



PORTS HARBORS

Official Journal of the International Association of Ports and Harbors

Carbon question

Cutting fuel costs to help the environment

Rotterdam uncovered

New UN carriage of goods convention

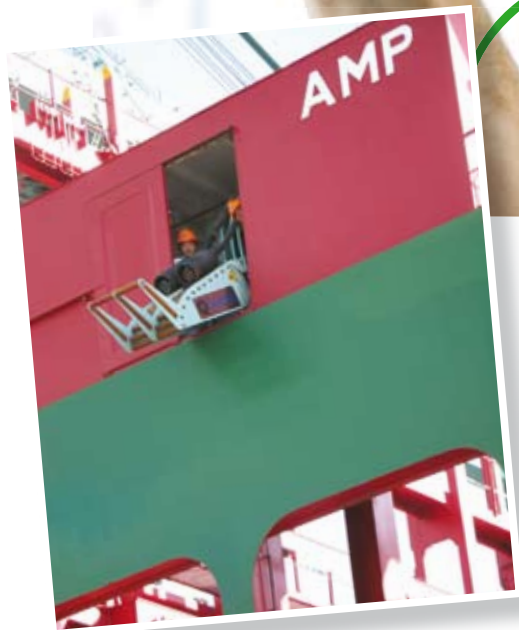
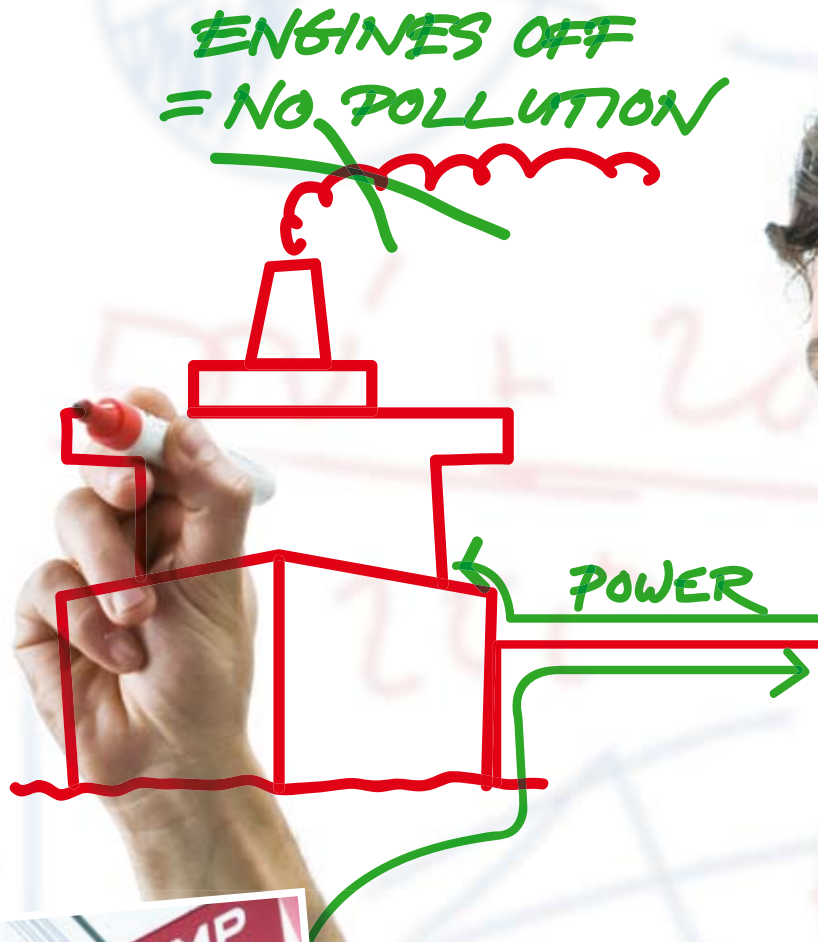
Perfecting practice

Port safety equals increased performance

Terminal turnaround

Innovation and automation for faster throughput

“Fresh thinking can lead to fresh air.”



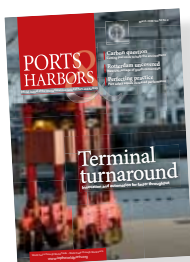
AMP can be fitted right onto the ship itself, with a single high-voltage cable, or it can be fitted inside a container that's placed on the ship, for a truly modular power source that connects to the dock or a floating barge.

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Straddle carriers are seen as a good option for small to mid-sized ports such as Brisbane
 Photo: Port of Brisbane

March 2009
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- Safety and Environmental Handbook
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For further information contact: Lloyd's Register - Fairplay Ltd, Lombard House, 3 Princess Way, Redhill, Surrey, RH1 1UP, United Kingdom Tel: +44 1737 379000 Fax: +44 1737 379001 Email: customer.services@lrfairplay.com Web: www.lrfairplay.com

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goods *plural: n.* items transported by ship to **port** to railway or road and onto market(s); wares, merchandise, food products, chemical compounds, electronics and agricultural products.

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PORTS HARBORS

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PORTS & HARBORS

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PUBLISHER

Dr. Satoshi Inoue
Secretary General, IAPH
info@iaphworldports.org

EDITOR

Penny Allen
penny.allen@lrfairplay.com

SUB-EDITORS

Stephen Spark
Margaret Freeth

ADVERT SALES MANAGER

Daniel Gonçalves
daniel.goncalves@lrfairplay.com

DEPUTY ADVERT SALES MANAGER

Barnaby Dobson
barnaby.dobson@lrfairplay.com

DESIGN & PRODUCTION

Phil McAllister
Matt Ramsdale
Hannah Kidd
Luke Spalding
Liz Wall
Ellie Card
Sarah Treacy

PICTURE EDITOR

Kelly Bundy

MANAGING EDITOR

G. Paul Gunton
paul.gunton@lrfairplay.com

EDITOR-IN-CHIEF

Tony Slinn
tony.slinn@lrfairplay.com

ASSOCIATE EDITOR

Aya Fujinami
IAPH
ph@iaphworldports.org

EDITORIAL & PRODUCTION

Lloyd's Register - Fairplay Ltd
Lombard House, 3 Princess Way
Redhill, Surrey RH1 1UP, UK
Tel: +44-(0)1-737-379-000
Fax: +44-(0)1-737-379-001
Web: www.fairplay.co.uk

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7th Floor, South Tower,
New Pier Takeshiba
1-16-1 Kaigan, Minato-ku
Tokyo 105-0022, Japan
Tel: +81-3-5403-2770
Fax: +81-3-5403-7651

Email: ph@iaphworldports.org
Web: www.iaphworldports.org

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Plan and invest

During difficult times, ports should take a close look at their strengths and weaknesses

Ports around the globe are experiencing severe falls in their throughputs. This has come about over the past few months with remarkable suddenness. The recession spread with a speed that went far beyond everyone's predictions and it is now having a severe impact on the world's ports.

For example, the Port of Los Angeles recorded a 15% decrease in last December's container traffic compared with the same period in 2007 and the Port of Long Beach experienced a 25% drop. Similarly, the Port of Singapore recorded a 13% decline. Trans-Pacific container trade between Asia and the US as a whole also fell by 13% last December compared with the previous year.

The world economy has plunged into far more serious conditions than were experienced in the economic turmoil of 1997. The severity on this occasion is not only down to the fact that it started with the US financial system, on which so many other countries' economies depend, but also because of the globalisation of the world economy, which has further deepened and advanced since 1997.

Today, every part of the world is becoming integrated ever more tightly into a single system. When one country's economy slides, it inevitably leads to a simultaneous slump in economies all over the globe. The 'flattened world' has both a positive and a negative face.

Although we are in the midst of the worst economic crisis in recent history, this is the time for our

ports to take a close look at their strengths and weaknesses. Every port has things it does well, and others not so well, but they tend to be overlooked when business is moving upwards year on year.

It is during these difficult times that the demands of our customers and our own shortcomings are brought to the fore. Constraining factors can also be seen much more clearly. Local port communities will also be desperate to join forces and see changes made. We must take on the challenge of reinforcing our ports so that they are strong enough to continue to play key roles in the coming years

Now is the time for ports to become innovative and prepare for the future. Ports must constantly plan ahead and invest with long-term strategies. Our cover story for this issue concentrates on innovative container terminals. Even if you are making the most of existing port facilities, the innovative approach deserves serious consideration.

The forthcoming 26th IAPH World Ports Conference in Genoa will offer you the best possible opportunity to discuss how to innovate and to manage ports in the global economic downturn. I look forward to welcoming you all to Genoa in May. **PH**

Dr. Satoshi Inoue

Secretary General - The International Association of Ports and Harbors

Port updates

ALL GO AT JAXPORT

The Port of Jacksonville has invited proposals for a new cruise terminal in neighbouring Mayport, Florida. Jaxport's existing cruise terminal will make way for a Hanjin Shipping container terminal. Officials have begun the search for design-and-build proposals for the \$60M cruise facility. That process is expected to continue for between three and six months.

Mitsui OSK Lines recently opened its TraPac container terminal at Jaxport.

PARTNERSHIP IN PLACE

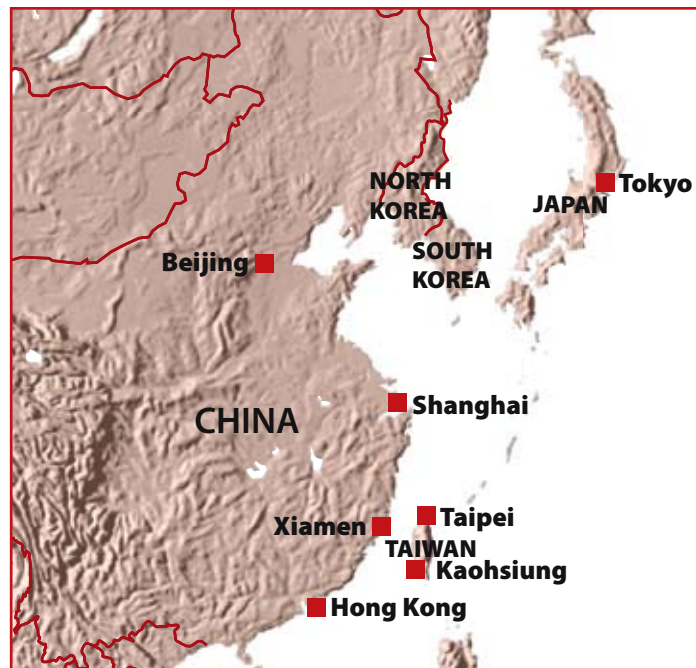
Engineering design for Qatar's New Doha Port will be carried out by Royal Haskoning in partnership with Worley Parsons Qatar WLL. The \$33M project will comprise box terminals, a grain terminal and a general cargo terminal, plus facilities for the Qatari Coast Guard and the Emiri Yacht. A separate port will be built for the Qatari Navy. The first phase of the project, located between Mesaieed and Al Wakra, is expected to be operational by 2014.

GREEN FUNDING BOOST

The Ports of Tacoma and Seattle and the Puget Sound Clean Air Agency have announced a total of \$318,000 of extra funding for the Puget Sound Ports Cargo-Handling Equipment Replacement and Retrofit Program. The money adds to the \$850,000 awarded by the US Environmental Protection Agency. It will be used to replace or retrofit 38 off-highway trucks, cranes and forklifts at the Port of Seattle, and 50–60 terminal tractors, cranes, off-highway trucks and industrial equipment at Tacoma.

RAIL LINK FOR TEESPORT

A new high-capacity container train service has started connecting the deepwater port at Teesport, northeast England, with Mossend and Grangemouth, in central Scotland. Teesport operator PD Ports said that the daily service will offer big cost reductions for customers choosing to switch inland transportation from road to rail. PD Ports group development director Martyn Pellew said: "This new service... is only the first phase of what we hope to achieve."



Cross-strait shipping is back

The 326 containers filled with oranges offloaded in China's Port of Xiamen on 17 December marked a historic transit. They had been shipped direct from the Port of Kaohsiung, in Taiwan – the first cross-strait cargo shipment in more than 50 years. Despite \$130Bn in bilateral trade, the 150km-wide stretch of water between Taiwan and mainland China – Taiwan's largest trading partner – has been closed for direct cargo shipments for half a century.

Thanks to an agreement that went into effect two days earlier, vessels are now permitted to sail direct between 11 Taiwanese ports and 63 ports on the Chinese

mainland. After relations between Taiwan and the People's Republic of China (PRC) thawed last year, some passenger flights and ferries were allowed. Liners still had to detour via Hong Kong or Japan, however, making Taiwanese ports like Taipei and Kaohsiung an expensive choice despite their ideal location along China's sea lanes. Direct links with Shanghai and Xiamen were urgently needed to make up for losses.

Local media were quick to calculate that the direct routes may take up 60% of the capacity of Taiwan's major container shippers Evergreen, Wan Hai and Yang Ming. On the other side,

Lirong Xu, the executive vice-president of Chinese bulk carrier, COSCO, revealed that his company would save 30% – or \$1M per container vessel per year – on cross-strait traffic, thanks to the direct route. According to Hanxiang Hu, chairman of China's Federation for Shipping Co-operation Across the Taiwan Straits, being able to sail direct will reduce cross-strait shipping time by more than 100,000 hours and transportation costs by \$100M a year. Menga Tong, chief economist of Ningbo Port, thinks the lower costs will increase cargo volumes for his port because the transit time from Ningbo to Taiwan has been cut from 25 to 10 hours.

Hong Kong, however, will lose detour traffic, calculated to be around 7.5% of its throughput. The Hong Kong Trade Council estimates the new deal will cost the city 3.5% of its external trade.

Xiamen, on mainland China, will be a benefactor. Its new deepwater berths were already taking over part of Kaohsiung transshipment traffic. Now direct shipments will be added. All these developments have encouraged Taiwanese investors to flock to the city to inject \$4.7Bn so far.

The next round of bilateral talks is planned for May or June. According to a January statement, the PRC will keep the focus on economic issues. Taiwan is the mainland's ninth-largest export destination and fifth-biggest source of imports. With ties closer than ever, Taiwanese authorities announced in February plans for a bridge almost 9km in length to connect one of its smaller islands with the mainland.

Target hit in Bandar Abbas

Shahid Rajaei Container Terminals (SRCT) at Bandar Abbas in Iran handled more than 2M teu for the first time in its history. The 2,000,230teu figure achieved in 2008 represents a 16% increase on its 2007 record.

According to A C H Jahan, container and logistics manager of Tidewater Middle East Company – the terminal's operator – the terminal hit its target planned in early 2008. This achievement relied on inauguration of the first

phase of SRCT2, the port's second container terminal, which opened in February 2008.

Jahan said: "Despite collapsing trade growth in the current financial crisis, we achieved this remarkable record and more than anything we do appreciate and respect the trust our valued business partners rendered us to achieve such an important goal."

Since the opening of SRCT2, throughput at Iran's major container port has increased to 3.3M teu.

Port safety figures are 'no accident'

UK owner and operator PD Ports achieved a full calendar year without any reportable accidents at the Port of Howden, just north of Goole, on the River Ouse, in northeastern England.

The result was achieved between January 2008 and January 2009 and attributed to

the shortsea port's 'safety is no accident' core philosophy.

The PD Ports' team at Keadby is also reported to have notched up more than 1,000 days with no reportable accidents at the single-berth facility on the River Trent near Scunthorpe.

"Safety is paramount across the

group and the health and safety of all our staff and contractors remains number one on our list of priorities. We are very pleased to have achieved these results, which further add to our already excellent safety record," said Dave Jones, health and safety manager for PD Ports, Humber.



Photo: US Army Corps of Engineers

On the Mississippi... more funding will be made available for US dredging

US digs deep for dredging

Under the economic stimulus plan put forward by President Barack Obama, the US Army Corps of Engineers (USACE) will see a massive increase in funding this year. USACE's budget will be boosted by \$4.5+Bn – of which upwards of \$1.2Bn will be added to existing dredging appropriations.

Gene Pawlik, spokesman at USACE in Washington DC, told *P&H* that the funding is desperately needed. The stimulus money could well help the Corps catch up on maintenance dredging projects that have lagged badly in recent years, he said.

Aaron Ellis, spokesman for the American Association of Port Authorities (AAPA), agreed that the added funding was good news and noted that AAPA members are lobbying hard to get as much funding for dredging as possible. "These are projects that will put people to work immediately," Ellis said, pointing out that numerous dredging projects have already been authorised but cannot proceed until funding is in place.

Whether a programme is "shovel-ready" – able to be launched quickly – is one of the criteria that Congress will deploy in deciding whether to approve the massive spending commitment. The funding boost is aimed at both generating jobs for the 7.6% of Americans who are currently out of work and restoring the country's sagging infrastructure.

Last year, Congress appropriated \$1.5Bn for maintenance dredging in US waterways and ports. With a similar level of appropriations expected this year, the added stimulus funds will nearly double the Corps' coffers. As well as earmarking \$1Bn for extra maintenance dredging, the stimulus bill allocates a further \$200M for deep-draught dredging. It is a programme that is needed at many US ports, especially on the east coast, to prepare for the larger vessels that can be expected on the all-water routes from Asia once the expansion of the Panama Canal has been completed – scheduled for 2014.

One strong Congressional advocate for added dredging funds is Minnesota Democrat representative James Oberstar, who chairs the powerful Transportation Committee; another is Democrat senator Mary Landry of Louisiana. Oberstar wants more funds for Great Lakes dredging, while Landry has suggested a doubling of the dredging budget to help the Port of New Orleans and the lower Mississippi River.

A likely side-effect of the additional funding is that it will highlight the country's shortage of dredgers. This is being attributed to the restrictive nature of the Jones Act, which stipulates that only US-built and flagged dredgers can operate in US waters and only US companies can operate them.

Port updates

INDIAN MAIDENS IN UK

The Port of Felixstowe welcomed two of Shipping Corporation of India's (SCI) new 4,400teu vessels in January, with both *SCI Mumbai* and *SCI Chennai* making their maiden calls. Chris Lewis, CEO of port owner Hutchison Ports (UK), said: "These impressive additions to SCI's vessel fleet will provide a significant boost to the line's capacity on the Indian subcontinent – northern Europe trade, and we're delighted to welcome them to Felixstowe."

NEW GEAR FOR PPA PORTS

The Philippine Ports Authority (PPA) has allocated PhP7Bn (\$149M) to the acquisition of additional cargo handling equipment such as quay cranes and rubber-tyred gantry cranes at the country's 10 major ports.

PPA said the purchase and deployment of the new equipment will complete facilities such as Manila South Harbor, Batangas and Davao. Port officials said the move will allow them to attract more shipping lines into making regular calls.

GRAND PLANS

São Sebastião Port Authority, in São Paulo state, southeastern Brazil, is to begin construction of a new passenger terminal later this year. The eventual aim is to attract cruise lines to making São Sebastião their homeport during the southern hemisphere cruise season, which runs from November to April. The announcement came after São Sebastião hosted its first cruise vessel call in 34 years in January.

IRANIAN EXPANSION

A \$90M expansion programme at Iran's Port of Bushehr, on the country's southwest coast, is under way.

The investment will increase the port's capacity from the current 2.7M tonnes to 5.7M tonnes, although a timeframe for achieving this throughput has not yet been disclosed.

Facilities at Bushehr will include a multi-purpose berth, a box berth, the Fajr Oil Terminal and a berth for the operation of motorised dhows. A major dredging programme, said by an official source to be the largest in the country, has already been completed.

Cash & Cargo

'STABLE' VANCOUVER

Port Metro Vancouver announced that its 2008 end-of-year cargo statistics showed stability and resilience in an economically difficult period. While the overall tonnage of 114.6M tonnes declined by 10% compared with 2007, the auto and container sectors were stable, unlike other west coast ports. Commodities such as coal, potash and petroleum products experienced moderate increases. In contrast, breakbulk, mineral and forest product volumes were significantly lower.

MILESTONE REACHED

Polish container terminal operator DCT Gdańsk passed the 100,000teu mark in mid-December while handling the 750teu vessel *Containerships V*. "We thought we would have to wait for 2009 to be able to report a six-figure annual throughput figure, but the arrival of Maersk Line on 1 December changed all that," said Boris Wenzel, DCT Gdańsk's CEO.

'SPECTACULAR' GROWTH

The Amsterdam Port Area, which comprises the ports of Velsen/ IJmuidenm Beverwijk, Zaanstad and Amsterdam, posted a rise in cargo throughput of 4% in 2008, to 90.9M tonnes, from 87.4M tonnes in 2007.

The Port of Amsterdam was the biggest contributor, with 72.4M tonnes recorded last year – up 7% from 2007's figure of 67.9M tonnes.

"Over the past three years, the growth figures have been nothing short of spectacular," said the port's chief executive, Hans Gerson.

VALENCIA INVESTMENTS

The European Investment Bank has awarded Valencia Port Authority a €350M (\$478M) loan to finance development of the port's facilities.

The loan has been granted under a 25-year repayment scheme with low interest rates. More than half the sum has been allocated to the construction of more than 3km of seawalls to protect future new container terminals. Valencia intends to finish an initial enlargement phase by 2011, with new container capacity becoming available in 2012.



Photo: Port of Charleston

Port of Charleston is seeking a compromise between Maersk and the longshoremen's union

Charleston offers terminal compromise to save jobs

The Port of Charleston, in the US state of South Carolina, is struggling with the threatened loss of its biggest customer. But the port and its host city are not taking this news lying down.

The issue developed over recent months when Maersk – which accounts for a quarter of the port's cargo – found it was not meeting throughput projections at its South Carolina terminal. That led to higher port fees and a request from the line that it be allowed to give up its licensed terminal in favour of the port's less costly 'common use' facility.

While the port agreed to the shift, the local International Longshoremen's Association union refused, because it would cost about 12 jobs. In response, Maersk announced that it will not renew its contract with the port when it expires in 2010. That news sent shockwaves through the Carolina Lowcountry where the line is the backbone of the port and the port is critical to the region's economy.

In early January, the mayor of Charleston and about 100 others – port workers, maritime sector representatives and port officials –

attended a meeting to find a solution. The port has now put forward a compromise plan that South Carolina State Ports Authority officials believe will meet Maersk's needs. Port spokesman Byron Miller describes the proposal as a "hybrid" between the existing two terminal options. He said it would allow Maersk to move to the less expensive facility, but would preserve the union gate jobs that were the ILA's concern. That plan has been passed to the union for consideration and, if approved, will then be submitted to Maersk.

China to build Taiwan-facing port

China is to build a major port in Chaozhou, in Guangdong province and facing Taiwan. This is the first big port infrastructure scheme in the People's Republic seeking to capitalise on the reopening in December of the cross-strait routes after being closed to traffic for a half-century (see story on page 4).

Chaozhou is located about 300nm east of the Pearl River Delta and 186km from Kaohsiung, Taiwan. The

site has considerable areas of undeveloped land adjacent to the port site that are said to be ideal for import and export-related industries and businesses.

Development will start with construction of a 13km highway into Chaozhou and a general purpose dock, to cost \$75M. Two berths, for ships of up to 50,000dwt and 30,000dwt, will be built first, followed by further berths for ships of up to 100,000dwt.

New master plan for Vietnam's ports

Vietnam is revising its port master plan in order to streamline its port activity. An indication of what the new plan will include was revealed in December 2008. The master plan is scheduled for completion in May, with technical assistance and inputs from Vietnamese experts, P&H was told by Mai Anh, deputy director of Vinamarine, Vietnam's national maritime administrator.

"Compared to the earlier plan that had eight port groups, the new master plan will have seven port groups comprising 40 ports. Hải Phòng and Cái Mép - Thị Vải will be promoted as international gateway ports," Mai Anh said.

These ports were picked because of their strategic location, draught, cargo volumes and

potential for industrial growth in their hinterland surroundings, P&H learned. The master plan itself was revised to accommodate higher cargo throughput resulting from Vietnam's trade growth.

A railway line is being built to link the port city of Hải Phòng with the Chinese industrial hub of Kunming. This should provide Chinese shippers with easy access to a cheaper port. It is expected that the two-way traffic will stimulate provision of ancillary services such as warehouses and port equipment providers.

Financing for all port projects under the master plan will come from a variety of sources, Mai Anh explained, including initiatives based on guidelines from the Ministry of Investment and

Planning. The government is also encouraging private investment.

Funds are also available from the Japanese Foreign Ministry's Overseas Development Assistance (ODA) scheme for programmes considered to be of national or commercial significance. That makes more likely some form of Japanese participation in Vietnam's largest-ever port project in Văn Phòng Bay.

The directive to turn Văn Phòng Bay into a major transshipment port came from Vietnam's prime minister, Nguyễn Tấn Dũng, when he urged state-owned shipping company Vinalines to proceed with its development. Draught would be close to 25m and there are plans to set up an industrial zone in the port area.

Antwerp makes internet available

Antwerp Port Authority made its new Antwerpport WiFi network available to customers throughout the entire dock complex on 15 December. With this free service the port authority aims to promote ship-to-ship and ship-to-shore communication.

The port's telecommunication department has

set up hotspots at carefully chosen places around the port. The service works with guest profiles, valid for 24 hours, and offers unlimited capacity for uploading and downloading files. There is also unlimited access to a number of websites with port-related information.

Fail-safe ferry leads the way

Two P&O ferries, due to enter service in 2010 and 2011, will be the first passenger ferries in the world to comply with the new IMO 'Safe Return to Port' requirements ahead of the international compliance date.

These regulations require that, in the event of a ship becoming a casualty, basic services are provided to all persons on board

and that certain systems remain operational for safe return to port. Performance standards are stipulated for a wide range of ship systems including fire-fighting, power supply, propulsion, steering and navigation. The main propulsion and steering systems are configured to ensure that, in the event of equipment failure, the

ship retains availability of propulsion power and manoeuvring capability to provide a safe return to port

The requirements, which come into force for vessels built after 1 July 2010, will be specially adapted to take into account the restricted area of P&O Ferries' Dover-Calais operation in the UK.



Ahead of its time... the ferry's safety characteristics will help it return to port 'under its own steam'

Cash & Cargo

FEE CONTROVERSY

The Port of Long Beach has levied a \$35/teu fee to finance the replacement of up to 17,000 old cargo vehicles in the port. Port spokesman Art Wong confirmed that the fee is still being collected despite a recent federal court application by the Federal Maritime Commission for some aspects of the programme to be prohibited on anti-trust grounds.

"We cannot just sit around and wait – the programme has to go ahead," said Wong. The port estimates that the fee could raise up to \$1M a day.

INDIA LIFTS BIDDING BAN

A consortium that includes Chinese state-owned Ningbo Port Group has been allowed to bid for the Rs10.7Bn (\$219M) coal and iron ore terminal projects at Paradip Port – the first approval of its kind by the Indian government since 1997 when Chinese firms were banned from bidding for port projects.

Ningbo has teamed up with Indian firm Monnet Ispat and Hong Kong-based Great Harvest Holdings for the two projects.

PORT FOR SÃO TOMÉ

Angolan oil company Sonangol has invested \$30M in a new port to be built north of the island of São Tomé off the west African coast. The deal was signed with the government of São Tomé at the beginning of February, according to Trade-Watch's *West African Trade & Transport Report*.

The project includes building a depot to sell fuel to fishing and commercial vessels operating in the Gulf of Guinea. The São Tomé government hopes the port will be operating in 2010, with capacity of half the daily maritime traffic in the Gulf of Guinea – about 100 ships a day.

INDIA BUDGETS FOR PORTS

An interim budget presented to parliament by India's finance minister in charge, Pranab Mukherji, includes the development of infrastructure – including ports. He said that the government has approved 37 infrastructure projects involving an investment of Rs700,000M (\$14Bn).

People

SIMPSON ON BOARD

Captain Alexander Simpson has been appointed as deputy harbourmaster at Lerwick Port Authority, succeeding Captain Calum Grains.

Simpson began his seagoing career with Clyde Marine and sponsoring company Great White Fleet in 1999. He qualified as a master mariner last year and became a captain on container vessels trading worldwide.

METRO GETS ITS MAN

Port Metro Vancouver's board of directors has named Robin Silvester its new president and CEO. Previously based in Australia as chief executive of United Group Services ANZ, Silvester has spent a major part of his career in the ports sector, holding senior roles internationally with P&O Ports. He will replace Captain Gordon Houston, who is set to retire at the end of the month.

JONES REMEMBERED

The Port of Tacoma Commission, port staff and the Tacoma waterfront community are mourning the loss of maritime leader Reed Jones.

Jones, who passed away on 7 January at the age of 87, joined the port as sales manager in 1952. He became director of trade and industrial development and terminal manager, then was named deputy executive director in 1976. After 21 years of service, he retired in 1983.

NEW MEN IN NIGERIA

Former works minister chief Tony Anenih has been appointed as the new chairman of the Nigeria Ports Authority. Dumo Lulu-Briggs becomes chairman of the National Maritime Academy and Emmanuel Aguaria-Ewodo is now chairman of the Niger-Delta River Basin Authority.

HYDROGRAPHIC HEAD

William Heaps, assistant marine advisor and hydrographic manager of Associated British Ports, has been elected chairman of the six-member International Federation of Hydrographic Societies in succession to Commander Paul Hornsby of the Royal Australian Navy. He is also chairman of the Hydrographic Society UK.



Photo: Colombo Dockyard PLC

Are the newbuilds needed? Shipyard cancellation figures make uncomfortable reading

From shipyard to lay-up

The global financial crash has resulted in cancellation of a large slice of shipbuilders' orderbooks in recent months.

Some 22M dwt of newbuilding contracts will now not go ahead, according to a report published at the end of January by HSBC. Unconfirmed reports suggest that total cancellations could reach as much as 31M dwt.

Before the landslide in freight rates hit the dry bulk market, newbuildings on order had reached 600M dwt – which means that even the unconfirmed figure suggests that only 5% of this total has been abandoned. Nevertheless, some observers

believe that in certain shipping industry sectors, the number of ships on order was unsustainable.

One shipowner told *Ports & Harbors*: "The dry bulk market is in deep trouble, and this increase in rates is only a blip. Before long this will peter out and every sector will struggle."

The tanker sector is similarly under pressure, though not to the same extent, because the 2010 phase-out of single-hull tankers will ensure that a considerable quantity of the newbuilding tonnage will be absorbed. Falling demand for oil and the OPEC cutbacks in production are likely to exert significant downward

pressure on freight rates, however.

Transportation of manufactured goods is largely the preserve of container ships. The downturn in the world's economies has hit this sector particularly hard. Many ships are sailing straight from the yard into lay-up.

A newbuilding expert told *P&H*: "The majority of ships on order from Japanese shipyards will be delivered. A similar picture exists with South Korean, Taiwanese and Chinese government-owned shipyards. But there is a big question mark over privately owned yards in China. And more importantly, from where will the finance come?"

New dimensions for Panamax

Responding to shipping queries on maximum vessel size for the future locks, the Panama Canal Authority (ACP) has issued precise details on dimensions for the next era of Panamax ships.

Proposals for the new locks were due to have been received on 3 March and the ACP is expected to announce which consortium will be awarded the construction by this May.

"Each of the new lock complexes will have three chambers. The chamber dimensions of the new locks will be 427m long, 55m wide and 18.3m deep," the canal authority announced.

"The corresponding maximum dimensions for vessels that will transit these locks are 366m loa [length overall], 49m in beam and 15.2m in tropical freshwater draught. These dimensions define the new Panamax-size vessel," said the ACP.

When the expansion is completed in 2014, the navigational channels will allow transit of what are presently described as post-Panamax container ships, Suezmax liquid-bulk tankers, Capesize drybulk carriers, and larger sizes of LNG carriers, passenger ships and other vessel types, within the established dimensional limits, the ACP said.

New man at the top of the Green Award Foundation

The former vice-president and chief operating officer of the Port of Rotterdam, Peter Struijs, has been appointed chairman of Rotterdam-based Green Award Foundation.

At its most recent committee meeting, Aart Korteland – who has been in the chair since the organisation was founded in 1994 – delegated his responsibilities to Struijs.

Struijs was on the board of the Port of Rotterdam Authority for almost 18 years and was deeply committed to making the Dutch port efficient and safe. There he approached safety from both the operational and security point of view.

Struijs was a key player in introducing innovations in several sectors, including VTS, infrastructure, operational port quality and various nautical improvements. It is a range of elements that are mirrored in the Green Award Foundation's certification programme.

Struijs enjoys international regard through his impressive global network and his presidency of the International Association of Ports and Harbors from 2003 to 2005.

The Green Award team and committee members expressed their gratitude to Korteland for his dedication and contributions to the organisation. His personal involvement had furthered the development and growth of the Green Award Foundation and its highly regarded certification programme, they said.



Former IAPH president Peter Struijs is taking over the chairmanship of the Green Award Foundation

The official chairmanship handover ceremony will take place during the Green Award Foundation Anniversary Event in Rotterdam in April.

Full training for Antwerp seafarers

Antwerp Port Authority aims to train 16 job-seekers as merchant seamen this year in collaboration with Levanto, an Antwerp-based job training agency. An appeal to local job centres for seafarer candidates has generated an extremely good response, reported Scarlett Deurinck, project co-ordinator for Levanto.

"At the moment, we are sifting through the applications – we can only accept candidates who qualify for a government subsidy," Deurinck told *Ports & Harbors*. "The Port of Antwerp approached us because it is desperate for new recruits. Currently, there are 24 vacancies and that skills shortage is expected to grow."

The port is willing to accept trainees who lack even basic

seafaring knowledge, because they will be given full theoretical and practical training. They will also receive financial support for the whole of the year-long training programme.

Job-seekers who wish to take part in the programme must have been in receipt of social security benefit for at least one year or have been unemployed for a minimum of two years.

The first trainees will be ready to begin work as seafarers in the early part of next year. During the initial stages the recruits will gain practical experience by being teamed up with experienced personnel on board vessels.

Deurinck explained: "Once the recruits have qualified for the seafarer certificate, they will be

employed in the port's dredging or towage sectors." She added: "There is also a shortage of recruits for inland shipping such as barge transport".

Previously the Port of Antwerp used two main recruitment channels when seeking seafarers: people who already had relevant experience – for example in barge transport – and graduates of the maritime academy at Zwijndrecht, on the left bank of the River Scheldt. These methods of recruitment are no longer enough to meet demand, however.

In addition to training new seamen, the port authority faces the challenge of filling about 100 vacancies for electrical inspectors, seamen, tugboat captains, and debt and application managers.

People

INNOVATION IN MIND

Former Incheon Port Authority president Seo Jung Ho has been named as the new president of Gyeonggi Pyeongtaek Port Authority. At a ceremony celebrating his appointment, the new man said he would look to innovate and increase cargo handling volumes at the port.

WURSTER TAKES CHARGE

Charles Wurster, a former vice-admiral in the US Coast Guard, has been appointed as the new chief executive of the Port of San Diego.

After 37 years with the USCG, Wurster retired in 2008 as commander of the Pacific Area with charge of 11,000 personnel and a \$450M budget. He also led the US delegation at IMO meetings discussing safety, security and environmental protection in the Straits of Malacca and Singapore.

MEDIATING PORT REFORM

Patrick Daher, chairman and managing director of the Daher industrial group, has been named as the chairman of the port of Marseilles Fos's new 17-member supervisory board.

Both he and new vice-chairman Jacques Trau served on the previous administrative council, which is being replaced by a three-tier management structure defined last October under French port reform legislation.

Daher said his priority was to ensure the success of the port reforms at Marseilles Fos by acting as a mediator who could encourage dialogue and transparency among all parties.

NEW PRESIDENT AT IMCA

The International Marine Contractors' Association recently appointed Johan Rasmussen as president of the association's council and chairman of the overall management committee. CEO Hugh Williams said "We are delighted to welcome Johan as our president and OMC chairman for the next two years". Johan, a corporate vice-president and general counsel at Aceryg, said: "Safety and efficiency in our industry is fundamental. I applaud the work of IMCA in these areas, and want to encourage the global sharing and spread of the IMCA materials."

Dredging

ONCE MORE AT PORTOCEL

Following the last round of dredging work at the Portocel facility in Aracruz, Brazil, which took depth alongside from 11m to 11.5m, further deepening will take place in the second half of 2009. The work, which will increase depth to 12.5m, will allow Portocel to handle a more varied cargo portfolio.

CALIFORNIA DREDGING

Dredging work at the south entrance to California's Marina del Rey channel is under way, with Santa Ana-based CJW Construction dredging around 50,000m³ of material on behalf of the Army Corps of Engineers. Around 90% of the dredged material is being reused to replenish Dockweiler Beach; the remaining 10% of contaminated material is being separated.

CLEANER AND CHEAPER

A capital dredging project at the Port of Falmouth, southwest England, has received a major boost after a positive environmental impact assessment (EIA) carried out by consultant Royal Haskoning. The intention is to increase the approach channel to the port for larger cruise ships.

The EIA showed that the work would not damage the fragile ecology of the River Fal and Helford River, and that the dredged material, although contaminated, was neither hazardous nor toxic – meaning that the dredging work will now cost £20M (\$28.5M) rather than the expected £40M.

Work is expected to start in early 2010 and will include construction of a dedicated cruise terminal.

INCHON DOWN

Dredging work at Incheon North Port is under way, taking depth from 11m to 14m at a cost of Won25Bn (\$18M). Eight berths will be operational during the dredging work, with seven more opening later this year.

DEEPENING THE NIGER

A €125M (\$159M) contract for dredging a 226km navigation channel in the River Niger from Warri to the railway terminal in Baro in Central Nigeria has been awarded to Van Oord. The project will run over three years.

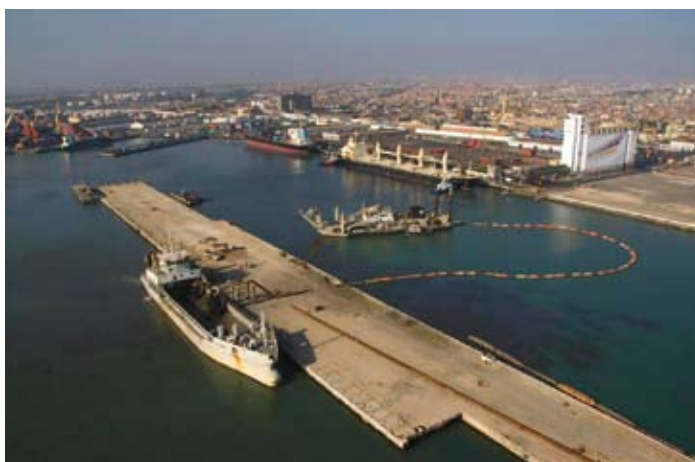


Photo: DP World

New equipment is expected to improve handling at Muelle Norte

Big boost promised from Callao's cranes

Container handling efficiency at the Port of Callao – Peru's principal port – will undergo a five-fold improvement now that two new gantry cranes have been installed at the Muelle Norte terminal.

That is according to transport and communications minister Enrique Cornejo, who claimed that the new cranes – which went into active service on 15 February – will increase productivity at the terminal from the current 12 moves an hour to 60 per hour.

"It will increase the efficiency of the port, especially for container movements," said a port official. The official added that the new cranes were likely to help Callao move some 1.2M teu during the course of this year.

The increased cargo handling capacity will contribute to a significant reduction in the time

taken for loading and unloading operations, Cornejo said, noting that on average it used to take 23 hours to load and unload container ships at Callao port – that should be cut to just 13 hours. The minister said that by clipping 10 hours from each ship's time in port, savings of \$30M a year – or about \$100 per container – can be generated.

"In the midst of the international crisis, Peru continues working firmly to improve the production and efficiency," said Cornejo.

Callao is Peru's principal port and moves 85% of the Andean country's foreign trade.

With several more free trade agreements likely to be signed in the course of the coming year and as Peru becomes an increasingly important international trading economy, the port sector looks set for further expansion.

Solar power sets sail

NYK's *Auriga Leader* – a solar-power-assisted car carrier – sailed from the Port of Kobe, Japan, on 19 December. Its pioneering solar-electric power system was developed by NYK and Nippon Oil Corporation. The 60,213gt ship is equipped with 328 solar panels that have already successfully generated electricity to supplement the ship's conventional power.

NYK Line and Nippon Oil will conduct a series of field experiments in order to verify that the electric power supply can maintain stable propulsion during actual navigation. The system will continue to be monitored for two further years to check its operational endurance against saltwater damage, wind pressure and constant vibration as well as its efficiency in combining solar and ship-generated power.

Piraeus removes wrecks

Thirty-six shipwrecks have been, or are in the process of being, removed from waters off Greece's largest port, Piraeus, the port authority (PPA) announced in February.

The operation, which began in 2006, covers the eastern approach of the Strait of Salamis, a narrow passage that separates the seaside suburbs of Keratsini and Perama from the nearby island of Salamis.

"Some wrecks date from the 1980s, others from as recently as 2006," PPA spokesman Thanasis Karlis told *Ports & Harbors*. "Most are half-sunk and charted and, until now, have not caused accidents, but we are acting pre-emptively. The area there is very cramped and a strong wind change could easily lead to a vessel colliding with one of the wrecks. In addition, the wrecks occupy vital space. Not only do they hinder the approach to the Port of Piraeus but also to the nearby port of Elefsina and ThyssenKrupp's shipyards at Skaramagas," Karlis continued.

Noting that the wrecks are an ecological hazard, Karlis explained that their removal would also serve Piraeus's wider environmental policies. These are aimed at rendering the port "even safer, with immediate gains for both its marine environment and its users".

In January, PPA renewed its Port Environmental Review System (PERS) certification, initially awarded to Piraeus in 2004. PERS is a tool designed to help ports implement European Sea Ports Organization (ESPO) recommendations, namely the formation of a publicly available strategic and methodical environmental policy.

According to Karlis, the wreck-removal operation was awarded to several companies – the majority of which are Greek.

Powered up in Canada

Port Metro Vancouver will be the first port in Canada to implement shore power for cruise ships. The port plans to implement this for the 2009 cruise season at its Canada Place cruise facility.

"Shore power is a highly effective way to reduce marine diesel air emissions by enabling ships to shut down their engines and connect to BC [British Columbia] Hydro's electrical grid in order to provide necessary power while docked," said the port in a statement.

"British Columbia is setting a

new transportation standard by being the first Canadian province to have a commercial application of shore power at its ports," said British Columbia's minister of transportation and infrastructure, Kevin Falcon.

"Improving air quality will make Vancouver an even more liveable city and bring us closer to our government's goal of reducing greenhouse emissions by one-third by 2020," Falcon continued.

Planning for shore power installation at Port Metro Vancouver started back in 2005.

Sri Lanka plans waste oil facility

Sri Lanka's Marine Environment Protection Authority has called for proposals to set up a ship waste oil reception, processing and disposal facility at Colombo's port.

MEPA said about 55,000M tonnes of ship waste oil are generated each year in the island's waters. The facility would be chiefly intended for ships calling at Sri Lanka's harbors or passing through its territorial waters.

Investors would finance, build and operate the unit as a public-private partnership for 20 years. It would be eligible for tax concessions.

The facility is required to meet the government's Marpol Convention obligations. The project company would be eligible to collect a fee from ship operators and pay a royalty fee to the MEPA.

Investors will have to allocate at least one self-propelled floating barge with a minimum capacity of 500M tonnes for collection of waste oil.

Indonesia plans enhanced role for Tanjung Priok

Indonesia has released plans for the transformation of Tanjung Priok into a major international transshipment port.

Widarma Raya, assistant to Indonesia's trade minister, announced the unveiling of a blueprint for the scheme on 8 February. Under the ambitious proposals, the port's container yard will be "expanded and new port equipment brought in," said Bambang Ervan, spokesman for the Transport Ministry.

Turning Tanjung Priok into a major transshipment port will

necessitate tackling the problems of the port's infrastructure – which currently are "not proper", according to Raya.

Another consideration is the co-operation of the container terminal operators. They include Jakarta International Container Terminal (JICT), a joint venture of Hutchison Port Holdings and Indonesian company Pelabuhan II, which operates two terminals.

Indonesia's vice-president, Muhammad Jusuf Kalla, has called for the speedy development of the port.

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Meeting the carbon challenge

Tony Mason, secretary general of the International Chamber of Shipping, highlights the importance of practical, feasible and 'flag-neutral' regulation

Photo: Roger Paice Associates Ltd

Even in the midst of a global economic downturn, the challenge of reducing carbon emissions remains a critical issue for the shipping industry. Not only does it need to agree on the level of reduction that might be practical and feasible, but it also has to consider the implications for shipping's economic well-being and its environmental image. Addressing the challenge will involve all parties in the maritime supply chain – not least ports – but the immediate focus of policy-makers is the performance of ships themselves.

Ships' environmental performance may be impressive, but it has become a major media story. The International Chamber of Shipping (ICS) is therefore at the forefront of global discussions on ships' CO₂ emissions, which are being led by the International Maritime Organization. The IMO intends to develop a package of proposals for maritime transport by December, when the post-Kyoto climate change regime will be developed further at a major United Nations conference in Copenhagen.

On behalf of the shipping industry, the chamber is analysing the net environmental benefits and commercial implications of the various regulatory possibilities that are being actively considered by governments. These include 'cap and trade' emission trading schemes (ETS) and carbon taxes. ICS believes it is vital to be engaged in discussions on these issues, no matter how controversial they may seem to be. Whatever measures may ultimately be decided, however, they should be flag-neutral in their effect in order to avoid market distortions.

Encouragingly, the European Commission has indicated that it would definitely prefer to see a global IMO response, rather than an outbreak of regional initiatives. But it has also made clear that, in the absence of a 'bankable' solution by the end of this year, it may feel obliged to develop regional controls to ensure that the EU can meet its political target of a 20% cut in the region's CO₂ emissions 2020 (from a 1990 base).

While a cut in CO₂ emitted per tonne/km of around 15% could be in prospect over the next five to 15 years, it appears impossible to guarantee any absolute reduction by shipping as a whole. This is because of the projected longer-term growth in demand for shipping worldwide.

Cutting greenhouse gas emissions is not the only incentive that shipping companies have for lowering their fuel consumption. Despite the recent falls in prices, bunker costs represent a substantial proportion of a ship's operational expenses, having increased by about 300% in the past five years. Fuel costs are already having an impact on the competitiveness of certain maritime trades, and in the current economic conditions may determine some companies'



Tony Mason: ICS wants to take on the role of 'honest broker' in GHG discussions

survival. For example, shortsea and coastal shipping are often in direct competition with land transport modes, and regulators need to ensure that efforts to reduce CO₂ emissions do not cause a modal shift to other less carbon-efficient forms of transport.

ICS now enjoys consultative status at the UN Framework Convention on Climate Change (UNFCCC) and participated at December's preparatory conference in Poland, which sought a replacement to the Kyoto Protocol on Climate Change. There were encouraging indications that governments, and the UNFCCC secretariat, may be willing to leave the IMO to develop CO₂ reduction measures for shipping. Nevertheless, a conflict remains between the 'flag-blind' global uniformity that shipping wants – the IMO principle of 'no more favourable treatment' – and the concept of 'shared but differentiated responsibility' that the Kyoto Protocol espouses. The latter allows for different standards to be applied to industries in emerging economies.

ICS is engaged in two strands of activity to help the IMO present a meaningful progress report at the December UNFCCC meeting in Copenhagen: the development of ship efficiency management plans (SEMPs) for existing ships, and the approach to be taken with regard to market-based instruments (MBIs).

A major goal of ICS has been to ensure that the SEMP concept continues to be an industry-led, rather than government-led, means of developing IMO greenhouse gas measures. An interim version of a model ship efficiency management plan that was presented to the November MEPC meeting was well received.

There was broad political consensus at

the IMO that the business of delivering day-to-day operational efficiency was essentially for the shipping industry to manage and not governments, because of the complex relationships that exist between shipping's technical and environmental parameters.

This clearly passes the responsibility for the development of a transparent mechanism from government to the industry. A SEMP that is perceived to avoid this responsibility is very unlikely to be accepted by IMO member states, which could decide to take the development of the concept back under government control if they feel that more can be achieved this way.

Market-based instruments (MBIs) are proving to be the most difficult of subjects to address. ICS has established a working group to examine the advantages and disadvantages of various MBI options. Broadly, these split into three main areas: emission trading schemes, a levy or compensation fund, and a 'do nothing' option. ICS hopes to bring together analysis of a range of possible MBIs in a way that has not been attempted before for shipping and which can be utilised by IMO and others in their discussions.

There are expectations, certainly at the IMO and probably in the EU, that the ICS will continue to take the leading industry role in determining how to reduce the carbon footprint of international shipping and to debate various offsetting options. It is to be hoped that, if necessary, the chamber could assume the same role at the UNFCCC. In short, ICS is aiming to take on the role of 'honest broker' in inter-governmental discussions and so comment with authority on any option that a government brings to the table. This should ensure that full account is taken of each proposal's commercial and trade implications, and its ability to generate real CO₂ reductions.

If ships operate efficiently this will help ports to do the same. The ports can help shipping reduce its fuel consumption by being ready to accommodate the impact of ships travelling at lower speeds with longer voyage times as a result. Delays incurred when ships are in port will mean that ships have to make up time and burn more fuel. When the market recovers, it will be vital to tackle congestion in ports.

In the meantime, IMO remains the focal point for maritime discussions. It will be vital for the industry and its regulators to ensure that this year the organisation delivers an acceptable international framework for regulating maritime CO₂ emissions, so that the shipping industry can remain ahead of the game with regard to addressing greenhouse gases and providing the most carbon-efficient form of transport. **PH**

For more information on MBIs, please see page 38



Photos: Port of Amsterdam

Sustainable and manageable

The Port of Amsterdam is implementing a new environmental programme to help meet its long-term commitments. Three of the port's environmental specialists give an overview

The city council of Amsterdam recently endorsed a new vision for the Port of Amsterdam to be achieved during the period 2008 to 2020. Sustainable port development is at the core of this vision, as Amsterdam aspires to become one of the most sustainable ports in Europe. The port is aware that formulating a vision is just the start of the process, and a firm implementation plan is essential if this ambitious goal is to be realised.

That is why the Port of Amsterdam has developed an environmental programme. With a budget of more than \$15M, it covers 40 projects aimed at investigating or improving the environmental quality of the port's activities. These projects alone demand a substantial commitment in implementation and monitoring. More projects will be added to the programme if required.

This is the first time that Port of Amsterdam has developed such a comprehensive and coherent environmental programme. Although it has been active in the environmental field for decades, the port has previously followed a pragmatic approach and implemented environmental projects on an *ad hoc* basis. Several worthwhile initiatives were implemented in this way – taking a leading role in the creation of the Ecoports Foundation; co-development of an innovative inland container barge, AMSbarge; integration of a windmill park in the port area; and establishing itself as a leading voice in the international project on noise management, NoMEPorts.

Despite this strong environmental history, Port of Amsterdam is convinced that a coherent and structured approach will provide even more benefits. The programme comprises five main themes:

- Optimisation of land use and meeting high environmental standards
- Stimulating clean shipping
- Encouraging modal shift from road to water and rail
- Reducing the risks of transportation and storage of dangerous goods
- The port authority adopting the role of exemplar organisation for sustainability.

The port's development is dominated by space restrictions. The Port of Amsterdam has set a goal to accommodate all transshipment activities in the next decade without port expansion and as far as possible within the current environmental zones. The exception to this goal is noise pollution, for which the zone is due to be extended. This is because in

Port of Amsterdam has a long-term plan to run its port in accordance with best environmental practice

some areas technical discrepancies have resulted in unacceptable limitations for noise.

Throughput at Amsterdam has grown from 65M tonnes in 2007 to 74M tonnes in 2008. Further growth of up to 120M tonnes is expected in 2020. That means the throughput per hectare within the existing port area will have to increase. To achieve this, Port of Amsterdam is developing a scheme in co-operation with companies at the port.

Specific areas for development include improving the logistics chain for several commodities handled at the port and implementing new techniques for cargo handling and storage.

Several projects focus on clean shipping. The port is extending the number of onshore power supply (OPS) connections for inland ships and river cruise vessels. It is also investigating the feasibility of introducing OPS for seagoing ships. Another project aims to reach agreement with maritime service providers such as tugs, pilots and linesmen to switch to clean fuel and to use environment-friendly techniques.

In a joint initiative with the nearby Port of Rotterdam, Amsterdam will be encouraging clean inland shipping by imposing higher port dues on those vessels that do not meet certain environmental standards. The surplus will be put into a Ministry of the Environment subsidy programme.

Over 70% of goods (mainly bulk) in the Amsterdam port area are already transported by inland ships or rail. The focus has shifted to reducing the number of containers transported via road. The port is working with the region's provinces and municipalities to develop inland terminals and shuttle connections.

The port is also investigating alternative routes for dangerous goods as part of a national project led by the Dutch Ministry of Traffic and Transportation. The port and city of Amsterdam are close together and both are expanding their activities, which makes it essential to secure safe transportation of dangerous goods over water.

To encourage companies to invest in environmental improvements, a sustainability and innovation fund will be set up. Under the environmental programme umbrella, Port of Amsterdam will invest €2M a year for a period of four years to encourage and support its

customers to improve their sustainability performance. The criteria for this fund are being developed and will enter into force later this year.

The port will monitor its activities through a series of sustainability performance indicators. Through them, the port will be able to assess the effect of the various projects in the environmental programme, providing an indication of whether Port of Amsterdam is on track to becoming one of the most sustainable ports in Europe. Indicators will be applied to intensive land use (transshipment per hectare), modal split (taking cargo off the road), air quality (emissions of particulate matter, nitrogen oxides and sulphur dioxides), water quality (reduction of spillage) and renewable energy (capacity of wind energy in port area). The port is also developing a programme to monitor its carbon footprint. The results of this initiative will expand on the existing measures for reducing CO₂ emissions in the port area.

Each element, or project, within the environmental programme is assigned a project leader, who is responsible for its successful implementation. This ensures that the programme is embedded in the organisation and its implementation is secured. The programme manager monitors the projects' progress and reports to the management team.

The programme began with an introductory meeting in which every project leader presented their projects. Project leaders will update each other on progress at twice-yearly meetings, and special meetings will be organised for interested stakeholders.

Port of Amsterdam will continue the dialogue with the business community within the port to see how they can improve their operations in favour of the environment and what they expect from the Port of Amsterdam in terms of facilitation and support. **PH**

Marleen van de Kerkhof is project leader for sustainability; Betty de Keizer is interim manager of the environmental programme; and Wim Vlemmix is head of the Sector on Infrastructure and the Environment and a member of the management team. All three work for Port of Amsterdam

For further information, email: betty.de.keizer@portofamsterdam.nl; web: www.portofamsterdam.com

Stakeholder support

The Port of Amsterdam realises that it cannot implement this environmental programme on its own: it needs awareness and support from the wider society. Accordingly, an intensive stakeholder consultation process has taken place. Stakeholders from outside the port authority – environmental non-governmental organisations, policy-makers and the port business community, among others – were invited to give their input to the programme.

Stakeholder consultation sessions were organised to gather input and acquire support. Several participants provided the Port of Amsterdam with comments on draft versions of the programme document, most of these comments were incorporated in the final text, which has now been approved by local politicians.

Stakeholder involvement remains a vital aspect of the programme's implementation phase and the port will ensure that these groups are involved in every stage of the process.





Photo: Kalmar

Small ways to go green

P&H considers how ports can seek to reduce their emissions

Geared up for the environment... Kalmar's new truck has an eco-drive option

Making a commitment to the environment could be considered as both financially demanding and time-consuming. Rising fuel costs and pressure to reduce emissions may not appear to sit side by side comfortably. Yet, as Peter Mollema pointed out in his Open Forum in the January issue, reducing energy consumption can save money for the port authority and port-related industries.

Replacing older yard equipment, such as trucks and forklift trucks, should go some way towards reducing emissions, as newer models burn less fuel to do the same task. To take it a step further, certain systems are specifically designed to minimise emissions.

Equipment manufacturers have become savvy about the sales value of greener products. Kalmar, for example, recently launched a new lift-on/lift-off terminal tractor with an 'eco-drive' option. When this is utilised, the vehicle is claimed to emit only the minimum of harmful emissions.

The theme was emphasised by Port Equipment Manufacturers' Association president Ottenel Popesco. There is a global shift to being eco-friendly, he declared at the Terminal Operators (America) Conference late

last year. To remain competitive, he added, equipment manufacturers must make their equipment more eco-friendly at an affordable price.

The initial outlay of the equipment does seem to be the sticking point at the moment. Louis Romo, VP energy recycling sales at energy storage system manufacturer Vycon, told *P&H*: "Each crane [or] equipment manufacturer has begun to develop a line of environmentally improved products, but all carry a premium which a customer may not decide to include based on the economics of the transaction."

Romo continued: "The initial capital costs may be high and typically offer no financial return on their investment. The port operators are business people and have as a major concern their profitability, and port authorities have a difficult time enforcing regulations which may severely impact their tenants' profitability."

In the long term, environment-friendly equipment may be cheaper to run, Romo asserted, although this would depend on the technology used. This is not the case with all products, however, and he cautioned that some of the technology behind cleaner equipment has high maintenance costs and a short lifespan.



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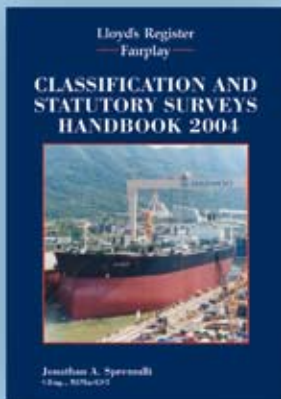


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Embracing the elements

Two ports are pursuing initiatives to generate energy. The Port of Marseilles Fos is looking at installing a solar-powered electricity network that might include up to four generating stations and solar panels covering more than 135,000m² of roof space.

Electricity production in the Fos port-industrial zone has already been boosted by 29 wind turbines. According to the port, the latest initiative underlines its commitment to developing sustainable and environment-friendly alternative energy sources.

Antwerp Port Authority is also pursuing various schemes to lower energy consumption and thereby reduce the quantity of pollutants it emits. The port is currently using dock water to heat offices in its Noordkasteel Bridge building.

Within a concrete column underneath the Noordkasteel Bridge there are 515m² of rooms, comprising offices for maintenance personnel, a canteen, storeroom, workshop and a low-voltage room. These facilities, located right next to the harbor, are heated by dock water. The port sees this as a good alternative to the electric heaters that were used previously.

Despite the potential price tag that is attached to being environment-friendly, many ports are actively seeking innovative technology and supporting new initiatives. Several examples were cited at the World Ports Climate Initiative Symposium (WPCI) held in Los Angeles last November.

The Port Authority of New York and New Jersey (PANYNJ) has been running a project to establish whether there is a business case for introducing hybrid technology to its ports. The authority considered this technology for use in yard trucks – or hostlers, as they are known in the US – in its New York Container Terminal. A hybrid vehicle is one that uses more than one source of power. In this case, the trucks run on electricity, drawing on either electric generator-motors or energy stored in batteries or ultra-capacitors – a device for storing and releasing electricity.

At the APM Terminal, the authority also tried out a hydraulic hybrid drive system. This is a technology that was developed by the US Environmental Protection Agency and other private partners. It emitted lower quantities of greenhouse gas and pollutants, and cut particulate matter emissions by 90%, said William Nurthen, PANYNJ's general manager of programme support and performance management, reporting at the WPCI symposium. Furthermore, it improved fuel economy by 30%. This type of technology,

Nurthen told delegates, has "worldwide applicability".

As part of its framework to "encourage development of emerging technologies", the Port of Long Beach has also been investigating the benefits of hybrid yard trucks and tug boats, along with energy storage systems and electric rubber-tyred gantry (RTG) cranes, it reported at the symposium.

Hybrid technology has been introduced into other types of equipment as well. Tilbury Container Services (TCS), east of London, UK, recently invested in six of Kalmar's straddle carriers fitted with variable-speed engines. One of the six will be "fully hybrid", as it will incorporate Kalmar's Pro Future hybrid technology package – a capacitor creating its own energy by using the hoist motors as a generator when lowering a container. This energy is then stored and used, before the system calls on the carrier's diesel engine. The system is said to result in fuel savings of 25–30%.

TCS's terminal engineer, Michael Quinn, told *P&H* that it will be interesting to compare the efficiency of this fully hybrid straddle carrier with other models at the terminal. These include similar straddle carriers but without the capacitor and a slightly older model – installed within the past year – that has a fixed-speed engine regardless of the demand placed upon the machine. This latter model is expected to prove the least energy-efficient.

The terminal is sampling this new technology in the hope that it will bring down fuel costs – Quinn acknowledged that there "are cost implications as well" – and it also fits in with the environmental policies of both TCS and part-owner DP World.

These are certainly not the only terminal operators investing in such equipment. International Container Terminal Services Inc, for example, has acquired Vycon fuel-saving devices for RTGs operating at its Manila International Container Terminal in the Philippines.

According to Romo, port authorities and city governments should work with the operators to identify the best technologies for cutting emissions and improving the performance of their equipment. "Once the technologies are identified, the port authorities need to offer the operators subsidies, lease discounts, opportunities to expand their yards – whatever may be a positive enticement for the operator," he concluded. **PH**

Older port equipment is said to be less environment-friendly than new

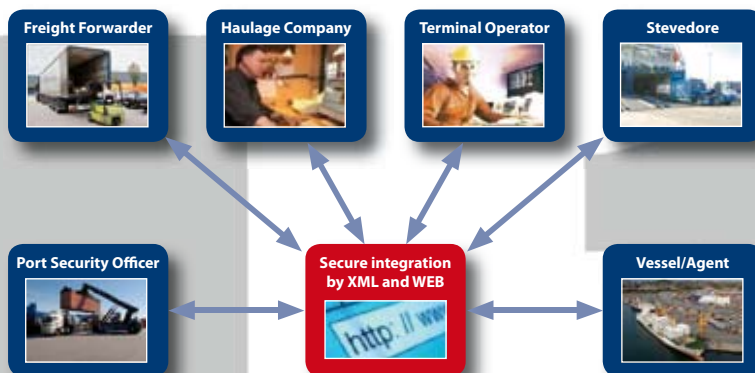


Photo: Peter Newton

Port Security Officers and Terminal Security Officers are challenged with finding a solution that delivers integration of security systems, harmonise processes and routines, deliver value for money and does not strain the logistics efficiency and resources.

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Photo: Port of Tacoma

Tracking beyond ports

The Port of Tacoma looks east as it plays its part in creating a secure supply chain for its customers. **Scott Berman** reports for *P&H*

With snow-covered Mount Rainier in the background, a Tacoma Rail locomotive shunts container wagons in the port

Some traditional assumptions about cargo scheduling, routing and delivery may be overturned as a result of an ongoing test by the Port of Tacoma, using global positioning satellite (GPS) technology to track the movement of rail containers.

The initiative, which began last June, is not about intermodal surveillance – it is a joint effort with other players to increase levels of efficiency and security and to reduce costs. The participants in the Tacoma test are Burlington Northern Santa Fe Railway; ocean carrier Yang Ming Line, of Keelung, Taiwan; and Edmonton, Canada-based Safefreight Technology.

The project tracks rail-borne containers from the time they leave Tacoma's waterfront terminals until they reach their destinations in the Midwest and eastern United States.

The logistical goal is complemented by a strategic marketing goal, Rob Collins, Port of Tacoma's manager of transportation and supply chain planning, told *P&H*. Increasing supply chain visibility will help Tacoma stand out as an international gateway to inland North

America and to be "a player in a highly consistent high-velocity supply chain between Pacific Rim origins and destinations" such as Chicago, Memphis and New York, he explained. Bottlenecks hurt credibility and need to be cleared.

The system uses 5in x 3in (12.7cm x 7.6cm) boxes that transmit data via the internet to the port using GPS and wireless technology. While containers are in locations that have no cellular service the data is stored in the unit and transmitted later. The box device can run on its own for much longer periods – several weeks – than other truck tracking devices.

Although Tacoma is so far the only port using Safefreight's technology to track containers on rail, CEO Curtis Serna said that he has received enquiries from other interested ports. He declines to name them, citing confidentiality, but interest is likely to intensify, he believes, because supply chains need to be as visible and secure as possible to ensure efficient 21st-century cargo management. Taking the GPS tracking concept as far as possible therefore makes sense for Tacoma

If You Knew...

how many containers are coming into the terminal and when, the location of every RTG in the yard, the optimal vessel stow plan, the schedule at the gate and the most efficient container move possible...all in real time; you could increase throughput and efficiency while decreasing operational costs.

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Photos: R – Port of Tacoma; below – Customs and Border Protection



A Safefreight GPS tracking device being installed on an inland-bound container

and its current and prospective customers, as well as shippers, carriers, ports, customs and law enforcement agencies worldwide, believes Collins.

The more visible the supply chain, explained Serna, the more that “ports and their inland supply chain partners like the railroads... can identify potential opportunities that may improve the transportation of goods for their customers.”

Pinpointing exactly where and when cargo is idle during its journey is at the core of security, as cargo in motion is cargo that’s secure, maintains Port of Tacoma’s communication and media relations manager, Michael Wasem. Officials from the port tracked containers sitting idle on sidings, delayed by passenger traffic and weather. Now that they are aware of such delays, port officials are able to work with railways on solutions, he told *P&H*.

“The more I got into it, the more I realised what a need there was for an end-to-end solution to secure the supply chain,” Collins said. During the initiative’s

early stages some customers were sceptical, however. “We were asked: ‘Why do you care about this?’ Collins recalled. “And our response was ‘How could we not care about it?’”

Although costs accrued by the port were negligible – 20 tracking units at about \$500 each – Collins admitted that the test has not been without its problems. Small magnetic feet used to affix the units to containers proved to be too weak and some fell off. Engineers tried bigger magnets, which solved the first problem but created another: the magnets were so strong that workers at container destinations had to use pry bars to remove them, breaking some unit cases that the magnets were bolted to. Tacoma’s maintenance workers designed a plate and a removal handle that solved the problem.

The technology may be useful in other security applications at some point. Collins explained that the Port of Tacoma is working on other initiatives with the Department of Homeland Security (DHS) through the federal agency’s Intermodal Radiation Detection Test Center, also known as the Rail Test Center. The research and development centre, created under the federal government’s SAFE Port Act of 2006, brings together engineers and technicians who devise ways to detect radiological and nuclear threats in import containers. Port officials have worked with them on that effort and see the GPS initiative as a natural continuation of it.

There is no joint GPS effort within the centre yet, as the effort to devise an end-to-end tracking solution is still in its infancy, Collins remarked.

Likely future initiatives will involve tracking trucks in the region; rail tracking over progressively broader geographic areas; joint efforts with additional rail operators; and outreach efforts to innovators in the field. At present, GPS tracking “is like any emerging technology. It’s developing quickly, and we’re running to stay up on who’s doing the innovation,” Collins enthused.

Port of Tacoma is keeping its eyes on the prize – that end-to-end solution – and officials seem proud that a maritime port is leading the way. Collins added: “I’m confident that we’ll get there for our customers.” **PH**

Penetrating the shield

“The threat of nuclear materials or weapons being transported through the world’s ports or across borders is being taken very seriously,” said Thomas Ripp, Security & Detection Systems president for Woburn, Massachusetts-based L-3 Security & Detection Systems.

That is the impetus driving the development of a system to detect shielded nuclear material in containers. The US Department of Homeland Security Domestic Nuclear Detection Office awarded the contract to L-3 under the Shielded Nuclear Alarm Resolution (SNAR) programme.

The system distinguishes between normal cargo and real threats, to ensure that containers with well-shielded and well-masked threats are not cleared for acceptance.

According to Ripp, SNAR aims to develop “deployable technologies to perform a robust inspection of vehicles or containers to detect a nuclear device”.

Radiological detection is assuming increasing importance in ports around the world





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Time for data tracking

Journalist **David Worwood** reports on the benefits and limitations of systems that track and identify containers and general cargo in ports

Ports and terminals are always seeking ways to improve their operational efficiency and tighten security. One way to achieve this is through investment in information technology (IT) – specifically, systems that use electronic data interchange (EDI), barcodes and electronic tagging. Barcodes and tagging by radio frequency identification (RFID) devices are relatively mature technologies. Now these ‘automatic identifiers’ are being integrated into powerful terminal management systems.

In the years following the terrorist attacks of September 2001, shipping containers were identified as a weak link in the security chain. Various technological solutions were proposed, including RFID tagging, next-generation barcodes, embedded global positioning system (GPS) transponders, anti-tamper devices and even contraband sensors – all monitored remotely via the latest wireless communication technology.

The reality never quite met the expectation, which means there is still much to achieve. Nevertheless, it

is understood that certain manufacturers are now building ‘passive’ RFID tags into the door hinges of their containers, even though the scanning devices for them have not yet been widely distributed. Passive tags do not contain batteries and can only be read at short distances.

Some experts attribute the slow take-up of container tracking and identification to the per-unit cost of such equipment. In addition, there is confusion over who is actually responsible for a container at a given time – owner, lessee, shipping company, shipper or transport operator. Yet, when used within the terminal environment, such technology can generate far clearer and faster data flows. When implemented alongside track-and-trace capability, it improves cargo security.

Optical character recognition (OCR) may well prove more appropriate than barcoding in many instances, since OCR tends to give more accurate readings at a greater distance.

APM Terminals revealed it is running a barcoding



Photo: Jade Software

Simple tracking: attaching a barcode to a log, and reading it, takes seconds

project at one of its European port facilities, but added that this is “still in the early phases and not conclusive yet”. The company already deploys RFID technology in its Los Angeles and Portsmouth, Virginia, terminals in the US. Last March APM announced a five-year deal on joint research and development co-operation with the Port of Rotterdam, with information management listed as one of the target areas.

There is still a role for smaller players, however, and some software developers have created applications that enable forwarders, shippers and other port users to access track-and-trace without necessarily having full control of the logistics chain.

Norwegian company Seamless (formerly Pragma Maritime) expects by April to be rolling out its PortTools security information-sharing software within Europe. The system will also support intermodal operations, as it will be able to identify and log containers as they move from road to port to rail. Seamless CEO Olav Madland told *P&H*: “We are now working on the cargo part [of PortTools].” He added that the system will eventually be able to accept input from all the cargo identification methods, including RFIDs and barcodes.

The software will also be designed to work with the customer’s other software applications. For example, haulage firms will receive container status updates after delivery to a terminal, which assists with billing. With this type of data-sharing, Madland emphasised, “It is critical that information is only readable by those who are allowed to see it”.

Seamless also supports European initiatives to develop a single, common port facility identification card, which would overcome the potential for confusion arising from a plethora of cards.

Anecdotal evidence suggests that some major shipping lines want to use ports that can incorporate their IT systems. A case in point is the new Deepwater Container Terminal (DCT) at Gdańsk, Poland. In December last year Maersk’s mainline service transferred to this port from Gdynia.

“Maersk is significant in that they are a world player and equally sophisticated in their informational requirements as they are in their need for operational excellence,” noted Michael Pearce, DCT Gdańsk’s chief information officer. “We can offer our customers extra value by seeing information technology as a great enabler and marketplace differentiator.”

DCT Gdańsk sourced its terminal operating system

– Jade Master Terminal (JMT) – from New Zealand-based Jade Software. The program, used at about 30 port terminals worldwide, provides container track-and-trace capability and allows clients to set up various ‘alert’ messages. For example, a client can be notified when a container has arrived or when a box has been detained for an exceptional reason.

Trucks entering the yard are given RFID tags, which, in combination with GPS technology, permit the terminal management system to identify trucks and their loads, track all container movements and record their locations within the stack. Scanners on the container handling equipment identify the tags, reducing the scope for operator error. Individual less-than-container-load (LCL) consignments are recognised by separate barcodes.

The main modifications required to make terminal operations software-specific to an individual port usually involve local customs laws, labour legislation and trade union practices, explained Gavin Mitchell, head of sales, marketing and channels, with Jade Software.

“The [international] market is moving toward more automation and optimisation: a system of ‘intelligent agents’, which are smart pieces of software that sit around the application and act like little spotters that look at the information flow and make recommendations back to the planning system.”

The system is said to be able to self-monitor, allowing the terminal operator to add or remove equipment from given tasks, or re-route them to avoid congestion. For example, the software will monitor the performance of the rubber-tyred gantry cranes and straddle carriers and recommend changes. If a straddle carrier can move faster or by a quicker route, its fuel consumption or tyre wear can be reduced. This would also generate savings in fuel, equipment maintenance and manpower. The logical end-product would be a fully automated container yard, such as Patrick’s Brisbane terminal (see p30 in this issue) or HHLA’s Altenwerder in Hamburg (pp28–29).

The JMT software can handle other cargo types, including vehicles, breakbulk and commodities. A log marshalling company that operates at 14 terminals in New Zealand has between eight and 10 million export logs individually barcoded, for example. The barcodes are received in rolls of possibly thousands. A barcode is stapled to the end of each log and is torn off the roll. It “takes two seconds,” Mitchell asserted.

In Australia, EDI is being used to create a new national port community system. Initially deployed in Sydney, the PortBIS pilot project will use existing electronic data flows to create a single source of information on cargo in Australia. Organised by Tradegate, the project involves Hamburg Süd, Hapag-Lloyd, Cosco, Maersk and APL, with Sydney Ports Corporation sharing its vessel arrival and departure information. As part of the first phase, container tracking, empty container return dates and container alert services will be provided.

With an increasing number of shipping lines and other players interested in keeping track of their cargo EDI, automatic identification and tracking technologies are continuing to advance, with systems becoming increasingly compatible and yet far more secure. **PH**

Keeping track of technology

- Barcodes – a simple technology, well proven and suited to inside-style operations where sunlight is not an issue. The different widths and spaces of bars in a barcode are decoded or scanned. This scanned data can be recorded and processed
- Radio frequency identification (RFID) – an emerging technology in cargo terminals. RFID is an established data-carrying and automatic identification technology used throughout industry
- Optical character recognition (OCR) – a well-proven and stable technology. It allows for easy and rapid reading of container and vehicle registration. At a distance, OCR scans are more accurate than barcode readings.



Automation for tomorrow's terminals

Xavier Gesé considers the operational and cost-efficiency benefits associated with innovation at container terminals

Outstanding growth in world container traffic has been the driving force behind innovative container terminals, with the aim of increasing box-handling capacity and reducing processing time. Over the period 1990–2005, total port handling in teu increased nearly three times more than economic growth. Technological innovation can provide an effective response to the challenges faced by the port and maritime industry.

If we are to improve the global supply chain, there should be no interruption to the seamless flow of merchandise. Port terminals provide a crucial node in this chain. Since the container was introduced as a means of transport, a wide range of innovative solutions have been developed to upgrade services and solve problems that have arisen through containerisation.

To optimise productivity at the quayside special attention has been given to the design and operation of quay cranes. Bigger cranes of 22teu-wide outreach have been built to service today's giant vessels. Trolley and hoist speeds have been increased for faster loading and unloading. New spreaders have been designed that are capable of lifting twin 40ft or 45ft containers, positioning and adjusting the head block using hydraulic cylinders. Some cranes have been equipped with features that assist the quay crane driver, such as automatic container travel cycles, which

control movement between the vessel and quay.

Research has been conducted into areas such as the wind's influence in container handling and remote control operation of the crane. The most significant development in crane design has been the introduction of double-trolley quay cranes, which have certainly increased quay performance.

That has revealed a need for other elements of terminal operation, such as yard operations, to be redeveloped to cope with the increased throughput. There is no point increasing quay crane productivity without simultaneously boosting performance in yard operations. A variety of systems, both well-established and innovative, are in use in yard operations, selected to suit ports' individual characteristics.

Yard operations, such as container movement and stacking, are benefiting from automatic position identification systems and semi-automation for difficult or repetitive tasks. Automated processes include moving or removing containers from stacks, vehicle acceleration or deceleration and braking, and positioning in place. Hybrid (eg, diesel-electric) powered vehicles have been developed that consume 50% less fuel and can operate at a reduced volume.

Gate productivity has been increased through advanced data interchange systems, biometric recognition processes for effective security and



Photo: CTA

Stacking up... the benefits of automation are being realised

innovative booking systems that give truckers a slot or window in which to arrive at the terminal. At Southampton Container Terminals it is now mandatory for drivers to use the booking system; the change is reported to have increased productivity at the gate and reduced turnaround time for hauliers.

A container terminal is like a large short-term warehouse with input, output and storage areas. Its performance, therefore, can be easily improved if the processes of moving and storing boxes are streamlined. Both in-house and adaptable market software solutions can optimise flows and storage positions, increasing efficient use of assets. Software is available that emulates different scenarios of terminal layout and container traffic to which an individual terminal's operation system can be applied.

Many innovative container terminal handling systems came about through improvements of tried and tested technology and terminal design, but several more radical solutions have also been put forward (see panel). There are some striking examples of container terminals that employ a high level of automation. Fully operational, they have proved capable of meeting the tough level of service that shipping lines demand.

In 1993 Europe Container Terminals, Rotterdam, in the Netherlands, started developing a fully automated container terminal. Today it is operating at a satisfactory level within a highly competitive region. The large terminal has more than 38 conventional quay cranes, 130 automated stacking cranes (ASCs), a single rail-mounted gantry (RMG) crane per module, and 260 automated guided vehicles (AGVs).

Container Terminal Altenwerder (CTA) in Hamburg, Germany, started operating in 2002. It is equipped with a semi-automated double-trolley quay crane, AGVs, and two ASCs of different sizes per stacking block (see page 28). The larger of the two ASCs is able to pass over the smaller along the block. Similarly, at the new Container Terminal Burchardkai (CTB), Hamburg, the stacking blocks are served by three ASCs – the larger passing over two smaller units.

In 2006 Patrick Terminals in Brisbane, Australia, opened a fully automated container terminal operated with unmanned electric straddle carriers (see page 32). These are free-ranging within the terminal boundary

and have the operational flexibility attributed to the conventional manned straddle carrier.

When Antwerp Gateway – a DP World terminal in Belgium – started operations in 2005, the yard was operated with straddle carriers. Since 2007 the terminal has gradually introduced a new automatic stacking concept – the 'twin ASC' – where two same-size ASCs operate with a rigid vertically arranged guiding beam for load and positioning control, while efficiently using regenerative energy power when lowering.

Containers are transported between the quay and the stacking area using manned straddle carriers. The ASCs are able to work simultaneously with the straddles in the interchanging area thanks to an advanced safety technology. Several studies carried out by experts using 'model' operations in standard scenarios show that all these systems deliver similar productivity if sufficient vehicles are available. The ASC system involving three cranes is the most productive in peak situations, whereas the twin ASC provides higher productivity per stacking module when transshipment rate is as low as 50%. The automated straddle carrier could be an alternative in small to medium-size container terminals, allowing a modular change to a more efficient ASC system in the yard.

Automated container terminals require high investments but, when all costs are considered, prove less expensive than conventional terminals in many regions. And while automation reduces the need for repetitive, manual labour, it is less likely to affect the more interesting positions and often creates openings for higher-skilled workers.

Because they are less dependent on the availability of labour, automated terminals can sidestep labour shortages during night shifts and weekends.

But labour costs and availability are not the only reasons for automating a container terminal. They make operations safer and more sustainable. Many ports today are constrained by space restrictions, so the automated container terminal's potential to double throughput capacity is undeniably attractive. **PH**

Xavier Gesé is deputy director of planning at Puertos del Estado, Spain. He is also chairman of the IAPH Port Operations and Logistics Committee

The stuff of science fiction?

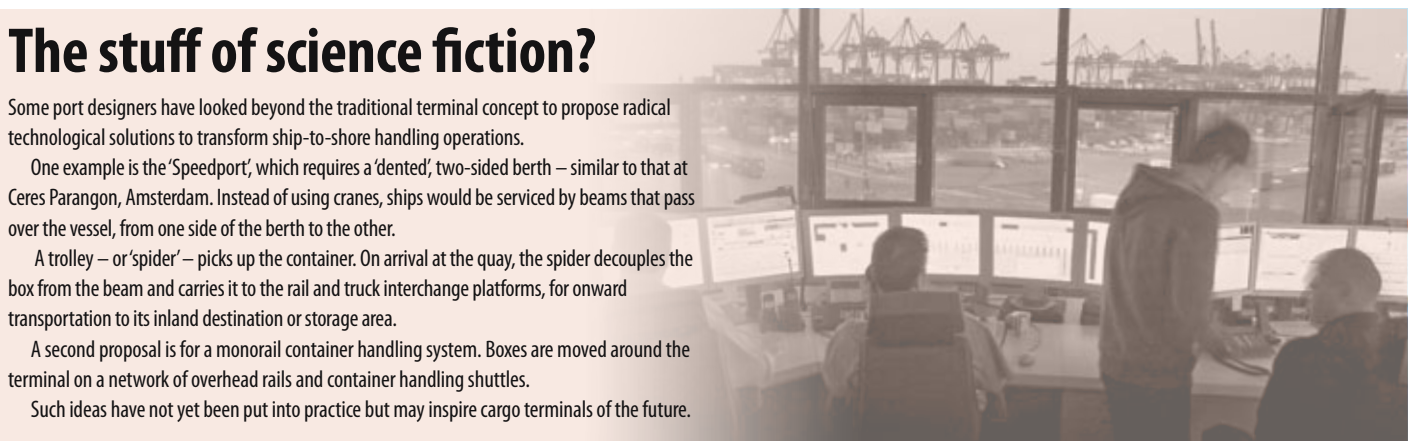
Some port designers have looked beyond the traditional terminal concept to propose radical technological solutions to transform ship-to-shore handling operations.

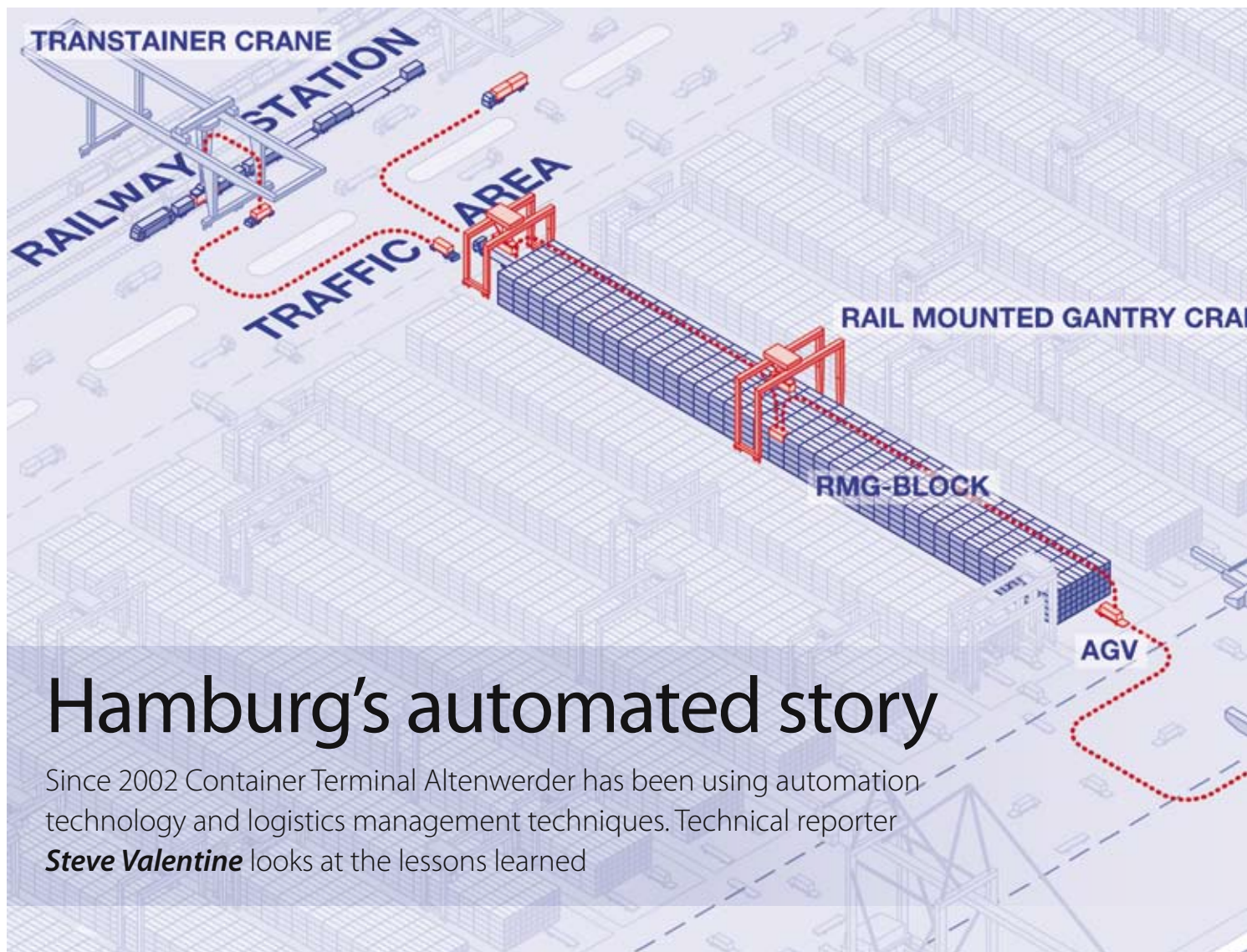
One example is the 'Speedport', which requires a 'dented', two-sided berth – similar to that at Ceres Paragon, Amsterdam. Instead of using cranes, ships would be serviced by beams that pass over the vessel, from one side of the berth to the other.

A trolley – or 'spider' – picks up the container. On arrival at the quay, the spider decouples the box from the beam and carries it to the rail and truck interchange platforms, for onward transportation to its inland destination or storage area.

A second proposal is for a monorail container handling system. Boxes are moved around the terminal on a network of overhead rails and container handling shuttles.

Such ideas have not yet been put into practice but may inspire cargo terminals of the future.





Hamburg's automated story

Since 2002 Container Terminal Altenwerder has been using automation technology and logistics management techniques. Technical reporter **Steve Valentine** looks at the lessons learned

Container Terminal Altenwerder (CTA), on north Germany's River Elbe, was designed to strengthen Hamburg's position as the key hub in north European shipping, handle substantial growth in box traffic and improve productivity. It had to function as well as, or better than, the Port of Hamburg's other container terminals, Burchardkai, Tollerort and Eurogate. It did this by implementing automation techniques and innovative logistics.

The City of Hamburg awarded Hamburger Hafen und Logistik AG (HHLA – Hamburg Port and Logistics Company) the concession to build and operate the Altenwerder terminal in 1997. Planning teams sat down to propose what the CTA should be able to do after assessing some options and sets of figures in early 1998. They assumed initially that the quayside would have to process 1.2M containers a year and a maximum box dwell time of four days. They expected 60% of the containers to be 40ft units and no more than 6% of the total to require special handling, such as dangerous goods. Based on this input, the terminal required a storage capacity of 30,000teu and up to 1,600 reefer sockets.

The Altenwerder terminal would have to reduce operational costs and the manpower required, be able to handle the largest container vessels for the foreseeable future, and interact effectively with suppliers and customers. It also had to keep the port authority, customers and city of Hamburg satisfied with its performance.

Construction started in mid-2000, with the first gantry crane ready for use in March 2002. Commercial operations at CTA started in June of that year. After one year of operation, throughput had reached 900,000teu.

The state-of-the-art terminal is owned by HHLA and Hapag-Lloyd, with 74.9% and 25.1% of the shares respectively. For an opinion on Altenwerder's progress, *P&H* spoke to Heinrich Goller, managing director for all HHLA's Hamburg container terminals.

Goller remembered the early days just after construction began at the site of a former fishing village: "Once the land had been converted and equipment installed, the site was tested, trialled for three months, and then low-level operations could begin. Bugs were found within the first 12–15 months

CTA had to make sense – economically, as regards land utilisation and stacking density

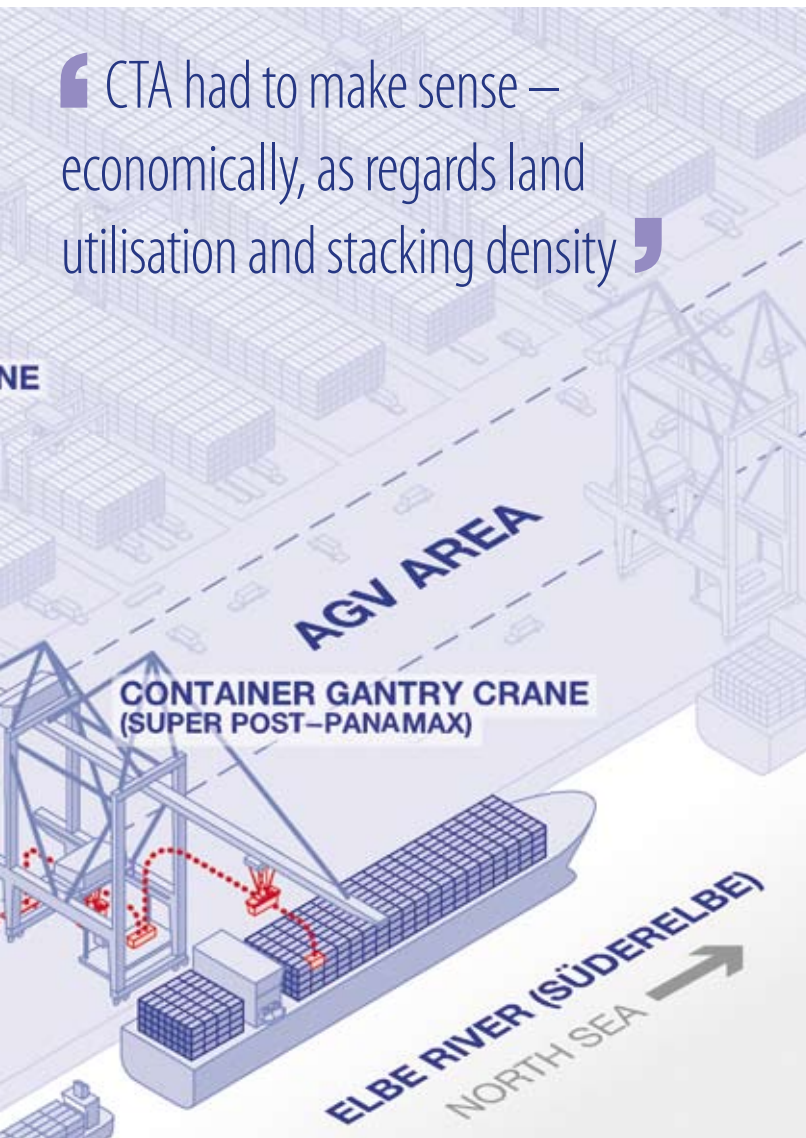


Illustration: CTA

The AGV collects boxes from the main gantry crane and delivers them to an RMG (or stacking crane) in the stacking yard

and modifications made; since then the CTA has been working at full capacity.

“When looking at the design of the CTA, our main considerations were that we should not just automate everything. It had to ‘make sense’: economically – by keeping all possible costs down – as regards land utilisation and concerning stacking density, at that time and in the future. Land is expensive and the most has to be made of it.

“It was a new operation and such an exercise is a learning curve and a challenge. The main considerations were to solve any problem that arose and make sure we could continue to handle the fast-growing volumes – container throughput was high from the beginning.”

Three types of equipment are used at CTA: automated guided vehicles (AGVs), quay cranes and yard cranes. The terminal operates 82 AGVs and 15 gantry cranes.

Goller continued: “The AGVs are a fully automated means of moving the boxes between the yard and the quayside. Applications in a computer system communicate with the AGVs by radio, issuing instructions and driving the AGV by means of its

antennae, which interact with transponders on the site.” Automated process specialists Gottwald supply each AGV and have developed the control system.

“Operations at the quayside consist of two steps. The first stage of getting the box between ship and land is manual, where the quay crane’s main trolley moves the box from the vessel to an intermediate (or lashing) platform, where the container is checked and the twistlocks removed. The containers are then moved by the gantry crane’s second, fully automated trolley to an AGV, which takes them to the automatic stacking yard,” Goller explained.

At the yard, a fully automated crane takes boxes from the AGV and places them in the stacks. The yard cranes are rail-mounted gantry (RMG) versions that have been manufactured by ABB – which produced the control equipment – and Kuenz. Goller paid tribute to HHLA’s in-house IT department, which has had assistance from computer specialists InForm and Navis.

When P&H asked Goller if he would do anything differently concerning planning or equipping the terminal, he replied: “I would approach the exercise in the same way, make some slight modifications from the lessons learned, but apply the same basic principles of automating some elements, semi-automating others.”

Goller conceded that CTA’s automation technology is not brand new: “The Delta Terminal in Rotterdam was the first, CTA came next. However, we believe we have used a more highly developed computer system and utilised more advanced logistics management.” He added that the double-trolley, semi-automatic quay cranes are unique to CTA, as are the yard cranes, in which one crane can move beneath the other.

Year-on-year growth has been high, Goller said. The original plan was to reach 1.8M teu in two phases, but this was reached at the end of 2002. A third phase was required to meet customer demand and now a revised capacity of 3M teu has been reached.

CTA is already handling the largest container vessels, but even bigger ships are envisaged. Goller believes that the quay cranes are large enough to cope with any increases in capacity. To date, the CTA has handled 6,700 boxes in one call. It is this throughput efficiency, HHLA claims, that keeps CTA’s principal customers using the terminal. Deep Sea carriers, the Grand Alliance Consortium companies, such as Hapag-Lloyd, OOCL, MISC and NYK, and the New World Alliance of APL, Hyundai and MOL are the main users of Altenwerder.

A symbiosis exists at HHLA, as CTA’s decision-makers have learned from the operations of the other container terminals. Now ideas originating from experience at Altenwerder have been ploughed back into the company’s other terminals.

HHLA’s oldest and biggest terminal, Burchardkai, uses a mixture of van carriers, trolley carriers and RMGs and will be undergoing a complex redesign, to allow stacking capacity to be increased. Eurogate and Tollerort both use van carriers, but may soon introduce RMGs. Container handling capacity is increasing throughout the port. With Altenwerder functioning successfully, HHLA is confident it can implement automated elements to its other terminals. PH

Brisbane thinks outside the box

Patrick Corporation's Brisbane AutoStrad terminal looks forward to expansion and looks back on three successful years. Journalist **David Worwood** reports

Three years after Australian stevedore Patrick officially opened its innovative automated container terminal in Brisbane the facility is poised for further expansion.

Most, if not all, of the early problems with the technology now appear to have been resolved, as the company readies itself to start full operations some time in the middle of this year at the new Berth 10 at Fisherman Islands. This will see the automated terminal operating across Berths 8 to 10, rather than 7 to 9.

Patrick has purchased an additional four ESC350WA driverless straddle carriers from Finnish manufacturer Kalmar, bringing the number at the Brisbane container terminal to 27.

When the terminal was officially launched in December 2005, three years after trials began at Fisherman Islands, only 18 Kalmar straddle carriers were in operation and some of these had been converted from manually operated machines.

Initial research on the project dates back to 1996, with significant input coming from the University of Sydney's Australian Centre for Field Robotics (ACFR). The project was strongly backed by Patrick's then managing director Chris Corrigan. Patrick was taken over by Toll Holdings in 2005/06, but the new owner was quick to recognise the merits of the technology.

Experience gained from the success of combining automated guided vehicles (AGVs) and automated stacking cranes (ASCs), as implemented at other mega terminals, has led Brisbane to adopt the use of AutoStrads – automated straddle carriers.

Patrick believes that using the AutoStrads will increase the effectiveness of container handling in the terminal, and reduce the handling cost per unit, compared with the ASC/AGV system. This is because the AutoStrads are essentially dual-purpose: they can act as the interface between the ship-to-shore cranes and also provide some stacking capability.

Flexibility is said to be the main benefit here. Unlike the AGV/ASC combination, which is considered to represent an 'all or nothing' approach, the AutoStrad system offers greater flexibility to small or medium-capacity ports such as Brisbane.

Patrick has taken on board several important lessons from its automated terminal, including the value of ongoing research and development. In 2007, staff numbers at Patrick Technology and Systems tripled to 30 after the company realised that it needed to address a range of technology and productivity issues.

The personnel boost led to a 30% productivity increase at Fisherman Islands container terminal in the second quarter of 2007. Improved performance of



Photo: David Worwood

AutoStrad straddle carriers used at Patrick's terminal in Brisbane have enabled more flexible port operations

the automated straddle carriers came from changing parameters such as tracking and pathways, and looking at the way the machines navigated themselves – as well as changes to transport planning and logistics. Patrick also rekindled its links with academic research, including the ACFR.

Another point noted was the need to handle sporadic demand. For example, vessels have to top up with empty containers at short notice. Initially, the new system struggled to cope, as the containers suddenly turned up at the terminal's 12 'truck grids' – the interface between the automated and manual sections of the terminal. The empty containers had to be processed through the truck grids, creating congestion.

When the move to occupy the 936m Berth 10 is complete, the AutoStrad terminal's capacity will be boosted by an additional 300,000teu a year, to a total of 800,000teu. A semi-internal container depot will also ease the 'empties' problem.

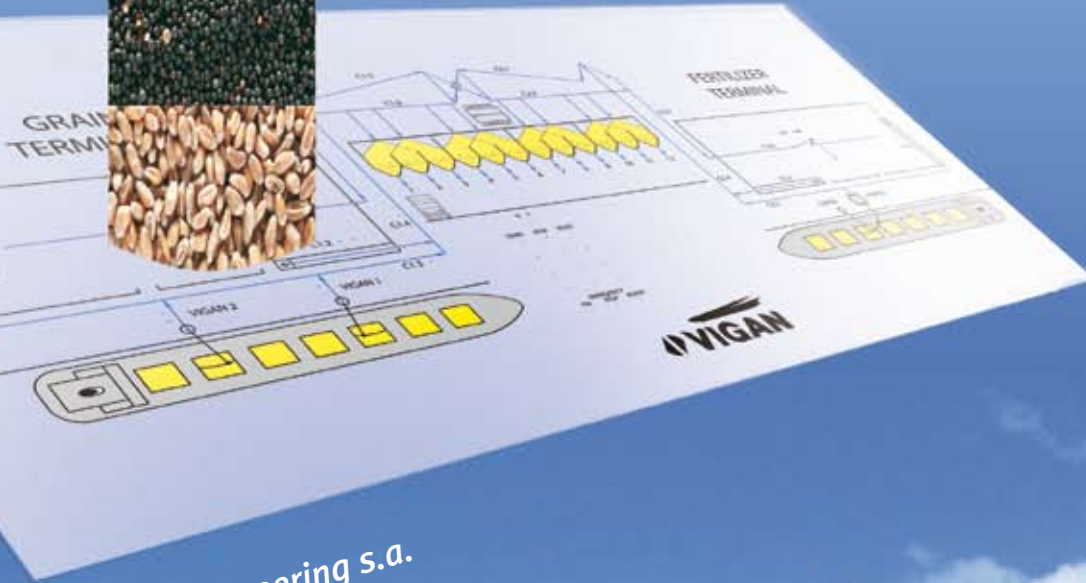
If Patrick's experience with container terminal automation shows anything, it's that advances take time, brain power and considerable effort. **PH**



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All part of the system

Ports don't have to be fully automated to reap the benefits of sophisticated systems.

P&H discovers how one terminal is using automation to manage its gate and yard

Complete automation remains relatively rare among the world's ports. Patrick Brisbane in Australia, Container Terminal Altenwerder in Germany, Belgium's Antwerp Gateway and Euromax, in Rotterdam, the Netherlands, are some of the pioneers. In the UK, DP World's London Gateway will also be tapping into the benefits of automation when operations begin there, next year, if all goes according to schedule.

The all or nothing approach to automation is not the only way ahead, however. Some operators are applying automated or innovative systems to specific parts of the terminal rather than the entire facility.

Subic Bay International Terminal Corporation (SBITC) – a subsidiary of International Container Terminal Services Inc (ICTSI) – decided to adopt this approach when late last year it introduced new software at the gates of New Container Terminal-1 (NCT-1), which it operates in the Subic Bay Freeport, Philippines.

ICTSI developed the GTSGates module in-house as an integral component of the terminal's existing Graphical Tracking System (GTS), which manages terminal operations.

The new module can locate containers in the yard automatically for trucks entering the terminal. The system is able to process

multiple movements of containers, both import and export, during any truck visit, and is linked to the yard allocation module within GTS.

GTSGates allows SBITC to make best use of the multiple lanes at NCT-1's terminal gate. For example, the direction of traffic flow on the lanes can be altered at any time to suit the prevailing conditions.

When a truck arrives at the terminal, the system can print out and issue the driver a truck instruction document, detailing the container's yard location. And when the truck reaches the gate at departure, an interchange receipt can be issued, documenting the transfer of container from one carrier to another.

The terminal's Graphical Tracking System provides real-time modules for the planning and monitoring of container terminal movements. Gate processing, movement updates and master data updates are handled by additional modules.

ICTSI states that, when used together, the modules all serve to improve the management of vessels and facilitate the yard planning and controller functions within the terminal. **PH**

A state-of-the-art gate system aids management of the new Subic Bay box terminal

When used together, the [Graphical Tracking System] modules all serve to facilitate yard planning and controller functions within the terminal





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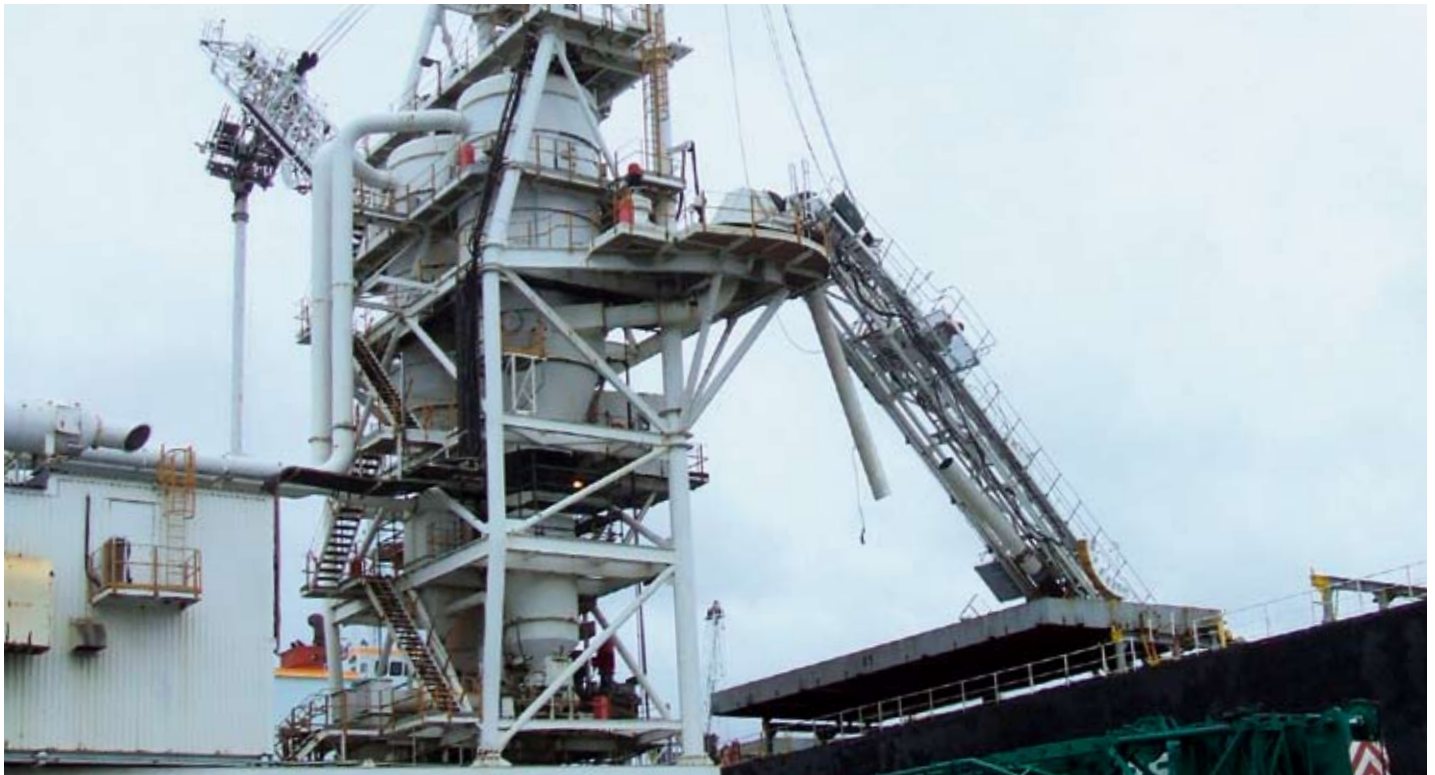
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Prevention is better than cure

TT Club's director of global risk assessment, **Laurence Jones**, suggests ways for port operators to minimise accidents and improve performance

Collapsed... the boom of a pneumatic ship unloader

A recent analysis of insurance claims by marine insurer TT Club has shown that operational issues or human error, poor maintenance of equipment, and the weather are the three most prevalent causes of incidents resulting in claims at the world's ports and terminals. Operational failures – mainly attributable to human error – accounted for 79% of incidents over the past three years.

Despite all the experience, training and technology that are available today, that percentage appears to be rising, not falling – it was 72% in TT Club's previous analysis. Added to this, a further 16% of these asset incidents are caused by shortcomings in maintenance philosophy, procedure or implementation.

As a result of the study, TT Club has suggested several ways in which ports and terminals could help reduce the number of such incidents and at the same time increase profitability and performance. It has identified four key areas: training, maintenance procedures, operational practice and redesign of equipment.

For each incident examined in the report, the club has made suggestions for training, operational and maintenance procedure and redesign actions. However, the study also demonstrates that people make mistakes

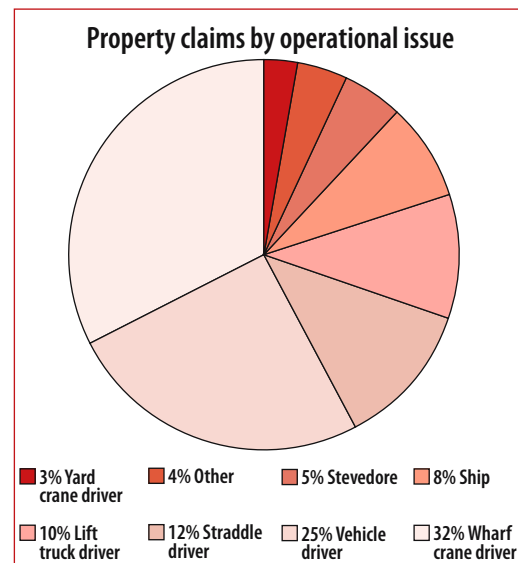
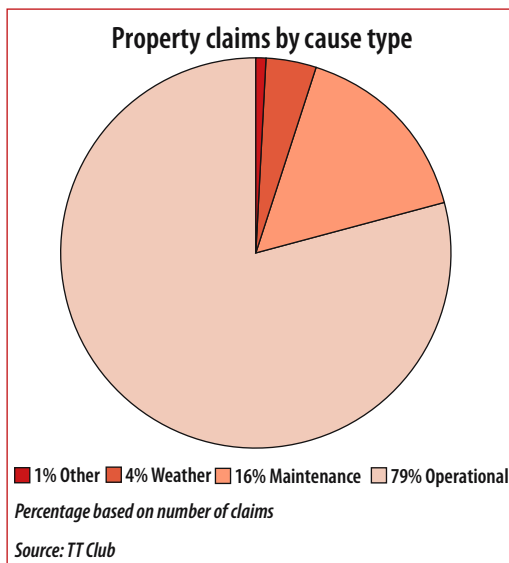
and no amount of training will eliminate all errors. So although training is important, it is also necessary to look at how operational procedures can be changed, or engineering or design of equipment improved, to mitigate the risks or provide a backup for operators and drivers. The long-term aim must be to identify safer ways of doing things to reduce reliance on training.

The root cause of incidents is not always immediately apparent. Although we talk about human factors, these normally result from the systems, procedures or culture of an organisation. As it is management that largely controls these elements, management therefore has the biggest part to play in improving safety.

TT Club recommends continuous safety awareness training for terminal equipment drivers, with particular emphasis on training for straddle carrier and quayside crane drivers. Greater use of simulators, which now are cheaper, would pay dividends, the club believes.

Incidents involving straddle carriers accounted for only 12% of the number of claims, yet they were responsible for 29% of costs paid out by the club – understandable, given that an overturned crane is normally a total loss and costs around \$1M to replace.

Accounting for the highest proportion of claims, at



33%, and the second-highest associated cost, at 24%, were accidents involving quayside cranes. Typically, these incidents involved damage to cell guides and spreaders, containers being dislodged, and ships' structures being hit by spreaders, grabs or booms.

The study revealed that poor maintenance, resulting in equipment failure and engineering problems, was the second most frequent cause of incidents. The TT Club's analysis identified, perhaps unsurprisingly, spreaders and ropes as the most used and abused items of equipment in a container terminal, suffering the greatest number of losses, some 24% of the total. Fires caused by fuel or hydraulic leaks in mobile handling equipment – such as straddle carriers, reachstackers and lift trucks – represented the second-highest level of equipment failure losses, at 23%, and the highest cost, at 41%. Engine failures, often caused by running out of oil or water, accounted for 18% of the total claims.

Most incidents could be avoided by adopting a "preventative rather than breakdown philosophy", the study states, arguing that this approach is more cost-effective and less disruptive. Preventative work should encompass regular inspection of cranes to prevent structural failure and collapse, and hydraulic or fuel leak fire prevention for lift trucks, reachstackers and straddle carriers. The condition of critical equipment should also be constantly monitored.

Suggestions for improved operational practices include the introduction of one-way traffic flows and better lane markings in terminal areas – the simple

change from two-way to one-way traffic flow has been shown to decrease dramatically the risk of vehicle and pedestrian accidents as well as increase productivity.

Employees and visitors should receive induction training before they visit operational areas to ensure they understand safety procedures and traffic rules. Proactive measures that raise safety awareness and knowledge of site layout can greatly reduce accidents.

Ships colliding with wharves or quayside cranes accounted for 12% of the cost of claims. Many such incidents could have been avoided through, for example, traffic segregation. Ship movements and berthing procedures should be arranged to prevent vessels colliding with wharves and particularly with quayside cranes. Risk-reduction measures include parking cranes away from the bridge or stern of a ship that is berthing, ensuring the boom of the quayside crane is raised, stipulating the use of a pilot and tugs, and adopting special procedures in extreme weather.

Finally, the study calls for the redesign of certain port equipment. Better crane braking systems would prevent cranes being blown along tracks by high winds; simple anti-collision devices such as lasers, radars or sensors on cranes and crane booms have the potential to save millions of dollars in damage and injuries. Other improvements might include speed-limiting devices for vehicles (especially straddle carriers), driver identification to prevent unauthorised use of equipment, and the use of CCTV.

Most insurance industry activity on claims focuses on determining the cause of an incident to identify who is liable. But by working closely with members, the root cause of incidents can be determined and ways of preventing or minimising recurrence identified. Of the issues detailed in the report, 95% are common to all port and terminal operations, and it is only by sharing information that life can be safeguarded and operational efficiency improved. This is an important message when operating margins are thinning against a backdrop of significant infrastructure investment in recent years. **PH**

The cost of claims

The TT Club – which has 2,000 members globally, including 400 ports and terminals – analysed 1,800 asset damage claims over the past three years costing about \$130M. The TT Club's director of global risk assessment, Laurence Jones, explained that the data are based on all property claims and includes handling equipment, infrastructure and damage to ships. It does not include liability or bodily injury claims, although many of these also result from asset-related incidents.

UN convention for shipments

A new maritime transport convention, known as the Rotterdam Rules, will be adopted this year. IAPH's **Frans van Zoelen** investigates its impact on ports

The United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea – known as the Rotterdam Rules – will have significant connotations for port and terminal operators. But why are they needed, who will they affect and what are they intended to do? Frans van Zoelen, chair of the IAPH Legal Committee, talks to Professor Gertjan van der Ziel, head of the government delegation to UNCITRAL, the United Nations body for trade law.

Frans van Zoelen: What are the 'Rotterdam Rules'?

Gertjan van der Ziel: 'Rotterdam Rules' is the reference name of a legal convention that deals with contract conditions for international maritime carriage of cargo. This convention stipulates rules relating to the main rights and obligations of parties involved in this contract. It also includes rules for maritime transport documentation such as bills of lading.

Why is the UN taking this initiative?

Generally, the aim of legal conventions is to promote uniformity of law across different countries. In this case, when the law of carriage of goods for a seller/shipper and its overseas buyer/consignee is the same, international trading and transport becomes easier. This convention facilitates easier shipment of cargoes.

In my view, it would be a step forward if all the small print on the back the bill of lading became superfluous. Do the Rotterdam Rules achieve that?

I wish that a convention could, but it is not realistic. Some of the current bill of lading clauses, though, may become superfluous under the Rotterdam Rules. However, just as under the old conventions, the new convention needs to be supplemented by the conditions of the contract under which the goods are shipped. One set of carrier's conditions may be better for the cargo owner than the other.

**Talking point...
UNCITRAL's Vienna
headquarters saw
much discussion
take place over the
new Rotterdam
Convention**



You refer to old conventions, suggesting that the Rotterdam Rules are a replacement for them. Are the old conventions, which all maritime transport people are used to, no longer good enough?

The old conventions have worked well. However, the most widely adopted convention – the Hague Rules – dates from 1924, being modernised in 1968. This international law is now outdated. The liability rules are no longer up to standard. Structural developments in maritime trade during the past few decades, such as containerisation, multimodal transport and the diminishing role of bills of lading, are not dealt with in these old conventions. It also became apparent that a sound legal basis had to be provided for future e-commerce requirements. The Rotterdam Rules covers all of this and it's hoped that the convention will serve maritime practice for the next couple of decades.

Are other parties, like ports, directly affected?

Yes – for example, the new liability rules affect the insurance industry. And the new rules on documentation may become of direct importance to trade financing banks, because 'cash against documents' is an important payment condition. Banks may hold a bill of lading as security for trade financing purposes. In my view, ports and port operators may be directly affected.

Could you elaborate on its direct effects on ports?

There are two issues of direct interest to port operators. The first is a provision in the Rotterdam Rules that a consignee who claims delivery of his goods from the carrier is obliged to collect these goods at the time and location as agreed in the contract of carriage. If, for instance, the bill of lading states that "delivery shall take place alongside the vessel as fast as she can discharge", the consignee has to collect the goods as soon as they are discharged from the vessel. If the consignee fails to do so, the carrier has, according to the Rotterdam Rules, a wide discretion in taking action in respect of such uncollected goods, including their removal to a site outside the port area. These provisions were clearly drafted with the avoidance of port congestion in mind.

Does it cover liability?

The other issue covered by the convention is carriers' liability. Under the Rotterdam Rules, if goods are damaged while in the carrier's custody, the carrier is liable – up to reasonably insurable monetary limits – unless it proves that the damage was not its fault. But this is not where it ends, however. A carrier may subcontract the actual carriage wholly or partly to somebody else. If the damage occurs during the period that the subcontractor has the goods in his custody, the subcontractor is also liable to the party interested in the goods, in the same way as the principal carrier.

This rule of joint and several liability may have consequences for commercial terminal operators, because they often operate as subcontractor to the maritime carrier. If when during loading, discharging or other terminal operations, goods are lost or damaged, under the Rotterdam Rules the terminal operator may be held liable by the cargo interested party. In many



Van der Ziel: this new convention modernises maritime transport law

cases this new liability for terminal operators may overlap existing liabilities, but not always. Therefore, I recommend terminal operators check with their insurers and, if desirable, agree on a proper indemnity clause in their contract with the maritime carrier.

Is this of particular of importance to ports that are engaged in cargo handling operations?

'Service ports' – ports that are not only a landlord port but are also active in terminal operations – will indeed need to study the new convention from this angle.

Why is this convention called the 'Rotterdam Rules'?

The convention's official title is rather cumbersome. It reads: "United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea". Because it is customary in maritime transport to have a geographic name in the reference title, the name of a large port was chosen. In addition, the convention's signing ceremony will take place in Rotterdam from 21 to 23 September 2009.

Finally, will everybody be welcome in Rotterdam?

Oh, yes. Over these three days under the auspices of UNCITRAL (the United Nations Commission on International Trade Law) – the responsible UN body – and the Comité Maritime International, the private organisation for maritime law, a colloquium will be held with eminent speakers from all over the world that deals with the substance of the Rotterdam Rules. The UN will give governments the opportunity to sign the convention there and the port community may show to attendees how a port works in practice. **PH**

Professor Gertjan van der Ziel is chairman of the Netherlands Association of Maritime and Transport Law and head of the government delegation to UNCITRAL. Frans van Zoelen is director of the Legal Department at Port of Rotterdam Authority and chairman of the IAPH Legal Committee. More information at www.uncitral.org and www.rotterdamrules2009.com

Photo: UNIDO - N Falcon



Taxing decisions at IMO

In the context of IMO's activity to reduce GHGs from ships, Intertanko explains why the industry has concerns about taxing ships' bunker fuel

If Denmark's MBI scheme were to be adopted, ships would have to buy bunkers only from licensed suppliers

Although shipping is recognised as an energy-efficient mode of transport there are strong views that ships should play its part in reducing emissions of greenhouse gases (GHGs) – including CO₂. Observations indicate that over the past 18 years the total CO₂ emissions from ships have grown by almost 100%.

It is for this reason that the IMO is trying to develop an international GHG emission regulatory regime for shipping. It is expected to agree on a set of requirements that would aim to reduce ship emissions. Three types of measures could be included:

1. An energy efficiency design index (EEDI)
2. A ship energy efficiency management plan, or SEMP, which would include a ship energy efficiency operational index (EEOI)
3. Market-based instruments (MBI), which would involve a number of more concrete proposals, such as a levy on fuel and creation of an international

GHG fund and an emissions trading system (ETS).

IMO member states have split into two distinct camps. One, which includes Intertanko, takes the view that regulations should be 'ship-neutral': they should apply equally to all ships regardless of flag, consistent with the 'no more favourable treatment' principle that forms a fundamental and legally binding element of Marpol and other IMO agreements.

The other faction holds that any agreement on greenhouse gases should apply only to Annex 1 countries as defined in the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), based on the Kyoto principles of 'common but differentiated responsibilities'.

These two perspectives represent fundamentally different approaches to the control of GHG emissions, with the result that this political issue remains an important point of disagreement in the IMO debate.

The third measure – market-based instruments – has,



Photo: Joachim Affeldt

so far received limited support at IMO. It would take the form of a levy on marine fuel purchases in order to fund an IMO account that could be used to undertake various GHG emission reduction programmes. Denmark has submitted several documents refining the definition of such a system. Although apparently simple and straightforward, detailed scrutiny indicates that efficient enforcement could prove problematic unless global ratification is ensured.

Denmark proposes that a levy or tax be imposed on marine fuel, with the monies thus raised being used to underwrite an international fund for greenhouse gas emissions from ships. This would support projects to reduce ships' carbon emissions around the world, perhaps focusing on developing countries. Cyprus has also proposed that an international fund be created for the same purpose, but suggests that contributions be purely voluntary and not related to fuel sales.

In outline, the Danish proposal would aim to:

- Establish and enforce the GHG fund through a new IMO convention
- Require ships to buy fuel at a registered or 'licensed' bunker fuel supplier
- Require each ship to keep on board documentation showing that its bunker fuel had been purchased from a registered bunker fuel supplier and that the GHG contributions had been paid (currently there is no such requirement in Marpol Annex VI)
- Require the bunker delivery note to be kept on board as evidence (this is already a requirement in Marpol Annex VI)
- Make it mandatory for bunker fuel suppliers to be registered to sell fuel. Registered bunker fuel suppliers would have to collect information on all fuel sold, on a ship-specific basis, as well as to collect and transfer GHG contributions to the international body charged with administering the GHG fund
- Require the GHG fund administrator to maintain a global registry of registered bunker fuel suppliers and of GHG contributions received where each ship has its own account, on a ship-specific basis
- Ensure open access to this global registry, but only limited access to the ship's accounts; eg port and flag states would have access to accounts for ships entering their waters or flying their flags, respectively
- Set up, as a separate legal entity, an international GHG fund that would be responsible for allocating and monitoring the revenues generated.

There has been a negative reaction from many governments and non-governmental organisations

(NGOs) to the idea of instituting an internationally agreed fuel 'tax'. Several IMO member governments have emphasised their opposition to any scheme that would constitute an international tax.

Other governments are willing to consider such a proposal, noting that it might resemble the existing system that provides monies for compensation in the event of marine oil spills. This is administered by the International Fund for Compensation for Oil Pollution Damage, which is funded through a levy on oil shipments.

Several member states have indicated that an international compensation fund, or bunkers levy, is attractive because of its potential simplicity and the less complicated mechanisms that would be

Allocating funds

Revenues gathered through the new GHG Convention should be allocated to projects and purposes in keeping with the United Nations Framework Convention on Climate Change (UNFCCC). The revenues should finance:

- Mitigation, adaptation and technology transfer and development projects in developing countries, especially in small island developing states
- Research and development projects for CO₂-efficient ship designs and propulsion systems in order to accelerate continuing improvements in this field
- Technical co-operation within the existing IMO framework.

The parties to the new convention would decide how the funds would be allocated among these three purposes.

necessary to give effect to the regime. In the case of many flag administrations, however, concern centres on the monitoring of fuel purchases and thus of the taxes that individual ships must pay.

Intertanko has been looking at practice in the aviation industry to see if work on GHG reduction can offer any pointers to the shipping industry. One of the main recommendations is that the industry needs to be united from the start.

Some organisations believe that the shipping industry could fall into the same trap as aviation by not co-ordinating its efforts through a commonly agreed strategy. **PH**

This article was adapted from an Intertanko paper. See Open Forum (page 12) for the International Chamber of Shipping's views on reducing GHG emissions.

Measuring emissions

- The EEDI – an energy efficiency design index – is favoured by most parties. It would involve adopting a mandatory fuel efficiency index through the design of new ships. A voluntary EEDI was adopted at IMO in October 2008.
- A SEMP – ship energy efficiency management plan – would require ships to apply best practices to maximise fuel-efficiency and, in the case of tankers, reduce volatile organic compound emissions. There is general agreement that IMO should adopt this plan.
- The ETS – emissions trading system – is promoted by EU governments and there is therefore well-supported at IMO. The principle would be based on capping emissions and assigns allowances of CO₂ emissions to various industry players.

Industry code against piracy

A high-level meeting has adopted a code of conduct to repress acts of piracy and armed robbery against ships off the coast of Somalia and in the Gulf of Aden. Representatives from 17 states across the western Indian Ocean, Gulf of Aden and Red Sea areas were brought together in Djibouti on 26 January under the auspices of the IMO.

Signatories have agreed to:

- Share and report relevant information through a system of national focal points and information centres
- Interdict ships suspected of engaging in acts of piracy or armed robbery against ships
- Ensure that persons committing, or attempting to commit, acts of piracy or armed robbery against ships are apprehended and prosecuted
- Facilitate proper care, treatment, and repatriation for seafarers, fishermen, other shipboard personnel and passengers subject to acts of piracy or armed robbery against ships, particularly those who have suffered violence.

It was agreed that the focal



Efthimios Mitropoulos: IMO is ready to assist implementation

points will be based in piracy information exchange centres in Kenya, United Republic of Tanzania and Yemen. These will be located, respectively, in the regional Maritime Rescue Coordination Centre in Mombasa, the sub-regional co-ordination centre in

Dar es Salaam, and a regional maritime information centre, being established in Sana'a.

The establishment of a regional training centre was also suggested and, by means of a resolution, the offer from Djibouti to host such a centre was accepted.

The code of conduct is open for signature by the 21 countries in the region, of which nine – Djibouti, Ethiopia, Kenya, Madagascar, the Maldives, the Seychelles, Somalia, the United Republic of Tanzania and Yemen – signed it during the closing ceremony in Djibouti.

The code of conduct became effective on 29 January 2009.

IMO secretary-general Efthimios Mitropoulos and the prime minister of Djibouti, HE Dileita Mohamed Dileita, attended the meeting. Mitropoulos applauded the adoption of the code of conduct, describing it as a significant milestone.

He said: "The adoption of this instrument shows that countries in the region are willing to act concertedly and together, contributing to the ongoing efforts of the broader international community to fight the scourge of piracy and armed robbery against ships in the area. IMO stands ready to assist in the implementation of this regional agreement through its technical co-operation programme, and I would invite governments and industry to respond positively to the request for in-kind or financial support."



Photos: IMO

Setting standards for shore power

A combined meeting to discuss standards for sources of electricity used for ships' shoreside power took place in October 2008 on board the cruise ship *Ruby Princess* while it was sailing from Monfalcone, near Trieste in Italy, to Algeiras, in Spain.

The discussions involved the ISO (International Organization for Standardization) and IEC (International Electrotechnical

Commission). Since 2006 working groups from the two organisations – ISO/TC8/SC3/WG11 and IEC TC18 MT26 – have been involved in separate projects for safe and efficient connection of ships to shore-based sources of electricity, including the standards of equipment for such connections. It was agreed that a double logo IEC-ISO publicly available specification (PAS) should be considered.

The meeting recommended adoption of this double logo and agreed that the ISO and IEC working groups would continue their co-operation in the development of the international standard. The IEC at its general meeting in São Paulo, Brazil, on 17 November 2008, decided that the subject should now be referred to as high-voltage shore connection (HVSC) systems and

agreed that the document should be circulated for approval as a dual-logo PAS.

The PAS will be available and effective for three years. In the meantime, the international standard will progress from the committee draft stage to final publishing in various steps. Although there is still work to be done – drawings to be finished and final comments to be added – the design principles of the system, together with the criteria for its operation, are complete.

ESPO's efforts for places of refuge

The European Seaports Organisation (ESPO) is keen that the issue of places of refuge is not "lost out of sight". It has therefore decided to undertake a review of compensation mechanisms for ports that are in place in EU member states by 2011.

This is in response to concerns within the industry over ports' obligations to provide places of refuge to ships in distress, in context of the Third Maritime Safety Package (ERIK A III).

Patrick Verhoeven, ESPO's secretary-general, explained to

P&H that the revised Traffic Monitoring and Reporting Directive – which includes a new amendment proposed by the European Commission as part of its Third Maritime Safety Package – stipulates that member states are required to install an "independent competent authority" that would have the final say on whether a ship in distress should be granted access to a port.

While broadly supporting this principle, ESPO has lobbied for a *quid pro quo* – requesting that the competent authority compensate

port authorities in case a ship in distress caused damage to the port in ways not covered by existing compensation mechanisms, such as economic loss through a ship blocking a port's fairway. The European Parliament was in favour of this proposal but had to compromise with the member states, with the result that there is now only a "moral obligation" for member states to compensate ports.

Verhoeven said: "Our members however feel that the fact that this 'moral obligation' is now in the

directive is already a significant step forward and a recognition of the precarious position a port authority may be in." It will come into force in 2011.

In April 2008, IAPH called for the prompt and early ratification of IMO's carriage of hazardous and noxious substances, bunkers and wreck removal conventions as these are relevant in the context of places of refuge. ESPO supports this resolution, said Verhoeven, and has been concentrating its efforts at a European Union level. The third reading of the Third Maritime Package is scheduled for this month, March, where further revisions may be made.

EU strategy for the decade

The long-term objective of "zero waste, zero emissions" is one aim detailed in the European Union's Maritime Transport Strategy for 2009–2018. In its communication, released on 21 January, the European Commission presented its main strategic goals for the transport system for the period and identified key areas for action.

Placed high up the agenda for the next 10 years is enhanced environmental performance, as the EC formulates a comprehensive approach to the reduction of greenhouse gas emissions from international shipping, combining technical, operational and market-based measures.

According to its communication: "The EU should actively work in the IMO to pursue the limitation or reduction of emissions of greenhouse gases from ships. A legally binding regime should be adopted at the UNFCCC [United Nations Framework Convention on Climate Change] Copenhagen Conference in December 2009. In the absence of progress in such efforts, the EU should make proposals at European level."

The strategy also aims to:

- Ensure that member states [of the EU] are able to achieve 'good' environmental status
- Strengthen EU legislation regarding port reception facilities



Photo: Martin Wright

Reducing emissions is one of the European Commission's goals for the next decade

for ship-generated waste and cargo residue, and to improve implementation arrangements. It will focus on both the availability of adequate facilities and the administrative procedures that are required to meet the expected growth in traffic

- Follow up the proposals for better ship dismantling and ensure the adoption of the IMO's Convention on Ship Recycling, supporting steady progress towards its future implementation
- Oversee implementation of the amendments to MARPOL Annex VI

to reduce sulphur oxide and nitrogen oxide emissions from ships, as adopted by the IMO in October 2008.

While acknowledging the considerable economic challenges faced globally, the EC remains committed to its many goals, including creating a level playing field by observing internationally agreed rules at a global level, encouraging positive measures to recruit shipping personnel, supporting fair treatment of seafarers and also generating greener shipping efforts.

Sharing best practice in Japan

A Ministerial Conference on Global Environment and Energy in Transport (MEET) resulted in the adoption of a ministerial declaration emphasising the sector's future actions to tackle climate change and air pollution.

The two-day event, hosted by the Government of Japan's Ministry of Land, Infrastructure, Transport and Tourism, attracted delegates from across 21 countries and nine organisations. Participants brought a variety of perspectives as they met to discuss the serious challenges facing the sector on 15–16 January.

Transport ministers shared the global long-term vision of low-carbon and low-pollution transport systems, and their declaration emphasises the need to facilitate developing countries' efforts by utilising the experiences and expertise of developed countries and through sharing best practice.

It also emphasises the importance of expeditious discussions at IMO to address emissions from international shipping.

Ministers welcomed Japan's offer to host a follow-up meeting in June, and from Italy to host the second ministerial conference later this year.

Africa's intermodal ideal

With several challenges to be met, representatives from Africa's port and maritime industry congregated in Djibouti. *P&H* reports on the conference's active debate

Port and maritime colleagues met in their hundreds for the IAPH Africa and Europe regional meeting and the seventh PAPC (Pan African Ports Co-operation) Conference held in the Republic of Djibouti.

The 100 IAPH members that attended the meeting, alongside the 200 conference delegates from Djibouti's neighbouring countries, were invited to consider the future of African countries' ports, their infrastructure and operability, on 15 and 16 December last year. They were welcomed with remarks from Port of Djibouti's chief executive officer, Jerome Oliveira.

Against a backdrop of a declining world economy, IAPH's secretary-general, Dr Satoshi Inoue, said:

"I believe it is the time for us to work steadily to be prepared for the robust recovery of the world trade and economy."

IAPH's 1st vice-president, Gichiri Ndua, developed this theme, questioning "how deep and long the recession is going to be". Ndua also set the tone of the conference in opening discussion on port delays and congestion. He emphasised that it is necessary to understand why there are port delays – cargo stacks averaging four-high and road congestion seen in many port cities, cost money. "In essence," he said, "the reforms need to be extended beyond the port boundaries so as to ensure that the trade realises the requisite benefits."

In his message of support, Gilbert Maeti, of the COMESA

(Common Market for Eastern and Southern Africa) secretariat, told delegates: "We continue to observe the constraints posed to inland transport among various corridors especially because of the serious decline in railway services over the last decade." He continued: "This decline has also affected negatively the performance of ports, causing congestion because of slow cargo off-take."

Maeti called for the ports themselves to engage national policy-makers "to enhance integrated development of transport". He also highlighted the need for African port associations to "network with counterpart associations in rail and roads". Further emphasis was given to linking western and eastern ports with central Africa, as well as creating north and south port co-operation.



Delegates enjoyed entertainment at the Djibouti Palace Kempinski hotel

Port privatisation and concessioning of services was also debated, with speakers from the Nigerian Ports Authority, DP World, Djibouti and Alexandria Port Authority sharing their experiences.

In keeping with the continuing importance of environmental issues, Fer van de Laar, IAPH's managing director, presented the World Ports Climate Initiative (WPCI) to delegates. He highlighted the initiative's aims to make port communities aware of the need for action, to encourage studies to reduce greenhouse gas emissions, provide a platform for information exchange, and make available information on climate change.

During his opening remarks, Ndua agreed about the importance of this initiative and emphasised the need to integrate port business with the broader public good. "Suppressed generation of noxious gases and enhanced port greening are some of the cardinal challenges that we as a port community must bear in mind as we move forward," he said.

Current projects being undertaken include research into low emission yard equipment, onshore power supply, carbon footprints, environmental ship indexing and efficient lighting. Van de Laar highlighted the fact that WPCI is available to all ports.

Training and new VP on IAPH agenda

The need for effective training of young personnel for Africa's ports was discussed at IAPH's regional meeting, which took place during the PAPC conference.

Before the meeting, several European ports had offered to train African port staff, and it was agreed that a specific programme be worked out more in detail. The idea would be to provide young staff from African IAPH member ports with on-the-job-training at major European ports for one- or two-week periods.

With Gichiri Ndua's term coming to an end, the next IAPH Africa Europe regional vice-president was also discussed. Nominations were called for in October. A secretariat report on the nomination results was submitted to the regional board, which, after considering the nominees' eligibility, finalised a list of candidates for election.

The regional regular members voted in January. The secretariat is pleased to announce that Santiago Garcia Milà, deputy managing director of Barcelona Port Authority, has been unanimously elected as the new third vice-president. Milà's appointment will be submitted to the full board of directors for confirmation during the World Ports Conference in Genoa.

The previous vice-president, Ndua, will run for president in Genoa.

Other discussions addressed safety, security and the eradication of HIV/AIDS from the ports and transit corridors by means of public/private partnerships.

In his closing remarks, James Mulewa, managing director of the Kenya Ports Authority (KPA), thanked the organisers for their efforts and commitment, "because it helps Africa and the world to commune in a confluence of ideas that will enable easier integration of the regions and development of new partnerships with our stakeholders". **I&H**

Top left: L to R – IAPH VP Gichiri Ndua and Jerome Oliveira, CEO of Port of Djibouti.

Top right: L to R – Jerome Ntibarekerwa, secretary general of PMAESA; Dr Satoshi Inoue, secretary general of IAPH; Anil Singh, senior VP and MD of DP World – Africa region; Ali Hassan Bahdon, His Excellency the Minister of Transport and Equipment of Djibouti; James Mulewa, MD of Kenya Ports Authority; Aden Ahmed Doualeh, president of Djibouti Ports and Freezone Authority; Gichiri Ndua, IAPH VP





Photo: Joachim Affeldt

IAPH members called to assist dumping inventory

IAPH Environment Committee chair and executive director of the Port of Los Angeles **Dr Geraldine Knatz** reports on the London Convention's activities and its meeting in October

IAPH members have been asked to participate in the activities of the *Barriers to Compliance* project of the London Convention (LC) – IMO's Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. In May 2008, the Scientific Group of the LC considered a draft implementation plan developed by IMO on activities being considered under this project. In connection with the overall effort, a global inventory of dumping activities for the period 2000–2005 is being developed; this will inform other activities being planned as part of the project.

In April 2008, the IMO secretariat contacted the UK's Centre for Environment, Fisheries and Aquaculture Science (CEFAS) to undertake development of the global inventory, with completion scheduled for 31 March 2009. A circular was widely distributed to the LC and

protocol parties, including non-governmental organisations, such as IAPH. Members should have received this survey from the IAPH secretary general on 20 October 2008. The LC would be grateful if you can respond so that it can decide where help is needed. A report based on the survey will be prepared by CEFAS and made available at the LC Scientific Group meeting in Rome, Italy, in May.

In May 2008, the Scientific Group approved a proposal from the World Organisation of Dredging Associations (WODA) to develop a tutorial for the application of low-technology techniques to assess dredged material in countries where only minimal capabilities are available. The tutorial will include:

1. Information about the waste assessment guidance and its application in a low-technology environment.

2. Information on low-cost sampling, testing, information gathering and documenting to allow the characterisation of dredged material and the selection of suitable disposal sites.
3. Guidance on simple and low-cost monitoring of disposal activities and feedback surveys to improve decision-making.
4. Case study examples.
5. Reference links to the formal Waste Assessment Guidance of the London Convention and Protocol.

IAPH has provided some of the funding for this project, as the association viewed this tool as something that could assist the membership. A draft contract was prepared with the Central Dredging Association (CEDA, a member of WODA), which was submitted to the CEDA secretariat for review. It was anticipated that the work would be initiated before the end of 2008, with CEFAS, as subcontractor, starting on the actual work once the contract was issued. CEFAS expected to be able to submit a draft text for review by the Scientific Group in May 2009. As a principal sponsor, the IAPH Environmental Committee will also review this draft report.

Concerns that the placement of artificial reefs could be used as a mask for dumping waste or materials contrary to the aims of the LC has led the Convention to endorse a waste plan to develop guidance for artificial reef creation. The final version of the guidelines was adopted at the October meeting.

It defines an artificial reef as a submerged structure deliberately constructed or placed on the seabed to emulate some functions of a natural reef such as protecting, regenerating, concentrating and/or enhancing populations of living marine resources.

Other objectives may include the promotion of research and providing opportunities for recreation and education. The definition does not include submerged structures that have been deliberately placed to perform functions not related to those of a natural reef, such as breakwaters, moorings, cables, pipelines or platforms, even if these devices incidentally imitate some functions of a natural reef.

The report will be published by the IMO in early 2009. It is hoped that the plan will include practical technical information on the planning, design, siting, monitoring and maintenance of artificial reefs.

Although the LC meeting in October covered subjects of interest to IAPH ports, it largely focused on carbon sequestration in sub-seabed geological formations and ocean fertilisation as a means of reducing greenhouse gases. Ports will soon face the need to reduce or mitigate their carbon emissions, so progress of efforts to undertake carbon mitigation of this kind should be of interest to them.

Make a date with Genoa

Given the current economic climate it has never been more important to keep up to date and fully aware of the issues that are affecting the world's ports. The 26th IAPH World Ports Conference in Genoa at the end of May will provide members with an invaluable opportunity to engage in discussion with port personnel from across the globe.

The overarching theme of the conference – *Oriented to the market and open to the future* – will form a basis of discussion for a variety of other topics, such as the environment including the port/shipping relationship, globalisation, financing, and management and strategy. The programme of topics and speakers aims to offer managers and operators plenty of useful information that can be realistically applied to each individual port.

Delegates will hear from the event's host, the Port of Genoa's president, Luigi Merlo, who will speak about Italy's future in relation to the port. He will be followed by IAPH secretary-general Dr Satoshi Inoue, who will reflect on 'Climate change and our world'.

An impressive list of top-calibre speakers is being drawn together. These include: Datin Paduka OC Phang, IAPH president and former general manager of Port Klang Authority, and Dr Geraldine Knatz, of the Port of Los Angeles and IAPH's Environment Committee chair; both will discuss the challenges of global climate change. Lim Heng Tay, also of IAPH

as the third vice-president, and chief executive of the Maritime and Port Administration of Singapore, will be giving his views on ports of the future, from an innovative and community perspective. Inaki Azkuna, president of the International Association of Cities and Ports, will be encouraging discussion on reviving port waterfronts in urban communities.

Looking beyond the conference itself, the exhibition should offer delegates an opportunity to meet many of the major international suppliers and manufacturers. Exhibiting companies include, port and intermodal equipment manufacturers, dredging companies and environmental solution providers.

If you wish to spread your wings further than the Cotone Congressi Genova – the conference venue – the historic port city of Genoa will not disappoint. It is also a perfect location for accompanying partners, for whom a full activities programme is planned.

Attendance will also provide an opportunity to enjoy a guided tour of the port from the water. The tour boat will depart from the Aquarium, in Genoa's newly redeveloped old port, on Friday 29 May. The tour will also include a visit to the port, which covers 7M m² of surface area, including 140,000m² of warehouses and 80 berths with draughts up to 18m.

The tour will also take you to the port's five passenger terminals, which can accommodate more than three million cruise and ferry passengers every year.



View a passenger terminal from the water during your visit

Dates for your diary

A selection of forthcoming maritime courses and conferences

March

- 3-5** TOC Asia 2009 – Shenzhen, China
More info: www.tocevents-asia.com
- 2-13** Seminar on Port Logistics – Antwerp, Belgium
More info: www.portofantwerpen.be/APEC
- 25-26** 7th Intermodal Africa – Dakar, Senegal
More info: www.transportevents.com
- 25-27** China Ports Focus – Shanghai, China
More info: www.cpfsummit.com
- 25-27** IAPH Asia/Oceania Regional Meeting – Singapore
More info: www.mpa.gov.sg/iaph
- 25-28** Europort Istanbul 2009 – Istanbul, Turkey
More info: www.europorteurasia.com/en/default.asp

April

- 6-8** Port and Terminal Technology – Houston, USA
More info: www.millenniumconferences.com
- 10-12** India International Maritime and Logistics Expo – Mumbai
More info: www.maritimeexpoindia.com
- 15** Accessing China's interior – Shanghai, China
More info: www.YantzeBusinessServices.com
- 15-17** AAPA Port Administration and Legal Issues Seminar – USA
More info: www.aapa-ports.org
- 22-24** Reducing emissions to air from shipping – London, UK
More info: www.ibcglobalacademy.com

May

- 11-12** Preparing for the ILO Labour Convention 2006 – Latvia
More info: www.ibcglobalacademy.com
- 13-14** Border Security Expo – Phoenix, USA
More info: www.bordersecurityexpo.com
- 14-15** ESPO 2009 Conference – Marseilles, France
More info: www.espo.be
- 19-20** Container Terminal Management Conference – Belgium
More info: www.millenniumconferences.com
- 25-29** 26th IAPH World Ports Conference – Genoa, Italy
More info: www.iaphconference.it

June

- 3-4** 7th ASEAN Ports and Shipping 2009 – Jakarta, Indonesia
More info: www.transportevents.com
- 10** SASMEX Conference – Oslo, Norway
More info: www.lrfairplay.com
- 16-18** TOC Europe – Bremen, Germany
More info: www.tocevents-europe.com
- 15-19** IADC Seminar on Dredging and Reclamation – Netherlands
More info: www.iadc-dredging.com

New directory for 2009

The 2009 edition of the *IAPH Membership Directory* was published and sent to members at the end of January.

The IAPH secretariat would like to thank all members who assisted in keeping the contents up-to-date and the 18 advertisers who kindly placed impressive adverts.

The *IAPH Membership Directory* is available only to IAPH members and is not offered for sale to non-members. For additional copies or any enquires, please contact the IAPH secretariat at: directory@iaphworldports.org

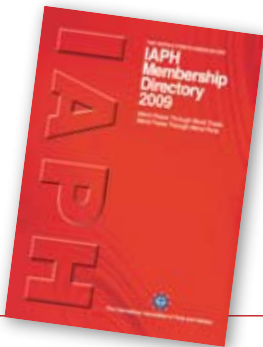


Photo: Martin Wright

Tanjong Pagar terminal (above) ... enjoy a tour of PSA's facilities



Regional confidence

The 9th IAPH Asia/Oceania Regional Meeting is to be held in Singapore from 25 to 27 March 2009 hosted by Maritime & Port Authority of Singapore.

This regional meeting and the concurrently held Port Forum offer participants an excellent opportunity to discuss key issues relevant to the region. Under the theme of *A secure, competitive and clean port*, the

Port Forum comprises the following three sessions:

- Supply Chain Security and Port Logistics – to discuss piracy in the Gulf of Aden and secure trade and logistics partnership
- Port Development in Emerging Markets – focusing on China and regional markets
- Marine Environmental Protection – to consider the World Port Climate Initiative and maritime

research and development

Tay Lim Heng, chief executive of Maritime & Port Authority of Singapore and IAPH vice-president (pictured), added: "We have also arranged for a visit to PSA's world-class facilities and members can look forward to a close up and first-hand view of Singapore's leading terminal operator."

For more information: www.mpa.gov.sg/iaph

Membership notes

The IAPH secretariat is pleased to announce that five new members have joined the association.

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 Fax: +86-21-3363-2625
 Email: info@masterswise.com
 Website: www.masterswise.com
 Representative: Ricky Zhao, chief executive officer
 Nature of business activities: Consulting, conference organiser

EHS, Ports Customs and Freezone Corporation

Address: PO Box 3258, EHS Department, United Arab Emirates
 Telephone: +971-48068820
 Fax: +971-48817023
 Email: Nazeer.Hussain@dubaiworld.ae
 Website: www.ehss.ae
 Representative: Amin Al Mulla, chief executive officer
 Nature of business activities: Environment, health and safety

Maritime International Inc

Address: 1186 Petroleum Pkwy, Broussard, LA 70518, USA
 Telephone: +1-337-321-4240
 Fax: +1-337-321-4241
 Email: blassere@maritimeinternational.com
 Website: www.maritimeinternational.com
 Representative: John Deats, chief executive officer
 Nature of business activities: Engineering, design and supply of maritime fender and mooring systems as well as other custom marine products

The Yokohama Rubber Co Ltd

Address: 2-1 Oiwake, Hiratsuka, Kanagawa 254-8601, Japan
 Telephone: 81-463-35-9701
 Fax: 81-463-35-9771
 Email: michito-k@mta.yrc.co.jp
 Website: www.yrc.co.jp
 Representative: Kiyonaga Yamaguchi

Regular Member

Ashdod Port Company Ltd

Address: PO Box 9001, Ashdod 77191, Israel
 Telephone: +972-8-851-7750
 Fax: +972-8-851-7364
 Email: shukis@ashdodport.co.il
 Website: www.ashdodport.co.il
 Representative: Sagis Shuki, CEO



Oriented to the market –
Open to the future

26th IAPH World Port Conference
Cotone Congressi Genova, Genoa, Italy
25-29 May 2009

Key Participants Will Include:

- **Prof Ogunlade R Davidson**, Co-Chair, Working Group III, Intergovernmental Panel on Climate Change (IPCC)
- **Dr. Geraldine Knatz**, Executive Director, Port of Los Angeles
- **Mr H. Thomas Kornegay**, Immediate Past President/Former Executive Director, IAPH/Port of Houston Authority
- **Mr Mariano Navas**, President, Puertos del Estado
- **Jamal Majid Bin Thaniah**, Executive Vice Chairman and Group CEO, Ports & Free Zones World, DP World
- **Mr Patrice M. Pelletier**, CEO, Port of Montreal
- **Mr Khomotsu Philela**, CEO, Transnet National Ports Security, South Africa
- **Mr Victor Schoenmakers**, President, ESPO
- **Mr Erich Staake**, President and CEO, Duisburger Hafen AG
- **Mr Bernard S. Groseclose Jr**, Second Vice President IAPH/Former President and CEO, South Carolina State Port Authority
- **Mr Lim Heng Tay**, Third Vice President/Chief Executive, IAPH/Maritime & Port Administration of Singapore

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Developing despite the economic slowdown

IAPH Executive Committee member and 2 deputy director (policy) at the Maritime & Port Authority of Singapore **Manjit Singh** considers the port's long-term development plans

Although the current downturn in trade has cast a pall over ports, it is important for port authorities to continue planning for the long term.

When the economy recovers – as inevitably it will – shipping lines will quickly be able to redeploy ships that have been laid up. Terminals that do not invest in facilities during the down period may lag behind when trade picks up. It is for this reason that the Maritime & Port Authority of Singapore (MPA) is pressing ahead with the next two developmental phases of the Pasir Panjang Terminal (PPT).


Amid various economic challenges, the Port of Singapore has continued its steady rise as a leading container port. Over the past five years container volumes have grown by over 40% to reach 29.9M teu last year. While the current downturn may see a softening in volume, Singapore has decided to continue with its port development project to assure its customers of good capacity and service when container volumes rebound.

Called PPT Phases 3 and 4, it involves creating about 200ha of land adjacent to PPT Phases 1 and 2. Work started in October 2007. When completed in 2014, it will add 16 container berths with an annual handling capacity of 14M teu.

MPA is mindful of the need to balance economic growth with care for the environment. As part of the project, MPA engaged an independent environment expert to conduct an assessment arising from the potential impact of the development works. This was followed up with a variety of measures that include the

implementation of an environmental monitoring and management plan, silt barricades, coral translocation and earth control measures.

In addition to environmental protection, MPA is fully exploiting innovative ideas and methods for the project. These include the use of unwanted waste soil, such as excavated earth from land construction projects, material from deepened fairways and dredging of harbor basins for reclamation. Recycling this waste soil and using it as reclamation fill means there is less reliance on sand; it also helps conserve the waste soil dumping grounds.

The PPT project is meeting the challenge as an environment-friendly and sustainable development. While serving to meet the needs for the economic growth of the nation, MPA will continue working with environmental specialists to ensure that appropriate mitigation measures are put in place to address the environmental concerns. The MPA believes that economic growth and being environmentally responsible can be pursued together, hand in hand. MPA looks forward to sharing further details on the project at the IAPH regional meeting and port forum in Singapore from 25 to 27 March 2009. 

MPA is mindful of the need to balance economic growth with care for the environment

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