



PORTS HARBORS

Official Journal of the International Association of Ports and Harbors

Plan fit for a Prince
Rebuilding Haiti's devastated port

Dust dampener
Controlling the effects of moving bulk goods

The rising tide
Sea level increase not just ports' problem



LNG links

Supporting shipping's green bunker choices



Buying and selling used heavy duty trucks worldwide



Fuldastraße 32 • 26135 Oldenburg • Tel.: +49-441-95064110 • Fax: +49-441-95064119 • info@hinrichs-stapler.de

container handling and port equipment



D3303
Kalmar DRF450-65S6
Baujahr: 2008
Preis: 220.000 EUR



D3298
Kalmar DRF450-60-S5
Baujahr: 2006
Preis: 170.000 EUR



D3327
Kalmar DRF100-54S6
Baujahr: 2008
Preis: 109.000 EUR



D3305
Kalmar DRF100-54S6
Baujahr: 2008
Preis: 109.000 EUR



D3234
Kalmar DC845RS5
Baujahr: 1996
Preis: 62.000 EUR



DK037
CVS Ferrari F479.5
Baujahr: 2006
Preis: 179.000 EUR



D3330
CVS Ferrari F478
Baujahr: 2009
Preis: 222.000 EUR



D3329
CVS Ferrari F258.6
Baujahr: 2008
Preis: 99.000 EUR



D3301
SMV SC4535TB5
Baujahr: 2005
Preis: 149.000 EUR



D3314
SMV SC4531TB5
Baujahr: 2006
Preis: 159.000 EUR



DK048
SMV SC4127TB5
Baujahr: 2005
Preis: 149.000 EUR



D3309
Hyster RS45-31CH
Baujahr: 2009
Preis: 180.000 EUR



D3325
Fantuzzi CS45KM
Baujahr: 2007
Preis: 179.000 EUR



D3229
PPM FCH45
Baujahr: 1997
Preis: 83.000 EUR



DK038
[Other] HFH ATAIR IX D620
Baujahr: 2008
Preis: 299.000 EUR



D3328
CVS Ferrari F16
Baujahr: 2003
Preis: 79.000 EUR



D3219
Kalmar DCE90-45E7
Baujahr: 2006
Preis: 85.000 EUR



D3282
SMV SL4ECA
Baujahr: 2001
Preis: 49.000 EUR



D3290
Svetruck 32-120-47
Baujahr: 2001
Preis: 115.000 EUR



D3174
Svetruck 2812045
Baujahr: 1995
Preis: 69.000 EUR



D3132
Kalmar DC23,6-1200
Baujahr: 1991
Preis: 29.000 EUR



D3299
Hyster H18.00XM-12EC
Baujahr: 2002
Preis: 29.000 EUR



D2817
Valmet TD1812
Baujahr: 1990
Preis: 50.000 EUR



D3232
Kalmar DCE160-12
Baujahr: 2013
Preis: 169.000 EUR



D3284
Svetruck 1612035
Baujahr: 2001
Preis: 59.000 EUR



D3274
Kalmar DC16-1200
Baujahr: 1995
Preis: 39.000 EUR



D3272
Svetruck 15120-35
Baujahr: 1980
Preis: 25.000 EUR



D3255
Svetruck 13,6-60-30
Baujahr: 1996
Preis: 39.000 EUR



G0856
Kalmar GCE120-6
Baujahr: 2009
Preis: 70.000 EUR



D3163
Baoli CPCD
Baujahr: 2008
Preis: 35.000 EUR

Pics, details and video: www.hinrichs-forklifts.com

REGULARS

- Comment:** LNG bunkering; P3 alliance; plus a new IAPH council is created **3**
- News:** Philippines ports resume operations after Haiyan; limited cruise access to Venice; sea levels at COP19 **4**
- Open Forum:** John Richardson, ESPO award committee chair, considers sustainable development for ports **10**
- Cover Story:** LNG-fuelled ships will need to bunker somewhere, but which ports will benefit? US vessel container operator takes the plunge and commits to LNG fuel **12**
- Maritime Update:** Onshore power supply voltage debate; IMO encourages ballast water regulation uptake **32**
- IAPH Info:** IAPH meets in Amsterdam for Europe/Africa regional meeting; TF&PCS committee come together in Portugal; meet Women's Forum VP Siti Noraishah Azizan **36**
- Last Word:** ESPO and IAPH should collaborate, says IAPH VP Santiago Garcia Milà **40**



FEATURES

- Nearly ready:** Maasvlakte 2 will be environment-friendly and close to the open sea **16**
- Close to customers:** UK's London Gateway claims its location will be its strength **18**
- Jamaican privatisation push:** KCT seeks to take advantage of Panama Canal expansion **19**
- Plans for progress:** Haitian Port-au-Prince to be rebuilt to support exports and attract investment **20**
- Energy investment:** Zhoushan Port, China, plans to offer LNG bunkers and invests in oil pier **22**
- Flexible strengths:** Busan can offer its customers a number of benefits but it, too, has challenges to overcome **23**
- Seabed analysis:** Port of Cork is monitoring its sea bed ploughing in real time...and from the office **24**
- In it together:** All stakeholders should be involved in helping ports mitigate against the effects of sea level rise **26**
- Waiting for the dust to settle:** One Dutch port's plan to reduce dust during cargo handling **28**
- Women leaders:** Ports of Auckland's approach to identifying leadership potential **30**



12

Ports will form part of the LNG bunker landscape as uptake of the low sulphur oxide fuel increases

Photo: Hannah Kidd/Shutterstock

R E G I S T E R N O W

An invitation to Sydney, Australia



IAPH Mid-term Conference and Board Meeting • 6–10 April 2014: Sydney, Australia

Sydney Ports invites you to experience an engaging and high quality program of events that addresses the many issues confronting us all in the challenging business of international trade.

What makes this Conference a must to attend is the high emphasis on port automation, trends towards ever larger ships, port master-planning and developments in supply chain efficiencies. The Panama Canal Authority will also provide an overview of its soon to be completed Expansion project and its impact on global trade.

And you can even extend your stay to see some of the amazing sights Australia has to offer.

As you know, IAPH conferences provide the global ports community with invaluable networking opportunities and we at Sydney Ports are looking forward to welcoming you in April 2014.

Visit iaphsydney2014.com for registration and sponsorship opportunities.

Hosted by Sydney Ports Corporation.



Scan to register now



JUST LAUNCHED

IHS Maritime 360

The ultimate free-to-view news site for the global maritime industry

Unrivalled capabilities, business news and intelligence now at your fingertips

IHSmaritime360.com



IHS Maritime, the source of global insight and analysis for the maritime sector



4259_1213AA

PORTS & HARBORS

Official Journal of the International Association of Ports and Harbors

PORTS & HARBORS

Published bi-monthly by the International Association of Ports and Harbors (IAPH), edited and produced by IHS Fairplay.

PUBLISHER

Susumu Naruse
Secretary General, IAPH
info@iaphworldports.org

EDITOR

Penny Thomas
penny.thomas@ihs.com

SENIOR REPORTER

Jem Newton
jem.newton@ihs.com

CHIEF SUB-EDITOR

Jonathan Maynard

HEAD OF SALES

Adam Foster
adam.foster@ihs.com

DESIGN

Roberto Filistad, Hannah Kidd

PRODUCTION

Sarah Treacy, Kriss Holliday and Martyn Buchanan

IMAGE SERVICES MANAGER

Jo Agius

EDITOR-IN-CHIEF

Tony Slinn
tony.slinn@ihs.com

ASSOCIATE EDITOR

Aya Fujinami
IAPH
ph@iaphworldports.org

EDITORIAL & PRODUCTION

IHS Fairplay
Sentinel House, 163 Brighton Road,
Coulson, Surrey CR5 2YH, UK
Tel +44 (0)203 253 2100
Web: www.ihsfairplay.com

SUBSCRIPTIONS

International Association of Ports and Harbors
Price Japanese ¥12,000 (US\$120 / UK£80 / €90) or per issue ¥2,000, postage included. Visa and MasterCard accepted or for Bank Transfer. You do not have to be an IAPH member to subscribe – contact the IAPH at:
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

Printed by Warners
Midlands plc, The Maltings,
Manor Lane, Bourne,
Lincolnshire PE10 9PH
ISSN 0554-7555



Happy New Year!

For the first time since its inception, IAPH has changed its decision making process

Susumu Naruse

Secretary General – The International Association of Ports and Harbors



A happy New Year from Tokyo! I hope you all saw in 2014 in a joyful manner.

It seems that the global economy finally overcame the slump last year but organisations like the International Monetary Fund remain cautious about 2013's recovery: "Advanced economies are growing again but must continue financial sector repair, pursue fiscal consolidation and spur job growth. Emerging market economies face the dual challenges of slowing growth and tighter global financial conditions." We need to carefully watch the path of the global economy and monitor consequent port demand this year.

Last year, ultra-large container ships with a capacity of 18,000 teu were put on the market and the three largest container carriers announced the creation of an unprecedented alliance called P3. This may change the logistics structure of maritime containers.

The number of piracy incidents off the Somali coast fortunately fell due to the tremendous efforts of related parties, but we still need to be cautious about events in this area and other hotspots.

Regulations for ships' emissions will start to tighten in emission control areas soon, and as such some ship owners are seriously considering using LNG as a fuel instead of oil. LNG bunkering could become an urgent issue for the port industry imminently.

All of these critical issues were discussed at the IAPH Africa/Europe regional meeting, which was beautifully organised by the Port of Amsterdam last November. The official event was the IAPH Strategy Meeting, which was comprised of the members

of Executive Committee and Long Range Planning/Review Committee. It was held in order to discuss the future direction of IAPH.

Chaired by President Gilfillan, the meeting agreed to streamline IAPH's decision-making process and to help energise the technical committees. As the first step, the meeting decided to establish a powerful but simple new decision-making body named the 'Council', which will replace the

Executive Committee and Board of Directors.

Members will be able to discuss these changes in depth at the board meeting in Sydney this April. This is the first time that IAPH has overhauled its decision-making structure during its 60-year history. Irrespective of decisions made by the board, this year will definitely be one to remember in the history of IAPH. I wish you and your organisation a prosperous and happy year. **PH**

“A council has been created to streamline the organisation's decision making process”

Port updates

▶ ANTWERP AND INDIA

The Madras Chamber of Commerce and Industry (MCCI) and Antwerp Port Authority have signed a Memorandum of Cooperation to deepen their trade relationship so that greater volumes of Indian freight pass through Antwerp. In 2012 trade with India generated 4.3 million tonnes of cargo for the Port of Antwerp.

▶ BTP INAUGURATED

Brasil Terminal Portuário (BTP), which has a 1.2 million teu annual capacity, was officially inaugurated in November. Situated at the Port of Santos, development of the \$1Bn multi-purpose terminal project began in 2007. BTP has 1,108m of quay and a 15m depth, capable of serving three, 9,200 teu capacity vessels simultaneously.

▶ DOVER SUPPORTS STUDIES

The Port of Dover is expanding its potential recruitment of young people through a new bursary scheme for students living in and around Dover. The initiative is to encourage local students to study at university in a port-related field with the hope that they will gain employment at the UK ferry port.

▶ SOLENT HANDLES FRUIT

Solent Stevedores has acquired the assets of Southampton Fruit Handling Ltd in the Port of Southampton and will operate its fruit terminal on the south coast of the UK. Its major customer is the Federation of Tomato Growers and Exporters of Las Palmas, which exports from the Canary Islands.

▶ POLA NUMBERS UP

Port of Los Angeles' November overall volumes increased 17.3% compared to November 2012, it said in a statement. It puts this increase down to the larger vessels calling as well as improvement in the US economy.



Philippine ports have resumed operations after Haiyan devastation

Haiyan-struck ports rise again

Most of the seaports in the Philippines racked by super typhoon Haiyan resumed operations almost a month after the devastating disaster.

Heavily damaged Tacloban port in Leyte restarted full commercial operations on 20 November after Manila-headquartered International Container Terminal Services stepped in to help, the Philippine Ports Authority (PPA) told *P&H*.

The PPA, which operates Tacloban, said \$4.6 million in new cargo-handling equipment from ICTSI, a Philippines-based terminal operator, was delivered to the port.

The equipment includes a mobile harbor crane, 12 container forklifts of varying sizes, seven generator sets for electrification of the terminal, six tower lights for the port's night operations and reach

stacker units for moving cargo.

ICTSI's Asia chief Christian Gonzalez said the group would run relief operations at the port for free until normal transport has been restored.

Meanwhile, Ormoc port in Leyte, which was also badly hit, also managed to return to operations, along with the other ports in Leyte, Samar, Cebu, Iloilo, Camarines, Catanduanes, Romblon and Quezon province.

The only remaining facilities that had not fully resumed operations at time of writing are Guian port in eastern Samar and Estancia port in Iloilo, said PPA.

Guian port operations are limited to beaching, or just for the vessels to anchor, but without movement of cargoes due to damaged cargo

handling equipment.

Meanwhile, in Estancia port authorities are still addressing an oil spill from a barge owned by the National Power Corporation which was damaged at the height Haiyan.

Around 200,000 litres of bunker fuel from NAPOCOR Power Barge 103 spilled at the shoreline of Barangay Botongon, Estancia; 150,000 litres of it has already washed ashore and contaminated about a kilometre stretch of Estancia's coastline and its infrastructure, said the Philippine Coast Guard. Clean-up operations began in earnest in early December.

The strongest to hit the Philippines this year, Haiyan has recorded maximum sustained winds of 315 kph. It was rated a category 5 storm, said the Philippine weather bureau Pagasa.

Johor assessed for oil

Malaysia's DIALOG Group Berhad and Singapore's Concord Energy Pte Ltd have partnered to carry out a feasibility study on a crude oil and petroleum product storage in Pengerang, Johor, in southern Malaysia. The feasibility study, expected to take something in the region of a year to

complete, will look into a dedicated storage capacity of up to 2 million m³ and deepwater jetty facilities to accommodate VLCCs access for Concord Energy. The initial planned capacity is up to 1 million m³. It will be part of the Pengerang Deepwater Petroleum Terminal project.

Haifa port to seize Suez trade

Two deepwater port projects are planned for Haifa port in the north of Israel, each expected to cost the country \$1 billion. The other development is destined for Ashdod in the south near the commercial hub of Tel Aviv.

The first deepwater ports in Israel, Haifa and Ashdod will be built to accommodate ships the size of Maersk's triple E class (18,000 teu, with a draught of 14.5m and 400m in length). The initial aim is to provide adequate port infrastructure to meet Israel's growing trade needs, broaden private sector participation, and foster competition; the current ports are state-owned and run, with union issues causing disruption. The new ports will be operated privately.

Israel's main cargo is containerised, with 26.5 million tonnes handled in 2012. It averaged a 7.6% annual growth rate between 1990-2012; a 5.3% growth rate in container traffic is forecast for 2013 until 2030.

It is not surprising, then, that private and public backers of the development want Haifa, Israel's largest port and also the country's main container port, to be a priority. They also cite the health of the country's industrial north.

"If you develop Ashdod, only Tel Aviv will be helped. The bigger picture is that the hinterland

prefers to trade via Haifa," said Yona Yahav, the city's mayor.

Dov Frohlinger, COO of state-run Israel Ports Development & Assets Company Ltd in charge of port developments and chair of IAPH's port finance and economics committee, said at a media briefing in late 2013 that Haifa currently supports 60% of Israel's trade, and that trade through the port has seen an average annual growth rate of 4.1% between 1990-2012. This year, the port is expected to handle 1.3 million teu.

Frohlinger pointed out that Israel's economic stability stands in its favour for becoming a trade hub – capturing part of the 38 million teu crossing east-west via the Suez Canal destined for the Middle East hinterland, Europe, the Black Sea region or the Americas.

"Our forecasts and the resultant demand for additional port infrastructure are based on Israel's own trade demands, as well as a certain amount of what we call 'natural transshipment' traffic, which is approximately 13% above Israel's own needs," Frohlinger told *P&H*.

A chart presented by Frohlinger showed that in 2008, when the world's economy collapsed, Israel's economic growth slowed, but remained in the black, and significantly healthier than the economies of the US and the EU. In 2010 and 2011, Israel's growth

returned to near its 2007 levels, at just under 5%. This year, growth has been just under 4%.

Shipping expert and economist Professor Yehuda Hayut said an agreement was struck in September between Jordan and the Palestinian Authority to create a new border crossing for containers at the city of Jenin in the northern West Bank. Jenin is only 60km from Haifa. The alternative option, said Hayut, is the Jordanian Port of Aqaba, 400km away, also necessitating transit through the Suez Canal.

Hayut said Iraq is a future potential trading partner. Mixed goods from the US en route to Baghdad pass daily through Haifa, and use the Sheikh Hussein Bridge Israel/Jordan border crossing.

Redevelopment of inner-city roads to the port area of downtown Haifa should be ready, and the port's opening is due in 2018, Frohlinger told *P&H*.

Media representatives were also updated on the Jordan Gateway Industrial Park (JGIP). A free trade zone established between Israel and Jordan in 2002, developers are seeking investment from Europe to build a 352m land bridge into Jordanian territory, which would allow certain commodities to circumvent the current border crossing and lengthy security checks.

Port updates

► FLORIDA SEEKS TERMINAL

Florida has asked lawmakers for \$9.7 million for a new cargo terminal at Port Canaveral in 2015. The port primarily handles bulk and breakbulk. It is widening and deepening its channel and constructing two new cargo berths, and has purchased two new post-Panamax ship-to-shore cranes.



► GPH SEEKS CONCESSION

Turkey's Global Ports Holding (GPH) has been chosen as the preferred bidder for the 62% majority stake in the Montenegrin Port of Bar currently held by the Minister of Maritime Transportation. GPH is now entering negotiations with the Montenegrin authorities for a final contract that will give it the right to operate the port for 30 years.

► PIRAEUS UPDATE

Hong Kong-listed COSCO Pacific plans to expand its container terminal in Piraeus. Under the proposal, China COSCO's box terminal operator said that Greece's government would remove a minimum annual payment to Piraeus Port Authority (OLP). In exchange, capacity of the terminal's Pier 2 would be raised, a western branch of Pier 3 would be built, and a new oil pier would be constructed.

► INCHEON AND PSA DEAL

Incheon Port Authority, South Korea, and PSA International have signed a memorandum of understanding (MoU) to forge a strategic partnership in the areas of port operations, technology and best practices; and collaborate in the strategic development of Incheon Port.



The deepwater ports at Haifa are being built to accommodate giant vessels

Cash & Cargo

▶ **NCSC GRAIN RECOVERS**

Monthly grain cargoes of Novorossiysk Commercial Seaport Co boomed on this year's better harvest in Russia. October totals gained 47% year on year, said the company, which operates Novorossiysk on the Black Sea, Primorsk on the Baltic, and other ports. But overall cargo turnover fell to 12 million tonnes, 4.3% from totals of October 2012.

▶ **ROTTERDAM REDUCES**

The Port of Rotterdam Authority has decided to permanently discount its tariffs following consultation with the port business sector. Customers will enjoy a discount of 9.5% in 2014, bringing the port tariff to the same level as those in 2008. Transshipment containers in 2014 will continue to be discounted. Several agreements were also made on adjustments to the tariff structure in 2014, such as equalising the tariffs for short sea and ro-ro, and more of these kinds of reforms will be examined in the future.

▶ **SAVANNAH BOXES CLIMB**

Container trade at the Port of Savannah increased 19% in October and helped increase year-on-year cargo to a record 2.3 million tonnes for the month. October box volume increased from 230,639 teu to 274,362 teu. Savannah, along with the Georgia Port Authority's Colonel's Island Terminal at the Port of Brunswick, combined to move a record 62,343 units of automobiles and heavy machinery in October, a 19.2% increase over October 2012.



Dietmar Hasenpugsch

A CMA CGM vessel at Port of Hamburg. The port will see the same number of calls under the P3 alliance

Winners and losers: P3 alliance

The P3 alliance between Maersk, MSC and CMA CGM revealed its combined global port rotations in October. The alliance is currently seeking regulatory approval. As P&H went to press Beijing and EU regulators were due to meet in Washington, DC, for a global summit on container line vessel alliances to be hosted by the US Federal Maritime Commission. On 5 December, US regulators decided that more information on the effects of the P3 Network Alliance is needed before it can be allowed to go forward in the US.

The specifics, as posted by MSC, include ports, transit times and sailing frequencies. The three carriers previously confirmed that P3 would feature 255 vessels with a total capacity of 2.6 million teu on 29 service loops. Assuming regulatory approval is obtained, P3 services – which would represent the largest vessel-sharing arrangement in history – are expected to begin in the second quarter of 2014.

The schedules reveal that no port currently serviced by the three lines' east-west services would be dropped under the P3 scheme. A small number would, however, be dropped by some

services and picked up by others. Rather, the P3 alliance would bring calls by one or more of the alliance members to many ports that are not currently served by those carriers individually.

The new disclosures cover five trades: Asia-North Europe, Asia-Mediterranean-Black Sea, Asia-US West Coast, Asia-US East/Gulf Coast, and North Europe-Med-US East/Gulf Coast. The centrepiece of P3 is the Asia-North Europe route. Eight services are planned utilising 94 vessels: 10 19,000 teu ships, 12 14,000 teu ships, 46 13,000 teu ships, 16 11,500 teu ships and 10 8,500 teu ships.

On the Asia-US East/Gulf Coast run, P3 would initially feature four strings – three via the Suez using 8,500 teu vessels, and one via the Panama Canal using 5,000 teu ships.

Shipper groups in the US and Asia have raised questions about the P3 alliance, fearing that having control over such a large amount of vessel capacity could force out smaller carriers, which could then lead to reduced services at significantly higher rates.

Meanwhile, liner trades analyst Alphaliner has estimated that Rotterdam and Port Klang (Westports) would be the

principal losers if the P3 Network's Far East/Europe services are activated as now planned.

Under the service schedule, Rotterdam would lose three Far East/North Europe export calls out of five and two of four import calls, while Port Klang would lose two out of three export calls and one out of two import calls, but also three Far East-Mediterranean import calls.

In North Europe, Antwerp is the only port that would gain a call, with P3 planning to make three export calls instead of two at present and to maintain two import calls. Zeebrugge would lose one of its two export calls and one of its two import calls, but Bremerhaven, Le Havre and Hamburg would stay level on total port calls.

In Asia, Tanjung Pelepas would increase its Far East/North Europe calls from six to 10 but lose four of its five Far East/Mediterranean calls to Singapore, which would become the main hub for Far East/Med services but lose four of nine Far East/North Europe calls.

"Other key ports on the P3 network will remain largely unscathed, with coverage of the main ports retained or enhanced," Alphaliner said.

EU creates new era for ship recycling

The European Union's (EU's) new ship recycling regulation is intended to open a new era in the way that European owners dispose of their old ships.

It provides for ships under EU flags, which have reached the end of their working lives, to be recycled in future at regularly inspected EU approved facilities.

The regulation also applies to non-EU ships if they call at EU ports. Like their EU counterparts, they will be obliged to carry an inventory of hazardous materials contained in their structures and on board equipment.

These requirements will not come into force immediately, however. The list of approved facilities has still to be compiled

and the commission will need to report on the feasibility of creating financial incentives to encourage owners to make use of them.

If incentives are deemed to be useful, the commission will have three years to propose legislation to bring them into effect.

The regulation itself will only be applicable to ships between two and five years after it comes into effect, depending on when the capacities of the facilities on the EU approved list exceed 2.5 million light displacement tonnes.

Provisions relating to shipbreaking facilities, however, will become applicable after a year.

The regulation aims to bring into EU law the provisions of the 2009 Hong Kong Convention for the

Safe and Environmentally Sound Recycling of Ships, helping to speed up the process of bringing it into force worldwide.

As such, it has been welcomed by EU shipowners body ECSA. The NGO Shipbreaking Platform has warned, however, that it will not be effective if the EU does not introduce financial incentives quickly to encourage shipowners to comply with it.

"Without a financial incentive, circumvention of European law covering end-of-life vessels will persist and European shipowners will be allowed to continue to seek significant financial profits," said Patrizia Heidegger, the platform's executive director, after the regulation was passed in October.



The sediment-filled geotubes can be seen on the island

Geotube triumphs

Netherlands-based TenCate has won an award for a project at Embraport container and bulk fuel terminal at Port of Santos, Brazil. The geotubes specialist won the US Industrial Fabrics Association International's Achievement Award for Design Excellence in Geosynthetic Applications.

Geotubes are textile tubes which contain dredged material,

in this case contaminated material. A condition of the 2007 government site development approval was to remove, dewater, and dispose of 600,000m³ of contaminated sediment within the port's planned entrance channel and turning basin.

Contamination is due to heavy industrialisation in the Santos region and it was estimated that

the 600,000m³ of contaminated sediments, when dewatered and consolidated, would provide a saving of 400,000m³ of imported fill costs – an overall saving of 20% to 30% of the earth fill platform cost for the terminal. Once dewatered the encapsulated sediments will comprise the base for the container storage area.

The effluent water flowing from the geotubes drained into a collection basin from where it was pumped to a small water treatment polishing plant. Here, the water's pH level was initially raised to precipitate out any dissolved solids before the water was transferred to a second basin where its pH was neutralised. It then passed through activated carbon filters and was released back into the environment.

When complete, Embraport will not only be the largest privately owned port facility in Brazil, but will be also the largest in South America, able to handle over 2 million teu and 2 billion litres of bulk liquids annually. It is situated on the north shore of the Estuario de Santos in the state of São Paulo.

Cash&Cargo

► **RECORD FOR STOCKHOLM**
Ports of Stockholm handled 45,000 teu year to date in November last year and in doing so set itself a new personal record. Its previous record was set in 2007, with 44 623 teu, said the port in a statement. At time of writing, 2013 volumes were expected to exceed 50,000 teu.

► **APMT RECORD**
APM Terminals handled 9.3 million teu (weighted by equity share) during the third quarter of 2013, setting a new record for container volumes to pass through its worldwide portfolio during one quarter. APM Terminals has set a target of annual profits of \$1 billion from 2016 and is said to be on track.

► **REACHSTACKER RESEARCH**
Kalmar and Global Service have started to create a reachstacker prototype using dual fuel technology as part of the Greencranes project. Tests were carried out in December 2013 at the Port of Livorno.

► **SALT IN KIEL**
The port of Kiel in Germany has reported gritting salt being shipped through its facilities for the first time. The 2,050 gross tonne, 88m-long and 13m-wide cargo ship *Julieta* arrived with a load of 3,200 tonnes of gritting salt from Morocco.

► **TOS IN AUSTRALIA**
DP World Australia has completed Navis N4 TOS (terminal operating system) upgrades on three of four planned DP World sites that assist with vessel and yard planning and provide critical support covering gates, kiosks and rail. TOS implementations at DP World Sydney, Fremantle and now Melbourne are all complete and fully operational, with the fourth and final N4 project in progress at DP World Brisbane and set to be operational early in 2014.

Dredging

▶ DEME EXTENDS JURONG

A joint venture between Belgian dredging major DEME's southeast Asia subsidiary Dredging International Asia Pacific (DIAP) and Starhigh Asia Pacific has won the Jurong Island Westward Extension design and build contract. The 148ha land reclamation will expand Jurong Island over three phases. Work is under way as you read this with completion scheduled for phases 1 and 2 by the end of 2017, and mid-August 2018 for phase 3.

▶ BOSKALIS' MEGA CUTTER

Netherlands-based IHC Merwede is to build the self-propelled cutter suction dredger, which will have total installed power of 23,700kW and a pump-ashore capacity of 15,600kW. Designed to strengthen Boskalis' fleet, the new vessel will take about three years to build and will be one of the largest CSDs in the world, with a length overall of 152m, breadth of 28m, maximum dredging depth of 35m and accommodation for 45 people.

▶ AID FOR AFRICA

Thanks to World Bank funding, Italian dredger builder Italdraghe is supplying a new SGT 250 cutter suction dredger (CSD) to Ethiopia's water and energy ministry that will be used primarily to dredge the seven industrial ports around Lake Tana. The SGT 250 is 23.7m long, 4.4m wide, is able to dredge to 7.5m and features a Draghe Lario dredge pump and IVECO C90 engine, giving 280kW at 2,000rpm, Italdraghe states.



Port of Venice authority

Venice's Marittima cruise terminal, a cruise ship home port in the Mediterranean

Venice divided over cruise ship restrictions

The Italian government's decision to reduce the number of cruise ships allowed to approach the historic centre of Venice as of the beginning of 2014 is keenly contested by the port's passenger terminal operating company, Venice Terminal Passegeri (VTP).

Mayor of Venice Giorgio Orsoni has welcomed the measures as putting an end to the growth in numbers and size of the cruise ships transiting Venice's lagoon, but VTP has warned that they will have dire economic consequences with job and revenue losses.

The measures announced by the government state that the number of cruise ships of more than 40,000 gross tonnage allowed to use the Guidecca Canal, which runs along the city's historic waterfront, was to be reduced by 20% from 1 January, while trans-Adriatic ferries are to be banned from the canal completely.

The most symbolic measure, however, will be the banning from the canal of all cruise ships of over 96,000 gross tonnage from 1 November.

In addition, the number of cruise ships allowed to moor in the city will be limited to five, while cruise ship arrivals and departures are to be concentrated during early morning and late evening periods.

The announcement was made following a meeting between government ministers, including Prime Minister Enrico Letta, and representatives of the city and Port of Venice and its surrounding region.

Mayor Orsoni, who was at the meeting, said afterwards: "Finally, the trend towards gigantic ships in the lagoon has been turned round. We've had enough of these mega cruise ships just metres away from San Marco. From now on, there will be clear limits on the size of ships that can enter Venice."

There was a very different reaction, however, from VTP, which estimated that the measures would cost the port 48 ship calls and more than 323,000 passenger transits next year, resulting in lost revenues totalling €82 million (\$113 million) and 800 job losses.

In 2015, the damage will be multiplied, according to VTP, which calculated that 174 cruise calls would be lost and more than one million passenger transits, leading to a €260 million (\$358 million) reduction in revenues and 2,500 job losses.

VTP president Sandro Trevisanato, who warned that the government risked finding itself faced with legal action for compensation, was quoted as describing the ban on the biggest cruise ships as "absolutely excessive" in relation to the scale of the threat posed by the cruise industry.

The Port of Venice authority

told P&H that it could not dispute a decision of the Italian government but that it was in any case in agreement with the broad lines of the government's announcement.

Spokeswoman Giovanna Benvenuti indicated that the authority was particularly concerned with maintaining Venice's Marittima terminal as the leading cruise ship home port in the Mediterranean.

She stressed, moreover, that, as the government's announcement had indicated, the restrictions on cruise ship numbers and size were to be considered as temporary, applying only until a new access channel, the Canale Contorta Sant'Angelo, came into service.

This channel is part of a €140 million (\$192.6 million) plan to enable cruise ships to enter the Venice lagoon from the south without passing through the San Marco Basin and the Guidecca Canal.

Benvenuti said that the port was hoping that the cruise industry would accept the restrictions announced by the government in the knowledge that a longer term alternative was in preparation.

As to where ships excluded from Venice itself could go, she said it would be for the cruise companies to decide but that they could be switched to the neighbouring ports of Ravenna and Trieste. Alternatively, she added, the companies could send smaller ships to Venice.

So far, she continued, reaction from the cruise sector suggested that they were ready to cooperate with the government's plan.

"The cruise industry [has] understood the situation and they are contributing to the application of all measures. "Finally, they [have] understood the extraordinary importance of safeguarding Venice," she concluded.



Rising sea levels was on the agenda at COP19 in Poland

COP19 tackles sea level rise

The United Nations Climate Change Conference agreed at its Warsaw meeting in November (COP19) to establish an international mechanism to provide the most vulnerable populations with better protection against damage caused by extreme weather and rising sea levels, said the United Nations Climate Change Secretariat in a statement.

"We have seen essential progress. But let us again be clear that we are witnessing ever more frequent, extreme weather events, and the poor and vulnerable are already paying the price," said Christiana Figueres, executive secretary of the UN Framework Convention on Climate Change.

Governments at COP19 also provided more clarity on mobilising finance to support developing countries to adapt to climate change. To achieve this, developed countries have been asked to prepare biennial submissions on their strategies to support this aim during 2014-20.

IMO participated in the conference, where an update of its work to reduce greenhouse gases from shipping was provided.

Antwerp wins ESPO prize

Port of Antwerp won the 2013 European Seaports Organisation (ESPO) award in November for its project, 'Heritage: the breadcrumbs trail between city and port'. An ESPO statement said the judges were "especially impressed by the way the project of the Port of Antwerp celebrates the past, provides new civic amenities for the citizens of today, creates a new iconic building as the heritage of tomorrow, and sets out to educate its citizens about the importance of a thriving port for their lives".

John Richardson, the chair of the ESPO award committee, said at the GreenPort Congress in November that Antwerp's "rehabilitation of the area called 'het Eilandtje' includes the restoration of seven old dock cranes in a prominent position

beside the river". Port of Antwerp explained that the "restoration of the dock cranes becomes a social project in which young people who have difficulty in finding a job are given the opportunity to learn a trade and gain experience".

Christiaan De Block, Port of Antwerp's chief operations officer, said in his word of thanks that the port authority sees winning the award as "an appreciation for the sustainable development of our port, and for our efforts towards maximum symbiosis between city and port...The ultimate aim is to bring citizens and visitors closer to the Port of Antwerp. Our motto, 'Strong through collaboration', has once more proved its value."

The port authorities of Cartagena, Dover, Livorno and Oslo were also shortlisted for the award.

Bought&Sold

► CRANES TO MIDDLE EAST

Liebherr is expanding its cargo handling presence in the Middle East through a growth of orders of its special cranes. The company reported it has sold two Liebherr Mobile Harbour Cranes and the first LISIM LHM 550 unit. Additionally, one Liebherr Reachstacker has been delivered to the region.

► EMPTY ORDERS IN DUBAI

Kalmar will deliver by April 2014 seven empty container handlers to DP World for its Container Terminal 3, which is under construction in Dubai. Scheduled for completion in 2014, the 4 million teu capacity of Terminal 3 will take the total capacity of Jebel Ali Port to 19 million teu.

► POWER IN FAR EAST

Cavotec has secured €12 million (\$16.5 million) worth of orders for its shore power systems in the Far East and Europe. The firm will supply more than 50 ship-based alternative maritime power units for a major container shipping line that will be able to slash emissions and fuel costs by switching off its engines and connecting to shore side electrical power.



► TRANSNET AUTOMATES

Transnet National Ports Authority (TNPA) of South Africa has awarded a €10 million (\$13.7 million) order to Cavotec for its MoorMaster automated mooring units. It is the largest single order to date for the technology. Cavotec will design and manufacture MoorMaster systems for TNPA mooring container ships up to 13,000 teu.

Future heritage

John Richardson, chair of the ESPO award committee, considers the definition of sustainable development for tomorrow's ports

The concept of 'sustainable development' was first coined during a series of conferences in the 1970s that focused on the environment. There were concerns over the environmental impact of the industrialised countries in northern Europe, as well as the impact of development on those in southern Europe.

Sustainable development was mentioned in European Council conclusions for the first time in 1988, although attitudes to the concept remained ambivalent until the 1997 Treaty of Amsterdam eventually ensured its formal recognition as a legal objective under the treaties. Since then the EU has had a quasi-constitutional obligation to aim for sustainable economic development.

But what does sustainable development really mean? Its most quoted definition is that coined by the World Commission on Environment and Development, known as the Brundtland Commission after its chairperson, Gro Harlem Brundtland. In its 1987 report the commission defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

The concept is usually broken down into three constituent parts: environmental, economic and sociopolitical sustainability. More recently it has been suggested that a better analytical breakdown would add the concept of cultural sustainability.

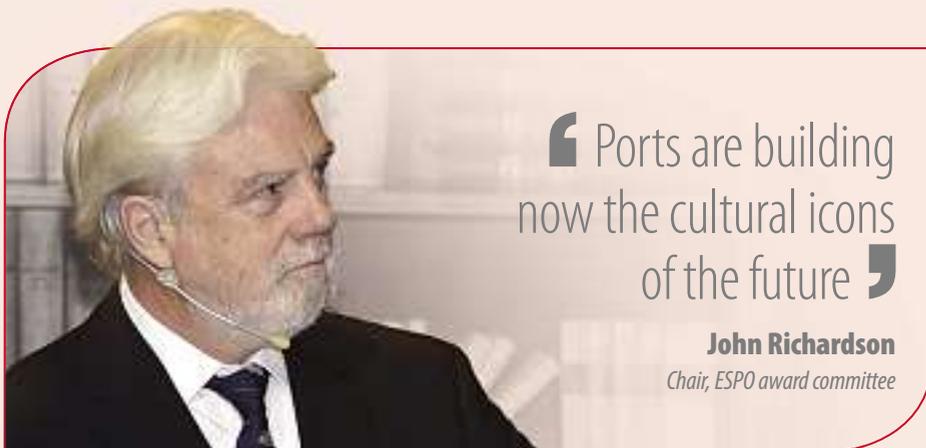
It is important to understand what cultural

sustainability might mean for ports. The European Sea Ports Organisation (ESPO) award, launched in 2009, has always promoted sustainability through its focus on societal integration of ports. The 2013 award competition chose heritage as its theme. Entrants were asked to demonstrate the ways in which their ports promoted both current and future heritage. To me this idea represents the essence of sustainability.

Ports are, of course, very well aware of the need for their operations to be economically sustainable. Many are planning for further growth in the future and need to take investment action that will affect their capacity and efficiency for decades to come – and certainly until the working lifetime of any grandchildren of today's managers.

In doing so, they will have to make informed predictions on the huge number of scenarios that could occur over such a period of time. What growth rates can they expect? Should they plan for 30 or 60% more capacity? Those may be the most straightforward questions.

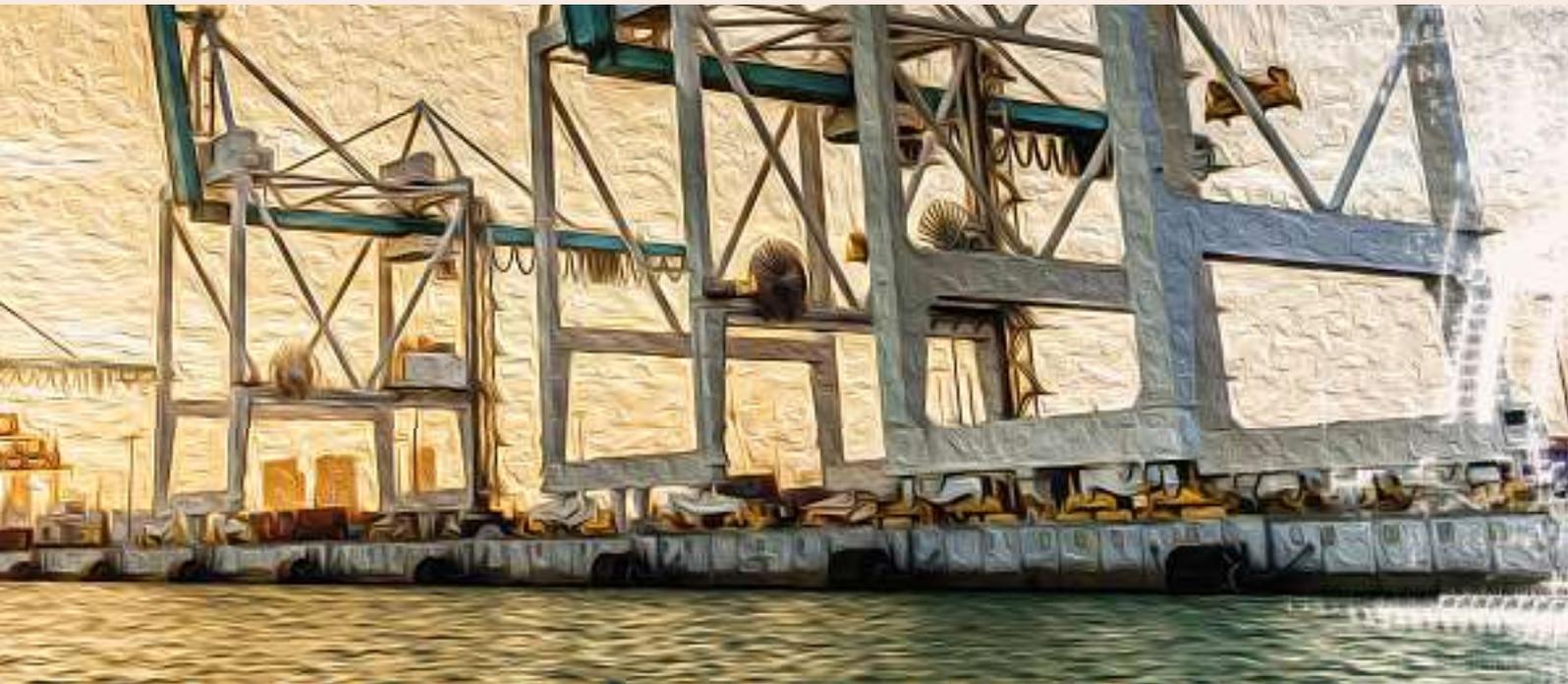
Some issues are more complex. For example, will the European Union Single Market still be functioning, or even exist? What land-based mode of transport will be predominant in years to come? How mobile will our population be? Will the Northern Sea Route be a major artery for EU-Asia trade, and which ports will develop to transship goods emerging from the Arctic waters? How much



Ports are building now the cultural icons of the future

John Richardson
Chair, ESPO award committee

European Dredging Association



will sea level rise? Will the trend for ever larger vessels with deeper draught continue? Will protectionism erode the global economy and lead to local production for consumption rather than global sourcing?

I have great admiration for those who are able to tackle these questions even implicitly in their investment decisions. The answers are the key to genuinely sustainable investments.

What is clear is that ports, more than most businesses, are obliged to consider carefully long-term economic sustainability, but they cannot do so without also thinking of environmental sustainability. Today, this an integrated part of port planning. It is now around 20 years since ESPO produced its first Environmental Code of Practice. At that time less than half of Europe's ports had an environmental policy; the figure now is 91%. That sounds like progress, and it is, but 38% of ports still have no formal environment management system. There is still much to do.

For many years the impact of port development on the local ecosystems and their fauna and flora was given the most environmental consideration. However, now that we have the Environmental Guidelines, which were issued by the European Commission in 2011 and warmly welcomed by ESPO, this aspect is systematically addressed in all port development.

The port industry is faced with a vast array of rules and regulations that it must respect,

and the legal officers of ports have a hugely important role ensuring that they are in compliance with them. Nevertheless, for me one of the most encouraging aspects of our ports' attitude to the environment is revealed in the answer to ESPO's 2012 benchmark survey, in which 73% of all ports responded 'yes' to the question, 'Does your policy aim to improve environmental standards beyond those required under legislation?'

Examples of going 'above and beyond regulation' can be found in the cruise industry. One way in which modern cruise ships apply this is in the area of solid waste, where multiple waste streams are separated and stored until they can be received on land. Unfortunately, too few ports are equipped with appropriate reception facilities to maintain this degree of separation. This is one issue that needs to be addressed in the revision of the old EU directive on port reception facilities in the coming months.

However, the principle is clear, and going above and beyond regulation is clearly part of the mindset, which leads us towards fully sustainable economic activities. Not only is this morally correct, it also makes economic sense.

In most sectors, if we discuss social sustainability, we are talking about maintaining well-paid, skilled, and safe jobs, and a motivated, creative workforce. It seems to me that this subject, for perhaps

understandable historical reasons, is given less attention by the port sector than by others. I would hope that this can change in the future.

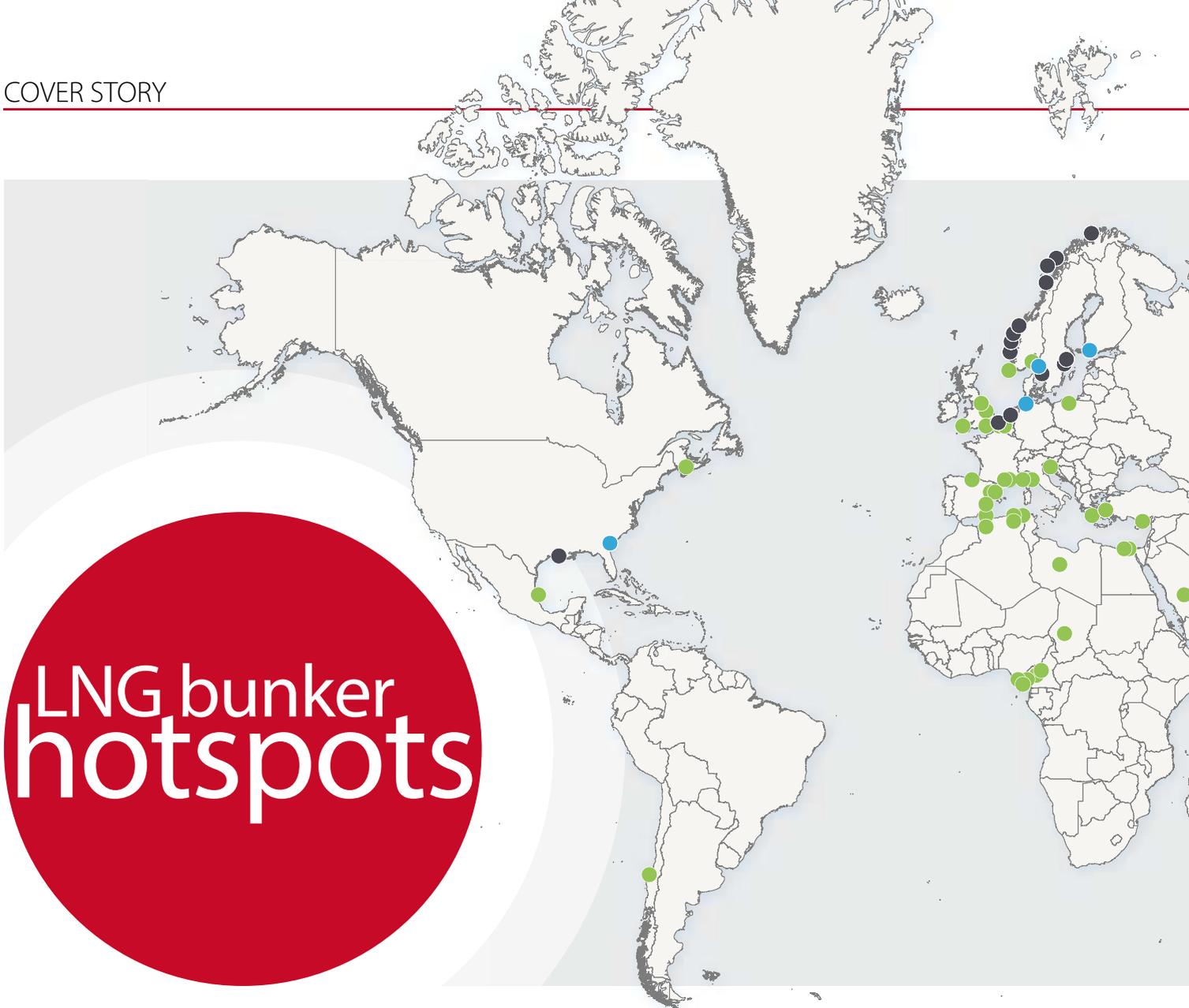
Sustainable port development can also hold cultural components. Many ports boast rich collections of heritage, and this can be used to explain a port's history and make a connection with the present and future. I would like to go further and say that when we think of the legacy that ports of today will leave behind, we should make sure that future generations will regard them with pride as their valued heritage. Ports are now building the cultural icons of the future.

If we examine what sustainable development means for ports, I believe it should include the issues of: long-term economic thinking; green operations; societal integration; human resource management; caring for the heritage of the past; and creating the heritage of the future.

Above all, we must refer back to the work of the Brundtland Commission. If today's port managers and employees can adopt this simple idea as the guiding light of all they do, their grandchildren will indeed be proud of their heritage. **PH**

AUTHOR: John Richardson is a special advisor to global public affairs consultancy Fipra International

MORE INFO: www.fipra.com; www.espo.be



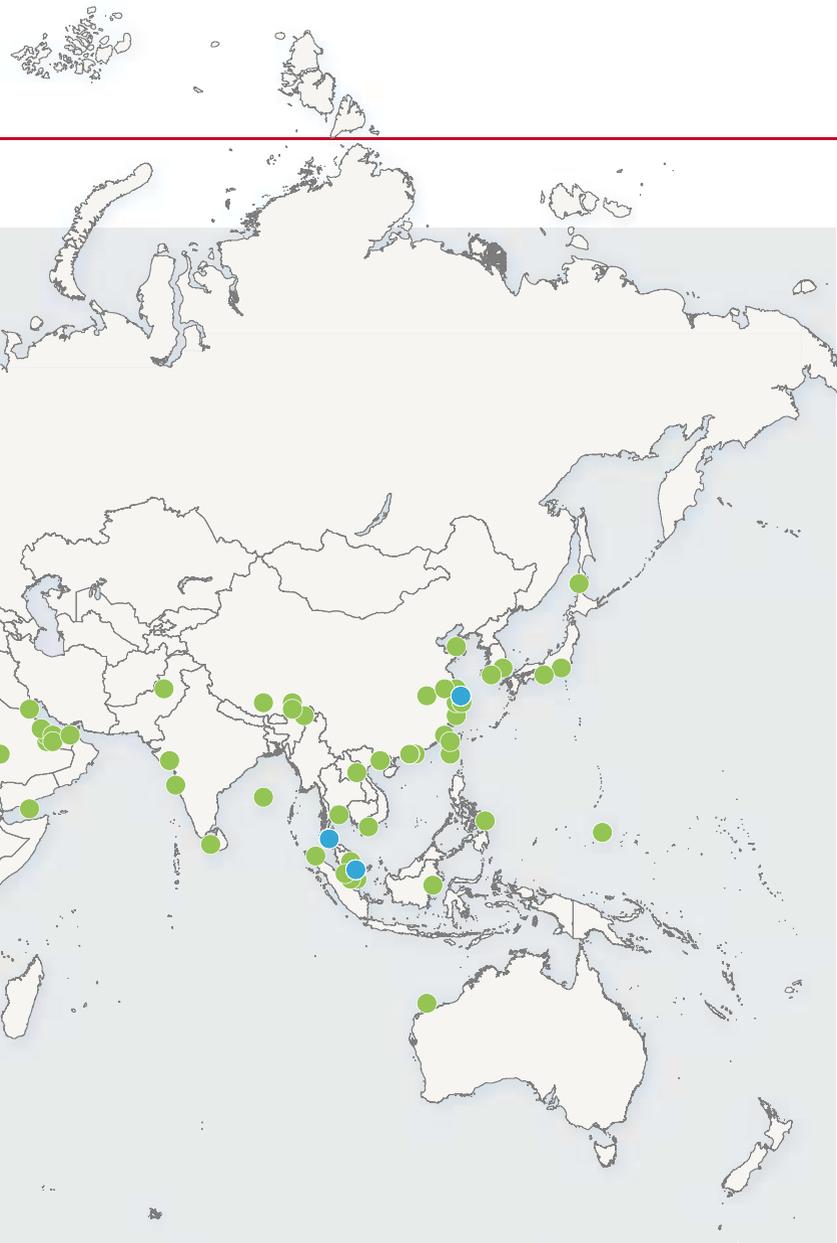
P&H considers where shipping lines will bunker the LNG-fuelled vessels that are starting to come online

It is looking increasingly likely that liquid natural gas (LNG) will be widely used as a fuel for ships, replacing diesel oil. The shipping industry is being forced to consider alternative options to the sulphur oxide-rich diesel oil through regulations being pushed through IMO's Marpol Annex VI that set a sulphur oxide limit of 0.1% as of 1 January 2015. These regulations will affect emission control areas (ECA) in north America and north Europe. By 2020 vessels will be required to burn fuel with less than 0.5% outside an ECA.

At the moment there are only a handful of ports that offer LNG bunkers with around seven more being developed (see map). Singapore is one significant player due to enter the market this year. Current infrastructure in ports is limited to small scale bunker operations, and utilises bunker barges, either

alongside or at anchorage, and trucks. LNG is moved from the LNG terminal to the ship often by road or waterway. Technology company Galileo has introduced the Cryobox Nano LNG station. It is a portable LNG liquefaction plant that the company claims can convert 7,000 gallons (32,000 litres) of natural gas vapour into liquid every day. This could be useful for smaller commercial operations such as ferries and offshore vessels, but future operations could include an LNG vessel berthing alongside an LNG terminal.

From the ship side, according to IHS Maritime's database there are around 60 vessels that can or are being operated on LNG. These are mainly limited to barges and vessels on regular services, for example ferries in Scandinavian countries such as Finland and Sweden. However, an LNG-fuelled tug has recently been launched and in May, Rolls-Royce delivered an LNG-fuelled cargo ship to Norwegian company Eidsvaag. The *Eidsvaag Pioneer* will be used year-round to deliver feed to fish farms around the Norwegian coast. In early 2013, TOTE ordered two LNG-fuelled container vessels (see page 14), and more recently, US-based container



LNG bunkers infrastructure currently available

- Nynäsham, Sweden
- Gothenburg, Sweden
- Stockholm, Sweden
- Rotterdam, The Netherlands
- Antwerp, Belgium
- Port Fourchon, USA
- Risavika, Norway
- Halhejm, Norway
- Ågotnes, Norway
- Ålesund, Norway
- Lødingen, Norway
- L Moskenes, Norway
- LBodø, Norway
- Hammerfest, Norway

Hannah Kild/Arti Remondie Source: IHS

seeing it in short-sea roro/ropax markets, where the supply can be centralised". He believes that the network will develop around the use of smaller bunker vessels. For example, on the Asia to Europe service, "a ship could refuel in China, top up in Singapore (bunker hub), again in the Persian Gulf, then on into Europe. I doubt all these ports will have the infrastructure; however, they may be served by bunker tanker." He continued: "We already see bunker tankers filling up in one port, and then supplying ships in another location, so this could be the way in which the LNG bunker network is built up." An example of this would be Zeebrugge, home to a major LNG import terminal, where LNG supply/bunker tankers could load, and then go off and bunker containerships in Le Havre, Dunkirk, Felixstowe and so on, and all within a day's steaming for the supply ship.

The Clean Power for Transport package presented to the European Commission (EC) in January 2013 called on ports to have their bunkering facilities in place by 2020. To support ports the EC is considering subsidies to get infrastructure in place. Port of Gothenburg plans to open an LNG terminal in 2015 and looks set to receive an EU subsidy to provide LNG to shipping and industry. The port has signed a cooperation agreement with Port of Rotterdam on how LNG is handled and to speed up its update as fuel.

Port of Antwerp is also a contender for an EC subsidy for a facility that will mainly be used to set up an LNG bunkering station for barges. It has been offering LNG bunkers since December 2012. Port of Singapore has signed an agreement to cooperate on LNG bunkering procedures with Antwerp, along with Zeebrugge. Under the terms of the three-year agreement, the three ports will seek to harmonise their LNG bunkering procedures with the aim of promoting the wider acceptance of LNG as a bunker fuel for ships.

Lowell takes this idea one step further, saying: "Any port that wants to offer LNG bunkering will need to develop some strategic partnerships with both a fuel supplier and one or more vessel owners to act as 'anchor tenants' by committing to take a certain volume of fuel over a period of five years or more." **PH**

MORE INFO: wpci.iaphworldports.org

- **LNG bunkers currently available**
- **Developing LNG bunkering infrastructure**
- **Ports with LNG terminals**

shipping company Matson Navigation ordered two 3,600 teu box ships that can use either normal bunker fuel or LNG in its main engine.

Ports are starting to respond to the investments shipping lines are making, but as Dana Lowell, senior consultant at US-based consultancy company MJ Bradley and Associates, told *P&H*, "There is a definite 'first mover' disadvantage due to high economic risk". He believes that the move towards LNG will start with localised projects to serve specific vessels or companies.

IHS Maritime is currently carrying out a study that so far suggests that LNG bunkering facilities will be developed in ports that are close to current LNG terminal infrastructure. Sri Lanka Ports Authority, for example, is investing in an LNG terminal at Hambantota (see *P&H* Nov/Dec, page 36) and it has suggested that it may offer LNG bunkers too.

And so how will the LNG bunkers network develop? IHS Maritime's Krispen Atkinson believes LNG may not be the fuel of choice for all markets, such as the spot market for bulk carriers and tankers, but for vessels on regular services such as containerships. He said "we are already



TOTE

Leading by example

Vessel operators are cracking the code on LNG bunkering at US ports, reports **John Gallagher**

The ability to bunker liquefied natural gas (LNG) at US ports is getting a significant jump start from a pioneering vessel operator. Totem Ocean Trailer Express, known as TOTE, will place into service, in late 2015 and early 2016, what are expected to be the world's first LNG-powered containerships.

The 3,100teu, 233m (764ft) 'Marlin Class' dual-fuel vessels will operate in the US Jones Act market (which requires the use of US-flagged ships between US coastal ports) between Jacksonville, Florida, and San Juan, Puerto Rico. Construction of the vessels at General Dynamics' Nassco Shipyard in San Diego is scheduled to begin in February.

Close on TOTE's stern is rival Matson Navigation, which announced on 6 November it had signed a \$418 million contract with Aker Philadelphia Shipyard for two LNG-powered containerships of its own. The 3,600teu, 260m (850ft) vessels – the largest Jones Act box ships ever to be constructed, according to Matson – are scheduled to be delivered in 3Q-4Q18.

While there is currently no LNG bunkering infrastructure in place for deepwater vessels at US ports, TOTE believes that this \$350 million 'green' centric investment will help set a course for LNG as a marine fuel in the country. "All the LNG infrastructure pieces have been waiting for someone to make a commitment in order to have an anchor customer," TOTE project manager Ben Christian told *P&H*. "Part of our strategy is to improve our vessel emissions. But it's also to provide an impetus for other marine users, and to be a catalyst for LNG bunkering."

Peter Keller, president of Sea Star Line, the TOTE sister company that will operate the new vessels in the Caribbean trade, explained that IMO pollution standards were a driving force in the decision to go LNG. International and domestic laws will require vessel operators to burn cleaner and costlier fuel when operating within a 200nm coastal emission control area (ECA). Coastwise vessels that spend significant amounts of time within those ECA zones will be susceptible to the higher costs. "We just felt the best way to solve those issues and conform to the regulations was to address the fuel," Keller told *P&H*. "And there is no more environmentally appropriate fuel than LNG."



“There is no more environmentally appropriate fuel than LNG”

Peter Keller
President, Sea Star Line

Sea Star Lines



TOTE's 'Marlin Class' carrier will operate in the Caribbean market

He explained that the company is considering two bunkering options: using a bunker barge system or a pipeline/LNG liquefaction system. The latter would require a cryogenic pipeline with which to transport natural gas (which requires ultra-low temperatures for its liquid state) running from a liquefaction facility to the pier. "We have not yet made a decision yet as to the LNG vendor or the delivery methodology at this point," Keller said.

LNG as a marine fuel has been particularly popular in Norway, where for the last 10 years it has been used in the passenger ferry sector. China has started a long-term LNG marine fuel programme in its domestic trade.

The US government is attempting to get on board as well. The US Maritime Administration (MarAd) is sponsoring a demonstration project involving a containership that will be repowered to use LNG as a propulsion fuel. MarAd is also funding research related to LNG fuel transfer, infrastructure, and training, which is slated to be completed this year.

The US is at a particular advantage when it comes to LNG as a result of 'fracking': a technology that allows producers to tap into pockets of fossil fuel sources that were beyond reach using conventional drilling. But US producers have so far been unwilling to make major investments that would allow LNG to be more accessible as a marine fuel source because of a lack of demand. And many vessel operators have been unwilling to invest in deepwater LNG-powered shipping assets due to a lack of LNG fuelling infrastructure – the classic 'chicken and egg' problem. That is where the port sector can play a role, according to one industry consultant.

"Ports can and should be a catalyst to spur LNG development throughout the transportation industries, since they are at the centre of marine activities in the US," said John Graykowski, founder of Maritime Industry Consultants, and a former acting administrator at MarAd. "Depending on the port, it may have a role in the siting, permitting, financing, development, or even operations of an LNG fuelling terminal."

Aaron Ellis, a spokesman for the American Association of Port Authorities (AAPA), told *P&H* that while the association shares information about LNG trends with its members, it has not developed an official policy position on LNG infrastructure at ports, or on its use as an alternative fuel. There are regulatory hurdles to clear as well. The US Coast Guard is in the process of developing policy on LNG bunker barge design, as well as transfer operations and personnel training. "We're looking for guidance from industry," a Coast Guard spokeswoman revealed to *P&H*. TOTE, in the meantime, will be pushing on towards transforming to an all-LNG fleet operator. In addition to the new containerships, it is converting two 'Orca'-class diesel-electric trailerships to LNG. Nassco is designing the conversion of the ships, which have been operating on the US West Coast between Anchorage, Alaska, and Tacoma, Washington. **PH**

i MORE INFO: www.totemocean.com

LNG headstart for Jaxport?

The Port of Jacksonville might become the first US East Coast port to get in on LNG bunkering, if an LNG company's plans are successful. Newport Beach, California-based Clean Energy Fuels announced on 30 October it had placed a purchase contract on property on the St Johns River, where it hopes to build an LNG fuel terminal.

The site is roughly 3.2km (1.99 miles) upriver from the port. It could have the capability to produce about 300,000 gallons of LNG per day, according to the company. "This project could establish the Port of Jacksonville as a leader in maritime natural gas fuelling, and support the shipping industry as it follows other transportation segments in transitioning to natural gas," said Clean Energy VP Brian Powers.

"It's very encouraging to see companies looking seriously at LNG," commented Sea Star Line's Peter Keller. "Anything that increases the demand for LNG, and increases the permitting and construction of liquefaction facilities, is good for us." **PH**

MarAd funding LNG schemes

The US government is doing its part in sparking container ship LNG use and creating the infrastructure to support it. The US Maritime Administration announced on 7 November that it will be giving \$900,000 to Jones Act carrier Horizon Lines to help convert its *Horizon Spirit* to LNG. The 1980-built, 2,436teu containership operates between Long Beach, California, and Honolulu, Hawaii. The conversion is expected to be completed by late 2015.

MarAd is also providing \$500,000 to class society DNV's US subsidiary to analyse the challenges associated with bunkering, as well as installing the landside infrastructure needed for LNG. MarAd said the study will be completed by 1Q14.

Horizon Lines and DNV were chosen in a competitive process as part of the Obama Administration's effort to enhance alternative fuel use. US Transportation Secretary Anthony Foxx said: "Fuel-efficient ships appeal to the maritime industry for the exact same reasons that fuel-efficient cars appeal to consumers – they're easy on the environment and their pocketbooks." **PH**

Dutch courage

Rotterdam's Maasvlakte 2 opened last year, doubling the port's container capacity. **Stephen Cousins** looks at the cutting-edge technology being used and the implications for trade

APMT

APM Terminals wants its facility at Maasvlakte 2 to be the most sustainable in the world

Construction of the first phase of the Port of Rotterdam's Maasvlakte 2 expansion project was completed in May last year, delivered on schedule and an impressive €150 million (\$201 million) under budget at €1.55 billion (\$2.15 billion).

The facility increases the port's available land by about 20%, a vital expansion given that the existing port and industrial area has virtually no room available. It has added 2,000ha of land, of which 1,000ha will be available to lease as business sites for container shipping terminals and by the chemical industries.

Extensive dredging work, carried out since 2008, was required to reclaim the site from the North Sea, as well as to widen the Yangtzekanaal navigation channel to 600m to allow two mega container ships to pass each other side by side while a third is moored at the quay.

Two container terminals so far have been contracted to start business at Maasvlakte 2: Rotterdam World Gateway (RWG), a joint venture between stevedore DP World and the shipping lines New World Alliance and CMA CGM; and APM Terminal (APMT) Maasvlakte 2. Both will begin operations towards the end of 2014, a move that will simultaneously make Rotterdam Europe's biggest container hub.

A third operator, ECT, which runs the latest facility at

Maasvlakte, has contracted to build a terminal in the next few years.

Taken together, these factors will make Rotterdam a strategic force to be reckoned with long into the future, explained René van der Plas, director of project organisation at Maasvlakte 2. "What makes us unique is our extremely close connection to the sea," he said. "It takes less than an hour to sail from the open sea to complete mooring. The Port of Rotterdam is ready for the future. Transport infrastructure links for road, rail and water were installed over a year ago. We have the land area available for the biggest container operations and for businesses to expand and we have the draught for the biggest ships."

Rotterdam's focus now is on attracting new business to the facility, which has been designed to accommodate three types of industry. Container terminal operators are expected to cover 600ha of the available 1,000ha by 2030-35, when Maasvlakte 2 is fully operational; about 300ha will be devoted to chemical industries; the remaining 100-150ha is for use by logistics depots, including empty container storage and distribution centres.

The opening of the RWG and APMT terminals this year is expected to unleash a fierce battle for cargo



in the Le Havre-to-Hamburg port range. Each facility will have a total 1,000m of deepsea quay wall able to berth two of the largest 400m-long Maersk Triple-E container ships simultaneously, with space available for future expansion. Each terminal will also have 500m of quay wall with 13m alongside depth for barges and feeder operations.

APMT will operate one of the most advanced and environment-friendly automated container terminals in the world, using a combination of all-electric vehicles and increased reliance on modal split, using barge and rail operations to deliver net-zero carbon emissions.

"We're aiming to be the most sustainable container terminal in the world," said Frank Tazelaar, MD at APMT Maasvlakte 2. "From the start, a key driver has been to design the terminal with improved modal split. The semi-automated rail terminal will be capable of transporting as much as 25% of land-side container volume, while the dedicated barge facility will be able to offer fast turnaround for up to 45% of land-side volume."

In addition, all-electric-powered cranes, specially designed battery-powered lift automated guided vehicles (LAGVs), and other vehicles used to ferry personnel or technical services staff in and out of the terminal will help cut emissions.

"We're testing the automatic exchange of battery packs on vehicles, which has gone well so far," said Tazelaar. "We are also preparing a plan to procure all of our electricity [from] green power, at which point we will rightly be able to claim zero carbon emissions at our facility."

With an anticipated annual capacity of 2.7 million teu in phase 1, by 2015 AMPT is aiming for a 25–50% increase in boxes handled per hour, compared with a conventional automated terminal run today.

To help achieve this hike in productivity, the world's first double-trolley ship-to-shore gantry cranes will be deployed. They will be manufactured by Kalmar and run remotely by operators stationed 1.5km away at APMT's main building.

The 37 Gottwald Lift AGVs will feature an integrated container lifting mechanism designed to enable them to place containers directly on to the stacking crane

It takes less than an hour to sail from the open sea to complete mooring

René van der Plas

Director of project organisation, Maasvlakte 2

rack, thereby saving time. They will also service an on-dock rail terminal, a function that has only previously been carried out using manual transport in terminals. "At existing automated facilities, such as HHLA Container Terminal Altenwerder in Hamburg and Euromax Terminal Rotterdam, interaction between the stack and the rail terminal is carried out using manually operated transport," said Tazelaar, "but we will automate that part of the process too."

APMT will also operate 26 prototype automated rail-mounted gantry cranes built by Austrian firm Kuenz and designed to load/unload containers from lorry chassis' and on to LAGVs for shuttling to and from the berth and rail terminal.

Although not all this terminal equipment has been delivered, AMPT has set up what it terms a 'mini-terminal' to test and de-bug equipment and processes in advance of launching the full-blown terminal next year.

"Now the civil construction side of things is complete, it's about ensuring we test each component and components integrated together so they can talk to each other," said Tazelaar. "We have the first operational personnel on site, so our system can start to learn their operational practice and procedures.

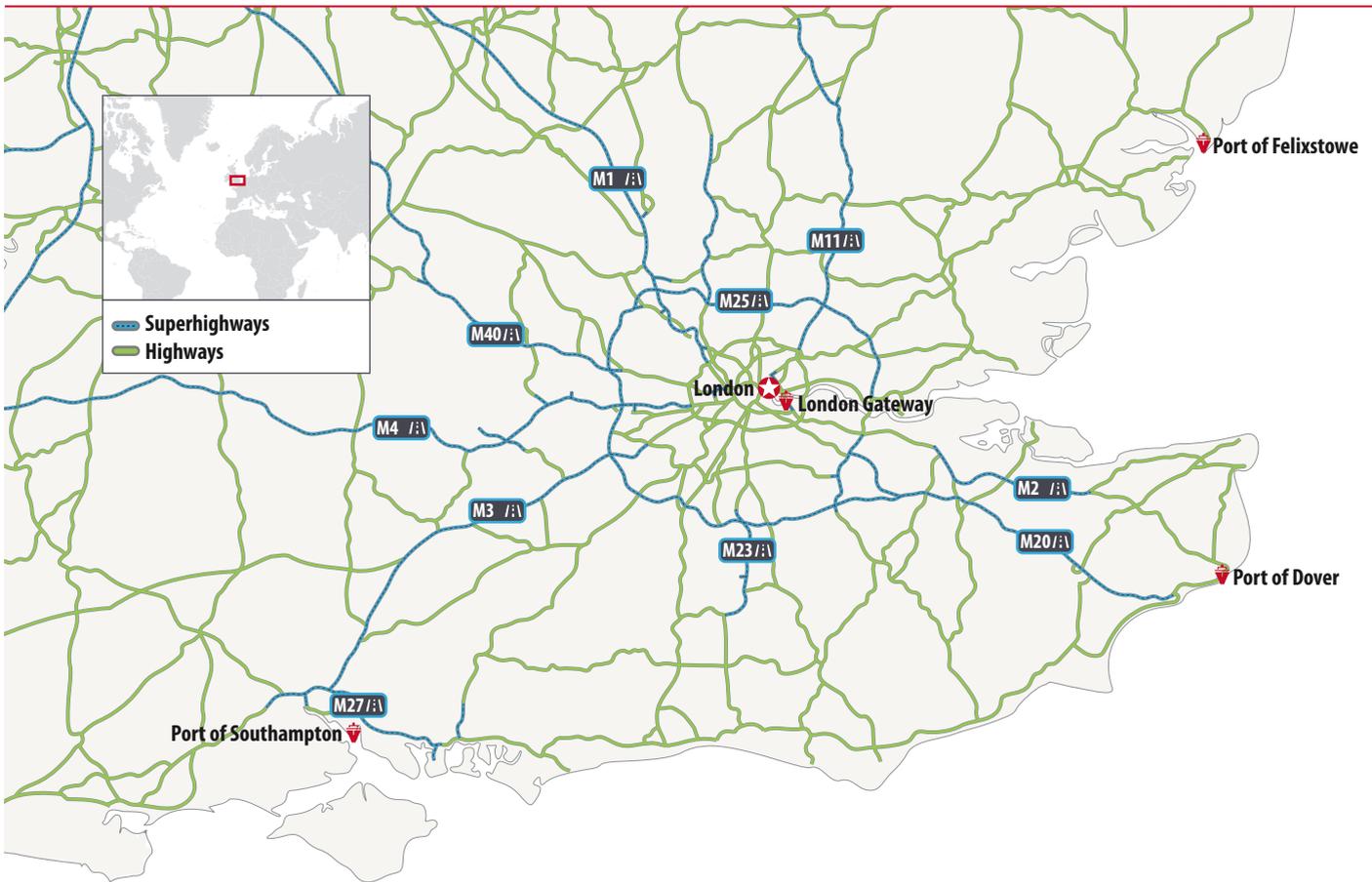
"It's an integration challenge designed to find as many faults and bugs in the system as possible. We are fortunate in that most terminals allow three to four months for this process, but we have a whole year." **PH**

MORE INFO: www.maasvlakte2.com

Looking south... the site in April 2013



Port of Rotterdam



At the centre of the supply chain

London Gateway pins its hopes on its logistics park, reports **Richard Halfhide** for *P&H*

DP World London Gateway's chief executive Simon Moore was keen to emphasise the "fantastic location" when the new 1,500 acre deep-water port and logistics park officially opened on 7 November. The MOL *Caledon*, a 4,931 teu containership that operates as part of the Southern Africa Express Container Service (SAECS) line, arrived late the night before. The efficiency of the fully automated facilities was underlined when the first freight train departed at 8am the following morning while the vessel continued to unload.

SAECS, a consortium comprising MOL, Deutsche Afrika-Linien and Maersk, is the only service currently signed up and the 40,000 teu/year it will bring scarcely dents London Gateway's initial 1.6 million teu capacity. Earlier this year Moore claimed to have commitments amounting to 1 million teu.

At a reception to mark the opening Moore focused on the advantages London Gateway's port centric philosophy can offer supply chains. Gateway's primary

target is 40% of the UK economy, and 15 million people, within a 50-mile reach in the south-east. Yet it is claimed transport infrastructure places Gateway closer to 73% of the UK market than principal rival Felixstowe, with a hinterland that stretches as far north as Manchester. DP World estimates that savings could reach \$100-300 per container.

In addition to clearing 28 million m³ of material from the Thames Estuary, constructing a 50m-high quay wall, 1.3km quay and relocating 350,000 animals, the privately funded building programme has seen heavy investment in road and rail development. A three-lane roundabout will offset the increase in traffic, as well as new slip roads off the M25 – a superhighway that circulates the UK capital, London. A total of 25km of rail track has been laid and uniquely the port will operate with two tracks from the outset.

"Fast, reliable and flexible transit is essential to ensuring that UK remains an attractive proposition to shipping lines as a direct call" said David Mawer, managing director of beverage importers JF Hillebrand UK, whose containers were the first to be unloaded from the MOL *Caledon*.

Among the earliest acolytes of Gateway's vision were Marks and Spencer, which is constructing a £200 million (\$322 million) distribution centre near the front of the logistics park. "The other end of the park is 5km away. Every km you can take out of your supply chain is money straight to the bottom line" according to Moore. The retailer believes it can cut the time products take to reach consumers from three weeks to three days. **PH**

Kingston plan in its pivotal phase

The Jamaican port pushes through setbacks, as it positions itself to take advantage of the expanded Panama Canal

With its central Caribbean locale, Jamaica's Kingston Container Terminal (KCT) is ideally positioned to take advantage of Panama Canal expansion. As a facility that can handle the larger containerhips to traverse the region, KCT needs to tap its geographic potential when the widened waterway opens in late 2015.

The terminal's expansion effort is finally moving forward. A pivotal component was the decision on its privatisation of the terminal, which is currently owned by the Port Authority of Jamaica (PAJ). In September, Jamaica's Ministry of Transport revealed that three bidders had been short-listed: PSA International, Dubai Ports World, and Terminal Link (a joint venture between CMA CGM and China Merchants Holdings International). A final decision on the privatisation winner is expected in 2Q14.

CMA CGM signed a Memorandum of Understanding in May 2011 that called for it to invest \$100 million in KCT in return for a 35-year lease, but that was never converted into a firm contract. Last year, the PAJ inked a separate MoU with China Harbour Engineering for a \$400 million, 2 million teu/year greenfield terminal on the Fort Augusta property adjacent to KCT.

However, in April 2013 the Jamaican government conceded that China Harbour had rejected the Fort Augusta site as too small.

After such setbacks, "the best thing for the country is to move forward with the privatisation", asserted Kim Clarke, president of the Shipping Association of Jamaica. "There have been delays in the process. Progress has been too slow."

Another key aspect of preparing for Panama Canal expansion is the dredging of Kingston's access channel to 17m. The Ministry of Transport announced in late October that pre-dredging technical studies were underway. "Dredging is the biggest thing that's holding us back," Clarke said. "What the government needs to do is dredge the channel to show the carriers that Jamaica is serious." **PH**

“What the government needs to do is dredge the channel to show the carriers that Jamaica is serious”

Kim Clarke *President, Shipping Association of Jamaica*

Under the plans Kingston Container Terminal will be privatised





New hope for Haiti

A rebuilt terminal will ease cargo flow to catastrophe-struck island, writes **Greg Miller**

After the January 2010 earthquake, Port-au-Prince's crippled terminal emerged as an iconic symbol of Haiti's plight. The half-submerged crane, toppled containers and buckled quay highlighted just how vital ports truly are to a nation's survival. Today, a new symbolic image is taking shape. After years of political wrangling and debate over alternate sites, the terminal in Port-au-Prince is finally being rebuilt on its original footprint, representing a positive step forward for both the port and the country.

Alix Celestin, general manager of Haitian port authority APN, said the definitive agreement for the project was signed in May, with work on the initial stage, known as Phase 0, to take 21 months.

The reconstructed terminal "will provide more efficient infrastructure and new equipment, bringing down the coast of trade", affirmed Celestin.

The terminal project is being overseen by Madrid-based Alatec, with the building of Phase 0 being done by Miami-based GLF Construction, a subsidiary of Italy's

Grandi Lavori Fincosit. After the contract was awarded, GLF proceeded with final design work, a process that is now complete. As *P&H* went to press, the builders were on-site and the installation of the first piling was imminent, according to Edouard Baussan, president of the Shipping Association of Haiti.

Phase 0 is comprised of the reconstruction of the North Wharf, which will feature two berths for container ships totalling 400m and dredging to 11.5m (from 9.5m currently). APN is using its own funds to finance the \$70 million Phase 0, although GLF originally bid higher. Baussan explained that as part of the price compromise, it was agreed to scale back the length of the wharf from the originally proposed 450m.

There is also a possibility – given the price compromise – that only a portion of the basin may be dredged, although Baussan emphasised that "we are certainly pushing for the whole basin to be dredged".

Longer-term plans call for two additional construction stages. Phase 1 would bring the North Wharf to 620m, adding a third box ship berth, and creating 550m of general-cargo berthage on the reconstructed South Wharf. Phase 2 would add a fourth container ship slot to the North Wharf, bringing berthage to 840m, and add a 160m dry bulk berth to the South Wharf. According to

Proposed design for the new North and South Wharves at Port-au-Prince, Haiti

a presentation by Alatec, the total estimated budget of Phases 0, 1 and 2 is \$220 million.

Meanwhile, a third party will be hired to manage the reconstructed terminal via a public-private partnership, according to Celestin. Crane equipment would be incorporated into the port operations tender and provided by the winning bidder. "The actual details have not yet been established," said Baussan of the terminal management tender. He believes that the scope of the contract and the type of equipment to be incorporated will be discussed in the coming months.

The Port-au-Prince reconstruction plan has its roots in a design process that began prior to the earthquake. The original circa-1970s quays had structural issues and APN brought in Alatec to develop a plan to upgrade the facilities. "That Alatec study was ready before the earthquake," Baussan recounted. "After the earthquake and all of its consequences, we fortunately had the Alatec study to use as a base to start identifying steps to rebuild the whole complex."

Since the earthquake, Port-au-Prince has used a system of three floating docks to handle cargo. Demand and volume have returned to pre-earthquake levels, according to RVAM ship agency general manager Reginald Villard, speaking on behalf of the Shipping Association of Haiti. However, Villard pointed out that "the restriction on floating barges is the ability to use rubber-tyred gantry (RTG) cranes, thus posing a limitation for large gearless vessels".

Pre-earthquake, productivity was 18-20 moves/hour using RTGs, said Villard. Post-earthquake, the barges are equipped with a Mantiwoc crane with average productivity of 12 moves/hour. However, Villard noted that the majority of vessels now calling in Port-au-Prince use ship's gear, with productivity per crane at six to seven moves/hour and most vessels using two gangs for productivity of 12-14 moves/hour. When the rebuilt North Wharf debuts, "all vessels will have the opportunity to work with gantries and/or rubber-tyred cranes", which "will improve vessel turnaround, thus reducing port costs for lines", said Villard.

The floating barges will be shifted during the construction process to allow an unimpeded cargo flow. Baussan also cited the possibility that the first 120m of the reconstructed North Wharf could be opened for container business prior to overall completion of Phase 0.

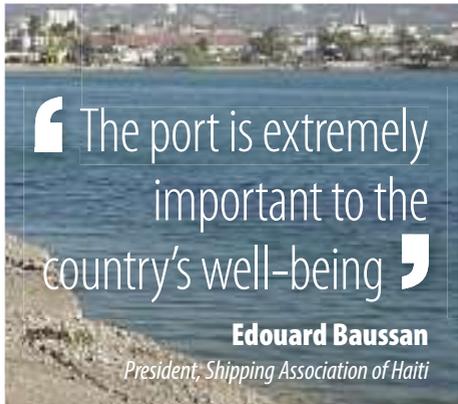
Haiti's shipping association believes the new terminal project "will certainly be a strong marketing argument for all agents" and "may change the general negative perception that shipping lines have about port infrastructure in Port-au-Prince". However, despite the new facilities, the group predicts volume growth will remain slow. Growth is expected to be constrained by continued weakness in the domestic economy as well as rampant smuggling.

"Formal import flows will increase significantly in the short term only if smuggling is stopped," acknowledged Villard. "We estimate that between 20-40% of all imports enter our market through smuggling channels," he added, explaining that "goods are smuggled through provincial ports and along the border with the Dominican Republic".

On the economic front, Baussan conceded that "growth has remained at a very disappointing level of 2-3%". Aid-driven gains seen immediately after the earthquake dropped off "once humanitarian resources were diverted elsewhere", he explained, adding that competition with other nations for foreign direct investment is "stiff".

Given the weak level of cargo growth and pervasive smuggling, Baussan believes that Phase 0 of the rebuilt North Wharf will accommodate Haiti's needs for at least the next five years. "Obviously, this infrastructure has to be rebuilt," he said. "We couldn't continue with the temporary floating piers."

"The port is extremely important to the country's well-being," continued Baussan. "You must have an efficient, competitive port to support the export industry and to attract serious foreign direct investment to the country. And after all of the politics around rebuilding this port, we're finally seeing all of this effort coming to fruition." **PH**



Shipping Association of Haiti

Shipping Association of Haiti president Edouard Baussan surveys damage at Port-au-Prince terminal after the January 2010 earthquake in Haiti. Baussan has been instrumental in pushing for the new terminal reconstruction project



Energy investment at Zhoushan Port

China's Brightoil Petroleum and ENN Group invest in oil and LNG facilities in Zhejiang province, writes **Dexter Yan**

Eastern China's Port of Zhoushan has attracted two privately-run Chinese energy companies to build oil and LNG facilities, giving the port a bigger role in the regional energy shipping landscape.

Brightoil Petroleum, a Chinese bunker oil trader, has recently been granted government approval for a 300,000 tonne oil pier project at Zhoushan, involving a gross investment of Yuan 1.07 billion (\$175 million), according to local government sources.

The plans for the oil pier comprise the provision of four berths with capacities of 300,000 tonnes, 100,000 tonnes, 50,000 tonnes and 20,000 tonnes and an overall length of 1,395m. Its handling capacity is expected to total 32.9 million tonnes (17.35 million tonnes for receiving oil and 15.55 million tonnes for loading oil) per year. The oil pier

project is a key auxiliary part of the company's oil storage facility under construction in Zhoushan.

In June, Brightoil announced plans for the first phase of this oil storage facility, with a capacity of 1.94 million m³, being built at a cost of Yuan 1.32 billion (\$215 million). Brightoil Zhoushan Storage, a Zhoushan-based subsidiary of Brightoil, has contracted China Petroleum Pipeline Bureau to build the facility. Construction of the first phase is scheduled to be completed by the end of 2014, with work on the second phase – providing a storage capacity of 1.22 million m³ – expected to start in 1H2015.

The facility will store fuel oil, petroleum, diesel, jet fuel and chemical products. Construction work includes the provision of electricity, utilities, sewage treatment and heat insulation systems, a road and



Busan meets its challenges

South Korea's port of Busan is currently the biggest transshipment hub in northeast Asia. It seeks to maintain its lead in the region while expanding for future growth.

As a container port it will remain significant due to a variety of factors which give it an advantage, noted Busan Port Authority's (BPA) international affairs manager Lee Eung-hyuk. "Busan Port is located in the middle of the main trunk route between the world's largest and second-largest markets, the US and China, and unlike other competing ports in the region, Busan hardly ever closes due to bad weather".

Lee explained that Busan provides connectivity with 358 weekly services connecting it with around 500 ports in more than 150 countries. Busan New Port, currently under construction, will lead to the provision of more container terminals and new piers for both feeder ships and a variety of cargoes.

Northeast Asia is considered to be one of the most economically vibrant regions in the world. "In 2005, 57% of the world's exports and 47% of the world's imports were generated by the Asia and Pacific regions and these numbers are expected to increase 10% by 2015," Lee noted.

But there are also challenges, one of which is the expansion of carrier alliances. Lee explained that as many as 20 top carriers "eagerly participate" in alliances, giving them strong negotiating powers. Busan has 11 terminal operators and so can offer these users cost reductions. "Busan already offers some of the cheapest terminal handling charges (THCs) and port dues compared to other ports in the region." Busan's lower THCs in comparison with ports in China and Japan makes transshipment more cost-effective at the port, highlighted Ki-tack Lim, president of the BPA. Dredging to provide increased depth at Busan New Port, to enable it to receive ultra large container vessels, is also taking place. Many of the port's clients are currently ordering mega-sized ships to take advantage of economies of scale.

To remain northeast Asia's busiest port, one of the BPA's main efforts is based around providing a more efficient inter terminal transport system, terminal expansion and dredging in Busan New Port and the introduction of four new 50m-high cranes, with a reach of 23 rows. However, due to the economic slowdown, Busan might have difficulty in reaching its target of 18 million teu this year, said Lim. In 2012, Busan reported a total throughput of 17 million teu. From January to October this year, it achieved a throughput of 14.8 million teu. **PH**

Oil and LNG will play a bigger role at Zhoushan Port in the future

other ancillary works, auxiliary production and administration management facilities. It will enable the company to expand into the storage and related logistics business sector connected to petroleum products in China, Brightoil Petroleum said.

Earlier this year, ENN Group, a Chinese operator of LNG and CNG refuelling stations, reached an agreement with the Zhoushan government to implement a pilot project to supply LNG bunkers to ocean-going vessels, which was scheduled to begin at the end of 2013.

According to local government sources, ENN Group will invest about Yuan 5 billion (\$822 million) to build the first phase of the project, to include an LNG terminal with a receiving capacity of 3 million tonnes per year. The first phase will also be matched with a berth for 80,000 to 266,000 m³ LNG tankers and another refuelling berth for LNG-powered vessels, which will also be capable of loading LNG on to 5,000 to 60,000m³ LNG refuelling vessels. Also part of this first phase will be two ro-ro vessel berths and two 160,000m³ LNG storage tanks. The project is planned to test launch and then to start receiving imported LNG in March 2016.

The second phase of the project – representing a further Yuan 2 billion (\$329 million) of investment – will involve two 160,000m³ LNG storage tanks, with the receiving capacity of the LNG terminal being increased to 5 million tonnes per year. The second phase of the project is predicted to come on stream in 2022. **PH**



Sea bed ploughing real time

An innovative real-time vessel tracking system is helping the Port of Cork to plan and execute its dredging campaigns more efficiently. **Stephen Cousins** reports

Port of Cork

The Port of Cork is the main port serving the South of Ireland, and the second largest geographical harbor in the world, and as such faces a constant battle to prevent silt from building up in its navigation channel.

Where most ports typically deploy dredgers, or large excavators working from barges, to remove sediment and keep channels clear, natural conditions in Cork Harbour make it more practical and cost effective to use a seabed ploughing technique.

Silt is transported down the River Lee and into the harbor basin where it settles over time, narrowing and reducing the depth of the channel.

So, during the cold months from November to February, the port mobilises its 20m-long multi-cat utility vessel *MV Denis Murphy*, which drags a mechanical sea plough along the seabed to raise silt into the water column, where the actions of the tidal flow and river currents wash it out to sea.

This year, to make the operation run more efficiently, the port authority decided to engage marine consultant SEA-Tech and marine ICT provider Succorfish to carry out a six month trial using an innovative monitoring system designed to accurately map areas covered by the seabed plough in real time.

“Where previously ploughing activity was recorded onboard the vessel using plotting equipment, it was not possible to monitor it in real time from the shore,” explains Tom Rossiter, head of marine at Succorfish. “The old system also made it difficult to discern ploughing activity from other duties, but now Cork has increased visibility and confidence in the data being collected.”

Succorfish fitted the *Denis Murphy* with a radio frequency ID scanner on its heavy duty winch and plugged it into a SC2 vessel monitoring system (VMS), which produces charts showing the channels the vessel has ploughed over the season.

The backbone of the new system is SeaFi, a 15 megabyte per second marine wireless network developed by SEA-Tech, covering the navigational areas of Cork Harbour and up to 10km off Roches Point at the south eastern tip of the harbor. As part of its contract with the port, SEA-Tech also installed Wi-Fi on board the Port of Cork-owned vessels, *MV Denis Murphy* and *MV Gerry O’Sullivan*.

Critically, the Wi-Fi network enables SC2 chart information to be sent to computers used by staff onshore as well as to the crew’s mobile devices so they can monitor dredging progress on the move. The system also offers 100% data security as users can only access information via a password protected online interface.



Simulating impact of big box ships

A cutting edge ship bridge simulator is being used by a maritime research institute in Mexico to access the impact of mega container ships on existing ports' hydrodynamics, sediment transport and permanent structures.

The multi-purpose Polaris simulator, manufactured by Kongsberg Maritime, has been installed by the Instituto Mexicano del Transporte (IMT), the leading research centre for ports and coasts in Mexico, for use at its new reasearch facility in Queretaro. Polaris has been adapted to simulate various hydrodynamic ship models in Mexican navigable waters and shore lines covering the ports of Lázaro Cárdenas, Manzanillo, and Veracruz.

"From an applied research standpoint, the simulator will help IMT conduct feasibility and risk assessments in advance of constructing new terminals designed to accommodate bigger ships," said Henry Tremblay, president of Kongsberg Maritime Simulation. "The simulator will help them assess the level of effort required for an existing port to safely and efficiently accommodate larger ships or to test bed completely new port/terminal designs."

Parameters likely to be assessed include required channel width and depth, requirements for transit escort and berthing tugs, manoeuvring space within the confines of a port, including the required size of turning basins, the effect of very large vessels passing in close proximity to vessels secured to docks and loading cargo, and the effects of different environmental and weather conditions on operations.

The first contracted project, at the Port of Lázaro Cárdenas, is currently using the simulator to assess all aspects of port capacity including accommodating Triple-E class container ships carrying over 18,000 teu. When *P&H* went to press a preliminary report was due at the end of 2013. **PH**



A Polaris bridge simulator has been installed at IMT

Wi-Fi was installed on board the Port of Cork's vessel, MV Denis Murphy, so that the sea ploughing being carried out could be monitored ashore in real time

"In most ports, the master of the ship would not be able to see the output of the SC2 tracer located aboard. But Cork's wireless network will enable both Master Alan Vaughan and his crew to follow and plan their work in real time," says Rossiter.

Arnaud Disant, professional services consultant (IT) at SEA-Tech added: "VMS goes hand in hand with marine data communications and enables ships to send information on their current status using a private system (non-public), meanwhile, it also allows ship owners, here the port authority, to make educated decisions about that information in real time."

The project is initially expected to run for six months, after which the port will review the data and assess its impact on plough dredging operations, as well as consider other potential applications for the technology within the business.

For example, another proven feature is the SC2's geofence facility, which is designed to manage access to certain areas by alerting the operator by email or text message when a vessel enters a forbidden zone. SC2 also includes sector specific features such as e-log data reporting, SOS emergency alarm, anti-hijack alert, crew safety systems and deep sea thermal sensor attachments for fishing gear. **PH**

New paradigm for storm planning

Dr Austin Becker believes that all stakeholders should play their part in increasing port resilience to climate change

The world depends on ports: they serve as the backbone to development, facilitating the transport of critical energy supplies, raw materials, and finished products. We also depend on our ports for jobs – US ports alone employ 13 million people – and play a vital role in almost all aspects of the economy. However, global warming and resulting changes to environmental conditions on the world's coasts mean we have to rethink the future of this vital infrastructure.

Climate scientists project that sea levels will rise dramatically and storms such as Superstorm Sandy, Hurricane Katrina, and now Super Typhoon Haiyan will become more frequent as the planet warms. Historical sea levels and storm patterns have served as the benchmark for most coastal infrastructure, and we have designed ports based on these conditions. Many ports will find themselves exposed to higher levels of risk as a result of rising seas.

As businesses, ports have strong incentives to tackle these climate changes. Storms result in operational delays and huge costs from damage and cleanup. In a survey conducted in partnership with IAPH, we found that port operators are very concerned about these climate change challenges. In fact, 80% of survey respondents agreed that the port community needed

to address this problem head on.

In the past, ports planned for storm resilience in a compartmentalised fashion: engineers and consultants developed construction guidelines, while the local coastguard or emergency management agency worked with the port to ensure safe navigation and to protect lives. Most ports have evacuation and storm preparation procedures designed to minimise damage, but what will happen as sea levels rise and storms become more intense and more frequent? What types of impacts should we expect and where? What can be done to build resilience? During the past five years I have worked with the ports community to explore answers to these questions. I conducted interviews with 57 stakeholders in two US ports which are highly exposed to hurricanes – Gulfport, Mississippi, on the Gulf coast and Providence, Rhode Island, on the east coast. I spoke to port officials, government representatives, insurance representatives, port tenants, environmental groups, emergency responders, and many other stakeholders.

Results from these case studies show how the impact of a major storm at a port can ripple across the whole network of stakeholders, causing structural damage and leading to indirect costs and consequences difficult to put into financial terms (see diagram opposite). An

analysis of costs revealed that while the port operator picks up the tab for much of the direct damage and cleanup after such storms, society absorbs many of the indirect costs and other less tangible consequences.

For example, port contractors and tenants can lose business, while capital improvement plans may get derailed. Workers can lose jobs. Local residents can find their properties piled with debris. The government might spend billions on cleanup. Also, the marine ecosystem around the port may become polluted. The government's response to the disaster can also be delayed if the port is unavailable as a staging ground for recovery or a means for landing relief supplies.

Between the 57 interviews and a review of 22 planning and policy documents in these two case studies, I identified 128 storm resilience strategies for ports, which I organised into seven categories, ranging from changes to building codes and land-use regulations, to longer-range planning beyond 20 years, and better construction and design for buildings. Respondents also talked about changes to insurance policies and resilience plans for individual tenants. They discussed the robust emergency response plans already in place. But they also suggested many softer strategies, such as more research, stronger networks between stakeholders, and a need for a whole new way of thinking about resilience.

When I compared each of these 128 unique strategies with the responsibilities, jurisdictions and mandates of the various stakeholders of the port, I found that there are many ways for all stakeholders to build resilience into their planning. Options for the port operator include: insisting on stronger building construction; developing more robust emergency response or evacuation plans; elevating infrastructure; and building storm barriers.

However, port operators do not need to go it alone. All stakeholders should invest in the common goal of a more resilient port. For example, community and residential groups could help generate the political will necessary for government investment in storm barriers; research and academic institutions can conduct impact assessments and work with ports to determine best practices; government agencies can include system-level planning that addresses the port in the context of its multi-modal connections. Long-range co-ordinated planning involving many stakeholders can foster a stronger sense of unity around the common goal of port resilience.

Stakeholders noted the importance of leadership in implementing resilience strategies. In many cases, leadership can come from the port operator, as its business-oriented mission warrants new investment in storm resilience. But since stakeholder goals vary considerably and do not always align, a more neutral organisation may be more appropriate to lead a resilience campaign.

So-called 'boundary organisations' bridge industry

Direct Damages

- Damage to structures, freight and equipment
- Stakeholders affected: port authority, tenants, insurers

Indirect Costs

- Lost business, cleanup costs, delays in commerce
- Stakeholders affected: port authority, tenants, public policy agencies

Intangible Consequences

- Lost jobs, disruptions of normalcy, environmental damage
- Stakeholders affected: port authority, tenants, public policy agencies, community groups, environmental interests

with government and research by creating forums for information-sharing and co-ordination. Many such organisations exist, including the National Sea Grant Office in the United States, the World Ocean Council, and the European Commission's Joint Research Centre. Many have already started to tackle the climate change challenge for various sectors of the economy, including ports.

Sea levels will continue to rise by several more metres during the coming centuries: the question is not 'if it will,' but rather 'how quickly?' Ports in low-lying areas and those with a history of strong storms will be affected sooner. But, ultimately, all ports will need to adjust. Climate change requires a new paradigm for resilience planning for ports and for the stakeholders who depend on them. Ports can, and should, begin planning for rising seas and more storm events. But with risk levels increasing for all stakeholders, a more holistic approach can serve the interests of the port and the community in which it operates.

Stakeholders outside of the port authority need to better understand what is at stake when the next storm devastates the port, from the cost of rebuilding to the impact on the estuary, and everything in between. They also need to work with the port to find ways to reduce the consequences of sea level rise and super storms on society. **RH**

AUTHOR: Dr Austin Becker is an assistant professor of coastal planning, policy, and design at the University of Rhode Island. He recently earned his PhD from Stanford University, where he conducted his research on climate adaptation for ports

MORE INFO: abecker@uri.edu



A greater threat than ship emissions?

Dust created through cargo handling can be more damaging to the environment than other emissions generated in ports, one Dutch port believes

Much of the attention on reducing air pollution in ports has focused in recent years on emissions, particularly ships at berth. Yet in terms of particulate matter, studies in the Port of Amsterdam have revealed that industrial facilities and the storage and movement – including loading and unloading – of bulk commodities characteristically produce much higher concentrations of PM10 than ships at berth or in operation.

“Manoeuvring of ships is not a source of PM10, and even ships at berth produce much lower levels of PM10 concentration than areas where bulk commodities are stored and handled,” Ton van Breemen, environmental manager at the Port of Amsterdam, told the GreenPort Congress in Antwerp in October last year.

What is PM10?

Particulate matter that is 10 microns (micrometres) in diameter or less is called PM10. Of particular concern are particles that are 2.5 microns or smaller in diameter (PM2.5) because they can lodge deep in the lungs, and cause respiratory and cardiac problems.

Exposure to PM2.5 can cause health effects such as coughing, wheezing, shortness of breath, aggravated asthma, lung damage, including decreased lung function and lifelong respiratory disease, and premature death in individuals with existing heart or lung diseases.

In 2008, the Port of Antwerp commissioned a best of available techniques (BAT) study into the storage and handling of dry bulk goods after research by the Flemish Institute for Technological Research’s Vision on Technology (VITO) unit highlighted the significant impact of dust emissions from commodities such as coal and grain on air quality in densely populated areas close to the port.

The BAT study was not made public but the measures to reduce dust emissions were summarised in a Dutch language manual at www.emis.vito.be – a website dedicated to setting out measures to reduce environmental pollution, save energy and water, and reduce waste in production processes.

Peter Stouthuysen, a researcher into dust reduction techniques at VITO, summarised the report’s findings at the GreenPort Congress. “Techniques are grouped according to two main categories: storage or handling,” he said. “A further subdivision is made between primary and secondary measures. Primary measures directly affect those parameters that influence the formation of fugitive dust.”

The main parameters are: drift sensitivity of dry bulk goods, their drop height, fall velocity – which generally depends on drop height – and exposure to wind.

“The drift sensitivity of the dry bulk goods can be reduced by wetting the product, but this measure is only applicable if moistening does not affect

the composition or the quality of the product,” Stouthuysen said.

To reduce drop height and fall velocity it is important to apply good handling practices – as well as other technical measures – when manipulating grabs and mobile loading devices such as frontloaders, and when unloading trucks and wagons. Exposure to wind can raise dust from, for example, storage heaps. The siting of wind protection measures, such as windbreak fences, can reduce this impact. Commodities that are extremely drift sensitive should be stored, if possible, in enclosed spaces, where handling should also take place.

Secondary measures do not reduce the formation of dust but cut emissions, for example the housing of transfer points, in some cases combined with the use of dust extraction technology. Secondary measures are applied if primary measures are insufficient or not applicable.

Van Breemen said that the Port of Amsterdam’s Air Quality Tool, together with the units monitoring particulate matter, NO_x and other emissions located around the port and its industrial areas, were vital in helping to identify sources of air pollution and respond in a timely fashion to unwanted situations.

The port’s Air Quality Tool not only calculates present and future air quality but it can also show the effects of reduction measures and predict the effects of future developments such as new industries and intensification of land use. “It is also a useful tool

Dust manual

In 2012, VITO published a manual on dust emission reduction techniques for the storage and handling of dry bulk goods. This guide consists of 46 fact sheets describing the applicability, environmental impact, economic feasibility of techniques, and good practices that reduce the formation of dust resulting from storage or handling of dry bulk goods.

Techniques are grouped according to their applicability: storage or handling. A further subdivision is made between primary and secondary measures. In total, the guidebook covers 36 primary measures and 10 secondary measures.

The VITO study focuses on techniques specifically applicable to port activities related to drybulk storage and handling. Additional information and feedback for the study was provided by several bulk handling companies as well as the various Flemish port authorities.

Based on the information in this guidebook, Flemish legislation relating to environmental safety was amended in January 2013 with new regulations regarding the storage and handling of bulk goods.

to have available during spatial planning to decide which areas near the port are suitable for housing development,” Van Breemen added. **PH**

i MORE INFO: www.emis.vito.be

Areas where bulk goods are handled can produce higher concentrations of PM10 than ships

“ Amsterdam’s Air Quality Tool can also show the effects of reduction measures and predict the effects of development ”



Competing on equal terms

In the second article in this series, **Diane Edwards**, Chair of the Women's Forum and General Manager, People and Processes at Ports of Auckland, considers unconscious discrimination against women in management



Ports of Auckland

The port authority is reaping the benefits of its new leadership team. Leigh Robins is its new manager, Marine and Cruise

There are already many women in maritime management, but it soon becomes clear that for many, the road to success has been through corporate roles rather than operational ones. By this, I mean that they tend to have come from backgrounds in law, communications, public relations, IT, human resources, and accounting and finance.

However, this raises the question of where are the female executives who started as stevedores, dispatchers, pilots, mariners, engineers or logisticians? There are some out there, but you have to look hard and spread your net wide. Although many male executives have also risen to management via the corporate path, I feel fairly confident in saying that most, if not all, executive teams have at least one man on it with either port or vessel operational experience.

The relatively low number of women working in operational areas can be partially attributed to the perception that men will resist being managed by women. Stereotyped comedy images of cold, dominating women terrorising weak, passive men have done nothing to help this.

Another reason is the perception from some women themselves that they may not fit easily into a managerial role. They recognise that such roles bring higher responsibility and demands on time, leaving some feeling that may not be able to balance these positions with their family commitments. Because of this, many

will discount themselves from promotion.

Sadly, this leads some men to decide that women won't be interested in taking on more responsibility. They therefore put less effort into developing women or look on them less favourably when the time comes for promotion. Here, discrimination takes on the guise of trying to protect the women, when it is in fact disadvantaging them.

Perhaps the most common reason for not identifying female leadership talent falls into the unconscious discrimination basket. Often leaders are sought internally from the team itself, the criteria usually being, a good performance record, experience in the job, teamwork skills, and so on. Unfortunately many of those making recruitment decisions fail to understand the factors that truly indicate that someone, whether male or female, is able to make the jump from non-management to management, or from frontline management to a strategic leadership position. The skills needed to lead others are quite different from those needed to be a high performer in a team. For example, the top performing stevedore may not make the best terminal manager. A different skill set is required and this can make it difficult to predict if someone can make the jump.

Ports of Auckland has been undergoing transformational change over the past two years. Ensuring that we had the right managers in place to lead the new-look organisation was a key part of this. Ports



‘ We have carried out extensive research to identify leadership potential ’

Diane Edwards *General Manager, People and Processes, Ports of Auckland and Chair of the IAPH Women's Forum*



Smith Gardner

encompasses the ability to communicate and sell ideas, see things from a range of perspectives, debate and negotiate fairly, manage conflict, and inspire and help others to succeed. All these qualities should combine to deliver results, and allow the candidate to perform well under first time conditions, inspire others and drive through barriers to achieve outcomes.

Using learning agility to assess staff for leadership positions brought about something unexpected. We found that a number of women suddenly became visible as candidates. In some cases, they had been in the port for many years but had been overlooked in the past for senior positions. Their record of demonstrating the factors promoted by learning agility meant they were now on an equal footing with their male counterparts.

I should also mention that this same process located a number of men who had also been overlooked. In effect it provided an objective, unbiased measure. A further benefit was that, by definition, learning agility frequently involves challenging the status quo and we found some people who had been previously overlooked for having too many new ideas. Whereas they might previously have been known as trouble makers, they are now being reclassified as innovators and future leaders.

The upshot is that we have a fresh leadership team that now includes a number of dynamic leaders, including several women. We were able to achieve this without resorting to filling quotas or using positive discrimination. Look for the right qualities, and women can compete on equal terms.

To finish, I must also mention that this focus on appointing the right leaders was followed by an extensive investment in leadership development. We are now seeing the benefits coming through, with the ports reaching record productivity levels for New Zealand and we are now on target to reach our ambitious financial goals. **PH**

i MORE INFO: see Women's Forum on page 38

of Auckland carried out extensive research to identify leadership potential. This was then used to establish a baseline requirement that aligned with the new culture we were building. We then sought to recruit based on 'learning agility'. This term is a trademark of Lominger International, which was created by leadership research gurus Michael M Lombardo and Robert W. Eichinger. I believe it is the most reliable predictor of potential, eclipsing even intellectual capacity or past performance.

As discussed in *The Leadership Machine: Architecture to Develop Leaders for Any Future* (Lombardo and Eichinger, 2000), 'learning agility' is an attribute that enables learning from experience to deliver superior results in future situations. It consists of a number of factors covering the way they think, relate to others, manage change and deliver results. Rather than focusing on previous experiences, it includes a passion for new ideas, the ability to synthesise information, and to process ideas in new and innovative ways. The willingness to experiment with new ideas, turn these into practical solutions, explore the 'what-ifs' and manage any negative aspects are key to ensuring successful execution. It also



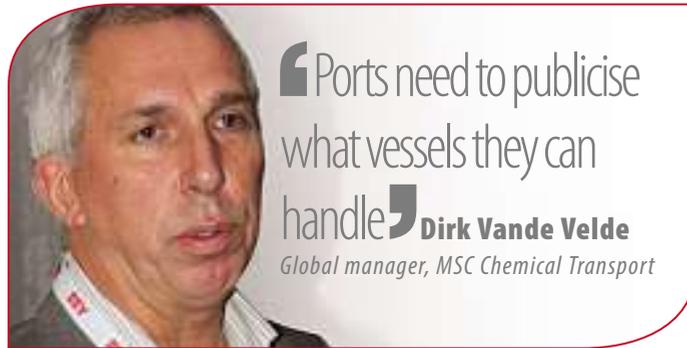
Hannah Kidd / Shutterstock

Regulation needs for OPS

Participants at a workshop on onshore power supply (OPS) in Antwerp warned that without stronger regulation, OPS technology could fail to develop beyond the larger north European ports that have already made the capital investment.

"For the first time during this workshop, those attending recognised that without stronger regulations, OPS technology may not be further developed in European ports and emissions will not be reduced," Lorene Grandidier of OPS supplier Schneider Electric told *P&H*.

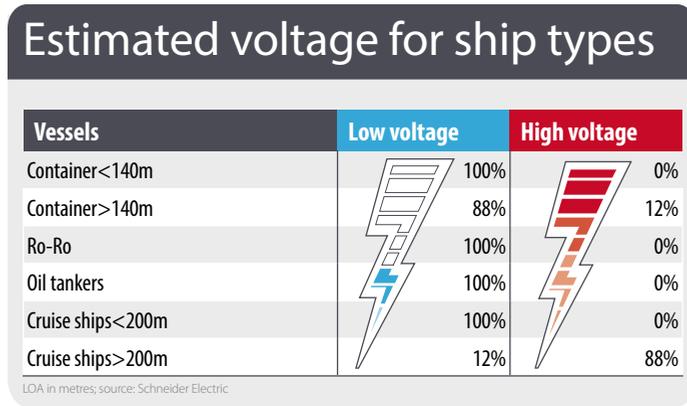
The call for mandatory regulation was echoed by Even Husby, project manager of Clean North Sea Shipping, who spoke during the GreenPort Congress last October. Husby added that to level the playing field the same tax regime should be introduced for electricity as there currently is for gas oil, noting that an emissions tax should also be introduced in order to encourage ship owners to switch to cleaner fuels. While many of the estimated 24 OPS



Grandidier said that since last year there is an accepted HV standard for OPS – IEC/ISO/IEEE 80005-1 High Voltage Shore Connection System. "But depending on the ship type and its requirements, sometimes an LV installation is more appropriate. Both should follow international standard to guarantee safety and global compliance," she added.

In some northern ports, ships using OPS typically take in electricity at 10kv, converting this to 400v via onboard transformers. Dirk Vande Velde, global manager of MSC Chemical Transport, said that because MSC operated vessels of different types and sizes, HV systems were more appropriate for the ports where the line calls.

He proposed that ports should make a selling point of the voltages they offer. "Ports need to publicise what types of vessels they can handle as regards OPS and make marketing around that."



installations being set up in northern Europe have opted for high-voltage (HV) systems, the first

Spanish port to install plug-ins for its ro-ro vessels (see story below) has opted for low voltage (LV).

No standard voltage yet for OPS

European ports are unlikely to settle on a standard onshore power supply (OPS) voltage in the near term, if at all. Most of the estimated 24 OPS installations being set up in northern Europe have opted for high voltage, while the first OPS system at a Spanish port has decided that low voltage

offers clear advantages.

Port of Melilla introduced OPS for its ro-ro vessels to reduce night time noise at the city centre port. "There is currently no standard for this kind of connection; ports will adapt their solution to the environment in which their ships operate," Sara

Blanco Monge, an electrical engineer involved in setting up onshore power for Melilla Port Authority said at the recent GreenPort Congress in Antwerp.

"After weighing up the pros and cons, the decision was made to design the [Melilla] project with a low-voltage connection system,"



said Blanco Monge. High voltage systems operate typically above 1,000 volts, while low voltage systems range up to that value from as low as 50 volts.

Notable numbers

17m

desired depth of Port of Kingston's access channels

12

approximate number of LNG bunker facilities available to vessels

Onshore power first for Spain



The north African enclave of Melilla is the first Spanish civil port to install onshore power for its scheduled ro-ro services, and is among the first OPS ports in the Mediterranean. Sara Blanco Monge, a civil engineer with state-owned Spanish company ISDEFE, said the port had contacted the company because the strong growth of maritime traffic in the port during the past 10 years had had a negative effect on the local environment. The total number of ships calls, mostly ro-ros, had increased by nearly 44% from 2002-12, she said during a presentation at Antwerp's GreenPort Congress in October.

In particular, the port authority was aware of the discomfort to people living around the port when ships berthed during the night, causing noise and vibration. This problem was exacerbated in summer time, when people habitually leave their windows open.

The port authority commissioned ISDEFE to project



Port of Long Beach

OPS connection at Port of Long Beach, USA. Some European ports are opting for high-voltage systems, whilst others are choosing low-voltage

design the installation of onshore power installations on its three ro-ro piers.

All ships studied had an

electrical ship-to-shore connection working in 380V and 50Hz. With the exception of the ro-ro ferry *Volcán del Timanfaya*,

all of them required an electrical retrofit to use the onshore power equipment.

After weighing the pros and cons, the decision was reached to design the project for a low-voltage connection system (see story on p32). "ISDEFE already has experience in military ports which use low-voltage system with excellent results, for example the Rota Naval Base in Cadiz," Blanco Monge told GreenPort delegates. For the three piers, the total cost of installation is estimated at just under €1,000,000 (\$1,340,000).

As regards NOx, carbon and particulate matter emissions, the reduction using onshore power is estimated at over 90%. "The project is now completed and ro-ro ships now have the possibility of shutting down their auxiliary engines when berthed in Melilla port. It is the first Spanish civil port providing this service," she added.

Melilla: high versus low

High voltage	Low voltage
Less cables to connect ship, quicker operations	More cables to supply same power, slower operation. Low-voltage cables offer increased security
Standardised according to IEC/ISO/IEEE 8005-1	Fully proven use in military ports – standardised by NATO
Ship retrofit more expensive	Retrofit cheaper
Qualified personnel needed to operate with high voltage	Operating personnel do not need special authorisation
	Quayside installation simple and easy to operate and maintain

Source: ISDEFE power point presentation



\$70M

the cost of the first phase to re-build Port-au-Prince in Haiti



24

the estimated number of OPS installations being implemented in northern Europe

Northern Sea Route usage rises

Around a third more ships had used the Northern Sea Route (NSR) at the end of November last year than in the whole of 2012, it has been revealed. Sixty-three ships had used the NRS to transport cargoes from Russia and Europe to the Far East, compared with 46 in 2012. Speaking at IBC Asia's LNG Shipping conference in Singapore in November, Arctic Bulk director Marco Graziotto said this is due to lower sailing duration and better security. From Murmansk to Japan, the voyage takes 18.1 days through the NSR, compared with 37.1 days through the Suez Canal.

A Rotterdam-Far East voyage takes 23 days through the Northern Sea, 10 days fewer than through the Suez Canal. Arctic Bulk provides consultancy and assistance to ship owners wishing to use the route.

Graziotto dismissed talk that the ice caps are disappearing, pointing to charts showing how the ice tends to be the lowest during summer in the Northern Hemisphere. However, ships en route need ice pilotage that depends on ice conditions.

He believes attitudes have changed since his firm first put forward the idea in 2007. "It was hard to get support then, until Russian authorities decided the route should be open to international shipping and the first vessel transited in 2010."



IMO's adopted resolution should encourage further signatories to the convention

Ballast water push at IMO

IMO's assembly adopted a variety of resolutions at its meeting during November and December. Among these was resolution A.1088(28), which focuses on the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

This convention has yet to be implemented as, although enough countries have signed up, they do not represent at least 35% of the world fleet. The resolution adopted at the IMO assembly recommends that the original deadlines should be pushed back.

It also recommends that ships constructed before the entry into force of the convention will not be required to comply with regulation D-2 until their first

renewal survey after the convention has entered in to force. Regulation D-2 is concerned with Ballast Water Performance Standards and details the size and volume of organisms that should be discharged when conducting ballast water management. Regulation B-3 concerns ballast water management for ships, and includes the dates when the convention should be implemented – but these dates have now passed.

The resolution adopted at IMO wants to see a realistic time frame for the ballast water performance standard to enter into force, and suggests that ships be allowed a year to comply after the convention is activated.

ECSA concerned at EU port regulation

European shipowners' body ECSA has expressed concern over a European Parliament proposal to exclude pilotage and dredging from the scope of the European Commission's proposed regulation on market access to port services.

The proposal is contained in the draft report on the proposed regulation prepared by the parliamentary rapporteur, German MEP Knut Fleckenstein, and

published in November.

ECSA said that with cargo handling and passenger services already excluded from the commission's original proposal, there would be few port services left within the scope of the proposed regulation if parliament approved the new exclusions.

"We fail to understand why costly port services such as cargo handling, passenger handling and

pilotage should be excluded from basic market rules," said ECSA secretary general Patrick Verhoeven.

"The framework proposed by the regulation does not go for blind liberalisation but allows port authorities to select service providers and set limitations if so required for safety reasons or public service obligations"

ECSA said it would now prepare a response to the draft report.

Notable numbers



80%

the percentage of those who, in response to a survey, agreed that ports need to tackle climate change head-on



0.10 micrometres – or less – the diameter of a particle that defines it as particulate matter

Singapore: A secure anchorage

With piracy and armed robbery a persistent problem in many anchorages around the world, some countries have started to declare that their anchorages are secure. "Off the coast of West Africa, now the focus of a lot of discussion on its increasing problems with piracy and armed robbery, Togo, Benin and Nigeria have now declared a number of safe anchorages for ship-to-ship (STS) operations," maritime security expert Dr Dave Sloggett told *P&H*. These countries, it would seem, are trying to take specific measures to address the maritime security challenges that exist in the Gulf of Guinea, he explained. These measures, however, are only a start, he believes, and further investment in naval and coastguard forces will be required before these safe areas can be extended.

"To find a great example of a secure anchorage, one only has to look at Singapore," Sloggett said. "For a country with one of the largest ports and most complex anchorage areas in the world, it is a testament to their diligence and approach to security that no vessel has reported an incident in Singapore's port area in the last two years." Sloggett has taken a careful look at where robberies and pirate attacks do occur in the wider Singapore Straits and told *P&H* that those involved in attacks on merchant vessels go out of their way to avoid taking any action in waters that belong to Singapore.

The patterns of attacks occur on the fringe of Singapore's agreed territorial boundary with Indonesia to the west. These boundaries were

subject to an agreement that was initially agreed in 1973 and ratified by both countries within the year. A small change to the western end of the boundary was also agreed in 2009. The definition of the eastern extent of the boundary is still ongoing and may also involve Malaysia in the near future, said Sloggett.

Inside this boundary, on a typical day between 200-250 vessels lie at three main anchorages awaiting their opportunity to enter the harbor. A small number are engaged in STS operations, which always increases their vulnerability to attack as the crew can be distracted by their duties.

The sheer density of the vessels in the anchorage provides a degree of mutual self-protection, said Sloggett. "But in addition to that, Singapore also has a very effective maritime security operation which is helped by its large and highly proficient naval and coastguard forces," he added. "These maritime assets are backed up by a clear regime of legal sanctions that can be applied to anyone involved in piracy or armed robbery against merchant vessels. This combination of a tough sanctions regime, coupled with highly visible patrols both at day and night, make the anchorage at Singapore arguably the safest in the world."



EU to part fund methanol project

The European Union will put forward €11.2 million (\$15.3 million) to research the possibility of methanol as a fuel for maritime transport in the future. The funding will be part of the TEN-T programme and be used to conduct a study followed by real-life trials into the substance. It will consider how methanol could become an environmentally friendly and cost-effective fuel. "The initiative also contributes to the realisation of the 'Motorways of the Sea' (TEN-T Priority Project 21) concept," said a statement from the European Commission.

The focus on methanol's environmental credentials are "especially important as the industry must comply with the ambitious International Maritime Organisation and EU sulphur emission reduction targets".

Germany, Sweden and Finland will be taking part in the project, which involves the installation and testing of methanol on an existing passenger vessel operating on the short sea route between Gothenburg, Sweden and Kiel, Germany. In addition to retrofitting the vessel, the test phase will also create the appropriate port infrastructure for the supply of methanol for bunkering. A bunker vessel and a storage tank will be built in both ports, noted the statement. The study is set to be completed by December 2015.



Ships at Singapore's eastern anchorage



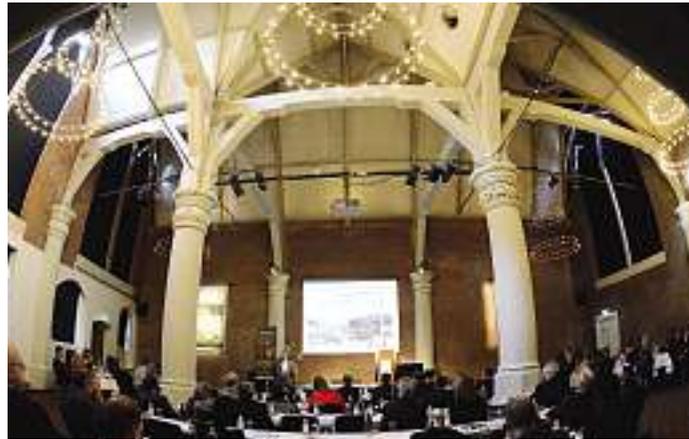
\$900,000

the cost of converting *Horizon Spirit* to take LNG bunkers



2016

the year Port of Zhoushan will test launch its LNG bunker facilities



Port of Amsterdam

Understanding & co-operation

Port of Amsterdam hosted the Africa/Europe regional meeting and forum from 20-22 November. IAPH's under secretary, **Hiro Nagai**, reports for *P&H*

The three-day event was kick-started with the regional meeting which was chaired by IAPH First Vice-President Santiago Garcia-Milà of Port of Barcelona. The first item on the agenda was the election of a third vice-president to represent the Africa/Europe region for the term of 2015-17, to replace Garcia-Milà when he steps up to president of the organisation. IAPH legal counsellor, Frans van Zoelen from Port of Rotterdam said that the election process will be initiated in mid-2014.

Next, Fer van de Laar of the IAPH Europe Office gave an update of

his international liaison activity and stressed that there is much room left for IAPH to co-operate with other international trade associations such as the International Association of Dredging Companies (IADC) in organising seminars and workshops together.

Kris De Craene, Port of Antwerp, Belgium, who represents IAPH at PIANC (World Association for Waterborne Transportation Infrastructure) with regards to environment and dredging matters, reported that PIANC's Environmental Commission

(Envicom) is now developing a comprehensive and uniform guidance for ports to draft and publish a sustainability report.

Yossi Bassan from Ashdod Port Company, Israel, and chair of the Port Operations & Logistics Committee presented the outcome of an IAPH survey on port performance indicators (PPI). The study was conducted early 2013 and monitored IAPH member ports' and terminals' current situation in measuring container terminal operation efficiency using PPI.

The port forum was held the

following day under the banner 'Our ports of the future – developing the potential'. The event was opened by Freek Ossel, aldermen and vice mayor of the City of Amsterdam. In his welcome speech, he noted that as the port must be sustainable and yet profitable, it is given certain leeway to act on its own like an independent state.

Next to speak was Port of Amsterdam's president and CEO and host of the event, Dertje Meijer. She emphasised the importance of enterprise culture in managing a port business and consequently Amsterdam has been successful in its efficient and smart use of land. She then set the stage for a debate on co-operation between Africa and Europe adding



Amsterdam is known for its eclectic mix of architecture...delegates came together at the Barbizon Palace Hotel. Far left, Port of Amsterdam's president and CEO, Dertje Meijer, welcomes delegates

that Amsterdam has traditionally been tied to Africa, for instance, as a major storage place for cocoa imported from Africa and, therefore, suggested that Amsterdam is an ideal place to discuss cooperation between Africa and Europe. In closing Meijer asked how we should build the port of the future and proposed that the keyword should be co-operation and value creation noting that all ports stand to benefit from each other, create partnerships, and facilitate value creation towards greater prosperity.

Gichiri Ndua, MD of Kenya Ports Authority, spoke next and asserted that African ports are adapting to changes in the face of unprecedented long-term economic growth. Ndua pointed out that there are a number of challenges for African ports to overcome to meet the unexpected growth in container traffic.

He cited inadequate port capacities, ageing equipment, long dwell times, poor road and railway connections, and the need to dredge to accommodate larger vessels..

'Customs ... a partner in logistics' was the focus of Oscar Brenninkmeijer's presentation. As director Customs Amsterdam,

Customs Administration of the Netherlands he stressed that the authorised economic operator certificate is as an indispensable tool to secure an uninterrupted movement of goods in cross-border trade.

As an operator of LNG tank terminals across the world, Frits Eulderink, COO of Royal Vopak, the Netherlands, gave a perspective of the current global LNG market where liquefaction capacity is increasing. Eulderink highlighted that the Dutch government has a 'National LNG Platform' to promote the use of LNG as a transport fuel. Stakeholders, including ports, manufactures, and customers all

innovation, and fiscal incentives. Olivier de Noray of French-based logistics service provider Bolloré, France, noted that his company has logistic networks in Africa made up of 15 ports, 11 dry ports, two railways, and one barging concession.

Prof Peter de Langen, principal consultant, Ports & Logistics Advisory at Eindhoven University of Technology, spoke next and offered an entrepreneurial business approach to port management by saying that ports must be dynamic port developers for the benefit of the regional and national economy and must make themselves relevant to all

Richard Anamoo, director general of Ghana Ports and Harbours Authority, said that a typhoon of democracy has changed the entire port scene in western Africa and then described a number of challenges facing the region including piracy, lack of IT, and clearance of goods.

The last speaker represented the fashion and design industry. Mieke Damen, executive director/vice-president Supply Chain at Vlisco Group a multi-national group of textile manufacturing companies with an extensive business presence on the African continent, discussed the challenges her company has faced in exporting and importing containers in Africa. Damen cited road congestion and counterfeit as two major challenges and asked members to be an advocate for investing in infrastructure in Africa through partnerships.

IAPH First Vice-President Santiago Garcia-Milà was last to speak and noted that the days presentations represent a good example of how ports can learn from each other and share best practices and that IAPH offers a great network for co-operation.

Delegates then enjoyed a canal boat tour of the city followed by dinner at the National Maritime Museum. The next day they were given a tour of the port. **PH**

Ports stand to benefit from each other, create partnerships, and facilitate value creation towards greater prosperity

get together to discuss matters related to the handling of LNG for the benefit of users and are informed on different countries' legislation, especially in terms of customs duty levied on LNG while in a port.

Next, Els de Wit, deputy head division Cars and Fuels, Ministry of Infrastructure and Environment, the Netherlands presented a three-fold approach to meeting the EU's 2020 CO₂ emissions target, citing legislation,

stakeholders and then act like an enterprise, sometimes taking risks.

Frank Luisman, director, Maritime & Transport Business Solutions, focused on public private partnerships (PPP) in Africa and initiated his discussion by saying that more and more privately funded ports are seen today, due to a substantial port capacity shortage, profitable port business, limited public budgets, and increasing institutional acceptance and facilitation.

i MORE INFO:
www.iaphworldports.org



Shutterstock

▶ Women's forum

Staying strong

Siti Noraishah Azizan is a vice chair of the Women's Forum. She has been in the ports industry since she left university and believes that passion and determination are the key to success

Women have increasingly become engaged in almost all sectors of modern employment and the port industry is not an exception. The establishment of the IAPH Women's Forum is important for two reasons. It is a platform for women to bring forward issues concerning roles and opportunities, but is also a medium for women to put forward ideas that can contribute to the betterment of the port industry.

As vice chair of the forum, I have set myself two goals. The first is to support and assist the forum's initiatives and to ensure the planning and execution of its plan to achieve its missions and goals. Secondly, and as a representative of Asia region, I want to see this region benefit from the forum's initiatives.

It was by luck that I joined Johor Port Authority as an administrative officer in the Finance department just after I graduated from university in 1997. I had no knowledge or background of the industry but it seemed a good job and I was happy to be employed. However, as time passed I started to love my work and this passion increased the more I learned about ports and shipping. Three years later I was promoted to finance and administrative manager, then in 2003 to assistant general manager of Finance and Administration. Later I transferred to assistant general manager of Corporate Service & Development, a position which I held for eight years. Then in December

2012 I accepted an offer to join the private sector at Sabah Ports Pte Ltd as a general manager.

I had to be determined and persistent in order to be taken seriously. In the early years of my career I was always thought of as a secretary to my male colleagues.

The most perilous time for a woman at work is when you start to move up the ladder. I experienced negative perception, rejection and slanders.

However, things are moving on. The port industry in Malaysia is seeing an encouraging shift in the number of women being given positions such as general manager and port manager, but it is still rare for women to make the board room.

For those just entering the industry, I would recommend that you show yourself to be as dynamic and resourceful as possible. Having the knowledge and expertise is always an advantage, but passion and determination will most likely get you further in your career.

Siti Noraishah Azizan is general manager at Sabah Ports in Malaysia. She believes that the most perilous time in a women's career is when they start to move up the ladder



“I started to love my work and this passion increased the more I learned about ports and shipping”

Sabah Ports

Recently at HQ...



Port of Los Angeles delegation visits the IAPH HQ. From left to right: Yoshinobu Kajimoto, GM, Port of LA representative in Japan; Yoshito Honda, CEO, Port of LA representative in Japan; Michael DiBernardo, director of Business Development, Port of LA; Immediate Past President Dr Geraldine Knatz, executive director, Port of LA; David Arian, Board of Harbor Commissioners, Port of LA; Secretary General Susumu Naruse; Gary Lee Moore, interim executive director, Port of LA

Miami's port director and IAPH 2nd vice-president, Bill Johnson, visited the IAPH head office in Tokyo on 5 November. He and Secretary General Naruse and his staff exchanged views and opinions on various issues at large, including the latest port development status at Miami. He visited Japan as a member of the State of Florida's international trade mission with Governor Rick Scott.

A delegation from the Port of Los Angeles also visited the head office on 21 November. Prior to meeting IAPH, they



Bill Johnson 2nd IAPH VP and port director, Port of Miami signing the visitor's book at the Tokyo HQ

visited their customers and port officials in Japan.

IAPH



Trade Facilitation & PCS Committee needs you!

Ten members met at the Sines Port Authority's head office in Portugal, for the Committee on Trade Facilitation and Port Community Systems meeting on 29 October last year. Frederic Dagnet from Port of Marseille and chair of the committee welcomed attendees with special reference to three new committee members. A fourth new member has also joined but was unable to attend the meeting. The committee reviewed its work plan for 2013-15, which can be found on the IAPH website.

The committee is hoping to attract interest from ports outside of Europe for participation on its 'PCS benchmark study II: towards an exhaustive list of PCS worldwide. Transform the questionnaire to collect business case information'. Interested members are invited to email the chairman at frederick.dagnet@marseille-port.fr.

Also on the agenda was EU directive 2010/65/EU which enters force in July 2015 and requires port formalities to be reported for vessels arriving or departing from member states. The committee was worried that implementation of this directive could change of the role of port community systems (PCS). It was noted that most governments have not yet decided how to implement the directive. The committee agreed to follow this issue and to include it in its 'challenges' document.

Attendees were reminded that Jaume Bagot from Port of Barcelona represented IAPH at the last forum of the United Nations Center for Trade Facilitation and Electronic Business.

The next committee meeting will take place in April this year at the IAPH Mid-term Conference in Sydney.

i MORE INFO: go the TR&PCS committee room at www.iaphworldports.org

Membership notes

The IAPH Secretariat is pleased to announce that the following has joined the Association.

Associate member

Technical University of Denmark (DTU)

	Address	Department of Transport, Bygningstorvet 1 2800 Kgs Lyngby, Denmark
	Telephone	+45-45 251 519
	E-mail	hnpsar@transport.dtu.dk
	Website	www.dtu.dk
	Representative	Prof. Harilaos N. Psaraftis
	Nature of business activities	Higher education, research

2014

2015

2016

Dates for your diary

A selection of forthcoming maritime courses and conferences



January

23-24: 8th Indian Ocean Ports and Logistics 2014 – Mauritius
www.transportevents.com

23-24: Shifting International Trade Route – Tampa, Florida, USA
www.aapa-ports.org

February

3-6: Africa Port Development Forum – Durban, South Africa
www.africaportdevelopmentforum.com

From 5: Fundamentals of Container Shipping – distance learning
www.lloydsmaritimeacademy.com/event/container-shipping-distance-learning
(15% discount for IAPH members)

10-28: UNESCO-IHE Short Course: Port Planning and Infrastructure Design – Delft, Netherlands
<http://www.unesco-ihe.org/short-courses>

17-18: Ports for Container Ships of Future Generations – Hamburg, Germany
www.portofhamburg.com/en/event/ports-container-ships-future-generations

17-28: Seminar on IT and EDI in Port Business – Antwerp, Belgium
www.portofantwerp.com/apec/

18-19: Terminal Management and Planning Seminar – London, UK
www.lloydsmaritimeacademy.com

27-28: 6th Intermodal Asia 2014 – Melbourne, Australia
www.transportevents.com

March

3-21: UNESCO-IHE Short Course: Environmental Engineering – Delft, Netherlands
www.unesco-ihe.org/short-courses

3-21: UNESCO-IHE Short Course: Coastal and Port Structures – Delft, Netherlands
www.unesco-ihe.org/short-courses

From 5: Fundamentals of Exploration & Production Logistics – distance learning
www.ibt-academy.com/event/oil-gas-logistics-distance-learning (15% discount for IAPH members)

24-25: AAPA Spring Conference – Washington DC, USA
www.aapa-ports.org

31-4: Seminar on Dredging and Reclamation – Brisbane, Australia
www.iadc-dredging.com



Port of Barcelona

Building relationships

Santiago Garcia Milà, deputy general manager at Port of Barcelona, ESPO chairman and IAPH first vice chairman, wants to see the two organisations to work together to influence regulation and share knowledge

This year the European Sea Ports Organisation (ESPO) celebrated its 20th anniversary. Even if celebrating 20 years of existence proves you are still a young organisation, I can say with pride that ESPO has achieved a lot in the past 20 years. It has proved to be more than a stakeholder organisation as it defends its members during the decision-making process leading to EU directives and regulations affecting ports and their environment.

Since its existence ESPO has been a pioneer in different fields. Its first initiative was to publish its Environmental Code of Practice in 1994. ESPO's commitment towards sustainability was further confirmed by the creation of Ecoports a few years later. Since then the Ecoports network has continued to grow and has helped European ports to integrate the environment in their functioning and performance measurement.

Societal integration of European ports has yet been another area where ESPO has set the scene. Since 2009 ESPO has organised an award for societal integration highlighting the excellent work being

done by ports that are committed to caring about their communities.

A third example of ESPO's proactive engagement is its openness to the world and its eagerness to co-operate with other organisations. I believe that its co-operation with IAPH is high on that list. ESPO – including the secretariat, its board, and its members – has engaged itself to strengthen relations with ports outside Europe. That is why ESPO and IAPH signed a memorandum of understanding in 2012.

IAPH can help European port authorities in their relations with international institutions such as IMO. At the same time ESPO is the prime interface of European institutions and the ideal platform to promote and contribute to the implementation of IAPH's initiatives at EU level. ESPO's co-operation with IAPH goes beyond the regulation. I believe European ports can share knowhow with ports in other parts of the world and also learn from their experiences. I do express the wish that ESPO and IAPH continue the fruitful co-operation and step up their relations during the coming years. **I&I**

“ IAPH can help European port authorities in their relations with international institutions such as IMO ”

Be part of the global ports' community with an IAPH membership



The International Association of Ports and Harbors (IAPH) is a global alliance representing over 190 ports in 85 countries. Together, IAPH member ports handle over 60% of the world's sea-borne trade and nearly 80% of the world's container traffic. It is a non-profit-making and non-governmental organisation headquartered in Tokyo, Japan.

IAPH provides a platform to develop and foster good relations and co-operation among the world's ports and harbors through forums where opinions and experiences can be exchanged. It promotes the role ports play in waterborne transportation and in today's global economy.

Benefits of membership include:

- Free copies of IAPH publications including Ports&Harbors, Membership Directory, newsletter and full access to IAPH website
- A voice for your port via IAPH representatives within organisations such as IMO, UNCTAD and WCO
- A chance to influence decisions at IAPH's technical committee meetings
- Networking opportunities at IAPH's meetings and conferences, plus reduced registration fees for these events



To apply for membership please email info@iaphworldports.org or visit www.iaphworldports.org



'The Global Ports' Forum for Industry Collaboration and Excellence'

PORT OF KINGSTON

The Western Hemisphere's
Beacon of Maritime Excellence



ATLANTIC
OCEAN

GULF
OF
MEXICO

CARIBBEAN
SEA

PANAMA

YOUR TRANSSHIPMENT HUB TO THE WORLD

The Port of Kingston has become a key player on the international shipping scene. With its excellent facilities and strategic location, Kingston is widely recognised as the Caribbean's number one hub for container transshipment.

Focus of operations is Kingston Container Terminal (KCT), owned by The Port Authority of Jamaica and operated by Kingston Container Services Ltd, a major subsidiary. KCT has three terminals with a combined capacity of 2.8 million teu. Maximum efficiency has been achieved through a combination of leading-edge technology, stable industrial relations and a highly trained, well motivated workforce.

The Port of Kingston is perfectly placed for ships trading on north-south and east-west routes across the Caribbean and for vessels using the Panama Canal.



The Port Authority
of Jamaica

15-17 Duke Street, Kingston, Jamaica W1
Tel: +876 922 0290/9 • Fax: +876 924 9437
Email: paj@portjam.com • www.portjam.com



KCT Services Limited
Tel: +876 937 7916