



# PORTS & HARBORS

Official Journal of the International Association of Ports and Harbors

## Credit where it's due

The case for emissions reduction incentives

## Stakeholder buy-in

A recipe for successful single windows

## Capacity uplift

India prepares for consumer spending growth

# Time to unite

Kitack Lim calls for closer ties  
between ports and shipping



DK122  
Kalmar DRF420-60S5  
Baujahr: 2014



D3616  
Kalmar DRF450-60S5  
Baujahr: 2013



D3587  
Kalmar DRF450-60CSX  
Baujahr: 2008



D3579  
Kalmar DRF450-70S5XS  
Baujahr: 2007



D3478  
Kalmar DRF450-60CSX  
Baujahr: 2005



D3578  
Kalmar DRF420-60S5  
Baujahr: 2003



D3650  
Kalmar DRF100-54S6  
Baujahr: 2012



D3576  
Kalmar DRF100-54S6  
Baujahr: 2011



D3586  
Kalmar DRF100-54S6  
Baujahr: 2010



D3577  
Kalmar DRF100-54S6  
Baujahr: 2009



D3589  
Linde C4531TL  
Baujahr: 2012



D3644  
Linde C4535TL5  
Baujahr: 2011



D3643  
Linde C4535TL5  
Baujahr: 2010



DK071  
Linde C4540  
Baujahr: 2008



D3555  
Linde C4535TL5  
Baujahr: 2006



D3597  
CVS Ferrari F478.5PB  
Baujahr: 2007



D3553  
CVS Ferrari F379.5  
Baujahr: 2003



D3551  
Fantuzzi CS45KL  
Baujahr: 2004



D3537  
SMV SC2016CA  
Baujahr: 2004



D3572  
Kalmar DCF100-45E7  
Baujahr: 2011



D3550  
SMV S/6 ECB100DS  
Baujahr: 2011



D3637  
Hyster H22XM-12EC  
Baujahr: 2011



D3535  
SMV SL-22-1200A  
Baujahr: 2005



ML004a  
Meclift ML1812R  
Baujahr: 2018



D3565  
CVS Ferrari F16W  
Baujahr: 2007



D3571  
Kalmar DCE120-12  
Baujahr: 2006



D3442  
Svetruck 1260-30  
Baujahr: 2011



D3558  
Svetruck 12120-35  
Baujahr: 2009



D3610  
Kalmar TR6181 4x4 RoRo  
Baujahr: 2010



D3631  
Terberg RT222 4x4  
Baujahr: 2006





# 12

Connecting ships, ports, and people was IMO's theme for 2017. To launch the theme, IMO Secretary-General Kitack Lim was shown around the UK's Port of Felixstowe by its CEO and MD of Hutchison Ports Europe, Clemence Cheng

Photo: IMO 5071510

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## REGULARS

**Comment:** The Japanese government is leveraging the successful uplift seen in the country's cruise industry **3**

**News:** Belt up for IAPH in Baku; WPSP to launch in March; Rotterdam plans for digital future; China continues on growth curve **4**

**Open forum:** Pascal Ollivier tells *P&H* why change management is vital in order to achieve a successful maritime single window **10**

**In conversation with:** Kitack Lim and Patrick Verhoeven on the importance of collaboration between shipping, ports, and maritime administrations **12**

**Maritime update:** ESI: scores up, emissions down; Industry sulphur cap concerns rejected at IMO; Rollout of IMO's Polar Code continues with amendments; Ship attacks in Asia rise but serious incidents fall **32**

**IAPH info:** Port Planning and Development Committee talks digitisation; Membership directory published; IAPH's training scholarship opportunity **38**

**Last word:** Henri van der Weide from Port of Amsterdam on his port's sustainability plan and the launch of WPSP **40**

## FEATURES

**South/west Asia and Middle East:** Investment in India's port infrastructure is being put in place now for the long-term anticipated growth of the population's spending power **14**

India's special economic zones need flexible policies and reasonable prices to attract customers **18**

Ports in Bangladesh, Pakistan, and Sri Lanka have attracted Chinese investment **19**

The China Bay expansion project aims to shift the region's economy from a manufacturing-driven to a technology-driven one **20**

India's commitment to Chabahar could make the Iranian port a strong contender for trade dominance in the Gulf of Oman **22**

**Hydrography:** With increasingly large vessels coming into play, accurate bathymetric data can maximise a port's depth to commercial advantage **24**

**Vessel traffic management:** The next generation of VTS technology is designed to further a port's commercial advantage and help ports improve their margins **26**

**Hamburg emissions:** A personal perspective on how the port implemented an environmental component of its port dues structure **29**



# 12



# 14



# 20



# 26

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# PORTS HARBORS

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# Cruising ahead

Japan's cruise ports are enjoying rapid growth despite a lackluster economy



**Susumu Naruse**

Secretary General – The International  
Association of Ports and Harbors



The first couple of months of 2018 have passed calmly. The International Monetary Fund announced in its World Economic Outlook Update that global output was estimated to have grown by 3.7% in 2017, which was 0.5% higher than in 2016, and forecasts for 2018 and 2019 have been revised upward to 3.9%.

Some 120 economies, accounting for three-quarters of world GDP, have seen a pickup in growth in year-on-year terms in 2017, the broadest synchronised global growth upsurge since 2010.

As a result, without geopolitical tensions, notably in east Asia and the Middle East, and inward-looking policies in the United States and other regions, we can expect world trade to expand moderately in 2018. Despite this moderate forecast, stock markets tumbled in early February, triggered by a rise in the US interest rate. Assessing the future course of stock markets is impossible, but whatever the outcome I hope it will not cripple the global economy. No one wants to see a financial crisis like the one experienced in 2008–09.

Some Japanese ports, however, are proving that port performance

does not have to link to the economic circumstances of the country. Certain ports have enjoyed a boom for a few years that has not been supported by an economic upsurge.

With the rapid growth of the Asian cruise market, as well as Asia's recognition of Japan as a nearby fashionable location to visit, cruise ship calls to Japanese ports have rapidly

increased by more than 2.5 times during the past four years. This equates to 1,001 ship calls and 174,000 visitors in 2013 rising to 2,765 calls and 2.5 million visitors in 2017.

Japan's shops are one of the main draws for cruise passengers from nearby countries such as China, Korea, and Taiwan. They purchase not only sophisticated electronic gadgets but also a large amount of quality-proof everyday items such as nappies (diapers), baby formula, and electric rice cookers, which are difficult to take home on aeroplanes but pose no problem for spacious cruise ships.

The Japanese government has taken this upswing to promote tourism to stimulate its ailing economy, which has been suffering from deflation and a rapidly ageing society for years. It has set a target of 5 million cruise visitors by 2020, when the Tokyo Olympic Games take place. Some ports are already expanding their cruise terminals with the help of special funds from the national government. This provides a good illustration of value-adding port development that contributes to local and national economies. **PH**

Japan's shops are one of the main draws for cruise passengers



## Port updates

### ► HAMAD THROUGHPUT UP

Volumes at Hamad port in Qatar rose in 2017 despite a boycott by Gulf Co-operation Council members. The port recorded a total throughput of almost 250,000 teu in the first half, which included a slow month of June because of Ramadan. However, this figure more than doubled to 525,000 teu in the second half. Ro-ro units showed a 13% decline over the fourth quarter of the year.

### ► CHINA'S INVESTMENT

China Merchants Port Holdings (CMPort) has spread its global footprint to the Oceania region by buying a 50% interest in Australia's Port of Newcastle. The Hong Kong-based port operator said on 6 February that it had reached separate agreements with its shareholder, China Merchants Union, and its wholly owned subsidiary, Gold Newcastle Property Holding, to purchase their 50% stake in the facility for HKD3.8 billion (USD479.4 million). An independent third party, TIF Investment Trust, holds the other 50% interest.

### ► JEDDAH EXPANSION

Dubai-based global terminal operator DP World plans to increase capacity at South Container Terminal (SCT) at Jeddah Islamic Port in Saudi Arabia, from 2.4 million to 4 million teu, as part of expansion plans that will see the installation of semi-automated terminal equipment and the relocation of logistics depots to sites outside the heavily congested port. Volume is understood to have increased to 1.08 million teu last year, out of a total of 4.2 million teu seen by the port's three operators, which also include Gulf Stevedoring and Contracting (North Container Terminal) and Red Sea Gateway Terminal.

# Belt up for IAPH in Baku

Hubs, free-trade zones, Belt and Road, and connectivity are the main themes of the next IAPH event in Baku, Azerbaijan, in May and the conference programme promises to be particularly rewarding. Many high-profile speakers have now been confirmed, along with many of the regular decision-makers that share their insight at IAPH events.

Delegates are encouraged to book by 1 March to take advantage of the early bird registration discount.

Names include Parag Khanna, strategist, author, and senior research fellow in the Centre on Asia and Globalisation at the Lee Kuan Yew School of Public Policy at the National University of Singapore. Khanna has written about globalisation, connectivity, and Belt and Road. Khanna recently spoke at the World Economic Forum on connected corridors. He will be joined by Jebel Ali Free Zone Authority's group chairman and CEO Sultan Ahmad Sultan Bin Sulayem. They will be sharing the stage and their views on emerging corridors and global connectivity in the first session of the conference.

Santiago Garcia Milà, president of IAPH, will kick-start proceedings, followed by a keynote speech from Ilham Aliyev, president of the Republic

## Parallel workshops

### Day one:

- Improving port efficiency through digitalisation and automation. Chairs: Masaharu Shinohara (Port of Kobe-Osaka) and Frédéric Dagnet (Port of Marseille)
- Future-proof infrastructure: getting the financial and legal context right. Chairs: Dov Frohlinger (Israel Ports) and Frans van Zoelen (Port of Rotterdam)
- How can ports influence the choice for green corridors? Chairs: Henri van der Weide (Port of Amsterdam) and Wolfgang Hurtienne (Hamburg Port Authority)

### Day two:

- Cruise and the city: a win-win! Chairs: Sacha Rougier (Cruise Gate Hamburg) and Shiara Stevens (Panama Maritime Authority)
- Can ports become too smart? The risks of cyber security. Chairs: Frédéric Dagnet (Port of Marseille) and Frans van Zoelen (Port of Rotterdam)
- Who's afraid of LNG? Chairs: Henri van der Weide (Port of Amsterdam) and K Subramanian (Port Klang)

of Azerbaijan. Another new name on the speakers' list for IAPH is Michael Proffitt, chairman and CEO of advisory company FMP Associates. Proffitt will be sharing his insight on supply chains, and planning for free-trade zones and logistics parks.

Hadiza Bala Usman, managing director of Nigerian Ports Authority, is a session panellist, exploring how to secure local benefits from regional and global hub development in a session chaired by Franc J Pigna, CEO of Aegir Port Property Advisers.

The conference programme reflects the challenges faced by today's port authorities, with

workshops on these themes running in parallel. These will tie in with the work of the technical committees and are an opportunity to get involved in the work of IAPH (see box above).

Other sessions include discussions on competitive hubs led by Prof Dr Theo Notteboom, University of Shanghai/University of Ghent and IAPH Women's Forum chair Siti Noraishah Binti Azizan will consider cross-cultural co-operation.

Day two will close with further work on the World Ports Sustainability Program, led by Patrick Verhoeven, following its launch in March.



Strategist Parag Khanna will speak on emerging corridors



IAPH president Santiago Garcia Milà will deliver the keynote address



Sultan Ahmed Bin Sulayem, chairman of DP World

# IAPH to launch sustainability initiative in Antwerp



The World Ports Sustainability Program (WPSP) has garnered attention from International Maritime Organization (IMO) Secretary-General Kitack Lim, who is scheduled to deliver the opening address at the launch in Antwerp this month (March).

WPSP will tap into the 2030 Sustainability Agenda and the 17 Sustainable Development Goals (SDGs) of the United Nations. Patrick Verhoeven, IAPH managing director of policy and strategy, asked the secretary-general for his views on the top sustainability issues facing ports (see page 12).

Lim explained that the maritime sector, which includes shipping, ports, and the people who operate them, should play a significant role in helping member states to create the conditions necessary for increased employment, prosperity, and stability ashore through the promotion of trade by sea.

"The port and maritime sector

can support wealth creation both on land and at sea. Port development is directly related to SDG 9 on industry, infrastructure, and innovation," Lim said.

He added, "Building resilient infrastructure is central to the effective functioning of the whole transportation sector and, therefore, a major driver for the delivery of many SDGs."

Lim specifically mentioned safety, security, shore power supply, port reception facilities, illegal, unreported and unregulated fishing, and micro plastics as some areas where ports can effect change.

Safety was high on his agenda and underpins the resilient infrastructure goal of SDG 9. He said, "Good port security prevents criminal activity, illicit transport of goods, stowaways, and so on. Keeping a good level of security guarantees the competitiveness of the port and its connection to other regions."

He highlighted the role ports could play in SDG 8 on decent work and economic growth and SDG 5 on gender equality for seafarers and port workers. Lim asked, "Does the port have a seafarer centre? Is the port supporting diversity and gender equality in its workforce?"

WPSP will launch on 22–23 March and all IAPH members are welcome to attend.

The two-day event will feature speakers from across the industry such as Emanuele Grimaldi, managing director of Grimaldi Group, Jan Hoffmann, chief of the trade facilitation section at the United Nations Conference on Trade and Development (UNCTAD), Jacques Vandermeiren, CEO of Antwerp Port Authority, and Hadiza Bala Usman, managing director of Nigerian Ports Authority.

**MORE INFO:**  
[www.wpspevent.org](http://www.wpspevent.org)

## ICTSI Basra Gateway expansion under way

International Container Terminal Services Inc (ICTSI) said in February that its second-phase investment in new container terminal infrastructure at Basra Gateway Terminal (BGT) at the Port of Umm Qasr was well under way, paving the way for calls by vessels with a capacity of up to 9,000 teu.

The Philippines-based port operator said expansion was a result of strong demand in Iraq. Upon second-phase completion, BGT will have an annual handling capacity of more than 1 million teu.

"The phase-two expansion, to be completed in stages by [the third quarter of] 2019, will deliver 400 m of new quay, with a draught of 14 m, alongside a new 30 ha yard area and a 15 ha secure parking area," according to an ICTSI press release issued on 8 February. When the terminal expansion is complete, three post-Panamax cranes will be installed at the quay, while seven rubber-

tyred gantries (RTGs) will operate in the yard.

ICTSI said completion of the expansion scheme involved total investment of more than USD250 million, most of it for a new berth, yard construction, and handling equipment. The company is also understood to operate facilities at Umm Qasr's Berths 20 and 21.

A ship agency representative based in the northern Gulf said the expansion involved extending Berth 27, the facility on the other (east) side of the basin from ICTSI's existing terminals.

"We are listening to our customers and ... meeting their needs," said Phillip Marsham, BGT executive officer. "The second phase expansion will not only allow us to respond immediately to scale needs, but also to deliver added flexibility to the whole container handling operation, with diverse benefits flowing to our customers."

## Port updates

### ► STOCKHOLM HIGH

Ports of Stockholm in Sweden saw a record year in 2017 for both ro-ro and container freight. In total 9.6 million tonnes were handled. This, the port reported, was a record high, showing a 7% annual increase. A strong Finnish economy has led to increasing amounts of cargo being transported between Sweden and Finland, according to the Ports of Stockholm statement. Freight transported to and from the Baltic states and Poland is also increasing.

### ► JAXPORT COO

Jaxport's new chief operating officer, Frederick P Wong Jr, started his role on 5 February, leaving his role as assistant port director of PortMiami, a position he had held since 2014. Prior to that, Wong held positions of increasing responsibility at PortMiami, rising from seaport harbor master to seaport operations manager. His career in ports began as a cruise operations superintendent in 1997.

### ► SAVANNAH VOLUMES

Port of Savannah, Georgia, handled its highest ever volumes in 2017 when more than 4 million teu moved through its terminals, representing an increase of 11% over the previous year. Operator Georgia Ports Authority noted that, in the busiest December in its history, Savannah handled 323,000 teu, a 10.6% increase over the same month in 2016. A deepening project that is under way will boost volumes further. "Savannah is double the size of the next largest port in the region, highlighting Georgia's growing role as a gateway for American cargo," said Georgia Ports Authority executive director Griff Lynch.





## Port updates

### ► ANTWERP FIVE-YEAR HIGH

Port of Antwerp in Belgium handled 223,606,610 tonnes of freight in 2017, a 4.4% increase on 2016. It is the fifth straight year where the port has achieved an uplift in throughput. Almost all sectors performed well, said the port. Container volume increased by 4.3% to 123 million tonnes, liquid bulk such as oil derivatives by 5.7% (73.1 million tonnes), and conventional breakbulk, such as steel, by 4.8% (10.3 million tonnes). Ro-ro completed the growth list with 10.5% (5.1 million tonnes). Only dry bulk such as coal and ores finished the year down, by 3.7% (12.2 million tonnes).

### ► SOLAR SINGAPORE

PSA Corporation, Singapore, is tapping into solar energy to enhance the eco-friendliness of its container port and ancillary buildings at Pasir Panjang Terminal. The port operator signed a 21-year solar power purchase agreement with Sunseap Group. The solar photovoltaic system is expected to be in use at the end of October. Once completed, it will generate approximately 4.3 GWh of energy per year and offset a portion of Pasir Panjang Terminal's energy needs. PSA can also offset 1,689 tonnes of carbon dioxide emissions annually.

### ► ROTTERDAM BOXES

Particularly strong container throughput was the main driver of growth in Port of Rotterdam throughout 2017 with a 12.3% increase in terms of tonnes handled. Total cargo throughput at the port rose by 1.3%, a growth trend that began before 2016. Total tonnage increased from 461 million to 467 million. The increase in containers was offset by a fall in dry bulk of 2.6% and in wet bulk of 4.1%. Breakbulk, including ro-ro and other breakbulk, increased by 7%.



Port of Rotterdam: 5069934

## Rotterdam plans for a digital future

A technological revolution is taking hold of the maritime industry and the port sector is no different, with Europe's biggest facility aiming to become the world's 'smartest' port via its latest collaboration with computer giant IBM.

Port of Rotterdam announced on 31 January its scheme for a new digital infrastructure that will cut costs and emissions for the port and its customers. Ronald Teijken, the Belgium, Netherlands, and Luxembourg business partner manager for IBM's Watson internet of things (IoT) platform, said the port and IBM began collaborating on plans for the large-scale project in early 2017.

Teijken said the first step in the process would be operational in nature, with the port ensuring that all companies in the port community have access to real-time data on weather, currents, and tides in the area. This would be provided using artificial intelligence (AI), the IoT, and sensors delivering the information to a central point that is accessible to customers. Another port service that is already running is Rotterdam Additive Manufacturing

LAB (RAMLAB), which can provide vessels with running repairs.

Port of Rotterdam's CFO Paul Smits, who is co-ordinating the digitalisation strategy, said that RAMLAB, which composed of 30 partners, had already produced a 1.5 m propeller using a 3D printing technology. This slashed the usual repair time of 6–8 weeks to just eight days. The RAMLAB propeller has already been operational for six weeks, Smits said, adding, "The 3D printing lab can produce large rudders and propellers of the same quality and strength as the original" and the cooling process is far faster, he explained.

In addition to RAMLAB, the port intends to develop infrastructure that will allow fully automated 'smart' ships to use the port. As a first step, IBM is creating a 3D digital 'twin' of the port and its assets that will enable autonomous vessels and port monitors to assess when berths become available and how much cargo can be loaded, given the weather and tidal conditions.

According to Port of Rotterdam, this technology can save each of the 140,000 ships it handles

annually one hour of berthing time. As each of these vessels can command a charter rate of up to USD80,000/day, the development could save the industry up to USD462 million a year.

However, Rotterdam and IBM will first develop an environment-friendly sensor network, according to Smits. "We're not going to put hundreds of sensors with batteries into the water," he said.

At the moment, water depth is measured by boats that take measurements at given points at various times of the day. The goal is to do this port-wide, with the information provided in real time and made available to all port users. Sensors embedded in the quay walls and on port infrastructure will disseminate details of passing ships, providing data on each vessel's type and speed, as well as details on berth and equipment availability.

Digital dolphins, or sensors mounted on buoys, will supply real-time details of ship-to-ship cargo exchanges, which will mean more rapid handling of transshipment cargo without the need to discharge cargo to the terminal and reload it on to the feedership. Digital dolphins will support cargo transfers with time-stamped data that is passed on to AI-enabled computers with algorithms that will analyse the amount of time the transfer took. Ultimately, the objective is the "better use of port infrastructure, which means less congestion", Teijken explained.

Smits said the port was also looking to use blockchain technology to enable electronic payments for all its services. "The pilot system works, but you need to have trusted architecture for ship agents, terminal operators, and shipping companies to use it," he said.

Payments for blockchain transactions can be made in any currency, and it is currently evaluating the potential use of a virtual currency, such as bitcoin.



# Automation boosts Hong Kong efficiency

Yard productivity at one of the Hong Kong's main container terminals could improve by as much as 40% with the introduction of a pioneering remote-controlled yard crane and automated stacking system.

Efficiency gains from the system implemented by Hongkong International Terminals (HIT) at CT9 North will be felt by liner customers and improve the facility's capability to handle large cargo surges from bigger ocean-going vessels, according to HIT's head of engineering, Simon Wong.

"Bigger ships do not always mean bigger call sizes but, when they do, you can have situations when you are taking 5,000 boxes off a vessel and putting 3,000 on," Wong said. "That can mean 200 moves per hour coming into the yard, which puts a lot of stress on the terminal."

Employing Japanese-developed technologies, the system is modelled on a version installed at the Tobishima Pier South Side Container Terminal in Nagoya, Japan, the first terminal in the world to use automated rubber-tyred gantry cranes (RTGs). Cranes are installed with monitoring

cameras and sensors to support remote operations, and the system is integrated with a database at the terminal to work out where and how containers can best be grounded and stacked.

HIT expects to recoup the cost of about HKD4.5 million (USD575,000) for each of the 29 RTGs involved through higher operational efficiency and productivity, increased safety and labour benefits, including a major boost in the working environment for crane operators. The average productivity gain of the automated system is calculated at 20% more than the manual equivalent, but Wong said gains could turn out to be much more than that.

HIT began working on the system in phases after a 40-day dock strike in 2013 crippled operations and resulted in a backlog of tens of thousands of containers, undermining the competitiveness of one of the world's largest container ports.

Today, the port of Hong Kong suffers from a shortage of labour, with local workers shunning frontline jobs seen to be tough, repetitive, highly manual, and involving shift work.

## Port updates

► **HAMBURG BOXES DOWN**  
Infrastructure constraints and tough competition amid terminal overcapacity in northern Europe saw Hamburg lose further market share in cargo handling in the region. Despite accelerating economic growth and trade in Europe, total throughput declined by 1.2% to 136.5 million tonnes last year, Hamburg's port marketing agency, Hafen Hamburg Marketing, announced in February. Container traffic via Hamburg was down by 1% to 8.8 million teu, chiefly due to loss of transshipment business to and from the Baltic Sea. The number of transshipment boxes handled slipped from 3.3 million to 3.2 million teu.

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## Port updates

### ► YILDIRIM TEU UP

Container terminal operations controlled by Turkish billionaire and shipping investor Robert Yüksel Yildirim grew by 9.5% to 4.3 million teu last year, with exports from Turkey and Sweden as the chief growth drivers, the group said. In Turkey the group recorded volume increases of 26% and 30% at its terminals in Gebze and Gemlik. Scandinavia came second with a rise in box handling of 14% at Yilport's ocean terminals in Sweden and Oslo. Puerto Bolivar in Ecuador, where the Turkish firm has been operating as concessionaire since March 2017, saw 9% growth to 111,700 teu.



### ► KAP SEES BOX INCREASE

King Abdullah Port (KAP), Saudi Arabia's largest privately owned terminal facility, has overtaken Dammam to become the kingdom's second-largest port – with Jeddah Islamic Port taking the top spot in 2016. KAP's annual throughput increased by 21% to 1.7 million teu last year, mainly because of a volume increase of 4%. At year's end, cumulative throughput since operations began in late 2013, stood at just under 4.9 million teu.

### ► SINGAPORE TRAINING

Singapore's maritime industry will receive an extra SGD12.6 million (USD9.6 million) towards training the next generation of seafarers. It comes in the form of continued funding from SkillsFuture Singapore, the Maritime and Port Authority of Singapore, and Singapore Maritime Officers' Union, for the Tripartite Nautical Training Award and Tripartite Engineering Training Award programmes.



SIPG: 1012631

Port of Shanghai handled more than 40 million teu in 2017

## China continues on growth curve

China's biggest container terminal operators reported strong volume growth in 2017, driven by high levels of containerised trade growth in their core mainland China market and new overseas acquisitions.

Terminals with investments by China Merchants Port Holdings (CMPort) handled 102.9 million teu in 2017, breaking the 100 million teu barrier for the first time and representing a year-on-year rise of 7.7% in non-equity weighted throughput.

China's other dominant ports player, Cosco Shipping Ports (COSCO), also had a strong year, with non-equity weighted throughput growing by 12.5% to more than 87.3 million teu. The data provided by COSCO excluded volumes handled at the northern Chinese port of Qingdao.

Domestic volumes comprise the lion's share of the throughput of both operators but overseas volumes are

growing as investments by the state-controlled companies in other world regions increase driven by the foreign policy of China's central government.

In the case of COSCO, the percentage volume contributed by overseas facilities was higher in 2017 than in 2016, despite growth in containerised trade at mainland ports. COSCO's overseas throughput rose to more than one-fifth its total non-equity weighted throughput for the first time in 2017.

CMPort's overseas volume contribution, including Hong Kong and Taiwan, was one-quarter of its total non-equity weighted throughput. Overseas terminals at Colombo International Container Terminal in Sri Lanka and Lomé Container Terminal at Togo in west Africa were its top-performing facilities in terms of volume growth last year, with volumes up by 18.5% and 67.5%, respectively.

In 2017, both operators demonstrated the capability

to pay a premium for port assets backed by Chinese banks offering Belt and Road project development loans with interest rates as low as 2%.

COSCO last year paid USD228 million for a 51% stake in Spain's Noatum Ports, which operates container terminals in Valencia and Bilbao, as well as the Conterail dry port in Madrid and Noatum Rail Terminal in Zaragoza.

CMPort's overseas acquisitions in 2017 included a 90% stake in TCP Participações, the operator of Port of Paranaguá in Brazil, the second-largest container terminal in the country. CMPort also acquired a majority stake in the controversial Hambantota port development project in Sri Lanka last year and, with the acquisition of the Shantou Port Group, played its part in the ongoing consolidation of the domestic China ports sector.

Analysis by Drewry Maritime Research show COSCO and CMPort are now the fifth- and sixth-largest container terminal operators in the world by equity teu throughput.

Including Shanghai International Port Group (SIPG) – whose second-largest shareholder is China Merchants Group – the three Chinese terminal operators are now in nearly 40 overseas locations, up from just 10 locations five years ago.

Mainland China's top 20 container ports handled more than 200 million teu in 2017, a rise of more than 7% on the previous year. The growth was driven by increased domestic market activity and stronger intra-Asia and trans-Pacific trade. For the first time in its history, Port of Shanghai handled more than 40 million teu in a single calendar year. The improved global economic outlook and trading environment is expected to drive continued growth in Chinese and global container trade and terminal throughput volumes.



# US budget plan reveals funding shortfalls

US President Donald Trump's 2019 federal budget proposal fell short of expectations by some in America's port sector after the president had raised hopes with a plan to inject USD1.5 trillion into the nation's infrastructure.

In his State of the Union address on 30 January, the president called on lawmakers to craft a proposal that would generate the money by leveraging USD200 billion in federal funding over 10 years with state, local, and private investments.

Trump unveiled a formal infrastructure plan on 12 February that recommended streamlining the permitting process for major projects, such as those involving port expansion, from 10 years to 2 years – a proposal supported by port authorities. The plan also leaned heavily on states and cities, however, to raise their own money for port infrastructure through taxes or user fees.

"Rather than telling governors and mayors what to do, we will partner with them as they invest in the most pressing projects in the highest-need places,"

said Gary Cohn, Trump's chief economic adviser.

Trump's recommendation for 2019 federal spending across government, which was also released on 12 February, dealt an even bigger blow to those in the port industry.

The budget recommended that fees collected from cargo owners through the Harbor Maintenance Tax (HMT), which are used to maintain channel depths and widths, to be reduced by USD500 million "to better align estimated annual receipts from this tax with recent appropriation levels for eligible expenditures from the Harbor Maintenance Trust Fund", the proposal stated.

Not all in the port industry were disappointed. Officials at Port of Corpus Christi in Texas praised the USD13 million in the president's budget to help pay for deepening and widening the energy port's ship channel – despite that amount being close to 80% less than the USD60 million the port and a group of six major energy companies had lobbied President Trump directly for in January.

## Port updates

### ► COLOMBO LOGISTICS

GAC Group has expanded its presence in Sri Lanka with the opening of a 30,000 m<sup>2</sup> logistics facility with a capacity of 6,000 teu located between Colombo port and the international airport. The move enables the Dubai-headquartered shipping, logistics, and marine services business to meet growing demand for third-party logistics services in the island, which is rising in importance as a sourcing base for international buyers in south Asia, a statement said.



## International Port Seminar

23 April – 4 May 2018

IHE Delft, The Netherlands

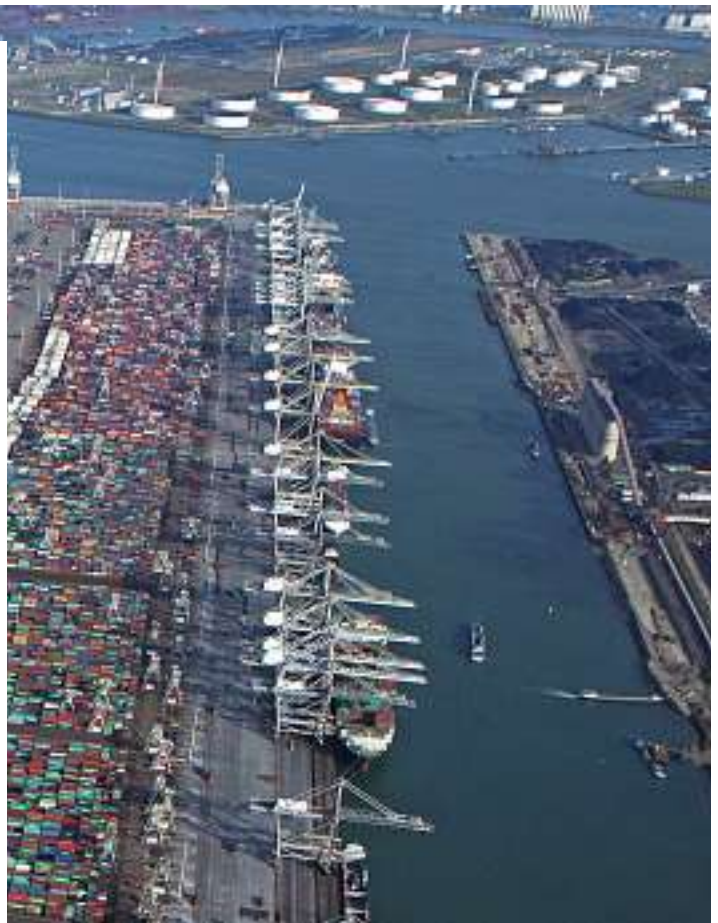
Registration is now open for the 54th IHE Delft International Port Seminar which will take place in Delft from 23 April – 4 May 2018. IHE Delft Institute for Water Education is the largest graduate water education facility in the world. The Institute confers fully accredited MSc degrees and PhD degrees in collaboration with Dutch universities, as well as a large number of short courses.

This short course is run by world renowned experts from IHE Delft, Port Authorities, Universities and prestigious companies, who will give an insight into the latest port management and development trends and innovations. Topics included in the 2018 Seminar:

- Planning, design and management of modern sustainable ports
- Construction and maintenance of port infrastructure
- Port financing
- Economics of ports
- Port safety and security issues
- Stakeholder management

Visits to the Port of Rotterdam and Belgian ports are included in the course fee of €1900.

For more information and application  
[www.un-ihe.org/international-port-seminar](http://www.un-ihe.org/international-port-seminar)



Port of Le Havre, France. The country is changing its privacy laws so passenger information can be shared via its maritime single window



# Fighting crime through trade facilitation

Maritime single windows are important for trade, but vital for security, **Pascal Olivier** of Soget tells *P&H*. Implementation will mean a change management overhaul on an vast scale

**T**he International Maritime Organization's (IMO's) commitment to establishing maritime electronic exchange of information on crew, cargo, and passengers through its revised Trade Facilitation (FAL) Convention paves the way for the establishment of maritime single windows.

The most recent updates, which came into force at the beginning of the year, are in the spirit of the original 1965 convention to facilitate maritime transport by reducing paperwork and simplifying procedures. As we move into an increasingly digitised age the new rules are an early step towards electronic navigation and communication and eventually the realisation of automated ships.

How this will play out exactly, nobody knows, but electronic exchange of information serves another, more important,

purpose than trade facilitation – national and international security. In today's world no government can afford to delay on implementing a maritime single window.

The United Nations Office on Drugs and Crime estimates that as much as 5% of global GDP stems from organised crime. Migrant smuggling, narcotics trafficking, and terrorism, the last of which is an especial concern for the cruise industry, are propped up by technology. It is very important that all countries move to the FAL Convention as soon as possible so we know what is moving on ships. The more data we have on vessels in real time, the easier it will be to clamp down on crime.

Over the next few years we will see growing interest from ports and shipping in the movement of electronic data as systems are required to be in place by April 2019. This lead

time will be needed by some, as, despite the urgent need for systems to be in place, we should not underestimate the enormity of the task that lies ahead. I have been working with ports and national governments for the past 10 years as they rolled out port community systems (PCS) – a single window for logistics [see box] – and the process requires a change of mindset that is far broader in concept than the rollout of any software.

At the IAPH conference in Genoa in 2009 I gave a speech about PCS and the importance of change management and getting all the players on board, and this principle applies to a maritime single window. Ports and shipping companies will have to work together, with their business stakeholders, and with regional and national governments to make maritime single windows a reality. And this all starts with change management.

When implementing a PCS you start with the engagement of the port authority, which could be two different authorities, along with the customs authority. You also have to engage the port's shipping line customers, terminal





Getty Images/Charly Triballeau: 5071392

‘ No government can afford to delay on a maritime single window ’

**Pascal Ollivier**

*Director of corporate development, Soget*



Soget: 5071378

operators, logistics companies, and any other stakeholders in the port. All must come to the table and be ready to implement the port community system, co-operate on data sharing, move over to an electronic platform, and work together to bring about change.

Beyond that you also need buy-in from the national government and its willingness and vision to want a PCS. If you do not have engagement from all these players, you have nowhere to start. You can have all the technology you want, but it won't be effective unless you have this buy-in.

Ten years ago, no one would have thought it possible to see a PCS implemented at an African port. But it starts to be a reality when a head of state decides to move from a cash-based society, driving the change from the top down.

From an international perspective, the message is united. Continued engagement of the IMO is essential as it pushes its FAL agenda. As is the World Bank's, as more technical assistance and financing is required if this is to become a reality. In early 2017, the World Trade Organization (WTO) saw its Trade Facilitation Agreement come into force, allowing smooth movement of goods and removal of red tape. This regulation calls for co-operation between customs and other authorities. It also recognises the need for technical assistance and capacity building.

Regionally the picture is more disjointed. There are already developments at a regional level in certain African countries, but financing often remains an issue.

The Inter American Development Bank has been very focused on South and

Central America and the Caribbean and has implemented a customs single window throughout most of the region. Now it wants to see a PCS and maritime single window.

The European Union made progress when its vessel reporting formalities regulation was approved by its parliament in 2010 and went into force in June 2015. Under the act, ships must report the number of people on board after it has departed, via each member state's national maritime single window, to the European Maritime Safety Agency (EMSA). However, each EU member state was allowed to set up the directive as it liked. The different countries' laws mean it is impossible to find common ground. For example, in France it is illegal to share lists of passenger information for privacy reasons, so it is still not possible for vessels leaving France to provide a passenger list to EMSA, although this is set to change when a new law comes into force. In some EU countries, however, the system is up and running.

There will be sceptics about maritime single windows; those who say it will never happen. But if we look to the International Ship and Port Facility Security Code (ISPS Code), which came into force in 2004, the industry had no choice other than to comply.

Of course, there are still some countries where the regulation is not upheld – IMO regulation can only drive so much change. The majority of players, however, came on board, involving a big change-management plan. This has to be the case with maritime single windows if port-ship communication is to keep up with the rest of the logistics industry. It also has to be the case if we are to reduce crime and overall security in society. It should be at the top of every CEO's and government's agenda along with cyber security. **PH**

## Three windows for trade facilitation

There are three different types of single window, each carrying out different functions:

- **Customs single window:** handles licences and permits for the import and export goods. A customs single window acts on the authority of a country's government.
- **Maritime single window:** as being facilitated by the FAL Convention (see P&H Jan/Feb, page 12-13), handles vessel reporting formalities such as the arrival, stay, and departure of ships, advance electronic cargo information, port reception facilities, and crew shore leave information
- **Port community system (PCS):** this is the logistics single window and is concerned with electronic payment, electronic bills of lading etc.

What's available and where depends on the country. Some countries have all three; others nothing. Some embed their maritime single windows in their PCS, as is the case in Indonesia and the Netherlands, with its Portbase system. In Latin and Central America, most countries have a customs single window, but very few have a PCS or maritime single window.



IAPH-5071195

## Call for collaboration

IMO Secretary General Kitack Lim and IAPH's Patrick Verhoeven discuss the importance of having ports as part of the ongoing discussions that are shaping the maritime sector. **Namrata Nadkarni** reports

**Kitack Lim met Patrick Verhoeven at IMO headquarters to discuss the many areas where shipping and ports can work together more closely**

**R**ecognition for the role of ports in the maritime industry is growing at a regulatory level, helped in no small part by International Maritime Organization (IMO) Secretary General Kitack Lim's background as president of Busan Port Authority (BPA).

"It is very important to me that there is more collaboration between owners, ports, and the maritime administrations. In fact, this was one of the points I made in my manifesto when I was running for the position of secretary-general," he told *P&H*, adding that he was extremely pleased that the theme for World Maritime Day in 2017 was 'Connecting ships, ports, and people.'

"There needs to be more communication between ships and ports, particularly because ship sizes are becoming bigger," he emphasised, pointing out that Maersk's 18,000 teu Triple E ships were a game-changer, and entered service in 2013 without ports having really been a part of the discussions about their operation in a port area. "There can be issues when big vessels need to berth at or leave a port and I want to ensure that there is a platform for these important discussions here at the IMO. Joined-up government policies covering the whole maritime sector are critical for the port sector to flourish."

Patrick Verhoeven, IAPH managing director for policy and strategy, believes IAPH is ideally placed to facilitate these discussions and should be ensuring that the voices of member ports are amplified in discussions. "There has never been a better time for ports to look at collaboration and stronger representation. We must ensure that we are talking to the other associations such as the International Chamber of Shipping, BIMCO, and others that have a strong presence at the IMO. Just like owners, who have a large presence in the delegations and ports must create a presence that is just as visible.

"This requires closer ties between ports and their maritime administrations and this is where the IAPH can assist by opening the right doors so that our members are able to liaise with the permanent representatives at the IMO. Simultaneously, we must create stronger ties with stakeholders in the ports community, such as pilots, harbor masters, stevedores, and cargo handlers so we have a more united voice for our shared concerns," he continued. "The regulations that affect us, such as FAL [Facilitation of International Maritime Traffic], security, or places of refuge, apply to the port community as a whole and it is important that we are not fragmented and thus,



“There has never been a better time for ports to look at collaboration and stronger representation”

**Patrick Verhoeven**

*IAPH managing director for policy and strategy*

appear passive. Rather, we should be making sure that our concerns and opinions feed in to the discussions from the start and help shape the conversations. We must also ensure that we have representatives that can bring technical expertise to the discussions and working groups – and it is best if this expertise can provide a holistic overview of all the aspects of port workings.”

Verhoeven said the IAPH’s ability to keep members updated with the IMO’s agenda was vital to garnering greater engagement from the community, as this would allow ports to prioritise what to spend their resources on – and ensure that members were able to be proactive rather than just reactive to topics that had moved past the information gathering stage. “It’s important for us to have a seat at the table, because otherwise we will not be the ones carving up the meat ... we will just have to make do with what we are given,” he explained.

It is this proactive agenda that the IAPH is hoping to further at its two-day international conference in Antwerp, Belgium, on 22–23 March to launch the World Ports Sustainability Program (WPSP). The event, which aims to contribute to the 17 sustainable development goals adopted by the United Nations in 2015, covering biosphere, society and economy, will feature Lim as the keynote speaker (see page 5).

The secretary-general, who used to attend IAPH meetings during his time at the Busan Port Authority, believes the conference is just one step in a wider set of discussions that urgently need to take place as the gap between ship and shore closes. “Shipping is the only viable delivery mechanism that can support global trade and the global economy, but in order for shipping to function, you also need ports,” he said, adding that the FAL convention and single-window concepts would prove to be a game-changer (see *P&H* January, page 12).

Describing the FAL Convention as “a diamond in the rough”, Lim called on IAPH members to actively participate in IMO working groups to ensure comprehensive outcomes that are reasonably future-proofed, and so that the single windows for individual ports are harmonised for information transfer. He noted two working groups in relation to FAL where IAPH could contribute significantly – on electronic clearance of ships, and on the review and update of the explanatory manual. He also stressed on the importance of a greater port presence in the Marine Environment Protection

Committee (MEPC) “since ports have interest in availability of fuel, wastes, emissions, and port reception facilities”. Leaving ports out of the discussion, Lim warned, would be short-sighted.

“Maritime administrations should take steps to increase the communication, either via an internal mechanism or through personal communication, to ensure there is the right level of information sharing. Otherwise there is a risk of bottlenecks or that relevant information may accidentally be ignored rather than being passed on to the port authorities,” he said, adding that the IMO was willing to offer its headquarters in London as a space for greater engagement between ports, maritime associations, regulators, and other stakeholders.

He would like to facilitate real communications and strategy on micro-plastics, port security, waste reception facilities, and shore power supply. “We must also not forget the fact that ports are the spaces that cater to seafarers’ welfare through seafarers’ centres, so the human factor is also being taken care of by ports.”

Verhoeven feels the concept of caring for the human factor in maritime should be taken extremely seriously. “We are seeing a skill shortage in many sectors, both at sea and on shore. As the maritime industry gets more complex, we are going to need people who can bring creative approaches to our problems, which means we have to make our industry attractive to coming generations,” he said, adding that this would not be an easy task unless maritime kept pace with other sectors. “Tackling automation, emission restrictions, and other issues in a sustainable manner will require the best and brightest talent out there.”

He emphasised that the dual tasks of creating the draw to the sector and engaging with the IMO and other maritime stakeholders was a task for the port community as a whole. “This is not a one person’s job – and while the IAPH can help set a concrete agenda for matters to be tackled, we are reliant on our members to step forward and engage with the issues,” he explained.

This year will prove particularly fortuitous for ports to participate in IMO activities as the organisation is celebrating the 70th anniversary of the convention in 1948 at which it was established. A series of events will draw in high-profile attendees. Of particular interest is a one-day high-level event on ports on 11 June, which will bring representatives of ports and other organisations to IMO headquarters following the 42nd meeting of IMO’s Facilitation Committee on 5–8 June.

Another event of interest to ports is the symposium on port security and facilitation operations organised jointly by IMO and INTERPORTPOLICE, to be held at the IMO on 12–13 June.

A high-level forum to be held at IMO headquarters on 15 May will discuss the organisation’s history, its future challenges, and role within global trade in a changing world. **PH**

 **MORE INFO:** [falsec@imo.org](mailto:falsec@imo.org)

# Capacity uplift bridges gap for future demand

India's continuing port infrastructure investment amid slower-than-anticipated growth is looking to a predicted increase in imports and exports as the country's consumer spending power increases, writes **Ramadas Rao**

Mumbai's Rajiv Gandhi Sea Link connects Bandra in western Mumbai to Worli in the south of the city

Port capacity in India continues to expand despite slow growth in cargo volumes. India's 12 major ports, which are under government control, have seen throughput growth of less than 4% for the nine months ending 31 December 2017.

The total throughput at these ports, which are spread across the east and west coasts, was just under 500 million tonnes. However, plans continue

to be drawn up for new terminals and even brand new facilities on a scale that seems to defy logic. Take the example of the proposed INR275 billion (USD4 billion) port in the southern state of Tamil Nadu. With a capacity of 120 million tonnes and located in Kanyakumari district almost on the southern tip of India, it is not very far from another planned mega facility, Vizhinjam, in neighbouring Kerala state.



Vizhinjam itself is not all that distant from Kochi's Vallarpadam, also in Kerala state. And Tamil Nadu already has three major ports in Chennai, Kamarajar (former Ennore), and VO Chidambaranar (Tuticorin), all of which are in expansion mode.

Adani Ports and Special Economic Zone (APSEZ) has begun construction of the first berth at Vizhinjam, described as India's first transshipment port. Karan Adani, CEO of APSEZ exudes confidence on the project's viability. "The port is strategically located for access to prominent international waterways. This project will enable India to be strategically positioned as a global transshipment hub," he said.

The need for new deep-draught ports that can handle the larger ships that are dominating trades, especially container traffic, cannot be underestimated, but the expectation that every such facility will emerge as a container transshipment hub may never be realised. Shipping lines, large and small, are beginning to emerge from a bruising decade-long slump in freight rates and would be wary of shifting

transshipment allegiance or committing additional calls to new untested facilities.

In south Asia, no serious alternative has emerged to Port of Colombo as a transshipment hub. And it too is expanding, while Sri Lanka has China's commitment to back its mega port project in Hambantota.

While there may be a question mark over greenfield projects that entail huge investment, gradual addition of capacity is seen as necessary to prepare for an economic turnaround and insure against congestion.

India may not have taken off as far as container transshipment is concerned, but the export-import trade is set for robust growth on the back of projected rising GDP and consumer spending power. The latest Indian government estimates, for example, expect GDP growth to rise almost by a full basis point to 7.5% for the fiscal year ending 31 March 2019. This is in line with a projection by Morgan-Stanley Research, which estimates an average GDP growth of 7.3% from 2020 to 2022. An increase in private capital spending is expected to hasten economic activity.





Port expansion, therefore, is warranted despite the possibility of capacity overtaking demand. "When you add capacity, generally it comes in one wave. But the demand gradually picks up," said Anand Sharma, director of Mumbai-based Mantrana Maritime Advisory. Unlike cargo growth, which is most likely to be in single-digit percentages, additional port facilities could be in the range of 50% or even more. "For at least five years, there would be underutilisation. Ports are built keeping the future in mind," Sharma observed.

Apart from cumulative capacity, the type of commodity and location also matter. Container capacity, for example, is being continually added on the west coast, especially in Maharashtra and Gujarat, because of relatively better rail-road connectivity. "There is a need to find more opportunities to add more container capacity on the east coast," said Sharma, pointing out that containers originating in central or eastern India need not come to the west coast. Boxes headed for southeast Asia could, using waterways, be routed through Bangladesh and Myanmar. Sagarmala has an ambitious plan to link major waterways in its maritime highway project, but that would entail huge investment and massive dredging, which will take time.

At Jawaharlal Nehru Port (JNPT), India's biggest container port, PSA International's new 4 million teu terminal is expected to come on stream in a couple of years. This is expected to ease congestion within the port. Adani Group's Mundra port, India's biggest privately operated facility, also wants to add berths and improve productivity to ensure growth.

Sharma believes there is huge potential for Indian container trades to grow, and said both Mundra and JNPT were justified in expanding capacity to ensure that growth. "India handles one container for as many as 100 [of its population]. In developed economies, including

“When you add capacity, generally it comes in one wave. But the demand gradually picks up”

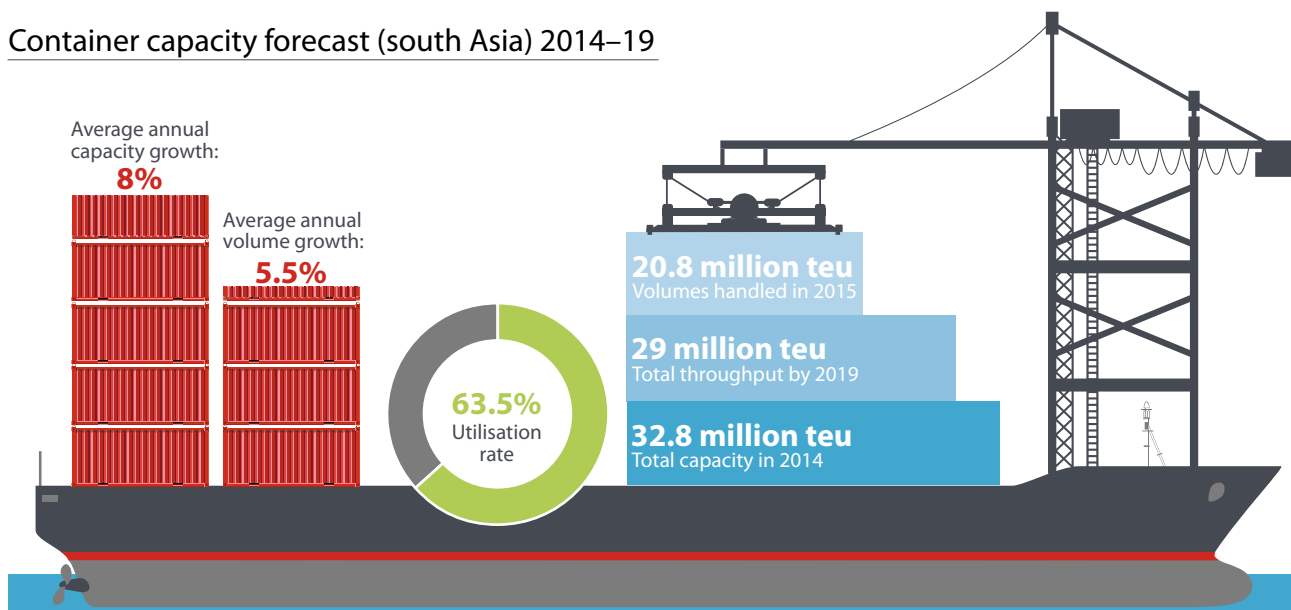
**Anand Sharma**, director, Mantrana Maritime Advisory

the Middle East, it is one container per 10 people." Container trade reflects the state of the economy. Once the economy improves and consumer spending rises, there will be more container trade, he explained.

Indian ports have begun to experience a surge in volumes. APSEZ reported a 16% increase in throughput, with container volumes growing by almost 30% in its third quarter, which ended on 31 December 2017. Volumes at Mundra, the largest port in Adani's stable, rose 17%. Container traffic at Gateway Terminal, Vallarpadam, in Cochin, run by DP World, grew 11% during the calendar year 2017. The major ports of Cochin on the west coast and Paradip and Kolkata-Haldia on the east coast have all recorded double-digit growth for the nine months from 1 April to 31 December 2017.

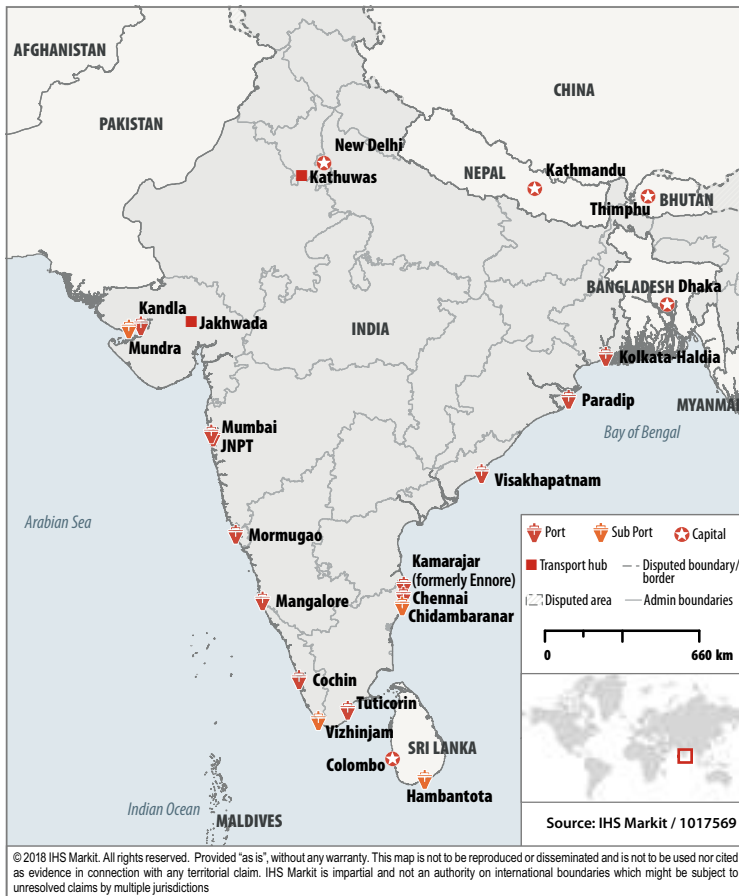
However, adding berth capacity is not the only answer to port congestion. Without matching rail-road infrastructure, cargo evacuation could still be a critical problem, as is the case with east coast ports Chennai and Kolkata, which are in the heart of the metropolis. The government is moving aggressively to address this problem, and in January this year unveiled a national logistics plan based on projected requirements up to 2035. The plan puts multimodal transport high on

## Container capacity forecast (south Asia) 2014–19



Source: DP World

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## East coast bulks up

### India's iron ore and coal have seen a dip but money to expand still pours in, writes Ramadas Rao

There has been a perceptible shift in the composition of bulk cargo in the export-import trades. Iron ore exports have dwindled in the aftermath of a ban designed to curb illegal mining. Although the ban has been lifted and production has been gradually scaled up, most of the output is channelled to domestic steel mills. There was some compensation for fall in iron ore exports from a rise in coal imports to feed India's power plants, but over the past two or three years domestic mining has scaled-up output following proactive measures taken by the government.

In a large number of power plants, especially those owned by the government, domestic coal has been substituted for imported coal. "There is an issue with a dirty dry bulk commodity. Growth is likely to be stagnant," Sharma said.

However, some ports, such as Vizag, have reported an increase in steam and coking coal volumes, which, along with container cargo, has helped offset the decline in iron ore and petroleum, oil and lubricants. Vizag, which has set a target of 64 million tonnes by the end of the fiscal year on 31 March 2018, moved 51 million tonnes, an increase of 1.5 million tonnes, by the end of last December.

Notwithstanding the decline in the two main dry bulk commodities, coal and iron ore, investment is pouring into the expansion of coal and iron ore terminals as ports on the east coast have a large share of dry bulk cargo. These include Chidambaranar, Kamarajar, Paradip, and Vizag. The Essar conglomerate, which has interests in steel and power, is investing in an 18 million tonne coal terminal in Paradip and a 16 million tonne iron ore handling facility in Vizag. This is probably because of growing transport of coal along the coast.

Coastal movement of coal is forecast to double in the five years to 2023, to 63 million tonnes/year from the current 32 million tonnes, according to Crisil Research. Most will be shipped on the east coast from the Mahanadi coalfields through Paradip and Dhamra ports in Odisha state to power plants in Andhra Pradesh and Tamil Nadu. Chidambaranar, for example, is set to open a new 10 million tonne coal terminal with investment from Alba Asia, a joint venture between French shipping company Louis Dreyfus Armateurs and Mumbai-listed Star Log Enterprises.

The facility will raise capacity at Chidambaranar to 24 million tonnes by 2019. Kamarajar Port has raised USD100 million to partly fund expansion, including a new coal berth, a vehicle terminal that will be able to export 300,000 cars annually, and deepening the harbor to accommodate larger vessels.

On the other hand, movement of liquid cargo is rising on the back of new refineries being commissioned along the coast. LNG capacity is also being added as India turns to natural gas instead of coal to fire power plants. According to reports, the government wants LNG to represent 15 % of its energy mix by 2022, up from the approximately 6.5 % now. To achieve this it is aiming to more than triple LNG imports from 20 million tonnes per year to 70 million tonnes by that year. As part of these plans it wants to add 11 more LNG import facilities to its existing four.

The capacity-building wave, as elsewhere, is therefore unlikely to ebb in India, which seems to have hit the growth trail.

the priority list, viewing land, rail, and water transport as complementary rather than competing options. Regular surveys and remedial measures are proposed to raise port productivity and cut turnaround times.

Private enterprises are also stepping in to provide funding. DP World and Indian fund manager National Investment and Infrastructure Fund (NIIF) will invest up to USD3 billion in ports and logistics businesses in India. The fund will explore opportunities beyond ports and terminals, looking at river transport, freight corridors, port-led special economic zones, inland container terminals, and logistics infrastructure, including cold storage.

In another initiative to improve regional connectivity, PSA's Bharat Mumbai Container Terminals (BMCT) and Container Corporation of India recently agreed to launch dedicated shuttle trains between BMCT and Concor's rail transshipment hubs, Kathuwas and Jakhwada, in the north and west. Service enhancements offered are said to include providing a more effective evacuation option than road haulage and domestic repositioning of empty containers.

If the experts are right, this new container port capacity will be there for India's more prosperous population. The level of proposed private investment is evidence of an appetite for a slice of India's container business. **PH**



AFP/Getty Images: 5070728

## Zoned out

India's special economic zone policies need to be flexible as well as offering companies financial incentives, **Ramadas Rao** reports

**Cars at Adani Ports Special Economic Zone in Mundra, India**

India's special economic zones (SEZs) were set up under a 2005 act to prop up the country's exports, offering incentives and exemptions in taxes and duties. More than 200 SEZs are operating in India and the value of exports out of these amounted to INR2.6 trillion (USD40 billion) for the six months to 30 September 2017. Commodity exports comprised mainly containerised cargo, including engineering goods, telecoms equipment, clothing, and footwear.

Experts tracking the performance of India's SEZs, however, are not impressed. They believe the majority of SEZs are struggling to attract businesses because of the

high costs that wipe out the benefits accruing from fiscal incentives. Even those located close to ports have failed to attract a sizeable number of customers.

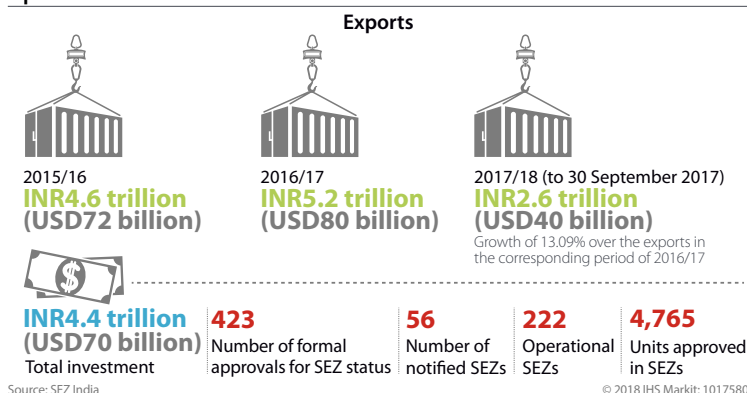
"If Adani could not sell SEZ capacity even with a port attached, it is not going to be easy for the normal SEZ developer to pull it off," said Manish Saigal, managing director of consultancy company Alvarez & Marsal India. Port operator Adani Ports and Special Economic Zone has an SEZ close to its flagship Mundra port.

In a set-up where the SEZ land developer sells space at a premium, the cost of setting up a factory seems to be a big deterrent. "Indian entrepreneurs don't buy talk of tax incentives unless they see the cost being lower." The manufacturer will not go to an SEZ even if it is situated close to a port if the cost is too high, said Saigal, adding, "People are concerned about every dollar they put into their factory. They may possibly go far off."

Saigal believes India needs a robust approach to make a success of such infrastructure, with in-built controls so the SEZ developer, as a regular investor in real estate, does not squeeze out every drop of profit made by the individual manufacturer. He pointed to 'a classic case' in Navi Mumbai – or New Bombay as it was then called – where a large tract of land was bought for the purpose of developing an SEZ. Because of its high cost, there were hardly any takers and after 10 years that large stretch of land had to be denotified.

Saigal is quick to point out, however, not all government efforts to encourage manufacturing have failed. Industrial parks such as Santacruz Electronics Export Processing Zone in Mumbai, created in 1973, has been very successful owing to the ease with which companies within the zone can shift from exporting goods to sending goods to the Indian market. Manufacturers in an SEZ should be able to be flexible about where they sell their goods, as well as benefiting from a more cost-friendly environment, Saigal concluded. **PH**

### Special economic zones





# Indian Ocean ports lure Chinese investment

Ports in Bangladesh, Pakistan, and Sri Lanka are in line for Chinese investment, writes **Ramadas Rao**

**C**hina's footprints go deep in south Asia's port landscape, dominating strategic locations in Sri Lanka and Pakistan.

In December 2017, China Merchants Port Holdings snapped up Hambantota, Sri Lanka's mega port in the southern extremity of the island. It is seen as a crucial conduit for Indian Ocean trades.

The 'dream hub' launched with great fanfare in 2010 but never really took off. Faced with ballooning debt, Sri Lanka has handed over ownership of the USD1.5 billion facility to China, which grabbed the opportunity for more control over the logistics chain that is so crucial to its ambitious Belt and Road initiative.

The USD1.12 billion port deal for the transfer of 85% equity is the biggest of its kind in the region. The Sri Lankan government officially transferred the port to two new companies set up by China Merchants – Hambantota International Port Group and Hambantota International Port Services. The Sri Lanka Ports Authority will retain part ownership, but China Merchants will have a free hand in operating the port, which is offered on a 99-year lease.

Such is the significance of the arrangement that the prime minister of Sri Lanka, Ranil Wickremesinghe, was in attendance during the formal handover.

China has promptly paid the initial tranche of USD292 million, which Mangala Samaraweera, the Sri Lankan minister of finance and media, described as the "first step in realising the true commercial value of the port after seven long years". The rest of the USD685 million is scheduled to be cleared over a six-month period.

China Merchants has also invested in Colombo, which is adding more than 2 million teu of capacity to be able to handle close to 10 million teu annually as the port aims to cement its regional transshipment centre status and to take steps towards emerging as a global transshipment hub.

Colombo is already receiving the large container ships, with capacities exceeding 12,000 teu, that traverse the busy east-west sea lanes. China Merchants is expected to be an active player in Colombo's expansion projects. The port transships containers arriving from India, Bangladesh, and east Africa, of which more than 1 million teu originates in India.

China has backed the development of Chittagong,

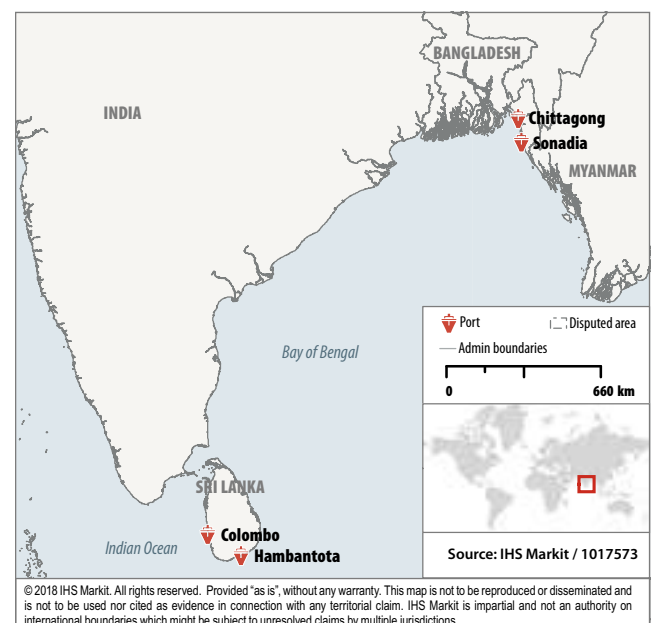
Bangladesh's premier port, but India has been successful in obtaining permission for its cargo vessels to use Chittagong as well as Mongla port. India is looking for opportunities in Bangladesh's ports sector and has expressed an interest in developing Payra, a new deepsea port near the Bay of Bengal.

Chittagong is crucial to India from the point of view of connectivity to the landlocked northeast. China was keen to develop a port in Sonadia in the southeast, but Bangladesh has cancelled the project, citing commercial reasons.

India has begun construction of a road bridge across the River Feni, which separates Bangladesh from Tripura, India. This is regarded as the conduit to link the northeast with Bangladesh. The bridge will provide direct access to Chittagong port.

Road and rail connectivity is being planned in tandem with the bridge construction.

Chittagong is seen as a vital link for India because transporting cargo over the rough and hilly terrain to India's interior by road is far more time consuming and expensive than shipping goods from Chittagong to Indian ports. **PH**





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# Regional differences aside

China's ambitious Guangdong-Hong Kong-Macau Bay project is expected to become one of world's major clusters. However, there are many challenges that Beijing needs to overcome. **Ken Gangwani** reports

**S**ince China's Premier Li Keqiang put forward the idea of developing a city cluster in the Guangdong-Hong Kong-Macau Greater Bay Area (GBA) in March 2017, the concept has gained increasing momentum. Similar to the world's other major bay areas in New York, San Francisco, and Tokyo, China's version of a GBA aims first and foremost to promote internal development.

The GBA initiative is essentially an integration plan encouraging economic co-operation between the two special administrative regions of Hong Kong and

Macau as well as nine cities in Guangdong province: Guangzhou, Shenzhen, Zhuhai, Foshan, Dongguan, Zhongshan, Huizhou, Zhaoqing, and Jiangmen.

The idea is to develop a city cluster that could rival the world's major bay areas through integrated and co-ordinated development in infrastructure, services, finance, innovation, and technology. The GBA is also expected to serve as a key portal in support of the Belt and Road initiative.

The GBA was once known as the 'world's factory', with its highly developed manufacturing industry. But as the population ages and labour costs rise, the world's workshop is facing significant challenges. There has been a gradual shift of some manufacturing sectors away from the Pearl River Delta to southeast Asian countries in recent years.

It is within this context that China put forward the GBA initiative with a view to upgrading its economy from a manufacturing-driven to a technology – and innovation-driven one. The key project to launch this initiative is the Guangdong-Hong Kong-Macau Bridge. Upon completion, the overall project will include three

## Industrial Ningbo

Ningbo Hangzhou Bay New Zone is the fastest-growing economic development zone in Ningbo as the city pursues its Made in China 2025 dreams. The zone is working to attract talent to sustain its industrial development and boost growth in other sectors, such as tourism and healthcare. The new zone, situated in the northeast Ningbo, enjoys key advantages, including its proximity to Shanghai because of Hangzhou Bay Cross Bridge.



**The border between Hong Kong and Shenzhen highlights the marked contrast between the regions**

lanes in either direction, spanning 55 km – 20 times the length of San Francisco's Golden Gate Bridge – with a series of roads and bridges and artificial islands constructed at its two main terminals. It was due to open last year but because of construction delays, an official from Guangdong province was quoted as saying even 2020 could now be optimistic.

The 29.6 km bridge-island-tunnel complex linking Hong Kong, Zhuhai, and Macau is, however, due to open in May or June this year and the cost would be shared by the three cities with Hong Kong shouldering 42.9 % of the upfront payments, Guangdong and the central government paying 44.5 %, and Macau 12.5 %.

When it is finally complete, the bridge could reduce travel times between the eastern and western sides of the Pearl River Delta from as much as four hours now to as little as half an hour.

It is envisioned that the GBA will become one of the world's major city clusters.

China is proud of its infrastructure: its cavernous airports, snaking bridges, wide roads, speedy railways, and the Great Wall. However, Western leaders often shake their heads in disbelief at the sums China spends on its huge projects. And some analysts question how much of it has been wisely spent. There have been several complaints against the 55 km Guangdong-Hong Kong-Macau bridge project, construction of which began in 2009. It has been plagued by overspending, delays, deadly accidents involving workers, instances of hacking, and falsified test results.

Some critics have branded this project a 'white elephant' or a 'black hole' that is set to become a fiscal abyss, while others are upbeat about its future, believing it will open a whole new world to Hongkongers. Civil engineer Albert Lai Kwong-tak, convener of think-tank Professional Commons, is one of the pessimists.

"This is a growing big white elephant; a huge liability for Hong Kong people," Lai said. But following several talks to resolve the various issues, this white elephant is turning grey with age and now there are

more optimists than pessimists. "The bridge is going against Hong Kong's transport aspirations. It defies logic that the government didn't adopt the option of building a rail link, which is more transport-friendly and cost-efficient," Lai said.

However, the executive director of the Hong Kong Shippers' Council, Sunny Ho, is convinced the GBA concept presents fantastic opportunities for Hong Kong's logistics industry. Important decisions in areas such as air traffic control, airport development, and cross-boundary procedures could all benefit from the closer co-operation fundamental to the GBA concept, according to Ho. He also believes major logistics-related projects now under construction, such as The Hong Kong-Zhuhai-Macau Bridge and the new railway links, will transform travelling patterns to many cities in the southern part of China.

The idea behind the project is to draw on the combined strengths of the three territories involved. For example, Hong Kong is positioned as a global financial centre, Guangzhou as a trading hub, and Shenzhen is a centre for technological innovation, while Macau is a leisure and tourism hub.

Hong Kong's chief executive, Carrie Lam Cheng Yuet-ngor, told a press conference, "There are so many administrative barriers that stall regional integration. Issues like how to facilitate the flow of talent, goods, capital, and information in the future are challenging. The cities comprising the Guangdong-Hong Kong-Macau Bay area should focus on their own strengths."

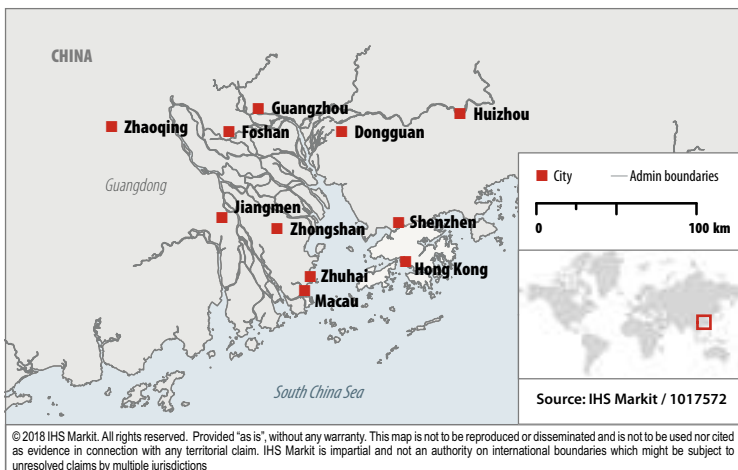
Although closer integration would produce benefits, Ho believes some form of customs union similar to that of the European Union is unnecessary. "What is needed is simply cross-boundary facilitation – policies, platforms, alignment of protocols, technology, communication, and understanding," he said.

The GBA project will be a testing ground again for China's commitment to open up to the world, said Ho. The Shanghai Free Trade Zone did not do so well because of the central government's fears of irrevocable changes, especially in financial matters, Ho said, adding that he hoped the bay project would fare better.

Hong Kong Shippers' Council chairman Willy Lin believes the GBA proposal will formally incorporate important aspects of regional development, such as infrastructure issues and land use planning, economic structures, research and development, into policy.

China hopes to mirror the success of the Ningbo-Shanghai Bay project with the Guangdong-Hong Kong-Macau initiative. Thanks to the Ningbo-Shanghai bridge, Hangzhou is only a 90 minute drive from Shanghai. This in turn has resulted in the development of the Ningbo Hanzhou Bay New Zone (see box) in the northeast, successful due to its proximity to Shanghai.

The economic growth rate in the area in the past nine months has remained more than 10%, while the economic aggregate in the zone doubled every three years since it was founded in 2010. **PH**







Fatemeh Bahrami/Anadolu Agency/Getty Images: 5070729

# Chabahar Port holds its own

The Iranian Port of Chabahar is at the centre of a regional and global tussle for trade dominance, writes **Peter Shaw-Smith**

**Iran's Port of Kharg Oil Terminal. The country wants to maintain ties with India to protect its oil exports**

**A**s the geopolitical jostling over the future of regional trade continues to involve China-India and India-Pakistan rivalries and Iran's place in the world, China is watching closely from Port of Gwadar in Pakistan. Development at Gwadar has been slow as Pakistan struggles with sporadic attacks on the port by insurgents from the restive Balochistan province and a lack of container volumes.

Pakistan fears that the advantages of the Iranian port of Chabahar, situated 175km west along the coast from Gwadar and inaugurated on 3 December 2017, will ultimately mean it wins the battle for regional trade dominance. These advantages include India's commitment to Chabahar, its improving relations with Afghanistan, its ability to serve as a platform for international cargo, and Iran's determination to use it to send a signal that it is open for international business.

India and Iran have long-standing and generally amicable connections: even before the Islamic Revolution, the two countries had very cordial relations, Pradeep Taneja, fellow at the Australia India Institute, part of University of Melbourne, told *P&H*.

Chabahar sits to the east of the entrance of a natural inland basin, 13km wide at the entrance and 21 km at its widest extent. After completion of all five phases of the development of Chabahar Shahid Beheshti port, capacity is expected to reach 80 million tonnes/year. The 8.5 million tonne capacity of Phase One involves two 720m-long container berths, and three 684m-long multipurpose berths. Land reclamation of 63ha has cost USD341 million.

In the May following the signing of the Joint Comprehensive Plan of Action on Iran's nuclear programme in January 2016, India undertook to invest USD500 million to develop berths at Chabahar. It also agreed to invest USD1.2 billion, increased to USD2.0 billion this year, in a railway from Chabahar to the Iranian border town of Zahedan. These promises were partly elicited when Iran used the veiled threat of inviting China to participate in Chabahar's development to speed-up India's involvement.

India's first wheat consignment of 15,000 tonnes arrived in Chabahar for Afghanistan in November 2017. Its commitment to develop Chabahar now hinges on a tender issued by India Ports Global (IPG), a joint venture between Jawaharlal Nehru Port Trust and Deendayal Port Trust, set up by the government to make strategic overseas port investments. IPG



has shortlisted three players, one of which is Adani Ports and Special Economic Zone. The winner will be selected at the end of March.

India has faced accusations that its participation in the development at Chabahar is slow, Shailesh Garg, general manager at Drewry Maritime Services India, told *P&H*. And the IPG award schedule is adding to the frustration. "This is delaying the entire process, in my opinion," he said "The Indian concession is only for 10 years. They have already consumed [almost] two of the 10 years."

An overhaul of Iranian rail infrastructure is under way. Some 600 km of railway – and roads to connect to the rail network – are planned to improve connectivity into Afghanistan and beyond. Locomotives and freight wagons will be provided by India.

India is also eyeing the fast overland International North-South Transport Corridor to Russia, which will cut transit times on the seaborne link via Suez.

The rail link would improve Kabul's Indian Ocean access, Claude Rakisits, senior fellow at the Center for Australian, New Zealand & Pacific Studies, told *P&H*. "This is critical for [Afghanistan's economy], and [India's] access to Afghanistan and Central Asia. For both countries, it eliminates Pakistan's strategic veto power in the development of their bilateral trade and security relationship. The big prize that any external player would see is access to the oil and gas fields of Central Asia."

"[India] will win oil and secure more supplies through these regions. Afghanistan is key to Indian diplomacy in the region. Good relations between the two can counter ... the influence of China and Pakistan and restore peace in the region, it believes,

so it wants to play that role," said Garg.

China wants Chabahar to be part of the China-Pakistan Economic Corridor (CPEC), but Iran has refused to allow this. "Hardly any cargo is going into or out of Gwadar. As of now, nothing much is happening in the port. [Sri Lanka's] Hambantota has been taken over by China [see page 20]. India is concerned about the Chinese presence in this port. These ports could be used against it, India fears," said Garg.

"Iran could go for the alternative, namely Chinese investment in Chabahar. It signed a contract with China to finance the electrification of the 900 km line [between Tehran and Mashhad]. Chabahar has five stages of development. Looking at the regulations, if India doesn't do a good job, then Iran will definitely have reasons to look at other partners."

Rakisits added, "It is a well-known fact that Iran has also approached Pakistan and China to assist with development of Chabahar. It's fully aware that India is not awash with funds for external projects. Already, China is developing part of Gwadar into a naval facility, quite separately from the commercial side ... As for the Balochistan insurgency, while a nuisance, it is not yet an unmanageable problem."

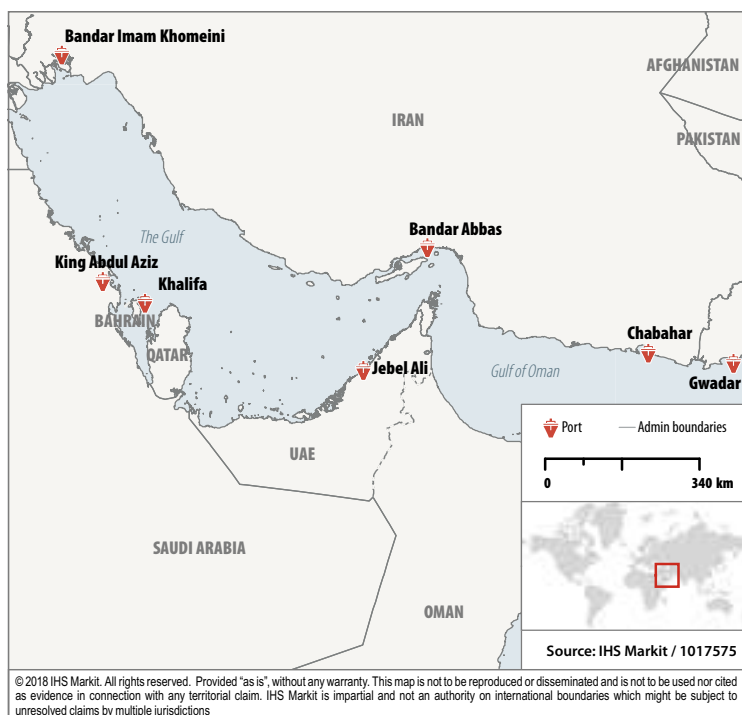
Taneja believes China's involvement in Chabahar is certainly possible but not imminent. "Iranians are aware of the China-India strategic rivalry. If they were to invite China to become a stakeholder in the ... project, it would make it very difficult for India to implement agreements it has already signed with Iran for the development of a number of associated projects, including the Chabahar Special Economic Zone and the rail connectivity with Afghanistan and Central Asia," he said.

This could seriously harm Iran-India relations, which he believes Iran would not want. Apart from economic gains from India-Afghanistan and India-Central Asia trade, Iran hopes to maintain its own trade ties with India, including oil exports. "Iran is aware of India's growing stature in the international arena and wishes to maintain good relations with it," Taneja said.

If Pakistani influence increased in Afghanistan and did not allow India to have its say, India would see that as a tool for Pakistan to interfere, Garg said. "Afghanistan is landlocked, so its cargoes have to go through Pakistan. Indian goods are not allowed to move through Pakistan, although Pakistan allows Afghan cargo into India. So there was a need to build another gateway."

Taneja continued, "While wanting India to develop Chabahar Port expeditiously, Iranians have never committed to make it an exclusively Indian project, unlike China in Gwadar. From time to time, Iranian officials have indicated that they would also welcome the participation of Pakistan and China."

China appears to have taken the view that it will allow India to proceed in Chabahar without interfering. But the evidence points to the fact that India has to get Chabahar right soon, or other forces will move in to take its place. Whatever the outcome, Iran stands to gain. **PH**



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The Bristol Port Company: 5070951

# Fathoming the depths

From Belize to Bristol, accurate bathymetric data can maximise a port's depth to commercial advantage. **Charlie Bartlett** reports

**Vessels must navigate the shallow depths of The Bridge to access the UK port of Bristol**

In January, the United Kingdom Hydrographic Office (UKHO) signed an agreement with the government of Belize to survey the nation's ports and access channels. Throughout February, three survey craft will bounce high-frequency sonar around the nation's ports and access channels to generate a hydrographic 3D model of the underwater geography, with a view to creating the first electronic navigational charts (ENCs) in the region.

An improved understanding of the seabed will make navigation a lot easier and the UKHO expects this to contribute considerably to the Belize economy in a number of ways. It will have a major impact on the nation's fledgling cruise industry, for example, by attracting cruise operators on the lookout for new destinations. Given accurate approach channels and manoeuvring spaces, more and significantly larger vessels will be able to call there.

The UKHO is one of several companies that perform

these services around the world. Hydrography has become one of the leading enablers of global trade, as accurate depth data about a ports' berth and channel approaches could mean larger vessels, hence, more cargoes. Hydrography, therefore, exerts considerable influence over where ports and terminals are situated.

In Belize, the nation's trade will benefit from this hydrographic data. An accurate picture of water depths in port approaches enables ship operators to load their vessels more intelligently, rather than merely playing it safe by keeping load lines high in the water.

The country imports most of its goods from neighbouring countries, including the United States and Mexico, but can now look forward to worldwide market access and better competition. But it will also allow vessels to load greater quantities of its main exports: crude oil, sugar, wood, and bananas.

With the size of ships constantly increasing, each ship call can have a knock-on effect on nations such





as Belize, with small economies. As ships that call get bigger, the impact becomes more pronounced.

It is possible to get a comprehensive understanding of water depths and potential obstacles but, because of shifting currents and sediments, hydrographic data must be updated periodically. Seafarers, meanwhile, must note anomalies on their electronic navigational charts (ENCs) to assist others and, when groundings do occur, navigators are often blamed for being complacent if they rely on the information on the electronic chart display and information system (ECDIS), rather than 'looking out of the window'.

On most nautical charts, water depth has contours at intervals of 2, 5, 10, 20, and 30 m, meaning ECDIS consoles set their depth alarm threshold at one of these ranges. As a result, if a vessel navigates waters of 7 m clearance when the threshold is set to 10 m, a bridge alarm will be triggered even though the vessel can still comfortably navigate these waters. This results in a phenomenon known as alarm fatigue, whereupon seafarers are effectively conditioned to ignore alarms, or even disable them – a huge problem when operating in shallow waters where legitimate grounding threats could be imminent.

A location where navigators are challenged by inaccurate chart data is in the Bristol Channel in the United Kingdom, with a geographic feature called The Bridge. The UKHO has responded to the challenges of navigating this area with a new high-density ENC, which uses 1 m depth contours. "In this location [The Bridge], silt collects to form an area of water that is far shallower than the rest of the channel. Ships must pass over The Bridge to get to the ports of Bristol or Gloucester," explained master mariner and UKHO product manager Chris Berkley. "However, even though most ships can safely transit this area, it is beyond the safety contour for many commercial ships.

"Ships entering the port of Bristol need to knowingly ignore their training and cross the safety contour – setting off multiple alarms, causing lots of disruption, and creating significant paperwork for the master to explain," said Berkley.

With a considerably higher volume of data involved, UKHO had to reprocess the bathymetric data points provided by multibeam sonar surveys of the area. This required the manufacturers of the UKHO's cartography software to develop a new tool to automatically process billions of data points. "During this project, UKHO's hydrographic database team developed a tool that fits into our business-as-usual charting methods to create an ENC for ... The Bridge."

Once the high-density contours had been defined, the chart was then issued to subscribers to Admiralty Vector Chart Service (AVCS), making it available to various ECDIS users when transiting this problematic area of UK waters.

"Marking depth contours at 5 m intervals made complete sense when it was being drawn by hand on paper or read off a physical chart by a mariner: 1 m contours can be close together and confusing when applied over wide areas. The advantage of digital navigation on ECDIS is that we can now switch from 5 m contouring to higher density 1 m contouring in areas where it is useful.

"With the new and now in-use AVCS ENC for this area, we have solved this problem and masters and pilots can navigate the area safely and in accordance with the rules on safety contours," added Berkley.

With the concept successfully applied in the Bristol Channel, the high-density ENC will be extended to other areas in the world where difficult navigation features interfere with ECDIS consoles.

With the application of big data, this kind of mapping is likely to become much more prevalent, offering safety and commercial advantages, as the accuracy of hydrographic mapping need not be limited by the speed of human comprehension. Avoiding alarm fatigue is a major priority in ship operations, as this phenomenon introduces problems, which will continue to affect marine traffic even if the much-touted unmanned vessels do end up taking over from human navigators. **PH**



Getty Images 5070643

# Improving the bottom line

The ability to track, monitor, and manage maritime activity through vessel traffic services has clear benefits for the safety and security of navigation. It also helps maximise the profitability of port operations. **Stephen Cousins** discusses the latest thinking and technology available

**A** vessel traffic system (VTS) with sophisticated functionality that exploits multiple sensors, AIS, radar and CCTV, data analytics, and digital visualisation gives the operator a real-time understanding of what is happening in the port vicinity.

This information is vital for safe navigation, but it can also be useful as a commercial tool that helps ports improve their margins. VTS information can be exploited to streamline vessel movements to ensure timely arrivals and departures, maximising the port's

capacity. It can be used to advise ships on the best route to avoid obstacles or waiting times at a lock to save fuel and to ensure that terminals remain fully operational for longer, even in poor visibility conditions, such as at night or in fog.

Dmitry Rostopshin, senior product manager for shore-based systems at maritime electronics specialist Transas, told *P&H*, "When we talk with our port customers, most of them are interested in finding ways to increase income, perhaps even more so than safety. The VTS provides an





**Rotterdam's  
Euromax area.  
The port has three  
radars covering  
every part of the  
main fairway**

important method of managing this task."

Looking towards the future, industry groups and organisations are working on the 'next generation' of VTS technology and related standards designed to provide seamless real-time data sharing between ships, terminals, and other actors in the supply chain. Some of these will lay the groundwork for the rise of autonomous shipping.

Emma Hellström, manager of Gothenburg Approach at Port of Gothenburg, told *P&H*, "At present, a big problem is having to work with wrong or delayed information. Often on departure, it is hard to get timely information from the terminal, which creates a snowball effect that can have an impact on the follow-on arrivals and departures.

"All ports see the benefits of having a system able to share real-time standardised data," Hellström continued, noting that there were several initiatives under way to create a working system to make use of this data. These are not currently on the market, but will probably become available in a couple of years, she believes.

Depending on the specific risks associated with a port area, a VTS system can either provide basic information to the master of the vessel, who then makes decisions without further intervention from onshore, or it can be more directly involved in the organisation and management of vessel traffic, potentially also providing navigational assistance and advice.

Three types of service can be provided by a VTS, as defined by the International Maritime Organization and the International Association of Marine Aids to Navigation and Lighthouse Authorities: an information service, a traffic organisation service, and a navigational assistance service.

Significant hazards or accidents in port approaches can cause serious delays to shipping traffic, with potentially disastrous economic implications. For example, when 366m container ship *Jupiter* ran aground near Bath in the Netherlands in August 2017, shortly after departing from Port of Antwerp, it resulted in the suspension of all shipping traffic to and from the port.

Port of Rotterdam has taken measures to avoid a similar situation from occurring, said Huub van Roosmalen, Saab's maritime traffic management department's director of business development. "Rotterdam is responsible for almost 94,000 jobs and EUR13 billion [USD16 billion] of added value a year. They can't afford not to have a VTS. If a ship were to sink in the waterway, the whole port would come to a standstill. As a result, every part of the main fairway is covered by at least three radars – information from which is displayed on their VTS – so if one radar goes down they still have a full view of what is going on."

According to van Roosmalen, Saab's proprietary VTS system, Maritimecontrol, enables ports to remain fully operational, even in poor visibility or bad weather conditions, as well as supporting VTS operators in

providing advice to ships, such as the speed at which they can sail to avoid waiting times.

The system's sophisticated vessel tracking ensures a highly accurate traffic image and reliable alerts for hazardous situations, such as when a ship has run aground or has drifted away from its anchor. This reduces the likelihood of false alerts that can be ignored by VTS operators if they become too frequent.

"Overall, the VTMS [vessel traffic management information system] reduces the risks of running a port, by alerting operators to hazardous situations so that they can be prevented. This benefits the whole port community, the people living around the port, and the environment," he said.

Suppliers such as Saab, Transas, and others offer a suite of electronic equipment designed to extend the capabilities of VTS with additional planning and management functionality. Transas' VTS solution, Navi-Harbour, can be linked in with a port management information system, which enables detailed real-time planning of various port operations, including vessel call management, chartering, allocation of cargo handling equipment, invoicing, and detailed statistical reporting, to maximise profitability.

Port of Gothenburg currently operates a 15-year-old VTS, which it is planning to replace with a new system sometime later this year. A key requirement will be the ability to share factual and visual information in real time with various actors in the supply chain.

Hellström said, "Being able to communicate the locations of vessels, diving operations, or other obstructions, will mean we do not have to communicate everything over VHF. When pilots come into the traffic centre, which they share with the VTS team, they will get an overview of the situation in the VTS area before they go out on an assignment."

Shipping currently suffers from problems with communication between shore and sea due to the variety of different systems used. Several initiatives aim to more closely align communications standards and technologies, which should have a positive impact on efficiency.

In September 2017, new international standards for nautical port information were established by an international group including Shell, Maersk, MSC, and the ports of Algeciras, Gothenburg, Rotterdam, and Singapore, the International Harbour Masters' Association, and the UK Hydrographic Office.

The standards, which set out common terms for factors such as depth, admission policy, and arrival and departure times, aim to ensure that nautical data on board vessels corresponds directly to information from the port and logistics chains.

Port of Rotterdam is currently applying the standards in two live projects: Avanti is a web portal that focuses on 'master data', such as depth and admission policy. Pronto is a communication platform for the port community that assists agents and other operators



with the more transparent and efficient planning of services for ships, such as pilotage, use of terminals, and bunker services.

According to figures on the Rotterdam Port Authority website, it has been estimated that removing ambiguity from international communication could result in up to USD80,000 additional revenue, and a 240 tonne reduction in CO<sub>2</sub> emissions per port visit, depending on where the vessel comes from and at which berth it is located.

Other pioneering projects are aiming to improve ports' ability to track and predict vessel movements, currently a challenge because of the heavy reliance on outdated technology, such as voice communication over VHF radio.

Maritime services new entrant Nisomar has developed a big data-based system that places a 'smart interactive logic layer' above conventional AIS data. This enables it to accurately predict all vessel movements through a port, right down to berth level, and in turn indicate likely waiting times, time at berth, and loading/discharges times.

In addition, data taken from 'location geofences' installed around port areas, including anchorage areas and berths, enables the system to make intelligent deductions about cargo types and cargo quantities.

Jon Bumstead, director of Nisomar, told *P&H*, "These processes can go further and intelligently predict what is going to arrive at the port in the days ahead and the likely waiting times vessels will experience, making it possible to provide tactical instruction for vessels to slow down, speed up, or remain in place after discharge."

It does not end there. The cross-industry European Union-funded project Sea Traffic Management Validation envisions a world where the challenges of communication and information sharing in maritime

transport are virtually eliminated through the use of a new system for seamless data exchange.

The study aims to build upon the high-profile MONALISA 2.0 project, completed in 2015, to develop new port collaborative decision-making services that exploit improved information sharing, situational awareness, and collaborative decision-making during port calls to increase efficiency.

Another strand of the project is the development of SeaSWIM (system-wide information management). It is a common information environment and structure that is similar to cloud-based services. SeaSWIM can be used to promote and facilitate the access and flow of data and information.

Transas is one of 39 partners in the project, including Southampton Solent University, the Swedish Maritime Administration, Wärtsilä Finland, and Saab. It has implemented a testbed project in the Baltic where 130 vessels fitted with hardware and software supporting this new type of data exchange will begin trials in a couple of months.

Rostopshin said, "The technology should make port calls more efficient. If there is a delay with port operations, for example when a vessel arrives but the berth is not yet available, we will be able to automatically send the vessel a new recommended time of arrival so the captain can reduce speed to achieve just-in-time arrival, which saves fuel and avoids the need to anchor and wait outside of the port."

He said this automated data exchange functionality could in future be added to a classic VTS as a separate module. Perhaps even more importantly, it could support the evolution and roll-out of much-talked-about autonomous ships, which, in the absence of a crew, may rely entirely on data to chart a course and reach their destination. **PH**



Rotterdam's Hook  
of Holland vessel  
traffic centre

Saab 5070087



Getty Images: 5070979

# Port dues as a route to reduced emissions

**Wolf von der Mosel**, head of maritime affairs at Hamburg Port Authority, gives a personal perspective on how the port implemented an environmental component to its port dues structure. He encourages other ports and stakeholders to pursue similar strategies

**Hamburg is using port dues to incentivise ship operators to make greener choices**

In a city seaport like Hamburg, with nearly 2 million inhabitants and a population of more than 4 million in the metropolitan area, the reduction of harmful NO<sub>x</sub> emissions is high on the local government's agenda. All emitters are under investigation, including cars, industrial sites, and, of course, ships.

Port dues can be used as a tool to reduce NO<sub>x</sub> and other emissions from ships through incentives offered to shipowners.

If you, or your governing body, decides port dues incentives are an appropriate tool to help reduce NO<sub>x</sub> emissions but that the overall level of income from port dues cannot be lowered because the money is

needed to maintain and develop the port, just one possibility remains: NO<sub>x</sub> incentives have to be offset within the system. However, keep in mind that such a system should not hamper your competitive position and should not disturb the market. Usually port dues depend on scalable parameters, which should be easy to investigate and accepted in the market. In modern times, they usually reflect the quantity, size, type and handling of port calls.

Hamburg Port Authority (HPA) investigated how port dues could be used to support its aims to lower NO<sub>x</sub> emissions and adopted the use of the International Air Pollution Prevention (IAPP) certificate.

The legal background is laid down in the MARPOL framework, Annex VI, Regulation 13, in combination with Appendix 1 to that annex. In brief, Regulation 13 introduces 'tier levels,' currently ranging from 1–3. It gives the dates by which ships need to fulfill certain NO<sub>x</sub> emission limits, based on when the keel was laid and installation of the ship's engines (both propulsion and auxiliary). Major retrofits are also accounted for.

HPA decided to research the possibility of incorporating additional charges or incentives based on a ship's overall 'green' criteria. The idea was presented to its shipping community in June 2016. The draft tariff provided a standalone 'environment' component and within this new component, specific surcharges and discounts were embedded.

A tier-level-2 ship was set as a baseline – ships at this level should not pay more or less as a result of the scheme. A tier-level-2 ship fulfills the requirements for ships with a keel laying date (or retrofits) of 2011 or later. Today, about one-third of the world's tonnage was built in 2011 or later. Hamburg expected about 50% of the tonnage calling at its port to be tier-2 or tier-3-level.

Ships with worse (weaker) emission limits would pay more under the scheme. Ships with better (tighter) emission limits would get a discount. Revenue from port dues would balance out. A slow start for the concept was recommended while it was accepted by the shipping community and so as not to disturb the competitive position or the market.

This concept was, however, fiercely opposed by shipowners and operators, and so was not realised at the time. Opponents argued that shipping regulations are meant to be purely international and not affected

by local drivers. Potential extra charges, which are needed to offset positive incentives, would disturb the market, they said, and weaken the competitive position of the providers of older ship tonnage. Also, tariffs would become too complex.

As time went by, new technical ideas and projects to contain the NO<sub>x</sub> problem were developed and sometimes received support with external funding. The Hamburg government encouraged those developments backed by the Hamburg parliament. Meanwhile, the Hamburg government decided on its new Clean Air Plan. It contains several measures to reduce NO<sub>x</sub> emissions from all emitters, including the group that emits the most, ships, and put it into a legally binding document. At the same time, the environmental department found out that about 70% of NO<sub>x</sub> emissions during Hamburg port calls were from ships while at berth (hotelling) and 30% while manoeuvring to and from the berth within the city state limits.

The port authority looked again into leveraging port dues to reduce emissions. Arising from this, it developed its existing IAPP concept. It was a phased process.

The first step was to make a decision on how much weight an environmental component should have within the port dues set of parameters next to gross tonnage and handling. In Hamburg, it was decided to subtract 15% of the gross tonnage fraction and allocate it to the environmental component in 2018 and a further rise to 20% in 2019.

Next, the incentive within the tier-level range was decided. Hamburg started with a range from +15% to -30%. A surcharge of 15% is applied for ships that do not present any tier-level-certificate at all or do not



More than 30% of Hamburg's cruise ship calls in 2017 used clean power provided by external sources

Lutz Bongartz/Staff/Getty Images/5070978



## Hamburg will follow market developments and adjust the port dues scheme

**Wolf von der Mosel**  
Hamburg Port Authority



Hamburg Port Authority: 5070980

fulfill the NO<sub>x</sub> emission maximum allotments, which are valid for ships whose keel was laid before the year 2000. A surcharge of 10% is applied for tier-1 vessels. No surcharge is applied for tier-2-vessels. On the upside, Hamburg started with a discount of 30% for ships that already fulfilled tier-3-level standards.

Discounts as part of the environmental component are offered if a ship uses 'port power' – such as shore-to-ship power or a mobile port-side power unit, such as PowerPac – while at berth. More than 30% of all Hamburg's cruise ship calls in 2017 used clean power provided by external sources. Through port power, ships can achieve tier-three level.

The cleaner the port power used, the higher the discount: if the source of port power is 100% based on renewable energy, a discount of 80% will be applied. Non-renewables accompanied by further installment, for example selective catalytic reduction (SCR), an emissions control technology system, allow for a discount of 60%. Non-renewables only, allow for a discount of 30%.

Assuming, 1,000 monetary units (mu) are the base price derived from the environment component, prices will derive from the incentive scheme tier level in combination with the port power used, and additional schemes not mentioned here for simplicity:

Ship A, as the strongest emitter, does not have an IAPP, and so a tier level surcharge of 15% applies (>1,150 mu). If it uses 100% renewable port power, and so receives an 80% incentive, it only pays a total of 506 mu.

Ship C is the base case. That ship shows an IAPP Tier-level 2 certificate. If it does not use port power it neither gets a bonus nor does it have to pay a surcharge. If it uses 100% renewable port power it pays 440 mu only.

Ship D, as the lowest emitter, has an IAPP Tier-level 3. If it does not use port power it pays 700 mu. If it uses 100% renewable port power it pays 308 mu only.

Under this system, ships fitted with less modern engines can gain more in absolute terms from the use of port power than ships with modern engines. This reflects well that the relative environmental benefits are bigger. As expected, ships with the most modern engines enjoy the highest discounts.

This tariff was published in early October 2017 and has been valid since January 2018. Although the scheme faced opposition from the shipping community, the weight of the public bill – the clean air plan – and backing by parliament played a major role in the scheme staying on track. Hamburg will closely follow market developments and adjust the port dues scheme if reasonable or required.

Many factors about how cleaner energy will affect our ports are unknown or uncertain. When and how LNG as a better, but still not perfectly clean, source of energy changes the scene, and the knock-on effect of the pricing of LNG versus marine diesel oil is still unclear. As long as ship-generated diesel power is allowed in ports and clean port power is not mandatory, the commercial rationale for a ship operator to use cleaner engines and cleaner fuel remain limited.

At a micro level, changing the port dues scheme in a single port will not be enough to change the commercial rationale. Even, in theory, a doubling in port dues and donate as many discounts as needed would not be enough to compensate for additional opex/capec of the ship. However, governments, ports, and focused companies can support the supply side of greener energy. For example, Hamburg will see several additional port power facilities coming online beyond existing power barge supply, onshore power supply for a cruise berth and LNG direct fueling, such as several LNG-PowerPacs and onshore power supply facilities for container vessels as well.

Once commitment is made by the port authority, other port businesses might follow. Why not tug operators, boatmen and pilots as well? Terminal operators, for example, usually play a much bigger pricing role in the transport chain than port authorities. They all have, to some extent, the same reference point, the ship. Terminal operators could even base parts of their charges on scalable environmental schemes on all transport modes of their commercial partners.

Enlarging the scope to other ports might move events along even faster. The shipping community, which nobody wants to punish, might be more responsive if it sees similar developments elsewhere. The more ports and stakeholders that consider environmental components within their charging schemes, the better for the environment and their acceptance in society.

The clear winner here is the environment, along with the quality of life of citizens located in the areas where such schemes are used. The downside is not so clear, as much depends on the financial relations between shipowners and charterers and their chance to pass financial burdens on to the next link in the chain.

In the end, the customers will pay anyway. Is it not worth a go, for all our sakes? **PH**

The author would welcome your feedback

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# Sulphur cap concerns rejected

A number of delegations at International Maritime Organization (IMO) sought to reopen the debate about implementation of the 2020 sulphur cap on 1 January ahead of the Pollution Prevention and Response (PPR) subcommittee in early February. However the majority of delegations believe this debate has been concluded and stood fast on the 2020 deadline.

In his opening address, Kitack Lim, IMO secretary-general, said, "Undoubtedly, the most important item on your agenda this week is the consistent implementation of the 0.50% m/m global limit on the sulphur content of ships' fuel oil, which will come into effect from 1 January 2020. There is no turning back. The lower global sulphur limit will have a significant beneficial impact on the environment and on human health, particularly that of people living in port cities and coastal communities."

Lim added, "Consistent implementation to all ships will ensure a level playing field is maintained," and this was a key element of the PPR discussions. The number of delegations ready to speak on the issue showed the strength of feeling and owner representative bodies were keen that implementation would be enforced globally from the outset.

Even so, some delegations warned that there could be safety issues involved with the switch to low-sulphur fuel oil (LSFO) with a sulphur content not higher than



**Consistent implementation to all ships will ensure a level playing field is maintained - IMO secretary-general Kitack Lim at the Pollution Prevention and Response subcommittee in February**

0.5%. These views were dismissed by other delegates as representing negligible risks.

Several delegations were, however, also warned that the availability of LSFO within the first five to seven years may prove patchy as the switch for the producers could be problematic.

"Factually speaking, there is no way that the oil refineries will be capable of producing the required amount of low-sulphur fuel by 2020," a delegate told *P&H*. "It could take five to seven years to develop the supplies and that could produce distortions in the market. There will [initially in 2020] be very short supply and that will mean high prices."

The possibility that LSFO prices could soar as a result of the switch to the new fuel is concerning some developing countries. As a result, a number of delegations

asked for a transition period from 1 January 2020 rather than the hard implementation of the regulation.

Other delegates were scathing about this move, claiming "the shipping industry has been here before. We learnt a lot from 2015 [when the emission control areas were implemented] and there is little chance of a delay to the implementation of the regulation," said a delegate from a non-governmental organisation.

Another delegate pointed out that IMO and Marine Environment Protection Committee (MEPC) had looked at the supply side and concluded that the initial supply of LSFO could be "patchy", but he added, "that's what tankers are for". He said the IMO had studied the issues and believed enough LSFO would be available globally, but there may be some areas where supply is short. If there is a

limited supply in a region, then LSFO can be shipped in from an area where supply is adequate for local needs.

Delegates also discussed the need to develop a standard system that would render owners immune from prosecution under the new regulations where they could show they had made attempts to source LSFO but had been unable to secure a supply.

As part of the initial debate on consistent implementation there were several proposals to ban from 2020 the carriage of high-sulphur-content fuel to be used for combustion purposes. These were discussed at PPR5 and were met with positive responses from the majority of delegations at IMO. The ban would mean fines for storing high-sulphur fuel oil (HSFO) in fuel tanks, even if it is unused, but would not extend to the carriage of HSFO as a cargo.

Many delegates agreed that the ban on the carriage of high-sulphur fuel after January 2020 was very likely to be approved at MEPC following the deliberations at PPR5 and after the working groups report their findings.

Japan laid out a roadmap for the shift to low-sulphur fuel that was generally well received. It includes the establishment of a correspondence group at the current meeting, with an intersessional meeting later this year to consider the progress made by the correspondence group so guidelines can be finalised at PPR6 in early 2019. These could then be approved and adopted at MEPC in the second half of 2019, just before the key implementation date.

## Notable numbers



**29.6 km**

Length of bridge-island-tunnel complex linking Hong Kong-Zhuhai-Macau due to open this year



**252**

Ships that have joined ESI since November

## ESPO warns against waste disposal plan

European Sea Ports Organisation (ESPO) has warned the European Commission against encouraging shipowners to dump unlimited amounts of waste, including dangerous materials, in European ports. ESPO was reacting to a commission proposal to reinforce the existing incentive scheme, under which shipowners pay ports a fixed minimum fee to cover the cost of handling waste discharged by ships.

The proposal is contained in a proposed new Port Reception

Facilities Directive that the commission presented in January as part of its wider strategy for reducing plastic waste.

In its draft text, the commission proposes continuing with the existing indirect fee system whereby ship operators pay a flat fee, whether or not they discharge waste in the course of any given port call or not.

In general, this fee should cover all the cost of setting up and operating port reception waste facilities,

except those handling waste from exhaust gas cleaning systems (scrubbers), whose cost should be calculated separately, the commission said.

ESPO welcomed the proposed new directive in principle but warned the commission to be careful about introducing a scheme giving owners an incentive to dispose of limitless amounts of waste in ports.

It acknowledged that the existing fixed-fee system had encouraged owners to dispose

of greater amounts of shipboard waste ashore rather than at sea. "However, introducing a fee system whereby ships can deliver unlimited amounts of garbage, including dangerous waste and cargo residues, for a fixed fee seems to be a severe and unacceptable divergence from the 'polluter pays' principle", ESPO added

"It risks discouraging the tackling of waste at source by reducing volumes generated on board."

## ESI: scores up, emissions down



More ships continue to join the Environmental Ship Index (ESI), with the biggest majority of newcomers falling into 20–30 points bracket.

Figures compiled by IAPH up to 1 January 2018 show that 252 ships have joined since 1 November 2017, with 113 achieving

an ESI score of between 20 and 30.

A further 106 ships joined the scheme with a higher score of 30–40 points.

The average score for vessels in the scheme is 28.88.

The ESI evaluates the amount of nitrogen oxides (NOx) and sulphur oxides

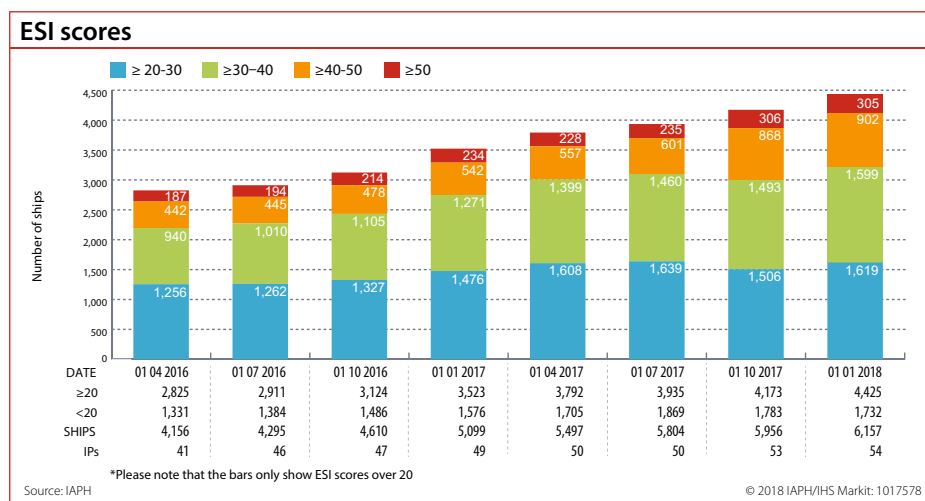
(SOx) that a vessel emits, and offers a reporting scheme for the greenhouse gas emissions. Incentive providers, typically ports, are offering shipping companies incentives based on their ESI score.

Another encouraging trend is the drop in ships with a score of less than 20.

The figures for November showed that there were 1,783 ships in that category, but two months later that figure had dropped by 51 to 1,732, indicating that efforts had been made to reduce these ships' emissions of NOx and SOx.

The offering of incentives to shipping companies that can show they have reduced the emissions of their ships beyond the current standards laid down by the International Maritime Organization (IMO) is considered to be a win-win situation for the industry and the planet.

The Environmental Ship Index will continue to form part of the World Ports Sustainability Program, which will be launched this month in Antwerp. (See page 5 for more information).



# 8 April 2019

Establishment  
of systems  
for electronic  
exchange of  
information



## 500 million

Tonnes of cargo  
through India's  
12 major ports  
in nine months



# Rollout of IMO's Polar Code continues with amendments

The International Maritime Organization's (IMO's) Polar Code went into effect on 1 January 2017 for all new vessels built on or after that date. As of 1 January 2018, it applied to all existing vessels as well, expanding the scope of the regulation as Arctic activity continues to grow.

Adopted by the IMO in 2014 and 2015, the requirements in the Polar Code were added to existing IMO conventions, Safety of Life at Sea (SOLAS), and the International Convention for the Prevention of Pollution from Ships (MARPOL), as a recognition of the hazards and conditions unique to polar waters, as well as an expected increase in traffic in the Arctic and Antarctic.

The additional hazards in polar waters include navigation in ice and low temperatures, high-latitude communications and navigation, remoteness from response resources, and limited hydrographic charting.

The International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) was also amended to include enhanced training requirements for personnel employed on ships operating in polar waters. Those amendments, due to come into force on 1 July, require that masters, chief mates, and officers in charge of a navigational watch on ships operating in polar waters hold a certificate in basic training for ships operating



The Polar Code has extended to cover all vessels in polar waters

in those regions, after they complete approved training courses and meet the specified standard of competence, according to a class society brief.

One of the requirements for ships subject to the Polar Code is that they carry a Polar Ship Certificate pursuant to SOLAS, proving that the vessel has met the requirements of the convention. In the United States, the US Coast Guard (USCG) issued a final rule, which went into effect in October 2017, requiring all new and existing vessels to carry the certificate as of 1 January 2018.

"The Polar Code is a game-changer for a number of reasons: it improves the safety of seafarers; it encourages a safer approach to operating in important wilderness areas; and it helps protect the living environments

of indigenous peoples," said Trevor Maynard, head of innovation at Lloyd's of London.

Tom Boardley, executive vice-president and global head of corporate and external affairs at Lloyd's Register, said, "The Polar Code brings a well-needed baseline of international requirements for shipping in all polar regions and is different to most existing regulation because it is, in part, goal-based rather than prescriptive."

The code addresses several areas of safety and environmental risk associated with increasing vessel transits through waters beyond 60° north and of 60° south, where the number of ice-free days is increasing, allowing for shorter transit times than traditional routes and significantly reduced

fuel and operational costs.

Most of the increase is expected along routes through the Arctic, where Russia plans to increase exports of its oil and gas resources. Declining ice along the Northwest Passage, the Northern Sea Route, and the Transpolar Sea Route makes it easier to access those resources, and for ships to cut journey times between Pacific and Atlantic ports. Sovcomflot tanker *Christophe de Margerie* broke records in August 2017 when it travelled through the Northern Sea Route in six days, en route from Norway to South Korea with a load of liquefied natural gas.

The total voyage time from Hammerfest in Norway to the port of Boryeong in South Korea was 19 days, roughly 30% faster than the traditional southern route through the Suez Canal.

The USCG and its counterparts in other Arctic nations are going beyond the Polar Code to reduce risks associated with increased vessel activity in the region.

In December 2017, USCG director of marine transportation and senior Arctic policy adviser Michael Emerson said in a forum on Arctic challenges that increased accessibility to US Arctic waters, and the subsequent increases in illegal, unregulated, and unreported maritime activity in the region, "have necessitated an expansion of maritime domain awareness, operational presence, and international engagement".

One of the ways his agency is addressing Arctic challenges is through a proposal with the Russian Federation for a voluntary two-way route in the Bering Strait and Bering Sea.

## Notable numbers



19%

Rise in ship attacks in Asian waters in 2017

63 ha

Land reclaimed for Chabahar port

"The recommended routes help ships avoid the numerous shoals, reefs, and islands outside the routes, reducing the potential for marine casualties and environmental disasters, and avoiding areas that would adversely impact subsistence hunting and gathering of the indigenous people in the region," the USCG said.

Emerson also emphasised the ongoing recapitalising of USCG ice-cutter assets, as well as continued development of the Arctic Coast Guard Forum to support environmental safeguards in the region.

Polar Code environmental protection will also be highlighted at the 72nd meeting of the IMO's Marine Environment Protection Committee in April. A discussion on measures to reduce risks from the use of heavy fuel oil by ships in Arctic waters has been added to the agenda.

In December 2017, US President Donald Trump signed a law that authorises the modernisation of the US icebreaking fleet in an effort to meet growing demand for Arctic escort capacity.

The government has been authorised to purchase one polar-class heavy icebreaker. Given that the US icebreaking fleet has been depleted from seven, 40 years ago, to a current fleet of just two, the authorisation is significant.

By comparison, Russia has 41 governmental and privately owned conventional and nuclear icebreakers – the largest icebreaking fleet in the world. It has 11 additional icebreakers in development, including three new nuclear-powered vessels to be completed by 2020.

## Ship attacks in Asia rise but serious incidents fall

Following a sharp decline in 2016, the number of ship attacks in Asian waters was up by 19% to 101 in 2017, according to data from the Regional Co-operation Agreement on Combating Piracy and Armed Robbery against Ships in Asia Information Sharing Centre (ReCAAP ISC).

Of the 101 incidents, 89 were actual attacks while 12 were attempted attacks, 68 were on ships at anchor or berthed, and the remaining 33 cases were on sailing vessels.

However, a closer look at the data shows that the number of significant incidents – rated CAT (category) 1 and CAT 2 by ReCAAP ISC – has actually fallen. There were 6 CAT 1 and 8 CAT 2 incidents in 2017, down from 13 and 10 such incidents in 2016, and 12 and 24 in 2015.

The centre evaluates the significance of each incident based on the violence factor – type of weapons used, treatment of the crew, and the number of perpetrators involved in the attack – as well as the economic loss in each case. Incidents that are very significant or moderately significant are rated CAT 1 and CAT 2; less significant ones or those involving petty theft are considered CAT 3 and CAT 4.

The increase came mostly from CAT 3 incidents – 28 in 2017, up from 8 in 2016 but significantly below 42 in 2015 – while there were 47 CAT 4 incidents in 2017, from 45 in 2016 and 112 in 2015.

"While the number of incidents

in 2017 is among the lowest in the past decade, the increase over the past year is a reminder that there is no room for complacency in the fight against piracy and armed robbery against ships, and underscores the need for enhanced vigilance among all stakeholders," said Masafumi Kuroki, ReCAAP ISC's executive director.

Meanwhile, ReCAAP ISC reiterated its warnings about the Sulu-Celebes Sea. In 2017, there were three attacks involving abduction of crew from sailing ships and four other attempts. The last attack reported was against *Super Shuttle Tug 1* on 23 March 2017, while the last attempt reported involved *Dona Annabel* on 18 April 2017.

According to ReCAAP ISC's data, 59 crew members were abducted from the region between March 2016 and December 2017. Of the victims, 28 were released, 15 were rescued, 7 were killed, and 9 are still held captive.

The abductions have been mostly linked to Abu Sayyaf, a militant group operating out of the southern Philippines.

ReCAAP ISC commended efforts by three littoral states, the Philippines, Malaysia, and Indonesia, to address the issue of piracy, armed robbery against ships, abduction of crew at sea, and other transnational crime along their shared borders.

A trilateral co-operative mechanism has been set up for co-ordinated maritime and air

patrol, as well as intelligence-sharing for maritime security.

Three maritime command centres have been established: Bongao in the Philippines, Tawau in Malaysia, and Taranakan in West Kalimantan, Indonesia.

The issue of seizing ships for oil cargo theft seems to have returned in 2017, during which there were three such incidents. In all cases, the perpetrators were interested in the oil cargo, with no intention to hijack the ships or kidnap the crew. The ships were boarded during the hours of darkness and far from the coast.

Kuroki said higher oil prices may have played a part in the return of such incidents and reiterated the centre's advice that vessels carrying oil cargo should exercise vigilance and adopt precautionary measures.

Some other trends emerged from the full-year statistics. Of the 89 attacks reported to ReCAAP ISC, 31 occurred on board tankers carrying crude oil, refined oil products, chemicals, liquefied petroleum gas (LPG), or liquefied natural gas (LNG). A total of 22 incidents took place on board bulk carriers, 13 on container ships, 12 on tugs, 6 on offshore supply vessels, and 5 further incidents on various vessels.

Of the 11 incidents reported in the South China Sea, 10 involved tankers, of which 2 involved oil cargo theft. The other eight tankers were victims of theft.

There were 10 incidents involving container ships reported in the Philippines, all at Manila anchorage. Likewise, all seven incidents in the Philippines involving tankers occurred at Batangas anchorage.



22–23 March

Launch of the  
World Ports  
Sustainability  
Program



41

Vessels in Russia's  
icebreaking fleet



Hutchinson Ports 5054116

Vessels the size of 21,000 teu container ship *OOCL Hong Kong* concern insurers,

## Insurers demand enhanced regulations as ships get bigger

For some years the marine insurance sector has voiced its fears about the increasing size of vessels used by world shipping. The worry is driven by the potential scale of losses the market would face should one of these mega vessels become a major casualty.

The cost of the loss of a fully loaded mega container vessel would dwarf that of *Costa Concordia*, which is at present the most expensive single-insured marine casualty in history at between USD1.94 billion and USD2.1 billion. Port of Tianjin, at USD5.1 billion, is the biggest combined marine insurance loss in history.

The size of container vessels continues to grow. Last year, CMA CGM and Mediterranean

Shipping Company ordered a combined total of 20 20,000 teu newbuildings. According to data from the IHS Markit Maritime & Trade division, there are now 74 container ships with capacity of 20,000 teu or more that are either in service or on order, and 26 of the vessels are due for delivery in 2018.

It is not surprising that insurers have been calling for enhanced risk management and regulations to ensure the safety of these vessels. However, those in the industry believe it is not a case of what happens 'if', but a case of what happens 'when' one of these mega-ships is involved in a major incident.

The first issue for the market is the question of salvage. The sheer size of the vessels and the

volume of containers involved will pose a headache for the salvors.

Mark Hoddinott, general manager of the International Salvage Union, said the problems were real and that the industry was working on solutions.

"The size of vessels is growing, and it is not only the container vessels," he explained. "The new breed of passenger vessels, ore carriers, and [liquefied natural gas] vessels is increasing in size.

"These vessels are huge. But whether they are 12,000, 14,000, or 20,000 teu, they are not only longer, but wider. There has been a great deal of debate in the industry over the question of the availability of equipment of a size that could cope with operating on a vessel of this size.

"That equipment and where

it should be has been discussed, but the answer may well be in accessing the offshore and construction industries," he said.

Hoddinott added that salvage firms were already working on systems that would enable containers to be offloaded from large vessels involved in an incident in remote areas, where access for large equipment would not be possible. "Most cranes don't have the reach across the new breed of large container vessels and you cannot simply take containers off one side of a vessel.

"When dealing with very big vessels, it is the same salvage challenge, which is to get the vessel into a position where it can be refloated. The other issue is time. The operations are the same, but the bigger the vessel, the longer it will take for the operation to be carried out," he added.

Rob Hawes, head of global marine at loss adjuster Crawford & Company, said, "In the past 10–15 years we have seen container vessels go from 6,000–7,000 teu to 21,000-plus." This has created a system where these vessels travel certain routes, given that they have access to only a certain number of deepwater ports, which brings with it a concentration of cargo.

"Where the issues arise would be if one of these vessels was to be lost in a remote area where access was difficult. The scale of the vessels means that the cost of a loss would be significant," Hawes said.

Santiago Restrepo, an actuary at Moore Stephens, which advises many of the members of the International Group of P&I Clubs, said the scale of the costs would

### Notable numbers

USD 462 million

Projected yearly savings possible through RAMLAB



8–11 May

IAPH Baku conference



be at a level unseen previously, "with the potential to reach USD5 billion, depending on the cargo values and severity."

For their part, insurers say they are geared up to deal with a mega container vessel loss. Lars Lange, secretary-general of the International Union of Marine Insurance, said, "We have long had concerns about the accumulation and aggregation of risk. Cargo values, the removal of wreck costs. We are living in a new reality and, while it is not a surprise, it is a concern and demands proper risk assessment." Another issue, said Lange, is the changing attitude of governments towards wreck removal and recovery efforts, "which can have a significant impact both in the costs of wreck removal and transportation, as we saw with *Costa Concordia*."

Andrew Bardot, secretary and executive officer of the International Group of P&I Clubs, said, "We recognise that the growing size of vessels will bring increased challenges should there be a loss and we continue to engage with the salvage industry to find solutions to this."

"The pollution risk is no different and the human element presents no greater exposure. In terms of the removal of wrecks, there may be greater challenges, not least in removing containers" Bardot said the debate about the increased involvement of coastal states was a concern, but that the industry was working with states to push the benefits of the Nairobi Convention.

But "should such a loss occur, we as an industry would be able to cope financially and meet our obligations," he maintained.

## Shell collaborates on safety initiative

Shipping company Shell has announced an industry-wide initiative to share safety information in collaboration with UK Chamber of Shipping, Maersk, and Lloyd's Register. This shared data will be used to help predict and eliminate safety risks, which, if left unchecked, could lead to major incidents.

Grahaeme Henderson, Shell's vice-president of shipping and maritime and president of the UK Chamber of Shipping, has previously said that safety must come ahead of operations and stressed the need to bring the shipping industry together to prevent major accidents.

This agenda was firmly echoed in the announcement that the UK Chamber of Shipping, Shell, and other major shipping companies, including Maersk and Lloyd's Register, had launched the data sharing project, called HiLo (short for high impact, low frequency). Henderson described it as a "new way of thinking that will stop big accidents, where people are killed and seriously injured".

In 2018, the UK Chamber of Shipping office will host the HiLo programme and "help to expand its impact across the industry".

Developed more than three years, HiLo is a predictive mathematical model that uses ship data to highlight a pattern of events that could lead to a major incident if left unchecked. The information is used to avoid an incident before it happens.

Henderson stressed that the project involved Shell



Thorne Ship Management 892983

**A safety initiative should help reduce accidents at sea**

and its partners providing honest feedback about their safety processes and said its partners' attitude towards safety would determine whether Shell was prepared to do business with them.

Henderson officially announced the joint-industry initiative at the UK Chamber of Shipping annual dinner on 5 February, stressing that the HiLo project was a "proven technology" that had already been a "game-changer" in air, rail, and nuclear industries, and could be applied to all ships, from container and cruise ships to ferries, tankers, and even naval vessels.

"Our shipping industry has a fatal accident rate 20 times that of the average British

worker and five times that of construction," he said. "Simply put, that is unacceptable. And it needs action. Now. And that means all of us as leaders in the shipping industry, working together as one global shipping team. The time for rhetoric is over. The time for action is now."

The project has been trialled by GasLog, Maran Gas Maritime, Stena, Northern Marine, Stolt-Nielsen, Teekay, Torm, Tsakos Columbia Shipmanagement, and V.Ships, supported by Lloyd's Register Foundation.

Henderson invited "all in the industry" to join HiLo and said there would be further announcements about the project and how industry can get involved in the coming months.



USD575,000

Cost of each of Hong Kong's 29 remote-controlled RTGs

11 June

IMO ports event

## Membership directory published

The *IAPH Membership Directory 2018* has been published and sent out to members. Big thanks to all the IAPH members who sent us their latest port and company information as well as the advertisers who kindly placed impressive advertisements.

For free additional copies or enquiries, please contact the IAPH Secretariat at [directory@iaphworldports.org](mailto:directory@iaphworldports.org)



## Committee talks digitisation

The chair of the Port Planning and Development Committee, Wolfgang Hurtienne of Hamburg Port Authority, has added two highly topical subjects to its agenda.

The first of these is the effects of digitisation on port structures and the associated requirements for equipment in port areas. The second subject the committee is looking at is autonomous driving of cars, trucks, platooning, and eventually vessels. It

will consider the impact of automation on ports in terms of requirements and timeframes for the rollout of infrastructure.

The committee will meet during the Baku Conference in May to further open up the discussion and would be pleased to see as many members there as possible.

If you have any ideas for discussion or are interested in

joining the committee, please contact the chair at: [wolfgang@hurtienne.net](mailto:wolfgang@hurtienne.net)

**MORE INFO:**  
[www.iaphworldports.org/members/port-planning-development-committee](http://www.iaphworldports.org/members/port-planning-development-committee)

Join the committee in Baku to discuss the effects of digitisation on port infrastructure

**Wolfgang Hurtienne,**  
*Associate partner, Hamburg Port Authority*



Hamburg Port Authority: 5056306

## Membership notes

The IAPH Secretariat is pleased to announce that the following have joined the association

### Regular member

#### Vancouver Fraser Port Authority

**Address** 100 The Pointe, 999 Canada Place, Vancouver, British Columbia, V6C 3T3, Canada  
**Telephone** +1-604-665-9000  
**Fax** +1-866-284-4272  
**Email** [duncan.wilson@portvancouver.com](mailto:duncan.wilson@portvancouver.com)  
**Website** [www.portvancouver.com](http://www.portvancouver.com)  
**Representative** Robin Silvester, president and CEO

### Associate members

#### Takashi Yamada (executive adviser, Tokura Corporation)

**Address** 13-5 Nishiki 3-chome Naka-ku, Nagoya 460-8615, Japan  
**Telephone** +81-52-961-3275  
**Fax** +81-52-961-3393  
**Email** [takashi.yamada@tokura.co.jp](mailto:takashi.yamada@tokura.co.jp)

#### Aegir Port Property Advisers

**Address** 301 Almeria Avenue, Suite 210 Coral Gables, Florida 33134-5822, USA  
**Telephone** +1-888-517-9990  
**Fax** +1-305-529-2271  
**Email** [pigna@aegirports.com](mailto:pigna@aegirports.com)  
**Website** [www.aegirports.com](http://www.aegirports.com)  
**Representative** Franc J Pigna, managing director

#### Koko Creative Ltd

**Address** 226 Onepu Road, Lyall Bay, Wellington 6022, New Zealand  
**Telephone** +64-274947258  
**Email** [chris@koko.co.nz](mailto:chris@koko.co.nz)  
**Website** [www.koko.co.nz](http://www.koko.co.nz)  
**Representative** Chris Morley-Hall, CEO

# Training scholarship opportunity

IAPH training scholarship is an exciting opportunity for two members of staff from IAPH regular member ports in developing countries to attend advanced short-term port training programmes. These are a week or so in length, and enable the participants to gain the latest knowledge and understanding in

port management and operation.

For each calendar year, USD10,000 is budgeted to fund two scholarships, each of USD5,000, which should be used to cover tuition and course fees and, if deemed necessary, economy international air travel. The approved applicants are requested to

make all necessary arrangements by themselves, including registering on the approved course and payment of the tuition fees. If international travel is required, the applicant is recommended to seek support from his/her port, including permission for leave and obtaining the necessary visas.

**i MORE INFO:**  
[www.iaphworldports.org/award](http://www.iaphworldports.org/award)

2018

2019

2020

## Dates for your diary

A selection of forthcoming maritime courses and conferences



### March

**22–23:** WPSP Launch Event  
 Antwerp, Belgium  
[www.wpspevent.org](http://www.wpspevent.org)

**22–23:** Sustainability. Digitisation. Collaboration  
 Copenhagen, Denmark  
[www.maritime.knect365.com](http://www.maritime.knect365.com)

**26–29:** Breakbulk China  
 Shanghai, China  
[www.breakbulk.com](http://www.breakbulk.com)

**27–29:** 19th Intermodal Africa 2018  
 Beira, Mozambique  
[www.transportevents.com](http://www.transportevents.com)

### April

**4–10:** IPER Seminar: Human Resources Management in Port  
 Le Havre, France  
[ghardy@em-normandie.fr](mailto:ghardy@em-normandie.fr)

**9–20:** PSA Institute: Port Management and Operations Course  
 Singapore  
[psainstitute@globalpsa.com](mailto:psainstitute@globalpsa.com)

**16–18:** JOC Gulf Shipping Conference  
 Houston, Texas, USA  
[events.joc.com](http://events.joc.com)

**16–27:** APEC: Strategic masterplanning and concession policy  
 Antwerp, Belgium  
[apecporttraining.com](http://apecporttraining.com)

**17–18:** Port & Terminal Technology 10th International Conference & Exhibition  
 Charleston, South Carolina, USA  
[www.mcimedia.com](http://www.mcimedia.com)

**17–19:** 6th MED Ports 2018  
 Livorno, Italy  
[www.transportevents.com](http://www.transportevents.com)

**17–19:** TransRussia  
 Moscow, Russia  
[www.transrussia.ru](http://www.transrussia.ru)

**18–19:** Cyber-Security Seminar  
 London, UK  
[maritime.knect365.com](http://maritime.knect365.com)

**23–4 May:** IHE Delft: International Port Seminar  
 Delft, the Netherlands  
[www.un-ihe.org](http://www.un-ihe.org)

**24–26:** The 3rd Singapore Maritime Technology Conference (SMTC) 2018  
 Singapore  
[www.smtcsingapore.com](http://www.smtcsingapore.com)

**24–25:** TOC Asia  
 Singapore  
[www.tocevents-asia.com](http://www.tocevents-asia.com)

**24–25:** Project Cargo Summit 2018  
 Rotterdam, the Netherlands  
[www.projectcargosummit.com](http://www.projectcargosummit.com)

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 Tutored distance learning  
[www.lloydsmaritimeacademy.com](http://www.lloydsmaritimeacademy.com)

### May

**8–11:** IAPH Mid-Term Conference  
 Baku, Azerbaijan  
[www.iaphbaku2018.com](http://www.iaphbaku2018.com)

**31–1 June:** 15th ESPO Annual Conference  
 Rotterdam, the Netherlands  
[www.espo.be](http://www.espo.be)





Port of Amsterdam: 5056307

# Clean shipping: Why ports should care

Ports must support shipping's efforts to reduce emissions and together seek a sustainable future, says Port of Amsterdam's **Henri van der Weide**, by offering infrastructure and incentives. He invites all ports to join the debate in Antwerp

There would be no ports without ships and no ships without ports. And as ports and shipping work towards a sustainable future, ships' emissions cannot be ignored. That is why clean shipping is one of the pillars of Port of Amsterdam's sustainability plan.

The public image of our port, which is situated in a densely populated area, is built not only on the activities of the port and its terminals, but also on the environmental performance of the ships visiting them.

The port and shipping industries are central players in the maritime business. Together we are responsible for our licence to operate and licence to grow, each in their own way. Although the environmental performance of ships is governed by international regulations through the IMO, and in Europe by the European Union, Port of Amsterdam is convinced that we have a role and responsibility to encourage and facilitate clean shipping. That is why Port of Amsterdam recently launched its Clean Shipping Vision 2030, setting out ambitious targets, for example to lower cruise vessels' emissions at the port by 50% by 2030.

All the plans laid out in the port's Clean Shipping Vision are driven by its role as a port authority. The main instruments in the plan to reduce ships' emissions, for example, are facilitated through investment by the port in infrastructure, such as LNG bunkers,

onshore power supply, and rewarding above-standard performers through incentive programmes such as the Environmental Ship Index, part of IAPH's World Ports Climate Initiative (WPCI), and Green Award.

We already see the latest technological developments being adopted by the shipping industry as it takes responsibility for cleaning its fleet and expect this momentum to increase in the future. By working together on these operational changes we will ensure that continuity of the maritime industry is guaranteed.

As the chair of the Port Environment Committee of IAPH, I am very pleased that my port is being proactive and that we are able to contribute to successful projects of IAPH's WPCI programme – soon to be the World Ports Sustainability Program (WPSP) – such as the Environmental Ship Index and LNG-fuelled vessels.

The evolution of the WPCI to cover the much broader remit of sustainability is in line the Paris Climate Agreement and will be launched in Antwerp on 22–23 March. Here we will create possibilities to strengthen the position of the maritime industry. I invite you all to participate in Antwerp and contribute your expertise for a sustainable maritime future. **RH**

**i MORE INFO:** [www.wpspevent.org](http://www.wpspevent.org)

“ I invite you all to participate at the launch of the World Ports Sustainability Program in Antwerp ”



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