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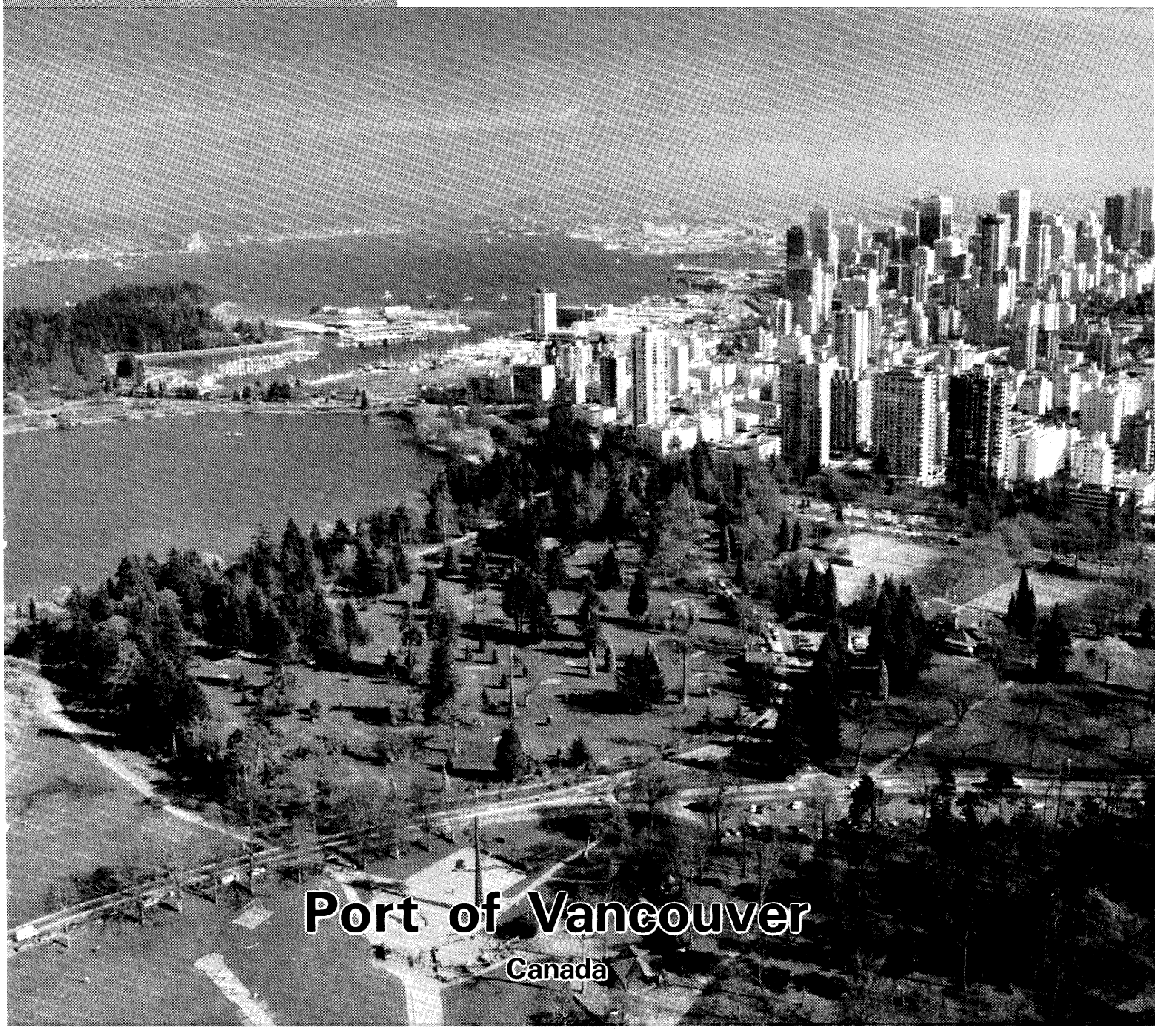
PORTS and HARBORS

September, 1982 Vol. 27, No. 9



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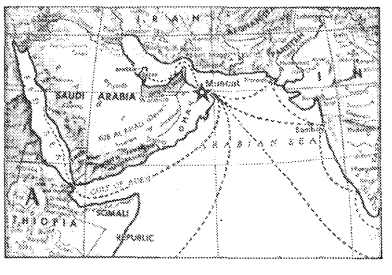

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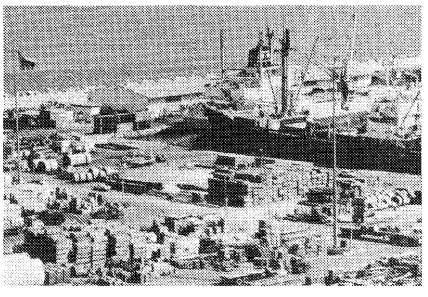

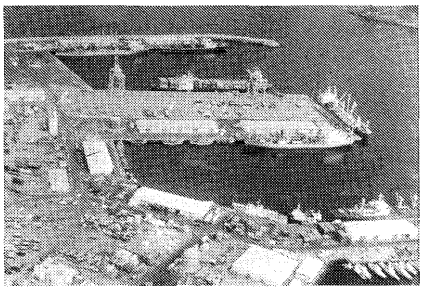

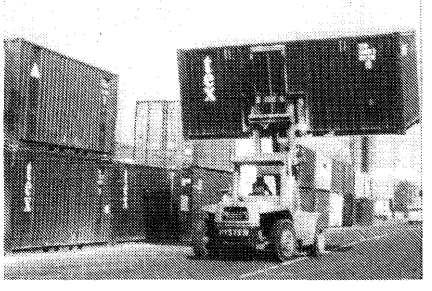

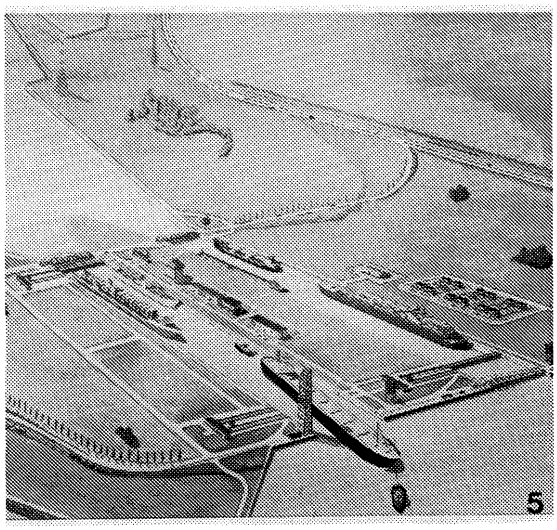

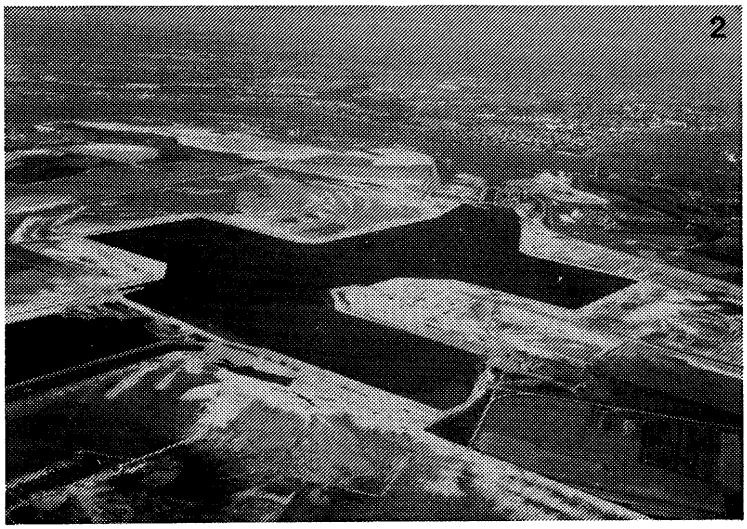

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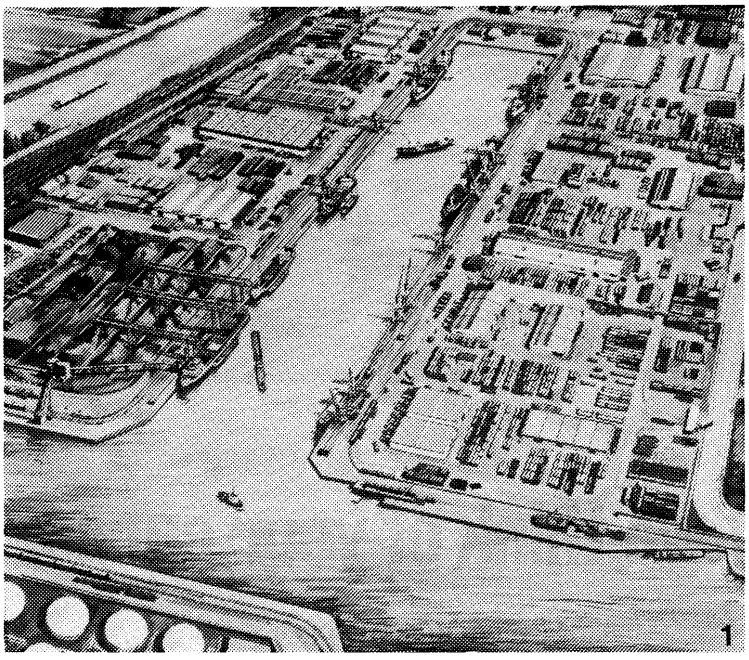

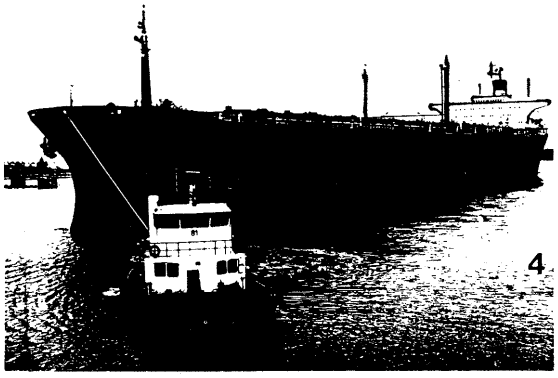

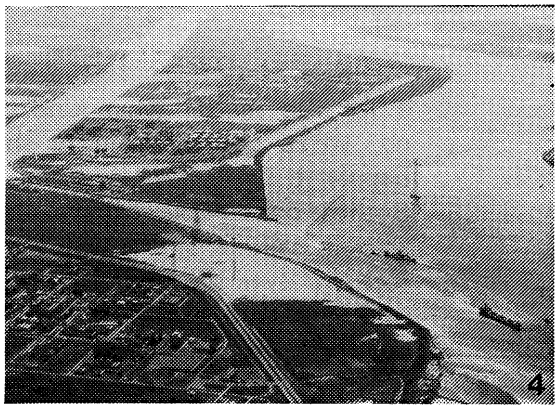

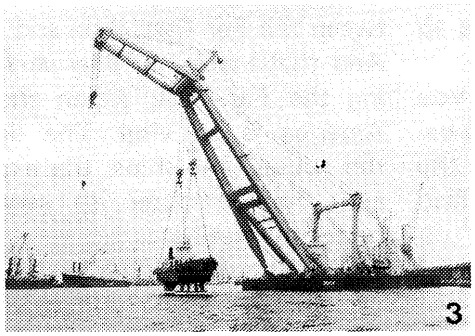

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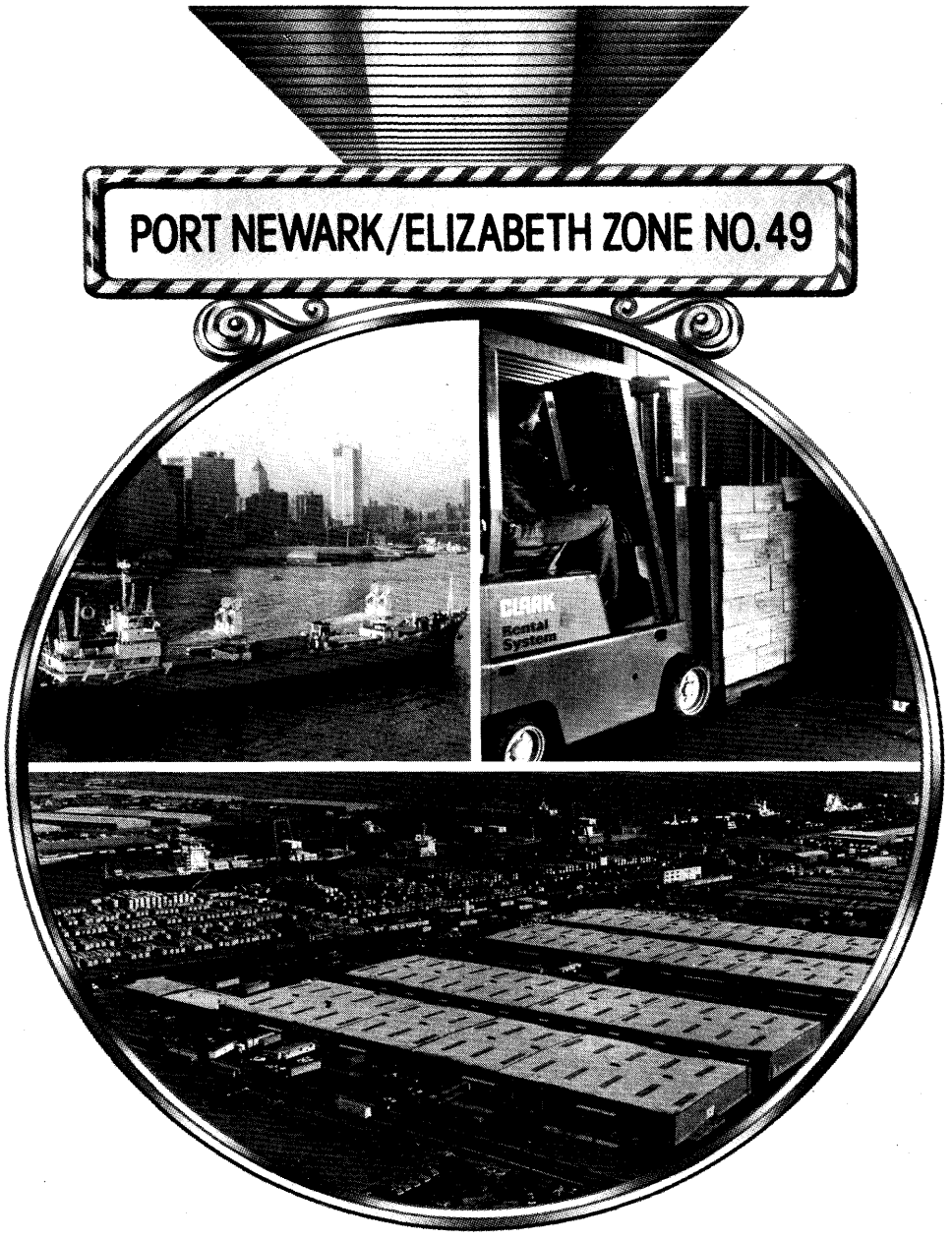

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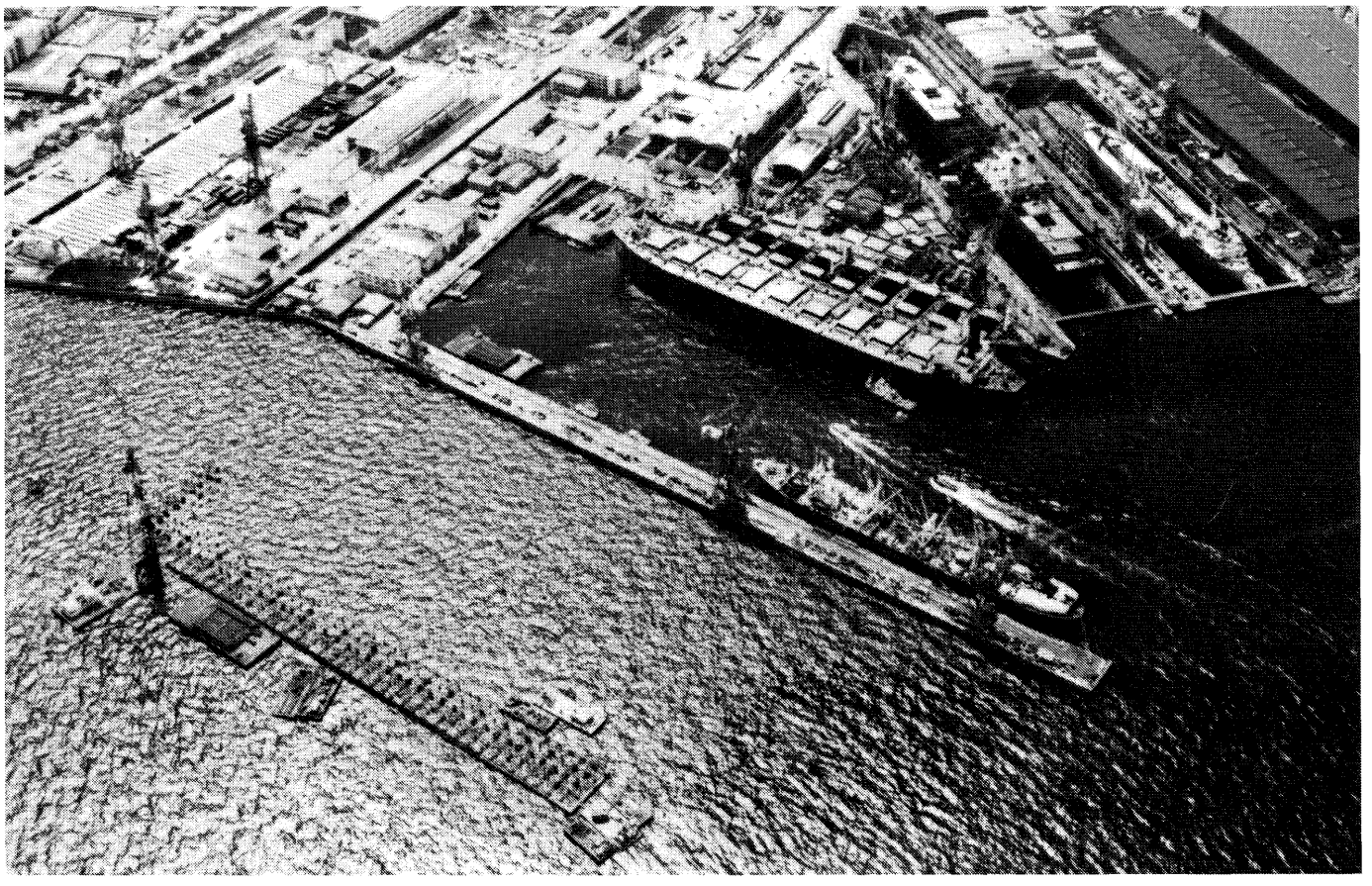

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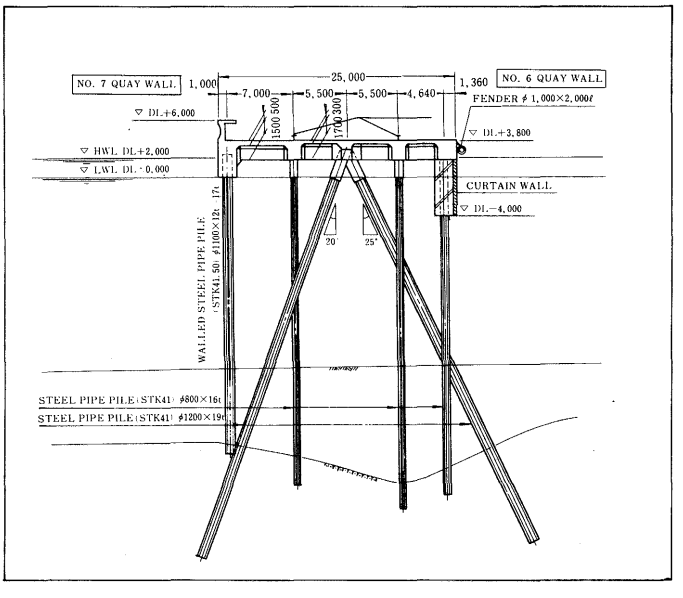

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Secretary General: Dr. Hajime Sato

Head Office:
Kotohira-Kaikan Bldg.
2-8, Toranomon 1-chome, Minato-ku
Tokyo 105, Japan
Tel.: TOKYO (591) 4261
Cable: "IAPHCENTRAL TOKYO"
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IAPH announcements and news

Mr. F.J.N. Spoke appointed as Conference Chairman

At the meeting by correspondence of the Board of Directors held on June 27, 1982, Mr. F.J.N. Spoke, General Manager of Port of Vancouver, the Host Port of the 13th biennial Conference of IAPH, was appointed as the Conference Chairman. Mr. Spoke, when working for the Port Rotterdam, was one of the key members of the Conference Organizing Committee for the Eighth Conference which was held in May, 1973 in Amsterdam/Rotterdam.

Registration Fees for the Vancouver Conference

At the meeting by correspondence of the Board of Directors held on June 27, 1982, the registration fees for the 13th Conference to be held at Vancouver from 4 to 11 June, 1983, per delegate, were decided as follows.

Regular Members	CAN$550
Honorary Members (retired)	275
Honorary Members (in action)	550
Founder Honorary Members	350
Associate Members (Class A – D)	725
Associate Members (Class E)	550
Life Supporting Members	550
Temporary Members	550
Non-Members	900

Dr. D.E. Johnson of Lakehead Harbour Comm. appointed as Legal Counselor

At the meeting by correspondence of the Board of Directors held on June 27, 1982, Mr. Dennis E. Johnson, B.A., L.L.B., Commissioner of Lakehead Harbour Commission, Canada, was appointed as Legal Counselor of the Association, succeeding Mr. G.R. Kunnas who has left the Commission.

Mr. Pages draws IAPH members' attention to the ratification of the 1976 London Convention

The Secretary General Sato circulated a letter to the Board members on July 15, 1982 drawing the members' attention to the matter concerning the ratification of the 1976 London Convention of the Limitation of Maritime Claims (gist of which is reproduced hereunder), along the lines with the decision made at the recent EXCO meeting at Aruba where Mr. Pages, Chairman of the IAPH Committee on Legal Protection of Port Interests (CLPPI) made a presentation to this effect.

In connection with this matter, IAPH members may remember that at the 12th Conference of the Association held in Nagoya, last May, 1981, the Resolution (No. 3) on Enforcement of Conventions was passed with emphasis that "IAPH members should examine the conventions not yet in force, and expressed to their respective non-ratifying Governments IAPH's opinion that their ratification should be dealt with as a matter of urgency including in particular the early ratification of the 1976 London Convention.

As of July, 1982, Chairman Pages says that the Convention is not yet in force, because it has not yet received a sufficient number of signatures from adhering Governments. Mr. Pages stresses that once this Convention comes into force, it will result in a marked improvement in the conditions under which the victims of maritime casualties (and, amongst them, Port Authorities, and the Environment), would obtain reparation for damage caused to them, and that it is therefore of paramount importance that the Port Authority in every country urge upon their respective Governments:

– the ratification of this Convention, if they have not yet done so,

– should they have so, then to take all the necessary measures to introduce the provisions made in the Convention into their national legislation, as soon as it comes into force.

The Secretary General's letter reflects Chairman Pages' appeal to the Board Members covering the above and invites their full attention as well as possible action in the required direction within the scope of the provisions of the IAPH Constitution.

Convention on Limitation of Liability for Maritime Claims, 1976

The Convention on Limitation of Liability for Maritime Claims, adopted by the 1976 London Conference, is designed to replace the International Convention Relating to the Limitation of the Liability of Owners of Seagoing Ships, which was signed in Brussels in 1957, and came into force in 1968.

Under the 1976 Convention, the limit of liability for claims covered is raised considerably, in some cases up to 250 – 300 per cent. Limits are specified for two types of claims – claims for loss of life or personal injury, and property claims (such as damage to other ships, property or harbour works).

With regard to personal claims, liability for ships not exceeding 500 tons is limited to 330,000 units of account (equivalent to $400.00). For larger vessels the following additional amounts (given here in dollar equivalents) will be used in calculating claims:

- For each ton from 501 to 3,000 tons $600 (approx.)
- For each ton from 3,001 to 30,000 tons, $400
- For each ton from 30,001 to 70,000 tons $300
- For each ton in excess of 70,000 tons $200

For other claims, the limit of liability is fixed at $200,000 for ships not exceeding 500 tons. For larger ships the additional amounts will be:

- For each ton from 501 to 30,000 tons $200
- For each ton from 30,001 to 70,000 tons $150
- For each ton in excess of 70,000 tons $100

In the Convention, the limitation amounts are expressed in terms of units of account. These are equivalent in value to the Special Drawing Rights (SDRs) as defined by the International Monetary Fund (IMF).

The Conference decided to use the new unit instead of the old "Poincare franc" based on gold. This change was considered necessary since gold no longer provides a basis for expressing uniform amounts in different countries.

However, the Convention provides for a virtually unbreakable system of limiting liability. It declares that a person will not be able to limit liability only of "it is proved that the loss resulted from his knowledge that such loss would probably result".

IAPH position paper on Port Vessel Traffic Services submitted to IMO

Following the report by Mr. J. Dubois, Director General of the Port of Le Havre Authority and Chairman of the Sub-Committee on Marine Safety of the PSEC (IAPH Committee on Port Safety, Environment and Construction), the Executive Committee which met at Aruba in May, 1982 decided to circulate the report on the Vessel Traffic Services (VTS) to all IAPH members as a statement of what IAPH believes at the moment to be necessary in port VTS. As the EXCO felt that the report should be enriched by collecting data from among IAPH members by means of circulating a questionnaire, Mr. Dubois prepared an IAPH position paper and questionnaire to be commented on by IAPH members and this questionnaire was sent to all members of the Association from the Tokyo Head Office on July 22, 1982. The replies thus obtained by October 1, 1982 should be incorporated into a report before Mr. Dubois's Sub-committee submits it to the Vancouver Conference in June, 1983, for the final decision.

At the same time EXCO Aruba meeting decided to advise IMO (formerly IMCO), in a short Information Note, what IAPH has done so far.

Along with the dicisions made at the Aruba meeting of EXCO, Mr. Alex Smith, IAPH Liaison Officer with IMO, has prepared a note for IMO stating the present IAPH position on the matter and submitted it to IMO for the 27th Session of IMO Sub-Committee on Safety Navigation.

As a reference for IAPH members, we reproduce hereunder Mr. Smith's paper submitted to IMO.

General provision on Vessel Traffic Services
Note by the
International Association of Ports and Harbors (IAPH)

The IAPH has noted with considerable interest that the Member States of the International Maritime Organization, represented on the Sub-Committee on Safety of Navigation, are currently discussing proposals for international principles on message format and procedures used for ship reporting systems, including traffic management, weather forecasting and pollution prevention.

It may be helpful to the Sub-Committee, in their deliberations, to be aware that, for some years past, IAPH has provided guidance to member ports on vessel traffic services in port areas and the basic procedures which might apply depending upon the particular circumstances of the port in question. These include such matters as traffic volumes, types of cargoes, meteorological conditions and so on. The guidance provided is, of course, subject to a continuing update to take full account of changing technologies and techniques. In May, 1982, for example, the Executive Committee of IAPH approved the circulation of its latest guidance, the headings of which are included in the attachment to this Note.

Noting also that the thrust of IMO's objectives in the 1980s, as set out in Resolution A500 (XII) adopted on November 20, 1981, provides an opportunity for positive contributions to be made to these objectives by non-governmental international maritime organizations, IAPH is ready to contribute the particular expertise of member ports to that end. IAPH would also be ready and willing to participate in any joint effort for this purpose in cooperation with other international maritime organizations.

Port Vessel Traffic Services
Guidance to IAPH Members Ports

Contents

IAPH Bursary is much in demand

Mr. R.U. Kumedzro, Training and Safety Officer, Ghana Cargo Handling Co., Ltd. has been granted a bursary from IAPH to participate in a training course at Forth Ports Authority, UK for the period 23 August to 17 September, 1982.

At the instruction of Mr. J.K. Stuart, Chairman of the Committee on International Port Development, IAPH Secretary General arranged the remittance of a maximum amount of 3,500 US Dollars to the Ghana Cargo Handling Co., Ltd. last May.

This is the 14th recipient of the bursary of the term for the period between the Nagoya and Vancouver Conferences

for which altogether 15 units were approved by the Association at the last Conference in 1981.

Public Affairs Committee seeks IAPH members voluntary contribution for their survey

The Executive Committee discussed the report of the Public Affairs Committee at Aruba and congratulated the Committee on the splendid work it has carried in such a short time particularly in the field of community attitudes towards ports.

It was resolved to approve in principle the concept of a community attitude survey and it was agreed that the Public Affairs Committee seek voluntary contributions from Association members as a means of financing the proposed study rather than drawn from the Association's funds.

Mr. F.M. Wilson, General Manager of the Port of Brisbane Authority and Chairman of the Committee recently sent a letter to various IAPH members seeking their support in relation to the proposed study recommemded by his committee together with a Presidential letter of endorsement.

In his letter Chairman Wilson says that there are approximately 200 port authority members of IAPH and it is assessed that 100 of these would be in a position to make a financial contribution to the cost of the study.

Mr. Wilson states that the study would be conducted by the internationally recognized market research and management consultant group, W.D. Scott and Col., Ltd. and he attached his letter a brief resume of their basic study proposal. The pilot study will cover the ports of Brisbane, Townsville and Newcastle.

Recognizing that the initial results will be of specific benefit to these Australian ports, it is proposed that each of these ports subscribes $5,000, i.e. $15,000, leaving about 100 ports to contribute $35,000. Thus the Committee is asking everyone for a minimum donation of $350, although more would be most welcome.

In response to Mr. Wilson's appeal, the first donation arrived from Bundaberg Harbour Board, Australia for US$350.

The generous support of this proposal by as many IAPH members as possible is looked forward to by the Committee as it believes IAPH can make a more tangible contribution to improving the role of world port authorities through this program.

Dredging Task Force Fund 1982 and 1983

1. Unfortunately the name of the Kenya Ports Authority was not included in the list of donors to the 1982 Fund which was introduced in the June issue of the journal. We apologize for the omission.
2. A donation for the amount of US$2,500 was contributed to the 1982 Fund by the International Association of Dredging Companies (IADC), Holland.
3. Dr. Hajime Sato, in response to the request from AAPA, transferred the amount of US$10,000, the target amount of the 1982 Fund, to the AAPA Dredging Task Force Fund which is established within the American Association of Port Authorities.
4. The IAPH EXCO decided to continue soliciting IAPH members, except those members in the United States, to contribute to the Fund in view that the works relative to the London Dumping Convention should have to be carried on in the coming years. The IAPH solicitation letter will be sent to all members in due course. The Fund for this term shall be identified as the 1983 Fund.

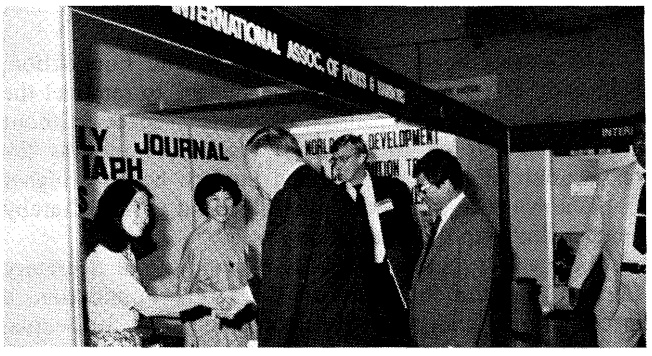
IAPH co-sponsors Portech 82

Since 1977, IAPH has co-sponsored a 5-day "seminars and exhibition" incorporated program organized in Singapore annually by MarIntec S.E.A. Pte. Ltd. who is an Associate Member of IAPH and did so this year along with the Port of Singapore Authority and the UN ESCAP when the event took place at the World Trade Centre in Singapore from 22 to 26 June, 1982.

The seminars held at the Conference Hall of the Singapore World Trade Centre drew some 300 enthusiasts from all ports of the world and over 60 firms and organizations participated in the exhibition.

Mr. A.S. Mayne, IAPH President and Chairman of the Port of Melbourne Authority chaired one of the sessions dealing with finances and economics which was held immediately following the opening ceremony on the Tuesday morning, June 22nd. At this opening ceremony, the delegates were welcomed by Mr. Wong Hung Khim, General Manager, Port of Singapore Authority who is an IAPH Executive Committee member, and listened to a keynote address by Mr. H.J. Kruse, Chairman, Hapag Lloyd on the theme "Critical Review of Container Developments in Asia".

The organizer provided through this "seminar" period a complementary stand at WTC's exhibition hall for IAPH, as has been in the past, with a view to make a full publicity and membership campaign of the organization to the visiting port people. Under Secretary Kimiko Takeda and her assistant Izumi Hayashi assigned to the exhibition, were sent from the Tokyo Head Office.



Miss Izumi Hayashi of Tokyo Head Office is seen greeting IAPH President A.S. Mayne to the IAPH stand as he toured the exhibition. Mr. Mayne opened the exhibition, which was sponsored by IAPH, the Port of Singapore Authority and by United Nations ESCAP. Seen from left to right are Miss Hayashi, Kimiko Takeda, Mr. Mayne, Hugh Stanton of MarIntec S.E.A. (Pte) Ltd., the event organisers, PSA's General Manager Mr. Wong Hung Khim and Mr. John Faruki, Port Economics Adviser of ESCAP.

Prof. Gustave Willems passes away

IAPH Head Office received the sad news from the PIANC Secretary General of the recent sudden death of their President, Prof. Gustave Willems.

According to the news from the PIANC, Professor

Willems died on June 6, 1982 caused by a fall while participating in the PIC (Permanent International Commission) of PIANC's technical visits to Monaco and Marseilles in May, 1982.

Professor Willems, the same news informs, became President of PIANC (Permanent International Association of Navigation Congresses) in 1956 and in the course of his long term of office, he has always been concerned not only with pursuing but also expanding its activities. His strong personality, his vast experience in the technical field, his personal contacts with high ranking officials which have contributed to focus the attention of technical world at large to PIANC will be missed. PIANC mourns the loss of an enlightened leader, a wise counsellor and a man of great human qualities.

On behalf of all members of IAPH, President Mayne and Secretary General sent a letter of condolences to Mr. Vandervalden, Secretary General of PIANC wishing to join those who are mourning over the death of Dr. Willems and to his bereaved family.

IAPH refurbishes its Head Office

Many IAPH members who visited our Head Office in Tokyo, might have been surprised by the rather modest and somewhat crampted working space that the Secretariat staff occupies for its day to day businesses. The surprise might have been heightened by the fact this is the headquaters of an international organization.

Indeed, unlike other international organizations, IAPH Head Office staff has never placed great priority on improving their office environment but has instead concentrated on improving their services to the Association's members all over the world.

Following the financial independence of IAPH, which has been legally separated from the IAPH Foundation since January 1982, and under the initiative of the Foundation's President Mr. Toru Akiyama, the reorganization of both the Head Office and the Foundation office has been under review.

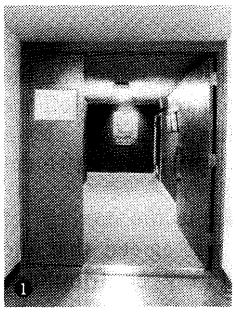
The extraordinary Board meeting of the Foundation, held early last June, approved the budget to remodel the offices including the expansion of the total space by about 25% (from 197 m^2 to 260 m^2). Also approved was the reallocation of the library, which used to be on a higher floor, down to the same floor as the Head Office, thereby being included in the total office space.

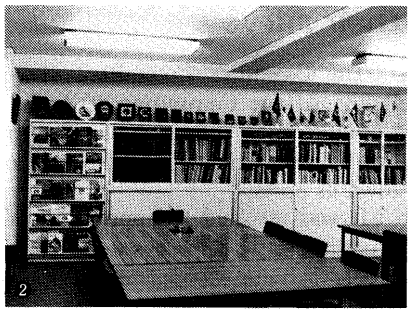
The new layout includes an office for the Secretary General and the President of the IAPH Foundation, a meeting room which can accommodate up to 30 people, a newly modernized office for the nine head office staff, headed by Deputy Secretary General Kusaka, as well as a library and a storage room which contains some printing equipment.

Thanks to the generous arrangements on the part of the Foundation, the cost to be shared by the Association was agreed to be only a part of the funds needed for the remodeling of the staff office in proportion with the numbers of the IAPH employees and payable to the Foundation in 10 year installments, while the costs of the meeting room and library were fully looked after by the Foundation.

All members, both those who were familiar with the old office, as well as those members who plan to visit us in the future, will be warmly welcomed by the Head Office staff. We hope you will find the new arrangements match the importance of our Association.

Picture 1 shows the entrance, the door being painted ocean blue, with IAPH insignia displayed.
Picture 2 shows the meeting room with plaques and flags ever contributed from member ports.
Picture 3 shows staff members at work in their new office.





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MarIntec (Europe) Ltd. (Class D)
54, Station Road East, Oxted, Surrey RH8 OPG
England
Office Phone: (8833) 6155
Telex: 95444 INTEC G
(Mr. Michael Briant, Director)
Mr. Ake Waldemarson (Class E)
Ellingegata 17, S 217 73 Malmo, Sweden
(via Port of Malmo)
Office Phone: 040/911439
Telex: 33275 MPORT S
(Retired General Manager)
Change
The address of **Port of Melbourne Authority**, Chairman of which is Mr. A.S. Mayne, IAPH President, has been changed to: **World Trade Center, Melbourne, Victoria 3005** since July, 1982.

PORT OF/DE VANCOUVER
1900 - 200 Granville Street
Vancouver, B.C. Canada V6C 2P9
Telephone: (604) 666-3226
Telex: 04-53310

Port of Vancouver

Host of the 13th Conference of IAPH, June 4-11, 1983

The Port of Vancouver is situated within one of the world's maritime beauty spots. Few harbors have more magnificent scenery and unique conditions in which to conduct world trade.

One hundred and fifty years ago this past June 12, the noted British explorer Captain George Vancouver sailed into Burrard Inlet, the spectacular inner harbor of the Port. He was mightily impressed by what he saw, and was warmly welcomed by members of the several Indian villages situated around its shores.

Part of the inner harbor, primarily the seven-mile long Indian Arm which runs north from the eastern end of the Port, were charted by the Spanish seamen Galiano and Valdes in arrangement with Captain Vancouver and they exchanged knowledge of this vast, unknown area.

Despite its obvious attractions, the Port lay largely untouched until after the Fraser River gold rush of 1860. It was opened as a port by the Royal Engineers, who accompanied British expansion in the days of empire, and who sought a harbor free from ice the year round, a condition that could not be guaranteed on the nearby freshwater Fraser reaches.

Due to the region's vast forestry assets, the harbor first attracted forest product exports, which were carried to the U.S., Australia and other foreign destinations from sawmills around the harbor shore.

Gradually, as the natural resources of the province were developed, other products were sent abroad. The arrival of the first trans-Canada train in 1886 opened the way to exports from the more eastern parts of the nation, and prompted an import trade with the Orient involving silk, spices and other products of that region.

Japanese orange exports to Canada, now a much-anticipated pre-Christmas event, began before the turn of the century. Wheat exports commenced in token form soon after the First World War. Mineral products began to flow from the treasurehouse jealously guarded by the mountains of British Columbia and the framework for the present world trade was being established even in the depths of the 1930's Depression.

After the Second World War, there was a notable increase in trade at the Port and this trend has continued uninterrupted. In the last decade, tonnage handled has set new records almost every year.

The list of products, exported and imported, has grown considerably. Coal, petroleum products, potash, sulphur, and minerals of all sorts, are sent abroad from B.C. and the other western provinces of Canada. Rising world hunger has created a major grain exporting trade and the diversification of the cargoes continues.

In 1981, despite difficult world economic conditions, the Port of Vancouver was able to announce that once again it had broken all handling records with an export total of 49,495,000 metric tonnes.

Record shipments of grain and coal made it possible to set a mark 0.5% higher than in the previous record year of 1980, in contrast to many other leading world ports.

In July of this year, the end of the grain crop year, a record 11.5 million tonnes had been exported from B.C. of which 10.3 million tonnes were handled by elevators in the Port of Vancouver, also a new mark for the Port.

Current expansion projects budgeted at many millions of dollars – more than $200 million in 1981 dollars – will make the Port even more efficient and capable of handling much larger amounts of cargo in the future.

The greatest expansion will be the quadrupling of the Roberts Bank Coal Port to some 100 hectares, making it one of the largest coal ports in the world. The first of three new pods will be opened in the second half of 1983 and the others are expected to be operational soon afterwards.

The Port of Vancouver is financially self-sustaining. Port authorities believe that despite the difficult economic conditions, the Port will set yet another tonnage handling record in 1982.

We are looking forward to sharing our warm hospitality and breathtaking beauty with you in June, 1983.
Make your plans now to join us.

Ports and their communities, our conference theme for IAPH '83 reflects our belief that ports are more than a gateway to the world. They are the hub of our communities . . . a place for people as well as trade and commerce. We are planning many interesting and innovative seminars on this subject for IAPH '83. We hope you will come and share your ideas with us.

Les ports et leurs communautés, le thème de notre conférence pour l'IAPH '83 reflète notre conviction que les ports sont plus qu'un point de départ vers le monde. Ils sont les centres d'activité de nos communautés . . . un endroit pour les gens autant que pour le commerce et les affaires. Nous préparons actuellement de nombreux séminaires interessants et innovateurs à ce sujet pour l'IAPH '83. Nous espérons que vous y viendrez pour partager vos idées avec nous.

Los puertos y sus comunidades, el tema de nuestra conferencia para la IAPH '83, refleja nuestra creencia en que los puertos son algo más que puertas que se abren hacia el mundo. Son el eje de nuestra comunidad . . . un lugar tanto para la gente como también para el intercambio y el comercio. Estamos preparando muchos interesantes seminarios de carácter innovativo sobre este tema para la IAPH '83. Esperamos que Ud. venga a compartir sus ideas con nosotros.

Open forum:

Port Economic Impact Studies

By Merelene Austin

(This paper, written by the author as her graduating essay, has been made available for publication thanks to the kind assistance of Mr. Fred Gingell, Vice-Chairman of Fraser River Harbour Commission, an IAPH EXCO member)

Port activities have long been perceived as vital catalysts for the generation of employment, income (payroll), business revenues and tax contributions for local communities, but there has been little understanding or documentation of the magnitude of this economic impact. A port economic impact study is an attempt to quantify that level of economic activity that is generated by the movement of cargo through the port. This paper is prepared to aid port managers and administrators in the understanding of port economic impact studies. It is based on the 1981 Fraser Port Study and follows the guidelines of the Pacific Coast Association of Port Authorities (PCAPA) Economic Impact Kit, which was funded by the United States Maritime Administration, and Ministry of Transport Canada. The paper focuses specifically on the following aspects of port economic impact studies.

- Changes in the port environment which have stimulated the need for port economic impact studies.
- The objectives of impact studies.
- The difference between an economic impact study and a cost-benefit analysis.
- The general theory and terminology associated with port economic impact studies.
- Identification of initial study parameters.
- Specific methods and models used to measure port impacts.
- Various measures for reporting the results of an economic impact study.
- Major economic findings of the 1981 Fraser Port Study.
- Recommendations for achieving a significant and credible port economic impact study.

INCREASING COMPLEXITY OF THE PORT ENVIRONMENT

The past decade has produced a flourish of port economic impact studies as ports strive to both maintain and develop their position in an increasingly competitive and controversial environment. The factors which have contributed to the complexity in which ports must operate are threefold—environmental, technological and political. Environmental groups, who often view port development as a detrimental influence on coastal and estuarine environments, demand acknowledgement by port management as well as greater input into developmental plans. The technological impact of innovative transportation, storage and shipping techniques has forced ports to remain competitive in port development. A good example of the technological influence is the trend toward containerization which has resulted in the concentration of port tonnages as ocean carriers call at fewer and more technically specialized ports. Finally, the political environment in which ports must operate and seek public financial support is a further constraint upon port management. Organized citizen groups criticize the unnecessary duplication of port facilities in a region and hence, the increase in their tax burdens. The end result of this influence has been a trend by North American governments toward regionalization of port facilities as well as greater justification of public monies for port investment and development. It has been in light of these new constraints that ports have needed to develop economic tools that are accurate, timely and suitable to aid in the comparative evaluation of ports. The response of the Pacific Coast Association of Port Authorities to these changes was the development of the Port Economic Impact Kit in 1979. This Kit standardizes a terminology and methodology which enhances the credibility, clarity and comparability of port economic impact studies.

IMPACT STUDY OBJECTIVES

There are four major objectives or uses associated with port economic impact studies, one of which requires some qualification. First, these studies serve to enhance community relations and improve public education efforts. This objective is of great importance in present times when taxpayers are becoming increasingly critical of public investment. An economic impact study presents its findings in understandable and effective measures which increase a citizen's awareness of the port and its influence on their community. Secondly, port economic impact studies aid business managers and governmental policy makers in identifying the role of the port and its related activities in the regional economy. Such economic information is extremely useful in supporting loan /grant applications or confronting unfavourable political actions regarding the port. The third objective of a port economic impact study is to increase the knowledge of port administrators so that they have a greater understanding of their own as well as competitive ports. This increased awareness aids in identifying limitations and/or potential advantages of the port and its facilities, which in turn leads to more efficient functioning of the port service activity. The fourth objective of the port economic study is that it provides a data base in the form of economic impact parameters to assist in future planning or evaluation of developmental projects. It is this final objective that requires the following qualification. Port administrators must recognize that port economic

impact studies can only be utilized to support or assist in planning tasks and not as the sole analysis on which to base port development decisions.

The capability of a port economic impact study to assist in port planning functions stems only from the fact that port administrators have a greater understanding and overview of the port economy. The forecasting ability of a port economic impact study is limited because it represents a "snapshot" of the region's economy and interrelationships at a single point in time (i.e. the period for which the data is collected). The structural changes which occur in a regional economy due to the introduction of new industries, technological advancements, price impacts or economies of scale cannot be incorporated into a port economic impact study. The study, therefore, cannot be used to project the economic benefits of port expansion or a major redirection of port operations. Such planning tasks should be left to cost-benefit tools that can incorporate proposed port modifications into their economic analysis.

ECONOMIC IMPACT STUDIES AND COST-BENEFIT ANALYSES

The distinction between an economic impact study and a cost-benefit analysis requires further clarification. This can best be accomplished by first discussing the difference between economic impact and economic benefit. An **economic employment impact** is a point-in-time relationship between port activities and the employment level. It does not signify a lasting causal relationship, only a statement of the present employment situation. An **economic employment benefit** refers to the incremental employment that occurs with and without the port facilities. The determining factor in distinguishing between an impact and a benefit is the process of substitution. If a port ceases functioning, much of the slack will be taken up by other ports or transportation modes, and the economic benefit of a port to the region is the net difference in employment with and without the port. An economic impact study measures economic impacts whereas a cost-benefit analysis measures economic benefits plus social benefits.

Social benefits (e.g. accessible port waterways), must also be incorporated into a cost benefit analysis because public enterprises such as ports have a social responsibility to provide and protect the port waterway so that it can be used by all of society. Cost-benefit analysis is a tool that can be used by ports to evaluate the social and economic benefits of the port, or a proposed modificiation to the port. Cost-benefit theory compares the existing system to the modified system, and all the incremental social and economic effects over time are counted as either costs and benefits of the new system. It is only through this detailed cost-benefit analysis that ports can assess planning and developmental proposals. A port economic impact cannot provide this service for a port.

GENERAL THEORY OF A PORT ECONOMIC IMPACT STUDY

Port economic impacts are often compared to the spreading of ripples across the water. This is a good analogy as clearly illustrated by the following example. A vessel calls at a port and economic activity occurs in performing such functions as piloting, servicing, and unloading the vessel. Further economic activity results in subsequent handling and transport of these cargoes. The impact touches banks and insurance companies which finance, trade and insure the goods, as well as other companies which process, store or sell the cargo. All of these activities generate a substantial amount of income which is spent again and again throughout the community. The total port economic impact is the cumulative effect of all the above activities.

The identification of all the industries, activities and interrelationship within a port community is a difficult and time consuming task. To aid in this task, the PCAPA Kit has developed a framework for defining and differentiating among the various port impacts. The total economic impact of a port region can be separated into two major components—direct and secondary impacts. The **direct** component is defined as the first round economic impact generated by firms directly related to, or dependent on the port transportation system and facilities. This direct component is further separated into two components—port industry and port-dependent industry. **Port industry** is defined as the group of firms or activities that are directly needed for the movement of water-borne cargo. **Port-dependent** industry includes those firms which receive or ship products through the port. Questionnaire surveys and direct interviews are used to measure the impact of port and port-dependent industries. The **secondary** impact component is the second and subsequent rounds of economic impacts that are generated by the "ripple" effect that the direct activity has on the region's economy. This secondary impact can also be separated into two components—indirect and induced impacts. **Indirect** impact is the economic activity in terms of sales, income or payroll generated in industries or firms supplying goods and services to direct industries. The **induced** component is defined as the impact created by the expenditures of both direct and indirect payrolls on consumer goods and services. The process, therefore, continues throughout the regional economy generating more sales, payroll and jobs. Subsequent rounds of economic impacts do reach a maximum level which is defined as the multiplier for the regional economy. The methodology for determining this multiplier will be presented later in the discussion.

The following identification and classification of port components from the Fraser Port Study is presented to aid other ports in the determination of industries and activities to be included in a port economic impact study. It should only be used as a guide because structural relationships do vary between port communities. PI refers to port industry, PD to port-dependent industry, and SC to secondary industry.

Airlines—SC
Ancillary Services & Sales—PI
Associations—SC
Banks—SC
Boat Builders—PI
Chemical Firms—PD
Custom Brokers—PI
Dredging Companies—PI
Fishing Industry—PD
Fish Processing Firms—PD
Freight Forwarders—PI
Grain Elevator Companies—PI
Importers & Exporters—PD
Insurance Brokers & Agents (Marine)—SC
Labor Organizations—SC
Law Firms (Marine)—SC
Log Storage—PI
Marinas—PI
Marine Pilots—PI
Manufacturing Firms (nec)—PD
Metal Fabricating Firms—PD
Moorage—PI
Non-metallic Industries—PD
Railways—PI
Seaplane Operators—SC
Ship Brokers—PI
Ship Chandlers—PI
Shipping Agents—PI
Stevedoring Companies—PI
Surveyors, Architects & Engineers (Marine)—SC
Terminals—PI
Towing & Tugs—PI
Trucking Firms—PI
Wood Product Firms—PD

There are four major steps associated with conducting a port economic impact study. These steps are: the identification of study parameters, direct impact measurement, secondary impact estimation, and the reporting of impact results. Each of these steps is discussed in turn in the following sections.

IDENTIFICATION OF STUDY PARAMETERS

Often the most difficult task in undertaking a port economic impact study is the initial identification of the study parameters. Port staff and potential respondents both require a clear identification and understanding of three parameters: the study region, the direct industries and the requested impact information. It is, therefore, essential that these parameters be clearly defined in setting study guidelines.

The study region is defined as the geographic region which is influenced by the port. This region can theoretically be as large as the nation, but the majority of the impact occurs within the community surrounding the port. Port economic studies are also most effective when related to smaller regions, and when directed at local port residents and decision makers. A good guideline is to select the study area that is defined by the census boundaries, because the secondary impact data corresponds to this area. The port region of the Fraser Port Study was identified as the Vancouver Metropolitan Census Area. This port region was clearly identified to potential respondents in the instructions of the questionnaire which requested information only for those impacts occurring within the Vancouver Metropolitan Area. Impact identification within the port region was further complicated in the Fraser Port Study by the fact that three port facilities, Fraser Port, North Fraser Port and Port of Vancouver all serve the Vancouver Metropolitan Area. Many businesses such as towing companies, custom brokers and shipping agents have extensive operations within the jurisdiction of all three ports. To ensure that firms only included the impact of those operations dependent on the Fraser River, a map outlining the Fraser Port jurisdiction supplemented many of the questionnaires.

The identification of port industries and port-dependent industries, is the second parameter area that poses initial study design problems. It is important to note the two following points when formulating the questionnaire mailing list of port and port-dependent industries. Many businesses which are on waterfront property do not rely on the port facilities or transportation system in any way for the generation of business revenues. Since these businesses could be situated and profitable elsewhere, they should not be included on the mailing list of the port economic impact study. Secondly, it is important to recognize that some direct industries, (e.g. importer-exporter firms) are very far removed from the port, but are port-dependent because the port provides the most cost effective mode for transporting raw materials and final goods.

The third parameter is the identification of the impacts required by the port economic impact study. The economic impact of most studies is expressed in terms of a firm's sales or revenue, employment positions, income (payroll) and tax payments. It is economic impact that a port economic impact study is intended to measure, not economic benefit. Most industries choose a port as a matter of convenience, and if the port were to close, these businesses would switch to another port facility or transportation mode, or relocate. The economic benefit is the net amount of revenues, jobs or payroll lost in a business because of the port closure and determination of this economic benefit is a near impossible task for most firms. As it is, some firms find it very difficult to determine the economic impact of their business operations. The best method is to pose the following question in the interview or questionnaire—What percentage of your present business activity is dependent on the port? Port-oriented firms such as tug companies can more readily assess their dependence on a port than trucking companies. The inability of some industries, such as trucking companies, to relate their activities to the port is the major reason for the low response rates of many industry sectors. The Fraser Port Study attempted to remedy this problem by suggesting that the company take total business revenues, employment and payroll, and multiply it by a subjective percentage estimate of the amount dependent on the Fraser River. This same procedure was also used in the questionnaires for importer-exporter firms because the exact identification of revenues, payroll and employment dependent on the Fraser River would be such a difficult and time consuming task that many of these firms would and could not respond. There is a trade-off between obtaining a small number of exact responses or a large number of more subjective based responses. The latter approach was thought to be the more optimal procedure in the Fraser Port Study.

DIRECT IMPACT MEASUREMENT

A questionnaire survey of port industry and port-dependent industry firms is utilized to determine the direct impact of the port. Survey responses are used to measure the direct impact which in turn provides the economic base for secondary impact estimation. The completeness and accuracy of the direct impact measurement is, therefore, the major determinant in achieving a significant and credible port economic impact study. The two most critical elements in direct measurement are the development of a complete direct industry mailing list and the acquisition of a large number of quality responses. Impact project schedules should, therefore, allocate sufficient time to complete these two tasks effectively.

Complete industry mailing lists can be generated from the following sources: port lease lists, terminal customer lists, port bills of lading, business directories, yellow pages, and from the knowledge of government and private industry personnel familiar with the port community. The Fraser Port Study identified 700 potential businesses that were dependent on the Fraser River for all or part of their business activity. This large a population was considered too great to effectively contact and survey within the alloted time period. Thus, 66 firms from an inporter-exporter population of 440 (included in the 700) were randomly sub-sampled. Non-surveyed firms' impact would later be extrapolated from the received importer-exporter responses. After this sampling adjustment, the final mailing list for the Fraser Port Study comprised 327 businesses.

The acquisition of a large number of quality responses is greatly influenced by the time and effort invested in this task. The major limitation of surveys is that it is relatively easy for potential respondents to discard the questionnaires or provide inaccurate and incomplete data. This is especially true when a public enterprise such as a Port Agency requests sensitive economic data from private, competitive businesses. The following five methods were used in the

Fraser Port Study to increase the quality and quantity of responses. First, introductory letters were sent from the port manager to clearly state the purpose of the study and stress the confidence of the received information. Second, concise and self-explanatory questionnaires were designed and developed through extensive pre-testing in the business community. Twelve industry specific questionnaires were developed in the Fraser Port Study to more clearly identify the requested information to different industries. Third, personal interviews with the General Manager or Vice-President of sixty of the larger companies served to ensure that the questionnaires received appropriate attention in larger, more bureaucratic organizations. Questionnaires addressed to the attention of a contact in management or to the controller if a specific name could not be obtained, were mailed directly to smaller companies. Fourth, extensive follow-up telephoning was used to obtain non-responses. Finally, direct personal contact by the Port Chairman or Manager was used in a few instances to speed up a response from major port-related firms. These methods proved instrumental in achieving a 64% response rate in the Fraser Port Study.

SECONDARY IMPACT ESTIMATION

As previously discussed, secondary impacts are the second and subsequent rounds of economic impact generated by the "ripple" effect of direct port-related industries. The maximum level of these generated rounds is termed the secondary multiplier which is expressed as the total regional economic impact divided by direct port-related economic impact. This economic impact can be in terms of sales, income, employment or taxes. The expression states that if the activity of a direct port related industry increases by a given amount, then the region's total economy can be expected to change in a predictable manner that is estimated by the multiplier. The size of this multiplier is, therefore, dependent on the size, structure and diversity of the regional economy. For example, the more self-sufficient and diverse the regional economy, the larger the multiplier. The determination of the multiplier can be achieved through a number of methods. The two most common methods are **economic base** and **input-output** models, but as well there are several other models that could be adapted to the generation of secondary multipliers. The following discussion focuses on the theory, advantages and limitations associated with each methodology.

Economic Base Model

Economic base theory separates all economic activity in a region into two sectors: as **export or basic** sector which produces goods and services shipped out of the region and a **local or non-basic** sector which produces goods and services consumed within the region. The methodology revolves around the theory that the export markets are the prime mover of the local economy and the size of the non-basic sector is assumed to be a known function of the size of the basic sector. There are three methods, termed the location quotients or concentration technique, the minimum requirements technique, and the experience technique, that are used in economic base modelling to determine the basic sector level and the subsequent multiplier.

The **location quotients or concentration technique** compares the port community's employment distribution to that of the national employment distribution. The underlying assumption inherent in this technique is that if the region is highly specialized relative to the nation in a particular product or service, then the employment and income generated in the production of that goods or service is attributed to the export or basic sector. A good example of excess regional production is the automobile industry in Windsor or Detroit. The major advantage of this methodology is its conceptual and operational simplicity. The required employment and income information is readily available in national census data. Another advantage is that location quotients analysis deals only with a small number of export industries which are easily identifiable and large in size. Unfortunately, the limitations of the location quotients technique outnumber these advantages. The location quotients theory assumes that similar demand and labor patterns prevail nationally, but regional climatic, cultural and legal variations clearly illustrate the falsity of this assumption. The theory further assumes that each industry produces homogeneous goods, but differentiated products and brands are very apparent in the marketplace. Another limitation is that indirect and intermediate exports produced in a region are not included in the census data, and are, therefore, not incorporated into the analysis. Finally, countries which have a large share of foreign exports (e.g. Canada and Japan), obtain an underestimate of regional basic impact which results in an overestimated multiplier. The multiplier must be adjusted using the Export-Gross National Product ratio to account for this deficiency in the methodology.

The **minimum requirements technique** attempts to eliminate the problem of similar regional demand patterns associated with the location quotients technique by comparing the port region to ten diverse but similar size regions. The assumption here is that the smallest amount of employment income in any of these regions is the necessary amount to serve local demand and the excess is considered basic. The main problem with the minimum requirements technique is that it is difficult to randomly select an appropriate sample of comparable size regions. This technique was not used in the Fraser Port Study because there were too few other Canadian metropolitan areas which have as large a population base as Greater Vancouver. As well, minimum requirements still suffer from the other limitations discussed in the location quotients methodology.

The **experience technique** is a much more subjective methodology which relies on the knowledge and experience of persons familiar with the businesses and structure of the local economy. This technique can be very appropriate for smaller port regions because it focuses on the specific characteristics of the local economy. Again, the size of the Greater Vancouver region made it impossible to utilize this technique in the Fraser Port Study because no persons or surveys could provide an extensive enough overview of the entire region.

Input-Output Model

A literature review of past port economic impact studies indicates that input-output models are the most common and preferred method for calculating secondary multipliers. The basic premise of the input-output framework is that each industry sells its output to other industries, which in turn input it into the production of other goods and services for sale throughout the regional economy. The performance of each industry can, therefore, be determined by changes in both the final demand for goods and services and the specific industry relationships. These relationships

are formatted into an input-output table which is fundamentally a highly detailed map of the interindustry dependencies in the regional economy at a specific moment in time. Separate industry multipliers are then calculated from the quantitative interrelationships presented in the input-output table. Not only are input-output models the most attractive practically, theoretically they are the most appealing because they allow for industrial disaggregation of multipliers which are much more sensitive and accurate in determining secondary impact.

There are two severe limitations associated with the input-output model. The first is that a large amount of data, time, cost and technical skill is required to construct an input-output table, especially for small ports. Port economic impact studies must, therefore, rely on the availability of input-output tables developed by other sources such as the government or universities. U.S. ports are fortunate because the Government Bureau of Economic Analysis produces Regional Industrial Multiplier System (RIMS) Data on a regular basis. This service is not yet available in Canada on a detailed or extensive enough basis for use in a port economic impact study. The second limitation of input-output models is that the multipliers do not remain stable for a long time because of technological innovation, varying industry interactions and changes in economic and population growth patterns. Input-output models are highly effective in the short run and are a good descriptor of present conditions but become obsolete within three to four years, depending on the regional economy. The PCAPA Kit suggests a procedure for updating input-output tables, but this was deemed theoretically impractical in the Fraser Port Study. Thus, the 1981 Fraser Port Study directly utilized the 1971 multipliers derived from the Interindustry Study of the Metropolitan Vancouver Economy, and clearly stated the limitation of such an action in the final report.

Other Models

There are four other economic models that may be of aid in determining secondary impact multipliers. These models are not well adapted to port economic impact studies, but it is hoped reference to these models may spark future development and adaptation. The first is termed the **interregional or foreign trade model** which relates the change in local economic activity to a given change in the level of exports. The approach requires detailed regional trade flow information which is not readily available in most communities. The second potential method is **gravity modelling** which relates the geographic location of various economic activities to the availability of the port. This model attempts to assess the importance of the port to regional activities as well as the competitive position of the port. The major limitation of gravity modelling is that it disregard activities or industries which are not closely associated geographically with the port. **Tax incidence modelling** can be used to estimate major national and local tax revenues resulting from port activities by applying tax rates to sales and income data. A final approach is **descriptive modelling** which relies on extensive personal interviewing to obtain a general understanding of the port's role in the community. This method may be appropriate for smaller port regions, but clearly it is not a feasible option for large ports.

A Word of Emphasis

The foregoing discussion clearly indicates that because of the limitations in the methodology used to determine the multiplier, resultant secondary impacts are relatively tenuous. The Fraser Port Study used both the economic base (location quotients technique), and the input-output model to determine total sales impact and obtained a 40% difference in the two values. Initially, the two methods were to be used as an analytical check, but this was later deemed inappropriate as the many aforementioned limitations became apparent. It is in the light of this secondary impact discussion that it is again necessary to stress the importance of obtaining a highly accurate and credible direct impact base. Direct impact measurement is very much within the control of study analysts, but this is certainly not true in estimating secondary impact.

REPORTING OF IMPACT RESULTS

Results of a port economic impact study can be expressed as total values to provide an overview of the port's economic impact, or on a more specific basis to distinguish various characteristics of port activities. One of the most common methods for reporting specific impacts is by industry or commodity. Other variations include by trade route, vessel type or terminal facilities. Impacts can also be related to broader regional variables which better illustrate the impact of the port on the community. For example, employment can be expressed as a percentage of total regional employment, or broken down to identify the impact on individual municipalities. The payroll impact can be extrapolated to include a family support factor, or used to determine a spending pattern for the community. It is best to decide which reporting measures are desired at the onset of the study to ensure that all the required information is collected during the project. The choice of the appropriate reporting measure depends on which groups (i.e. local decision makers, residents, politicians, industry leaders, other port managements) the port economic impact study is designed to influence. Port Managers must, therefore, set clear objectives for the port economic impact study.

A reporting measure preferred by many port managers is the cargo multiplier which relates the employment or sales impact to each ton of cargo shipped through the port. The cargo multiplier is attractive to port managers because it provides one value that can be used for a quick comparison with other ports. Reliance however, on one value for comparative purposes is not a good practice. For example, cargo multipliers have comparative problems because they do not consider variations in goods handling technology at different ports. Also, some port activities, such as stevedoring, are highly correlated to tonnage, whereas pilotage and towing activities are more closely related to the number of ships. It is, therefore, unwise to use a cargo multiplier to relate the economic status of the port. Economic impact measures should be reported in conjunction with other port information in a final report.

The final impact report should qualitatively, as well as quantitatively, stress the importance of the port to the surrounding communities. The economic results should be supplemented with historical and developmental information, to outline the growth of the port. The physical and geographical characteristics of the port should also be reported to provide an overview of the port jurisdiction. A

presentation of port statistics on commodities, trade routes and number of vessels should be included to provide a direct base for comparison with other ports. Inclusion of all this information will produce a lengthy report that should be of great interest to other ports, industry, and government. A shorter, more public-relations-oriented report that makes extensive use of graphs and photos should be prepared for dissemination to the general public.

FRASER PORT STUDY RESULTS

The Fraser Port conducted a port economic impact study in the summer of 1981. The results were determined from 1980 fiscal year information provided by 208 of the potential 327 port and port-dependent industries. Non-responses for most industries were extrapolated by estimating the percentage of total business activity attributable to these unresponsive businesses. This estimate for extrapolation purposes was determined by consulting port staff or private industry personnel who had a good working knowledge of local industries and the economic contribution of their constituents. This method could not be used for importer-exporter firms, because no person had such knowledge of the large importer-exporter sector. Thus, a direct arithmetic percentage of numbers of respondent firms to total surveyed firms was used to extrapolate for non-responses in the importer-exporter sector. The direct businesses surveyed in the Fraser Port Study represented 23 different industries, but the final results were aggregated into ten industry sectors which describe the major components of the Fraser Port impact.

Exployment Impact

Direct industries dependent on the Fraser Port contributed 13,487 full time equivalent employment positions to the regional economy. Secondary employment added a further 19,724 jobs, to yield a total impact of 33,211 employment positions. The largest industry employer was the wood products sector, which generated 6,303 direct jobs, and another 2,363 secondary positions.

Income (Payroll) Impact

The total payroll impact was estimated at more than three-quarters of a billion dollars. Approximately 300 million was derived from the direct component with the remaining 450 million attributed to the secondary component. The two major generators of payroll in the Fraser Port Study were the wood products industry, which paid out 220 million in payroll, and the transportation industry, which provided approximately half this amount–at 110 million.

Sales Impact

Sales or business revenues generated by firms dependent on the Fraser Port is by far the most impressive impact determined by the port economic study. The sales impact was estimated by both the economic base and input-output models. Economic base modelling generated 2 billion in direct sales, plus 3 billion in secondary sales, for a total 1980 sales impact of 5 billion. Input-output modelling produced a consistent value of 2 billion for direct sales, but yielded a lower value of 1.5 billion in secondary sales, for a total impact of 3.5 billion. The secondary impact was, therefore, averaged at approximately 2.25 billion, to arrive at a total sales impact of 4.25 billion. This total impact was estimated to be approximately one-seventh of the 1980 Gross Provincial Product of British Columbia.

Tax Impact

The study also measured the local tax impact by collecting direct industry information on property and school taxes, business license fees and user fees for public services. Businesses from six out of the ten major industry sectors paid taxes of approximately 13 million to the local community. No attempt was made in this study to calculate secondary tax effects.

RECOMMENDATIONS

The specific techniques used to perform a port economic impact study will vary greatly depending on the size of the port and its port region. Smaller staffed ports may opt to only measure the direct impact component, whereas larger ports may commission a total study to external consultants. The following seven points refer to method recommendations that are important determinants in achieving a significant port economic impact study for ports of all sizes.

- Conduct a full scale economic impact study which measures both direct and secondary impacts every five years. An attempt should also be made to conduct the survey in the same year as the national census. In addition, ports can obtain an indication of the yearly changes which occur in the port economy by subsampling direct industries. An indication of the 1982 decline in the British Columbia Forest Industry impact would be given such a smaller scale study.
- Select project analysts with good communication skills, because they are representing the port as well as "selling" the impact study to private businesses. These personnel must also possess some economic expertise and have an understanding of port operations. If external consultants are to be used, a port staff member should be assigned to provide regular input and guidance.
- Utilize the PCAPA Port Economic Impact Kit because it limits the time and financial commitments as well as the economic expertise needed to conduct a port economic impact study. The Kit focuses primarily on a methodology for U.S. ports, but it was found to be a necessary and useful guide in performing the Fraser Port Study. Non-U.S. ports can adapt the methodology presented in the Kit to their particular country and data sources, but port administrators must recognize that this requires an extended time commitment and greater economic expertise on the part of the analysts.
- Consult with local trade associations which represent some of the direct port industries (e.g. stevedoring, shipping agents), before mailing the questionnaires. This action serves to gain the support of associations which have strong, direct influence over their membership.
- Develop a solid direct impact base by investing substantial time and effort in surveying port and port-dependent industries. Extensive personal interviewing, specific industry questionnaires, and input from port management, are some techniques that can be used to obtain accurate responses from a large number of direct industries.
- Estimate the secondary impact of port activities by the input-output model. This model is the preferred approach, but ports should also use a second method to

provide a range for the secondary impact. One suggestion is that all ports in a region contribute a share of the funds required to commission an input-output study for their area.

– Prepare a final impact report that can be used in a comparison with other ports. This requires that historical, geographical and statistical information be included to supplement the economic results.

CONCLUSION

Port economic impact studies serve the valuable function of presenting the port and the extent of its economic impact to the public, the business community, the government and other port managements. But, all too often ports extend the function of a port economic impact study to include justification for future development plans. The port economic impact study can aid in the identification of potential programs, but it should not be the sole tool on which to base future plans.

The measurement of direct impact involves some subjective judgement as well as extrapolation of industry information. The methodology for determining secondary impact contains many inherent limitations. Both these factors produce a total impact that is an "estimate" of the port's economic influence at a single point in time. Prior to undertaking or reviewing a port economic impact study, it is important that port managers and administrators understand these concepts and limitations associated with such studies.

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The Handling of Containers through Ports lacking the Necessary Facilities —A problem on a world scale experienced by developing ports—

By George G.L. Maffait
Associate Member of IAPH

The following paper results from observations made during many visits to ports in developing countries.

As an introduction, I should like to recall the thoughts of an IAPH member, who had been general manager of a port in the Far East, and who was about to present his paper at the Montreal Conference in 1971. We had been discussing the world of computerized container traffic and all felt that we were truly in a highly sophisticated world. The member began his presentation as follows: "We have heard a lot of favorable things said in relation to computers and containers and I am sorry to have to return the conference to a more munddane level present my views on the handling of general cargoes in the ports of developing countries. In contrast to the strides made by the developed countries, these developing countries still handle cargoes in a way which would be considered primitive. However I am sure that such cargoes will continue to be handled in such a way in the years to come."

While the use of container continues to expand, a high percentage of cargo handled by these ports continues to be general cargo which has to be handled simultaneously with containerized cargo. This has led to serious congestion problems and it can be said that a large number of operations are containerized even where the port is clearly not yet prepared for this change. As a result identical problems have arisen at many ports thereby adding to the complexity of the situation.

Let us now go through the steps leading from the introduction of containerization into a port. Firstly, we begin with a very limited number of containers and, at this early stage, the port does not have the necessary equipment to handle them in an effective manner. Some of these ports have only low capacity lifts and some may not even have trailers. Sometimes the "port" has no berth that can accommodate deep sea ships and so the containers are handled from "lighters" (pictures 1 and 2). The port therefore experiences difficulties in moving the loaded containers from the berths to the storage areas. As a result containers may stay on the quay for several days thereby increasing the congestion. (Actually the time a container spends on the quay depends on the goodwill and mood of the receptionist and customs officers.)

Sometimes one can see containers being only partially unloaded or unloaded and then only at a very slow rate. When the container is empty, it is moved by lifts to the storage area and will certainly be reexported empty, as once more the port does not possess the equipment necessary to move fully loaded containers unless they are loaded on the quay itself, and then lifted on board by the ships gear.

It is not uncommon to see archaic means of handling and transfer such as rail platforms hauled by agricultural tractors or by trucks.

When the annual number of movements increases, the port authority or the cargo handling companies have to invest in more suitable equipment generally side or front loaders. However, the problem then arises of the port not having a special area for container storage. Ships use general cargo berths, generally not adopted to container handling requirements (pictures 3 and 4) and one can see containers everywhere, for example among other goods (picture 5), in any order and sometimes without taking into consideration any hazardous cargoes already stored there.

Even more important, despite the lack of facilities, is the rapid increase in the number of 40 feet containers, and it is interesting to watch the mixing of 20 feet and 40 feet containers with other kinds of containers (pictures 6 and 7) all of them stored in a haphazard manner, on ground that has not been prepared properly, and without thought as to how these containers should be stored (pictures 8, 9, 10 and 11).

The annual number of movements continues to increase and so the port authority now begins to prepare plans to project future traffic trends. However the storage areas are becoming more severely congested due to the increasing number of empty containers and as a result the port authority is compelled to take measures such as imposing special tariffs in order to discourage customers from using the port as a depot.

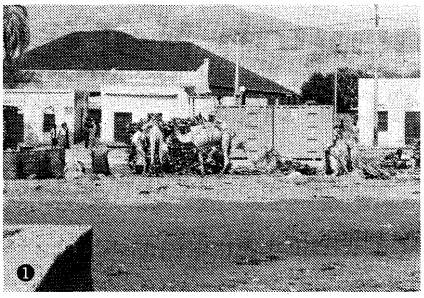
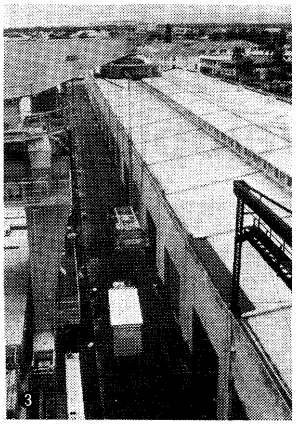
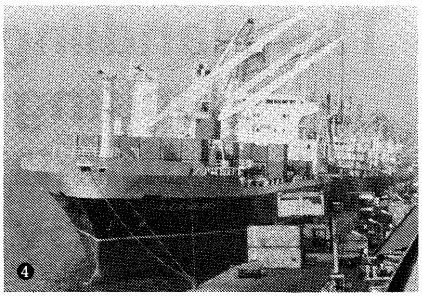
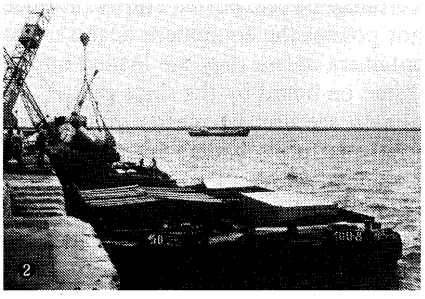
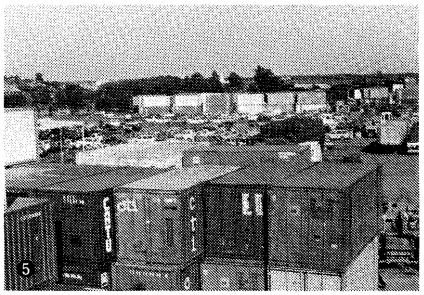
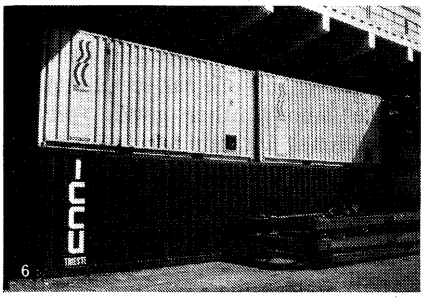
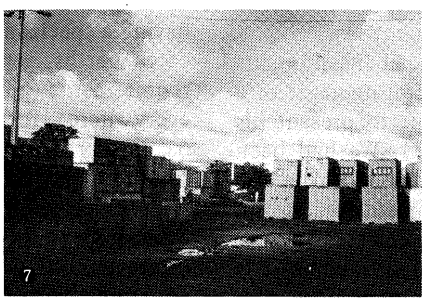
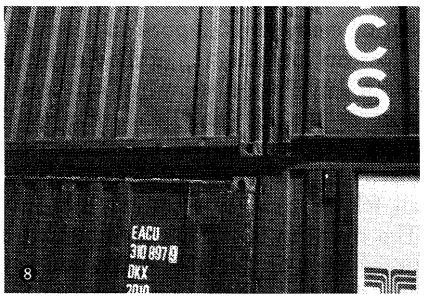
New installations are now planned but three years will pass before they are completed and during this time the problem of too many containers will, day by day, continues to become a more serious problem. If personnel training has not been properly scheduled, then the situation may arise where dock workers start claiming compensation for extra hours worked as well for the loss of the free time. Problems may further arise with reorganization of the labor force such as the reduction in the number of dock workers working in loading and unloading gangs.

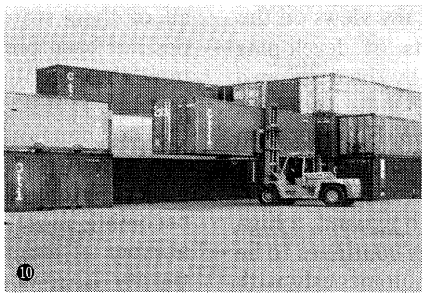
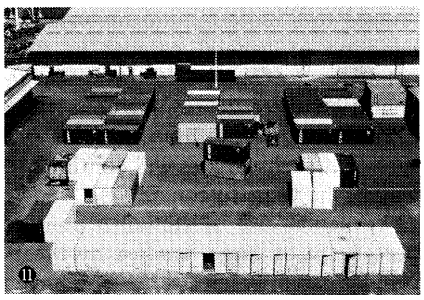
The final step will be the inauguration of the terminal now equiped with the latest computer technology. If the number of movements should not prove to be economically sufficient, then the port faces serious financial problems considering the investment that has been made.

From the first to the final step, one can only wonder what problems could arise in port management!

All these operations may be summarized as follows:

1. The construction of a functional terminal presupposes a large number of movements; unloading, loading, on board shifting and shifting via the quay. Terminal facilities only become economically viable

above a minimum threshold.

2. All ports, however, are required to receive containers even when they are not equipped for this form of traffic. The port authority may not have adequate tackle and may not be in a position to handle the type of work involved in receiving the containers. The staff, particularly the dock workers, may not have received the proper training.

3. Containers are stored wherever there is room available which may include areas where containers should not be stored such as amongst other goods. Feats of skill are performed in order to handle containers with the inadequate equipment available. Should there be no equipment, then customers, who pay little attention to elementary safety precautions, are allowed into the harbor to strip containers on the spot. Such practices, inevitably, encourages theft.

4. Congestion is partially due to the fact that although containers arrive full, they remain in storage areas once they are empty. Empty containers are often regarded as packaging and pay low dues, which aggravates the situation.

5. Port authorities are not always aware of the wide range of aspects of containerization and often information essential both for current use and for medium and long term planning is not available, e.g. trends in commodities such as coffee, bananas and refrigerated merchandises, etc.

6. Since workers may not have received the necessary training, they are not familiar with the weak points concerning the handling of containers. As a result ports which are still unaccustomed to container traffic tend to experience identical problems. These include;

Storage on unprepared sites
Faulty stacking
Poor use of the equipment involved

This leads to a high rate of damage to containers which will be passed on in higher transport and insurance costs.

Conclusion

Many fundamental problems exist in the development of a traditional port to one which is equipped with the latest specialized terminals. This has led to a course on the

(Continued on next page bottom)

The Kuala Tanjung Industrial Port Project — An example of Indonesian/ Japanese cooperation —

By Ei-ichi Yamashita
Director, General Manager
Construction Division
P.T. Indonesia Asahan Aluminium

1. OUTLINE OF THE PROJECT

Background

The Kuala Tanjung Port Project, to be introduced here, is an industrial port being constructed in North Sumatra, the Republic of Indonesia, as part of the Asahan Project, which has been undertaken by Indonesia and Japan.

The Asahan Project largely consists of the construction of an hydroelectric power station and an aluminium smelter.

As shown in Fig.-1, the hydroelectric power station effectively uses water from Lake Toba, a large and natural reservoir (altitude at the water surface; 905 m above sea level, water surface area; 1,100 km^2), which is located in the central highlands of North Sumatra. There are two falls, both with large drops, at the basin of the River Asahan, which is the only river flowing out of the Lake Toba, and the place has long been considered one of the best locations in the world for the development of hydroelectric power.

For many years, the construction of an hydroelectric power station in the area was attempted with the aid of the several countries, but none of the ventures undertaken was ever completed.

This long awaited project finally saw its realization as a result of cooperation between Indonesia and Japan, and in the 10 years the project has been underway, one of the primary phases, an aluminium smelter using electricity from the hydroelectric power station, was completed in February, 1982.

The Asahan project dates back the late 1960's when the government of Indonesia established the Asahan Committee and started out on the development of hydroelectric power as a basis for the development of the country's heavy industry. The Committee asked Nippon Koei Co., Ltd. to carry out a comprehensive research survey of the area for that purpose.

At the same time, Japanese aluminium companies were seeking ways to obtain electric power more economically with which to cope with the ever increasing demand for aluminium. As a result, three aluminium companies (Sumitomo Chemical Co., Ltd., Nippon Light Metal Co., Ltd. and Showa Denko K.K.) jointly carried out the feasibility study and sent a study mission to Indonesia in August, 1970.

The government of Indonesia later requested the Japanese government to assist in the project, not only in the construction of an aluminium smelter, but also in the production of hydroelectric power.

As a result a request was made to the Tokyo Electric Power Corporation to provide technical assistance to the project and in response to such a request, the company conducted a feasibility study of the power station by sending out their own mission to Indonesia in December, 1971.

It was then that the Indonesian government and the Japanese aluminium companies, with Sumitomo Chemical Co., Ltd. acting as representative, entered into negotiations on how to progress with the entire project, and in July, 1975, it was agreed that financial assistance from the Japanese governmental agencies would be given. On July 7th of the same year, a consortium of investors (5 aluminium companies and 7 trading companies) and the government of Indonesia signed a general contract in Tokyo to start actual construction work.

2. MAJOR FACILITIES AND THEIR FINANCING

The hydroelectric power station consists of the Siguragura Power Station and the Tangga Power Station, with a combined total generating output of 503,000 kW.

The aluminium smelter has a capacity to produce 225,000 tons of primary aluminium ingot annually. The major facilities consists primarily of a reduction plant with 510 large reduction cells, an anode carbon plant to convert coke and hard pitch into anode and a casting plant to fix

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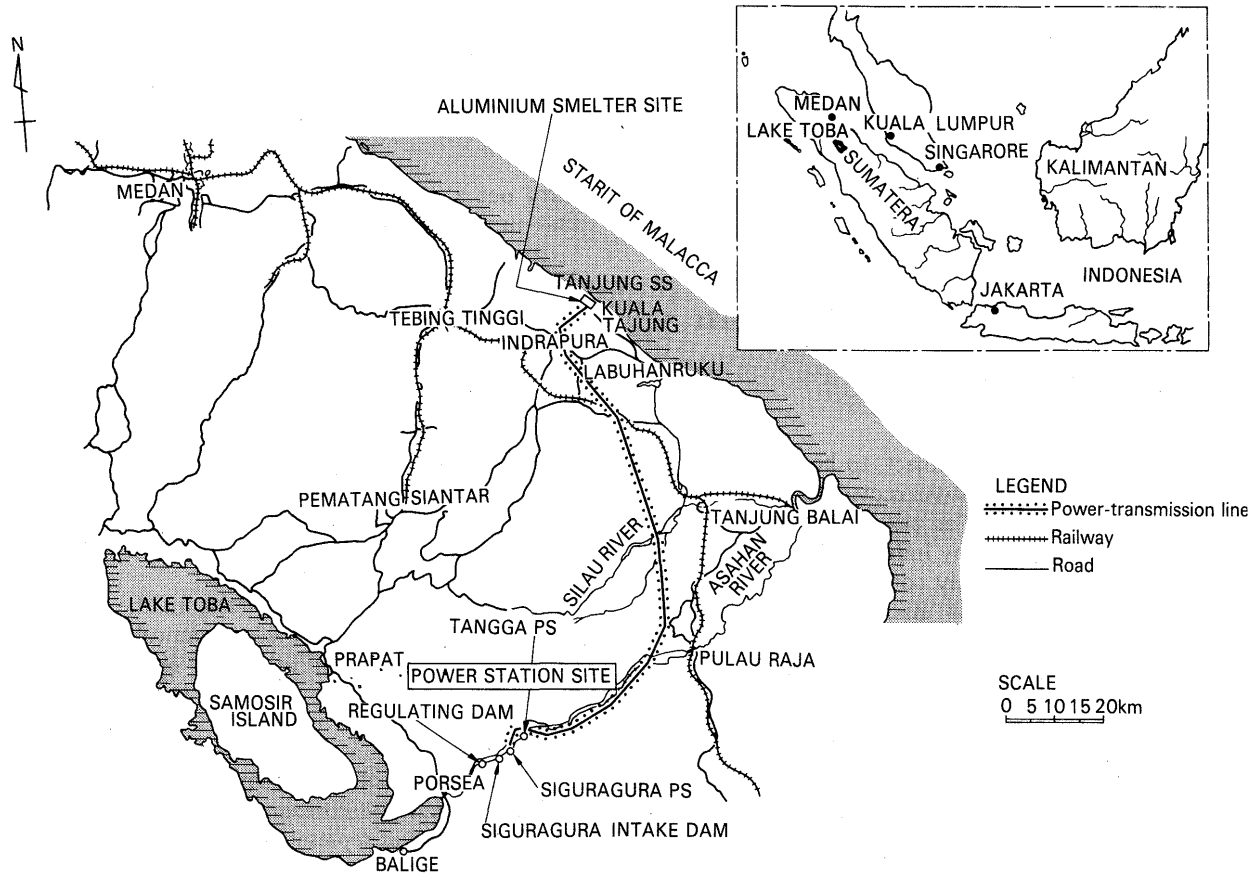
(Continued from page 20)

management of traditional ports receiving containers being developed. This course was held twice, the first in Africa and the other in Latin America in June and August, 1981, and utilizes a 1/50th scale model of a possible container storage area together with containers on the same scale.

The contents for this course are as follows:

1. General knowledge of the containers themselves; their structure, materials used, weak points, equipment adapted for handling containers, their transfer and storage. General knowledge of container ships, on board handling and storage.
2. General knowledge of a port, its organization, operational areas and storage areas. Different movements, entry, delivery, unstuffing and stuffing. Filling the forms to follow up the different phases of the operation.
3. Inventory of the containers stored in the storage areas.
4. Combined operations of the reception of 20 and 40 feet containers: Simultaneous operations of reception, delivery, loading on board, unloading expeditions by rail and road, necessary operational movements in the storage area and corresponding operations on the forms mentioned in '2'.
5. Operations of the localization of a container, classification of containers (previously to a ship operation for example).
6. Control of the time spent by a container in the port area.
7. Ports statistics and performance indicators.
8. Tariff rules, and economic policy.
9. Health and safety measures for dock workers in the case of the handling of containers.

Fig. 1 General Plan of the Asahan Project



molten aluminium into ingot.

Also, as ancillary facilities to the aluminium smelter, the follwing were constructed:

- An access road with a total length of 16 km and a width of 8 m
- A port capable of handling vessels up to 25,000 tons
- A town providing housing for 1,340 families with public facilities such as a school, hospital, mosque, church, etc.

The funds needed for the completion of the project were as follows:

123 billion yen for the hydroelectric power station
224 billion yen for the aluminium smelter
48 billion yen for the ancillary facilities to the aluminium smelter
16 billion yen for the operation's fund

411 billion yen in total

3. THE WORK IN PROGRESS

1) The Power Station

As of today, two out of the three dams, namely a regulating dam and Siguragura intake dam have already been completed, one in February and the other in October, 1981 respectively. The third one, the Tangga intake dam, has about 70 per cent of the concrete placing already completed.

At the Siguragura Station, one of the two power stations, which is located upriver, as well as two of the four generators have been in operation since January, 1982. The construction of other two generators is still in progress.

The power transmission line connecting the power station and the aluminium smelter which is about 120 km long has been in use since the completion of the construction work in October, 1981.

2) The Aluminium Smelter

Work on the aluminium smelter has nearly completed its first phase of construction, and from February 1982, production commenced of primary aluminium, using electricity transmitted from the power station.

The second and third phases of the construction work are still in progress and about 80 per cent of the total work has now been completed.

As of April 1982, 42 reduction cells have been in operation and it is scheduled that all of the 510 cells will be in operation by 1984.

4. CONSTRUCTION OF THE PORT

1) Selection of the Port Site

For the selection of the site, a series of surveys were carried out, along the coastline of the Straits of Malacca during 1970.

The main factors taken into consideration in selecting the site were:

- A 2,000,000 m^2 area of land space should be secured for the construction of plant and factories.
- A favorable site for the construction of a port and its facilities.
- A location near to the power station.

The site finally selected is located about 110 km south east of Medan, the capital city of North Sumatra and is for about 120 km from the power station.

The general location of the site chosen for the port's construction can hardly be said to be ideal as it faces the

Straits of Malacca and the water depth close to the coastline is less than ten metres. However, the site chosen does represent the shortest distance between the coastline and the point where the water depth is greater than 10 metres. The ten metre boundary runs more or less parallel with the coastline where the factories are located.

One of the most difficult problems has been that of the low spring tide which falls to some 600 metres from the shoreline. Also, 2.5 km east of the site, lies the estuary of the River Indrapura which carries considerable amounts of sediment into the sea. What is now feared is that the accumulated sedimentation will lead to littoral drift in the direction of the port site.

In conclusion, the following points were seriously considered before work on the project was undertaken.

a) How to plan the layout, scale, work and time schedule for the construction of the various port facilities which should meet with the schedule for unloading of the relevant construction material and machinery to be imported, along with the development of a construction schedule for the aluminium smelter plant and hydro-electric power station.
b) How to overcome the problems of a low spring tide which exposes a significant area of the sea bottom, comprising soft clay.
c) Effect of sedimentation and sand drift.
d) Effect on natural surroundings

2) Investigation of the Project Site

As well as the various surveys conducted on the site, further surveys including the investigation of soundings, a hydrographic and topographical survey, were carried out with particular attention to the following points.

a) The mapping out of fine charts in order to plan the layout of the berth, anchorage area, etc. in the port area and for the approach channel to the area.
b) The analysis of the soft sea bottom and its thickness, to ensure the safety of the port facilities. Also an investigation as to why the sea bottom is so soft and the effect of tidal currents.
c) Investigation into the state of the geological features of the land where the relevant infrastructures of the various port facilities are to be constructed.

3) Basic Planning

The planning of the port covered primarily the construction of two berths (A and B) to be used once the aluminium smelter is in operation. At the same time a third berth (C) was planned for the unloading of construction material and heavy machinery for use during the building period.

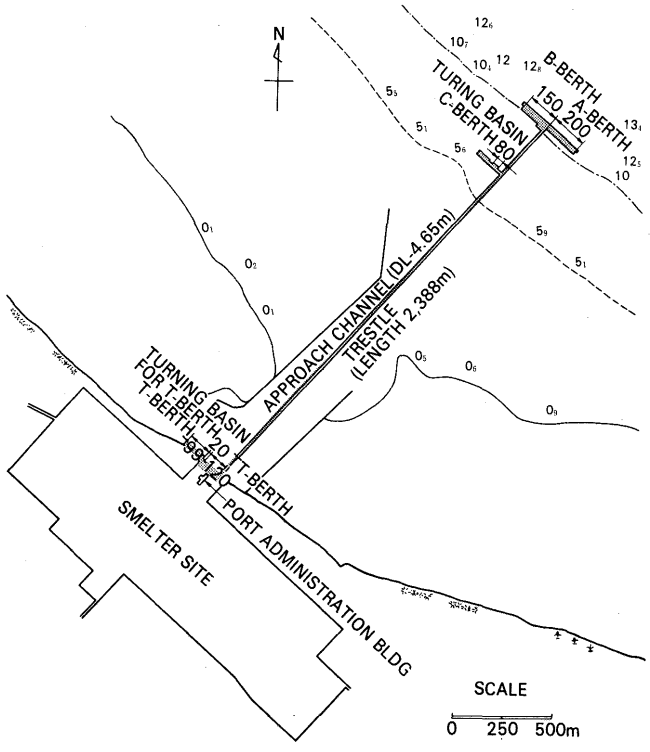
The port was originally planned for exclusive use by the aluminium smelter but at the request of the Indonesian government it was later changed to serve in the general development of the region.

To meet such requirements 'C' berth which was originally intended to handle construction material and machinary, has been made available for general use after construction work is completed.

The following points were taken into consideration in designing the berths that would handle material and machinary for the purpose mentioned above.

1. The construction schedule should meet the schedule for the unloading of the relevant construction material and machinary to be imported.

Fig. 2 Kuala Tanjung Industrial Port



2. The berths should be capable of handling various kinds and tonnage of cargoes.
3. The berths should be able to handle concrete aggregate efficiently.
4. The berths should be able to unload cargoes up to 200 tons a piece.
5. The berths should be able to handle vessels up of 1,000–3,000 DWT as soon as is practically possible.

The scale of the berths

Name	To be used for:	For vessels as big as:	Date of completion
A Berth	Unloading raw material	25,000 DWT	End Dec. '80
B Berth	Loading products and unloading general cargoes	16,000 DWT	End Apr. '81
C Berth	Public berth (unloading construction material and machinery during the construction period)	1,000 DWT	End June '81
T Berth	Loading construction material and machinery as a temporary berth	500 DWT×3	End June '79
T.T. Berth	Temporary Berth to be constructed prior to that of 'T' Berth	500 DWT×1	End Feb. '79

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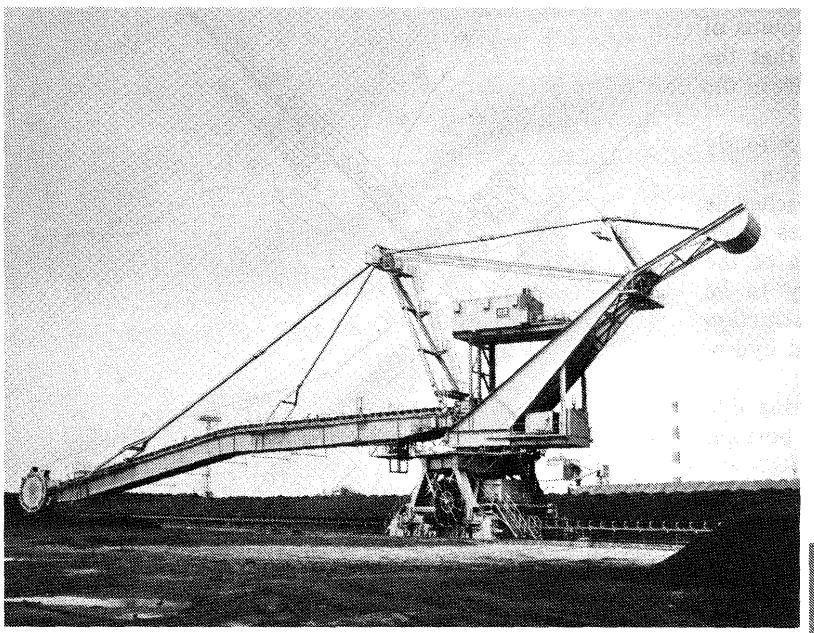

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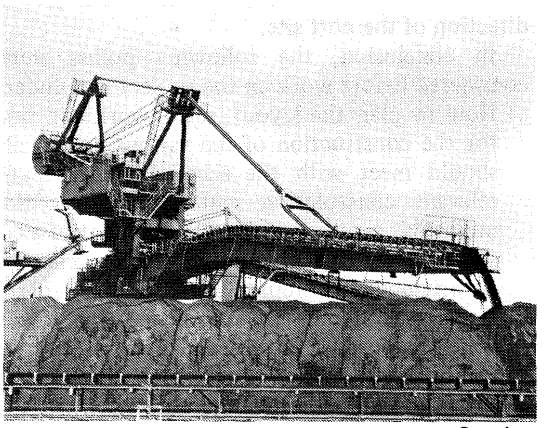

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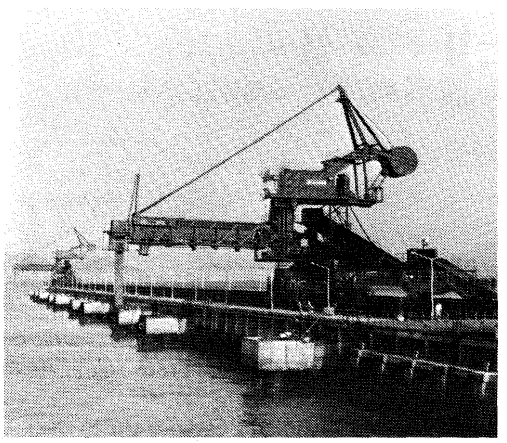

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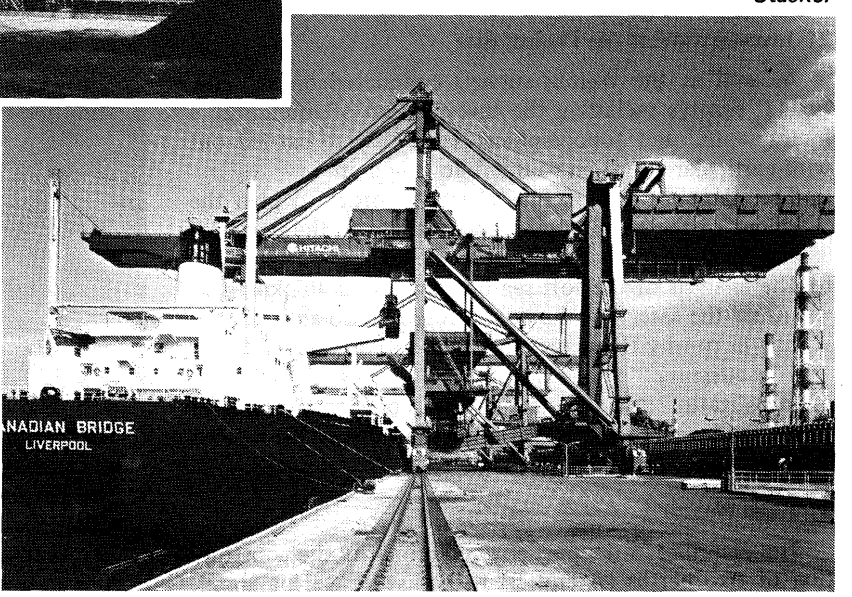

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Port of Copenhagen

(Extracts from Annual Report 1980, Port of Copenhagen Authority)

General review

The Port of Copenhagen Authority's net result for 1980 amounted to some D.Kr. 3.2 million.

The final group results, in respect of the Port of Copenhagen Authority and Copenhagen's Free Port and Stevedoring Company A/S, showed an aggregate deficit of some D.Kr. 7.1 million. Following a difficult first year for Copenhagen's Free Port and Stevedoring Company A/S, hereafter referred to by its Danish initials, KFS, there is now, however, an indication of a certain upward trend.

KFS was founded on 1 July 1979, via a merger af Copenhagen's Free Port Co. Ltd., Bil-Færge Terminalen A/S (Car Ferry Terminal Ltd.) and Holger Jørgensen A/S, to form Copenhagen's Free Port and Stevedoring Company A/S, which is a wholly owned subsidiary of the Port of Copenhagen Authority.

As indicated above, the Port of Copenhagen Authority's result for 1980 amounts to some D.Kr. 3.2 mill, as compared with some D.Kr. 7.5 mill in the 1979 accounts.

The result before interest etc. shows a decline of some D.Kr. 1 mill as compared with 1979, of which figure some D.Kr. 0.8 mill derives from surplus depreciation. Net interest produced some D.Kr. 3.3 mill less income than in 1979, and represents the real source of the worsened result.

The Port's investments in harbour projects etc. in 1980 amount to some D.Kr. 21.7 mill, as compared with D.Kr. 19.1 mill in 1979 and some D.Kr. 17.1 mill in 1978.

The group's total net capital now amounts to D.Kr. 190 mill, as against D.Kr. 231 mill in 1979. The reduction in net capital is mainly attributable to an increase of premium reserves for the pension fund and for the benefit fund. With respect to the acturial statements at the end of 1979, the alterations amount to a total of some D.Kr. 32 mill. To this must be added the negative capital development for KFS.

The estimate of the investment in the subsidiary KFS has been assessed on the basis of the intrinsic value, so that the net capital in the Port of Copenhagen Authority and the Port of Copenhagen Authority Group, respectively, is identical.

Volume of cargo — cargo dues

In 1980 cargo turnover—over the quayside—amounted to 9 218 167 tonnes, representing a decline of only 4.2% or 407 384 tonnes as compared with 1979 figures. Foreign cargo turnover showed a decline, both in imports and exports, with a fall in imports of 179 377 tonnes or 3%, and in exports of 3 455, tonnes or 0.3%.

Domestic ingoing cargo turnover fell by 297 329 tonnes, corresponding to 14.2%, while domestic outgoing turnover rose by 72 777 tonnes or 15.8%. With respect to cargo liable to levies, there was a decline of 555 489 tonnes, from 7 248 712 tonnes in 1979 to 6 693 223 in 1980, a fall of 7.7%.

The Port Authority had an income of D.Kr. 21 703 947 in cargo dues, representing an increase of D.Kr. 1 211 315 or 5.9%, deriving from a full year's effect in 1980 of the increase in rates introduced as from 1 June 1979—an increase of 15.8%—and from an increase in the rates imposed on fuels and petrol, of 10%, introduced as from 1 March 1980.

Container turnover

With a 1980 turnover of 61 665 TEUS the Port set a record for containers handled at the quayside. This represented an increase of 9 855 TEUS or 19% as compared with 1979. Incoming containers rose by 3 363 TEUS or 12.4%, while outgoing containers rose by 6 492 TEUS, corresponding to 26.4%.

An increase was also noted for trailers, for which the total turnover rose to 6 178. The increase amounted to 1 859 trailers or 43%, allocated to 1 179 incoming trailers or 69.2%, and 680 outgoing trailers or 26%.

In the tables all containers have been converted to TEUS—20' equivalent units.

Ships — ships' dues

17 152 vessels liable to dues entered the Port in 1980, an increase of 542 on 1979 figures. Despite the increase in the number of vessels, the net registered tonnage fell by 367 686 t.

The total dues levied on these vessels amounted to D.Kr. 9 908 095, representing an increase of D.Kr. 1 099 421 or 12.5%, attributable to the effect for a whole year of the

(Continued from page 23)

4) Port Operation

One of the most significant differences that exists between the port of Kuala Tanjung and other ports, is in the construction of a 'trestle', 2.5 km long and 7 m wide, intended both for INALUM (Indonesia Asahan Aluminium) as well as general public use.

The local governmental authorities and agricultural bodies in the area have already worked on the planning to export palm oil or agricultural products from the port and are preparing for the future when congestion might be a problem. It is felt to be necessary, therefore, to prepare detailed agreements with the Ministry of the Sea Communications, in order to avoid any confusion between the government and INALUM regarding the administration of 'C' Berth, the trestle and the order and timing of berthing and un-berthing of vessels.

increase in rates introduced as from 1 June 1979—an average increase of some 18%—and a further increase of some 20% introduced as from 1 March 1980.

Profit and loss account for the year 1980

	1980		1979	
	D.Kr.		D.Kr.	
Income from operations, excluding interest:				
Cargo dues		21 703 947		20 492 632
Ships' dues		9 908 095		8 808 674
Rent from properties		36 682 015		31 501 047
Rent from equipment etc		2 491 249		2 163 493
Other income		8 129 095		5 952 733
		78 914 401		68 918 579
Operating expenses:		65 619 370		55 410 423
Profit before depreciation and interest etc.		13 295 031		13 508 156
Depreciations:		9 930 518		9 171 090
Profit before interest etc.		3 364 513		4 337 066
Interest earnings:				
Bonds, bank, saving bank, P.O. account	10 966 788		11 367 676	
Interest on repayments, capital investment	608 592		596 926	
	11 575 380		11 964 602	
Interest paid:	11 415 155		8 503 479	
Net interest		160 225		3 461 123
Profit before adjustments		3 524 738		7 798 189
Final adjustments:				
Allocation to pension fund etc.	0		0	
Allocation to icebreaking fund	300 000		300 000	
Depreciation of loss in market value of bonds loan	33 000	333 000	33 000	333 000
		3 191 738		7 465 189
The result yielded by the Copenhagen Free Port- & Stevedoring Company Ltd., the 100% subsidiary of the Port of Copenhagen Authority, is omitted from the above statement of accounts.				
As per 30 June 1980 the K.F.S. has submitted the company's first annual stetement of accounts for the period 1 July 1979–30 June 1980, detailing a net deficit of		÷13 687 687		
The aggregate result of the K.F.S. for the period 1 July 1980–31 December 1980 amounts to		÷3 335 000		
		÷17 022 687		
As per 31 December 1979 the Port of Copenhagen Authority assigned to reserve a total of		6 751 000		
Negative operating result derived from K.F.S. in 1980		÷10 271 687		

Balance sheet at December 31, 1980

Liabilities

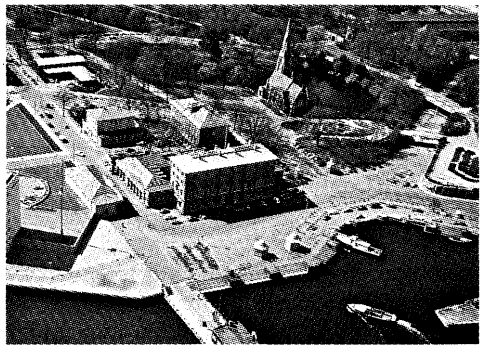
		1980	1979
		D.Kr.	D.Kr.
Short-term debts			
Debts to suppliers	12 412 937		11 377 574
Other amounts on demand	7 787 825		4 702 212
Cash credit	6 751 435		5 231 237
		26 952 197	21 311 023
Long-term debts			
Debenture loans etc.	69 546 764		66 255 061
Mortgage debts	2 801 022		6 023 708
Pension fund	101 479 038		69 414 958
Relief fund	1 216 555		504 241
		175 043 379	142 197 968
		201 995 576	163 508 991
Net capital			
Icebreaking fund	5 035 000		4 735 000
Quotation value adjustment fund	0		0
Reserve fund	184 945 543		226 263 612
		189 980 543	230 998 612
		391 976 119	394 507 603

Assets

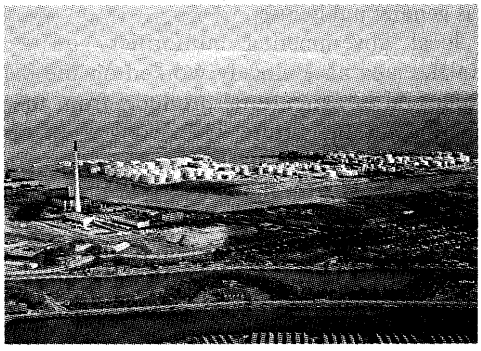
		1980	1979
		D.Kr.	D.Kr.
Liquid assets			
Cash in hand, assets held in banks, savings banks,			
P.O. giro account	5 610 032		13 708 776
Bonds	27 258 768		29 273 688
Outstanding accounts re. port operations	15 105 611		13 992 556
Copenhagen Free Port- & Stevedoring Company	12 229 468		3 154 988
Other outstanding accounts	4 251 915		6 121 439
Stocks	1 127 640		1 113 845
		65 583 434	67 365 292
Fixed assets			
Shares in the Copenhagen Free Port- & Stevedoring Company	1		8 908 099
Other shares	170 000		135 000
Loans to the Copenhagen Free Port- & Stevedoring Company	24 564 080		27 037 813
Other outstanding accounts	10 114 566		11 324 534
Port establishments	27 937 000		25 475 000
Properties	203 171 651		201 002 651
Work-sites, workshops and equipment	5 693 000		5 786 000
Capital invested in projects initiated (as yet uncompleted)	54 742 387		47 473 214
		326 392 685	327 142 311
		391 976 119	394 507 603

Gurantee liabilities:
D.Kr. 25 831 962

Nordre Toldbod – Port of Copenhagen



Amager power station and the Oil Harbour



The Future of the Port of Penang

(Extracts from "Twenty Five Years, The Port of Penang")

Over nearly two centuries, the trade of Penang has fluctuated considerably as economic and political patterns have changed. Today, there are new vistas for the planners and new opportunities for the port as a national port. The one-time entreport now seeks to serve a wider hinterland of increasing economic growth. In addition to industrialization in the Island and in Butterworth, the port's hinterland extends north to the border of Thailand and south to Perak. The completion of the East/West Highway, linking Penang with the East Coast States of Kelantan and Trengganu, will serve to tap new areas as development takes place in these States. From them rubber, timber and palm oil can be transported along the Highway's much shorter route to a modern ocean port.

For Perlis, Kedah and Perak, the port has long been an outlet for agricultural produce—rubber, latex, vegetable oils, timber and also iron and ilmenite ores. Penang has also become since World War II principal port for the export of refined tin, of which Malaysia is the world's largest producer. Both Malaysia's tin smelters are in the State of Penang.

Industrial development in the Island and at Butterworth, ranging from electronics to the production of steel, have made a significant contribution to the economy of the State and contributed to the need for more and better facilities in the port. Additionally, as has been noted, there has been industrial development in Kedah and Perak. Major imports have been manufactured goods, building materials, petroleum products, machinery for mines and estates and, more recently, for the new projects established under Malaysia's programme of industrialization.

When the Commission was established in 1956, the port handled approximately 2 million tonnes of cargo. In 1980, the volume had increased to 6.1 million tonnes and by 1986, the total is expected to reach 9.5 million and 11.4 million tonnes in 1990. Container handling statistics also show the high level of growth—an increase over five years of more than four times in TEUs to 44,637 in 1980, with total tonnage increasing from 109,240 tonnes in 1975 to 653,069 tonnes in 1980. In 1980, container traffic showed an increase of 26.8 percent over the previous year and this represented 22 percent of the total tonnage handled by the Butterworth Wharves.

The Bulk Cargo Terminal, officially opened on the occasion of the Commission's Silver Jubilee Celebrations, is an example of one of the objectives of the Penang Port Commission to serve the hinterland with the proper modern facilities—thus contributing to the economy of the State of Penang and Malaysia in general. Today the Bulk Cargo Terminal handles dry bulk cargo such as fertilisers, coke and iron-ore, and liquid bulk cargo such as chemicals and fuel oil. In various stages of completion at the Bulk Cargo Terminal, are godowns and an extension of the conveyor belt system to improve the facility for handling fertiliser and other types of cargo requiring covered storage.

The completion of the Bulk Cargo Terminal in 1979, at a cost of $46 million is also an example of the Penang Port Commissions's achievement in implementing all its planned projects within the time frame of the Third Malaysia Plan.

A Master Plan for the development of the Port of Penang up to the end of this century has been drawn up to meet the requirements of the trade and the changes in shipping technology. The eighties will be a period of major changes and new development in the Port. Included in the Fourth Malaysia Plan, 1981-1985 are a number of projects which will transform Penang into a major container and bulk cargo port in the region. The important projects are the North Butterworth Container Terminal, the North Channel Dredging and the expansion of the Bulk Cargo Terminal at Prai. The huge investments in these projects are indicative of the Government's confidence in the future growth of the Port of Penang.

The North Butterworth Container Terminal will increase the port's ability to handle containers from the present volume of 60,000 TEUs a year to 160,000 TEUs. This ambitious project will involve the reclamation of 100 hectares of land from the sea and the construction of a terminal with two container berths and related container equipment and other facilities.

Related to this container project is the plan to deepen the approaches to the Northern Channel from the depth of 7.4 to 12 metres to accommodate larger ships. This North Channel Dredging project is expected to be completed by mid-1983. Although the deepened channel is meant mainly for container ships, large parcel tankers and other large conventional vessels with deeper drafts will benefit immediately when the deepened channel is ready. These vessels will be able to come into port at any state of the tide instead of waiting for favourable tide and conditions.

The expansion of the Bulk Cargo Terminal at Prai is to provide facilities for the increased volume of bulk cargo expected to move through the port. The import of fuel oil and other bulk cargo, both dry and liquid, is projected to increase with the accelerated pace of industrialization in the northern Peninsular region. The expansion of the Terminal will include an additional berth with a dual berthing face for ships and another conveyor belt to provide separate belt conveyor systems for edible and non-edible commodities.

The Port of Penang will continue to play an essential role in the promotion of trade and the industrial development of the hinterland. The availability of modern and efficient port facilities has contributed to the establishment of industries in Penang and the neighbouring states and will still be an important incentive to new industries seeking location. In return, the established industries in specially developed industrial estates have also generated cargo traffic for the Port.

A significant spin-off from the growth of the Port is the increase in the employment opportunities provided, both directly and indirectly. Today the Penang Port Commission has a work force of just over 3,000 employees compared to 1,700 in 1976. It is the biggest single employer in the State of Penang.

In addition, approximately 3,000 are engaged in port related work, such as cargo handling, lighterage, launches and ancillary services. The organised stevedores and cargo handlers employed by labour contractors and registered with the Port Labour Board have provided not only the skilled manpower but the required degree of industrial

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Puerto Rico Ports

(Extracts from Puerto Rico Ports Authority Annual Report 1979/80)

1. Executive Director's review (extract)

Going over a brief summary of the Ports Authority achievements during the current administration throughout fiscal years 1976-77 through 1979-80, we must emphasize that at the close of fiscal year 1976 this agency experienced a net loss of $3.2 million along with assets in the amount of $236.2 million. Faced with this challenge, administrative measures were taken aimed at reducing operating costs and attaining a better employee productivity.

These measures proved fruitful quickly. By the end of fiscal year 1978, the Authority experienced a net income of $1.1 million, an increase of 134.2 percent over 1976. Total revenues for fiscal year 1978 were $35.3 million and assets were $247.5 million. These figures, when compared with total revenues of $28.8 million and assets of $236.2 million for fiscal 1976, show gains of 22.6 and 4.9 percent, respectively.

An upward trend continued and at the close of fiscal 1980, which was a highly productive period, total revenues were $44.5 million. The gain is 54.5 percent over the revenues in 1976.

The net income for 1980 was $6.8 million, an increase of 312.5 percent with respect to the net income for 1976.

Assets of the Authority rose to $270.0 million, an increase of $14.3 million over assets in 1976.

During the period extending from 1976-77 through 1979-80, the Authority carried out capital improvement projects at a cost of $17.5 million. The breakdown of these improvements is: $4.7 million on the area of air transportation; $6.2 million for the maritime area; $5.7 million for projects underway and $0.9 for other activities.

Of these improvement costs, the Authority provided $2.0 million from its own resources applying to the aviation area; $4.0 million in the maritime area and $1.2 for other activities. Federal grants were $2.5 million for the area of air transportation and $2.2 million in the maritime area.

(Continued from page 27)

harmony necessary for the operation of a modern port.

In addition to the Commission's own ship repair yard at Bagan Dalam, which has been expanded and modernized, with more equipment delivered in 1981, there are two commercial shipyards which repair and build commercial, harbour and naval vessels including oil rig equipment.

With planning and implementation of additional facilities, the Port of Penang has been able to meet demands on it for additional services. There has never been any serious congestion and managment and staff relations continue to be cordial.

Penang had already entered the container era, the most dynamic change in the transportation of cargo in 2000 years. The North Butterworth terminal will carry the port a further stage along the road the Commission has taken to ensure efficient ship and freight handling. One indication of confidence in the future is shown by the preparation of a Master Plan to provide a blueprint for development up to the year 2000.

The Commonwealth Legislature appropriated $600,000 as a supplement to these funds.

Maritime

Additional aspects affecting the activities and economy of the Authority comprise the handling of maritime cargo through the agency's facilities at the Port of San Juan and operation of vessels at the different ports of Puerto Rico.

The volume of cargo during fiscal year 1980 reached 5.3 million short tons, an increase of 26.2 percent when compared with the figure 4.2 million short tons handled in fiscal 1976.

A total of 9,106 vessels docked at the various ports out on the island during fiscal 1980, which is a gain of 17.8 percent from the 7,731 ships in fiscal 1976.

2. Balance sheets

June 30, 1980 and 1979

Assets	1980	1979
Property and Equipment		
Land	$ 66,005,798	$ 65,058,112
Buildings, piers, improvements and other structures	127,125,850	125,110,083
Roads and parking areas	32,270,792	31,255,822
Machinery, furniture and equipment	7,526,286	7,123,142
Automobiles, ferries and service vehicles	6,183,212	5,535,787
Construction work in progress	5,722,418	3,534,738
	244,834,356	237,617,684
Less accumulated depreciation and amortization	62,931,802	56,818,936
Net property and equipment	181,902,554	180,798,748
Restricted Assets		
Sinking fund:		
Bond Service Account	6,126,860	5,708,250
Reserve Account	7,916,823	7,874,062
Employees' Retirement System Fund	371,461	448,082
Total restricted assets	14,415,144	14,030,394
Current Assets:		
Current funds:		
General Operating funds	2,918,759	5,135,975
Revenue, Construction and Ferry Assistance funds	6,172,321	4,324,514
Total current funds	9,091,080	9,460,489
Accounts receivable, net of allowance for doubtful receivables of $1,475,110 ($1,420,326 in 1979)	7,845,097	6,281,581
Prepayments	3,034,924	1,534,948
Total current assets	19,971,101	17,277,018
Isla Grande operations	27,722,845	22,273,116
Other Assets, at cost:		
Noncurrent funds–Renewal and Replacement, Judicial, Improvement, Maintenance and General Reserve funds	24,122,987	18,380,005
Deferred charges	1,869,301	1,497,902
	25,992,288	19,877,907
	$270,003,932	$254,257,183

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Fraser Port

(Extracts from Statistics and Financial Statement 1980, Fraser River Harbour Commission)

1. Port Manager's report

1980 has been a year of progress and change for Fraser Port. We are in the process of saying goodbye to a fine friend, Pacific Coast Terminals Company, Ltd., which will make way for the downtown redevelopment of New Westminster. While the importing and exporting of goods over docks in New Westminster will cease, the activity will continue at other locations in Fraser Port adjacent to the City, thus the economic benefit of international deep-sea trade will continue to the City as well as the other eight Municipalities that border Fraser Port. Modern facilities, capable of handling the most sophisticated of cargoes, have been constructed by the Commission and are being operated successfully. There has been considerable investment from the private sector as well, and on the river today you can witness this growth by observing the specialty berths that have been constructed.

Fraser Port is also looking to the future and is gradually developing 665 acres in Richmond, which when completed, will not only be the site of modern terminals, but also the site of an industrial park for water oriented industry.

Fraser Port and particularly the Fraser River Harbour Commission, has started a review of its economic importance to the area. This study, which is being done under the guidance of the M.B.A. program at the University of British Columbia, will be available later this year.

Fraser Port is proud of the role it has played in the development of the community, and accordingly has engaged Douglas & Kwantlen Colleges to prepare an historical review of events leading to the development of major port facilities servicing international trade. It is anticipated that a history will be available early in 1982. As it has had a great past, so will it have a great future.

R.C. Pearce, Port Manager

2. Balance sheet

as at December 31, 1980

Assets

	1980	1979
Current assets		
Cash	$ 1,462,217	$ 458,553
Accounts receivable	918,219	548,637
Prepaid expenses	19,505	19,428
	2,399,941	1,026,618
Fixed assets	20,373,962	20,627,766
	$22,773,903	$21,654,384

Liabilities

Current liabilities		
Accounts payable and accrued liabilities	$ 321,353	$ 188,317

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Capital and Liabilities

Capital:	1980	1979
Contributed capital:		
Commonwealth of Puerto Rico	$ 49,167,628	$ 48,867,628
Federal Government	32,008,060	29,380,740
Municipalities	608,942	608,942
Others	3,169,126	3,139,124
Total contributed capital	84,953,756	81,996,434
Retained earnings	53,767,915	47,465,247
Total capital	138,721,671	129,461,681
Bonds payable, excluding current portion	91,080,000	92,785,000
Less unamortized debt discount	1,031,980	1,104,329
Net bonds payable	90,048,020	91,680,671
Other long-term debt, excluding current portion	881,900	–
Total long-term debt	90,929,920	91,680,671
Isla Grande operations	27,722,845	22,273,116
Liabilities payable from Restricted Assets:		
Current portion of bonds payable	1,705,000	1,640,000
Interest on bonds	2,808,498	2,849,277
Employees' Retirement System Fund	371,461	448,082
Total liabilities payable from restricted assets	4,884,959	4,937,359
Current Liabilities:		
Current portion of other long-term debt	167,938	–
Accounts payable and accrued expenses	6,888,182	5,605,394
Amounts retained from contractors	688,417	298,962
Total current liabilities	7,744,537	5,904,356
Commitments and contingent liabilities	$270,003,932	$254,257,183

3. Statements of revenues and expenses

Years ended June 30, 1980 and 1979

Revenues:	1980	1979
Maritime operations:		
Wharfage, dockage and harbor dues	$12,311,988	$11,066,686
Equipment and property rentals	2,978,997	2,677,889
Other	4,769,193	4,614
Airport operations:		
Landing fees	5,475,737	4,962,593
Space rentals	10,114,054	9,390,157
Other	3,060,745	2,192,761
Fuel flowage fees	2,162,711	2,626,420
Total revenues	40,873,425	37,531,247
Expenses:		
(Depreciation and amortization)	(6,792,519)	(6,775,297)
Total expenses	31,328,190	28,160,541
Net operating revenues	9,545,235	9,370,706
Other Revenues/ (deductions):		
Interest on funds invested and other	3,572,582	2,502,102
Interest and other financing expenses	(5,614,165)	(5,698,555)
Litigation	(1,200,987)	(1,481,185)
	(3,242,567)	(4,677,638)
Net revenues	$ 6,302,668	$ 4,693,068

Port of Gladstone

(Extracts from Gladstone Harbor Board Annual Report 1980–81)

Chairman's report (extract)

Decisions taken by the Gladstone Harbor Board during the year ended 30th June, 1981, heralded a new era for the Port of Gladstone.

Works

Paramount amongst those decisions was the move by the Board to proceed with a major dredging programme which will result in the Port being able to accommodate vessels up to 17 metres draft.

The work is now well under way with final completion date being December, 1982.

One other project which will provide further impetus to trade development through the Port is the rapid expansion of the Clinton Coal Facility.

The original two stockpile facility is currently being expanded by a further three stockpiles. Even further expansion is likely in 1982.

At year's end, construction was nearing completion on two major wharf installations. The Smelter Wharf will handle products for the Gladstone Aluminium Smelter Project and the Clinker Wharf will service the works being established by Queensland Cement and Lime Company Limited.

One now project commenced during the year was the provision of a Marina complex to cater for the boating and general public. This massive project will be constructed over a period of years.

(Continued from page 29)

Revenue received in advance	549,757	411,022
Principal due within one year on long term debt	127,823	493,750
	998,933	1,093,089
Long Term Debt	5,010,693	6,863,516
Equity		
Commissioner's equity	16,100,640	13,034,142
Government of Canada– contributions to harbour developments	663,637	663,637
	16,764,277	13,697,779
	$22,773,903	$21,654,384

3. Statement of income

for the year ended December 31, 1980

	1980	1979
Revenue	$ 5,791,305	$ 5,257,730
Expenses		
Operating, Maintenance and Administration Costs	853,947	646,340
Depreciation	1,005,185	1,022,888
Interest	865,675	1,151,312
	2,724,807	2,820,540
Net income	$ 3,066,498	$ 2,437,190

Among other works undertaken by the Board was the provision of a new Tug base to cater for the present and further Tug fleet in the Port.

Additional Port lands were provided through the Board's continuing reclamation programme. Further development of the Board's industrial estate was included in this programme.

The small boat harbor in Auckland Inlet was maintained, and some additional facilities were provided.

Expenditure on all capital works undertaken by the Board during the year totalled $30.1 million.

Trade and Shipping

Cargo handled at the Port during the year was an all time high with 17.8 million tonnes passing across the wharves. This represents a 4.07% increase over last year.

The record cargo was carried by 480 vessels of 12.9 million gross registered tonnes.

Except for 38,210 tonnes of general cargo and livestock, all cargoes were handled in bulk. Coal accounted for 47% of the total cargo throughput.

Products associated with the Bauxite Refinery operated by Queensland Alumina Limited represented 48% of the total throughput. Petroleum Products for the various oil terminals at Auckland Point have shown a steady increase over the years and this year reached a record 322,246 tonnes, a 10% increase over the previous year. Grain and Oil Seed exports amounted to 374,695 tonnes. These products were handled from the recently expanded grain terminal at Auckland Point.

Finance

The Board's finances remain in a sound position.

Harbour Dues collected amounted to $2,399,502, and Tonnage Rates were $461,764. The Board has aimed at keeping Port charges at a reasonable level. Increases made during the year were minor and generally only reflected changes in monetary values.

Loan Funds raised amounted to $1,562,750.

Exporters from the Clinton Coal Facility lodged capital for expansion by way of security deposits, as have the users of the wharves currently under construction.

Port Development

The Board commissioned a Port Simulation Study during the year, mainly centred round the future expansion and operation of the Clinton Coal Facility.

Following a study by a hydrographic review group, the Board also commissioned the Department of Harbours and Marine to set up a physical model of the Port. Whilst the model will provide valuable information on the whole Port, considerable interest will be shown in the area West of the Calliope River. It is in this area that the Board plans future major Port development.

A.W. O'Rourke
Chairman

(Continued on next page bottom)

Balance sheet

As at 30th June 1981

	1981 $	1980 $
Accumulated Funds		
Balance as at 1st July, 1980	20,960,336	
Transfer from Appropriate Account	6,910,294	
	27,870,630	20,960,336
Represented by:		
Current Assets		
Cash at Bank & investments	2,032,492	
Debtors	2,122,646	
Stores (At Average Cost)	670,994	
	4,826,132	3,969,072
Deduct:		
Current Liabilities		
Creditors	3,159,322	
Rent in Advance	183,609	
Provision for Long Service Leave	195,000	
Provision for Sick Leave	127,500	
Provision for Deferred Maintenance	650,000	
	4,315,431	1,510,922
WORKING CAPITAL	510,701	2,458,150
Add		
Electricity Extension Deposit	226,321	227,852
Fixed Assets		
Wharves & Cargo Handling Facilities	26,812,030	
Land & Buildings	13,582,214	
Smallcraft Facilities	225,314	
Admin. Building & Equipment	711,467	
Plant & Equipment	682,878	
Channels & Swing Basins	1,362,509	
Causeway & Bridge	787,610	
Work in Progress	33,908,391	
	78,081,413	50,154,702
	78,818,435	52,840,704
Deduct:		
Long Term Liabilities		
Security Deposits	43,524,005	
Loan Indebtedness		
Treasury Loans	1,237,560	
Inscribed Stock	4,364,060	
Debenture Loans	1,902,844	
	51,028,469	
Less:		
Sinking Fund	80,664	
	50,947,805	31,880,368
	27,870,630	20,960,336

Income & expenditure statement

For year ended 30th June, 1981

	1981 $	1980 $
Income		
Wharves & Cargo Handling Facilities		
Harbor Dues	2,399,502	
Cargo Handling Charges	6,451,445	
Tonnage Rates	461,764	
Rental	150,206	
Miscellaneous	129,468	
	9,592,385	5,092,996
Land & Buildings		
Rental	310,566	
Smallcraft Facilities		
Mooring and Berthing Fees	46,204	
	9,949,155	5,390,307
Deduct Direct Expenses		
Wharves & Cargo Handling Facilities		
Operation & Maintenance	3,019,086	
Depreciation	3,049,392	
	6,068,478	2,342,652
Land & Buildings		
Operation & Maintenance	87,407	
Depreciation	100,291	
	187,698	149,741
Smallcraft Facilities		
Operation & Maintenance	53,122	
Depreciation	13,145	
	66,267	61,246
	6,322,443	2,553,639
Gross Operating Surplus		
Deduct Indirect Expenses		
Administration	574,224	
Interest	552,483	
	1,126,707	869,228
Net Operating Surplus	2,500,005	1,967,440
Add Non-Operating Income		
Interest on Investment	497,750	
Sundry Income	108,564	
Profit on Sale of Fixed Assets	136,155	
	742,469	537,386
Surplus Transferred to Appropriation Account	$3,242,474	$2,504,826

Port of Brisbane

(Extracts from Port of Brisbane Authority Annual Report 1980–81)

Chairman's report (extract)

It is difficult to convey the degree of disappointment felt by all of the Authority's personnel in that the 1980/81 financial year came and went without the Fisherman Islands' port receiving even one container ship.

We began the period under review with buoyant hope and confidence. When, on November 15, 1980, the project was officially opened by the Premier (the Hon. J. Bjelke-Petersen) it seemed only a question of "a few weeks" before the ships would be steaming alongside the islands' wharves to discharge and load their cargoes at Australia's newest and most modern container terminal.

That the Authority and its staff organised, designed, financed and supervised the construction of a world class terminal in the remarkable time of only 3½ years at a cost of $45 million, is a fact of permanent, public record. Our congratulations to the numerous private contractors (many of them "locals") for their efficiency and expertise.

That extraneous considerations and circumstances, over which the Authority had no control or influence, should arise to deny the proper use of the islands' facilities,

brings credit to no one.

As recorded previously, the Authority has invested very heavily in the Fisherman Islands – not money from the "public purse", as some people still believe, but capital from its own resources, plus loan raisings in the open market place. These very considerable loans have to be serviced and further funds must be found for other port expansion and developmental projects.

Port Future

The Board's faith in the future of the Fisherman Islands is as firm as ever.

It is true that the Authority has had to give the container terminals a top priority classification in order to bring the area to an operational stage as quickly as possible; but meanwhile other projects have been receiving close attention.

Behind the scenes, a tremendous amount of lead-up work has been completed for a projected and significant lift in grain exports and also the establishment of a new export trade i.e. coal.

We can expect to see installations to service these trades being built on the Fisherman Islands in the near future.

The Board also is pleased to report that as at June 30, its negotiations with Bulkships (Seatainers) to become the operator of the islands' No. 2 terminal had reached a satisfactory stage. Positive news on that aspect is anticipated in the near future.

The Authority's short and long term policy is to maintain a port which is acceptable to the world's shipowners, and which has installations capable of handling the produce and manufactures from the vast region which it serves. This will be done with the maximum possible involvement of private enterprise port operational groups.

The days have long gone when a port could afford the "luxury" of proliferated development. In this era, a port needs control, management and co-ordination in order to survive and prosper. That's the Authority's job.

Cairncross

Cairncross Dockyard returned a much improved financial result for the year. The previous year's deficit of $193,000 was followed by an operating profit of about $303,000 for 1980/81. The improvement is directly attributable to a flow of dry docking business in excess of the anticipated number of ships.

However, if the late-year upsurge of industrial unrest and disputes continues into the new financial year, the chance of a repeat profitable performance in 1981/82 is very slim.

It would be as well for all parties to constantly remind themselves that the dockyard must operate in a reasonably profitable manner, The last thing anyone wants is to see this very important facility go the same say as at least one other major port installation – the Kangaroo Point shipyards.

Trade

Once again, we can report a satisfactory trading year.

A total of 9,520,000 tonnes of cargo was handled – and, although this result is 220,000 tonnes short of the record 1979/80 figure, it should be reviewed in the knowledge that grain exports were down to 477,000 tonnes compared to the record 1,768,000 tonnes of the previous year.

The "loss" was directly attributable to a poor harvest following drought conditions over most of the grain belt.

However, the forecasts for the 1981/82 harvest are encouraging and if these prove to be accurate, there seems little doubt that next financial year will see the port "break" the 10 million tonnes barrier for the first time.

In addition, the prospects for further increases in our fledgling coal export trade are very good. The Authority also is conscious of the fact that sugar could be handled efficiently and is endeavouring to encourage the use of the port's facilities in this area.

A fact of life is that bacause Brisbane has not – up until now anyway – been able to offer shipowners the facilities for the larger cargo ships and because of centralisation policies which are being pursued by the shipowners, our port is losing a substantial tonnage of cargo each year to Sydney, mainly in the European trade.

The fact that there is an artificial border drawn on the 30th parallel really means nothing in the national interest.

It is the interest of the people of Australia as a whole with which we must be concerned.

Centralisation has its economic advantages, but it must be flexible. It is vitally necessary that artificial borders be disregarded when we are thinking of what is the right place for our commercial operations and future development.

The Authority is fully aware of the vital importance of a standard gauge rail link to the future expansion and development of port facilities and to the Fisherman Islands container terminals. We know what such a link would mean to Queensland as a whole and we shall continue our efforts to achieve this.

In these days of energy considerations, when there are demands on all of us to conserve fossil fuels in particular, it is not beyond the realms of possibility that the Japanese trade could terminate in Brisbane. With a standard gauge to the Port of Brisbane, trains could service the Eastern sea board very efficiently and thus considerably increase trade through the port.

The Authority is a unique resource, provides vital services to the community of Brisbane and its hinterland, and is the source of livelihood for a substantial number of people.

It exists in a dynamic environment with continuing changes in the patterns of trade, transport cargo handling technology and ship design. It will continue to require development as far ahead as it is possible to see.

The management of the port is a significant and complex task, currently shared by a number of sources of authority and/or influence, and consequently, lacking in co-ordination.

The task is so significant and complex that it should not be left to chance. The Authority's existence is to ensure that this does not happen.

We have a challenge to search for and find mechanisms for co-ordinating the development and operation of the port in the best interests of stake-holders in the port and the community served by the port. This we can do.

The Hon. A.M. Hodges
Chairman

Consolidated statement of income and expenditure

For the year ended June 30, 1981

	1981 $	1980 $
Income		
Harbor, dock, wharf, river dues and mooring fees	9,937,390	9,875,941
Dock services	4,388,483	2,650,506
Rental	1,256,753	436,511
Interest	341,918	650,996
Dredging services	3,654,105	2,008,352
Maintenance, construction and other services	275,953	484,639
Sale of fixed assets – net	5,878	29,537
Miscellaneous	103,732	85,903
TOTAL INCOME	19,964,212	16,222,385
Expenditure		
Direct labour and expense	7,957,901	6,839,298
Salaries	2,228,828	1,766,355
Indirect labour and expenses	4,009,593	3,637,190
Interest	2,297,213	1,015,119
Depreciation	2,563,108	1,108,936
Capitalised cost of internal development work	(512,908)	(827,472)
Doubtful debts	–	3,002
TOTAL EXPENDITURE	18,543,735	13,542,428
Net income before extraordinary item and appropriates	1,420,477	2,679,957
EXTRAORDINARY ITEMS	57,400	(487,009)
Transfer to Capital Work Reserve	(1,000,000)	(2,000,000)
SURPLUS FOR THE YEAR	477,877	192,948
Accumulated funds at beginning of year	19,353,976	18,861,028
Grants for capital works	–	300,000
ACCUMULATED FUNDS AT YEAR END	19,831,853	19,353,976

Consolidated balance sheet

As at June 30, 1981

	1981 $	1980 $
Current Assets		
Cash on hand and at bank	65,084	283,969
Debtors	1,303,644	1,052,361
Investments	1,200,000	5,419,546
Inventory	114,998	126,811
Work in progress	1,449,246	1,070,826
Other debtors and prepayments	189,603	220,672
TOTAL CURRENT ASSETS	4,322,575	8,174,185
Non-Current Assets		
Long term receivables	225,000	–
Sinking Fund investment (at cost)	454,079	246,474
Fixed assets	64,394,155	59,569,569
TOTAL ASSETS	69,395,809	67,990,228
Current Liabilities		
Creditors and accruals	1,923,427	3,632,952
Employee provisions	1,505,708	1,240,999
TOTAL CURRENT LIABILITIES	3,429,135	4,875,951
Trust Fund	60,384	295,742
Non-Current Loans	38,274,437	36,666,559
Accumulated Funds and Reserves		
Capital Works Reserve	7,800,000	6,800,000
Accumulated funds	19,831,853	19,353,976
TOTAL ACCUMULATED FUNDS AND RESERVES	27,631,853	26,153,976
TOTAL LIABILITIES AND RESERVES	69,395,809	67,990,228

Townsville Harbour Board

(Extracts from Annual Financial Report and Cargo Statistics 1980-1981)

Chairman's message (extract)

The year ended 30th June 1981, the second year of the Board's triennium has been a year of continued development in the port both in the main harbour and in Ross River Boat Harbour.

Trade through the port was 2,105,162 tonnes (imports 913,467 tonnes, exports 1,191,695 tonnes). The tonnage for the previous year was 2,077,112 tonnes (imports 913,587 tonnes, exports 1,163,525 tonnes). The trade for the year ended 30th June, 1981 is below the year ended 30th June, 1976.

The Harbour Fund shows a net profit for the year of $1,021,350 after depreciation. Net redemption of loans is $834,076 ($399,067 above the depreciation). The net profit is required to meet this $399,067. The total net value of assets (at historical cost) less depreciation is $29,579,702. Excess of assets over liabilities is $13,870,568.

It was necessary during the year to increase harbour dues on cargo by 10% to offset inflation.

The considerable attention given by the Board to correcting the undesirable trend of centralising the products of our hinterland in Brisbane and Sydney is bringing positive results. Townsville is now included in the Eastern Searoad Service to Korea and Japan on a monthly basis.

The Board is continuing with its development and the expenditure on major profits for the year was: –

Bulk Suger Terminal	$7,782,495
Reclamation Eastern Breakwater	$3,348,965
Improvements to Ross River Small Boat Harbour	$344,845
Upgrading grab dredge	$218,463

The prospects for increased trade in 1981/1982 look promising with increases in sugar and molasses and the commencement of rock phosphate shipments (early in 1982) which ceased in 1979.

The Ross Creek Small Boat Harbour is completely con-

gested with private boats, charter boats and fishing boats. To assist the fishing industry, fishing boats are being allowed to berth in the main harbour. This does cause some administration problems in the main harbour. This should be overcome when facilities for the fishing fleet are provided in Ross River and the fishing fleet is transferred to that location.

The Board consists of a number of representatives of local authorities which occupy a large part of North Queensland, and in spite of the distances many members have to travel, the average attendance at Board and Committee meetings was 88%.

A.G. Field
Chairman

Balance sheet

	As at 30th June 1981	As at 30th June 1980
	$	$
ACCUMULATED FUNDS	13,241,087	12,480,826
Reserves		
Long Service Leave Sinking Fund	120,000	120,000
Assets Replacement Fund	131	131
Loan Redemption Reserve	509,350	248,261
	629,481	368,392
	$13,870,568	$12,849,218
REPRESENTED BY		
Current Assets & Investments		
Cash at Bank and on Hand	176,110	4,279
Term Deposits & S.T.M.M.	1,938,076	1,618,535
Stores	53,135	56,922
Debtors	420,952	332,042
Prepayments	328	325
	2,588,601	2,012,103
Deduct Current Liabilities		
Sundry Creditors	680,891	168,077
Contract & Sundry Deposits	29,637	37,816
	710,528	205,893
Working Capital	1,878,073	1,806,210
Fixed Assets		
Wharves	10,511,660	
Less Redemption Reserve	186,637	
	10,325,023	10,494,561
Lands & Tenanted Buildings	12,659,332	
Less Redemption Reserve & Advances	8,384,920	
	4,274,412	4,809,901
Small Boat Harbors & Facilities	251,061	251,722
Major Plant – Cranes	1,650,956	
Less Redemption Reserve	1,014,259	
	636,697	805,112
Dredging Plant	318,158	159,414
Workshops	57,904	45,811
Miscellaneous Plant	72,623	79,456
Electrical Distribution	79,470	88,720
Wharf Supervision	34,095	22,065
Store Facilities	150	150
Administration	167,652	179,061
Engineering	14,007	13,338
Fire Services	6,050	12,050
Access Roads	22,000	24,500
Channels & Swing Basins	5,997,700	5,997,700
Parks, Gardens, Cleaning	19,733	20,864
Work-in-Progress	14,284,285	
Less Advances	8,884,122	
	5,400,163	1,373,167
	27,676,898	24,377,592
Intangible Assets		
Bed Materials Survey	16,452	32,905
Stability Analysis (Wharves)	8,279	16,559
	24,731	49,464
	27,701,629	24,427,056
Deduct Long Term Liabilities		
Special Advances	2,731,138	
Less Redemption	1,200,896	
	1,530,242	1,694,614
Advance on Rental	1,653,000	
Loans		
General	12,525,892	11,689,434
	15,709,134	13,384,048
	11,992,495	11,043,008
ACCUMULATED FUNDS	$13,870,568	$12,849,218

Receipts and disbursements

Statement for the year ended 30th June

	1981	1980
	$	$
Harbour Fund (General)		
Balance 1st July	37,396	299,514
Receipts		
Habor Dues	3,096,890	2,750,045
Tonnage Rates	770,923	650,199
Channel Development Charge	64,599	62,596
Rents	242,364	254,039
Rental in Advance	1,800,000	–
Plant Hire	66,762	32,765
Water & Electricity Charges	95,623	113,054
Interest on Investments	203,625	102,129
Other Operating Receipts	94,140	117,802
Advances for Container Crane	–	9,412
Advances from Assets Fund	–	370,182
Capital Receipts	743,726	13,819
	7,178,652	4,476,042
	7,216,048	4,775,556
Payments		
Administration	503,445	471,452
Dredging	684,157	660,975
Wharves Maintenance	158,106	124,608
Lands & Tenancies	66,748	53,723
Plant Hire	74,752	72,250
Wharf Supervision	104,949	94,318
Water & Electrical Services	163,936	154,523
Interest	1,057,319	934,307
Other Operating Costs	761,755	628,770
Loan Commitments	834,076	698,622
Transfers to Assets Replacement Fund	–	370,182
Capital Expenditure	1,506,327	474,430
	5,915,570	4,738,160
Balance 30th June	$1,300,478	$37,396
Harbor Fund (Loan Redemption Reserve)		
Balance 1st July	248,261	–
Receipts		
From Harbor Fund (General)	350,000	250,000

(Continued on next page bottom)

Port of Boston

(Extracts from Massachusetts Port Authority Annual Report 1981)

Executive Director's review

The value of strong, capable managers was never more apparent at Massport than during fiscal 1981. Financially, Massport enjoyed its best year ever, despite a host of economic, legal, and environmental problems.

The airline industry, our largest source of revenue, underwent serious retrenchment and losses, fueled by rising energy costs, lower seat demand, and a post-deregulation realignment.

Investors, to whom we turn to finance many of our activities, were influenced by Proposition 2½, as it created large question marks for the public sector in Massachusetts.

In the face of a growing urgency for new air cargo facilities, a major airport development project met with environmental problems.

Interest rates climbed to new highs as we sought private capital to redevelop our obsolete waterfront properties.

Amid strong external and internal pressures on the Port of Boston, we kept expanding our seaport container capacity.

As Logan airport continued to gain air service, we insisted on a noise abatement program that was second to none.

And, while many other organizations shrank from such responsibilities, Massport expanded its commitment to equal opportunity.

Taken together, these factors could have been suitable apologies for Massport's having a weak year. Yet, in fiscal 1981, Massport grew stronger and better, accomplishing virtually all of its major goals.

The reason is inescapable: Massport is blessed with managers of exceptional skill, judgment, and dedication.

The 700-some people who work for the Authority made fiscal 1981 a success. Therefore, it is with pride that I dedicate this report to them.

David W. Davis
Executive Director

Turnaround at the Port of Boston

Massport has embarked upon a bold development course for the Port of Boston, aimed at re-establishing what was once the busiest seaport in the United States.

While numerous factors have driven trade to other North Atlantic ports, the major drawback to progress at the Port of Boston has been the chronic lack of container facilities. Thus, after an exhaustive marketing study, Massport has begun a major buildup of its marine cargo capacity to create a seaport for the 1980s and beyond.

Exhibit Number One in the expansion will open in the fall of 1981: An $18 million, two-crane, 10-acre container facility built at Massport's Paul W. Conley Marine Terminal (formerly Castle Island). Leased to a private operator, the new berth will boost container handling capacity in the Port by 50 percent and relieve congestion at Massport's Moran Terminal.

The second stage in the Port's revival is now under construction in South Boston: Massport Marine Terminal, an $80 million complex large enough to accommodate up to four berths and five cranes. The 47-acre site will soon be used to hold automobiles, lumber, and other commodities, followed by container development in the 1990s when the terminal will be able to work 80,000 containers annually.

Meanwhile, Massport continued to improve efficiency at Moran Container Terminal in Charlestown, now operating beyond its original capacity. In the last five years, Massport has invested $10 million in new equipment and capital improvements. The Authority is also taking steps to realign its current operating responsibility at Moran.

The Port's bottom-line performance remained on a turnaround course, as Massport reduced the Port deficit

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(Continued from page 34)

Interest on Investments	62,277	13,210
	412,277	263,210
	660,538	263,210
Payments		
To Harbor Fund (General)	151,188	14,949
	151,188	14,949
Balance 30th June	$509,350	$248,261
Consolidated Account		
(Assets Replacement and Improvement Fund)		
(and Long Service Leave Sinking Fund)		
Balance 1st July	120,131	120,131
Receipts		
Harbor Fund – Repayment of Advance	120,000	120,000
Long Service Leave	11,372	38,198
	131,372	158,198
	251,503	278,329
Payments		
Advances to Harbor Fund	120,000	120,000
Long Service Leave	11,372	38,198
	131,372	158,198
Balance 30th June	$120,131	$120,131
Loan Fund		
Balance 1st July	1,188,188	94,471
Receipts		
Debenture Loans	1,720,000	1,570,000
Interest	108,664	84,305
Conversion & Renegotiation of Existing Loans	64,112	97,542
	1,892,776	1,751,847
	3,080,964	1,846,318
Payments		
Breakwater – Mouth of Ross River	194	621
Improvements Ross River Small Boat Harbor	344,845	200,000
Reclamation Eastern Breakwater	2,216,826	261,032
Dredging Ross River Channel	–	6,614
Upgrading Grab Dredge	191,984	8,016
Transfer of Interest to Harbor Fund	108,664	84,305
Conversion & Renegotiation of Loans	64,112	97,542
	2,926,625	658,130
Balance 30th June	$154,339	$1,188,188

for the third consecutive year. Despite its problems, the fifth busiest port in the North Atlantic continued to attract shipping. While overall container volume was down in Boston and other East Coast ports in FY81, container traffic at the Conley Terminal jumped 68 percent and automobile imports grew 39 percent.

A major reason for high shipper interest in the Port of Boston is the unusually high value of its cargo – three times the national average and 20 percent higher than New York's.

Income and changes in retained earnings

For the years ended June 30, 1981 and 1980

	1981	1980
	(In Thousands)	
Revenues		
Tolls, fees and sales of services	$48,774	$45,824
Rentals	24,555	21,665
Concessions	22,445	21,442
Income on investments	10,547	11,152
Other	725	789
	107,046	100,872
Expenses		
Operations and maintenance	40,643	37,104
Administration	10,613	9,113
Insurance	1,212	1,307
Pension cost	2,426	2,407
Interest on funded debt	16,224	16,346
In lieu of taxes	4,351	4,077
	75,469	70,354
Income before depreciation	31,577	30,518
Depreciation, including $1,726,000 in 1981 and $1,436,000 in 1980 on assets acquired with contributed capital, grants-in-aid of construction	18,372	17,105
Net Income	13,205	13,413
Add credit arising from transfer of depreciation to contributed capital	1,726	1,436
Retained earnings beginning of the period	178,453	163,604
Retained earnings end of period	$193,384	$178,453

Balance sheet

June 30, 1981 and 1980

	1981	1980
Assets	(In Thousands)	
Cash	$ 590	$ 346
Investments in U.S. Government obligations and certificates of deposit at amortized cost, which approximates market, including accrued interest	85,717	99,768
Accounts receivable, less allowance for doubtful accounts of $401,000 in 1981 and $339,000 in 1980	9,306	7,364
Prepayments and other assets	3,802	3,887
	99,415	111,365
Investments in facilities		
Facilities completed:		
Airports	394,027	381,431
Bridge	51,894	46,382
Port	67,184	53,326
	513,105	481,139
Less accumulated depreciation	(156,946)	(138,574)
	356,159	342,565
Construction in progress	33,214	13,940
Net investment in facilities	389,373	356,505
	$488,788	$467,870
Liabilities		
Accounts payable and accrued expenses	11,479	8,476
Accrued pension cost	7,211	7,448
Accrued interest payable	8,112	8,173
Funded debt	235,295	237,640
	262,097	261,737
Deferred Income	1,619	1,462
Contingent Liabilities and Commitments		
Fund Equity		
Retained earnings	193,384	178,453
Contributed capital, grants-in-aid of construction	31,688	26,218
Total fund equity	225,072	204,671
	$488,788	$467,870

	Fiscal 1981					Fiscal 1980
	Bridge	Airport Properties	Port Properties*	Investment Income	Combined Total	Combined Total
			(In Thousands)			
Revenues:						
Pledged	$5,923	$30,976	$ –	$10,547	$ 47,446	$ 47,217
Unpledged	–	41,800	17,800	–	59,600	53,655
	$5,923	$72,776	$17,800	$10,547	$107,046	$100,872
Operating expenses:						
Operations & Maintenance	$1,564	$23,147	$15,932		$ 40,643	$ 37,104
Administration	663	6,621	3,329		10,613	9,113
Insurance	183	830	449		1,462	1,682
Pension	284	1,751	628		2,663	2,631
	$2,694	$32,349	$20,338		$ 55,381	$ 50,530
Excess of revenues over operating expenses					51,665	50,342
Deduct interest on funded debt and in lieu of taxes less self-insurance and pension costs					20,088	19,824
Income before depreciation					$ 31,577	$ 30,518

Port of Lisbon

(Extracts from Relatorio 1980, Administracao-Geral do Porto de Lisboa)

President's review (extract)

The turnover of sea cargo in the Port of Lisbon in 1980 was practically the same as in 1979, as is shown by the following figures, given in millions of tons:

	1980	1979	Variation
Liquid bulk	5.40	6.27	-13.9%
Dry bulk	5.77	4.93	+17.0%
General cargo	2.94	2.84	+ 3.5%
	14.11	14.05	+ 0.5%

As regards liquid bulk cargo, it was mentioned in the 1979 report that the high tonnage reached that year was largely due to the Port of Lisbon being used to handle oil tankers which, during bad weather, could not put in at Sines and Leixões. As 1980 was notable for the very mild winter, the Port of Lisbon was not called on to fulfil that function.

The increase in dry cargo in 1980 occurred mainly in maize and wheat, with about one million tons more than in 1979.

The considerable increase in cargo embarked in 1979 (2.37 million tons, as against 1.68 million tons in 1978), was unfortunately not kept up for 1980, and the total of 2.19 million tons represents a fall-off of 7% in relation to the previous year. This was due to a slight decrease in exports, although it is to be noted that the figures shown include some cargo that is not export goods, as it is shipped to other national ports, which happens with the Autonomous Region of Madeira (167,305 tons in 1979 and 199,713 tons in 1980) and the Azores 230,942 tons in 1979 and 270,547 tons in 1980).

As regards ships' passengers, the total turnover (embarking and disembarking) in 1980 was 77,033, as against 73,341 in 1979.

Passenger traffic has in fact been practically stationary since 1977, with a very modest turnover (compared with the 423,200 passengers registered in 1968), and nowadays most of them are brought by cruises.

The number of ships entering the Port of Lisbon in 1980 was 6,523, corresponding to 32,586,613 tdw. The number of ships was practically the same as in 1979 (12 fewer in 1980), the decrease in tonnage being about 9 per cent.

The part played by the national merchant fleet in carrying cargo disembarked and embarked in the Port of Lisbon was even more modest. Thus, of the total cargo landed – 11.92 million tons – only 26.3% (compared with 31.5% in 1979) were shipped in national bottoms, while of the total of 2.19 million tons of cargo embarked, only 27.4% made use of the Portuguese merchant fleet (as against 35.2% in 1979).

The increase in container traffic continued at a good rate, as is shown by the following figures:

	1980	1979	Variation
N° of containers	83,315	71,304	+17%
N° of equivalent units (TEU)	100,823	87,890	+15%
Useful cargo (tons) . . .	867,677	745,668	+16%

The percentage of general cargo carried in containers in 1980 went up to 29.5%, compared with 26.2% in 1979. The tendency is for containerization to increase, owing to new types of goods that are now containerized: of note, as regards exports, are drums of resin and blocks of marble and granite.

There continued to be a very satisfactory – and desirable – balance between cargo embarked (460,051 tons) and disembarked (407,626 tons). Furthermore, of the total containers embarked and disembarked, only 22% were empty. This is one important condition for a sound exploitation of any container terminal, since port infrastructures, in facilities and equipment, always require high levels of investment.

Of the total number of full containers disembarked, 75% came under «door-to-door», i.e. they proceeded direct to the consignee, while 20% came under «wharf-to-wharf», i.e. they were opened in the harbor and their cargo entered the port warehouses. The remaining 5% were containers in transit, i.e. they were unloaded in order later to be shipped to the port of destination.

As in previous cases, only a very small number of the containers used the railway for entering and leaving Santa Apolónia Container Terminal: there were only 1,200, all of them coming from or going to Leixões.

On account of various difficulties, during 1980 it was impossible to complete assembly of the third crane (of national manufacture, MAGUE III), and this took place at the beginning of 1981.

The five straddle carriers on wheels with tyres (transtainers) continued to be the cause of problems that considerably affected their functioning and the regularity of operations in the terminal.

The workshop installations for supporting the terminal equipment and operating personnel, located at its north end, were almost concluded, and work was begun on construction of the building for the terminal offices and porters' lodges, which is expected to be complete by the end of 1981.

The Port of Lisbon Authority continues to hope that the Trafaria Container Terminal will be a reality in 1985, since by then the Santa Apolónia Terminal – which has been operating since 1970 – will be saturated. This fact is, however, taken into account in the study on the growth of containerization that was prepared for the Port of Lisbon Authority more than two years ago by an international consultant firm, and it has been confirmed by recent data. Moreover, this does not take account of the transit container traffic to which the Port of Lisbon – even by benefiting from its geographical situation that is very favourable for the purpose – can only modestly aspire, owing to the physical limitations of the Santa Apolónia Terminal. The fact is that, although the terminal has an alongside wharf of 850 m, the amount of adjacent ground is extremely limited, covering only eight hectares when it ought to be about thirty hectares, and this has meant adoptin of operational schemes that increase operational costs and prevent users from receiving services of the desired quality and speed.

Just beyond the grain terminal that is now under construction in the Trafaria area (which will be referred to later in this report), are very favourable conditions for establishing the above mentioned new container terminal: in its first

stage it is envisaged that this will have an alongside wharf of 750 m, the average width of its adjacent gound being 500 metres.

The new terminal will have clear, safe access, at the entrance to the port, and this is highly convenient for container-carriers, so that they do not have to lose time going up rivers, through canals or negotiating locks. It is designed to be a sheltered terminal, away from the city but near it, either by road or across the estuary.

The Trafaria-Bugio port area, characterized by guaranteed shelter, clear access, deep water and the possibility of ample shore space, constitutes an excellent potential platform for large-scale expansion of the Port of Lisbon, so that it may not only continue to serve as the country's first port, but also come to take its place in world sea trade both as a European entrepôt and in providing forwarding services.

Outside that zone, although there are large areas suitable for port industry on the Montijo Peninsula, they lack deep sheltered water, and this is essential for the traffic of large bulk cargo such as grain, oil seeds, coal and ore, and even for containers requiring more than 14 m of water.

Traffic of this kind, even if only confined to Portugal, makes it essential that port zone should be linked by rail to the rest of the country, whatever the route chosen, and this should be defined as quickly as possible, since any time wasted will mean heavy costs later.

Owing to its dimensions and characteristics, the Tagus estuary is of great importance on the Portuguese coastline. Apart from the important trading port that was long ago established on it, along its banks vital activities are carried on, in industry and commerce, tourism, and military, cultural and recreational fields.

Along the Tagus estuary has grown a population of some two million, with an average income that is considerably higher than the average for the country. But this population, in terms of the health of the estuary, is a threat to it, thanks to the negligence or inability of the authorities as yet to prevent the waste from the activities of the population – especially tons of fats, burnt oils and detergents – from being daily discharged directly and without any treatment into the estuary, through dozens of collectors.

The Port of Lisbon Authority has followed with interest the studies on pollution of the Tagus estuary, and in particular has contributed, with human and material means, to the many surveys carried out in order to collect the data for such studies – some of which have received considerable international financial support.

Without raising any doubts about the value of such studies, or their merits on an academic and scientific plane, the Port of Lisbon Authority has frequently called attention to the urgent need for constructing an interceptor for the Lisbon wastewater drainage system. This is a fundamental component for perimetral drainage of the urban waste, over a length of about 20 kilometres between Algés and Beirolas. The AGPL has also urged construction of the wastewater treatment plant that has long been planned for Beirolas, and for which some twenty years ago the Port of Lisbon at considerable sacrifice handed over to the City Council four hundred thousand square metres of its limited port-industrial area.

Both of these are doubtless large-scale undertakings, and owing to their nature unlikely to attract the attention of the public, but it is a matter of treat urgency that they should become a reality by joint action of the State and the City Council, for the wellbeing of the estuary and out of respect to the community that lives by it.

Earnings by the Port of Lisbon Authority in 1980 were 1,717,600 contos, or 450,000 contos more than in 1979. This increase was mainly due to tariff revisions, and also to updating of rates charged for the use of property assigned to the AGPL.

Ordinary expenditure was 1,320,000 contos, which was 320,000 contos more than in 1979: personnel expenditure reached the amount of 795,000 contos, of which 66,400 contos was for AGPL Welfare and Cultural Services, whose activity is described elsewhere in this report.

In 1980 it was possible to integrate in the Improvements Fund the amount of 330,550 contos: it is urgent that efforts should be made to increase this, since participation by the National Budget in financing port infrastructures becomes less every year, and financing must thus be mainly obtained by means of loans and self-financing, the charges being borne by the Improvements Fund.

Within the framework of the Plan, investment was confined to little more than 388,000 contos, this being due to the fact that reconstruction of the Alcântara-Rocha wharf did not progress as much as had been expected – as has already been mentioned.

The total number of employees of the AGPL at the end of 1980 was 2,392, i.e. 50 fewer than the year before. This decrease was largely due to retirements, which at the start of 1981 continued at a fairly rapid rate.

The decrease in the number of personnel has, in fact, occurred steadily during the past five years, during which period traffic has increased by 40%, notwithstanding the fall-off and final complete disappearance of bulk oil traffic. This has called for the active application of all personnel, especially in the container sector, where the speed of growth has been more marked and where the traffic is handled directly by the Port of Lisbon Authority. Rejuvenation of the staff is also necessary, and efforts are being made to put this into effect in accordance with a strict criterion of quality, in spite of endless difficulties resulting from fragmentary unco-ordinated legislation that is sometimes ill suited to the situations to be solved.

As in previous years, a table is given below, showing the evolution of sea cargo over the last twenty years, the progress of revenue, AGPL personnel and personnel expenditure, and indices considered to be of interest.

Luis Moreira Lobo
President

YEARS	SEA CARGO Thousand tons	REVENUE Million escudos	PERSONNEL		CARGO Tons per person	REVENUE Contos per person	EXPENDITURE Contos per person
			No. of personnel	Total expend. Million escudos			
(1)	(2)	(3)	(4)	(5)	(2)/(4)	(3)/(4)	(5)/(4)
1960	6,098	121,4	2,571	56,9	2,372	47,2	22,1
1965	7739	167,7	2,510	85,9	3,083	66,8	34,2
1970	9,387	302,8	2,598	107,8	3,613	116,6	41,5
1975	10,135	535,6	2,572	334,0	3,940	208,2	129,9
1978	11,624	1,039,0	2,476	539,1	4,695	419,6	217,7
1979	14,050	1,264,0	2,442	645,1	5,753	517,6	264,2
1980	14,100	1,717,6	2,392	795,7	5,895	718,1	332,6

Penang Port

(Extracts from Twenty-fifth Annual Report for the year ending 31st December 1980)

Chairman's statement (extract)

The Penang Port Commission has now reached its twenty-fifth year of operation since its inception on January 1, 1956. During the years, the operation and activities of the Port of Penang continued to expand as a result of the sustained growth of the Malaysian economy, contributing significantly to the development and growth of the Malaysian shipping industry as well as to the objectives of the New Economic Policy.

The overall 1980 performance of the Penang Port resulted in another successful year of operation, with improvements in almost all aspects of its activities. Container traffic in 1980 in terms of TEU's increased by 27% to 44,637 TEU's and of the total port tonnage handled, the volume of cargo moving through the Port Commission's own facilities increased to 60.4% in 1980, with an increase of 7.3% in general cargo and bulk cargo. Exports and imports which in 1980 totalled 6,101,260 tonnes, represented an increase of 12% over the 1979 period. The 3,808 ships which called at the Penang Port in 1980 represented an increase of 4% over 1979. The Ferry Service resulted in increases of 5.27% and 3.1% in motor-car and lorry traffic respectively. However, there was a drop of 5.1% in bicycle traffic, with passenger traffic remaining almost the same as that of 1979.

Financial Results

Gross income during 1980 totalled $77,895,411 compared to $64,366,100 in 1979. This represents an increase of $13,529,311 or 21%. Expenditure in 1980 increased by 7% to $63,586,161 of which 87% was for operational expenses. The net pre-tax surplus funds in 1980 registered an increase of 79% from $9,119,872 in 1979 to $16,145,678 in 1980. Total assets in 1980 stood at $247,278,866 an increase of 10% over 1979. Fixed assets increased by 5% while the 1980 current assets recorded an increase of 22% over 1979.

Development Projects

During the Third Malaysia Plan period, the Penang Port Commission continued to play a significant role in the development and growth of the Malaysian Shipping industry in general and the Port of Penang in particular. Several port development projects costing $132,669 million were undertaken and successfully implemented. These included the Container Terminal and the Ro-Ro Facility, the Vegetable Oil Tanker Pier, the Bulk Cargo Terminal and two additional ferry vessels. With the expansion of its port facilities and the upgrading of services, the Penang Port Commission is confident that it will play an even greater role in the economic development of the country in the decade of the 80's and maintaining its position as one of the premier ports in Malaysia.

Datuk Haji Abu Hassan Bin Abdullah
Chairman

Balance sheet

As at 31st December, 1980

	1980	1979
Fixed Assets	$	$
Fixed Assets	255,183,753	235,456,473
Less: Accumulated Depreciation	92,501,831	80,202,109
	162,681,922	155,254,364
INTANGIBLE ASSETS	723,524	429,223
INVESTMENT	–	100,000
LONG TERM RECEIVABLES	4,185,305	3,647,494
Current Assets		
Stores and materials	5,993,302	4,039,721
Sundry Debtors	10,926,575	
Less: Provision for doubtful debts	1,423,541	
	9,503,034	6,868,289
Advances & Prepayment (and accrued)	41,413	56,176
Fixed Bank Deposits	63,250,000	52,250,000
Bank balance & Cash	900,366	1,926,712
	79,688,115	65,140,898
	247,278,866	224,571,979
Less		
CURRENT LIABILITIES		
Sundry Creditors & Accrued expenses	4,996,414	2,279,893
Provisions	25,249,696	21,276,040
	30,246,110	23,555,933
LONG TERM LIABILITIES		
Long Term Loans	127,847,698	121,537,502
	158,093,806	145,093,435
Net Assets	89,185,060	79,478,544
Represented by:		
COMMISSION'S FUND		
Development Reserve	77,868,638	68,162,122
General Insurance Reserve	2,547,596	2,547,596
Other Reserves	8,768,826	8,768,826
	89,185,060	79,478,544

Income and expenditure account

For the year ended 31st December 1980

	1980	1979
Income Port Operation	$	$
Ships charges	14,857,038	11,418,579
Lighterage	627,563	765,955
Cargo Charges	32,415,483	27,372,906
Miscellaneous	2,645,560	2,622,524
	50,545,644	42,179,964
Others		
Ferry Service	22,717,265	19,437,770
Engineering Service	341,520	263,599
Total Income	73,604,429	61,881,333
EXPENDITURE		
Total Employment Cost	26,420,322	25,072,130
Direct Operating Cost	12,820,907	11,424,497
Depreciation	13,637,137	12,720,313
Amortization	551,661	214,612
Administration Expenses	1,951,512	1,757,251
Total Expenditure	55,381,539	51,188,803
Net surplus from Operations	18,222,890	10,692,530
Non operating income	4,290,982	2,484,777
	22,513,872	13,177,307
Finance Cost	(7,926,827)	(7,898,632)
	14,587,045	5,278,675
Loss on Disposal of Fixed Assets	(277,795)	(117,552)
Net Surplus for the Year before Extra Ordinary Items	14,309,250	5,161,123
Extra Ordinary items	1,836,428	3,958,749
Net surplus available for appropriation	16,145,678	9,119,872
Appropriation as follows:		
Provision for Income Tax	6,439,162	2,838,618
Development Reserve	9,706,516	6,281,254
	16,145,678	9,119,872

International maritime information: World port news:

World Bank Port Lending Program (FY82 – FY84*)

by A.J. Carmichael, Ports & Shipping Adviser

The ports involved and the amounts for loans not yet approved by the World Bank Board are, of course, only indicative of our possible involvement. It is interesting that the number of port projects financed remain at nine or ten per year. Some projects drop out from our lending program and new ones take their place. The amount for FY84 of US$805 million, if achieved, will be the largest in a single year by the Bank Group for port projects.

Country	Project	Status	(In US$1 million) Loan/Credit
	FY82		
CONGO	Inland Water Transport	Approved	17.0
GAMBIA	Banjul Port	Approved	5.5
SUDAN	Port of Sudan	Approved	25.0
ZAIRE	Onatra Modernization	Approved	26.0
EGYPT	El Dikheila Port	Approved	110.0
PANAMA	Cristobal and Coco Solo Norte Ports	Approved	19.0
CHINA	The Three Ports (Huangpu, Shanghai, Tianjin)	Appraised	135.0
BANGLADESH	Chittagong Port	Approved	60.0
INDONESIA	Fertilizer Distribution	Approved	66.0
		Total	463.5
	FY83		
TANZANIA	Dar es Salaam		20.0
SEYCHELLES	Port/Land Reclamation		6.0
CAMEROON	Ports III		15.7
CAPE VERDE	Praia Port		7.0
GUINEA BISSAU	Port Bissau		10.0
ROMANIA	Agegia Port		75.0
GUINEA	Port of Conakry		10.0
IVORY COAST	Abidjan Port		45.0
DOMINICAN REPUBLIC	Port of Haina (Coal)		15.0
MEXICO	Ports III		100.0
COLOMBIA	Ports I		45.0
		Total	348.7
	FY84		
EGYPT	Suez Port II		65.0
ARGENTINA	Bahia Blanca (Grain)		105.0
MEXICO	Ports III		100.0
INDONESIA	Marine Transport III		80.0
KOREA	Ports III		125.0
BANGLADESH	Inland Water Transport III		20.0
INDIA	Nhava Sheva		285.0
URUGUAY	Ports II		25.0
		Total	805.0

*The Bank's fiscal year ends on the 30th of June.

1969 Tonnage Measurement Convention enters into force

The International Convention on Tonnage Measurement of Ships, 1969 – the most important reform ever introduced concerning the way the tonnage of ships is calculated – will become international law on 18 July.

The main features of the 1969 Convention are summarized below:

1. **Measurement of gross and net tonnage**

These are no longer expressed in tons of 100 cubic feet. The new unit is a function of the volume expressed in cubic metres. Ships will be described as having gross tonnage or net tonnage which in fact have no dimensions. The word ton will no longer appear.

2. **Definition of new ships**

New ships are defined as ships whose keel is laid or which are at a similar stage of construction on or after the date on which the Convention enters into force.

3. **Existing ships**

Because of the problems which might arise for the shipping industry, considerable discussion took place concerning the treatment of existing ships. It was eventually agreed that such ships would be enabled to retain their existing tonnages for a period of 12 years after entry into force of the Convention.

After this period expires, existing ships will continue to retain their existing tonnages for the purpose of the application of international conventions. This will prevent them from becoming subject to new and perhaps more onerous convention requirements as the result of an increase in tonnage when assessed according to the 1969 Convention.

Existing ships which are substantially altered will be subject to re-measurement. The decision as to what constitutes a substantial variation is left to Administrations. An existing ship may also be provided with the new tonnage if the owner so requests.

4. **Excluded spaces**

The Convention clearly defines spaces which are excluded from gross tonnage because they are open to the sea and weather and therefore are not suitable for the carriage of perishable cargoes. The basis used for defining these spaces is that used in the Panama Canal regulations, which, it was felt, had stood the test of time and had not caused any problems in interpretation.

5. **Cargo spaces**

These are defined as compartments for the transport of cargo which is to be discharged from the ship. To make it easier to check that these spaces are not used for other purposes it was agreed that they should be permanently marked with the letters CC.

6. **Frequence of change of net tonnage**

Alterations of the parameters of the net tonnage formula and/or alterations in the load line assignment which would result in a reduction of net tonnage are restricted to once a year. There is no time limit as far as alterations resulting in an increase of tonnage are concerned, nor where the ship is transferred to another flag or where alterations and modifications are deemed to be major.

The effect of the Tonnage Convention on tonnage measurement

Gross tonnage as calculated under the Convention will correspond reasonably closely to gross tonnage as calculated under existing systems with the exception of open shelter-deck ships and other ships with large exempted spaces for which the new gross tonnage will be considerably higher.

There are expected, however, to be considerable differences when net tonnage is calculated. It appears likely that bulk carriers, ore carriers and other ships designed to

carry heavy density cargoes will have their net tonnage considerably reduced. Many ships of under 500 gross tonnage will also have lower net tonnages.

But there will be very large increases in the gross and net tonnages of ro/ro ships and car ferries, since the large exempted areas under existing regulations will be included in tonnage calculations under the 1969 Convention.

Among the advantages of the 1969 Convention are the following:

1. **Simplicity**: as far as net tonnage is concerned only the cargo spaces will be measured. For gross tonnage the spaces will be measured collectively without the nature or location of individual spaces being taken into account.
2. **Speed in measurement**: it has been estimated that the time taken to assess the tonnage of a ship will be cut by 50 per cent.
3. **Gross tonnage**: the new formula fairly reflects the overall dimensions of the ship.
4. **Net tonnage**: this is linked with the draught of the ship and strict clauses will stop alterations being made too often. The formula for supplements to the net tonnage in the case of passenger accommodation is satisfactory.
5. Tonnage marks and dual tonnage will be eliminated.

Since 1969

Following the adoption of the Tonnage Measurement Convention, IMO kept the subject under review and has adopted various other measures which are designed to assist the entry into force of the Convention or to help shipowners during the transitional period.

In 1977 the Tenth Assembly adopted Resolution A.389 which is designed primarily for the benefit of certain ships, notably shelter-deck vessels, whose tonnages will be significantly higher when measured under the Convention. It provides for ships which would be subject to the 1969 Convention to be measured also in accordance with present national rules. The latter tonnage can then be used for the application of the International Convention for the Safety of Life at Sea (SOLAS). The scheme will terminate at the end of 1985.

This Resolution was revised by the 1981 Assembly in Regulation A.495(XII). The new Resolution states that as far as the requirements of Regulation 3 of Chapter IV of SOLAS are concerned the interim solution may continue to apply until July 1994. In respect of requirements for cargo vessels of less than 1,600 gross tonnage under the present national tonnage system, the interim solution may also continue to apply until July 1994.

The Tenth Assembly adopted Resolution A.388. It enables the tonnage of segregated ballast tanks which will be required to be fitted to oil tankers in accordance with the 1973 International Convention for the Prevention of Pollution from Ships as modified by its 1978 Protocol to be deducted from the overall tonnage of the ship, thus resulting in lower dues.

The Maritime Safety Committee, IMO's senior technical body, has also issued circulars dealing with the Convention. One contains an interpretation of the technical terms used in the Convention while the second states that ships which regularly alter their load line and tonnage marks in order to change from higher to lower tonnage and vice versa, without any modification to the ship itself, will not constitute a 'substantial variation' as far as the Convention is concerned. The higher tonnage will be used for the application of SOLAS. *(IMO NEWS)*

Potential problems arising from the lack of reception facilities for vessels operating under Regulation 13B of MARPOL 73/78

Paper submitted by
the Oil Companies International Marine Forum (OCIMF) and the International Chamber of Shipping (ICS)
(IMO document: MEPC 17/8/1)

Regulation 13B of MARPOL 73/78 sets out the conditions under which crude oil washing is an acceptable means of meeting the requirements of this Convention. OCIMF and ICS are concerned, however, that the lack of reception facilities at certain ports will make it difficult, and in some cases impossible, to operate vessels under Regulation 13B after the entry into force of MARPOL.

The problem becomes particularly acute on voyages when lack of time, the need to follow an inshore route, or the existence of a Special Area effectively prohibit the changing of ballast. As a consequence, such vessels have no alternative but to retain the dirty ballast during the subsequent loaded passage (or to have retained a similar amount of cargo for the ballast passage) and the resulting dead freight can amount to a third of the vessel's carrying capacity. Although SBT vessels can operate successfully in such circumstances, the need to ensure that they are available for all cargoes loaded in these areas would inevitably reduce the efficiency of oil transportation.

Under Regulation 12 of MARPOL 73/78 Governments undertake to ensure the provision of adequate reception facilities, and the satisfactory operation of the Special Areas designated by Regulation 10 is dependent upon the existence of such facilities. However, a number of Governments have acknowledged the difficulty in meeting these requirements. In one case a State ratifying MARPOL 73/78 has found it necessary to indicate that it intends to exempt vessels under its flag from certain provisions of that Convention when reception facilities are not available. This would cause an anomalous situation where ships under different flags are enegaged in the same trade, OCIMF and ICS would, therefore, again strongly urge Member Governments to ensure that adequate reception facilities are provided in time for the entry into force of MARPOL 73/78, particularly in ports within designated Special Areas or those likely to handle vessels in accordance with Regulation 12 (2).

Provision of reception facilities

Paper submitted by
the United Kingdom (IMO document: MEPC 17/8/3)

Present indications suggest that MARPOL 73/78 (Annex I) may receive sufficient ratifications to enter into force by about mid-1983.

Under Regulation 12 of Annex I Governments undertake "to ensure the provision at oil loading terminals, repair ports and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues ...

adequate to meet the needs of the ships using them without causing undue delays to ships". Moreover the satisfactory operation of ships in special areas is dependent upon the existence of adequate reception facilities.

As the likely date for entry into force of the Convention draws nearer, a number of governments have already acknowledged difficulties in meeting the requirements of Regulation 12. In particular, the Government of France entered a reservation when depositing its Instrument of Approval of MARPOL 73/78, declaring that French ships cannot be subject to the provisions of Regulation 10 in the Mediterranean Sea except when they have called at ports provided with the required reception facilities.

This action by the Government of France has highlighted one of the major practical difficulties which will be created by the entry into force of the Convention. It is also recalled that at the sixteenth session of the Marine Environment Protection Committee the delegate of the Netherlands strongly urged governments to make every endeavour to ensure the availability of adequate reception facilities. The United Kingdom wishes to fully associate itself with that statement and to emphasize that without such reception facilities the efficient operations of ships in accordance with the Convention will be difficult and at times not possible.

For example, the continuing lack of reception facilities compromises the safety of combination carriers which have previously carried an oil cargo and are forced to retain slops on board when trading in the dry cargo mode. Paragraph 7.6.6.2 of the IMO Guidelines on Inert Gas System for Oil Tankers recommends that slops should not be retained on board for more than one voyage unless contained in a properly constituted slop tank and inerted. It is significant that the safety connotations of this recommendation are recognized by port authorities and yet it is reported that some of these very same ports fail to provide reception facilities.

The Committee may wish to take into account these comments and consider what measures can be taken, in the absence of adequate reception facilities, to permit ships to operate safely and efficiently.

Publications

- **Convention on the International Maritime Organization (IMO)**
  Sales No. 023.82.08.E, Price £1.50 (English),
  Sales No. 024.82.08.F, Price £1.50 (French), Spanish & Russian available later
- **Amendments to the International Convention for the Safety of Life at Sea, 1974**
  Sales No. 092.82.01.E, Price £3.50 (English)
  Sales No. 093.82.01.F, Price £4.50 (French)
  Sales No. 095.82.01.S, Price £4.50 (Spanish)
- **International Maritime Dangerous Goods (IMDG) Code**
  (New consolidated edition including Amendments 1 to 18 – five volumes)
  The price for a set of five volumes in English or in French will be £55.00, plus packing and postage by surface mail (£3.00 for the UK and £6.00 elsewhere).
  Sales No. 200.81.10.E (English) and 206.81.10.F (French). Volumes cannot be sold separately.
- **International Maritime Dangerous Goods (IMDG) Code** (Amendments 19-80)
  Sales No. 236.81.17.E Price £11.00 (English)
  IMO Secretariat, Publication Section, 101-104 Piccadilly, London W1V OAE, U.K.
- **Port Performance Index 1982** – A 73-page compendium of world ports operation, including various performance indicators. Price $75.00
- **Seaports Planning Data, Part I – Ship Distribution Tables**
  Including ship arrivals (300 cases) and ship congestion (720 cases). Price $50.00
- **Seaports Planning Data, Part II – Berth Optimization Table**
  Optimum numbers of berths and optimum berth utilization, based upon random ship arrivals. Price $50.00
- **Port Performance Index – 1979** – A 71-page compendium of world ports operations and performance. Price $25.00
  Public Works Consultants, P.O. Box 211,
  Carmel Valley, CA 93924, U.S.A.
- **Containerisation International Yearbook 1982**
  Price UK £33.00 plus £3.00 post and packing, £40.00 surface mail worldwide
  Containerisation International Yearbook
  National Magazine House, 72 Broadwick Street,
  London W1V 2BP, U.K.

Automated management system

The Marine Terminal Automated Management System (MTAMS) was recently demonstrated through the joint efforts of the Maritime Administration, the Port of Oakland and Marine Terminals Corporation. The purpose of this cost-shared project was to develop a publicly-available computer application program (designed to be functionally independent of the hardware) for the control of cargo and equipment at U.S. public port terminals servicing several containership operators.

MTAMS employs model computer technology to enhance the collection, handling and dissemination of information necessary to expedite and control the flow of cargo and equipment through a marine terminal. The ports of Tacoma, Wilmington (NC) and Portland (OR) have each purchased the system and are in various stages of adaptation.

(AAPAADVISORY)

Brazil's ports & waterways news in brief

- During the first part of April the new coal terminal of Sepetiba Port shall be inaugurated. This terminal is costing already 11 billion cruzeiros and is going to handle 5.8 million tons per year.
- Portobrás has placed a contract for the repair works of the floating roadway of the Port of Manaus, the cost being estimated in 400 million cruzeiros. With these works the cargo capacity of the quay shall be increased from 10 to 50 tons.
- The Minister of Transports inaugurated the roll-on/roll-off terminal of the Port of Cabedelo, still with safety problems which, according to Portobrás, are due to the tonnage of ships considered by the company which is going to operate the terminal.

National Harbours Board – 1981

Canada's National Harbours Board (NHB) reports record results for 1981 despite the depressed condition of the national economy. Revenues rose by 19 percent, while net

income increased from $17.4 million in 1980 to $59.8 million in 1981. It marked the second consecutive year of positive income for the NHB and the fifth consecutive year of improved operations. Significantly, all 15 NHB ports reported positive net income (compared to just nine in 1980). Furthermore, 13 of the 15 NHB ports reported improved bottom-line results. During 1981, the NHB invested $65 million in capital expeditures. Among the major improvements were modernization of the Newfoundland Dockyard, construction of Halifax Container Terminal II, wharf extensions and the beginning of construction on a bulk terminal designed for the transshipment of potash from newly-opened mines in New Brunswick at the Port of St. John, and an NHB commitment of an estimated $23 million for the construction of a major coal export facility at Ridley Island in Prince Rupert. Overall tonnage through NHB ports totaled 160.5 million tons in 1981, down 1.5 percent from 1980. Marginal increases were reported for container traffic and bulk cargoes other than grain. Grain and "other general cargo," on the other hand, decreased by eight percent. Of the 160.5 million tons reported for 1981, 71.2 percent consisted of bulk cargoes other than grain, 16.8 percent of grain, 7.3 percent of "other general" cargoes and 4.7 percent of container traffic. Between 1980 and 1981, the NHB workforce decreased marginally from 1,777 to 1,766 employees. Significantly, however, revenues and employee benefits consumed 26.7 percent of operating income in 1981, compared to 28.1 percent in 1980. Even more striking was the 35 percent increase in tonnage handled per employee since 1977. *(AAPAADVISORY)*

Video tells all about Nanaimo, its Harbour

An eye-catching, interesting presentation by means of a 14 minute full color video, tells the story of Nanaimo and Nanaimo Harbour. The recently completed video tape gives the viewer a look at the past and the present in a way which is both entertaining and educational.

Bob Chase, Nanaimo Harbour Commission Marketing and Public Relations Manager finds it a highly successful way of informing people. "It presents a view of Nanaimo dating from the old coal mining days right up to the present. It is a cross-section of the whole community, the city and the waterfront, including recreation as well as economic factors and emphasizing the potential for growth".

"The presentation is primarily a marketing tool," Chase says. "It will be shown to major shippers and developers in all parts of Canada." "We believe it will be used at conventions and seminars wherever there is an interest shown."

The video-audio presentation contains excellent aerial photography and close-up shots in full color, along with narration which makes it a top calibre production.

The Commission also has a standing display which has been updated. This includes pictures, maps and factual information.

Public input widely Canvassed: Port of Vancouver

A Community Attitudes Study report of the Roberts Bank expansion project, completed in March of this year, indicates in detail the careful steps taken to consult and inform the public in the Delta community.

From the formation of the Environmental Assessment Panel in 1978 there has been wide opportunity for individuals, groups and agencies to make submissions and advance ideas for the project development.

It is doubtful if any major maritime development has ever received such exposure in Canada over such a long period. From August to November 1978, written submissions were welcomed by the Environmental Assessment Panel as a consequence of the formal and exhaustive environmental assessment and review process. They were publicized in the news media, and a series of public information meetings, in December 1980, enlarged the opportunity for public discussion and reaction.

Those participating covered a wide spectrum of interests, ranging from some questions about the justification of the project through a number of levels of concern about environmental impacts, social dislocations and the possible adverse economic results for fishermen and others associated with the fishing industry.

Concerns were also expressed about possible industrial development in the backup lands near the port which are under the jurisdiction of the Provincial B.C. Harbours Board; about the problems of rail traffic with noise and dust irritations, and the possible interference with road traffic, and several other understandable concerns. There was, as well, constructive advice on how to mitigate any adverse effects.

The earlier mentioned most recent study is a two-stage examination of what has been said, what the public understanding is, and what may be done to continue the task of informing the public.

The report finds there is a fairly high level of public awareness of the ... project and an interest that illustrates the desirability of ongoing communication to demonstrate developer awareness not only of the concerns but to show a willingness to consider mitigations.

The issues now are well known, the study concludes, although few seem fully aware of the extent of the existing and ongoing studies or of the intention to resolve conflicts. It urges the frequent use of information newsletters to advance public understanding.

Vessel tie-up station now under construction: Panama Canal

In order to increase overall Canal capacity and to reduce average transit time, the Panama Canal Commission recently awarded a $3,943,090 contract for the construction of a vessel tie-up station on the west bank of Gaillard Cut north of Pedro Miguel Locks, which would be scheduled for completion by next April.

According to Robert W. Adams, project manager, the station will allow northbound vessels having special restrictions in Gaillard Cut due to their size to lock through Pedro Miguel and tie up at the station awaiting due passage of similarly restricted southbound transiting ships.

During periods of heavy fog in the Cut, the station will also provide vessels with a haven where they can wait for visibility conditions to improve.

The tie-up station consists of a slot 1,200 feet long by 90 feet wide, cut from the Canal embankment, which will accommodate either two 500- to 550-foot-long ships or one large Panamax-type vessel. Specialized hooks will secure the

ships' hawsers to four small platforms in the water, called "breasting dolphins," and to mooring stations on the shore.

A $171 million budget for 1982–83 adopted by the Board: Port of Los Angeles

The annual budget represents a $36.9 million increase over the past year's appropriations, but the total operating budget is over 7% less than 1981-82, reflecting direction by the Board to reduce this portion of the anticipated expenditures.

The Port's budget includes $95.7 million for this year's portion of the capital development program which encompasses some 50 separate projects over a five-year period. Actual construction and improvements total $83.9 million of the amount devoted to capital development, with the balance earmarked for equipment and property acquisitions.

Employment figures in the new budget show an authorized Department strength of 712 positions, a net gain of only three positions. Personnel salaries account for a budget of just over $19 million.

'No-frills' new budget adopted: Port of Oakland

The Oakland Board of Port Commissioners has adopted a "no-frills" $46.5 million operating budget for the fiscal year 1982-1983, commencing July 1.

"The new budget," said executive director Walter A. Abernathy, "reflects a modest slowdown in the rate of earnings for our maritime division, and a recognition that while our revenue projections are almost flat – compared to anticipated revenue for the current year – expenses are up 8 percent."

The Port Authority anticipates a net increase of 10 employees next year, bringing the total number to 490. The Port's utility expenses will increase by some $558,000 as a result of rate increases approved for Pacific Gas and Electric.

The current year's revenue projection was $44,250,725, but actual operating revenues are expected to top $46 million.

Most of the income is derived from the Port of Oakland's three major revenue-producing divisions – maritime, airport and properties.

For the first time in recent years, maritime revenue is expected to decline slightly – due to the world recession and to the increased strength of the dollar internationally, which traditionally has an adverse effect on American exports. This current year's anticipated income from marine terminals was $25,786,319. The comparable figure for 1982-1983 is $24,976,572. In part, the decrease in revenues reflects the fact that the Port has been successful in entering into a number of medium to long-term agreements with steamship lines that provide economic incentives to the lines in exchange for their commitment to call regularly at the Port.

U.S. urged to continue funds for channel dredging

By Walter A. Abernathy,
Executive Director, Port of Oakland

For two centuries, the federal government and local public and private agencies cooperated in the creation of a web of deepdraft waterways and landside cargo-handling facilities serving 189 seaports, through which pass America's international trade.

The Administration recently proposed to end its participation in this longtime compact.

It proposes to eliminate the federal share represented by maintenance and improvement of the key marine component of this system – the navigation channels essential to seagoing commerce in war and peace.

The Port of Oakland has strongly recommended that the federal government continue its funding of deepdraft navigation dredging, through a minor diversion of customs receipts, thus maintaining its historic partnership with the ports of the United States.

More than half the exports of America's farms, mines and factories go overseas through these ocean gateways – cargoes valued at some $122 billion in 1980.

Almost two-thirds of the nation's imports ply the same channels, providing revenues to the federal treasury through customs fees and charges that will total nearly $7 billion in 1982.

Military defense installations supporting American forces deployed throughout the world depend heavily on civilian port facilities and on the channels crucial to their operation.

It must be remembered that the U.S. Congress has not authorized a single channel construction start anywhere in the country for almost six years. More than $1 billion worth of needed new dredging projects thus languish in federal limbo – approved and recommended by the U.S. Army Corps of Engineers but awaiting recognition and/or funding by the Congress.

Studies by the National Coalition for Port Progress indicate that an annual expenditure of $687 million, in 1982 dollars, would fully underwrite a vigorous program of channel upkeep and timely, cost-effective expansion to meet technological requirements.

Various proposals have been offered as alternatives to the traditional federal financing of channel maintenance and improvement.

On their face, many appear relatively innocuous – such as assessments of user fees of "a few cents a ton" on America's nearly two billion annual tons of waterborne commerce. But careful analysis reveals that, no matter how apportioned, these charges would prove far from negligible.

Grave consequences threaten profit margins for shipping, producers and carriers, the competitive pricing of U.S. commodities, and regional economics. Major disruptions to established cargo movement patterns and port development inevitably will result.

No one denies that continued federal funding of navigation channel dredging is of local benefit to America's ports. But the issue transcends mere parochial economic interest. Contrary to the definition offered by some, federal construction and maintenance of a deepwater access system is not simply a form of subsidy to local and private enterprise. The federal government itself is the largest direct beneficiary of its waterway expenditures.

In 1979, the U.S. Treasury earned about $5.3 billion in customs revenues from seaports – almost two-thirds of all duties collected. If the proposed baseline of $687 million had been spent that year on channel projects, the federal

benefit ratio – measured in customs receipts alone – would have been $7.71 for every dredging dollar. (Actually, only $350 million was spent by the federal government on dredging in 1979.)

But in calculating benefits to the nation, it must be added that 100 percent of America's coal exports, 70 percent of agricultural exports, 77 percent of chemical exports, 76 percent of construction and manufacturing machinery exports, 77 percent of iron and steel exports and 91 percent of paper and allied product exports – to name only the leading commodity classifications – leave this country aboard ships navigating the channels so critical to our balance of trade.

It should not be overlooked that a majority of these navigation channels serve U.S. military as well as civilian facilities.

During emergencies, these channels also provide increased national shipping capacity available to military uses. Maintaining the broadcast possible infrastructure of port facilities rather than winnowing them under the banner of budget-cutting, or harsh economic determinism, provides better protection against crippling of maritime capacity in time of war.

Considering the construction time required to deepen channels, it is evident that the capability afforded by improved channels cannot be obtained overnight. Channels must be in place if they are to serve emergency military needs. This is also true of the terminal improvements necessary to take advantage of new deeper draft ships.

There exist federal financing avenues which have not been sufficiently explored. One would involve the dedication of a percentage of America's rapidly growing customs collections to the support of the waterways that help generate a major share of that same revenue.

Indeed, total U.S. customs collections are projected by the U.S. Customs Bureau to rise so steeply – growing from $9.2 billion for all customs revenues in the last fiscal year to an estimated $13.8 billion in 1987 – that the increase alone would pay for more than 80 percent of the proposed channel maintenance and improvement program.

America's waterways are a precious national asset. They must be kept open and operational if the nation's economy is to retain its health.

The ports of the United States are ready and eager to continue their investment in promoting and facilitating expanded international trade. The federal government must also accept its role – and responsibility – for this historic partnership. *(PORT PROGRESS)*

Record year for Georgia Ports Authority

The closing of books for FY 82 revealed that the Georgia Ports Authority attained record tonnage levels in a number of categories. Total tons handled for GPA's deepwater terminals reached 5,850,000 up 10% from 1981's 5,325,000. Figures for Ocean and Garden City Terminals in Savannah rose 8% from 5.08 million to 5.50 million. Brunswick continued its emergence as a major bulk/breakbulk center jumping 45% to 355,000 tons.

Leading the surge were containers and dry bulks. Container volumes reached a new high of 1.51 million tons, an increase of 100,000 tons over the previous record. Good crop years for wheat and soybeans fueled a jump in dry bulk tonnages from 1981 levels of 794,000 to 1,250,000.

Statistics for the month of June suggest the long awaited economic turnaround may have begun. The 696,000 tons handled exceeded the previous record by 76,000 tons. Containers, wheat, liquid bulks and breakbulks all made significant contributions to the exceptional month. With the recent opening of container berth IV, and impending completion of breakbulk, bulk, and cold storage expansions, projections call for exceeding of these new tonnage standards in fiscal 1983 and beyond.

GPA boosts storage capacity

Georgia Ports Authority has increased its total storage capacity at CONTAINERPORT Savannah by over 16%. The latest segment is a 25 acre, concrete-paved parcel located adjacent to the interchange/office complex.

The newly added space will be utilized primarily for marshalling of containers on chassis. Given its proximity to CONTAINERPORT berthing it also serves as an excellent staging area for equipment, vehicles and other rolling stock. With the availability of a ramp at berth 60, the newly paved area is ideally situated for handling cargo for side, angle, and stern loading RoRo vessels.

Total backup acreage at CONTAINERPORT has now reached 180, making it one of the largest centralized container terminals anywhere. The fifth and sixth cranes joining the fleet this summer will further enhance the handling/storage picture for the complex. Berth 5 with its 1100 foot berth, 3 cranes, and 60 acre backup area will come on stream within the framework of the current 5 year construction package.

The inventory and equipment control advantages afforded by CONTAINERPORTS centralized layout translate into efficiency and economy for our growing list of customers. While economic hard times exact their toll on international trade, Savannah's container volumes continue to rise with current fiscal year totals running some 10% ahead of last year's. Given the positive projections for international trade increases and the surge to containerization worldwide, the growth cycle should be protracted. The addition of this newest storage area will help to guarantee the Port of Savannah's ability to meet the demand.

A look back into 1981; A look forward into 1982: Port of Antwerp

1981 was not a brilliant year as far as the financial and socio-economic situation of the Belgo-Luxemburg Economic Union was concerned. Nevertheless the port of Antwerp with all the means at its command was able to maintain its position in the world of trade and industry.

On the basis of the statistics which are available it may be concluded that port traffic in 1981 was on about the same level as in 1979.

Thus 1981 was in general not a bad year for the port. General cargo increased considerably once more. This is also true of container traffic where a trend towards diversification with regard to origin and destination made itself felt. Antwerp has become Europe's leading fruit port. Transit traffic has also greatly increased and all in all the increase in labour-intensive traffic has had a favourable

effect on employment.

The vast investments of a few years ago are now a thing of the past. Nevertheless the time-schedule for completing or beginning large-scale projects in the port has respected by the authorities. The navigability of the Scheldt has so improved over the past year that larger and larger vessels are calling at the port carrying amounts of cargo never before seen in any Belgian port.

Work on the Delwaide Dock was carried out according to plan and Antwerp has set its hopes on that dock for 1982. It will be one of the port's trump cards in the years to come.

Construction of the Berendrecht Lock was begun. The floating derrick "Brabo" – with a lifting capacity of up to 800 tons – came into service, as did a new ro/ro terminal for heavy unit-loads. The cranes were further modernized and so on.

Many port firms took advantage of the computerization of maritime shipping and the municipal port authorities are making increasingly use of data-processing, which will undoubtedly promote the exchange of data between the private sector and the authorities. What will 1982 bring?

It is to be hoped that after taking the international economic situation into consideration – on which the port is especially dependent – a number of expectations will be fulfilled.

The traffic of dry bulk cargo – coal and grain – should increase. The port is equipped – and the situation will be improved once work on the new bulk cargo terminal at the Delwaide Dock has been completed – to cope with a considerable rise in this type of traffic. The navigability of the Scheldt can be further improved and this, together with the new Berendrecht Lock, will within a few years make the port of Antwerp accessible to fully loaden vessels of up to 125,000/150,000 dwt.

It is also to be hoped that the national authorities will understand the necessity of expanding work on the left bank of the Scheldt (the 4th Dock) of solving the problem of a need for a rapid and efficient link between Wijnegem and Antwerp on the Albert Canal, of getting international discussions going about the water treaties and of beginning work on the Outer Ring round Antwerp and on the Liefkenshoek Tunnel. All of this requires the elaboration of and confidence in a national port policy in which every Belgian port will be fairly treated. *(HINTERLAND)*

Mr. John Touton elected president of the board: Port Autonome de Bordeaux

At the start of the Administrative Board Meeting of the Port of Bordeaux Authority, which was held on the 21st June, 1982, the members elected Mr. Jean TOUTON to replace Mr. Louis NEBOUT, as President, the latter having reached retirement age.

During the meeting, Mr. Nicolas THEIS, Secretary General of the Gironde, presented Mr. NEBOUT with the Medal of Honour of the 'Département" (County), for the work he has accomplished during his term of office as President of the Port Authority, notably, strengthening Bordeaux's position as a leading world port for regular liner services by developing its competitiveness in various sectors. The creation of the highly efficient specialized facilities, (forest products terminal & multi-bulk terminal) during the Bassens sector redevelopment project is one of the most striking examples.

President of the Chamber of Commerce and Industry of Bordeaux, since 1978, Mr. TOUTON joined the Administrative Board of the Port Authority in January, 1976 and became a member of the Board of Directors in March 1977. He was elected Secretary in February 1978 and has remained in this office until today.

Trade figures for 1981; Exports exceed imports: Port of Rouen

The Port of Rouen's maritime overall trade figure for the year 1981 came to 21,297,000 tons as compared with 22,173,000 t. in 1980. It has therefore gone down in one year by 3.9%.

Imports at 9,845,000 tons dropped by 15.4% and have been particularly affected by the difficulties within two big industrial sectors in the region of Rouen, namely the chemical fertilisers, which dropped by 14.7% as far as imported phosphates were concerned (1,428,000 t.) and the paper trade, where imports of paper wood, woodpulp and paper dropped by 9.7% in their total figure of 572,000 t. Moreover, mainly because of E.D.F.'s requirements reducing, imports of coal (3,096,000 t.) dropped by 24%.

Offsetting this, our exports (11,451,000 t.) rose by 8.7%. This year, for the first time in the Port's history exports come to over half of the trade total. In this connection, we must remember that if we exclude petroleum products, Rouen has become the leading French export port. Most of the exports are made up of food and agricultural products: 808,000 t. of flour and 635,000 t. of sugar and particularly 5,747,000 t. of cereals (+ 23.5%) and as far as these are concerned Rouen is in the top rank in Europe.

Containerised traffic, which takes nearly 30% of general cargo going through the Port of Rouen, for the first time topped the million-ton mark.

Another record year for Port of Helsingborg

The ferry traffic during 1981 made a considerable raise in transportation of passengers and automobiles. The number of passengers ran up to 18,277,264 being the first time in history above 18 million. A new record was also set for ferried automobiles, which came to 1,591,929.

In spite of the trade recession in 1981, Port of Helsingborg on the whole kept its position with regard to the cargo throughput. The cargo volume handled by the port arrived at 8,041,337 tons, which is in line with the previous year and must be considered satisfactory in the circumstances.

Year	Vessels	NRT	Cargo	Unit TEU	Vehicles	Passengers	Railway Cars
1977	141 010	80.4	7.8	343 924	1.46	17.6	193 897
1978	140 535	79.8	7.8	355 025	1.49	16.8	175 348
1979	139 013	81.1	8.2	389 333	1.52	17.2	183 135
1980	138 681	78.4	8.2	388 782	1.49	17.8	183 066
1981	138 409	78.4	8.0	383 492	1.59	18.3	164 585

Multi-million port development: Port of Helsingborg

A new development designed for unit traffic is under construction by reclaiming of land between the North and the South Harbours. The construction of this section named The West Harbour has been going on since late 1980. The new harbour will include two basins and one turning basin with a maximum depth of 13 meters. The quay-length of the large basin will be 275 + 300 m, and of the other one 200 + 220 m, thus in all nearly 1,000 m. The wharfs will be equipped with three RoRo berths and two container cranes. The West Harbour is protected by two breakwaters, the largest one having a length of 1,100 m. The total acreage of 275,000 sq. m of reclaimed land involves some 950,000 cu. m of sand with about 300,000 cu. m provided via dredging, and the balance of 650,000 cu. m from other sources.

The total cost for the project scheduled to be operational early in 1984 is estimated at 235 MSEK.

Brisbane's cargo will double: Chairman, Port of Brisbane

As much as people have been amazed at the growth of the Port of Brisbane in the past five to ten years, the expectations for the present decade are almost unbelievable.

By 1990, the port's total trade will be about 18 million tonnes – that's nearly double the present throughput.

Two terminals on the Fisherman Islands will be processing 180,000 containers. Also, nearly twice the port's present annual handling rate. The islands will be the export centre for about five million tonnes of coal and a 2.5 million tonne capacity grain terminal.

In addition, I can see a standard gauge rail connection to the port which will allow Brisbane to tap into the rich agricultural areas of northern New South Wales and permit direct and uninterrupted cargo-rail connections to and from New South Wales and Victoria.

A bulk sugar terminal is planned to serve the export industry in southern Queensland and northern New South Wales and an early commencement to construction is expected. Other factors of crucial importance to the port, and port associated industry, will be the city's new international airport, the Gateway Bridge, and the increasing demand for cement in a growing state.

This last mentioned aspect could result in the construction of a cement works on the Fisherman Islands with a consequent and significant trade in raw materials and manufactured products.

There also is growing interest in the export of other mineral ores through Brisbane. Hopefully, wool exports will increase through a consolidation of all treatment processes. Because of the expected development and activity in the port in the next 7/8 years, the Authority will need to exercise extreme care in the allocation of space to ensure that adequate waterfront land is available for commercial interests, particularly on the Fisherman Islands and the adjacent areas.

There are encouraging signs that industry is showing renewed interest in the industrial land which the Authority controls in the port environ.

The port will be receiving vessels up to 80,000 d.w.t. at the Fisherman Islands and the port's main access road will be coping with at least 1,800 vehicle movements per day, or 180 per hour.

Shipping movements in the main channels will be intense, probably at a rate of a ship berthing or unberthing every hour.

Chittagong Port project

Port facilities at Chittagong in Bangladesh will be expanded with the assistance of a $60 million credit from the World Bank's International Development Association (IDA). Owing to the high occupancy rate of existing berths and the expected growth of traffic, the Bank concluded that Chittagong, the country's main port, urgently needs increased throughput capacity. The port currently has 17 general cargo berths and several jetties and moorings, which, in 1979-80, handled about 6.7 million tons of cargo. The new berths, designed to carry container handling equipment, will be provided with two mobile cranes, fork-lift trucks and tractor-trailer units. Construction of back-up facilities, including a paved storage area for containers, a container freight station and offices will be carried out under the project. Additional maintenance facilities will be provided and improvements made to the Training Institute Building. Technical assistance will be provided by the project to help develop a maintenance program, train port workers, develop a long-term program for the Training Institute, prepare a manual on container operations and develop a port management information system. The IDA credit is for 50 years, including 10 years of grace; it carries no interest but bears a small annual service charge of 0.5 percent on the undisbursed balance of the credit, and 0.75 percent on the disbursed balance. *(AAPAADVISORY)*

Overseas traffic statistics of Indian Ports 1980–81: Indian Shipping

(in metric tonnes)

Ports	Total Cargo Carried by Indian & Foreign Lines		
	Exports	Imports	Total
A. Major ports			
Bombay	2,551,000	11,601,000	14,152,000
Kandla	492,933	6,895,808	7,388,741
Calcutta	1,137,000	5,983,000	7,120,000
Visakhapatnam	6,060,613	3,540,859	9,601,472
Cochin	289,118	3,517,047	3,806,165
Mormugao	13,095,855	628,858	13,724,713
Paradip	1,977,991	315,111	2,293,102
Madras	3,381,880	6,226,330	9,608,210
Tuticorin	99,771	1,036,185	1,135,956
New Mangalore	318,771	332,623	651,394
Total (A)	29,404,932	40,076,821	69,481,753
B. Minor and Intermediate Ports			
Karnataka	651,968	176,718	828,686
Pondicherry	–	49,129	49,129
Gujarat	918,740	1,244,112	2,162,852
A.P.	518,098	326,158	844,256
Tamil Nadu	91,698	106,086	197,784
Maharashtra	1,244,900	–	1,244,900
Kerale	103,410	16,191	119,601
Total (B)	3,528,814	1,918,394	5,447,208
Total (A + B)	32,933,746	41,995,215	74,928,961

Higher container volume record: Port of Manila

The 1981 container volume handled at the three major harbors of the Port of Manila increased compared to 1980 figures. South Harbor had a total of 205,258 TEUs for a 5% growth while MIP handled 65,164 TEUs for a 9% rise in containers. The international container traffic of POM in 1981 totalled 270,422 TEUs or 6% higher than 1980. This growth is attributed to the absence of port congestion, fast container vessel operations, and the growing important role being played by the Port of Manila in the world container traffic.

Port of Manila's three major harbors had a total of 475,249 TEUs for 1981. Compared to 1980, a 16% growth in POM's container traffic was achieved primarily due to the continued rise in domestic containerization. It is significant to note that in 1978, domestic container volume was only 17% of the POM total traffic while 83% was international. For 1981, domestic volume is now 43% and only 57% is international. Also in 1978, South Harbor had 82%, the total POM traffic. Now, only 43% comes from South Harbor, 14% from MIP, and 43% is handled at North Harbor. The domestic containerization growth therefore is fast catching up with international volumes and is already as large as the traffic handled at South Harbor. The overall North Harbor development plan, the construction of the domestic container terminal, and the adoption of improved container monitoring systems are various steps undertaken by the Port Authority in response to the tremendous container growth.

For the coming year 1982, the international container traffic at the South Harbor and MIP is projected to reach 285,000 TEUs for a 5% rise and the domestic container traffic to go up to 245,000 TEUs for a 20% growth. The Port of Manila container volume will total 530,000 TEUs for an increase of around 10% over 1981 figures.

Cargo throughput at the Port of Manila, comprising its base ports and subports, totalled 22.83 M metric tons or 1% higher than 1980's 22.61M tons. This growth was primarily due to the 9% increase in the cargo tonnage handled at the Limay, Bataan subport. Meanwhile, the Port of Manila cargo traffic was composed of 60% inbound, 40% outbound, 21% containerized, and 79% conventional goods. Base ports accounted for 49% and subports had 51% of this total. As to area classification the Limay subport handled 47%, North Harbor had 26%, and South Harbor 21% out of the total POM cargo traffic.

For the year 1982, the international cargo traffic at South Harbor and MIP is projected to go up to around 5.45 M tons, up by 2% over 1981. North Harbor is projected to reach 5.95 M tons representing a 2% increase. The entire Port of Manila will have a total cargo volume of around 23.3 M tons for a 2% growth over 1981 figures. *(The Manila Portwaves)*

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MES MITSUI ENGINEERING & SHIPBUILDING CO., LTD.

Head Office: 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, 104 Japan
Cable: "MITUIZOSEN TOKYO", Telex: J22924, J22821
Material Handling Machinery Sales Department Tel. (03) 544-3677
Systems Headquarters Marketing Dept. Tel (03) 544-3272
Overseas Office: New York, Los Angeles, Mexico, London, Duesseldorf, Vienna, Singapore, Hong Kong, Rio de Janeiro

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