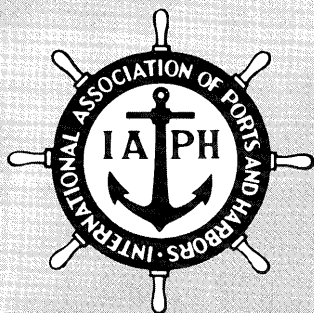


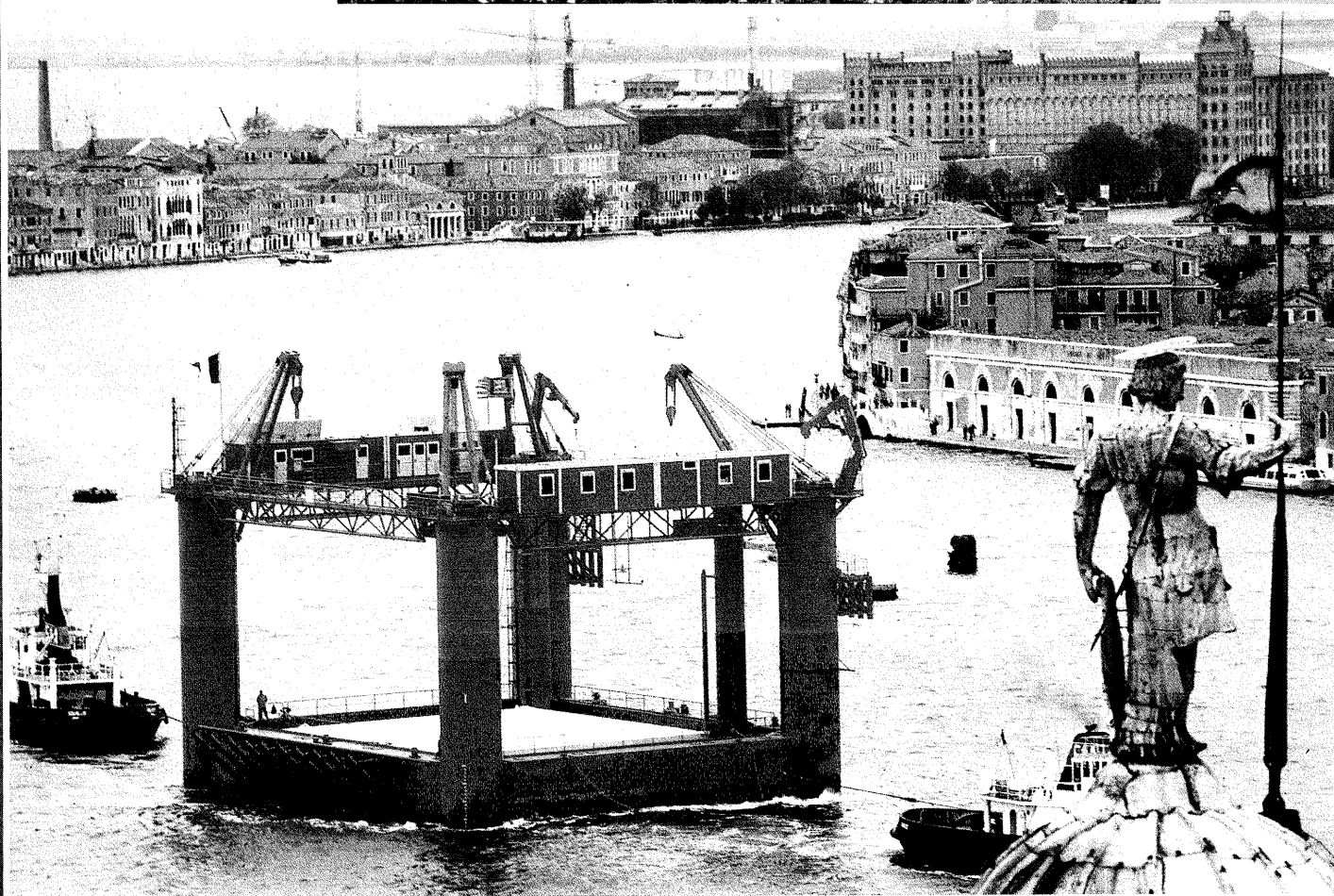
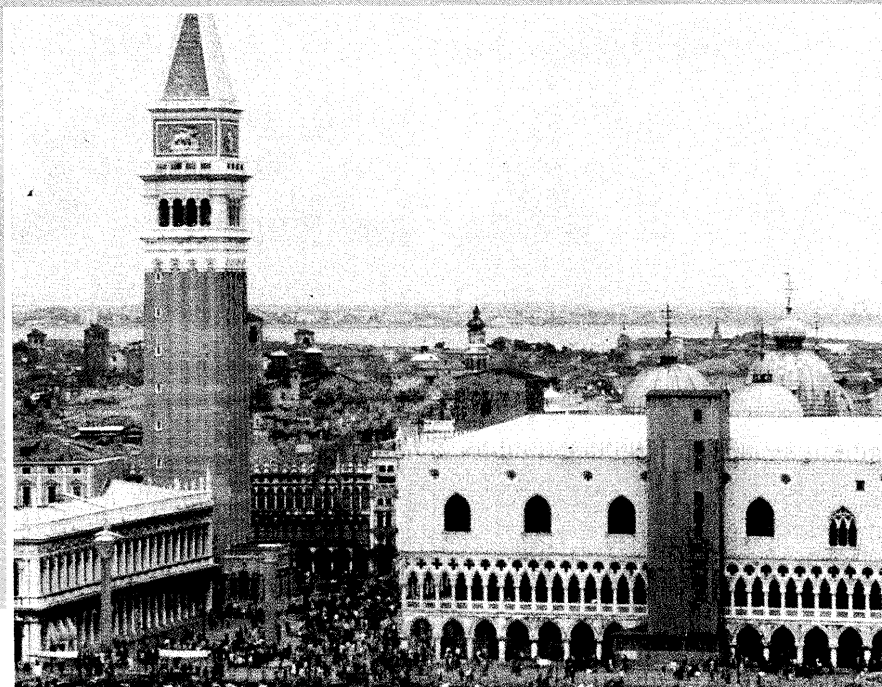
# Ports & Harbors

**October  
1989  
Vol. 34 No. 8**



*The Publisher*  
**The International  
Association of  
Ports and Harbors**

*Port of Venice*



**“Our two great states share a port in the heart of the world’s largest market. Better located, staffed and equipped to deliver your cargo anywhere—at least two days faster.**

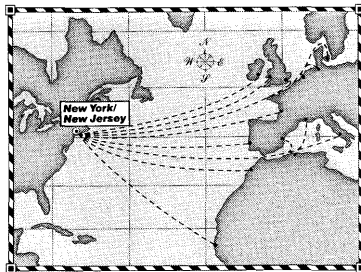
**A port so fast it has to be called...**



# EXPRESSPORT

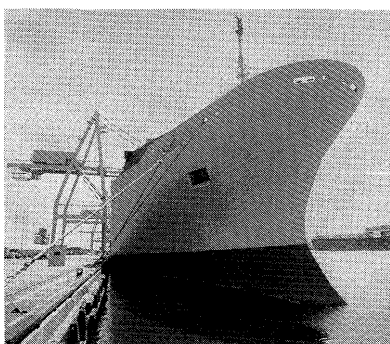
## First In.

The Port of New York and New Jersey has more direct service to and from destinations worldwide than any other east coast port. And Expressport has more ‘first in’ (and ‘last out’) from the North Atlantic range... cutting **at least 2 days** off your transit time! Your time-saving, money-earning journey through Expressport has begun. You’re far ahead of all the others!



## First Off.

Expressport has more cranes than any other U.S. port. And we **use up to 4 at a time per ship**, when necessary, to expedite unloading. Longshore labor is among the most skilled in the world and performance in all weather conditions is second to none. As a result, the off-load



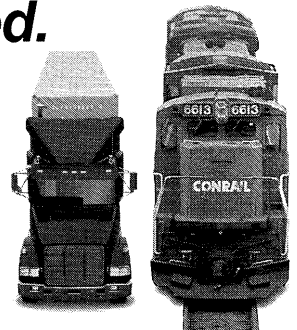
process is so efficient and so swift, there is virtually no waiting and no queue.

Thanks to Expressport, you’re maintaining your lead.

## First Delivered.

At your service are **5,000** trucking companies, a superb network of arterial highways and a modern and efficient trunk line railroad with a rehabilitated infrastructure.

Expressport, starting from the center of the world’s largest consumer market, can deliver your cargo to an additional 75 million consumers overnight. Indeed, chances are, your cargo will reach its midwest warehouse before the mother ship reaches its next port of call.



## First In Service.



Along with speed, Expressport offers service, superior service from a vast pool of specially trained, highly skilled experts on international trade and marine-related services.

At Expressport, we’re committed to giving you the best service while speeding your cargo **in, off and delivered** to its market. If time is money in your business, you should be doing business with Expressport. For more information call 1-800-PA-CARGO.



First In. First Off. First Delivered. First In Service.

**THE PORT AUTHORITY  
OF NEW YORK & NEW JERSEY**  
One World Trade Center, 64E  
New York, NY 10048



Ports & Harbors  
October, 1989  
Vol. 34  
No. 8

# Ports & Harbors

**Published by**  
**The International Association of**  
**Ports and Harbors**  
NGO Consultative Status, United Nations  
(ECOSOC, UNCTAD, CCC, IMO)  
**Secretary General:**  
Hiroshi Kusaka  
**Head Office:**  
Kotohira-Kaikan Bldg., 2-8, Toranomom  
1-chome, Minato-ku, Tokyo 105, Japan  
Tel: TOKYO (591) 4261  
Cable: "IAPHCENTRAL TOKYO"  
Telex: 2222516 IAPH J

## IAPH Officers

**President:** J.H. McJunkin,  
Port of Long Beach  
Delegate with IAPH

**1st Vice-President:** J. Mather,  
Managing Director, Clyde Port  
Authority, U.K.

**2nd Vice-President:** Cheung Yeun  
Sei, Chairman of the Korea  
Shipping and Port Council,  
KMPA, Korea

**3rd Vice-President:**  
C.J. Lunetta, Port Director, Port of  
Miami, U.S.A.

**Conference Vice-President:**  
Fernando Palao,  
Director General,  
General Direction for  
Coast and Ports,  
Ministry for Public  
Works, Spain

## Contents

### IAPH ANNOUNCEMENTS AND NEWS

Mid-term Exco Meetings May 7-12, 1990 at Fremantle • IAPH	
Participates in Sept. 11-15 Hamburg Environment Congress	3
IAPH to Establish Liaison With 3 International Organizations • Visitors	
to Head Office	4
IPD Fund: Contribution Report	5
Report by Bursary Recipient • New Members from Sudan and Morocco	6

### OPEN FORUM

EDI Community Network Concept Comes Alive	7
Effects on Harbors of Proposed Sediment Quality Criteria	9
Port Organization, Operation and Development: A Few Basic Principles	15

### INTERNATIONAL MARITIME INFORMATION

#### WORLD PORT NEWS

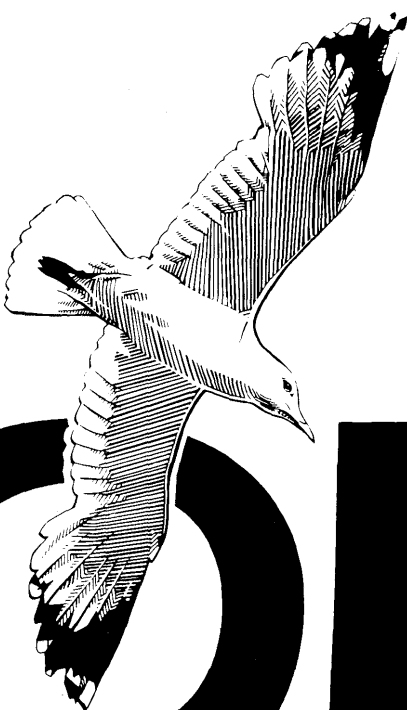
1989 Busy Year for Association Villes et Ports • Oil Reception Facilities	
Insufficient	23
World Maritime University	24
Sudan Retracts Increased Port Tariffs • Period of Major Growth for	
Container Industry • Canada-US: Partnership in Trade and Transportation	
• Conference on Shipping: Nov. 14-15, Amsterdam	25
Coatings Short Courses Fall 1989-Spring 1990 • New Publications	26
<b>The Americas</b>	
Record-breaking Progress at Halifax • Port of Montreal Adopts Horizon	
2010 Strategy	27
Feasibility Study on Canada-Caribbean Trade • History of Vancouver's	
Waterfront Workforce • The First 125 Years: Port of Vancouver	29
Prepare for Changes: Houston Port Chairman	30
5 Panelists Discuss International Trade Logistics • \$900,000 for Creating	
JAXPORT Wetlands	31
Honorary Port Pilot Award to K-Line's Itoh • New Orleans Opens	
Telemarketing Center	32
New Orleans to Develop New Wharf Facilities • Consortium to Tackle Met	
Transportation • Container Barge Moves Up 12.7% at Portland	33
Redwood City Tonnage: Highest in 8 Years • 1989 Quality Port • Port of	
Charleston: 4 Container Cranes Added • Port of Tacoma Opens 5-story	
Control Tower	34
Tacoma Welcomes Kubota Tractor Corp.	35

#### Africa/Europe

Port of Copenhagen in Profile • Port of Marseilles: International	
Cooperation	36
Rapid Turnaround Port Proceeding on Schedule	37
Port of Amsterdam: Good First Quarter • Port of Rotterdam: First Half	
Growth 8.7% • ABP Aids Creation of New Nature Reserve	38
Artificial Cliff	39

#### Asia/Oceania

Another Record Year for Port of Brisbane	39
Commission Calls For Industrial Changes • Government OK Sought	
on Fremantle Port Survey • KCT Chief Executive Touches	
on Privatization	40
Kuantan Port Handles 16% More Cargo • Penang Port Works Out	
Development Plans • Economic Impacts of Ports of Auckland	41
PPA Approves Major Policies on Ports • PPA Standardizes Cargo	
Contracts • PSA Container Gate System to Be Automated	43
Self-service Forklifts at PSA Gateways • Port Rashid Records	
Further Growth	44



# PORT -ability

The primary function of any port is to ensure the fast and efficient movement of goods.

To this end, Dublin Port boasts the most modern and sophisticated facilities.

From tugs, pilotage service, stevedoring and roll on/roll off services to oil bunkering, lift on/lift off and a direct rail link to the quayside with a full range of trans-shipment and bonding facilities.

Dublin port is Ireland's premier port handling 34% of all the country's international trade.

If you're moving goods in or out of Ireland, count on the ability of Dublin Port.



## DUBLIN PORT

Commercial Manager, Port Centre,  
Alexandra Road, Dublin 1.  
Tel: (01) 722777, 748771.  
Telex: 32508. Fax: 735946.

# IAPH ANNOUNCEMENTS AND NEWS

## Mid-term Exco Meetings May 7-12, 1990 at Fremantle

The Secretary General has recently informed all members of the Executive Committee, the Chairmen of the Internal and Technical Committees and the Liaison Officers that the mid-term meetings of the Exco and the other committees of IAPH will be held at Fremantle, West Australia, from May 7 (Mon) - 12 (Sat), 1990.

Prior to the announcement, the Head Office had circulated a questionnaire to the members concerned asking them to select the dates from among the five options on the basis of the offer originally made by the office of Mr. A.T. Poustie, Chairman and General Manager of Fremantle Port Authority.

The tentative schedule for the meetings as announced by the Secretary General was as follows:

Date	Morning (0900/1200)	Afternoon (1400/1700)
May 06 (Sun)	Arrivals	
May 07 (Mon)	Technical Committees	Technical Committees
May 08 (Tue)	Technical Committees	Technical Committees
May 09 (Wed)	Internal Committees	Internal Committees
May 10 (Thu)	Exco	Exco
May 11 (Fri)	Exco	Technical visit
May 12 (Sat)	Post-Conference functions yet to be known	

Our host, Fremantle Port Authority, has confirmed that accommodation and conference facilities have been reserved at the Esplanade Hotel, Fremantle from May 6 to 12, 1990.

Details on the programs will be announced through this journal as they are developed by the host in consultation with the Officers, Chairmen of the Committees and the Head Office.

Secretary General Kusaka in his circular to the Exco members dated August 21, 1989, indicated that in Fremantle, the Exco will focus on the organization of the 17th IAPH World Ports Conference in Spain in 1991.

Another important item to be dealt with there will concern the establishment of the liaison officers with the World Trade Centers Association (WTCA), The World Teleport Association (WTA) and the Airport Operators

Council International (AOCI) respectively.

Mr. A.T. Poustie visited at the Head Office on August 3rd to discuss the preparations for next year's IAPH meetings at his port. He was visiting Nagoya to attend the Design Exposition there representing the Port of Fremantle, one of Nagoya's sister ports. He confirmed that his port will be most willing to welcome as many IAPH delegates as possible to the mid-term meetings of Exco and other committees.

## IAPH Participates in Sept. 11-15 Hamburg Environment Congress

The Chairman of the PSSEC (Port and Ship Safety, Environment and Construction Committee) has asked the Chairman of the DTF (Dredging Task Force) to arrange for Dr. Pequegnat, an IAPH consultant, to present a technical paper in the environmental seminar entitled "The Harbour — an ecological challenge." The purpose of the seminar is to look at Hamburg as an example of how to find solutions to solve harbor pollution problems worldwide and how to prevent pollution of the North Sea.

The DTF Chairman Mr. Herbert Haar, Jr. (Port of New Orleans), has sent the Secretary General a copy of Dr. Pequegnat's remarks for the above meeting in Hamburg, which Chairman Haar says is a very concise statement and explanation of some of the key issues that will be studied and debated in the LDC during the next two years in an attempt to impose greater controls on the disposal of dredged material at sea.

Following part I of the DTF report featured in the previous issue, we reproduce the paper entitled "Effect on Harbors of Proposed Sediment Quality Criteria" prepared by Dr. Willis E. Pequegnat for presentation to the Hamburg Congress. (Please see pages 9-15 of this issue).

Furthermore, the DTF Chairman and Dr. Pequegnat will prepare papers for a French government seminar on the environment to be held for European and developing nations in Nantes, France in late November 1989. In this connection, Chairman Haar says that IADC will provide some additional funding to support this initiative and Mr. Brossard (a member of the DTF from the Port Autonome de Nantes — St. Nazaire) also agreed to seek some funding for the seminar from the French government.



# IAPH to Establish Liaison With 3 Int'l Organizations

At the initiative of President McJunkin, IAPH has been seeking to establish liaison with the World Trade Centers Association (WTCA), the World Teleport Association (WTC) and the Airport Operators Council (AOCI) respectively on the basis of the suggestion made by some U.S. members of IAPH during the Miami Conference.

The idea behind the suggestion was to see IAPH establish a system through which it would examine the future of trade, telecommunications, and transportation - both sea and air - in parallel with similar efforts that are being undertaken by the above three organizations for the maximum use of the resources available by each of the four organizations.

In order to develop the scope of this proposal, President McJunkin has discussed the matter with the three individuals who are involved in the activities of these associations representing their own port. They were Mrs. Lillian C. Liburdi, Director, Port Department, The Port Authority of New York and New Jersey, who currently serves as IAPH Liaison Officer with the UN ECOSOC, Mr. Brendan O'Malley, Port Administrator, Maryland Port Administration, and Mr. Z. van Wijck, Executive Director, Port of Seattle.

By the beginning of August, Mrs. Liburdi had discussed the matter with all three associations and learned that they are enthusiastic about the IAPH proposal. To start these relationships as soon as possible, President McJunkin has asked Mrs. Liburdi to serve as interim liaison with WTA, Mr. O'Malley do the same with WTCA and Mr. van Wijck with AOCI respectively. They have all agreed to carry out the required missions and to report to the mid-term Exco meetings in Fremantle on their recommendations as to what form a permanent arrangement should take.

The appointment of the interim liaison officers has been communicated to the three organizations by the Secretary General Mr. Kusaka, who in his recent letter sent to the three organizations stated that IAPH is prepared to commence as soon as they are ready to accept us.

For the benefit of our members and readers of this journal, we introduce a profile of the three organizations on the basis of the information acquired by Mr. R. Kondoh, IAPH Head Office.

## The World Trade Centers Association (WTCA)

Headquarters: One World Trade Center, Suite 7701, New York N.Y. 10048, U.S.A.

President: M. Guy F. Tozzoli

Secretary General: Mr. Thomas J. Kearney

a) WTCA was established as a non-profit organization in 1968 when a small group of individuals interested in world trade centers met in New Orleans. The goal established for the WTCA was to expand and simplify international trade by concentrating traders and trade services into modern, centralized facilities. Twenty years after its inception, the WTC has 194 members in 186 cities from forty-seven countries.

b) Since many such trading-posts (cities) are located in the coastal areas (port cities), a substantial number of



Mrs. Liburdi  
Port Authority of  
New York &  
New Jersey



Mr. O'Malley  
Maryland Port  
Administration



Mr. van Wijck  
Port of  
Seattle

such world trade centers are located in cities whose names are by words for ports of international recognition. Also, along with the refurbishment of old port facilities, a sizeable number of them are located in the waterfront areas.

c) Similarly, along with the transformation of the roles played by ports, the interests of ports (as land-owner and as regards land space management, trade development and others) are reflected directly or indirectly in the makeup of such institutions.

d) In many cases, those institutions — governmental, public or private — as well as manufacturers and traders who are involved in international trade not only use such facilities but also play a significant part in the organizations themselves.

e) The World Trade Institute of NYC WTC is one of the prominent institutions devoted to providing professional knowledge and expertise. From time to time, the recipients of the IAPH Bursary participate in training courses or seminars organized by the NYC WTC.

## The World Teleport Association (WTA)

Headquarters: One Teleport Drive, Staten Island New York 10311, U.S.A.

President: Mr. R. Annuziata

Administrator: Mr. Richard A. Gonzalo

a) The WTA, an institution established in New York in February 1984, is devoted to creating a global satellite communication systems by concentrating its physical facilities, and administrative and operational functions at each teleport.

b) For basically the same reasons as seen in the case of WTCA, a large number of such facilities are located in waterfront areas or within premises directly or indirectly owned and controlled by port management bodies.

c) For that same reason, though depending upon the circumstances of the individual locales, the various interests of many governmental, public and private institutions (PTT, carriers, manufacturers, traders, bankers and others) are present within the organization. In many cases the ports are heavily involved in such projects as providing land-space.

d) As information becomes the world's most traded commodity, and in line with the development of information

## Visitors to Head Office

On August 3, Mr. Trevor Poustie, Chairman and General Manager, Fremantle Port Authority, West Australia

On August 28, Mr. Francis J. MacNaughton, Port Manager and Chief Executive Officer, Mr. Ray L. Purdy, Director Marketing and Mr. R. Kongo, Marketing Representative for Japan, Vancouver Port Corporation, Canada

systems such as EDI, a number of ports are trying to establish an international information-oriented system of linkage with other ports. Most recently the Ports of Singapore and Bremen have succeeded in creating such an EDI system linking them. This can be considered a good example of the many on-going projects.

e) As of June 1989, the organization had 13 Regular and 9 Affiliated Members under its regional organizations from North America, Latin America, Asia, Europe and Africa/Middle East.

### **The Airport Operators Council International (AOCI)**

Headquarters: Suite 200, 1220 Nineteenth Street Washington D.C., U.S.A.

Executive Director: George Howard

a) Established in 1948, AOCI represents the interests of airports worldwide. Presently it represents 230 members operating more than 850 airports. Its membership basically consists of governmental bodies that own and operate airports served by scheduled air carriers, international or national. It claims to serve as the "voice of airports" with the media and the public, and to promote public awareness of the importance of airports to their local economies and on a global scale.

b) AOCI has 10 standing committees: Legal, Economic Technical, Planning & Environmental Affairs, Marketing/ Communications, Information Systems, Class A Airports, Operations, Security and International Affairs. The organization meets annually.

c) In a broader context, there is a markedly strong similarity in the nature and characteristics of AOCI and IAPH in their function as gate-keepers of terminals for air or sea transportation networks.

d) As clearly indicated in the recent trends in maritime transport, the tempo of development of multimodal transport seems to be increasing steadily, necessitating the creation of firm ties of communication and most importantly, understanding between the gate-keepers of these two essentially different modes of transportation.

e) The organization's publications include "Legal Newsletter", "Congressional Action Letter" and "Airport Highlights" (a weekly bulletin).

### **IPD Fund: Contribution Report We still need US\$24,000**

Perhaps interrupted by summer vacations on the part of many of our members, we have been unable to receive any additional contributions to the IPD Fund since our last announcement in the previous issue. The CIPD Chairman, Mr. Kruk, and the Secretary General renew their appeal to all IAPH members, particularly those who have not yet replied yet to the Committee's call, to give their strong support to the ongoing fund-raising campaign. To achieve the targeted amount of US\$70,000 we still need US\$24,000. Members' continued support of the project is ardently requested.

\* Union of Autonomous Ports & Industrial & Maritime Chamber of Commerce

\*\* Directorate-General of Shipping & Maritime Affairs, Port Management of Rotterdam, Port of Vlissingen, Port of Delfzijl/Eemshaven, Port Management of Amsterdam

### **Contributions to the Special Fund (As of September 10, 1989)**

Contributors	Amount
<b>Paid:</b>	<b>(US\$)</b>
Associated British Ports, UK	3,000
South Carolina State Ports Authority, USA	1,000
Cyprus Ports Authority, Cyprus	700
Japan Port & Harbor Association, Japan	450
Toyo Construction Co., Ltd., Japan	234
Toa Corporation, Japan	500
Port Alberni Harbour Commission, Canada	200
Korea Dredging Corporation, Korea	300
Port Authority of New York & New Jersey, USA	1,000
Vancouver Port Corporation, Canada	1,000
Klang Port Authority, Malaysia	200
Saeki Kensetsu Kogyo Co., Ltd., Japan	250
Penta-Ocean Construction Co., Ltd., Japan	1,000
All French Ports by UPACCIM*	1,560
Shimizu Construction Co., Ltd., Japan	390
Taisei Corporation, Japan	390
Japanese Shipowners' Association, Japan	390
Port of Redwood City, USA	100
Puerto Autonomo de Barcelona, Spain	991
Port Authority of Thailand	100
Port Rashid Authority, UAE	500
Japan Cargo Handling Mechanization Association	390
Obayashi Corporation, Japan	400
Port of Copenhagen Authority, Denmark	1,000
Clyde Port Authority, UK	1,000
Public Port Corporation II, Indonesia	150
Toyama Prefecture, Japan	420
Georgia Ports Authority, USA	1,000
Port of Oakland, USA	350
Kuantan Port Authority, Malaysia	200
Port of Seattle, USA	1,000
Kajima Corporation, Japan	420
Port of Reykjavik, Iceland	500
Canada Ports Corporation, Canada	250
Nigerian Ports Authority, Nigeria	250
Port of Montreal, Canada	1,000
Ports Public Authority, Kuwait	1,000
Tanzania Harbours Authority	200
Junta del Puerto de Gijon, Spain	500
Sharjah Ports Authority, U.A.E.	500
Port of Yokohama, Japan	4,950
Port of Long Beach, USA	1,000
Mauritius Marine Authority	200
Chiba Prefecture, Japan	403
Dr. Frederik K. DeVos, Canada	100
Tokyo Metropolitan Government, Japan	3,941
IAPH members in the Netherlands**	3,209
Mr. Robert W. Innes, Canada	250
Autorite Portuaire Nationale (APN), Haiti	100
Hiroshima Prefecture, Japan	666
City of Kobe, Japan	4,438
Port of Houston, USA	1,000
Port Authority of Fiji, Fiji	300
Osaka Port Terminal Development Corp., Japan	697
<b>Total</b>	<b>US\$ 46,039</b>
<b>Pledged: Nil</b>	

# Report by Bursary Recipient

## Port Management and Operations Course

By **Suliasi Vakatora**  
Ports Authority of Fiji

### 1. Duration

The course which was conducted by the Training Department of the Port of Singapore Authority, was held from the 5th of June to the 16th of June, 1989.

### 2. Participants

Participants that took part in the course covered a wide section of people involved in the shipping industry and in areas related to a port. A total of 44 people from various countries such as Indonesia, Fiji, Western Samoa, Seychelles, Malta, Antigua, Hong Kong, Bangladesh and Pakistan attended the course.

### 3. Course Contents

The course contents covered a wide range of topics that are relative to Port Management and Operations. These included topics covering Forecasting, Pilotage, Engineering, Stevedorage, Finance, Legal, Marketing, Quality Control Concepts, and Customs and Security.

Topics covered were as follows:

- 1 Role and Significance of Port in Maritime Transport
- 2 Demand and Port Capacity Forecasting
- 3 Principles and Concepts of Port Planning
- 4 Planning and Development of the Tanjong Pagar Terminal — a case study
- 5 Organisation and Administration of Marine Operations
- 6 Navigation and Traffic Control
- 7 Pilotage Operations
- 8 Trends in Marine Operations
- 9 Organisation of Port Operations
- 10 The Ships System, Planning Ship Operations
- 11 Transit and Storage Operations
- 12 Organisation of Labour for Conventional Operations
- 13 Conventional Cargo Documentation Procedures
- 14 Role of Customs in the Port
- 15 Management of Warehousing Operation
- 16 Concept of Central Distribution Centre
- 17 Container Ship Operations
- 18 Container Yard Operations
- 19 Container Freight Station Operations
- 20 Selection and Evaluation of Cargo Handling Equipment
- 21 Purchasing and Inventory Control
- 22 Port Regulations Governing Dangerous Goods
- 23 Handling and Storage of Dangerous Goods
- 24 Port Tariff Structure and Applications
- 25 Capital/Recurrent Budgeting Systems in the Port
- 26 Port Policing and Security
- 27 Fire Prevention and Pollution Control Measures
- 28 Computer Applications in the Port
- 29 Legal Aspects of Port Operations

## New Members from Sudan and Morocco

The IAPH Head Office has recently received indications that membership applications are to be made by the Sea Ports Corporation, Sudan, and the Office National des Ports, Morocco. When these organizations have completed the application procedures, the IAPH membership will represent 83 countries, a record number for our Association. We are hopeful that we will be able to announce them as new regular members following their completion of the application procedures.

### 30 Marketing of Port Services

### 31 Human Resource Development through Quality Control Activities

The course lecturers were people involved with the various topics above in their work at the Port of Singapore Authority and were very experienced in their own fields.

Since the course was run by the Port of Singapore Authority, topics and discussions were centered in the context and mode operations of the Port of Singapore Authority.

Apart from classroom work, visits were also made to various places of interest in the Port of Singapore Authority and these included:

- 1 The Keppel Automated Warehouse
- 2 The Multi-Complex Warehouses
- 3 Tanjong Pagar Terminal
- 4 Port Operations Centre
- 5 Computer Operations Room

The above visits enabled the participants to view first hand various operations of the Port of Singapore Authority, and to assess for themselves the discussions that were held in the classroom.

Areas of particular interest to me were the Tanjong Pagar Terminal at which 3.4 million TEUs were handled during 1988 with all its modern container handling equipment and the Keppel automated warehouse, where all facets of operations were done through computerisation and mechanisation.

### 4 General

(a) A topic that was taken during the course that, in my view, could be tried out here in Fiji was on the concept of a Central Distribution Centre (CDC).

This concept was a joint project of the PSA, Singapore Trade Development Board and the Singaporean Government. The concept involves the setting up of large distribution centres for products of the world's major manufacturers of computer parts, electronic and electrical components, etc. The concept also relies on a very efficient port and airport.

The reason why I felt that this concept could be pursued in Fiji is because of its similarities to Singapore. It is in the main trade routes and also the deep natural harbours that Fiji possess, and an efficient port and airport.

The C.D.Cs in Singapore serves most of Asia and Australia.

In Fiji's case C.D.Cs can serve Australia, New Zealand and the rest of the Pacific regions.

(b) The course itself was very intensive and demanding and a very wide range of topics taken. All the topics discussed were taken from the experiences of the Port of Singapore

*(Continued on Page 7, Col. 2)*



# OPEN FORUM

## EDI Community Network Concept Comes Alive

*AAPMA press release — The following article was contributed through the good offices of Mr. Peter M. Brown, Executive Director, Association of Australian Port and Marine Authorities (AAPMA).*



Mr. Brown

Tradegate Australia is being established as the vehicle to implement the principal recommendations of the National Communications Working Party (NCWP).

Those recommendations include the establishment of a community based EDI network to cover the requirements of all trade and transport services.

The National Communications Working Party was created within the Waterfront Strategy inquiry conducted by the Inter-State Commission.

Its principal objective was to recommend the best means of achieving improved communications between the disparate parties operating within that troubled industry.

Its members were representative of all waterfront interests under the chairmanship of Ian Stoney who had served on the Webber Task Force. He had come from the Victorian ports scene.

It was agreed from the outset that it would be of little use to tinker with the spate of outmoded documentary systems currently being used.

What was obviously needed was a quantum leap in total communication systems availability not only within Australia but also connecting us to the major international ports with whom we are trading.

EDI is an almost magical acronym. It is prescribed flavour of the month for all such situations.

### Problems Found in Overseas Ports

It is well known that major ports in both Europe and USA have all rushed this solution to the same problem.

But a study of their operations by committee member Peter Brown Executive Director of AAPMA has shown that whilst such systems were technically successful they were, with one exception, not widely supported by their Port Communities. The exception is Maritime Cargo Processing at Felixstowe UK. The reason for this problem, i.e. inadequate market penetration was assessed to be caused by multiple fragmentation. That is fragmentation of the potential EDI network users into separate groupings e.g. sea and airfreight shippers, combined with fragmentation of functions into separate networks e.g. transport services in

one and customs functions in another.

The separate port systems in USA are giving shippers indigestion by requiring them to operate with different connections to each.

Major shipping lines such as Sealand who had developed their own proprietary system have realised what an impossible demand this would place on shippers if extended to all lines and so are now co-operating with the Community Networks. The information systems manager of Sealand, Hans Wieting, is now Chairman of the North America EDIFACT transport group.

Faced with this cumbersome and expensive alternative to existing systems, inadequate as they are, network customers have stayed away in droves.

Felixstowe had overcome the most major problem by combining the automation of both customs formalities and shipping documentation at its container terminal network.

The evidence available to NCWP established the validity of what Felixstowe had done and also the need to go beyond its model. NCWP accepted that we should coordinate all of the options into one system by bringing together carriers, ports, terminals, sea, air, road and rail modes and finally the trading transactions of both importers and exporters. Only in this way could the real savings offered by EDI by way of avoidance of duplicated entry, be achieved.

So NCWP expanded its objective and its membership

### Report by Bursary Recipient

*(Continued from Page 6, Col. 2)*

Authority.

The course was of a great benefit, especially to personnel from the Asia and Pacific region, because the experiences of the Port of Singapore Authority was shared and a lot was learnt from those experiences. For a small nation, in terms of land area, to achieve so much in terms of containers and cargo throughput is indeed an achievement that developing countries can learn and adopt from.

One of the greatest assets of the Port of Singapore Authority, from my observation, was a dedicated and loyal workforce, whose attitude were a total commitment to the Port of Singapore Authority.

Apart from sharing the experiences of the Port of Singapore Authority, opportunity was also given to share the experiences of the ports of the other participants.

### 5 Conclusion

Finally, I would like to offer my appreciation to the International Association of Ports and Harbors for providing the means to enable me to attend the course and also to the Ports Authority of Fiji, especially the Training Department for allowing me to attend the course.

to include Qantas and the airfreight forwarders. It also encouraged the closer involvement by importer/exporter interests.

It was evident that the Singapore Government Computer Board in taking over their EDI trade service development from the Port of Singapore Authority had come to the same conclusions as Australia's NCWP. TradeNet Singapore is now up and running as a technology provider with Port of Singapore Authority and Customs providing the basic value added services.

### **The Australian Solution**

But the problems of implementation in Australia differ greatly from Singapore. Government direction was not possible, geography is diametrically different, Australia has a complex Federal system of divided government influence, a more diverse industrial structure and multiple sea and airports which are landlord ports rather than in the total operating mode as in Singapore.

So the question for NCWP was how this considerable challenge was to be addressed.

The drawing together of all or even most of the disparate interests was understandably seen as a nice theory, but hardly practical.

This was thought to be particularly so in an industry where no one interest could seem to agree with anybody else about anything. Except that our waterfront is a mess that needs cleaning up.

However, what emerged from NCWP was the realisation that EDI was a new technology that everybody would need and would not be captive to any entrenched vested interests. It would need to be user driven rather than technology driven.

EDI represents the birth of a new technology similar in many ways to the situation of a century earlier presented by the telephone.

It is apparent that we could do worse than study the history of the telephone so as to both avoid the same mistakes and to short circuit the benefits the second time around.

In a climate of Government deregulation it was clear to the NCWP that it should take the lead as the coordinating agency which would pull together the many user interest groups. The need for such a body to cater for the disparate needs of all user interests is apparent.

It was in these circumstances that the Australian Customs Service, the combined Port Authorities (AAPMA) and Qantas as the national flag carrier decided to combine as lead promoters of a community based company, Tradegate Australia, to undertake the responsibility for developing a community based EDI Trade Service Network. They have been joined in this by a group of diverse industry organisations acting on behalf of their members' interests.

The industry groupings involved in this provision of development funding are:

- Customs Agents Federation of Australia
- Sea & Airfreight Forwarders Association
- Australian Road Transport Federation
- Australian National Maritime Association
- Austrade
- Australian Chamber of Shipping

A number of shipper groups have also indicated a decision in principle to join in the promotion of this community based venture.

These initial groups will provide the thrust to Tradegate during the period to start up time for the network and its

range of Value Added products.

An important requirement will be to undertake a global review of the total existing industry documentary systems for both sea and air modes. This review would seek to establish: How do we do business today? How can we improve it with EDI?

The first 3 years will be regarded as a transitional period of Tradegate corporate development.

This transitional period will gradually mesh into a full blown community company in which all subscribers to the network services will be members.

It is estimated that at the completion of the international transport segment of the network that 2,000 Australian companies drawn from all relevant industry sectors will be subscriber/members of Tradegate Australia.

### **Network Operator**

Most importantly the preferred network operator assessment carried out by NCWP and which favoured PAXUS COMNET (CSIRONET) has been picked up by the Tradegate and negotiations are proceeding so as to keep the development timetable on track.

This timetable is particularly important to the Australian Customs Service whose own program of automation is very tight.

- (i) EXIT Stage 1 fully operational by 1/8/89. EXIT Stage 2 trials by January 1990.
- (ii) EFT trials now proceeding. Liability question with banks yet to be resolved.
- (iii) Automated Cargo Control Trials - end 1989.
- (iv) EDI lodgement of Customs entries - trial end 1990.

The range of functions to be provided by the network include:

- Message routing
- Store and forward
- Protocol conversion
- Gateways to other networks e.g. the airlines SITA system
- Encouragement of appropriate value added services
- The EDI facility itself.

As well as the automated processing of the various customs procedures a cargo tracking and status facility is seen as a key service to be provided within the network. Port authorities are considering how this service might best be provided to their port communities.

Overseas experience shows that it is highly doubtful whether even our largest sea and airports could on their own achieve the necessary volume to support separate networks.

The need to achieve a "critical mass" of transactions to support any network or to make it more commercially viable is no more clearly demonstrated than by the banks deciding to combine their erstwhile competitive EFT networks by way of interconnectivity.

Tradegate will establish a community wide network facility available to every business across Australia which has access to a reasonably modern telephone service.

This situation will happen virtually simultaneously in all centres rather than by staggered phase in.

### **Standards for EDI**

Tradegate also recognises the vital need for EDI in Australia to operate on the fast emerging international UN/EDIFACT Standard. (Continued on Page 9)

# Effects on Harbors of Proposed Sediment Quality Criteria

By Willis E. Pequegnat  
Science Consultant on Dredging  
International Association of Ports and Harbors

*This paper was presented to the International Environmental Congress on the Harbors in Hamburg September 11-15, 1989.*

## Introduction

One of the most pressing problems confronting ports and harbors in the United States at the present time is the need to deepen and maintain their channels through dredging in order to accommodate increasingly large ships of commerce. The problem is exacerbated by regulatory and resource agencies of the government that are acting to deny permits for the disposal of dredged materials judged by unproven criteria to be unsuitable for ocean disposal. Thus, both ports and the U.S. Army Corps of Engineers agree that one of their most difficult problems is finding dredged material disposal sites that are acceptable to the U.S. Environmental Protection Agency, the Fish and Wildlife Service, and the National Marine Fisheries Service among

others. There is, however, much concern among the managers of U.S. harbors that some environmental regulators in the above agencies are using unsound technical approaches to rate the toxicity of dredged sediments. These techniques of concern have been developed by consulting companies for the government in the hopes of establishing numerical sediment quality criteria, similar to those that we have long had for judging water quality. Presumably the objective is to establish single number results by which one can evaluate the acceptability of dredged materials for open-water disposal.

The two techniques that I have elected to discuss in this paper are the very controversial Apparent Effects Threshold (AET) and the Sediment Quality Triad. The common factor

*(Continued from Page 8)*

An EDI standard comes in three separate parts, Syntax, Data Elements, and Messaging.

International agreement has now been finalised on the first two parts, Syntax and Data Elements. Development of international standard messages to cover all trade and transport situations may take years. However, the development of basic transport messages can now proceed quite quickly as the EDIFACT International Forwarding and Transport Message (IFTM) message is approved for trial use as from September 1989.

Whilst some slight delay might occur in developing our EDIFACT message requirements the alternative presents a major danger by encouraging people to follow a path into ANSI which is itself not yet a widely adopted standard in USA and one which American interests are now preparing to desert in favour of EDIFACT. Of major significance is the recent decision by ODETTE the European Automotive Industry Network to use EDIFACT IFTM messages for their connection to the Transport Networks. In any event US transport EDI messaging is in JDCC style not ANSI.

Australia, more than any other country, should realise the frustrations and cost of creating another situation within our communications infrastructure which would be akin to the rail break-of-gauge problem which in a full sense we would never overcome.

Any encouragement now to Australian users to adopt other than EDIFACT standards would be a similar mistake.

UN/EDIFACT development is in the hands of three groups based in Europe, USA and the Eastern Bloc and is now progressing quite quickly. The Asia/Pacific region is not as yet directly represented in the development of EDIFACT Standards. However, an UN/EDIFACT group visited Australia in June for the express purpose of progressing this possibility sooner rather than later.

In some ways this standards problem has not mattered too much to date as concentration has been on the technical side of EDI.

But now that the practical application aspect of mes-

saging is up front the Tradegate steering group sees that Australian interests must be properly represented in the relevant international forums. To this end Tradegate was represented at the recent EDIFACT Rapporteur meetings in Washington by Peter Brown of AAPMA and Robert Dakin of PAXUS COMNET.

This is a much broader issue than the Tradegate Network and extends to the whole community.

Tradegate has written to Transport and Communications Minister Willis proposing that now that NCWP has completed its task, Government support should be directed to this vital area of EDI standards as well as to other aspects of formulating a National EDI Policy.

It is noticeable now in the UN/EDIFACT forum which comprises very practical and hard working commercial people that more and more Governments are recognising the vital importance which EDI development holds for their trading performance and for the economy generally.

The work of NCWP and the follow up by Tradegate is bringing Australia to the forefront of EDI technology. These efforts will require continuing Government support not by direct funding but by developing an appropriate awareness within Government of what EDI is all about and its inevitable effect on the community as a whole.

It would be desirable for example to have the Australian Government give the same recognition to the national importance of EDI development as has happened in very similar circumstances in Canada.

EDI technology is not to do now so much with hardware, system interconnectivity and all the other visible aspects of EDI but with the great conceptual change from managing structured paperwork layouts i.e. forms, to managing information as such in an unstructured format. Information will need to be managed so as to avoid the endless duplication of data processing and storage which the multitudinous administrative processes of a modern economy seem to demand.

The nations that stay ahead in this challenge will surely be positioned to stay up front with international trade performance.

in these techniques is the calculation of numerical values for pollutant concentrations that will always cause unacceptable adverse impacts upon the living environment. Both assessments require carrying out a synoptic bulk chemical analysis of the sediment, as well as one or more biological tests for toxicity and biotal impacts.

I do not propose to describe these techniques in more detail than the minimum necessary for one to understand why they have caused so much controversy in recent months. Beyond doubt, one can establish a cause-and-effect response of an organism in a liquid system comprised of a single chemical in otherwise pure seawater, but it is equally clear that as soon as dredged material or other bottom sediments are added to the system a cause-and-effect relationship can no longer be established with certainty. I propose to discuss the reasons why this is so in the marine environment as well as in an aquarium. Both AET and Triad are presently unsatisfactory in part because they cannot compensate for the mitigative properties (i.e., pollutant sequestering) of bottom sediment and work them into their calculations. It is these properties that ports maintain make most dredged materials safe to dispose in the aquatic environment. But before discussing these properties, I need to provide brief descriptions of both AET and Triad in their present form.

### **Apparent Effects Threshold (AET)**

AET is a method that attempts to quantitatively describe sediment toxicity and biological effects in relation to sediment contaminant concentrations. The process is an attempt to use both chemical and biological data to determine threshold-effect levels of contaminants or contaminant groups that could be used to evaluate potential toxicity or biological effects at sites where only sediment chemistry data (numerical values) are available. Accordingly, an AET can be defined as the sediment concentration (expressed in appropriate units) of a given chemical above which a particular adverse biological effect would always be expected (**Figure 1**). This figure portrays the process by which AETs are derived. A data set is selected in which data for each sampling station include both the sediment concentration of the contaminant for which the AET is being derived, and a measure of the biological effect under consideration. The stations are then arranged in order of increasing contaminant concentration coupled with the occurrence or absence at each station of the effect in question. Presumably, this results in a series of initial stations with low contaminant concentrations at which no effects occurred, followed by a series in which effects occurred sporadically but inconsistently (because a number of parameters other than the contaminant in question influence biological response to the sediment), followed finally by a series with contaminant concentrations above which effects occurred at all of the remaining stations.

One can easily see some disturbing attributes of AET. First, it depends on determining concentrations of contaminants in sediment without determining those characteristics of the sediment that will effect mitigation and thus bioavailability of the contaminant in the field. Second, it is clear that AET is extremely sampling intensive and thus costly, simply because (1) the data set must be quite large to ensure that all of the critical concentrations of the chemical involved are represented and (2) because for each chemical contaminant of concern additional AET values must be defined for the biological indicators being tested (e.g., benthic fauna richness or solid-phase bioassays).

Although the AET concept is simple, its application

to environmental data incorporates many complex biological-chemical interrelationships. Many of these are not separable by AET. For example, the AET approach cannot distinguish and quantify synergisms, antagonisms, matrix effects of the sediment itself (e.g., presence of clays that may bind contaminants), or the contributions of unmeasured toxic chemicals for which a measured chemical is the surrogate. Because of these and other concerns, harbors that are members of the International Association of Ports and Harbors (IAPH) are disturbed by the use that some regulators make of this technique in ranking the degree of degradation of sites. Such ranking systems, although based upon test results, are clearly subjective and thus are little more than estimates that are nevertheless very consuming of time and money when enforced by regulators.

### **Sediment Quality Triad**

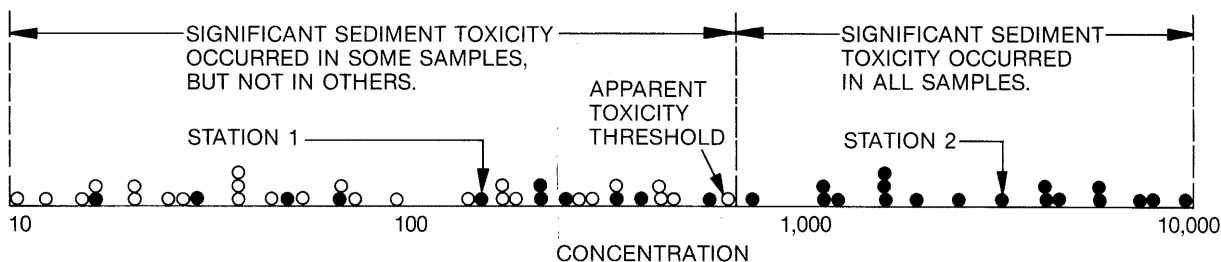
The Triad also requires a great deal of field sampling and laboratory analysis. Some feel that the level of effort far exceeds that necessary to evaluate the suitability of dredged material for open-water disposal. They cite that the Triad consists of measures of the quality of sediments by determining three parameters: (1) the degree of anthropogenic chemical contamination of test sediments through synoptic bulk chemical analysis, (2) the level of sediment toxicity by conducting laboratory bioassays with appropriate species of marine organisms, and (3) the degree of alteration of resident biological communities through field and laboratory studies of the infauna in the harbor areas of interest. It is the conclusion of those who are promoting Triad that the three measurements complement each other and are needed to establish that any degradation observed has resulted from chemical pollution. The null hypothesis associated with the Triad is simply that no one of the above individual measures can suffice to define pollution-induced degradation and as a consequence only by measurement of the Triad components and evaluation of all the evidence can problem areas be identified.

When preparing to use the Triad method, one should establish a reference site which is known to be relatively free of anthropogenic sources of pollution. Data from reference stations are critical to establishment of the Triad. Ordinarily, sediment samples for all tests are collected with a small grab. Five replicates are taken for benthic infauna and washed down through a 1 mm stainless steel screen. Sediment samples are analyzed for grain size, TOC, TVS and sulfides, as well as for 21 metals and metalloids, low molecular weight aromatic hydrocarbons, high molecular weight aromatic hydrocarbons, and chlorinated hydrocarbons. Four sediment bioassays are used to measure sediment toxicity, e.g. an amphipod, a clam, mussel larvae, and a copepod. Benthic infaunal analyses involve identifying each taxon to the lowest possible level and then performing community descriptive statistics (diversity, equitability, dominance, and cluster analysis). Each category of data, i.e., chemical, bioassay, and benthic infauna, is expressed as arithmetic means that are then divided by the mean values of each parameter from the reference site to yield ratios-to-reference (RTRs). By so doing, one can ascertain a measure of the degree of alteration of each sampling station and site compared to the reference site and to each other.

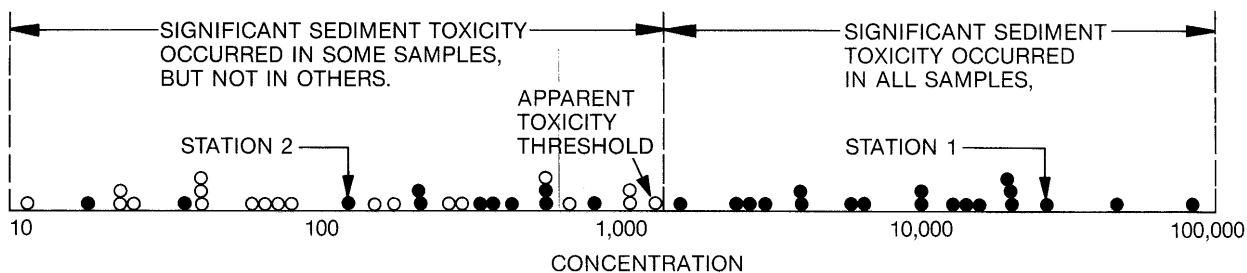
RTR values are also calculated for the results of the four bioassays and for the benthic infaunal analyses where species richness, total abundance, numerical dominance, and relative major taxon proportions (Polychaeta, Mollusca, and

FIGURE 1  
A PICTORIAL REPRESENTATION OF THE AET APPROACH FOR TWO HYPOTHETICAL CHEMICAL CONTAMINANTS

### CHEMICAL A



### CHEMICAL B



- RESULTS OF TOXICITY BIOASSAY NOT SIGNIFICANTLY DIFFERENT ( $P > 0.05$ ) FROM REFERENCE CONDITIONS
- RESULTS OF TOXICITY BIOASSAY SIGNIFICANTLY DIFFERENT ( $P < 0.05$ ) FROM REFERENCE CONDITIONS

## Would you pass him by? Some did...

In 1986, this child was rescued by a merchant ship but only after other ships had passed him by. Today and everyday, there are other children like him, adrift in the South China Sea, in danger of death from drowning or other perils.

It won't cost your ship in time or money if it stops to rescue refugees in distress. UNHCR can ensure prompt disembarkation

and reimbursement for expenses incurred.

For copies of our "*Guidelines for the Disembarkation of Refugees*" please contact us at the address below.

Whenever your vessel encounters refugee boats, **PLEASE STOP** – the refugees need your help.

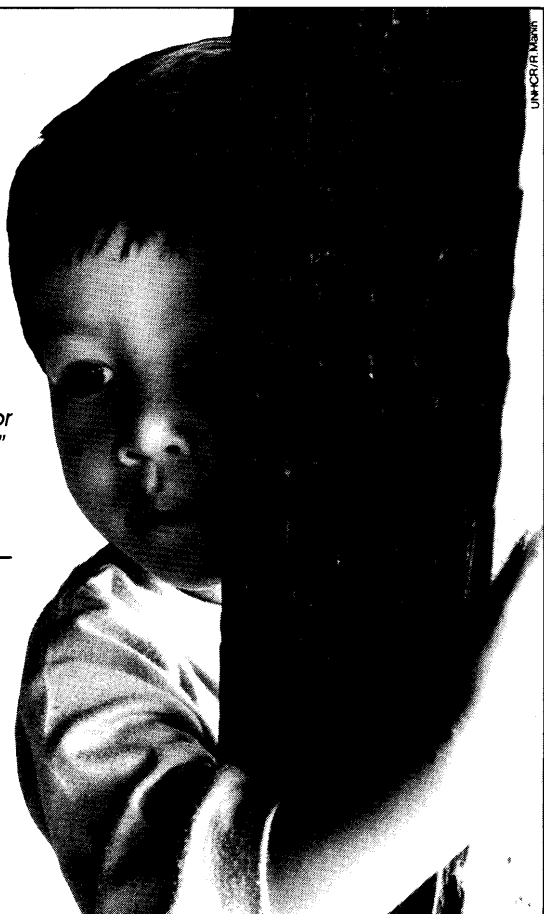


**UNHCR**

United Nations High Commissioner for Refugees

P.O. Box 2500 – CH-1211 Geneva 2 Dépôt – Switzerland

Tel: 39 8111 Fax: (22) 3195 46 Tlx: 27 492 UNHCR CH





Amphipoda) are used. These are calculated as the proportions of the taxa abundance to total abundance for each sample.

The foregoing now makes it clear that Triad determinations require not only a great deal of field and laboratory work but also an immense amount of data handling and analysis. One can properly question whether such intensive work is required to determine the quality of sediments intended for dredging. The proponents believe that it is and feel that the calculation of indices based on RTRs lends objectivity to the process. In calculating indices, the relative degree that the chemical concentrations in the sediments are elevated above the mean concentrations (RTR) of the reference is used as a criterion for selecting the chemicals most likely to be anthropogenically enriched and of concern. The concentration data are used to calculate an aggregate contamination index by averaging all of the trace elements to a single value prior to averaging this value with individual values for the organic compounds. This results in a single composite index that is thought to identify contaminated sites. For example, the chemical concentration RTR for one site might be 0.86, for a second 2.32, and for a third 6.29, showing a trend of increasing potential for degradation. However, it should be pointed out that the toxicity of a chemical substance in sediment can vary not only with concentration but even more with factors that control its bioavailability, including its mineralogy, organic content, pH, cation exchange capacity and the chemical species involved. Toxicity of a sediment can easily be due to an unmeasured chemical whose distribution parallels that of the measured substance. Hence sediment chemistry can only alert one to the possibility of toxic impacts. It will take bioassays to actually determine toxicity.

Interpretation of the results of bioassays is not always an easy task. Cases are known where sediment texture has controlled toxic effects. This seems to be the case when the bioassay organism is the phoxocephalid amphipod, *Rheopoxnius abronius*, which unfortunately is used a great deal on the U.S. Pacific Coast. Nevertheless, laboratory bioassays are at this time the most practicable way of assaying toxicity. In the Triad, RTR indices are calculated by dividing mean mortality of stations by the mean of the stations in the reference site. However, as noted above, these bioassays cannot establish with certainty what effect the toxic elements will have upon the assemblage of organisms in the field.

In the case of biological community analyses, RTRs are calculated for taxa richness, total abundance, and numerical dominance. One modification must be made for the first two categories. High numbers indicate less altered sites, but in the case of chemical concentrations and bioassays high values mean most altered sites. Thus, the values for richness and abundance are entered as reciprocals. Most of us are aware that biotic factors can account for reductions in species richness and these in turn may be a result of sediment textural changes. If only benthic infaunal results are available and infaunal reductions are noted, pollution by organics in a harbor could be suspected. Thus, it is useful to have TOC data available before reaching conclusion.

The final step in the Triad is the simultaneous plotting of RTRs for chemistry, toxicity and community structure. The three types of RTS values for each sampling station are plotted on scales with a common origin and placed at 120 degree from each other to form triaxial plots, i.e., one axis plots chemical contamination, a second plots bioassay toxicity, and the third plots infaunal alteration (Figure 2). The area of the triangles formed by lines interconnecting

station RTRs on each axis is calculated to give both a visual and mathematical assessment of relative degradation. This graphic plotting also permits a clear comparison with reference stations. Certain kinds of analyses of the triangles may be useful to environmental managers. For example, if the infauna exhibits moderate alteration and both the bioassay and chemistry RTRs are low, one would conclude that measured chemicals were not involved. For any one site, it is easy to see which of the three parameters at each sampling station is having the greatest influence on degradation. Although the relationships are not firmly established, some feel as noted above that the areas of the triangle are relatively proportional to the degree of degradation of the site.

## **IAPH Has Some Problems With These Techniques**

In the opinion of some member ports of IAPH, it is not possible to establish universal toxicant concentrations in sediments that will always impact the biota, as proponents of AET are attempting to do. In a recent legal case between a port and the Environmental Protection Agency on the Pacific Coast, some regulators were applying AETs derived in Puget Sound to a system ranking dredging sites in San Francisco Bay. One of several reasons why this is not a scientifically sound practice is simply that the composition of the sediments in the two estuaries differ in ways to affect bioavailability. Other investigators believe that it should be possible to establish AETs for a given bay or estuary, but IAPH believes that even this practice can lead to unfortunate decisions. The basis for this is simply that the toxicity of metals or organics in marine sediments varies with the mineralogical constituents of sediments, which in turn differ not only from one estuary to another but also from one part to another of the same estuary. For these reasons, IAPH believes that it is premature to support techniques built to such a large extent on concentration rather than on characteristics. Let us examine briefly some of the characteristics of marine sediments that are relevant here. These determine bioavailability of toxicants and thus their ecological toxicity. It is important to note also that the sequestering properties of the sediment components discussed below are increased by reducing conditions (low redox) and a near neutral pH. Fortunately, these are conditions usually found in a mound of dredged material disposed of on the seabed.

## **Components of Dredged Sediments That Can Sequester Toxic Substances**

### **High Molecular Weight Humic Materials**

An important property of the naturally occurring organics, which are produced by biotic degradation of plant debris, is their ability to form stable combinations with metal cations. The predominant immobilizing effect is related to the insoluble large molecular weight humic acids. The stability of humic complexes with metals increases with increasing pH due to the ionization of more functional groups of the humic-polyelectrolyte molecule. The humic materials often coat clay micelles where they then increase substantially the binding of metal cations. While so bound, toxic cations will not have harmful effects upon the biota.

### **Low Molecular Weight Humic Material (Fulvics)**

Fulvic acids are good modifiers of metal ion chemistry.

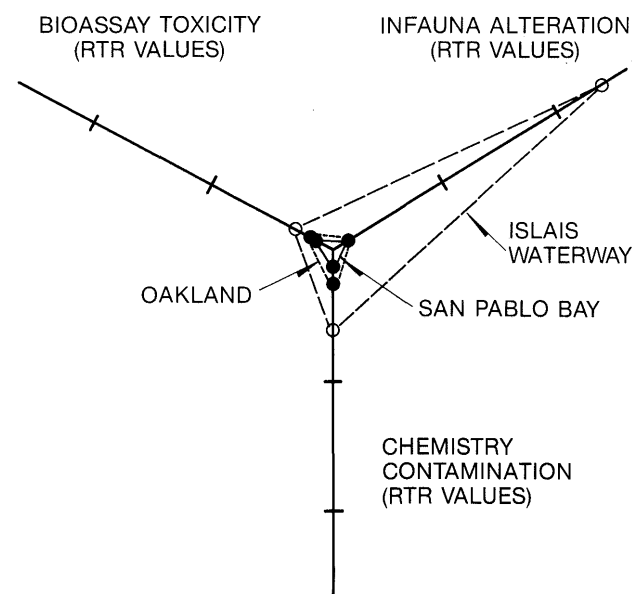
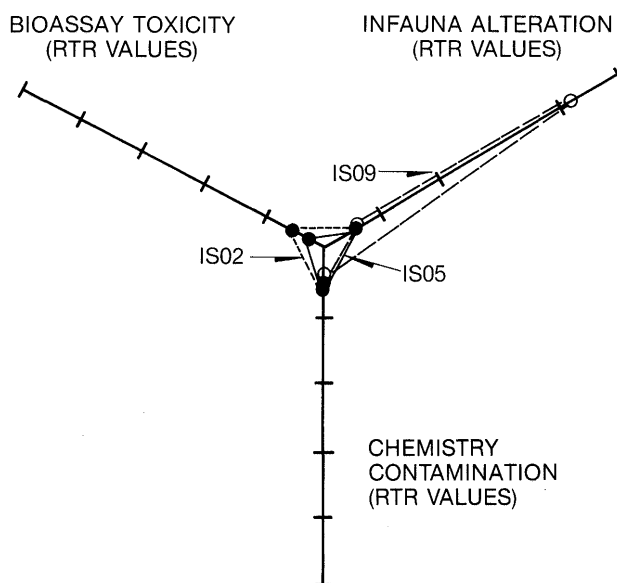
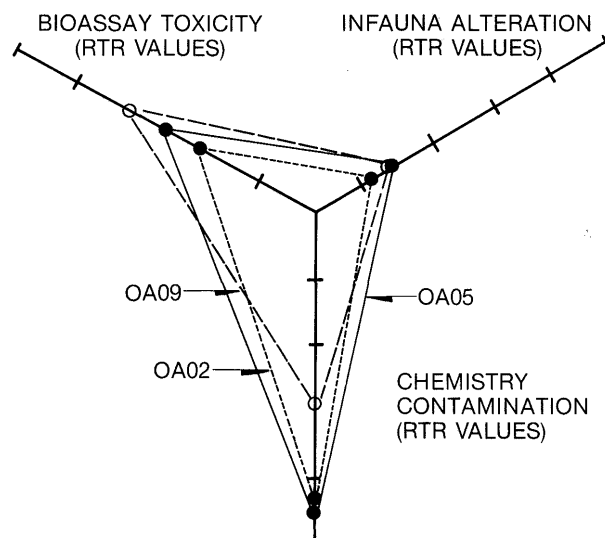
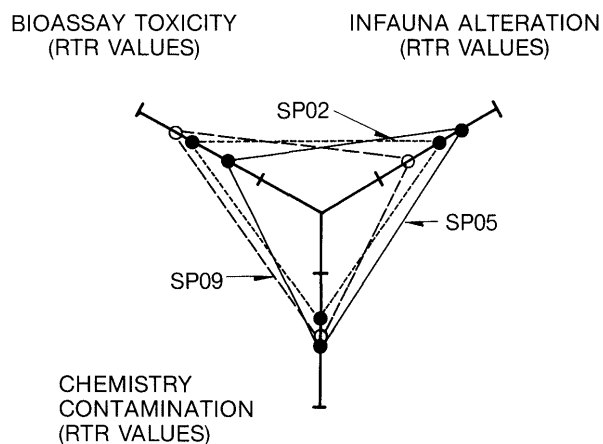


Fig. 2. plots of Sediment Quality Triads for each station of three study sites in San Francisco Bay. Points are RTR values for chemistry, bioassay, and infaunal alteration. San Pablo and Oakland on same scale, Islais 1/25 that of the other two. Lower right shows a comparative plot of the three sites with Islais most degraded and the other two about equal. (Redrawn from Chapman et al. 1987).

Divalent cations generally form much more stable complexes with fulvic acids than monovalent cations. At low pHs, hydrogen ions compete effectively for the reactive sites on fulvic acids reducing metal complexing, but at high pHs the hydroxyl ion competes for the metals. Cadmium (valence 2) is known to be less toxic to aquatic organisms when it is part of a complex with fulvic acid or other ligands than when it is not complexed.

## Clay Minerals

Clay minerals are fairly effective at immobilizing metals and organics by cation exchange reactions. Those clay minerals with a greater surface area and cation exchange capacity are more effective at immobilizing contaminants. In this regard, montmorillonite is one of the best of the clays. Probably the most important sequestration process is related to the relationships among clays, large molecular weight humic materials, and hydrous iron oxides. Where appreciable levels of humic materials and hydrous oxides are found, they are largely present as coatings on the clay mineral micelles (crystals). This relationship is more important in immobilizing metals and synthetic organics than simple sorption to clay minerals.

Clays, as well as the hydrous oxides and humus have colloidal properties, which is a fact of extraordinary environmental importance. The surface and colloidal chemistry of dredged material is determined primarily by two basic properties of the above colloids, viz., their large surface area, and the presence of a surface electrical charge. The charge on soil or sediment colloids may result from either structural imperfections in the interior of the crystal structure or preferential adsorption of certain ions on particle surfaces. Typical of the first type is the colloidal 2:1 type of clay minerals such as micas or smectites, both of which are common in sediments dredged from estuarine ports and harbors. In the case of these clays, which consist largely of  $\text{Si}^{4+}$  or  $\text{Al}^{3+}$  and  $\text{Fe}^{3+}$  and  $\text{Mg}^{2+}$ , ion size limitations on the crystal structure usually result in a substitution of cations of lower valence for those of higher valence, resulting in a net negative charge on the clay structure. Hydrous oxides exhibit hydroxylated surfaces through the chemical adsorption of water whereby the  $\text{H}_2\text{O}$  is split into  $\text{H}^+$  and  $\text{OH}^-$  ions. Charge can develop on these hydroxylated surfaces through either amphoteric dissociations of the surface OH groups or by adsorption of  $\text{H}^+$  or  $\text{OH}^-$  ions. This charge is pH dependent and can thus be made positive or negative by raising or lowering the pH.

The smectites, of which montmorillonite is a very important example, are held to be the most environmentally important clay minerals in sediments. The smectites plus vermiculites are responsible for a large portion of the cation exchange capacity in sediments found in temperate climates. Smectites are responsible for most of the shrinking and swelling that occurs in soils. Montmorillonite adsorbs metals and of equal importance it can be a sink for natural organic compounds as well as herbicides and pesticides so that they are not bioavailable. It has a very high cation exchange capacity, which arises from the substitution of  $\text{Al}^{3+}$  for  $\text{Si}^{4+}$  in tetrahedral sheets and the substitution of divalent cations like  $\text{Mg}^{2+}$  and  $\text{Fe}^{2+}$  for trivalent cations like  $\text{Al}^{3+}$  and  $\text{Fe}^{3+}$  in octahedral sheets. The large internal surface area of smectites (up to an astounding  $800\text{m}^2/\text{dry gram}$ ) accounts for their ability to adsorb great quantities of organic compound, including petroleum hydrocarbons.

## Hydrous Oxides

Iron and manganese oxides are important in regulating the mobility of many toxic metals. Both cations and anions show a strong tendency to interact with hydrous oxides over a considerable pH range. The solid complexes formed with potentially toxic metals will tend to settle out of suspension. If the hydrous metal oxide becomes buried by other sediment material, it will dissolve as the buried horizon becomes reduced and as a result the adsorbed metals will be released. However, under such conditions they can easily combine with sulfide or undergo complexation with humic materials. Some investigators believe that Fe/Mn hydrous oxides and organic coatings on clay micelles substantially control the sorptive behavior of estuarine particulate matter.

**Iron oxides.** Iron plays an important environmental role in dredged material, a role that is complementary to those of clay minerals and humus materials. This arises from the reversibility of its oxidation-reduction reaction, and the fact that its oxides can scavenge toxicants, especially other metals, and that it can complex with organic matter enhancing its toxicant sequestering capabilities. In sediments on the seabed, oxygen is or becomes deficient so that some microorganisms will utilize  $\text{Fe}^{3+}$  oxide as final electron acceptors to accomplish their oxidative decomposition of organic matter. The  $\text{Fe}^{3+}$  is reduced to the  $\text{Fe}^{2+}$  ion that is more soluble and moves through the sediment. When the sediment is oxygenated, reoxidation of the insoluble  $\text{Fe}^{3+}$  occurs and it is precipitated. At this time, the high specific surface area of iron oxides in the form of particles or coatings on other particles make them excellent sinks for both anions and metallic cations. As a result of their hydroxylated surface, the surface charge and potential of iron oxides are determined by the concentration of  $\text{H}^+$  and  $\text{OH}^-$  in solution, i.e., by pH. The surface charge is created by an adsorption or desorption of either  $\text{H}^+$  or  $\text{OH}^-$ . There is a pH at which both anions and cations can be adsorbed. In a multicomponent system or ions of equal valency these ions are adsorbed in simple proportion to their equilibrium activity in solution.

**Manganese Oxides and Hydroxides.** Manganese oxides and hydroxides have a high sorption capacity for heavy metals and can thus effectively sequester such toxicants as mercury and cadmium in dredged material. This comes about in part because the manganese minerals in sediments are finely divided, and have large surface areas. Also, in marine sediments at pHs around 8.0 they carry a high negative charge which also boosts their sorption capacity for metal cations. In fact, in marine sediments or dredged material on the seabed, the manganese oxides accumulate rather high concentrations of metals, particularly cobalt and lead. While the sediments are in place, the metals are not bioavailable.

## Summary Conclusions

In the light of the above discussion, it seems unwise to lend technical support to either of the sediment quality assessment techniques under consideration here as tools for the regulation of the disposal of dredged material. Whereas these techniques may have utility as screening tools in identifying contaminated areas, they are costly and bear little relationship to the effects-based approach necessary for assessing the suitability of dredged material for one or another disposal alternative. Certainly the physical, chemical and biological inter-relationships of sediment/water complexes are far too complex to be evaluated through a rather simplistic statistical approach that cannot delineate and

define cause and effect relationships.

## REFERENCES

- Barrick, R. and H. Beller. 1988. What is an AET? Puget Sound Notes, pp. 3-6, November.
- Borchardt, G.A. 1977. Montmorillonite and other smectite minerals. In: J. Dixon and S.B. Weed (eds.), Minerals in Soil Environments. Soil Science Society of America, Madison, Wisconsin.
- Burchill, S.M., M.H.B. Hayes, and D.J. Greenland. 1981. Adsorption. D.J. Greenland and M.B.H. Hayes (eds.), The Chemistry of Soil Properties. John Wiley and Sons Ltd., New York.

- Chapman, P.M., R.N. Dexter, and E.R. Long. 1987. Synoptic measures of sediment contamination, toxicity, and infaunal community composition (the Sediment Quality Triad) in San Francisco Bay. Marine Ecology Progress Series, Vol. 37:75-96.
- Patrick, W.H., R.P. Gambrell, and R.A. Khalid. 1977. Physicochemical factors regulating solubility and bioavailability of toxic heavy metals in contaminated dredged sediment. J. Environmental Science, Vol. 12 (9): 475-492.
- PTI Environmental Services. 1987. Policy implications of effects-based marine sediment criteria. Final Rept., EPA Contract No. 68-01-7002. Bellevue, Washington.

## Port Organization, Operation And Development

# A Few Basic Principles

**By Jacques Cambon**  
**Chief of the Ports Section**  
**Shipping Division, UNCTAD**



Mr. Cambon

\* *The opinions expressed are those of the author and do not necessarily reflect those of the UNCTAD secretariat.*  
(Geneva, 20 May 1989)

## Introduction

The Port, like a living being, acts, reacts and develops in terms of the evolution of its environment. It adapts badly to pre-established schemes of organization and operation. However, there are a certain number of basic principles which are applicable, with a few exceptions, to all ports and which should be taken into consideration in operating and developing them, no matter what the economic system and policy of the country concerned and the type of organization adopted locally.

My personal experience, in UNCTAD as well as previously (Port of Dakar, Bureau Central des Equipements d'Outremer, BCEOM), was essentially acquired in the field and oriented towards the needs of the developing countries. This experience has been the basis for drafting this article which, I hope, will evoke some reactions which will enable me better to orient UNCTAD studies and other counselling and training activities.

## The Stakes

Experts 1/ estimate that, by the end of the century, maritime transport will remain the principal vector of international trade, mainly for the countries of the South and intercontinental exchanges. World maritime traffic has remained constant for the last ten years at around 3.5 billion tons 2/ which is already remarkable, taking into account the drop in bulk oil traffic. According to P. LEONARD, 1/ only about 10% in value and 1% in tonnage of the goods are moved by air, which is competitive for products which can support a freight of 10FF\*\*/ per kilo. This same competitiveness is of 1FF \*\*/ per kilo by sea. UNCTAD has

estimated an average level of maritime freight of about 5% of the value of imported products.\*/ But such a percentage varies considerably from one product to the other and from one line to the other. One fact is nevertheless certain: All variations of a few units of the total cost of the transport translate into a gain (or a loss...) of markets, because we are moving into an era where the competition will be harsher than in the past. All countries are concerned, even those which are not aware of competition between ports and think they have well established commercial flows.

\*/ This medium percentage is higher for the developing countries (9%) than for the industrialized countries (4%) and this for various reasons, such as the nature of the products, the distance of transportation and the control exerted on freights.

\*\*/ 10FF = \$1.5

Integrated transport operations have concentrated on certain axes, North-North in particular. There will be strong pressure for them to penetrate along all the axes and the obstructions we still find in certain countries and certain intervenors will disappear. The final pattern of the implementation of the transport chain will not always be the one that the country concerned had envisaged. We already see that around the world services which formerly used several ports and lines are concentrating traffic in a few key ports.

In such a context, the ports will have to choose among the three following options:

- (i) to be a passive transfer point for the traffic, in some cases being left aside;
- (ii) to develop this transfer point so that it becomes the best possible in terms of cost and quality of services; or
- (iii) to take the initiative and become the engine of economic development of the region concerned.

I have noticed that in many countries the choice has already been made, either explicitly or implicitly. The stakes are such and the options are of such importance, notably at the level of investment and organization of the transport chain, that it seems advisable for the surveys already made in certain countries to be conducted likewise elsewhere, notably in the developing countries, where the port is often omnipresent in the life of the country, often much more than it is in certain large industrialized countries, which does not thereby imply that it will receive the necessary support to

respond to contemporary challenges.

### **Power and Duty of the State Toward the Ports**

The State holds the prerogative of public power and delegates it to its representative in the port sector, which is usually named the "Port Authority" and is generally either an administrative service of the State or of the region, or a more or less autonomous public establishment placed under the trusteeship of the State. The State lays down the rules for the organization and operation of the port, exerts police functions in the port area (on both land and seaward side), and ensures the security of goods and personnel. It also ensures that the port — which is built on public ground, with public funds, open to all users — is utilized in the best interests of the community and of the operators at the administrative, technical, economic and social levels.

The role of the State has considerably evolved in recent decades, although not always with suitable coherence, and this can cause problems. Traditionally, the State has been omnipresent for a long time in many ports, where it often ensured the financing of a large share of the infrastructure, fixed and received most of the tariffs, ensured a good equilibrium among the social partners, played the role of arbitrator in the case of conflict and delegated to its own personnel many tasks, including even cargo handling operations in certain countries.

Such an integrated conception of the relations of the port and the State was understandable when the hinterland was protected, the traffic captive and the competition not well developed. All these concepts have today to be reconsidered and all the partners, including the State, have generally accepted that they have to evolve towards more decentralization and autonomy of the port's activities to create a greater dynamism and permit the port to meet the challenge of the modern world. These past years, the United Kingdom has probably made the biggest step in this direction. But nearly all countries have followed this trend in various degrees and with different schemes. There is not much interest in describing some of these experiences, because they are rarely transportable. However, the principles which animate them are of great interest for the international port community.

Almost everywhere the State, having to face the difficulties of successive crises, has wished to disengage itself from the very heavy financing of port installations and to have the users and/or the regional or local authorities participate in it. This principle is good because it incites the local decision-makers to be more realistic and less demanding. But it has its limits. It must not translate itself through an excess of conservatism into giving priority to actions which are profitable in the short-term versus those which develop the port structures but are only profitable in the long-run. Further, it is up to the State to set the national priorities and therefore to arbitrate between different competing port sites and to assign public funds correspondingly, because the disengagement of the State cannot be total. Certain port investments, notably heavy infrastructures (breakwaters, channels, etc.) are indivisible and not linked to a given type of traffic/utilizer. Their cost and life are outside the norms of financing which can be accepted by the habitual port operators. The actual practice is to consider that the quay wall is the boundary at which the State may disengage itself totally from the financing of the investment. It has become common practice for the operators to take over the bare quay and themselves finance the sheds,

the stacking areas and, of course, the equipment. But there is a counterpart, not always respected: Giving to these operators long-term contracts (25 — 50 years) to use the public domain and to leave them the flexibility required to set and collect the tariffs, except when they are in a situation of monopoly or for specific types of traffic.

To summarize, one may say that it is now desirable for the State to establish a framework in which the port operators, public or private, will evolve, contribute to its development in financial terms (heavy infrastructures and structural framework) as well as in administrative terms (port organization), set the "rules of the game" applicable to port operators and leave them the maximum autonomy and operating flexibility for them to be able to take up the challenges which await them. This often implies that the trusteeship and controlling power be exerted in a positive way, to accompany and facilitate the development of the port and not to impede it. Certain countries have gone only halfway and continue to apply to their ports certain rules, constraints and controls required in the public sector without recognising the ports' specific character, on the border of the country, in contact and in competition with the outside world. We cannot conceive of a port as playing the role of motor of the economic development of its region if at the same time it has to confront foreign competition and internal administrative constraints.

### **National Ports Authority or Autonomous Ports?**

Following a period where ports were directly managed by the State, the beginning of 1960s saw a number of countries questioning themselves on the best way to organize the operation and the development of their ports at national and local level, by combining as harmoniously as possible their public service character whereby they are created, supervised and sometimes even exploited by the State, on the requirements of their operation by or for commercial partners. Certain countries have opted for the creation of a national ports authority (as have Tunisia and Gabon) in a way to benefit all the ports, including the smaller ones, from the economies of scale generated by the centralization of certain general functions (studies, works, maintenance, etc.) and also from the flexibility deriving from the autonomy of an authority which, while still being a public organization, escapes generally from more strict constraints of the administrative regimes. Other countries have, like France, opted for the creation of autonomous ports (as have Senegal and the Côte d'Ivoire). This regime is applicable to the principal ports, with the other ports continuing to be managed by the State or local public organizations. The notion of autonomy is therefore wholly relative. An autonomous port is generally a public establishment with an industrial and commercial character, it has its own administrative board and, in principle, only a few key actions, functions or decisions are subject to the approval of the State: budget, nomination of the Director, investment programme, markets, tariffs, etc. However, if the governmental directives touching all public organizations introduce State control more rigidly, the notion of autonomy loses much of its substance.

There is thus a continuous evolution in this field, particularly when the trusteeship becomes too heavy and meddlesome. A few autonomous Port Authorities have obtained dispensations (e.g. Abidjan) or a more flexible Statute (the Port of Dakar has been transferred from the statute of a public establishment to the more flexible one of a national company.<sup>3/</sup>) In addition, there is presently



a new phenomenon, perhaps linked to the concepts of decentralization and regionalization: the merging of ports separated by some tens or even hundreds of kilometers or the attachment to an autonomous port of a neighbouring one (e.g. Marseilles-FOS). Therefore, the gap between the concept of a national ports authority and that of an autonomous port is progressively narrowing.

The choice of the type of organization depends on the economic, geographic and political characteristics of the country concerned, as well as on its historical background in this field and on the present circumstances. What is important is to ensure that the sound basic principles of good port operations and development are applied, as well as those of good management. This aspect will be examined in the following sections. However, a few general preliminary remarks are necessary:

1. There must be harmony and complementarity between, on the one hand, the national structure set up to define and implement the country's port policy and on the other hand, the regional or local port organization. It is not sound to ignore this distinction since there is always a need for arbitration at the national level. For this purpose, country policy-makers need to be assisted by a light national structure which will review the files, carry out comparative studies required, collect all the necessary information in order to arbitrate and take the decision on comprehensive and objective grounds (e.g. when there are requests for increases in port charges, maritime freight increases, etc). These national decisions are taken in the interest of the country, and take into account the priorities fixed by the Government. Another asset of such a Central Unit — or Port Directorate — is to ensure continuity in the country's port policy when changes are taking place in the Government, or in the port management. In some small countries the port managers are often very powerful and sometimes reluctant to have this national co-ordination body working closely with the Government. A change in behaviour is desirable. It is advisable to merge all available strengths in order to ensure the necessary equilibrium and continuity in the country's port policy. This can sometimes lead to port developments and policies different from those which could have been recommended by the local or regional authorities.

2. Whenever the port trusteeship or controlling body intervenes it is desirable, in the present context of international competition which requires great dynamism from the ports, to ensure that the modalities of implementation are applied with more flexibility than in the past, in order to avoid paralysing and demoralizing the ports' executives. Such a remark applies particularly to those interventions which concern day-to-day operations (for which any loss of time has heavy consequences). I have particularly in mind the "a priori control" of financial commitments which, from laudable motives, has in fact created a heavy bureaucracy hampering proper port operations.

3. It is not possible to dissociate the State trusteeship or supervisory functions from the level of financial contribution received from it. The generalized phasing out of the State financial contribution to the port infrastructure and equipment logically implies an alleviation of the supervisory and controlling functions, which leads to more decentralization and autonomy.

4. The port institutions (Autonomous Port, National Port Board, etc.) have an administrative board made up of representatives from the State, the region, the port operators, the users and the personnel. Their respective

weight is important since it has a bearing on the decisions taken and policies adopted. It has been recommended for many years that the State representatives should have the majority. It is still often true, but in the present context of developing and dynamizing the port's role as a development pole for the region, the strengthening of local representation is desirable. Certain countries have created small steering committees which meet between the administration board sessions. Advisory committees have also been created with a wide range of representatives from the users and local interests' side. They are chaired by the port manager and the minutes of the meeting are sent to the supervising ministry. Such a trend, which ensures the better mobilization and participation of all local operators and users, seems to be a promising one.

### Organizing a Port Site

Let us consider the main actors. At the top of the list is the State, represented by the Port Authority. At the other extreme is the shipper who is importing or exporting the cargo. The latter is rarely present in the port, and his voice cannot always be heard. This is unfortunate since he is the main port user, the other intervening parties offering their facilities or services. He is playing a commercial role at a time when the competition is intense. Such a fact should be borne in mind by all the port operators, since everything in the transport chain from the shipper to the consignee which can be improved contributes to the extension of the export penetration area and makes importation less onerous.

Between these two extremes are the various operators: dockers, stevedores, agents, forwarders, insurance agents, customs, pilots, police, etc. They are all equally important, and when only one link of the chain is inefficient, port activities are slowed down or stopped. This is not a hackneyed expression. Major ports that have considerably developed their facilities, improved their organization and reduced their costs have lost certain trades since some agents did not follow the trend and simply forgot to inform their clients of new reduced port tariffs.\*/

\*/ It is important to mention here the serious concern of many ports at the fact that their efforts are not being supplemented by similar measures to improve the inland network: roads, railways, etc.

The very high vessel cost should be stressed: around 10,000 dollars per day. Each delay or slowdown in cargo handling always means, sooner or later, penalizing the shipper, and therefore, the country.

How can the port's operations be organized in the best interests of the users, operators and the country? There are not, and there cannot be, fixed models. In certain countries almost all operations are carried out by one single entity: the port authority. In others there are many intervening parties. However, there are some basic rules which deserve to be elaborated starting from an analysis of the possible evolution of the port role for the country.

Trade and its main vector (maritime transport) are rapidly changing towards a higher integration of their components in order to gain efficiency, speed, quality, safety, in other words to become more competitive. We are moving towards a situation where the port will only be a short step in the transport chain without the long and costly past operations. What can be observed on roll-on/roll-off terminals prefigures what tomorrow's port activities will be.

In such a perspective, the port site has to be organized in order to facilitate this evolution, which implies that all interested parties be sensitized and convinced that it is in the port's interests — and in their own interest — to go in this direction. The first action to take is, therefore, to create or strengthen the development of a close collaboration, co-operation and even integration of all port sectors. This can be achieved through the establishment of specific structures in which all parties will be involved in order to merge their efforts and promote the port. This can also be done through the official nomination to the Administrative Board, Steering Committee or other managerial or advisory structures of the main port organizations — all involved parties. A co-operative and team spirit can then emerge which will be the cement needed to link and strengthen the specific actions to be taken to develop the port.

For the technical aspects of cargo handling and cargo transit through the port, the basic rule is to reduce the number of transfer points. When this is not possible, inconveniences should be minimized. In effect each transfer point in the chain, particularly when it implies a liability transfer, often generates delays, conflicts and sometimes disputes (reservations, etc.).

It is therefore advisable to avoid organizing the port according to delineations parallel to the quay wall: e.g. stevedore on board, cargo handling companies on the quay apron, warehousing companies and even other entities to take off the goods on the storage area. On the contrary, the delineation of responsibilities should be such that they are perpendicular to the quay wall and it is desirable to give to one single operator the full responsibility of the cargo transit from the ship hatch to the port gate. The port will therefore be split into coherent geographical units, generally covering a few berths which are called "terminals". The terminal is operated by one operator, organized and equipped according to the traffic requirements. This operator can be a separate entity or an Operations Unit of a larger company extending its activities throughout the port. Such a concept of one single operator is usually implemented in all specialized terminals: bulk, containers, roll-on/roll-off. Nowadays, general break bulk cargo has to be considered as a specialized type of traffic, consisting sometimes of only a limited percentage of the overall port traffic, but requiring the same attention as the other, more "noble" types of traffic.

From the administrative side, the cargo transit through the port requires the accomplishment of a substantial number of formalities (liability transfer, custom clearance, etc.) which implies the preparation of documents, the collection of the corresponding information and the implementation of procedures. It is advisable that in each port site a coordinating structure be established, in order to facilitate the implementation of both operations and procedures. The port authority and customs department should create such a structure and take an active role in its operation. A concrete example can illustrate the consequences of such a lack of consultation and coordination. In certain ports the working hours of the warehouses/transit sheds and those of the Customs Department do not coincide, thereby reducing the actual port operating time. This is not compatible with the concept of productivity and efficiency.

The port site receives a heavy flow of information necessary to carry out the physical operations and the administrative formalities. Such an information flow is much higher than in the past. It concerns both the cargo and its vehicle (vessel, inland vehicle). In many ports,

including in some advanced developing countries, it has been possible to set up specific structures in order to collect and centrally process all the information and to disseminate the corresponding outputs to all concerned through computerization and "telecommunications". In France, the Customs and the transport auxiliaries (freight forwarders, etc.) jointly operate a computer system (SOFI) to process customs declarations. At Le Havre, the operators and the port authority have merged their efforts to go further than the mere customs aspects. In order to facilitate the cargo movement and deliver they have designed a new computerized system called 'ADERAR PLUS', operated by representatives of the customs, forwarding agents, agents and the port authority. In other regions, North Africa for example, there are similar initiatives. In UNCTAD, the automatic System Custom Data, ASYCUDA, has been developed and installed in several countries.

Whatever the type of organization adopted, it is beneficial for the Port Authority to remain on top of all operators and intervening port entities, public or private. The Port Authority represents the public interest and ensures that all port users are listened to and have the possibility to intervene when certain decisions are taken. Such a role is no longer theoretical, as it sometimes was in the past, particularly in the case of some specialized berths which escaped any control. Nowadays it is desirable for the Port Authority to agree to give up some operational activities which are often better performed by units or specialized entities benefiting from more operating flexibility and autonomy. On the contrary, it is essential for the Port Authority to carry out the "top of the pyramid" port functions, particularly those relating to public authority prerogatives, and supervision of the proper utilization of the port facilities, monitoring and listening to the users and shippers in order to assist them, but also, whenever required, reprimanding them when they are penalizing the port by their lack of technical, administrative or commercial strictness.

### **Private or Public Sector?**

Nowadays, much has been written about this dilemma. It should be recalled that most of the suggestions formulated above are applicable to both the public and private operators. J. CHAPON 4/ notes the difference between the port's actions/decisions belonging to the State's prerogative (they have to be taken by a public organization) and the actions/decisions of a commercial or industrial character which the State generally gives to private entities (wherever the private sector exists) — taking care not to put them in a monopolistic situation — or in specific cases, to a public entity having an appropriate statute. The most important port activity (i.e. cargo handling) belongs to this latter category of industrial or commercial activities. However, cargo handling is sometimes carried out by the public sector when the trade is not sufficient or when, for historical or other reasons, it has not been considered feasible or appropriate to give it (entirely or partly) to the private sector (such a case is frequent in Africa). Mr. J.G. Baudelaire 5/ also examined the comparative advantages of the public or private sector in carrying out the main port functions as well as the possible scenarios for combining the two sectors. To conclude, he recommended the well known scheme in which there is a port public entity carrying out the core of the main port functions (which in fact are those belonging to the "State prerogative") and decentralizing, partly or entirely, to the private sector the peripheral activities

as well as cargo handling. He quotes E. Pollack who, with pragmatism, is in favour of "à la carte" privatisation in order to meet local requirements and aspirations.

It seems necessary to add the following remarks: The private sector is really efficient only when it has reached a certain degree of maturity and a size which is not always achieved in developing countries. Companies of a family size, only motivated by the search for immediate profit, without any interest in long-term investments or other concepts such as personnel training or implementation of safety standards, cannot achieve in a port the type of performance usually expected from the private sector. So when the country has not yet reached the stage where the private sector can play its expected role, or in particular can undertake the required investments, then the creation of companies with mixed shares allows for a satisfactory transition. In a few small countries and for activities such as cargo handling, the private operator of a small "family type" size cannot afford to buy alone the heavy equipment necessary for port operations. Then they have to be encouraged to merge or, alternatively, the State can take over partly or entirely. Furthermore, it should be recalled that there are countries which, on political grounds, have chosen an economic system in which there is no room (or not very much) for the private sector. Most of the proposed principles remain valid. It is then necessary to create the conditions which will facilitate the development of what has been the strength and success of the private sector: decentralized units competing with each other which are as autonomous and accountable as possible.

### **Promoting the Port Site**

One of the most impressive changes (also one of the most interesting for other ports) which I have had the opportunity to see implemented over the past few years, is, in certain countries, the development of the port site or port community concept, defined as being one single family or team made of all the port actors, public or private, working and investing together in the port's development and being convinced by reasoning or persuasion that their own interest is linked to the success of the joint actions undertaken to promote the port and the region it serves.

Such a spirit of assembling all available strength has found fertile ground in those ports facing heavy competition, particularly in North-West Europe. Nevertheless, the lessons learnt are applicable to all ports, since port competition extends today over a very large area (e.g. in Africa, the existing competition to be the transit ports of the land-locked countries or to become a transshipment port of the container trade). Furthermore, the national ports are themselves in competition with other forms of international transportation.

In this new definition of the port's role, many traditional habits have to be reconsidered. This requires, first, that they should be a leader or organizer able to sensitize all local port actors — port authority, stevedores, cargo handling companies, forwarding agents, shipping agents, customs, etc. — regarding the need to merge their strength in order to develop the port and promote new forms of traffic. This in turn requires the necessary effort to re-organize and modernize the facilities, services and working methods, in order to offer to the "client" the most efficient and cost effective cargo transit through the port. It is also necessary to contact potential cargo owners by strengthening considerably the commercial and marketing port services (Port

Authority, Chamber of Commerce, municipality, etc.). Such an approach requires specialized teams to develop relationships with the shippers and the shipowners/operators, and to promote integrated transport logistics. The traditional hinterland and the port penetration zones abroad have to be reconsidered in order to enlarge the area of influence and make the port the driving force of economic regional development. To give an example, the port of Le Havre has created a specific structure for this purpose — Port Alliance — and the autonomous Port Authority has assigned 40 professionals to its commercial department. Antwerp is probably one of the ports which has pioneered such a new function, mobilizing all port entities, public or private, within a dynamic grouping which goes abroad to gain new types of traffic.

Such an approach requires changes in the behaviour and competence of the people concerned, who have to be familiar with all aspects of international trade and transport, going far beyond the port's boundaries, on both the landward and seaward side.

### **Social Stability**

Ports have always been one area where the dockers have been able to organize themselves and obtain power and respect. They were very numerous and their contribution was the cornerstone of the cargo transfer from the vessel to the land. This period is not yet over, although there is no doubt as to the outcome to be expected from the present trends imposed by technological change. Polyvalency, large numbers of gangs and casual work are now being replaced by specialization, a limited number of workers and the necessary employment stability. The port managers have therefore to direct this unavoidable evolution without disturbing the social stability necessary to a smooth port operation.

In many developed countries (France, the Netherlands, the United Kingdom), the number of dockers has been cut by some 50% over the last 10 years. Everywhere drastic measures, such as stopping recruiting or accelerating the retirement of dockers, have been taken to cope with progress which means that only a few hours (and not a few days) are required to work a modern vessel. These reductions in manpower size have not always been sufficient to ensure a satisfactory level of docker employment in spite of the traffic increase.

In France, over the last 20 years the number of shifts has been divided by four and, in spite of the social plans, the cost of which amounted to some FF 1.5 billion (US\$220 million), the employment ratio was still higher than 27% in 1988.6/

It is at the local level that such an issue, which is crucial for the future of the port, can be handled in the most satisfactory manner in the best interests of the personnel, the operators and the port. The moral and very often the financial support of the Government is indispensable, as is the understanding of the operators. Intermediary stages are often necessary before a permanent employment scheme for the dockers is applied. In some cases a fund has been created, financed by the port operators and benefiting the dockers in exchange for gang size "reduction" and productivity increases. The recent French "social plans" were designed to achieve a similar result.

The modern port dynamism cannot produce the expected outcome when a category of workers is (or perceives itself to be) excluded. The stakes — and the costs — are

so important that it is not possible, without risking exclusion from international competition, to have a precarious social stability, which can be broken at any time and for any reason, even sometimes for reasons having no direct link with port life. All social categories have to receive a fair share of the benefits accruing from the port's development. However, all have also to agree to invest in and to commit themselves to the port's development. This has to be reflected in long or medium-term agreements, which are the only means to ensure the port's stability and credibility.

### **Human Resources Development and Training**

The human resources development concept is presently widely accepted without always having an accurate and logical definition. In several cases it is simply the old Personnel Division, which has been converted into the Human Resources Development Division.

The most comprehensive definition seems to be the one given by the United Nations Development Program (Regional Bureau for Asia) 7/, "Human Resources Development is the functional activity of planning, producing, managing and evaluating a country's or an organization's manpower". The first and last functions (planning and evaluation) do not require specific comments. The second (production) includes the two concepts of "capability development" (training) and "career development". The former has to be seen in its broad sense and includes the learning process at all stages: pre- and in-service, on-the-job and off-the-job. It covers the planning, implementation and evaluation process. The third function (management) is conceived in an innovative way, since it includes not only the traditional personnel management functions (selection, recruitment, transfer, promotion, disciplinary and termination action, social aspects, pension, health, etc.) but also an examination of the improvements required in the organization's structures and procedures to achieve a more effective and efficient use of personnel. The port managers have to examine carefully whether it is possible to recruit and train their staff in modern management techniques when the existing structures and procedures are not adapted. To achieve good results implies that both training and improvement of working methods, procedures and organization are progressing together.

The UNCTAD secretariat has made a substantial contribution in assisting developing countries in these fields, and particularly in that of training. After some ten years of traditional training (seminars), it became obvious that without a rigorous approach in designing and implementing training programmes no satisfactory results could be achieved. Two "methodologies" have been tested in parallel. One (called TRAINMAR) has tested a "systematic" approach (close to the one used in computerization), taken from the telecommunication sector and adapted to shipping and ports requirements. First operational problems and deficiencies are analyzed (e.g. ship waiting time). Then, following a logical approach, the causes and the population concerned are identified and training programmes are designed (either individual or collective) in order to remedy deficiencies. The training action retained can take various forms, including — when the number of people to be trained justifies it — the production of pedagogical materials delivered locally by the port instructors trained for this purpose. These actions take place in the port training centres, the creation of which is one of the conditions for ensuring the perennality of this policy.

UNCTAD has also launched complementary port training programmes. I.P.P. (Improving Port Performances) ensures the central development of high quality training materials by specialized training institutions on topics of a general character, such as improvement of operations, container terminal policy, management of equipment and maintenance. This is supplemented by the training of local instructors to ensure proper delivery. JOBMAR, another programme, has been designed to organize fellowship abroad and "hands on" training. It is clear that only those ports which have made the necessary efforts to handle these matters with method and rigor and have assigned to them the required human and material means have obtained the results expected from the investment.

There are many port managers who are now convinced, with good reason, that it is the quality of the people working in the ports which constitutes its real wealth. The most impressive achievements I have seen always have the same characteristic. The personnel has been intimately associated, motivated, trained... and rewarded for the efforts made. Old views as to the stubbornness, lack of understanding and co-operation of the port personnel have to be abandoned. It has been demonstrated by some outstanding and pioneering port managers, who have given the example and made a large personal contribution, that it is possible to obtain better results from workers who associate themselves so much with their port that they cannot conceive of working elsewhere. Impressive successes have been obtained in considering such an attachment a positive factor and in encouraging it (through aids to housing, social measures, holidays centres, pension funds, sports clubs, internal journals, etc.).

### **Port Financing and Accounting**

Traditionally, the public port entities had their budget integrated with that of the State. Sometimes they had a separate budget but it was still subject to the usual rules for public income and expenditure. This generated constraints and delays and was not compatible with the requirements of commercial activities. The accounting books were of an administrative type, as were the procedures for initiating and controlling the expenditures, organizing calls for tenders, collecting income (generally by representatives of the ministry of finance, e.g. customs).

Such a system functioned quite satisfactorily at a time when the State was omnipresent in the port, financing the investments and covering the operating deficits. Moreover, the concepts of efficiency, decentralization and overall economic competitiveness had not yet reached their present levels.

These practices had the major drawback of generating behaviour which was too administrative and incompatible with the requirements of a modern port. The creating of autonomous ports, offices or companies has been supplemented by the setting up of accounting systems and procedures of the same type as in industry or commerce. Very often analytical and cost control systems have also been installed.

There is nothing basically new in these new practices, when compared to what is currently done in industry or commerce, other than introducing in the ports so far unknown managerial and development tools adapted to the new requirements (e.g. self-sufficiency). In order to illustrate the point, I present the main items of the 1988/95 financial projections as they appear in the document prepared by the

"Office d'Exploitation des Ports du Maroc — ODEP" for their Board of Administration.

- Operating account
- Balance sheet forecasting
- Revenues/expenditures forecasting
- Investment plan
- Debt service (middle and long-term)
- Loans
- Debt reimbursement
- Loan reimbursement

In addition, the Financial Direction of this organization regularly issues a "Management Information System", showing the main ratios of financial structure and profitability. We will quote three ratios which they use since they give a good picture of the ability of an enterprise to fulfill its commitments.

**Long and middle-term debt:** The ratio shows the debt reimbursement capacity.  
Self-financing capacity \*/  
Self-financing capacity. \*/  
Investments  
This ratio shows the degree of self-sufficiency of the enterprise.

**Cash flow** This ratio shows how the debt loans repayments and service flow is covered by the financial charges cash flow.

\*/ Self-financing capacity: Profits after taxes + Amortization + Reserves.

Cost control accountancy allows the calculation of the cost and revenue for each activity. This in turn allows the preparation of monthly tables, which are genuine managerial tools for the heads of departments and the general management. It is also of help in establishing the pricing system on a sound basis.

The basic principles in this field can be summarized as follows. There is no real decentralization and autonomy and it is not possible to have dynamic and responsible port management without having real financial autonomy. Intervention and controls by the State are, however, necessary for several reasons:

- Public nature of the services provided to the port users, and public nature of the site on which the port is erected;
- Public statute of certain port entities;
- Financing by the State of part of the port facilities.

It is possible to reconcile the two apparently contradictory requirements of autonomy and control, given a good deal of pragmatism and goodwill. The day-to-day operations should not be stopped in order to control and check everything, including the proper justification of all expenditure. Therefore, it is wise to develop forecasting managerial methods and tools which allow for an intervention of the supervisory body before the implementation of the corresponding measures (e.g.: forecasting operational budgets, forecasting investment plans...). Furthermore, State representatives on the Administration Board or Steering Committees have the mandate to ensure that the investment and operation decisions meet the criteria established in the supervisory body. Once these legitimate requirements are met, the port should be allowed to operate with the necessary freedom.

### Port Pricing and the "True Price"

In the early 1970s, the UNCTAD secretariat made an important contribution to the thoughts and the devel-

opment of practices in the field through the publication of a study entitled "Port Pricing".<sup>8/</sup> At that time, the literature on this subject was rather scarce.

Then, it was usual to talk about the "True Price Rule". Such a concept implied that the port's income, in particular that revenue generated by the charges, should be identical to the corresponding costs. This was quite appealing in a period where the port charges were close to the customs fee (in their concept and implementation modalities) and therefore far from the "true" price required for a port service. The main merit of this study was to present some basic principles which are still valid. A few of them deserve to be recalled.

— Any port pricing system has to contribute to the achievement of two main objectives: to cover the port's costs, particularly the economic costs, and to contribute to the efficient utilization of the port facilities and services.

— The cost concept has to be treated with care, since there are sometimes substantial divergences between the accounting costs, as they appear in the books, and the corresponding economic costs (variable costs, opportunity costs) which should be calculated (or estimated) in any port pricing exercise.

— The "true price" concept has its limits and can lead to aberrations when the tariffs are fixed at a level which will discourage the trade and make the port facilities or services under-utilized.

— The unit indirect costs, calculated by allocating the indirect fixed charges, are arbitrary whatever the degree of sophistication of the formula utilized for the allocation.

— In calculating the port tariff, it is necessary to take into account the demand elasticity (what the traffic can bear). However, since the total port revenue has to cover the total port expenditures, including capital charges (depreciation and interests on the capital tied up), it is recommended, in the relevant UNCTAD study, to progress step by step, defining cost/revenue centres, calculating the unit variable costs, starting to fix the tariff at the level of the unit variable costs and then increasing it, if possible, to contribute to the coverage of all fixed costs, taking into account the ability to pay the traffic. This requires the examination of several parameters: what other ports (neighbouring or competitors) are doing, the traffic elasticity vis-a-vis the tariff etc., the ultimate goal being to ensure the best possible port utilization.

We cannot conclude this section without stressing the importance of choosing a good pricing structure to reach the above described objectives. This has led certain countries — including France — to abandon the traditional port pricing units for the vessels (such as the gross or net registered ton) in favour of other units facilitating the comparison between the charges and the corresponding costs (e.g. creating a new unit integrating the three vessel dimensions: length, beam and draught). We also need to emphasize how important it is when calculating a new pricing system to ensure that the financial equilibrium necessary for the enterprise is not jeopardized. There are ports where such an equilibrium is ensured thanks to certain charges (e.g. storage), the revenue of which is directly linked to the duration of the cargo stay in the port. To maintain such an equilibrium is of course contradictory to the objective of achieving a fast transit time in the port.

There are certain regions where the income generated by the renting of port facilities (land, or other port assets) has accounted for such a large portion of the port revenues that the port managers are inclined to act as estate agents.<sup>9/</sup>



While the corresponding income can be important, especially with the need to be self sufficient financially, a well balanced policy is required to avoid commitments concerning the port land 9or assets which could penalize future developments.

As far as supervision exercised by the State on the port is concerned, it always covers the pricing field but according to very different modalities. Certain countries have been wise enough to implement it with flexibility, fixing some basic norms (e.g. an overall ceiling for the increase of the charges) or some specific rules (some goods are very sensitive and should not be penalized) and leaving to the local authorities the possibility to adjust the detailed pricing levels so that they can be utilized as efficient tools for operating and developing the port.

### **A Few Basic Rules for Operating a Specilized Terminal**

There are many countries where the port lay-out is still made of common user general cargo berths and of a few specialized terminals: bulk, oil, grain, etc. Under the combined influence of the development of unitization on one side and the implementation of modern managerial principles on the other, such schemes are progressively vanishing and being replaced by a new split of the port into separate terminals operated in an autonomous — or at least decentralized — way.

Therefore, the port is divided into groups of berths and corresponding stacking areas, where cargo having identical or similar cargo handling/storage characteristics is handled: timber, iron products, bags, fruits, containers, cars, etc. Since genuine "general cargo" is becoming a more and more scarce trade, it becomes in turn a new specialized trade which is also handled through a few "terminals", their number depending on the traffic size.

The following basic operating principles have been mainly elaborated for container or "rolling units" terminals.<sup>10/</sup> However, they are or will be more and more valid for all types of terminals.

In the past, on a general cargo berth the operations involved teamwork, concentrated on a small area, the work methods allowing for a great deal of improvising. There was a limited use of equipment, the work was physically strenuous and often dirty and the mass of information to be known and the < procedures to follow were limited.

On a modern specialized terminal the work is individualized, each person generally being assigned as operator of a specific piece of equipment, the job takes place in a large area, the work method mainly consists of following strict procedures and systems, there is an extensive use of equipment with practically no physical strain, the information needed is voluminous, while in view of the transport chain integration it covers a wide range of inland and maritime elements, and its processing has to be done immediately.

In the former case, there are frequent traffic peaks, and the manpower statute is adapted to the need: polyvalency and casual dockworking. In the latter case, the work force has to be specialized and have a permanent statute.

In a specialized terminal one cannot conceive of having the old break of responsibilities between the vessel and the quay operations and consequently to have to face the difficulties generated in each liability transfer. On a modern specialized terminal all the operations are integrated and put under the responsibility of a unique operator, the terminal operator, who will take all appropriate measures for ensuring the circulation of information and fast and efficient oper-

ations so that the ship turnaround time is reduced to the minimum. This requires careful planning of the vessel's call, the calculation of the necessary parameters (e.g. estimated time of completion of the commanding hatch) and the selection of the working methods, including the selection of the port equipment/personnel facilities which will give the expected outcome.

Here is a field where it is often necessary to break with past practice. This cannot be done without a great deal of training for the personnel concerned. The logical pattern is to start with the definition of the terminal operating system and procedures, then to select the personnel having the appropriate profile for each job and to give them the required supplementary training in the port training centre. Any fellowship abroad has a meaning only when it is organized in a place where the same or a similar system are implemented.

The concept of safety is taking on a new dimension. On a specialized terminal there is no room for unauthorized cars or persons. Equipment is moving at a high speed, the rhythm of working is high and accidents are often serious.

The split of a port into specialized terminals should, however, allow a certain degree of flexibility: if necessary, the port authority should have the possibility of reviewing the allocation of the terminals to the various operators. However, there are certain norms to fulfill in this field, namely to give to the operator a guarantee for operating the terminal, the duration of which will be directly linked to the financing period for the corresponding investments he has made.

### **Conclusions**

The years to come will allow certain countries or regions — and their ports — to gain on their competitors. While competition has always existed, it is becoming more and more intense. Located in a forward position, the ports are well placed to realize very soon the importance of the stakes and the degree of success of the foreign competition as far as they themselves and their own trade is concerned. Many ports are trying to evolve and to move from a static and passive stage to a most dynamic and sophisticated phase in which they play a real role in promoting the country's development. But not all will reach this ultimate phase. It is necessary that the country can offer the necessary potential for development. However, such a prerequisite is not enough. Amongst the other required criteria, the three following seem to be the most important:

(a) To benefit from the support and understanding of the Government. This involves obviously financial support, but above all having the State play a key role in encouraging and facilitating the establishment of a port organization adapted to these new tasks and challenges and given the autonomy and the means required to carry its role out properly.

(b) To have a tAype of organization and share of responsibilities amongst the various entities, meeting the two following criteria:

- (i) To facilitate the implementation of the modern principles (autonomy, decentralization, accountability, etc.) necessary for dynamic port management.
- (ii) To keep enough flexibility to facilitate future changes, if needed. In particular it should be possible to review and adapt the basic decisions concerning certain issues: (e.g. who should finance the investments, the share of the public versus the private

*(Continued on Page 39)*

# International Maritime Information

# WORLD PORT NEWS

## 1989 Busy Year for Assn. Villes et Ports

### Activity Program for 1989

- Finalization of preliminary studies of projects and achievements regarding re-utilization of national and international port space.
- Set-up of a database for the above information.
- Dissemination of this information in a "flash" style bulletin to be published three times a year.
- Initiation of surveys on subjects regarding "Cities & Harbors." Such surveys are to cover Europe as follows:
  - Assessing the legal systems of European port areas  
Their relation to development and town-planning operations in City/Port frontier zones; possible financial solutions.
  - The legal problem of down-grading.  
A specific example: the Vauban Basin in Le Havre
  - New urban functions resulting from growth of the port economy.  
The problem of receiving cruise vessels and passengers in transit; new opportunities for Cities and Ports.
  - Reviewing training facilities related to growth and the economy of Cities & Ports.
- The Cities & Ports Association will actively participate in the preparation of the 2nd Cities & Ports forum in Barcelona on December 13, 14 and 15, 1989, making the most of its members' experience and the issues that have been addressed by the Association.

The list of speakers to the Barcelona Forum:

Mr. A.W. Oskam, Amsterdam  
Mr. Luis Cantallops, Barcelona  
Mr. H.N. Cobb, Barcelona  
Mr. J. Utzon, Copenhagen  
Mr. J.L. Delecluse, Dunkirk  
Prof. Dipl. Ing. E. Kossak, Hamburg  
Mr. H. Kashihara, Kobe

Mr. H. Gariepy, Montreal  
Mr. T. Koolhaas, Rotterdam  
Mr. E.H. Zeidler, Toronto

### Cities & Ports Association Bylaws

#### Article I: Name and Head Office

The Cities & Ports Association is hereby established as an association of those members that adhere to these Bylaws, pursuant to the Law of July 1, 1901 and the Decree of August 16, 1901.

The Association's head office is located at 24 rue Lord Kitchener, Le Havre. The head office may be transferred by decision of the Board of Directors, which shall request ratification thereof at the next General Assembly.

#### Article II: Purpose

The purpose of this Association is to encourage exchanges between Cities and Ports and to promote the development of port cities.

#### Article III: Membership

The Association shall consist of:

1. Founding Members
2. Honorary Members
3. Active Members

Members may be individuals, juridical persons, territorial organizations or governmental agencies.

#### Article IV: Admission

In order for an applicant to become a member of the Association, a membership application must be accepted by the bureau of the Board of Directors. The Board shall issue decisions on applications for membership at each meeting.

### Oil Reception Facilities Insufficient

The Maritime Environment Protection Committee of IMO was told by the Observer from the International Association of Independent Tanker Owners (INTERTANKO) that severe

difficulties are being encountered by ships that are forced to retain oily wastes on board due to lack of shore reception facilities.

These difficulties involved the vessels' operating flexibility and earning capacity.

The use of segregated ballast tanks had not eliminated the need for shore reception facilities. The Observer pointed out that oily wastes were frequently produced from the cargo area even on SBT tankers, for example when cleaning tanks for shifting grades, tank inspections or repairs.

One delegation expressed the view that even when adequate reception facilities were provided by ports there was no certainty that ships were using them to the extent necessary. This view was reinforced by an oral statement by the delegation of the Federal Republic of Germany on initial experience with the pilot project instigated by his country to make reception facilities available without charge. First results indicated that usage of facilities under this scheme was considerably less than expected.

Following an extensive discussion of how such problems might be dealt with in the future a number of approaches were identified by the Committee:

- parties to MARPOL 73/78 should review their efforts in providing adequate reception facilities in their ports and should give effect to their obligations under article 17 of MARPOL 73/78 as regards the promotion of technical assistance;
- utilization of existing facilities could be enhanced by the assiduous exercise of control measures by port States;
- generation of oily wastes should be minimized by encouraging "good housekeeping" practice on board;
- ports should be reminded to distribute information on reception facilities to ships agents and seafarers;
- workshops and seminars should be organized as a means of informing developing countries on how reception facilities may be provided. Such semi-

nars should preferably be organized in developed countries where participants may be given an insight into operational facilities.

INTERTANKO pointed out that although the requirements for reception facilities under Regulation 12 of Annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) had now been in force for some five and a half years, there was still a major implementation problem.

The Committee noted the following information and suggestions put forward in the course of these discussions:

- plans for a seminar scheduled to be held in Bremen, Federal Republic of Germany in 1990, which would include the topic of reception facilities;
- similar plans by the Helsinki Commission to hold a seminar on reception facilities, principally for Baltic Sea countries, in 1991, which may be open to participants from developing countries;
- the Netherlands Government is investigating low- and non-waste technologies for minimizing ship-generated wastes, and will report to the Committee on the outcome;
- information submitted by Member States on difficulties being encountered in equipping ports and terminals with reception facilities provides both the means by which developing countries may inform the Organization of their need for assistance in this regard, and developed countries may target such assistance.

## WORLD MARITIME UNIVERSITY

The World Maritime University (WMU), based in Malmö, Sweden, was established in 1983 by the International Maritime Organization (IMO), the specialised agency of the United Nations dealing with maritime affairs.

The WMU was created with the primary objective of training senior personnel for maritime administrations, maritime training institutions,

port authorities and commercial shipping companies in developing countries, who would be responsible for the implementation of IMO Conventions which establish global standards for maritime safety and pollution prevention.

The WMU has a current student population of around 200 and over 400 graduates. Students and graduates represent more than 100 countries worldwide.

The University offers two-year courses leading to MSc qualifications in seven subjects. These are:

- \* General Maritime Administration
- \* Ports and Shipping Administration
- \* Maritime Safety Administration (Nautical)
- \* Maritime Safety Administration (Marine Engineering)
- \* Maritime Education and Training (Nautical)
- \* Maritime Education and Training (Marine Engineering)
- \* Technical Management of Shipping Companies

To qualify for entry, a student must either be a Master Mariner or a Chief Engineer, or hold an academic degree. The average age of students entering the University is 35.

The WMU is essentially a practical institution designed for students who have already proved their abilities and have been selected for further training and greater responsibilities. Courses include both classroom tuition and practical field training. Courses are structured to encompass:

- \* Lectures
- \* Tutorials
- \* Projects
- \* Demonstrations
- \* Case studies
- \* Field training

The work at the University is directed

by the Rector, Mr. Erik Nordström. He is assisted by a Vice Rector, who also serves as Academic Dean, eight full-time course professors and seven lecturers. Academic staff represent 16 countries.

The full-time academic staff is supplemented by many visiting professors and lecturers who serve the University without compensation. This allows the University to provide comprehensive coverage of each subject area, as well as giving students access to leading experts in the field.

An international Board of Governors provides policy and financial governance. Its annual meetings are chaired by Mr. C.P. Srivastava, Secretary-General of the IMO and Chancellor of the WMU. Board members are chosen for their high standing within the world's shipping community and related areas and represent both developed and developing nations.

The income of the University comes from voluntary contributions and fellowship income. The present annual budget is approximately US\$7 million. Over half the annual income comes from on-going contributions from Sweden (one-third of the budgeted costs), the United Nations Development Programme (US\$1.2 million in 1988) and Norway (US\$500 thousand), Finland (US\$176 thousand) and France (US\$100 thousand). Other contributions are in the form of fellowships. The major donors are the Federal Republic of Germany, Canada, Denmark, Japan/Sasakawa Fellowship Fund, the European Community and the Commonwealth Secretariat.

WMU graduates occupy senior positions in the world's shipping community. They include the heads of maritime training institutions in the Philippines and in Fiji, the Director General of Shipping in Portugal and in Benin, senior advisers to Ministers in many developing countries and maritime attaches in a number of embassies worldwide.

\* \* \*

In addition to the two-year courses offered by the University, 11 WMU Branches in different regions of the world provide short courses geared to specific technical training needs. Subjects covered range from search and rescue and fire-fighting to teaching methodology.

## **Sudan Retracts Increased Port Tariffs**

Following protests by BIMCO and other shipping entities, Sudanese authorities have cancelled port expenses of 240-300 per cent which were introduced in Port Sudan on 1 July this year. The cancellation came into effect on 10 August.

In its protest, BIMCO had complained that carriers had not been given proper advance notice of the very high increases. Following introduction of the new tariffs, BIMCO members had reported that instead of paying about US\$16,000 for an approximately 17,000 DWT vessel calling at Port Sudan, they would now have to pay about US\$120,000.

BIMCO Secretary General Torben C. Skaanild commented: "We are very happy with the Sudanese Government's decision which certainly reflects a pragmatic attitude to cost increases. We hope that the Sudanese port authorities will now undertake a thorough analysis of its present tariffs and, if increases are found to be necessary, will give the carriers appropriate notice. It furthermore shows that it does serve a purpose to oppose arbitrarily and unilaterally implemented increases in port call expenses. BIMCO has again done what is to be expected of the organisation".

## **Period of Major Growth For Container Industry**

"As the container business enters the 1990s it finds itself enjoying one of those rare periods of happy coincidence, when almost every industry sector is doing well," says Patrick Hicks, the Editor, in the foreword to *Jane's Containerisation Directory 1989-90* published recently by Jane's Transport Data.

Though competition between shipping lines remains tough, the major

operators are turning in improved profits as freight rates climb. The rest of the industry is benefiting as well with container ports, especially those on the main arterial routes, looking set for continuous expansion over the next 10 years. It has been forecast that throughput volumes will increase from 64 million TEUs in 1987 to 110 million in 2000 (73 per cent up).

Container lessors, owners of over half the world's container fleet, are enjoying record equipment utilisation — around or above 90 per cent — and lease rates are rising to more respectable levels of return on investment. "One sector of the market to be reaping the benefits of the container shipping boom at present is the leasing market. The continuing shortage of dry freight containers means that lessors have been able to increase rates, while the surge of interest in specialised equipment continues unabated," says the Editor, with one company increasing its operating income by nearly 70 per cent during 1988.

Container manufacturers, who experienced serious problems in the mid-80s, are now enjoying a state of order book saturation. "Most Far East production facilities making dry freight containers are booked up for 12 months at least and prices have reached record levels. New facilities have been coming on-stream in South East Asia and there has been a re-kindling of interest in both Europe and the USA," says Patrick Hicks. This production increase is also partly due to the growing specialist container market.

## **Canada-US: Partnership In Trade, Transportation**

In a landmark decision, Ports Canada and the two North American national ICHCA chapters (ICHCA-CANADA and ICHCA-USA), have agreed to pool efforts in holding the first-ever jointly-sponsored business conference. The two-day conference will be held in Ottawa, Canada's national capital, on September 25-27, 1990, a spectacular time of the year. The Westin Hotel, in beautiful downtown Ottawa, was chosen to accommodate the conference and its participants. To be held in Ports Canada's prestigious annual business conference style, the event is expected to attract hundreds of participants from

around the world.

Following the implementation of the historic Free Trade Accord between the two nations, the conference is a good example of strengthening ties between Canada and the U.S. Appropriately labeled "Canada-U.S.: Partnership in Trade and Transportation," the conference is expected to address continental transportation issues, of interest not only to participants from both sides of the Canada-U.S. border, but also to North America's trading partners from Europe and the Far East. This theme is intended to focus attention on how Canada and the U.S. can jointly benefit from global market developments, which are changing the transportation and port industry.

Registration for ICHCA members: CDN\$295 or US\$245 each

Registration for non-ICHCA members: CDN\$345 or US\$295 each

Banquet tickets only: CDN\$35 or US\$30 each

For further information, please contact:

G. Bernard Bisson  
c/o Ports Canada  
99 Metcalfe Street  
Ottawa, Ontario, KIA 0N6  
Fax: (613) 995-3501  
Phone: (613) 957-6788

## **Conference on Shipping: Nov. 14-15, Amsterdam**

Is the long recession in shipping coming to an end? Many authorities think a revival is under way after more than a decade of gloom and despondency. Most of the indicators are moving in the right direction. Worldwide orders for new buildings are rising (as are prices); the rate of scraping is down, particularly in the oil tanker sector, and the volume of oil shipped long distance is forecast to increase.

Many problems remain, however. The industry is still suffering from severe overcapacity in many sectors, and stiff competition on both the Atlantic and Pacific routes is holding down returns in the liner sector. Tanker owners have seen rates rise slightly this year, but rates are still at only a fraction of the level required to pay for replacement tonnage.

90 per cent of the existing world fleet is more than 10 years old, and the industry will have to finance a large

replacement programme over the next decade if international trade is to be kept moving. Where is the money to come from? Many banks were unable to recover large parts of their shipping portfolios during the recession, and may be unwilling to become involved in the industry again. Will more imaginative financing methods evolve, perhaps involving a new relationship between owners and charterers? Some experts think so.

A host of other issues face the industry: how will the European Community's burgeoning shipping policy develop? Will developing countries achieve amendments to the U.N. liner code? What is the future of open registers in the face of efforts by the traditional maritime countries to build up their fleets?

All these issues and many more will be debated at this Financial Times conference on World Shipping in the 90s which has been arranged to coincide with the Europort 89 Exhibition. The conference will be held on 14 and 15 November 1989 at the RAI International Exhibition Centre, Amsterdam.

Registrations and enquiries should be addressed to:

Financial Times Conference Organisation, 126 Jermyn Street, London SW1Y4UJ, England

Telephone: 01-925 2323 (24-hour answering service)

Telex: 27347 FTCONF G Telefax: 01-925 2125

## Coatings Short Courses Fall 1989-Spring 1990

University of Missouri-Rolla  
Coatings and Polymer Science Program

### September 25-29:

59th Introductory Short Course —  
The Basic Composition of Coatings

### October 9-13:

19th Introductory Short Course —  
Paint Formulation

### October 23-27:

Introduction to Polymer Chemistry

### December 13-15:

Basic Coatings for Sales and Marketing Personnel

### February 7-9:

Basic Coatings for Sales and Marketing Personnel

### March 12-16:

20th Introductory Short Course —

## Paint Formulation

### March 26-30:

60th Introductory Short Course —  
The Basic Composition of Coatings

### May 14-18:

Physical Testing of Paints and Coatings

### July 18-20:

Basic Coatings for Sales and Marketing Personnel

For further information, please contact:

Coatings and Polymer Science Program

Department of Chemistry  
University of Missouri-Rolla  
Rolla, MO 65401-0249  
(314) 341-4419

## New Publications

### Guide to Helicopter/Ship Operations

The International Chamber of Shipping (ICS) has published the third edition of its *Guide to Helicopter/Ship Operations*. Previous editions of the *Guide* have become widely accepted throughout the world as the standard guidance on helicopter/ship operations and formed the basis for local and national requirements in many countries.

Introducing the new edition, Captain John Joyce, Marine Manager of ICS, explained:-

"The use of helicopters to transfer personnel and stores to and from ships is now widely established in many parts of the world. The past ten years have seen an increasing trend in the use of smaller helicopters and landing on deck, always regarded as an inherently safer operation than hovering, is often possible for the smaller aircraft even when deck space is limited. We want to encourage the designation of helicopter landing areas on ships and the new edition therefore abandons the previous practice of laying down specified minimum dimensions for helicopter landing areas. Instead, the *Guide* introduces the more flexible concept of a landing area whose diameter is determined by the availability of deck space, and which can then be used by helicopters which, due to their size, are capable of safely landing within such a circle.

"The main objective of the *Guide*

continues to be to encourage the highest safety standards in helicopter/ship operations and to promote standardised procedures and facilities for such operations world-wide."

The *Guide* provides advice on general flying safety and on the operation of helicopters themselves. It covers communications and ship operating procedures and it details the special requirements applicable to certain types of ship. A section on marine pilot transfer, and advice on the action to be taken in emergencies are also included. Full details are provided on the required positioning of landing and winching areas and of the necessary deck markings.

### International Free Trade Zones 1989

*International Free Trade Zones 1989*. Edited by Phil Baxter et al. (London: 1988). 92 pages. Map. Indexes. Order from: Lloyds of London Press, Inc., 611 Broadway, Suite 523, New York, NY 10012. Phone (212) 529-9500. Price: \$36 plus postage (\$3 in U.S., \$7 overseas).

The free trade zone phenomenon dates at least from the year 898 A.D. when King Alfred the Great of England granted the Archbishop of Canterbury the right to unload ships in London without paying customs duties. In modern times, the trend setter has been the United States which enacted its foreign-trade zone law in 1934 as part of President Franklin D. Roosevelt's depression-fighting New Deal Program. Today, free trade zones can be found in countries around the world, including Ireland where the eminently successful Shannon Free Zone has created 8,000 jobs directly and an additional 20,000 jobs off-site in firms serving the zone.

Lloyd's directory provides basic data for some 280 zones in 64 countries, from Aruba to Yugoslavia and including the United States. Entries are listed alphabetically by country, giving in each case basic economic, geographic, political and cultural data as well as zone-specific information. For each zone, the information typically includes addresses, phone numbers, name of the zone director, special inducements, descriptions of facilities, services and users, and a brief historical summary.

(AAPA Advisory)



## The Americas

### Record-breaking Progress at Halifax

Mr. David Bellefontaine, President and Chief Executive Officer of the Halifax Port Corporation (HPC), has released record-breaking six-month tonnage statistics for the Port of Halifax.

On the heels of new service announcements by three major container lines, the HPC emphasized that it is continuously upgrading and redeveloping facilities to accommodate growth. "It is the HPC's business," stresses Mr. Bellefontaine, "to provide customers with a world-class port." With this philosophy in mind, the HPC is finishing a redevelopment project at Pier B, which will enhance container handling capacity at Ocean Terminals. In addition, the HPC has retained a consultant to determine alternative development sites for future terminal construction. A report is expected by late 1989.

In 1989, total port cargo for the first six months reached 8.1 million tonnes, up 5% over 1988 figures. This cargo was equally divided between outbound and inbound movements.

Total bulk cargo for this period increased by 3% to 6.0 million tonnes. This included grain which was down slightly (6%) for a total of 320,000 tonnes, crude and refined oil which remained level at 4.8 million tonnes, and National Gypsum's cargo of locally produced gypsum which showed a 17% increase at 1.5 million tonnes.

General cargo rose to 2.1 million tonnes which represented a 9% increase over 1988. Containerized cargo totalled 1.9 million tonnes, up 12% — a new first half record for Halifax. This cargo was handled at: Ocean Terminals; the Fairview Cove Container Terminal operated by Cerescorp; and the Pier C Container Terminal which is operated by Halterm and is celebrating its 20th anniversary this year.

The three container carriers commencing service over the Port of Halifax this year include: Compagnie Maritime Generale (CGM)/French Line; Italia di Navigazione (Italian Line); and Maersk Line, on a Med-Africa service.

These lines join with the Port of Halifax's traditional callers, as well as the dozen other liner services initiated since 1986 to offer over 750 container ship sailings per year.

By all accounts, 1989 will prove to be the busiest year on record for the Port of Halifax, contributing over 5,000 jobs and close to \$300 million in personal income to the economy.

### Port of Montreal Adopts Horizon 2010 Strategy

The Port of Montreal unveiled in 1988 its development strategy designed to satisfy the growing space requirements of its current and future customers through to the year 2010.

At a press conference held last August, where the special guest was the Honorable Benoit Bouchard, federal minister of transport, Port of Montreal Chairman of the Board Ronald Corey explained that the strategy — known as Horizon 2010 — has three facets:

- 1) maximum utilization of port facilities on the Island of Montreal and planned investments of \$120 million between 1988 and 1992, including, among other things, the enlargement of Cast Terminal, the completion of Maisonneuve Terminal and the improvement of other terminals;

- 2) implementation of a policy of acquiring any available land that can be developed economically adjacent to active handling zones on the Island of Montreal;

- 3) as demand grows from now to the year 2010, development of port facilities on about 150 hectares of land at Contrecoeur, a municipality situated on the south shore of the St. Lawrence River downstream from the current port location.

Mr. Corey specified that the new facilities will be needed to handle the projected increase in containerized traffic and dry bulk stored outdoors. He reiterated that the port corporation will do everything in its power to fully develop its existing facilities before the first shovelful of earth is turned at Contrecoeur.

The port corporation will finance implementation of its development strategy from its cash flow, the port's standard practice for all its capital expenditures.

The port chairman said the strategy

derived from two major studies carried out by Dessau (Desjardins, Sauriol and Associates) and Lavalin, which were followed by analyses conducted by the port corporation and its planning department. Furthermore, it had been subject to extensive consultation with the different levels of government, various participants in port activity, and business groups.

In accordance with the federal environmental assessment and review process, the port has asked the federal minister of transport to convene an environmental commission which is expected to hold public hearings.

"In line with its strategy, the Port of Montreal will continue improving, adapting to new handling techniques, and even insofar as is possible enlarging its facilities on the Island of Montreal," Mr. Corey said. "We will see to it that our current facilities are utilized to the maximum, and we will increase their handling capacity by acquiring and land that becomes available around our terminals."

At the press conference Mr. Corey pointed out that since 1980, the Port of Montreal had already invested approximately \$110 million in the improvement and redeployment of port facilities on the island.

"Our five-year corporate plan from 1988 to 1992 already calls for capital expenditures in the order of \$120 million — \$60 million of this has been earmarked for our container terminals, \$20 million for our railway system, \$25 million for the grain elevators and \$15 million for our other infrastructures," he told those in attendance.

The port chairman explained, however, that there is no more large riverfront acreage available on the Island of Montreal suitable for development into port areas. He said that the port is caught in a squeeze between the river and the city "where homes, businesses, industry, recreation, green space and port activity compete for every inch of land."

"That's why our development strategy includes the simultaneous acquisition of land on a designated site at Contrecoeur," Mr. Corey stated.

This site was identified by the Dessau study as the one offering the best prospects for port development of the 11 sites downstream from Montreal that the firm analysed. The port corporation

has selected it for several reasons.

In effect the Dessau study found that the Contrecoeur site is capable of satisfying all the port's additional space requirements for Horizon 2010, and fulfills all technical, operational, economic and environmental criteria. The site can be developed gradually in response to the growth in demand for facilities.

Furthermore, development of this site will have no major impact on the human environment since it mostly encompasses vacant lots that already abut upon port facilities and an industrialized zone far from the residential and business centres of Contrecoeur and Verchères.

Before preparing its development strategy, the Port of Montreal had asked the Lavalin firm to study, in 1985, two potential sites on the Island of Montreal. The port corporation would have been ready to develop one of those areas into a container terminal even though the 20-hectare site would far from satisfy the estimated 150 hectares required for Horizon 2010.

The site, called Tétreaultville, adjoins Cast Terminal in east-end Montreal. It meets technical, operational and economic criteria, but its development into a terminal presents a major constraint: its impact on the human environment.

This site encompasses 13 hectares of green space, including Honoré-Mercier Park, and 800 metres of riverfront access along Promenade Bellevue.

"Because of the foreseeable negative impact on the environment, the Port of Montreal will not insist on building a container terminal on the Tétreaultville site unless the environmental commission so recommends following the environmental impact study," Mr. Corey said.

The port chairman concluded by adding: "We thoroughly considered and carefully weighed every factor in preparing our development strategy. It is now important to implement it as quickly as possible to ensure the success of the Port of Montreal, by far Canada's number one container port."

Following Mr. Corey's announcement, Port of Montreal General Manager and Chief Executive Officer Dominic J. Taddeo said that the port corporation had anticipated the need to work out a development strategy for

Horizon 2010.

"As our containerized traffic kept growing, it required more and more space on land that cannot be enlarged," Mr. Taddeo said.

Container-handling, for all practical purposes non-existent at the Port of Montreal before 1968, today takes up nearly 40 per cent of its 142 hectares of facilities. "At the current growth rate, we expect our container terminals to reach their handling capacity within the medium term," Mr. Taddeo said.

In 1968, the year its first container terminal opened, the Port of Montreal handled 13,798 containers or TEUs. It now handles close to 600,000 TEUs a year. In fact, containerized cargo traffic now accounts for approximately 25 per cent of the port's total traffic.

Over the past 20 years, the port corporation has carried out several expansion and redeployment projects to make room for containers on its land while continuing to offer services and facilities suitable for handling other cargo.

Mr. Taddeo recalled that the Port of Montreal had considered its future before working out its development strategy. "We gave Dessau a mandate to determine the nature, scope and relative urgency of our space needs before identifying potential port development sites," he said.

To do this, Dessau first undertook studies to establish traffic forecasts for each cargo category.

According to these projections, which were again reviewed, updated and validated by Dessau last summer, total traffic at the Port of Montreal should reach 35.6 million tonnes in 2010. The difference between the 21.9 million tonnes handled in 1987 and the forecast for 2010 amounts to an average annual growth rate of 2.1 per cent.

Containerized traffic should reach 13 million tonnes in 2010; this represents a gain of 7.5 million tonnes over 1987 or an average annual growth rate of 3.8 per cent from 1987 to 2010.

Breakbulk general cargo will remain rather stable, reaching 1.3 million tonnes in 2010.

Meanwhile, dry-bulk traffic (excluding grain) should increase at an average annual rate of 2.2 per cent from 1987 to 2010 to attain 7.3 million tonnes.

Mr. Taddeo emphasized that Dessau's projections clearly showed

that containerized traffic would have the greatest impact on space requirements to the year 2010, followed by dry bulk.

Other traffic — meaning grain and liquid bulk — will not require any additional space for rather obvious reasons.

First of all, the port's two existing grain elevators have all the capacity and efficiency to handle the 7.6 million tonnes of grain forecast for 2010, just about the same volume that was handled in 1980.

Traffic in liquid bulk, meanwhile, which will remain rather stable and total 6.4 million tonnes in 2010, is handled by pipeline and stored off port land. This traffic, therefore, does not have any impact on the port's future space requirements.

### Space-Requirement Projections

Based on these facts and the established traffic forecast, it is expected that the Port of Montreal will need 294 hectares to handle and store all its cargo traffic in 2010.

"Since our current facilities span 142 hectares, we therefore have to add approximately 150 hectares," Mr. Taddeo said.

"Container-handling alone will occupy 120 of these 150 hectares, which will be developed in line with the growth in demand to the year 2010. The remaining 30 hectares will be used mainly for handling dry bulk.

"The Port of Montreal has nothing to lose and everything to gain by acquiring land at Contrecoeur," Mr. Taddeo continued. "It does not risk incurring needless capital expenditures since the site will be developed in tandem with the growth in demand. It has everything to gain by acquiring what it needs to handle the projected growth in its traffic."

Mr. Taddeo stressed that the port corporation does not build a single terminal prior to obtaining from its clients contractual commitments that provide the required revenues. Until required, the Contrecoeur site will be only a land bank.

During the 1980-87 period, the port corporation's net income totalled nearly \$135 million. It was able to finance capital expenditures of approximately \$110 million during the same period.

Mr. Taddeo concluded by saying that

the Port of Montreal must urgently implement a development strategy whereby it will acquire the large areas that will eventually allow the port to continue to build efficient facilities and improve its competitiveness.

"In this way, the port will provide the incentive necessary for attracting new traffic," he said. "This will result in sustained growth for the benefit of all.

"Efficiency is the key to survival."  
(*Portinfo*)

## **Feasibility Study on Canada-Caribbean Trade**

A feasibility study investigating the establishment of a consolidation centre at the Port of Saint John to promote increased trade between Canada and the Caribbean is nearing completion.

The study, being conducted by the University of New Brunswick's Transportation Group is addressing the potential volume of trade between the two countries.

The Saint John Port Development Commission received a \$35,000 contribution from the Atlantic Canada Opportunities Agency (ACOA) toward the \$50,000 study.

At present, the majority of trade which takes place between the Caribbean and Eastern Canada involves the movement of small lots of cargo. According to Mr. Ralph Murray, Senior Transportation Policy Advisor for the City of Saint John, a consolidation facility would allow numerous companies' products to be stored and shipped in one container at considerable savings.

Such a facility would also serve as a distribution centre for goods imported from the Caribbean.

"The Port of Saint John would be an ideal location for such a facility," Mr. Murray said. "Not only do we have the necessary facilities, transportation, and infrastructure, but our location is ideal because of our proximity to the Caribbean."

Once the study is complete and has been presented to port officials, it will be turned over to a six-member steering committee headed by Mr. Larry Armstrong, Deputy Minister of the Department of Commerce and Technology.

The steering committee will conduct

an in-depth review of the study's contents and release its recommendations and conclusions in the fall.

(*Port Progress*)

## **History of Vancouver's Waterfront Workforce**

**By Chuck Zuckerman**

Longshoring in the Port of Vancouver has changed drastically during the past 125 years.

During the earliest days of longshoring, men loaded sailing vessels with lumber at "Moody's Mill" on the North Shore of Burrard Inlet. Stevedores would work around the clock with little time off for meals and sleep until the ship sailed. The men had to know the intricacies of rigging gear in order to stow the various dimensions of lumber. It was mandatory to be a sturdy rugged individual to pack 250 lb sacks.

Today's longshore workers, some of whom are now women, still face the inclement weather and long tedious hours of work, but mechanization has helped alleviate most of the back-breaking work. Different dangers exist today because of the fast and massive moving equipment. But strict safety standards help prevent the many serious and numerous accidents of the past. A stevedore must become proficient in operating various dock and ship moving apparatus and he/she still must have the common sense and improvisational skills necessary to stow diverse cargo.

### **Vancouver's Waterfront Unions**

From the time of sailing ships of 400 tons to today's immense 100,000-ton vessels, longshoremen have always organized into unions to collectively seek better conditions of employment.

In 1888 The Knights of Labour granted Vancouver longshoremen their first charter. The union's existence over the next 55 years was often very precarious. Charters often only existed for the life of new collective agreements. The bloodiest day on Vancouver's waterfront occurred in June of 1935 when hundreds of locked out longshoremen tried to return to Ballantyne Pier but were repulsed by mounted police, machine guns, and tear gas.

Finally, in 1944, Vancouver was designated International Longshoremen's and Warehousemen's Union Local 501. Later, 501 amalgamated

with several other Vancouver locals to form Local 500, which in turn associated with other B.C. locals in 1959 to form the ILWU Canadian Area.

For the last 45 years longshoremen have been represented by the same union in marked contrast to the first half of this century. Good organizing and a sensitivity to the needs of its members makes the ILWU Canadian Area a role model for other unions throughout Canada.

### **Outlook on the Future**

The strength and health of the Union is dependent upon the port's work opportunity and working conditions. Although work opportunity is governed by the vagaries of world economics, the Union is determined to present to the world a well trained workforce ready to serve the shipping industry.

West coast ports compete for cargo in a rapidly fluctuating market. To make Vancouver more attractive, the Union, through the Joint Industry Training Program, is educating its members to operate the large and complicated equipment necessary for efficient cargo movement. The Union believes that establishing a comprehensive training and upgrading program will promote a safe workplace, and is a secure investment in the future.

In 1987 inspection and safety on the waterfront came under the jurisdiction of the Canadian Coast Guard and the Canadian Labour Code. During the transition period the Union has contributed significantly to the development of safe inspection procedures and safe working practices.

The Port of Vancouver, to achieve its full potential in the future, requires the cooperation of all its users and beneficiaries. The list is long and cooperation has often been difficult. But with every dawn a different masthead appears at the entrance to the harbour and longshoreworkers are optimistic for the future.  
(*Port News*)

## **The First 125 Years: Port of Vancouver**

It's been a balancing act. As long as Canada's ports and harbours have been under federal control, port administrators have walked a thin line between national objectives and local

business and municipal priorities.

### **1913 — The First Port Authority**

No central port authority existed in Vancouver until 1913, when an act of Parliament created the Vancouver Harbour Commission. The three-member, appointed commission controlled harbour navigation; construction of wharves; piers and buildings; and safety and security.

During the period that followed, the Port of Vancouver enjoyed unprecedented growth and development — and the Harbour Commission managed a significant contribution. It built piers, directed the development of grain elevators, and the Granville Island industrial area.

In spite of its accomplishments, the Vancouver Harbour Commission had critics — principally among them was Sir Alexander Gibb, a renowned British port engineer hired by Ottawa in 1930 to conduct a sweeping survey of Canada's port administrations.

For two years, the ports of Montreal, Vancouver, Quebec, Halifax and Saint John were examined under Gibb's microscope. His final report condemned Harbour Commissions as little more than "official organizations for the control of important patronage."

Gibb recommended continued federal control of the nation's principal ports — but with a single central authority, individual port managers and elected local harbour councils. In creating the National Harbours Board in 1936, Ottawa acted on some of Gibb's recommendations — but not all.

### **1936 — The National Harbours Board**

A crown corporation responsible to the Minister of Transport, the National Harbours Board demonstrated solid and accountable central administration. However, the new ports system failed to adopt Gibb's plan for elected local representation. The government defended the decision claiming its purpose was to free harbour administrations from local pressures.

Calls for more autonomy were repeatedly rejected — until 1971, when Ottawa recognized a need to modernize the National Harbours Board, and bring its operations more in line with commercial enterprise. It launched a programme of limited decentralization, establishing in each major port a local Port Authority, consisting of business

people and port users, to advise and assist the Port Manager.

### **1982 — New Act Creates Today's Port Corporation**

By the mid-seventies, the Minister of Transport was promising a new Canadian ports act, and in 1982, he delivered. The Canada Ports Corporation Act replaced the National Harbours Board with a modern day crown corporation. The Act also made provision for the larger ports in the system to function individually with greater autonomy. The Port of Vancouver was one of the first to apply for — and be granted — Local Port Corporation status.

The Vancouver Port Corporation has adopted a more commercially-driven stance in the 80's, enabling the port to respond effectively to market opportunities and competitive demands.

### **1990s — and Beyond**

Moving towards the 21st century, the Port Corporation will combine its corporate programme of marketing and port development with its role of facilitator to the port's diverse import/export customer base.

For three-quarters of a century, the management of Canada's largest port has recognized the importance of this transport resource to the achievement of Canada's trade objectives. Administrative styles have changed with the times. But getting the job done right is still the top priority — and greatest challenge.

*(Port News)*

## **Prepare for Changes: Houston Port Chairman**

The only constant in international business is change, says Mr. Ned Holmes, chairman of the Port of Houston Commission.

Since World War II, technological innovations have greatly accelerated the rate of change in global trade, Mr. Holmes said. The port chairman was keynote speaker during a recent Greater Houston Chamber of Commerce seminar geared toward U.S. companies interested in exporting.

"Nations which are to retain future economic global leadership must adapt adroitly to change and must be intimately knowledgeable about their

partners, competitors and themselves," Mr. Holmes said. "They must be receptive to new modes of increasing output and wealth, and they must be flexible enough to boldly implement new economic strategies."

The most dramatic evidence of change in global trade is the recent decline of the United States' competitive position, Mr. Holmes said.

"Forty-four years ago, the United States emerged from World War II as the undisputed leader of the relative share of the world's wealth, production and trade," he said. "Though some erosion was inevitable, it is deeply disturbing to acknowledge that we've become the world's No. 1 debtor."

Many industries in this country — such as textiles, steel, aerospace, automobiles and computers — are experiencing a relative decline when compared to their foreign counterparts, Mr. Holmes said.

However, Mr. Holmes said, the news is not all bad. The country's trade deficit is shrinking from the all-time high of \$152 billion posted in 1987. Business leaders throughout the United States are debating possible solutions to the country's trade woes.

Also promising is the free trade agreement reached by the United States and Canada.

A depreciating U.S. dollar, wage restraints and improvements in productivity and product quality are helping U.S. manufacturers become more competitive. Many industries, Mr. Holmes said, are seeing increases in exports.

"Such strengths, combined with effective national leadership, should see the U.S. slowly return to a more balanced position in the world economy," he said. "We do not have the luxury of becoming complacent. The rest of the world does not remain static while the U.S. battles to restrain its relative decline."

Every day, events — such as the Chinese student protests — that could portend shifts in global power occur throughout the world, Mr. Holmes said.

"As we approach the 21st century, the global balance of economic power is not entirely predictable," he said. "For example, Japan's favorable trade position will continue. But it will not be as easy as in the past. Not only has Japan been emulated by other newly

industrialized states — such as Korea, Singapore and Taiwan — but it must also face increasingly hostile reactions by the U.S. and Europe due to its penetration of their home markets.”

The completion of the Single European Market in 1992 could have one of the most dramatic effects on the world market, Mr. Holmes said. Although experts are still debating the effect of the Single Market on Europe’s trading partners, U.S. companies must prepare now to respond to the changes.

“I believe that the strengths of our nation, state and city far outweigh the negatives of recent international decline,” he said. “The key to our success, both locally and nationally, will be whether we can harness our entrepreneurial business acumen and underpin the educational prerequisites necessary to successfully compete. It will be a challenge, but it is also an opportunity, an opportunity in which all of us together must play an important role.”

*(Port of Houston)*

## **5 Panelists Discuss Int'l Trade Logistics**

Five members of widely varying transportation disciplines discussed the logistics of international trade recently at a seminar held in conjunction with National Transportation Week.

The panel included Mr. James Cook, Houston district director of the U.S. and Foreign Commercial Service of the U.S. Department of Commerce; Ms. Pam Garifalos, ocean export manager, WTS of Houston; Mr. A.F. (Gus) DeMouy, area sales manager Amtrans Line; and Ms. Claudia Hall, sales manager, Emery/CF Air. Mr. Joel Wolff, a principal with the Drake Sheaham Division of KPMG Peat Marwick in New York City, was the keynote speaker for the seminar.

“Two hundred years ago, Americans had a reputation as tough, aggressive businessmen,” Mr. Cook told seminar participants. “So aggressive were these early Yankee traders that, by 1085, the United States was second only to Great Britain in international business and trade.”

In past years, Mr. Cook said, the United States has lost a lot of its prestige and position in international markets. “Management and labor’s commitment disappeared. Meanwhile our foreign

aid was helping other countries to industrialize. Finally, the rest of the world became independent. They no longer needed our products. They began to export. We began to have a trade deficit. Our banks lost money in dealing with Third World nations.

“We went from the largest creditor nation to the world’s largest debtor nation,” he said. “However, the Yankee trader is reemerging. American business is regaining some of its share of the international market.”

Between 1986 and 1987, he said, U.S. exports rose 16 percent. U.S. companies have become more efficient in the past few years, he said, and there is a renewed commitment to quality.

Mr. Cook finished his discussion by outlining some guidelines for exporters and describing some of the programs his agency provides to help U.S. business participate in world trade.

Freight forwarders are the architects of transportation, according to Ms. Pam Garifalos. “We don’t just prepare documents,” she said. “We handle a wide variety of products and provide expertise and experience the shipper may not have.”

Forwarders serve as a source of information for their customers, maintaining libraries of trade information and handling shipments from points of origin to destinations. A forwarder can advise a shipper about regulations, documentation, packing requirements, flag restrictions, interpretation of contract terms, letters of credit and other matters, Ms. Garifalos said. The forwarder also handles many of the mechanical tasks necessary to shipping, including preparation of documents.

“Thus, the shipper can make his best offer to a client knowing he can meet the transportation requirements for delivery,” she said.

Mr. DeMouy described the role of ocean carriers in international transportation.

He discussed the different types of services operated by vessel owners, including bulk services (liquids such as oil and chemicals), specific carriers (grain, etc.), charter services (suited for project cargoes) and liner services.

“Liner services operate regularly on particular trade lanes and carry a variety of cargo,” he explained. “Whatever your requirements, there is probably a liner service vessel to fit your

needs.”

Ms. Hall discussed air freight forwarding, noting that this is a small but very dynamic industry.

“People will say to me, ‘I don’t do much air freight,’” Ms. Hall said. “They may be talking about \$3 million a year in air freight costs as compared to \$12 million a year in ocean freight charges. Well, that may not be a lot in your books, but in mine, it’s a lot.”

The air carrier industry offers a lot of support, Ms. Hall said. “They’re customer oriented and you’re the client,” she explained. “Service, service, service ... sometimes it’s worth more than price.

“You may want to use a combination of shipping modes,” Ms. Hall added. “Every industry has multiplicity of needs in transportation. That’s where you need input, that’s when you need to call and start asking questions.”

Mr. Wolff addressed the need for companies to blend marketing and financing with transportation in the global marketplace.

After outlining the reasons for globalization (the development of a worldwide business system), Mr. Wolff described three characteristics he felt were necessary to provide quality service:

- International reach — the ability to communicate and transport goods and services throughout the world.
- Market specialization — a wider geographic market forces a more focused approach.
- Information technology — the factor that forms the foundation of global-quality service.

Mr. Wolff also discussed the challenges offered by the consolidation of the European Community in 1992.

*(Port of Houston)*

## **\$900,000 for Creating JAXPORT Wetlands**

The Jacksonville Port Authority (JAXPORT) voted to approve a \$899,795 contract to create 23.6 acres of new wetlands, which will replace a like amount that needed to be converted for customer use at its Blount Island Marine Terminal.

JAXPORT will pay \$557,310 and the Florida Department of Natural Resources will pay \$342,485 for the work, which will be done by J.B. Coxwell

Contracting Inc., of Jacksonville.

"Environmental mitigation is an important aspect of our port development program," said JAXPORT Managing Director Paul D. deMariano. "We accept that and understand the ecological benefits of protecting the environment and wildlife. In fact, we recently hired Jorge C. Southworth as our manager of environmental affairs. He will manage and administer our environmental compliance program while making sure that we do not adversely impact Jacksonville's environmental resources."

Capital improvement projects on Blount Island requiring mitigation, consisted of the development of a 25-acre paved cargo storage area behind berth 12, of which only 8.2 acres of wetlands were impacted; the development of a 12.9-acre wetland site for import automobile storage; and the development of 1.5 acres of wetlands for miscellaneous use.

To replace the 22.6 acres of impacted wetlands, JAXPORT has agreed to create 15.3 acres of new wetlands on Bucks Island, 7.2 acres on Reed Island, and 1.1 acres on Blount Island.

The wetlands that needed to be converted to revenue-producing property were not considered highly used by wildlife because of the hustle and bustle of industrial activity taking place around the areas, said JAXPORT engineer Tom Knight, who worked with the state on the mitigation program.

"We believe the newly created wetlands will be much more utilized by wildlife because of their remote locations," Mr. deMariano said.

"In addition, the new wetlands are being custom designed to provide an attractive feeding habitat for the endangered wood stork and other birds," he said. "The areas will be graded in such a way as to provide shrinking pools when the tide recedes. This will provide concentrated food areas for birds that feed on small fish and other marine life."

### **Honorary Port Pilot Award to K-Line's Itoh**

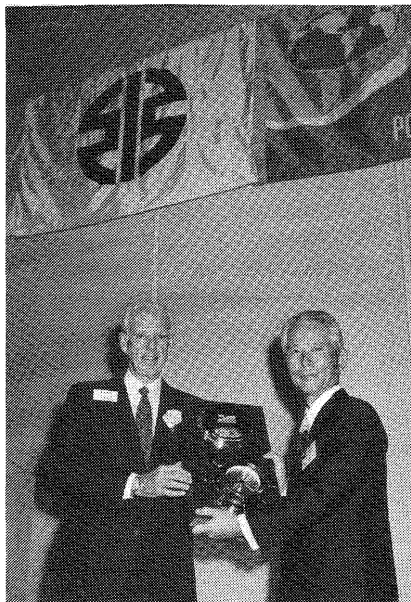
The Port of Long Beach Board of Harbor Commissioners recently presented its Honorary Port Pilot Award to Mr. Kiyoshi Itoh, Chairman of the Board of Kawasaki Kisen Kaisha Ltd., in ceremonies held before 400 maritime

and business leaders in Japan.

In making the presentation, Mr. C. Robert Langslet, incoming President of the Harbor Commission, cited the numerous contributions that Mr. Itoh has made to the maritime industry since joining K-Line in 1951.

Established in 1954 by the Board of Harbor Commissioners, the Honorary Port Pilot Award honors notable contributors in government, industry and transportation who have significantly affected the growth and prosperity of world trade.

The prestigious title has been accorded to only 62 individuals since it was presented to President Dwight D.



Eisenhower, the first Honorary Port Pilot. Over the years it has been bestowed on prime ministers, cabinet officials, ambassadors, senators and prominent industry leaders. The most recent recipient was President Ronald Reagan, who received the honor in August, 1988 at ceremonies held at the Port of Long Beach.

K-Line's involvement with the Port dates back to 1968 when the company was part of a Japanese consortium of containerships trading between Japan and California. In 1971, a K-Line subsidiary, International Transportation Services Inc. (ITS), was established in the Port of Long Beach as a container facility serving intermodal transportation customers. Today the ITS terminal comprises 103 acres and utilizes five container cranes. K-Line presently operates the only on-dock rail service in Southern California within the ter-

minal, and is planning a major expansion of this facility.

Commissioner Langslet noted that the growth of K-Line parallels that of the Port of Long Beach, as both are recognized as world leaders in the maritime industry.

### **New Orleans Opens Telemarketing Center**

A new telemarketing center was opened by the Port of New Orleans on June 5. The new center is equipped with computerized data bases and toll-free customer service lines.

"It's easier than ever before to do business with the Port of New Orleans," says Mr. Ulysses J. de St. Germain Jr., acting director of marketing and sales. "From anywhere in the continental United States and San Juan, Puerto Rico, customers can pick up a telephone, dial (800) PRO-NOLA and get help and information about the Port of New Orleans from a customer relations representative at our new telemarketing center. It's an innovative way to help our customers get the information they need as quickly as possible."

The information available fits into five broad areas: port facilities, port tariffs, ocean transportation, inland transportation and international trade services.

Customers can get the technical details about port facilities needed to plan efficient cargo moves. Rail service, wharf deck strength, proximity of refrigerated warehousing, dry bulk transfer facilities and steel handling facilities are but a few of the topics covered.

Current information on steamship liner services and projected arrival and departure times for ships are all available from the customer service representative at the telemarketing center.

Inland transportation information is also available. Six mainline railroads operate more than 350 trains per week in and out of New Orleans and almost 100 over-the-road truck lines, including many specializing in refrigerated and heavy hauling, serve the Port.

The Port of New Orleans is the international gateway for inland ports that dot the 14,500 miles of inland waterways that flow through the industrial and agricultural heart of the



United States. Customer representatives can provide the information needed to help select a barge operator.

Customs house brokers, freight forwarders, export packers, cranes, warehousing, banking, towing, chandlery, bagging, and more are just a few of the highly specialized services available from members of the Port community. Customer service representatives can help decide which kinds of services are necessary.

In addition, representatives can offer advice and assistance on port tariffs and a broad range of other topics.

Plans for expanding the new service are already being made, according to Mr. William T. Duke, customer service manager. Later this year, coverage for the toll-free number is scheduled to be expanded to the rest of Puerto Rico and the U.S. Virgin Islands, Mr. Duke says.

Customer service representatives are fluent in both Spanish and English. Finnish, French, German, Italian and Portuguese are spoken by other members of the Port marketing staff and are available on request.

The new service will be available Monday through Friday from 8:00 a.m. to 4:45 p.m. U.S. Central time. The new toll-free customer service number is 1-(800) PRO-NOLA or 1-(800) 776-6652.

*(Port of New Orleans RECORD)*

## **New Orleans to Develop New Wharf Facilities**

A 73-year-old Port of New Orleans landmark has reached the end of its useful life. The public grain elevator between the Napoleon Avenue and Nashville Avenue wharves will be demolished and the 16 acres of land will be used for general cargo and container handling.

Because efficient grain elevators are not labor intensive, port and economic developers do not consider them to be the optimum use of scarce riverfront industrial space. Instead, the focus is on developing new wharf facilities to create jobs.

Port planners envision a new 3,100-foot wharf connecting the Nashville Avenue and Napoleon Avenue wharves, the two busiest Mississippi River wharves in the Port. Also on the drawing board is a 37-acre paved stor-

rage area behind the new wharf to accommodate a container facility.

An estimated 1,200 permanent jobs could be created within 10 years by building a new facility at the site.

*(Port of New Orleans RECORD)*

## **Consortium to Tackle Met Transportation**

Leaders of three key transportation agencies in New York and New Jersey recently hailed the formation of a new bistate Transportation Research Consortium that will work with the local agencies to improve transportation in the metropolitan region.

The creation of the consortium — and an advisory group consisting of representatives of public agencies and the private sector — was formally announced by Mr. Joseph Murphy, Chancellor of the City University of New York (CUNY). CUNY was selected to administer the initial \$1.3 million in federal and local funds that will be used to support the consortium's research projects.

Funding is being provided by the U.S. Department of Transportation, The Port Authority of New York and New Jersey and the Departments of Transportation of New York State and New Jersey.

In addition to CUNY, the member universities are: Cornell University; New Jersey Institute of Technology; New York University; Polytechnic University; Princeton University; Rensselaer Polytechnic Institute; Rutgers, The State University of New Jersey; Stevens Institute of Technology; and the State University of New York. The Universities of Puerto Rico and the Virgin Islands are consortium members by virtue of their jurisdictions' inclusion in Federal Region II, which covers New York and New Jersey.

The consortium's research, to be conducted from 1989 through 1992, includes: traffic safety; better approaches for setting priorities in rehabilitation of the region's aging bridges; safer logistics for transporting hazardous materials; improved quality assurance for concrete; and new procedures for joint transportation project selection among the region's independent transportation agencies.

Another effort focuses on creating a certification program in avionics

maintenance, one of the many specialized transportation careers that offer good opportunities for the region's young people.

"Congestion and other transportation problems pose a common threat to the prosperity of the entire region," Chancellor Murphy said at a World Trade Center meeting of the consortium's advisory council. "The new consortium marshals the outstanding talent in the region's universities to develop new strategies and concepts that effectively address existing and future transportation issues on a regionwide basis."

The consortium is advised by an Agency-Industry Advisory Council, which is chaired by Port Authority Executive Director Stephen Berger. Mr. Berger said, "Under the leadership of the New Jersey and New York Departments of Transportation, the region's key transportation agencies have been working together to create a regional agenda that addresses the need to untangle congestion, speed the movement of people and goods, and plan regional mobility improvements."

"The consortium creates a crucial link to the university community," he said, "which in turn can engage the region's business and civic leadership in making today's transportation network more efficient and shaping the expanded system that is essential for continued economic growth."

## **Container Barge Moves Up 12.7% at Portland**

Container barge movements to and from the Port of Portland were up 12.7% for the first six months of 1989 over the first six months of the previous year. This is a particularly impressive gain because 1988 was a record year for barge container moves on the Columbia/Snake system.

There were 9,071 moves during the first six months of 1988 compared to 10,220 moves during the first six months of this year.

Portland is the hub for this commerce which flows to and from the Ports of Boardman (OR), Pasco (WA), Wilma (WA) and Lewiston (ID) on the Columbia and Snake rivers.

Cargoes include paper products, animal feeds, hides, canned goods,

pulses, dry peas and lentils and flour, all of which have shown volume growth during the last year. Domestic cargo also is seeing a sharp growth along with international exports.

## Redwood City Tonnage: Highest in 8 Years

The Port of Redwood City reported that tonnage for the fiscal year ended June 30 was the highest in eight years, reflecting the continuing upswing at the port.

Commission Chairman Guy Smith said that import/export tonnage passing through the port was up 81 percent to 437,000 metric tons for the 1988-89 fiscal year; the previous year tonnage increased 71 percent.

The tonnage is the highest since 539,000 metric tons in 1980-81.

Mr. Smith said that the port received 36 cargo vessels, up 13 percent. Non-cargo vessels also were up, from 72 to 76.

Total dockage days were 529, up 15 percent from the previous period's 459.

Port Executive Director Floyd Shelton credits the continued upswing to improved relations and economic



**1989 QUALITY PORT** — The Port of Oakland was the only West Coast Port and one of only five in the United States to receive a coveted Quality Award from Distribution Magazine. The award was the result of a nationwide poll of port users. Mr. John G. Capers III (right), publisher of Distribution, presents the plaque to Mr. James J. O'Brien, acting Chief Executive Officer and Executive Director, Transportation Services, for the Port of Oakland.

environment at the port.

"Service is the key element in the port's marketing strategy and must come first," Mr. Shelton said, noting that over the last year providing quality services and better communications with existing tenants and prospective clients has led to economic growth for the port.

For instance, Mr. Shelton noted that the port worked with SimsMetals to improve their inventory of scrap metal by providing additional space; the company will shut down for a few months this fall in order to expand, an action that will double the capacity.

## Port of Charleston: 4 Container Cranes Added

The Port of Charleston is expanding its container lift capacity with the addition of four 40-long ton container cranes.

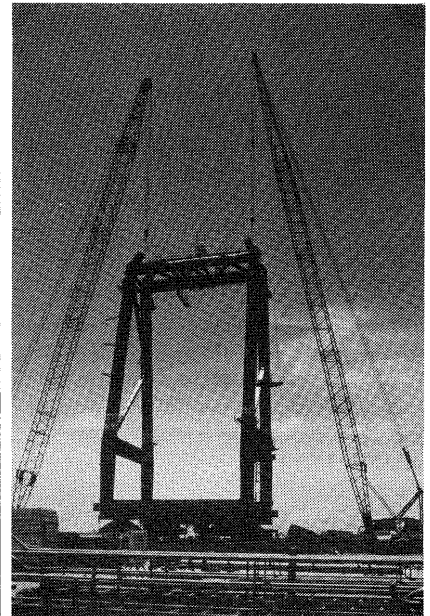
The state-of-the-art machines are designed to accommodate the coming phase of containerized shipping. The next generation of ships are referred to as "post-Panamax" — ships too large to navigate the Panama Canal. ("Panamax" refers to ships that just fit into the canal locks.) The post-Panamax ships will be wider, sit higher in the water, and carry containers of up to 50 feet in length.

The new I.H.I. cranes have an outreach of 145 feet and a clearance of 55 feet from leg to leg. They are also faster than the current inventory of cranes with a hoist rating of 360 feet per minute (empty) and 150 feet per minute (full-rated).

The cranes are fully electric and utilize American-made Cutler-Hammer electric drive systems. Power for the cranes is supplied from a separate source via cable. The heavy duty cable is mounted on a reel and played out into a concrete trench when the crane moves along the pier. The Ports Authority has had a Paceco electric crane in service for over a year at the Columbus Street Terminal.

"One major advantage in utilizing electric cranes is the reduced maintenance costs," remarked Mr. Joe Bryant, director of operations and engineering at the State Ports Authority. "Most of the maintenance costs in our diesel-electric cranes are in the diesel gen-

erators themselves. Ultimately, larger cranes would be required to service the post-Panamax ships; the selection of all-electric over diesel-electric is in keeping with the industry trend."



*The skyline along the Wando Terminal takes on an extra feature as the first of new container cranes is erected on-site.*

## Port of Tacoma Opens 5-story Control Tower

A five-story control tower has been built in the Port of Tacoma's North Intermodal Yard, one of two such facilities that provide the Port's container customers with dockside rail service.

The tower gives a clear view of three of the Port's container terminals, Terminals 3, 4 and 7, which supply the double-stack trains that are loaded by the Port's fleet of 25 straddle carriers in the North Yard. Operation supervisors use the vantage point to improve safety, speed and efficiency in the loading and unloading of containers at North America's sixth busiest container port.

The control tower was constructed to keep pace with the increasing number of containers passing through Tacoma each year. The Port expects to handle 875,000 TEUs in 1989, a 12% increase over its 1988 total of 782,000. Part of the volume increase is due to a new \$33 million container facility, Terminal 3, opening in August.

"We want our customers to have the best service and our longshoremen to

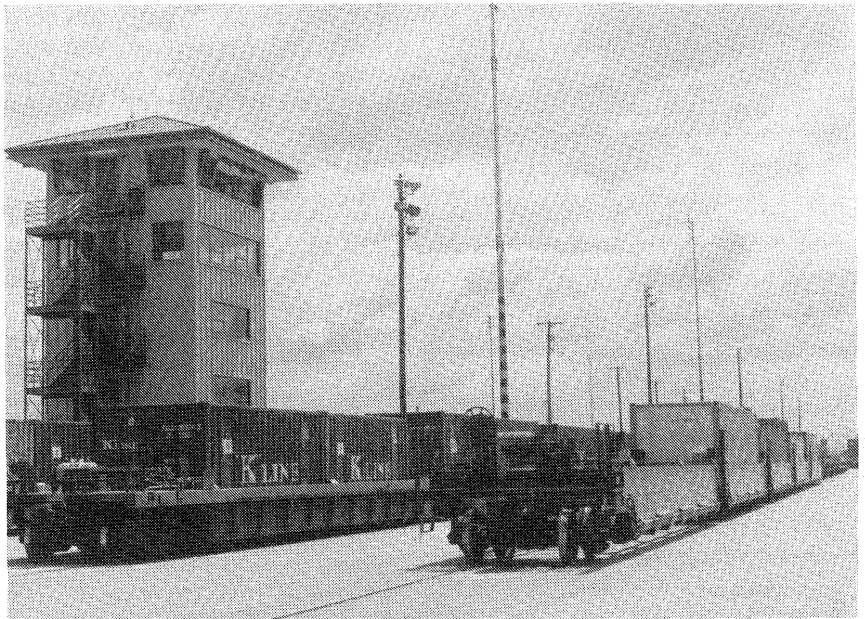
have the best working conditions," said Port of Tacoma Commission President Jack Fabulich. "That's why we'll continue to devote our resources to such facilities."

## Tacoma Welcomes Kubota Tractor Corp.

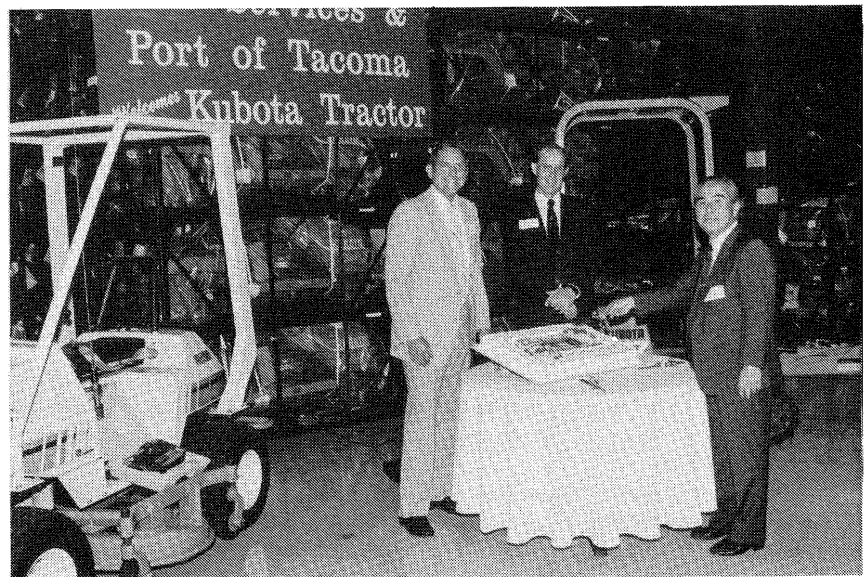
Port of Tacoma Commission President Jack Fabulich has announced that Kubota Tractor has become a major new tenant at the Port, a move which is expected to bring over 1,200 containers a year to Tacoma. The Port and ATD Services, Inc. officially welcomed Kubota Tractor Corporation in a special ceremony at Kubota's new 50,000 square-foot warehouse operation, located at the Port Commerce Center. The operation is part of the first phase of Kubota's three-part program to improve its nationwide product distribution operations.

"We are proud to welcome Kubota to Tacoma," said Port of Tacoma Commissioner Jack Fabulich. "We look forward to building a successful partnership in the years ahead. Having Kubota in Tacoma helps strengthen our Port's reputation as an ideal import-distribution center, as well as adding jobs and shipping activity to our local economy."

The Tacoma operation is part of a system developed in an effort to keep pace with Kubota's increasing distribution demands. According to Mr. S. Egusa, president of Kubota Tractor Corporation, "We are pleased to have the program in place after nearly three years of research and planning. Through new distribution channels the company will increase efficiency, reduce transportation costs, and minimize transit time."



*The new North Intermodal Yard control tower at the Port of Tacoma.*



*On hand to cut the cake officially welcoming Kubota Tractor to Tacoma were (left to right): Mr. Jack Fabulich, President, Port of Tacoma Commission; Mr. Doug Hutchens, President of ATD Services, Inc; and Mr. Seiichi Egusa, President of Kubota Tractor Corporation.*

# AT THE HEAD OF THE SEAWAY

A WORLD-CLASS PORT IN THE MIDDLE OF  
NORTH AMERICA. SKILLED LABOUR, GREAT FACILITIES.

Thunder Bay Harbour Commission, P.O. Box 2266, Thunder Bay, Ontario P7B 5E8  
Phone (807) 345-6400 Telex: 073-4347 Fax (807) 345-9058



PORT OF  
THUNDER BAY  
Ontario, Canada

## Port of Copenhagen in Profile

### STRUCTURE

The Port of Copenhagen has the status of a proprietary institution, comprising the parent company - The Port of Copenhagen Authority - and its wholly-owned subsidiary, The Copenhagen Free Port & Stevedoring Co., Ltd., which is generally referred to under its Danish designation "KFS."

In accordance with the stipulations of Act No. 109, passed by the Danish Folketing on 29 April 1913, with subsequent amendments, and Act No. 237 of 12 May 1976, The Port of Copenhagen Authority is subject to the supervision of the Ministry of Public Works (today's Traffic Ministry).

### OBJECTIVES

The Port of Copenhagen, operating as a commercial port, bases its activities and planning on the following main objectives:

1. to provide a full range of modern facilities and advantages for the Port's maritime traffic, while offering the Port's users and the business community in general the highest levels of efficiency and service, on reasonable, competitive terms
2. to maintain and increase the volume of traffic so as to retain its status of base port
3. to achieve a return on investment at the level required to ensure efficient operation of Port facilities, while at the same time maintaining a satisfactory level of self-financing
4. to contribute, via appropriate use of port land sites, towards promoting development of commercial activity, housing and recreational facilities in Copenhagen
5. to maintain stable employer-employee relations, while ensuring satisfactory conditions, motivation and an opportunity of personal development for the Port's employees.

### BASE PORT

The Port of Copenhagen's status as a base port enables it to play a major

role in meeting the requirements of the overseas line conferences. The main feature of the base port system is that freight rates for cargoes to or from any base port in a specific region are the same, irrespective of which base port is used for cargo handling.

The Port's status as a base port represents a major advantage for its customers, who are exempt from charges for the preliminary freight stage. The status is obviously also a factor of major importance to the Port, as it can thus compete on more equal terms with other base ports. The Port of Copenhagen, however, exerts no

direct influence on its status, as the international line conferences act independently when fixing freight rates and deciding which ports are to be classified as base ports.

While the main factor taken into account when according a port the status of base port is the volume of cargo available, emphasis is also placed on the level of service and the fees charged by a specific port.

The Port of Copenhagen, as part of its policy of offering its users competitive terms, exempts exports and domestic cargo from cargo dues.

### KEY FIGURES

	1984	1985	1986	1987	1988
1 Profit ratio	6.0%	7.2%	7.6%	2.7%	5.5%
2 Return on investment	0.9%	1.5%	3.4%	2.0%	2.3%
3 Net capital/Total assets ratio	26.5%	38.1%	67.0%	68.3%	72.2%
4 Return on net capital	4.4%	56.4%	168.2%	0.7%	6.4%

1. Calculated on the basis of the year's primary operating result in relation to turnover.
2. Calculated on the basis of the year's result before extraordinary items in relation to total assets.
3. Calculated on the basis of net capital at 31st December in relation to total assets.
4. Calculated on the basis of the year's result in relation to net capital at 1st January.

(The Annual Report 1988)

## Port of Marseilles: Int'l Cooperation

With the object of improving the quality of port activity, besides the traditional co-operative activities with French and foreign ports, the Institut de Formation et d'Echanges portuaires (I.F.E.P. - Port Forum and Training Institute) has developed new activities which follow two main lines concerned particularly with raising the level of training of the Port's officials and port professionals.

### Training

The Port Forum and Training Institute became France's second centre providing the courses of the Centre National des Arts et Métiers (C.N.A.M. - the National Centre for Applied Arts and Crafts) for obtaining the Brevet de Techniciens Supérieurs en Transports Maritimes (Diploma of Senior Technician in Maritime Transport).

The first training year started on 17th October 1988 with 28 participants.

This policy will be developed further through training which is now at the

planning stage:

- award of a Diploma in Specialized Higher Studies for port safety,
- award of a postgraduate diploma in the discipline of logistics and port operations, in co-operation with various external organizations.

### Engineering

The Port of Marseilles Authority is currently engaged in more than 50 project engineering and technical assistance contracts. Systematic research has led the Port to make contact with new countries, for which more comprehensive assistance can be negotiated to cover their overall requirements. More than 15 contracts have been signed within the framework of this fresh approach.

In order to reduce its direct involvement in this field, the Port Authority is endeavouring to associate itself more closely with regional or national partners (firms or research organizations).

This partnership policy aims to:

- improve the Port Authority's capacity to respond to international

bids for tenders by offering a wider range of skills,

- reduce the cost of commercial activities to increase turnover,
- enable business enterprises to benefit from the Port Authority's international reputation.

This partnership is centred primarily on the constitution of groupings oriented towards specific projects:

— The MAINTIPORT Group (concerned entirely with port maintenance) operated normally in 1988.

— the ECOPORT Group, formed in 1988 in the field of anti-pollution measures and marine environment protection, has brought together:

- the Port of Marseilles Authority,
- the CAL-APAVE,
- the Marseilles Water Company,
- the Marseilles Oceanological Centre,
- the Chambon Company and
- the Aix-en-Provence Technical College,

which pool their expertise in providing advice, assistance, effective action against pollution and training for the

defence and protection of the port/industrial and maritime environment.

*(Marseilles-Fos Europort South)*

## **Rapid Turnaround Port Proceeding on Schedule**

The first stage of the new Turnaround Port in the tidal basin at the seaward end of the François I Lock will provide concrete backing for the all-out commercial offensive undertaken by the Port of Le Havre, and which is already bearing such fruit as a 14.5% rise in container traffic in 1987, followed by 16% in 1988, and the doubling of transhipments.

The first four berths, now under construction, will come into service early next year with an equipment consisting mainly, in the first phase, of five high performance container cranes.

Work on the first South berth is well ahead, with the prefabricated caissons from which it is made already grounded in their final positions. The filling-in of the quay has begun and the super-

structures will be finished in the autumn. The second South berth was started during the first quarter of 1989.

Dredging on the site of the North berth has been completed, together with the foundation work.

The promising results turned in by the Port of Le Havre must not blind us to the fierce competition from North Europe. The giants in the container market are locked in combat and most of them are going in for large-scale capital investment to keep up with the latest trends and requirements of the traffic.

The Port of Antwerp, for instance, is just completing the construction of a major container terminal on the downstream side of its locks and is thinking of building a second, while Rotterdam has announced an investment plan to the tune of 4 billion florins, involving private enterprise, the authorities and the port.

To keep in the swim, Le Havre has decided to go all out to complete the first stages of the Rapid Turnaround Port without delay and have them in service at the beginning of 1990.

*(Port of Le Havre FLASHES)*



## **Marseilles-Fos**

*Europe's Intermodal Superport  
on the Mediterranean!*

### **Marseilles-Fos: Europe's second port and the leading port of the Mediterranean**

Southern Europe's high performance port. Its widely comprehensive facilities offer the greatest flexibility for all types of traffic: general cargo, containers, heavy loads, dry and liquid bulk, chemical and oil products, etc...

### **Marseilles-Fos: the logistic crossroads of Europe and the Mediterranean**

A true "intermodal" port. With its direct motorways network, its daily express railway links and its river services, Marseilles-Fos provides the most suitable, the most rapid and the most economical "transport solution" for each product.

### **Marseilles-Fos: an ideal strategic position for international shipping lines**

200 regular shipping services link 273 ports serving 110 countries worldwide and pass through Marseilles-Fos, the centre for international transit between Europe, Africa and the Mediterranean countries.

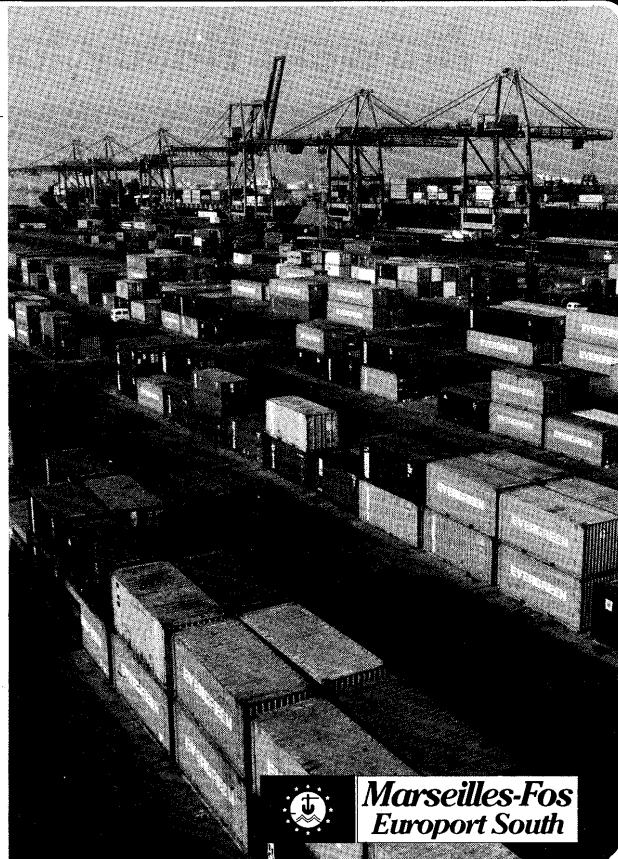
### **Marseilles-Fos: it is also the best place for your future investment in industry or transportation**

At Marseilles-Fos industrial and commercial investors will find the space, the technology, the logistic facilities and the industrial, commercial and human environment so essential for their development.

***Don't wait until 1993 to establish yourselves here!***

#### **Port of Marseilles Authority**

23, Place de la Joliette - BP 1965  
13226 Marseille Cedex 02  
Tél. 91.39.40.00 - Telex 440746 - Fax 91.39.45.00



**Marseilles-Fos  
Europort South**



### **Port of Amsterdam: Good First Quarter**

Total transit tonnage in the Port of Amsterdam rose by 10.8% to nearly 7.2 million tonnes in the first three months of 1989 compared to about 6.5 million tonnes in the year-earlier period, and a gain of 1.6% compared to the average quarter. Liquid bulk cargoes posted a 25.9% increase to 3.4 million tonnes in the first three months, dry bulk cargo shipments declined by 13.6% to 2.2 million tonnes and general cargo rose by 30% to 0.9 million tonnes. In the first quarter of 1989, 960 ocean-going vessels with a total capacity of 7,553,032 gross registered tonnes were handled in the Port of Amsterdam, a 5.1% capacity increase over nearly the same number of ships in the same 1988 period.

### **Port of Rotterdam: First Half Growth 8.7%**

Things are going well in the port of Rotterdam. Now that the figures for

the months of April, May and June have been announced and the balance for the half year can be drawn up, it appears that there has been an increase of 11 million tonnes (8.7%), from 131 to 142.3 million tonnes. The quarterly result will come to around 72 million tonnes, 13% up on the second quarter of 1988.

This increase was unexpected. According to the Rotterdam Municipal Port Management, it is too early to draw conclusions for the whole year from these figures. The scale of growth may be an indication that Rotterdam is increasing in significance as a main port for Western Europe. This will not be certain until the development in market shares is known.

### **ABP Aids Creation of New Nature Reserve**

Associated British Ports has given £4,000 to the Suffolk Wildlife Trust to assist them in establishing a nature reserve at Leathes Ham, a secluded marsh and woodland site close to the

busy commercial port in the heart of Lowestoft.

The scheme forms part of Suffolk Wildlife Trust's Urban Wildlife Project which is designed to improve town centre sites which have special importance for the conservation of wildlife.

This is the second occasion recently that ABP has worked with the Suffolk Wildlife Trust on conservation projects in Lowestoft. Earlier this year, the Company constructed a unique artificial cliff at the entrance to Lowestoft harbour which provides roosting and nesting sites for a colony of kittiwakes. Already, more than a dozen pairs of kittiwakes have occupied its special ledges and shelves, and several young birds are being raised there.

Commenting on the funding, Mr. Rob Gravestock, Lowestoft Port Manager, said: "Associated British Ports is pleased to be involved with nature conservation schemes that relate to the Company's operations, and we wish the Suffolk Wildlife Trust every success with their urban wildlife projects."

Suffolk Wildlife Trust Director, Mr. Derek Moore, further remarked: "The



## **Antwerp Ready for 1993..... Already Now**



### **Port of Antwerp**

General Management, City Hall, B-2000 Antwerp Tel : 2208360 — Telex : 31807 — Telefax : 2208585



generosity and foresight of Associated British Ports in assisting the Trust in its work in the Lowestoft area is most welcome, and is an encouraging example of how industry and a conservation body can work together in close co-operation."

## Artificial Cliff

A population explosion in the 19th Century caused the nation's kittiwakes to widen their breeding areas. As "normal" nest sites reached the point of saturation, the birds began to nest on new and sometimes unnatural sites.

From 1946 onwards, the number of kittiwakes began to increase locally, and in 1958 two pairs nested on the South Pier at Lowestoft. Both of these failed, but in 1959 five pairs managed to raise three young between them.

By the mid-1960s, almost 40 pairs were nesting and the colony was well established.

From 1970, the colony began to nest on buildings nearby. The Royal Hotel, St. John's Church, The Yacht Club and houses and shops in the vicinity were utilised. Some of these buildings were demolished over the years, and the owners of others took measures (not unreasonably) to discourage the birds.

From 1985, the colony had been confined to the South Pier Pavilion,

and numbers continued to increase there with the birds utilising ledges, window frames and the roof for nest purposes. In 1988, a total of 107 pairs raised 153 young, a record on both counts. This was also the highest percentage of young per nest for any colony in the British Isles.

With the demolition of the South Pier Pavilion earlier this year, the kittiwakes habitual nesting site was effectively removed. In an attempt to retain the birds within the port, ABP Lowestoft has constructed an artificial cliff for the birds to nest on at the entrance of the harbour.

The construction is believed to be the first custom-built "cliff" for sea birds, built anywhere in the world. It was designed with the help and cooperation of the Suffolk Wildlife Trust.

According to the ornithological experts, the kittiwakes are unlikely to use the cliff during the first year. However, currently they are nesting underneath the wall on suspended tyres and for the first time a pair have nested on top of the piles beneath the quay wall. Most encouraging was the recent sight of two of the birds undertaking a typical courtship display on one of the artificial ledges. Birdwatchers locally are certainly hopeful that such a significant display will result in successful utilisation of the artificial ledges by the kittiwakes in future. (Ports, ABP)

## Asia/Oceania

### Another Record Year For Port of Brisbane

It has been another very strong trading year (88/89) for the Port of Brisbane — and, for the sixth year in succession, record figures were set.

Brisbane's success in bettering its cargo handled tonnages each year for the past six years is a performance unmatched by any other major general cargo port in Australia.

Exports climbed 2.9% to 7,599,140 mass tonnes while imports soared 11.5% to 7,611,490 m.t. for a total throughput of 15,210,630 m.t. (up 7% overall).

Once again, the flow of TEUs has left old record marks far behind to reach 145,068 units. In 1987/88, the TEU total was 118,744. Thus, the trade's increase was 22.2%.

Minister for Maritime Services (Hon. Don Neal, M.L.A.) said he was "delighted" with the results which reflected not only the port's general capability, but also pointed to the burgeoning economy and growth of Queensland.

Executive Chairman, Port of Brisbane Authority (Mr. A. J. W. George) said the trend of "continuous

## A Few Basic Principles —

(Continued from Page 22)

sector, the split between permanent and temporary manpower) as circumstances change.

(c) To have as the leader of the port community an outstanding person (Port Director, Chairman of the Board or the Chamber of Commerce, or Manager of a port entity/company, the selection depending on the local practices and circumstances) able to create, motivate and lead a multidisciplinary team who will work with faith and dynamism towards the development and promotion of the port site.

Of all the conditions required to reach the fixed goals, if only one had to be selected, I would keep the last one on the basis of the experiences I have had and seen in the field. I can recall concrete cases in Africa, Latin America and Europe where this has been the deciding factor. A top level port leader can, with enough time, manage to obtain the changes in the mentalities and the structures required as well as the means needed to achieve the expected results. On the contrary, a good organizational structure with full support from the State and excellent regulations can only

contribute to the creation of a framework — a tool — whose output will depend on the quality of its user.

### Notes

- 1/ P. Leonard, Paper presented to "Académie des Sciences d'Outre-Mer" Paris, 21 October 1988; and P. Bauchet, "Le transport international dans l'économie mondiale", *Economica*, 1988.
- 2/ UNCTAD, *Review of Maritime Transport*, 1987
- 3/ Soulege Gall, "Les effets du statut sur la gestion des ports. Le cas de Dakar", *AGPAOC, Bulletin trimestriel*, January-March, 1989.
- 4/ J. Chapon, *Etude sur l'Office d'exploitation des ports du Maroc*, UNCTAD secretariat internal document.
- 5/ J.G. Baudelaire, "Ports maritimes, Service public et privatisation", *Transports*, May-June 1988.
- 6/ Ch. Broissier, *Rapport sur la mise en oeuvre des plans sociaux dans les ports Français*, January 1985.
- 7/ UNDP, *Note of Regional Director for Asia and the Pacific on inter-country programming for the fourth cycle*, October 1985
- 8/ UNCTAD, *Port Pricing*, TD/B/C.4/110.
- 9/ "De nouvelles priorités pour les dirigeants portuaires", *Journal pour le Transport international*, No.5, 1989.
- 10/ E. Bubeer & J. Cambon, *Rapport préliminaire sur l'exploitation du port de Rades*, 1984, UNCTAD secretariat internal document.
- 11/ P. Bastard & A. Pages, *Rapport de mission*, UNCTAD secretariat internal document.

improvement" highlighted two important points:

(a) because of the flexibility of its cargo handling matrix, Brisbane had an enviable resilience to accommodate most fluctuations over a wide variety of commodities and trading conditions;

(b) confirmation of the strategy to rebuild as a bay port (on Fisherman Islands). *(Brisbane Portrait)*

## Commission Calls For Industrial Changes

Following a long and exhaustive inquiry, which probed every aspect of the operational methods, employment, and the general work practices of the Australian waterfront, the federally appointed Interstate Commission recently made strong recommendations for many and sweeping industry changes.

Subsequently, the Federal Government directed that the main employer and union groups confer with the object of producing a voluntary "Agreement in Principle."

It was estimated that savings of \$650 million to the nation were possible if the parties were able to initiate just reasonable improvements...

In response to the I.C. findings, the Port of Brisbane Authority commissioned economic experts from the University of Queensland to equate the hoped-for improvements to the region's general employment scene.

The city — port share of the "reasonable productivity" gains was converted (by the analysts) to potential employment opportunities in affected areas, both direct and indirect.

Brisbane's share alone was 840 more jobs.

Put another way — low productivity and non-work practices on the waterfront cause other unions and workers to miss out on employment opportunities. Currently, the Brisbane region has 8% of the Australian total work force.

The Authority's Executive Chairman (Mr. A.J.W. George) said the (un)employment figure was "just the surface story."

He had every reason to believe from the study's results that there were many hundreds of people, and trades, being hurt, directly and indirectly, by the

excesses of the waterfront industries and unions.

The "ripple effect" of the waterfront touched all elements of business activity, he added.

Mr. George said the major beneficiaries of improved performances on the waterfront would be the users of containerised and general cargo; producers of fabricated metal and like products; meat producers; paper making and packaging industries.

He said the flow on effects of improvements in these industries were considerable and would enhance the development of Brisbane's industrial base, spreading to other regions of Queensland. *(Brisbane Portrait)*

## Gov't OK Sought on Fremantle Port Survey

The Fremantle Port Authority is making a submission to the Government for approval to survey its future development needs to cope with general cargo and containers when North Quay reaches capacity.

In 1984, an interdepartmental study looked at five possible sites for such long-term development and identified north of North Mole and Catherine Point as the two most suitable locations.

Port planners believe that North Quay will be able to handle 250,000 containers a year when it is fully developed — more than double the 115,000 with which it now copes.

Technological improvements over the next decade may boost this figure.

The FPA's Engineering Director, Mr. John Peraldini, says that an examination of the situation is now needed so that possible location options are not lost to competing uses.

He says it's likely that within 20-25 years the Authority will need additional general cargo and container handling capacity because by that time the inner harbour will have reached capacity.

*(Port of Fremantle)*

## KCT Chief Executive Touches on Privatisation

At the World Container Congress held in Hong Kong last May, Chief Executive, Mr. Andrew Burgess deliv-

ered a paper on "Kelang Container Terminal — Private Horizons." Mr. Burgess touched on the privatisation of the terminal, the challenges faced by KCT, achievements to-date and future directions of the terminal.

He outlined at the conference the key changes that has taken place since privatisation as follows:

- The decision chain has been made simpler
- Managers have been made more accountable
- Terminal stacking arrangements have been improved
- Operating systems and procedures have been revised
- Liaison with terminal users is emphasized
- Planned maintenance of equipment is undertaken
- Good site housekeeping is maintained
- Forward and long-term planning is an integral part of day-to-day management
- Marketing of the terminal has been given proper focus
- Emphasis is placed on computerisation of information needs

"One of the major requirements of the privatisation agreement was that the new terminal should improve shipside container handling performance. Back in March 1986, the gross container handling performance was approximately 18 containers per hour whereas it now averages 25 containers per gross operating hour," he said.

He added, "Significant improvement has occurred in regard to equipment availability. This improvement has been entirely obtained by management's insistence that the majority of its maintenance work is done by its own staff rather than sub-contractors. Training programmes have been conducted for all levels of engine room staff. The improvement in both skills and the consequential improvement in terminal performance has also meant that the shipping companies, transport operators and other users of the terminal have benefitted in terms of cost savings."

On the improvements, Mr. Burgess said, "For example, two years ago it was common for containers to be resident in the terminal for an average of twelve days after discharge from a vessel. Now, as a result of both im-

proved operating performance and changes to documentation procedures import containers are resident for only 5 to 7 days."

Mr. Burgess outlined KCT's marketing strategy in attracting main lines to call direct and steps taken in this respect. He then elaborated on the key considerations of shipping companies in determining their direct ports of call which are:

1. Sufficient cargo base
2. Responsiveness of management
3. Equipment reliability
4. Labour reliability
5. Port charges
6. Simplified statutory procedures
7. Security
8. Undue berthing restrictions
9. Efficient inland infrastructure
10. Geographic locations

To further enhance KCT's position as the country's load centre, Mr. Burgess said, "The Company is also actively involved in marketing intermodal transport operations with Kontena Nasional and the Malayan Railways. This initiative has already encouraged cargo movements between Port Klang and such centres as Penang, Ipoh and Kluang. There are even plans to link destinations such as Bangkok."

"Given Malaysia's strong cargo base and its good geographic location, KCT is well suited to provide shipping lines with a viable main line operation at Port Klang," said Mr. Burgess.

*(Portrait)*

## Kuantan Port Handles 16% More Cargo

A total of 1,031,296 tonnes of cargo was handled through Kuantan Port Authority between January and June 1989 with an increase of 15.9% compared with 889,739 tonnes for the same period last year. Some 667,506 tonnes or 64.7% of the overall throughput are export cargo which also increases by 1.6%.

Generally, the increase in cargo handling for the first six months of this year is due to the increase of import cargo, especially steel pipes which totalled about 82,612 tonnes meant for the Peninsular Gas Utilisation Phase II, besides other cargo such as fertiliser and wheat.

Export throughput for palm oil increased at a normal rate. Exports of

sawn timber and plywood experienced a decrease which affected the export cargo tonnage of Kuantan Port. This decrease is due to the passive market in Thailand and the Middle East. This decrease is also attributable to the wait-and-see attitude of the exporters reacting to the news of the proposed imposition of export levy or ban on certain species of sawn timber for export.

The handling of ships at Kuantan Port also increased by 8.6%. A total of 352 ships called, compared with 324 ships which called last year during the same period. About 2,335,466.76 GRT was recorded for the six months this year and 2,107,815 GRT last year. As such, the total Gross Registered Tonnage of vessels berthed alongside has increased by 10.8%.

The composition of vessels handled is 31.5% for sawn timber; 23.5%, palm oil tankers; 15.3%, petroleum tankers; 19%, vessels carrying bulk cargo; 2.6%, passenger vessels and the remainder, military craft and vessels carrying chemicals.

The overall financial performance of the Authority indicates a more positive growth than last year. The operational revenue for the first half of this year amounted to \$8,518,708.88, an increase of \$1,017,154.88 or 13.56% over last year. Meanwhile, the total expenditure is \$5,235,875.38 which is 20.40% over the same period last year.

After taking into account the non-operational revenue, interests on loan, or non-operational expenditure and contingencies expenditure, an excess of revenue over expenditure totalled \$3,367,893.78.

## Penang Port Works Out Development Plans

Penang Port Commission (PPC) has geared itself to face future growth in container traffic by drawing up short-term as well as long-term plans. A sum of M\$20 million has been allocated for the implementation of the development projects in 1989.

Last year, container traffic through the Port of Penang surged by 24% to 155,117 TEUs. For the first quarter of 1989, a record of 43,029 TEUs were handled, up by 26% over the corresponding period of 1988.

Among the projects lined up for 1989 include:

1. Acquisition of the third gantry crane.
2. Acquisition of the seventh transfer crane.
3. Replacement of one unit of container forklift truck (Front End Loader)
4. Conversion of Berth No. 4, Butterworth Wharves into a container berth.

The third gantry crane will be installed and operational by July 1990 while the seventh transfer crane and container forklift truck will be commissioned by early 1990. Conversion of Berth No. 4 from a general cargo into a container berth is scheduled for completion by mid-1990. The acquisition of a third gantry crane is expected to cost PPC between M\$14 million and M\$18 million while an additional transfer crane will cost M\$3 million.

In view of the long lead time for delivery of the new equipment, PPC is leasing one gantry crane and two transfer cranes to supplement the existing two gantry cranes and six transfer cranes. The equipment will be available for operations in the third quarter of 1989.

It is forecast that the Port of Penang will handle a total throughput of 266,600 TEUs in 1992 and 290,000 TEUs in 1993.

To cater for this upsurge, PPC plans to acquire a fourth gantry crane in 1992 and to purchase five additional transfer cranes between 1990 and 1993.

*(BERITA pelabuhan)*

## Economic Impacts of Ports of Auckland

### Summary of Results

Two technical reports have been prepared which outline the methodology used, and the assumptions and qualifications made in estimating the economic impact of the Ports of Auckland. This report summarizes the results of the technical analyses.

### Total Output of \$7.5 billion is Port Dependent — 13% of GDP:

The value added to Auckland's economy as a result of trade through the ports of Auckland was around \$2.5 billion in 1988. A further \$5 billion

of production from outside the region is also dependent upon trade through the ports, giving rise to a total of over \$7.5 billion. This is around 13 percent of New Zealand's Gross Domestic Product.

#### **Nearly 20% of New Zealand's Employment**

Approximately 87,000 people (measured as Full Time Employee Equivalents) are employed in producing this output in the Auckland region. Another 202,000 are employed outside Auckland, giving a national total of close to 289,000. This is equivalent to 19 percent of total employment in New Zealand.

#### **A Central Role in the Economy**

The assessment, however, demonstrates clearly the central role the Ports of Auckland plays in the regional and national economies. Business dependent on the port accounts for close to one seventh of national economic activity, and nearly one fifth of national employment. Estimation of direct and indirect impacts is subject to qualifications regarding method and data available.

#### **A Long-standing Role in the International Trade**

The role of the Ports of Auckland is encouraging or facilitating the nation's trade is long-standing. As early as 1840 Hobson recognised Auckland's "central position, port facilities and proximity to a fertile and populous hinterland," geographical advantages which have become stronger over time and which explain why Auckland has been the dominant commercial capital and trading centre of New Zealand since last century.

#### **Growing Dominance in the 1980s**

Auckland's ports have continued to increase their dominance in New Zealand's external trade. By 1988 overseas exports shipped through Auckland regional ports represented 28 percent of the national seaport total in value. Overseas imports through the region's ports accounted for 60 percent of the total seaport imports.

#### **A Critical Element of Auckland's Industrial Complex**

The nature of industry dependent

upon the Ports of Auckland highlights its significance to the country's industrial development. For example, in 1988 the average value per tonne of exports through Auckland was \$2,706 compared with \$961 for the rest of New Zealand's ports, and Tauranga's \$781.

The equivalent figures for imports were \$3,181/tonne through Auckland; rest of New Zealand \$641/tonne; Tauranga \$393/tonne.

#### **Higher Value Added Activity:**

These figures reflect the significance of high value added production in the hinterland of the Ports of Auckland. This leads to a contrast between Auckland and other ports with a greater dependence on lower value, large bulk items. It also explains why production dependent upon the ports of Auckland tends to be employment intensive.

#### **Auckland's Industrial Complex**

The region's industrial strength can be put into perspective by the fact that between 40 and 50 percent of the country's employment in most manufacturing sectors is found in Auckland. This compares with Auckland's average 32 percent share of total employment.

The most export intensive sectors — food processing and textiles — are among the least concentrated in Auckland, with less than 40 percent of their employment in the region.

A second group, with between 10 percent and 30 percent of output going to exports, includes machinery, electrical machinery, and transport equipment, each a significant sector in its own right, and each concentrated in Auckland region. The "Other Primary" sector includes fishing and forestry. It is moderately export intensive but is not concentrated in Auckland.

The non-export sectors comprise mainly suppliers of materials and building equipment, covered in the non-metallic minerals, chemicals, and metal products sectors. These are also all concentrated in Auckland region.

#### **The Ports as a Catalyst to Economic Development**

Attention has also been given to the role of the ports in regional and national economic development. This has been done in the context of port-dependent industry, or industry which depends upon shipments through the port.

Consideration of the sensitivity of export sectors in particular to transport costs helps highlight the importance of the efficiency of the port operation to the regional and national economic development.

For example, of the most export-intensive sectors, textiles and food processing are both relatively sensitive to changes in transport and storage costs. Machinery exports are least sensitive.

#### **The Importance of Port Efficiency**

A two-fold approach to assessing the impact of the ports overcomes a shortcoming implicit in traditional impact assessments of infrastructure, such as power stations, ports and airports. If the port (or airport, etc.) is treated as if it serves final rather than intermediate demand the illogical conclusion is reached that the more inefficient the operation is, the greater will be its multiplier impact. This distortion is eliminated through considering not simply the total impact at a point in time, but also the contribution of the port to the development of the wider economy of which it is a part.

#### **The Ports and the Transport Sector**

One of the intermediate services supplied to port-dependent activities of most interest is transport. As part of the transport sector the Ports of Auckland company itself contributes to the indirect effects associated with port dependent industry.

In other words, the Ports of Auckland feature twice in the impact assessment, both facilitating port-dependent production, and as an indirect impact of that production through the supply of transport services.

#### **The Ports as a Supplier to Industry**

As an intermediate supplier to port-dependent business, the ports of Auckland have been identified separately in the analysis of indirect impacts. Taking the Ports of Auckland Ltd. and Waterfront Industry Commission figures on value added and employment, and applying transport sector multipliers, indicates that \$407 million of the indirect impacts are attributable to the port operation, and 4,600 FTEs.

As port productivity increases, perhaps leading to static or declining value added or employment in its own right,

so the output of port-dependent sectors can be expected to grow. Conversely, excessive port costs might lead to an increase in impact in terms of the induced and indirect effect associated with suppliers to port operations. But the overall effect will be to reduce sales and therefore output in the port-dependent sectors with much more significant reverse multiplier effects. The net impact would be a loss in total regional and national output, far exceeding the extra expenditure associated with an inefficient port operation.

## PPA Approves Major Policies on Ports

The Philippine Ports Authority Board of Directors approved eight major policies last year affecting port operations, four of the most important of which are:

Adoption of the fixed and variable fee in the government share in cargo-handling operations instead of the share on a percentage of the gross revenue;

Revision of the river port policy allowing private port terminals along rivers to choose their own cargo handler;

Policy to return or award port-related or ancillary services directly operated by the PPA to the private sector; and

Competitive strategy on the provision of cargo-handling services in government ports allowing more than one contractor to render the service in the port.

*(Port Trends)*

## PPA Standardizes Cargo Contracts

To improve the delivery of service in the country's various ports the Philippine Ports Authority standardized the length of cargo-handling contracts between eight, five and three-year terms.

The length of the cargo-handling contract is determined by the following factors:

- (1) cargo traffic;
- (2) kind of trade, whether foreign, domestic or mixed;
- (3) size and stage of port development.

Ports which have been developed

**TABLE 1: VALUE ADDED IMPACTS — PORT DEPENDENT ACTIVITY PORTS OF AUCKLAND**

SOURCE OF IMPACT	AUCKLAND				NEW ZEALAND			
	DIRECT	INDIRECT	INDUCED	TOTAL	DIRECT	INDIRECT	INDUCED	TOTAL
			SMILLION				SMILLION	
<b>INTERNATIONAL</b>								
EXPORTS	561	282	443	1,286	1,141	1,107	1,959	4,207
IMPORTS	384	230	422	1,036	871	609	1,655	3,135
TOURISM	.189	.117	.142	.448	.189	.117	.142	.448
TOTAL INTERNATIONAL	945	512	865	2,322	2,012	1,716	3,614	7,342
<b>DOMESTIC</b>								
EXPORTS (Coastal)	35	18	32	85	35	18	32	85
IMPORTS (Coastal)	37	22	41	100	37	22	41	100
TOTAL DOMESTIC	72	40	73	185	72	40	73	185
<b>GRAND TOTAL</b>	<b>1,017</b>	<b>552</b>	<b>938</b>	<b>2,507</b>	<b>2,084</b>	<b>1,756</b>	<b>3,687</b>	<b>7,527</b>

**TABLE 2: EMPLOYMENT IMPACTS — PORT DEPENDENT ACTIVITY PORTS OF AUCKLAND**

SOURCE OF IMPACT	AUCKLAND				NEW ZEALAND			
	DIRECT	INDIRECT	INDUCED	TOTAL	DIRECT	INDIRECT	INDUCED	TOTAL
<b>INTERNATIONAL</b>								
EXPORTS	16,780	13,704	11,163	41,647	35,003	80,044	78,740	193,787
IMPORTS	12,820	6,410	6,410	25,640	28,051	16,831	30,856	75,738
TOURISM	60	25	38	123	60	25	38	123
TOTAL INTERNATIONAL	29,660	20,139	17,611	67,410	63,114	96,900	109,634	269,648
<b>DOMESTIC</b>								
EXPORTS (Coastal)	1,587	1,270	6,368	3,968	1,587	1,270	1,111	3,968
IMPORTS (Coastal)	5,778	1,111	3,466	15,612	5,778	3,466	6,368	15,612
TOTAL DOMESTIC	7,365	4,736	7,479	19,580	7,365	4,736	7,479	19,580
<b>GRAND TOTAL</b>	<b>37,025</b>	<b>24,876</b>	<b>25,091</b>	<b>86,992</b>	<b>70,479</b>	<b>101,637</b>	<b>117,114</b>	<b>289,230</b>

(Ports of Auckland)

have bigger potentials for growth in terms of ship calls and cargo throughput; hence, long-term contracts are necessary for these ports to ensure their sustained efficiency.

Ports to be privatized need even longer contract periods considering the huge capital outlay needed to develop them into world class terminals.

The contract terms include 71 government ports, either baseport, subport or bigger outport. Ports which are small and where cargo-handling operations are manual are prescribed only one-year terms to be covered by special permits.

*(Port Trends)*

## PSA Container Gate System to Be Automated

**By Kam Poh Yuen**  
Cargo Systems Department

Port users will be able to benefit from faster service at the gates at Tanjong Pagar Terminal (TPT). An automated container gate system will be implemented by early 1990. With a daily throughput in excess of 3,000 containers moving in and out of TPT Gates 1 & 2, and a high percentage of these containers arriving during peak hours, PSA's new generation container gate

system will have the latest in port technology to provide faster and better quality service.

The present container gate system comprises a personal computer (PC) linked to the PSA mainframe, a laser scanner and weighbridge. Hauliers arrive at the gate with pre-processed Equipment Interchange Receipts (EIRs) which have bar-coded serial numbers. When the truck is driven onto the weighbridge, the gate Traffic Assistant (TA) obtains the EIR from the driver and scans the bar code with the laser scanner. The total weight of the vehicle is automatically captured by the PC. The TA keys in the weights of the prime mover and chassis, written on the EIR by the haulier, so that the PC can compute the weight of the container.

In the new container gate system, a vehicle identification system (also known as transponder system) and a self-service terminal (SST) with in-built proximity card reader and printer will be introduced. These equipment and the weighbridge will be connected to the PC which is in turn linked to the PSA mainframe. Laser scanners will not be used in this new gate system. EIRs will also be done away with. This system will also be implemented at TPT Gate 2 out-gates.

The vehicle identification system comprises the transponder system of electronic scanners which will automatically capture the information on prime movers and chassis equipped with transponders.

The SST system will electronically capture particulars of the driver when he holds his PSA Pass near the card reader. The existing PSA passes will be replaced by new passes with this special feature. The SST system also has a key pad for the user to key in information for the processing of arrival and delivery of containers, eg. the personal identification number for the Pass. A printer from the SST will print the yard location to which the driver has to proceed to offload or mount his container.

In the first quarter of 1990, a further reduction in service time can be expected through enhancements to the system. Port users can phone-in or key in through PORTNET the particulars of their container to be trucked by the prime mover. With this, there will be

no need for the EIR (Equipment Interchange Receipt) to be handed by the haulier to the PSA gate staff as the transponder automatically identifies the prime mover and hence the container. This new automated container gate system will reduce service time at the Gates by 50%. (PSA News)

## Self-service Forklifts At PSA Gateways

By Khew Tone Sam  
Public Relations & Marketing  
Department

The Port of Singapore Authority is encouraging port users/consignees to self-drive forklifts at the gateways for their delivery operations. This is part of PSA's efforts to help port users raise their productivity and efficiency.

The scheme, which is on-going at the gateways, enables port users/consignees to use their own drivers to operate the PSA forklifts. However, they can continue to place an advance booking or order a forklift on the spot, depending on their needs and circumstances.

What are the advantages and benefits port users/consignees can derive from self-driven forklifts? PSA News interviewed Mr. Jorris Yeo of PJ Jorris Trading Enterprise, a regular and frequent port user at Pasir Panjang Wharves. "The advantages are manifold. First, there is no waiting time for advance booking for a self-driven forklift. Secondly, I don't need to supervise the forklift driver throughout the operations as I can pre-brief him before the operations commence. Thirdly, there is better scheduling of lorry movements as the forklift is exclusively for my use and my drivers can be more easily supervised and instructed. This results in better planning of my cargo operations," said Mr. Yeo. Other port users interviewed also echoed his sentiments.

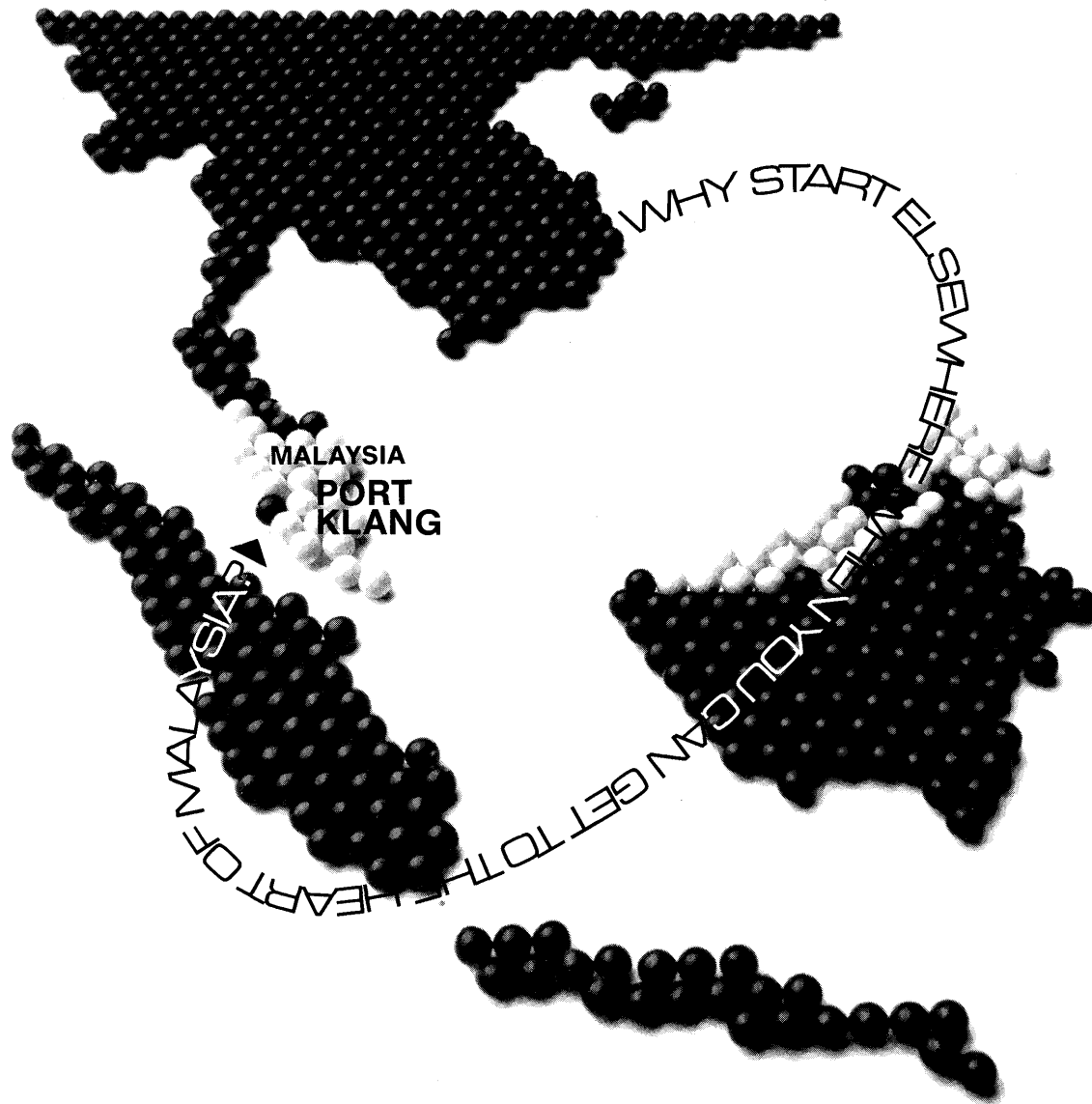
The PSA Training Department conducts the training courses for port users, in particular lorry drivers, to operate forklifts in the Port. The trainees are either company-sponsored lorry drivers or non-company-sponsored individuals who have at least a valid Class 3 driving licence. Since Nov. 88 till the end of Mar. 89, the number of persons who underwent the course was about 400. (PSA News)



**PORT RASHID RECORDS FURTHER GROWTH** — Port Rashid, the Gulf's busiest port, has recorded further growth during the first half of 1989. Total cargo throughput for January to June is 24% up as compared to the same period last year, and both the general cargo berths and the container terminal have contributed to this overall increase. The six-month result suggests a year-end target of 650,000 TEUs for the terminal and a total port tonnage in excess of 10 million tonnes for 1989.



# ONE QUESTION ALL SHIPPERS SHOULD ASK THEMSELVES



**Port Klang.** Malaysia's premier port. By design and location.

Strategically sited close to the heart of Malaysia, 40 km from Kuala Lumpur, and minutes from the heavy industrial zones within the Klang Valley.

The fact is: Port Klang is totally equipped to handle a diversity of cargo for international lines.

Poised to deliver the edge in turnaround time with the most advanced material handling machinery.

**Freight To The Heart**

Efficient and smooth container traffic control.  
A full-fledged dry bulk terminal.

Specialized wharves to handle liquid, grain, livestock, fragile or heavy cargo.

Infinite warehouse space (including bonded facilities of international standards).

And computerised information-processing and administration.  
It's the only choice when you want to get to the heart of business in Malaysia.

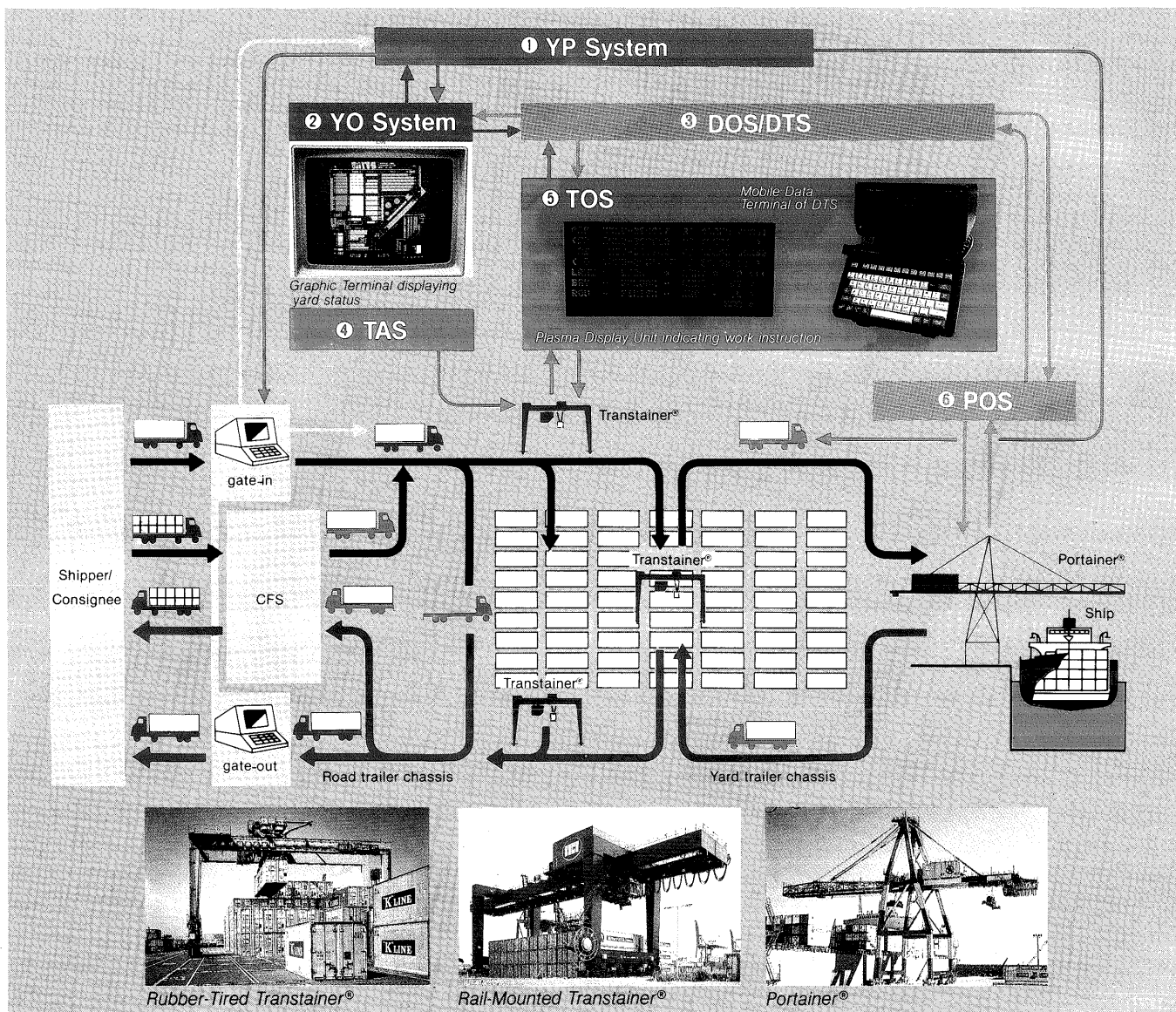
And stay on top of the import and export trade.



**Klang Port Authority, Malaysia.**

Mail Bag Service 202 Jalan Pelabuhan,  
42005 Port Klang, Malaysia. Tel: 03-3688211  
Telex: PLABOH MA 39524 Telefax: 603-3670211

# MITSUI Automated Container Terminal System



- ① **YP System:** Yard Plan Computer System
- ② **YO System:** Yard Operation Computer System
- ③ **DOS:** Data Transmission & Oral Communication System (Inductive radio)  
**DTS:** Data Transmission System (Radio)
- ④ **TAS:** Transtainer® Automatic Steering System
- ⑤ **TOS:** Transtainer® Operation Supervising System
- ⑥ **POS:** Portainer® Operation Supervising System



**MITSUI ENGINEERING & SHIPBUILDING CO., LTD.**

Head Office: 6-4, Tsukiji 5-chome, Chuoku, Tokyo, 104 Japan Telex: J22924, J22821  
 Material Handling Machinery Division Tel. (03) 544-3650



**Mitsui Zosen Systems Research Inc.**

6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, 104 Japan Telex: J22924, J22821 Engineering Division Tel. (03) 544-3800