous Goods	77	品名 Article	78
危険物の性状 Characteristics of Dangerous Goods	79	品名 Article	80
危険物の包装 Packaging of Dangerous Goods	81	品名 Article	82
危険物の性状 Characteristics of Dangerous Goods	83	品名 Article	84
危険物の包装 Packaging of Dangerous Goods	85	品名 Article	86
危険物の性状 Characteristics of Dangerous Goods	87	品名 Article	88
危険物の包装 Packaging of Dangerous Goods	89	品名 Article	90
危険物の性状 Characteristics of Dangerous Goods	91	品名 Article	92
危険物の包装 Packaging of Dangerous Goods	93	品名 Article	94
危険物の性状 Characteristics of Dangerous Goods	95	品名 Article	96
危険物の包装 Packaging of Dangerous Goods	97	品名 Article	98
危険物の性状 Characteristics of Dangerous Goods	99	品名 Article	100

上記危険物の包装、包装、積積及びコンテナにあっては、積積の危険物に適合するコンテナの積積は「危険物積積運送及び貯蔵規則」に適合し、かつ運送に適合した状態であることを証明します。

It is certified that the goods are packed in a manner adequate to withstand the ordinary risks of handling and transport by sea having regard to the nature of the goods and the package or packages labelled or stencilled on the outside to indicate the identity of the goods and the nature of the danger; the foregoing in accordance with the requirements of the SOLAS 1960.

署名 (Signature):

日本郵政公社 JASSTO 079



name of material; Sulfuric Acid

chem; H<sub>2</sub>SO<sub>4</sub>

Other names	Sulfuric Acid Anhydride Concentrated Sulfuric Acid Dilute Sulfuric Acid				containers, packing	inside anti-acid glass container steel drum can or other poly outside wooden box			IMCO Code
Classification	Storage Law	Harbour Regulation	Fire service Act	Poison L	Other related laws	49-C.F.R.	Blue Book		
	Corrosive Class C	Other Hazardous Cargo	Class B	Poison L (exclude less 10% S contain)	Anti-Air Pollution Law Labour Safety Act.	Cor.	Class 8	Class 8	
Allowable quantity	Allowable handling amount, Max. K/T				Max. storage by Fire Act	Necessity of inspection when containerized;		Passenger ship	
	A class quay	B class	C class	Bouy					
	2	50	200	400	200 Kg	Loading place	Ordinary ship	on board with cover on board in house in Cold (only steel container)	on board with cover
Major utilization									

Form 1.

Outlook;

Unit weight; 1,559 - i,831

Boiling point;

Smell;

Melting point;

Flammable point;

Combusting point;

name of material; BLACK POWDER

chem;

Other names						Container, packing	Inside; separated to several kilograms packed in water proof bag or box Outside; wooden box, barrel, metal barrel fiber box				
Classification	Storage Law	Harbour Regulation	Fire service Act	Poison L	Other related laws	Foreign Codes	49-C.F.R.	Blue Book	IMCO Code		
	Explosive Class A.	Explosive Cargo			Explosive Regulation Law		Exp.	Class 1	Class 1.		
Allowable quantity	Allowable handling amount, Max. K/T					Necessity of inspection when containerized;		needed			
	A class quay	B class	C class	Bouy	Max. storage by Fire Act		Ordinary ship	Passenger ship			
	0	3	20	40		Loading place	Magazine	Prohibited			
Major utilization											

Form 1.

Outlook;	Unit weight;	Boiling point;
Smell;	Melting point;	Flammable point;
		Combusting point;

Name of material; SULPHUR

Chem; S

Other names						Container, packing		Inside packing; Outside pack;			
Classification	Storage Law	Harbour regulation	Fire service Act	Poison L	Other related laws		49-C.F.R.	Blue Book	IMCO Code		
	Combustible (Class D)	Other hazardous cargo	Second Class			Foreign Codes	Haz.	Class 4a	Class 4		
Allowable quantity	Allowable handling amount, Max. K/T					Necessity of inspection when containerized;		no			
	A class quay	B class	C class	Bouy	Max. storage by Fire Act		Ordinary ship	Passenger ship			
	10	~	~	~	100 kg	Loading place	On board in hold	On board in house			
Major utilization											

Form 1.

Outlook; Unit weight; 2.07 boiling point; 444.6°C  
 Smell; Melting point; Flammable point; 232.2°C  
 combusting point; 201.6°C

name of material; HELIUM

chem; He

Other names					Container, packing	Inside package Outside; Wooden box, frame or ratten cage	Compressed gas case high pressure cap	IMCO Code
Classification	Storage Law	Harbour regulation	Fire service Act	Poison L	Other related laws	49-C.F.R.	Blue Book	
	High pressure gas Class C	Other hazardous cargo			High pressure gas regulation	Non. inf. G.	Class 2c	Class 2
Allowable quantity	Allowable handling amount, Max. K/T				Max. storage by Fire Act	Necessity of inspection when containerized;		needed
	A class quay	B class	C class	Bouy		Ordinary ship	Passenger ship	
	2	50	200	400		On board in many places	On board	
Loading place								
Major utilization								

From 1.

Outlook; transparent  
 Smell; no smell  
 Unit weight; 0.15  
 melting point;  
 boiling point;  
 flammable point;  
 combustng point;

URANIUM

Radioactive name of material;

chm; 238U

other name	Natural Uranium					Should contain in a lead or other proper container which can insulate radioactive rays, outside packing needed			
classification	Storage Law	Harbour Regulation L	Fire service Act	Poison Law	Other laws	Foreign Codes	49-C.F.R.	Blue Book	IMCO Code
	Radioactive	Other hazardous cargo			Radioactive insulation Atomic Power	Radioactive Class 7		Class 7	
allowable radiation Max.	Allowable handling amount, Max. K/T					amount regulated		ordinary ships	
	A class	B class	C class	Bouy	sealed	unsealed	passenger ships		
nature	Half life	decay type	radiation	energy (MeV)	rate of radi.	effectuated organs of man	Max. allowable radiation load		
	4.5 x 10 <sup>9</sup> year	α	α γ e	100 pCi	~4.2 0.048	100% 0%	Kidney Lung, Digestv. 0	5 x 10 <sup>-3</sup> pCi	
environment	density (pCi/cm <sup>3</sup> )		surface density (pCi/cm <sup>3</sup> )		natural production of radioactive material				
	in air	in water							
	3 x 10 <sup>-11</sup>	6 x 10 <sup>-6</sup>	10 <sup>-4</sup>						

Form 2.  
radio-  
active

Radioactive name of material; $^{60}\text{Co}$		COBALT		chm; $^{60}\text{Co}$		Should be contained in lead or other container which can insulate radioactive rays, Should be packed outside.		
other name	classification	Storage Law	Harbour regulation L	Fire service Act	Poison Law	other laws	Should be contained in lead or other container which can insulate radioactive rays, Should be packed outside.	
		Radioactive	Other hazardous cargo			Radioactive insulation Atomic power		
allowable radiation Max.	allowable handling amount, Max. K/T	amount regulated		amount regulated		amount regulated		
		A class	B class	C class	Bouy	sealed	unsealed	
nature	Half life	decay type		radiation	energy (MeV)	rate of radi.	effectuated organs of man	Max. allowable radiation load
		5.27 year	$\beta^-$					
environment	density ( $\mu\text{Ci}/\text{cm}^3$ )	surface density ( $\mu\text{Ci}/\text{cm}^3$ )	in air	in water	rate of radi.	effectuated organs of man	Max. allowable radiation load	passenger ships

Form 2.  
radio-  
active

## 9. Introduction to a practical operation of dangerous cargo handling in Japanese Container Terminals

Several visits were made to major Japanese container handling terminals in Tokyo-OHI and Kobe-Port Island and Maya Wharf.

A container handling terminal there consists of 3 or 5 berths operated by a control office. One berth throughput is nearly 1 to 2 million tons annually, average storage capacity of vans is 5,000 for a berth.

1,500 or 2,000 vans per week are loaded/unloaded across the waterfront. The handling of dangerous vans in a container yard are usually 20-25 vans per berth per day.

Storing file of containers has indications of degree of dangerousness in IMCO IMDG Code.

Handling of dangerous vans seems to be as usual. They are unloaded from vessels bay (in many case on board) to the apron where transferred to a chassis or a straddle carrier.

The difference is a storing location in the yard. Less dangerous goods are stored in the yard specially designated as the dangerous cargo van area. Middle or relatively dangerous cargo vans are recommended to carry out from the container yard to the consignee's storing yard, since the legal procedure to regist the dangerous cargo to store is rather complicated and not flexible. Once the storage of dangerous goods are registered at Fire Fighting Authority, the movement of cargo are required a permission from the authority again.

Within a course of unloading operation, dangerous cargo vans are usually moved to a relatively inland storage where the van is registered to store as a dangerous good.

Radioactive substances are found to be follow almost same procedures, they are not stored in container marshalling yard, but encouraged to bring its final destination in a course of unloading operation, by our regulations the transport has to be done in night, they stay one or half day in the yard waiting for the midnight to be carried out.

A dangerous cargo container, once registered as dangerous to the Fire Fighting Office, has to be kept in yard just as ruled in the code. Foto-1 shows the way of storage. A dangerous goods storage has to keep a clearance around it as wide as 5 m at least. Container storage area is marked to place vans, so one container with dangerous cargo is stored at a position, two positions in both sides have to be kept vacant.

A dangerous container storage area hardly keeps a high storing capacity, since, furthermore, allowed to pile up more than one layer. It is said so a space eater.

In the photograph, it is seen around the van the fire distinguishers as regulated, fence, sign of dangerous goods. The storing more than 10 days needs another control by the F.F Office, which is more and far severe.

As far as I visited, publicly operated area of a container handling terminal, seems to me, is desired to be free from storing of dangerous cargo containers. Dangerous cargo container loading (export) is operated just in the same policy, the van is usually transferred from outside of yards directly to the apron-portal crane side.

Considering of the TUM in Mexico, the handling and storing concepts should be clearly separated in the dangerous cargo handling operations in container or conventional terminals.

The storage area for dangerous cargo has to be carefully chosen out of public terminal area. In TUM planning the terminal is divided for this purpose into two part. Total depth of 900 m is, for example of container berth, used as public terminal of 380 m and other 350 m area for operation and storing. The dangerous cargo storage shall be kept in this operation/storing area.

According to the classification of dangerousness, the storing facilities shall be designed and operated by public authority for instance like the storing of explosives or radioactive materials.



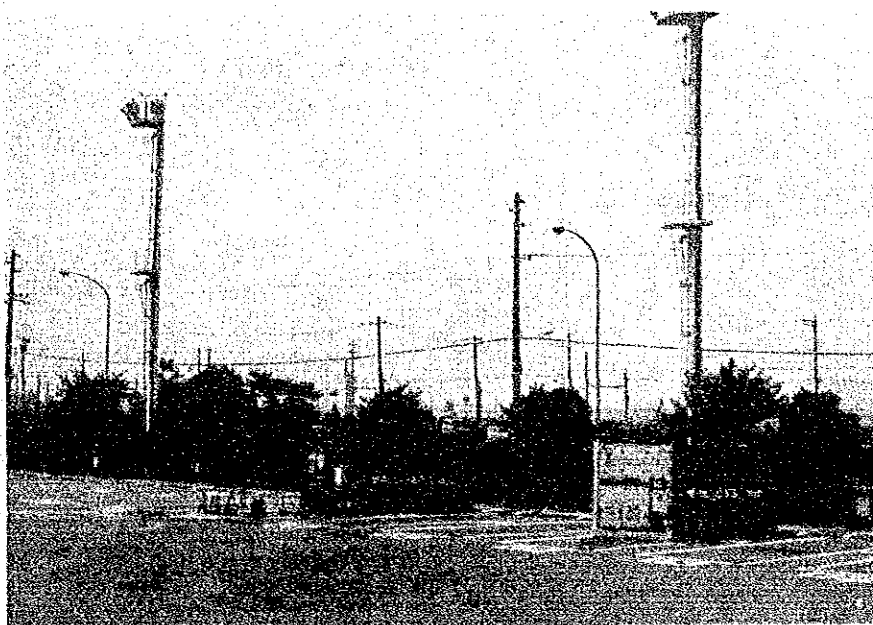
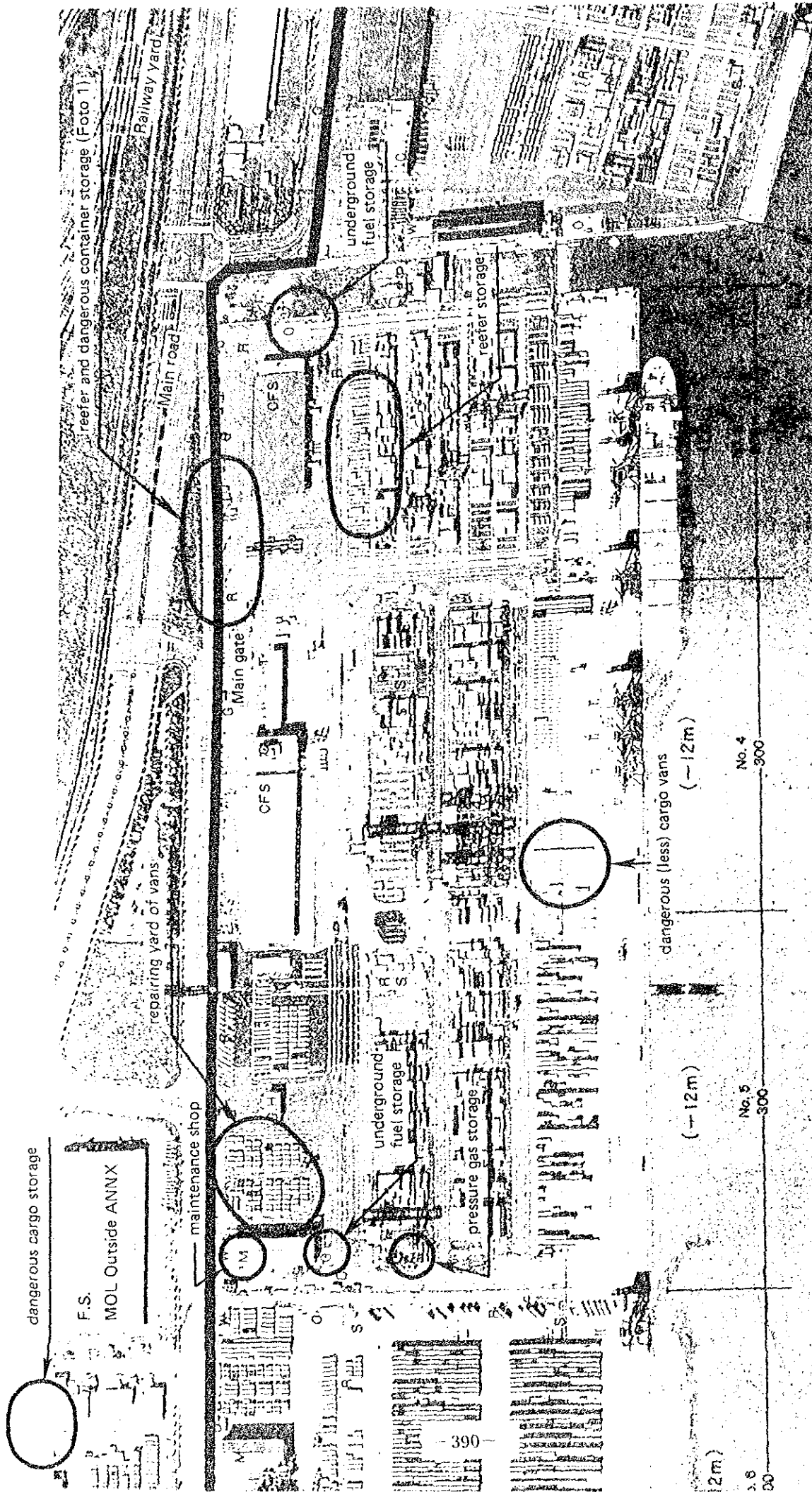


Foto-1. Storage of dangerous cargo vans in container handling terminal  
Tokyo, OHI terminal



- R リーフアワーコンテナヤード Stock Yard for Refrigerated Container
- Y ヤード管理室 Headquarters Room
- T トラックスケール Truck Scale
- G 守衛室 Guard Room
- GH ゲートハウス Gate House
- W 洗車施設 Washing Facilities
- I.E.P 総合基盤所 Integrated Electric Power Supply
- I.C.T.C. Container Terminal, Tokyo
- A 危険物取扱施設 Dangerous Cargo Handling Facility



JICA