



# PORTS & HARBORS

Official Journal of the International Association of Ports and Harbors

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Henrik Pedersen, CEO of Associated British Ports, shares future plans amid COVID-19 with IAPH's Patrick Verhoeven.

Photo: Susanne Hakuba



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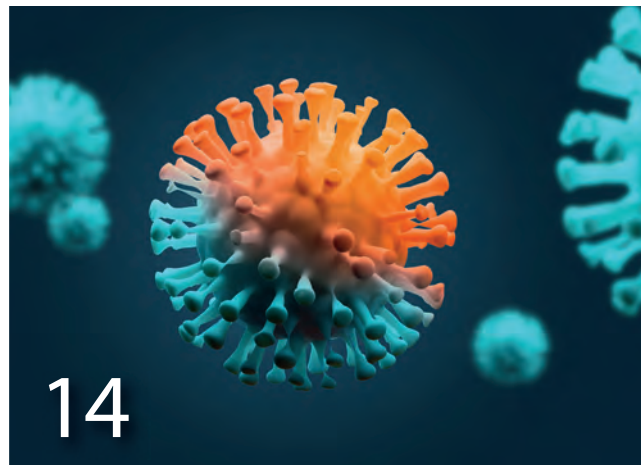
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## PORTS & HARBORS

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# Driving change

COVID-19 exposed the need to digitise the industry – IAPH is committed to push this agenda

**Santiago Garcia-Milà**  
IAPH President



**T**he COVID-19 crisis emphasised the critical role of seaports in keeping supply chains moving and economies across the world functioning. A great variety of business and government actors interact to ensure multimodal flows of vital medical and food supplies, and other goods and services reach their intended destinations in time.

On the other hand, the pandemic has painfully demonstrated the heterogeneous landscape that currently exists across ports worldwide when it comes to digitalisation.

With the world's attention now focused on exiting from lockdowns and preparing for a new normal. There is an urgent need for intergovernmental organisations, governments, and industry stakeholders concerned with maritime trade and logistics to come together and accelerate the pace of digitalisation so that port communities across the world can at least offer a basic package of electronic commerce and data exchange.

This is the core message of the policy statement that we issued

together with several other international shipping and port-related organisations in the first week of June. In the statement, we set out nine concrete recommendations, ranging from compliance with existing IMO requirements on ship-shore communication to

cyber security. We are very pleased that, in a circular addressed to all member states, intergovernmental and non-profit organisations, IMO secretary general Kitack Lim endorsed our call to action.

Meanwhile, work has already started on some of the recommendations contained in the policy statement. We published a white paper, *Port Community Cyber Security*, on 18 June, and we have started collaboration with the World Bank to produce a paper on resilience of the maritime logistics chain, outlining short- and medium-term measures to accelerate digitalisation (read more on page 7). Finally, talks are ongoing with the IMO secretariat on the implementation of Facilitation of International Maritime Traffic requirements and the work on new datasets to enable port call optimisation.

It was Winston Churchill who said “Never let a good crisis go to waste” when reflecting on how the United Nations emerged after the crisis of the Second World War. We certainly heed that advice in IAPH, and I look forward to working with all of you in achieving our goals, providing value-added to the world ports’ community. **PH**

“We are pleased that IMO sec-gen Kitack Lim endorsed our call to action”

## Port updates

### ► Portsmouth wins funding for battery charger

A consortium including Portsmouth International Port has successfully received a GBP320,000 (USD401,979) funding for the use of renewable energy at the port.

The focal point of the Port Energy Systems Optimisation scheme will be a 20 ft container-sized battery that is powerful enough to charge four mid-range electric cars simultaneously.

The funding will come from Innovate UK's Prospering from the Energy Revolution fund to develop and build a prototype that will optimise the port's energy use. The project, led by Marine South East and supported by the port alongside Swanbarton and Energy System Catapult, will show how a port can operate as a smart energy network.

The dual-chemistry battery will be a lithium-ion and lead-acid hybrid battery. Swanbarton is developing the energy management software for this battery technology demonstration.

Mike Sellers, port director at Portsmouth International Port said, "This initiative has the potential to have significant benefits for the port and could also provide a solution to smart energy use that can be shared with the wider port industry."

### ► Grim trade forecasts put Europe on track for 2020 slowdown

Europe is facing a sharp contraction in economic activity this year.

The UN Conference on Trade and Development expects a decline in trade of about 20% for 2020, which is in line with the World Trade Organisation's forecast of a 13–32% decline in international trade. However, the European Commission has a slightly more optimistic outlook: it expects trade among its 27 member countries to decline by 10–16% for this year.



Seung-il Ryou/NurPhoto via Getty Images/5156760

New container port in Busan, South Korea, on 10 June 2020

# Volume-linked rentals mooted for Busan port

As container volumes remain under pressure amid the COVID-19 pandemic, Busan Port Authority (BPA) is planning to link terminal rental rates to throughput from 2022, ahead of the opening of phases 2-5 and 2-4 of Busan New Port.

Terminal operators currently pay a prescribed rental that is calculated according to the wharf area.

BPA believes that if the rental is calculated according to each operator's throughput, it will lessen the financial burden on the operators and will prevent them from indulging in price wars. Thus, BPA, the Ministry of Oceans and Fisheries, and the Korea Maritime Institute have

formed a working group to restructure the rental system.

Phase 2-5 is expected to open on the western side of Busan New Port in July 2020, while phase 2-4, located on the southern part of the port, will open in May 2022.

The Busan Container Terminal Company, a joint venture between Seoul-based CJ Logistics and Hong Kong group Hutchison, has been awarded the contract to operate the terminals in phase 2-4.

Altogether, both phases will have six berths that can handle 3.9 million teu annually.

Liner operators are concerned over fierce competition between terminal operators, especially as the Korea Shipping

Partnership, a quasi-alliance of all the country's liner operators, will operate the berths under phase 2-5 and phase 2-6, which will also be ready in 2022.

Currently, five other terminal operating companies and liner operators are running other terminals in Busan New Port, processing 15 million teu annually. These include 2M, DP World, Hyundai Merchant Marine (HMM), Ocean Alliance, PSA International, and THE Alliance. HMM had joined THE Alliance in April this year.

Phases 2-4 and 2-5 were planned on expected annual container volumes growth of 3–4%, but growth was just 1% in 2019 with throughput of 21.7 million teu.

# Port construction projects in South Africa resumes

Infrastructure projects at South Africa's ports have resumed at the beginning of June after the country moved to level 3 of COVID-19 restrictions.

General construction work was put on hold under the stringent lockdown regulations that came into effect on 27 March and was still prohibited when South Africa moved to level 4 restrictions at the beginning of May. However, President Cyril Ramaphosa announced on 24 May that all sectors of the country's economy, including port infrastructure projects, would reopen under level 3 restrictions.

Among the major projects affected was the USD11.4 million cruise terminal at the Port of Durban. The Transnet National Port Authority and the KwaZulu Cruise Terminal (KCT) consortium, which holds the 25-year concession to finance, build, operate, and maintain, broke

ground on the project in November 2019. The project was due to start commissioning work this year.

At the Port of Ngqura, civil work, which includes the paving of the berth, was expected to be completed in August 2020. The surfacing of the 15,000 m<sup>2</sup> area covers 50% of the multipurpose terminal, which is the area dedicated for the liquid bulk berth operations.

Additionally, all construction work at the port's liquid bulk terminal was slated to be completed by September 2020.

However, one project that was not curtailed by the lockdown was the commissioning of Oiltanking MOGS Saldanha (OTMS), a new crude oil terminal in Saldanha Bay on 17 April, with the maiden call of *Sonangol Cabinda*, which brought in approximately 143,000 m<sup>3</sup> (900,000 barrels) of crude oil.

The terminal is equipped to blend crude oil, and has been connected to an existing jetty, which can accommodate vessels on very large crude carrier. OTMS will use the existing infrastructure that includes the crude oil jetty and pipeline to transport its product to and from the facility.

The first phase of the terminal comprises nine tanks with a total storage capacity of 9.9 million barrels, which will be brought into operation in phases, with the final phase expected to be completed in the third quarter of 2020.

According to the operator, depending on the developments in the crude oil market, the terminal has the potential to be expanded with three more tanks of 1.1 million barrels each. However, an investment decision is still not made. This possible expansion would bring the total storage capacity of the terminal to 13.2 million barrels.

## Port updates

### ► Market disruption shifting Asia–Europe trade and showing contracting patterns

Cargo owners are changing their contracting and shipping patterns on the Asia–Europe trade as they adjust to the severe capacity and demand disruptions caused by COVID-19.

To match capacity with the falling bookings, carriers have extended the high levels of blanked sailings on Asia–Europe deep into the third quarter. Faced with such extreme capacity cuts, shippers appear to be changing their contracting behavior.

Patrik Berglund, CEO of Xeneta, an ocean and air freight rate benchmarking and market analytics platform, said shippers typically issue tenders on the Asia–Europe trade in the first, second, or fourth quarters, unlike on the trans-Pacific, where the vast majority of annual contracts are negotiated in March and April and begin in May.

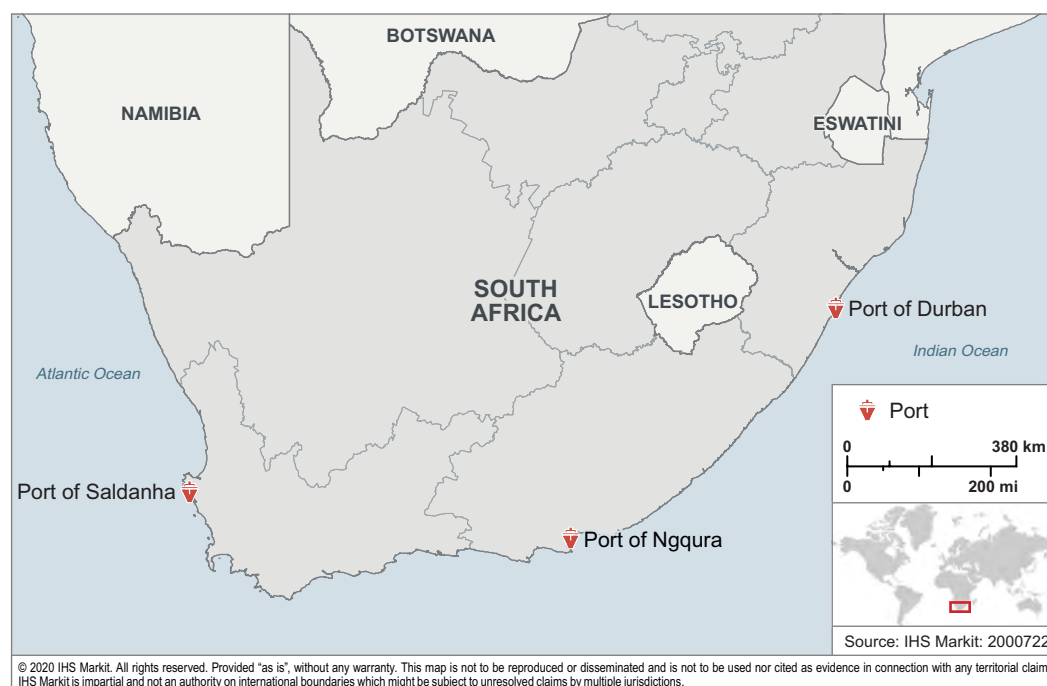
However, that has changed this year with the COVID-19 pandemic disrupting demand.

### ► Vehicle exports to decline following COVID-19 pandemic

Global commercial vehicle production volumes in 2020 are forecast to decline 22% year on year, or more than 650,000 units, to 2.6 million units, in the wake of the COVID-19 pandemic, according to the most recent analysis from IHS Markit.

Individual regional forecasts are set to a downtrend, and supply chain impacts are being felt, as the consequences of the virus have shuttered manufacturing and supplier facilities around the world.

These forecasts have been made based on the latest IHS Markit global economic forecast updates, which reflect a 3.0% decline in global real GDP in 2020.





## Port updates

### ► Lower first-quarter seaborne cargo throughput in the Port of Hamburg

Seaborne cargo throughput at the Port of Hamburg in Germany declined 7.9% in 2019, with 31.9 million tonnes in the first quarter of the year.

Container handling, at 2.2 million teu, was 6.6% lower. Container hinterland transport services remained comparatively stable, while the drop-in demand for transshipment handling was more obvious.

The slackening of import and export flows that are apparent in Germany's largest universal port can be explained by the interruption to transport and supply chains caused by COVID-19.

"The partial shutdown of the Chinese economy, resulting in blank sailings in shipping, has led to lower cargo handling in Hamburg as well," explained Axel Mattern, joint CEO of Port of Hamburg, Marketing.

"In recent weeks, the Port of Hamburg's superb hinterland connection has played a major part in ensuring that even in difficult times its effectiveness has remained unimpaired," said Jens Meier, CEO of Hamburg Port Authority. "Despite temporary lower container volumes caused by the COVID-19 in the first quarter, the Hamburg Port Railway was able to report stable utilisation and even improve compared with the 2018 level."

For the next few months, Mattern noted that the Port of Hamburg must initially adapt to a continuation of blank sailings and falling total throughput.

"From June, it is entirely possible that with a gradual pick-up in the economy in China and Europe, we shall be seeing an increase in sailings and rising volumes on port throughput and seaport-hinterland services," he said.



Tanker unloading at a refinery berth

# COVID-19 muddies the water for bunker fuel transition

According to IHS Markit analysis, the impact of COVID-19 on bunker fuel demand has been limited compared with the toll it has taken on road and aviation fuels. In fact, consumption by some shipping sector sub-segments has increased this year. Overall, marine bunker fuel consumption is down around 5% since the beginning of March, primarily driven by lower container shipping activity and a decimated cruise industry.

However, the pandemic has had a far bigger impact on the shipping industry by helping to blunt the impact of the specification change. Decreased global demand for gasoline and middle distillates, such as diesel and jet fuel, owing to COVID-19 has increased the availability of low-sulphur feedstocks for blending to create bunker fuels.

In fact, there may be too much middle distillate being blended into the very-low-sulphur fuel oil (VLSFO) pool. The average

viscosity of the VLSFO pool has declined dramatically in recent months, which could lead to problems because ship engines are generally designed to run on higher-viscosity fuels. For now, the shipping industry seems to have no issue with VLSFO, as this fuel is accounting for well over 60% of current bunker demand. Marine gasoil (MGO) represents around 20% of the bunker market and high-sulphur fuel oil (HSFO) just 15%.

Thus, the predicted VLSFO supply crunch did not materialise, nor did an anticipated surge in the relative price of VLSFO and MGO. Before COVID-19 rendered all other concerns immaterial, IHS Markit was expecting the differential between low- and high-sulphur bunker fuels would average from USD40/barrel to more than USD60/barrel during 2020, with only slightly narrower differentials during 2021. While VLSFO-HSFO differentials did spike in December 2019, they

have narrowed ever since and averaged less than USD10/barrel in Singapore in April 2020.

The previously predicted HSFO surplus amid carriage ban introduction and high-refining runs will not materialise this quarter. Again, the sharp drop in topline refinery throughput owing to COVID-19 has meant a sharp decrease in sour residue supply and therefore absolute HSFO production. However, the refining industry has done a better-than-expected job minimising its HSFO fraction and increasing its VLSFO yield.

Regardless, the narrower VLSFO-HSFO differential, and overall lack of a supply crunch for low-sulphur bunker fuel is not likely to change anytime soon. IHS Markit estimated that refinery throughput and global demand will be negatively affected by COVID-19 for at least another year, effectively giving the refining and shipping industries time to ease into the new specification.



# Renewed call to digitise paperwork



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## More paperwork needs to be done digitally in the maritime industry

The World Ports Sustainability Program (WPSP), part of IAPH, has published the *Port Community Cyber Security* white paper, which serves as guide to ports gearing up to digitise their business in the wake of COVID-19.

"The COVID-19 crisis has painfully demonstrated the heterogeneous landscape that currently exists across ports worldwide. While some port communities have developed into full-fledged smart ports, many others have barely grasped the essentials of digitalisation and continued to struggle with larger reliance on personal interaction and paper-based transactions as the norms for shipboard, ship-to-shore interface, and shore-to-hinterland-based exchanges," said IAPH managing director for policy and strategy, Patrick Verhoeven, in the white paper's foreword.

The increased digitalisation of port communities means ports will need to pay increased attention to cyber-security risks,

which the 15-page white paper aims to help with. It is the product of a collaborative effort between port and cyber-security experts.

Each chapter in the paper explores a different dimension of the cyber conundrum, with practical recommendations, advice, and examples.

This includes input on why cyber security is such a vital issue for port communities looking at trade, regulatory, geopolitical, and defence dimensions; speaking the same data language; and what is missing in port community cyber security. It also features practical suggestions on steps to increase cyber resilience, as well as International Maritime Organization (IMO) rules, and the potential evolution of the port facility security officer role for the future.

The white paper follows the call to action, signed by the IAPH and numerous maritime associations in June, to exchange cargo data digitally in light of

only 49 of the 174 member states of the IMO having functioning port community systems. They also call for the introduction of the electronic bill of lading, a call echoed by the Digital Container Shipping Association (DCSA).

"The COVID-19 situation is bringing the core strengths of a standardised electronic bill of lading to the fore. Cargo in ports cannot be gated out because of paper that is stuck elsewhere due to airfreight delays caused by the pandemic," said André Simha, global chief digital and innovation officer for MSC and chairman of DCSA. DCSA members CMA CGM, Evergreen, Hapag-Lloyd, Hyundai Merchant Marine, Maersk, MSC, ONE, Yang Ming, and ZIM have reported a sharp increase in the use electronic bill of lading during the pandemic.

DCSA estimates that the maritime industry can save more than USD4 billion per year if 50% of bill of lading are electronically transmitted.

## Port updates

### ► Hydrogen attractive for export

IHS Markit research has found countries worldwide see hydrogen as either a tool to meet ambitious decarbonisation goals or as an opportunity for export. High solar-resource hydrocarbon exporting countries in the Middle East, highly industrialised energy-importing countries in Asia and Europe, gas-rich countries such as Russia, and coal-rich countries such as Australia all show positive interest in hydrogen. It could therefore develop into a globally traded energy source. At the same time, it could be produced domestically, thus reducing dependency on imported fuels.

IHS Markit has seen a growing number of oil, automotive, and other companies along the supply chain proactively investing in hydrogen technologies.

Policies in California in the United States, Europe, China, and East Asia are embracing hydrogen as a mechanism to decarbonise transportation while reducing urban air pollution.

### ► PSC inspections slowly returning to normal, DNV GL figures show

With Asian countries showing an uptick in the Tokyo Memorandum of Understanding port state control inspections in May, DNV GL expects inspections to slowly return to normal after a dip owing to COVID-19.

Data presented at a DNV GL webinar on 4 June showed 36 detentions under the Tokyo MoU in May 2020, compared with 21 in April. This was also reflected in the inspection rate rising from 1,117 to 1,640 in the same period.

"This means that port state will start questioning if postponements owing to COVID-19 are still needed in the upcoming months," group leader of PSC, DNV GL, Claudia Ohlmeier explained.

# One step at a time

Associated British Ports CEO Henrik Pedersen and IAPH managing director for policy and strategy, Patrick Verhoeven, tell **Ines Nastali** amid COVID-19 what they think are the main challenges the maritime industry faces to decarbonise its assets and how to solve some of them

**W**e have got into a good rhythm at ABP," said Associated British Ports (ABP) CEO Henrik Pedersen when talking about getting to grips with COVID-19. He credited this to the workforce, but also good preparations. "We have kept a stock of PPE [personal protective equipment] even before this," he said.

The pandemic means a new way of working for the port operator, with employees, who can, working from home. Pedersen considers ABP to be fortunate to be operating in a great number of sectors, which has allowed ports to stay open. If it is working with Siemens on renewables, with the agricultural clients on animal feed and fertilisers, or the construction industry through timber imports.

However, he admitted that there were big hits, too. "This year's cruise season basically never started. And then you have the passenger ferry traffic that comes in through Hull and Plymouth, which has dried up because of the quarantine. We're also big in the automotive sector. But in the last two or three months, literally nobody has produced cars, and nobody has bought cars, so in these sectors, we have seen quite a dramatic impact," said Pedersen.

Although cruise calls at ABP's Southampton port have been cancelled, crew from cruise ships were able to get repatriated from the port. "To the credit of a range of government agencies, they have allowed crew changes and repatriation in Southampton," he said. Speaking about his own crew, Pedersen hopes that business will bounce back so that investments can resume, and furloughed employees come back to work.

## Adjusting plans

As part of planning for the future, Pedersen and his team decided to change the sequence of investments

owing to COVID-19. "Some of the sectors that we planned to invest in later, in terms of offshore wind and energy, I think we will fast-track those," he told *P&H*. However, investments in ro-ro and containers might be set back for the next one or two years.

ABP's *modus operandi* is not the only one that is changing; ports in general face a change of their business models, for example, from landlord ports to digital hubs. In the United Kingdom, one part of this has been the plan to also establish freeports.

"Freeports are a piece of the puzzle," said Pedersen. It is important to have a good amount of available land, deepwater access, and connections to main transport links – the age-old core ingredients to set up a port – meaning that so much is developing in the ports' scene, but some things remain.

For IAPH managing director for policy and strategy Patrick Verhoeven, flexibility is essential in critical times like these. "You are vulnerable if your focus is on volume alone," he said, adding that "this is the third disruption in the 21st century – 9/11, the financial crisis, and now this one. So, this is actually a trigger to see if there are other business revenue models".

Listing examples to diversify port services, he mentioned logistics such as distribution and closer relationships with end customers, as well as digitalisation. "The Maritime and Port Authority of Singapore sees itself as bunkering hub, for example, they see value added by stepping into the discussion of new fuels – will it be ammonia or hydrogen."

At the same time, Verhoeven granted that the supply chain has been very resilient during this COVID-19 pandemic.

## Strong leaders needed

When Pedersen looked back at what has changed most dramatically over his career in maritime –





Henrik Pedersen,  
CEO of Associated  
British Ports

Susanne Hakuba: 5152632



Getty Images/Naomi Baker: 5152835

**Cruise ships  
berthed in  
Southampton, UK,  
during COVID-19**

independent of disruptions – he cited technology and sustainability. Regarding both, the maritime industry stands accused of adapting slowly. Pedersen recalled when he joined Maersk 22 years ago, “We didn’t even have a company-wide email system.” In this sense, the ports industry has been behind in technological developments, he said, but in the past five years alone, “the port and maritime industry have caught up a lot”, he acknowledged.

The same is true for decarbonising the maritime industry. “I’m very happy reading that companies during the corona crisis maintained that they set aside resources to move ahead with this in the past two months.”

Speaking about how this change could be pushed forward, Pedersen emphasised on the importance of collaboration between port operators and their customers. “In ABP, what I have seen is our big investment, together with Siemens Gamesa, is to build this Green Port Hull, which is the facilitator of offshore wind on the UK east coast,” he said. Another would be retrofitting a

Drax coal power plant to be powered by biomass.

Pedersen said ABP’s own decarbonisation investments include, among others, the installation of solar panels in port and an electrified vehicle fleet.

Verhoeven agreed with the importance of having ambitious decarbonisation goals, but also warned that the investment into low-emission technology might fall off the agenda owing to COVID-19. “The European Shipowners’ Association did a survey among their members to see how they are dealing with the crisis and what the outlook is. That was not so positive when it comes to investments into decarbonisation. They were worried that they would not be able to finance the things they were hoping for,” he warned.

“That’s where leadership comes in from companies such as ABP, Rotterdam, and Singapore on the port side. Same in the shipping industry, it’s Maersk and those companies that have set the agenda. It will mean more than ever to have that coalition of the willing,” he continued.

Otherwise, he said, there is a risk that decarbonisation gets delayed and is seen as a nice-to-have.

Pedersen agreed, “That’s where we are fortunate in our business model. ABP was formed 34 years ago and there are not so many port companies around the world that are like us where you have 21 ports, you are the harbour authority, you have freehold land, and you are also the commercial operator”. Due to the company not being listed, “We are not chasing a share price, we are owned by pension funds who are interested in long-term performance,” he said.

**Learning from the past**

Because of its ownership model, ABP is able to go ahead with investments. “Patrick [Verhoeven] said it very well, if you just sit back and you rely on shipping volume, you



Susanne Hakuba: 5152633

“If you don’t start with aligning the base data, it’s almost impossible to have just-in-time systems”

**Henrik Pedersen**  
Associated British Ports, CEO



“You are vulnerable if your focus is on volume alone”

**Patrick Verhoeven**

*IAPH managing director, policy and strategy*



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might find yourself in a hard squeeze,” said Pedersen, adding that “the green agenda is a chance for us to find other income streams”. This could be possible by creating offshore energy hubs or hydrogen production plants in the port areas.

However, the best business model cannot buy everything. One such addition to port equipment is the supply of cold-ironing facilities, but finding the money for those is not always straightforward. “For our clean air strategy, we scouted, and we didn’t find any place in the world where onshore power wasn’t part or fully funded by either the state or local authorities,” said Pedersen.

He draws a comparison to offshore wind, an industry that also struggled with financing and had to battle the argument that offshore wind is too expensive to form a valued part of the energy transition. However, after receiving governmental incentives for years, the industry does not need help from the government anymore – in the UK provided through “contracts for difference”.

“I think offshore wind is a fantastic example, imagine four or five years ago, how much the government invested in incentives, for offshore wind but now new UK rounds have no incentive from the state,” said Pedersen.

However, Verhoeven warned that the past has shown that even if a lot of investment is being done, if the demand is low, no gain will be made. Citing liquefied natural gas (LNG) as an example, he said, “I remember that 10 years ago, everyone was very excited about this game-changer for sulphur emission control areas and then a lot of ports invested in, for example, bunker barges, but then a lot of these plans were shelved again because the investment was so high and demand so slow.”

He agreed with Pedersen that “this breakthrough is so essential, for hydrogen or ammonia, it comes back to the coalition of the willing, otherwise the risk is that we strand in the same notion that we had with LNG in the past”.

Alternatively, he suggested, there is a controversial way to promote uptake and investment. “You could come up with a market-based measure where the burden would be on the shipping companies, they would have to pay into an emission trading scheme, something that

generates funding to allow for infrastructure in ports.”

Pedersen is optimistic that the state-led incentives are the way forward. “That is the role of states right now, which is why I used the example of offshore wind, the offshore wind industry wouldn’t be where it is today hadn’t it been for government incentives. Commercial companies wouldn’t have been able to invest as much as they have to actually make offshore wind so much more productive than it was 10 years ago.”

Speaking of incentives, another way of decreasing shipping’s carbon footprint is that ports offer incentives to shipping operators who use low-sulphur fuel and heavy fuel oil alternatives when calling at port.

In order to create a level playing field, those incentives should be standardised, Verhoeven argued. However, at the same time “the decision to give the incentive, and how high it should be, has to be a commercial decision of the port”, he warned.

### Commercial sense

In summary, cost and revenue are the drivers of the shipping industry. So, when wanting to push environmental measures, such as just-in-time arrival, this needs to be taken into consideration. Talking about the headstart that other transport industries had on decarbonising their fleets, Pedersen said, “This just-in principle for aviation and rail was never born out of concern for the environment but cost, revenue, and customer service.”

The challenge is to find an incentive to make the business more efficient, which will also help to set the green agenda. For maritime, this means cleaning up its digital cargo data systems. “You call at so many different ports in different jurisdictions with so many shipping lines, and there are thousands of vendors for one port, so if you don’t start with aligning the base data, it’s almost impossible to have just-in-time systems,” he said.

Verhoeven agreed, “Absolutely. This is a complicated industry, with a lot of actors involved, with contractual issues and there is no incentive to be as fast as possible.”

A first step to facilitate standardised data exchange was announced in April 2020. The project by the International Maritime Organization (IMO) and the World Customs Organisation will work on increasing digital data exchange in maritime. “These things have now been mapped out with support of the IMO, so the next step is that data exchange actually takes place, and the terminal is an essential element of that to share berthing information with the ship, and then you can move forward,” said Verhoeven.

Confident that the technology is there and that all involved are willing to share information when needed, the momentum to drive change in a post-COVID-19 world might be there. “It’s the environmental discussion that puts this back on the agenda, but there is equally an advantage in commercial terms, and decarbonisation has the political attention and the support of the IMO at the moment,” Verhoeven concluded. **PH**



Ship agents liaise with both ship- and shoreside

# The new agent

**Neil Godfrey**, Gulf Agency Company's group commercial director for shipping, explains how ship agents adapt to COVID-19 and changing business models of ports

**C**OVERD-19 has delivered a major shock to the system for the global maritime and ports community. Throughout the supply chain, operations are being re-examined and re-assessed as we try to chart the best path through choppy and uncertain waters.

The shipping sector might be tempted to tear up long-term strategies – including those tackling pressing issues such as digitalisation and decarbonisation – in favour of short-term reactivity to the current crisis.

Instead, we should use the crisis as an opportunity to consider new ways of thinking and working. We should also use it to answer the question if radical change in the way that we operate is needed to thrive in the future.

Ship agents have a unique position in the supply chain. As the flexible intermediary between ocean- and land-based industries, we have a different perspective, exposed as we are on all sides by the trends that shape and challenge our business.

It is also a position of insight and strength.

As servants and facilitators of global trade, our role takes on new character and context in a market under pressure to keep cargo moving and vital supplies delivered around the world, even in the eye of a global viral storm.

A new model of ship agency is emerging, with implications for the rest of the supply chain. It is a model shaped by globalisation, digitalisation, and integration – key trends to consider when answering the question of what the future of ship agency will be.

## Geographic forces

Ship agency is a classic example of a business that can be hugely changed by the seemingly most simple trends in the wider ports industry. For example, one of the biggest challenges it has faced has been adapting to the changing geography of port operations, with increased regionalisation and specialism of certain hubs requiring a greater global footprint if service providers are going to cover multiple locations in an integrated and comprehensive fashion.





## ‘Local knowledge is an invaluable commodity’

**Neil Godfrey**

*GAC Group, commercial director shipping*



GAC:5154624

while also negotiating a more diversified and fragmented operating landscape.

### **Blending human and digital**

As ship agency adapts to these changes, some things remain the same.

COVID-19 shows us that trust is still by far the greatest indicator of a good ship agent; the trust that, even in difficult times, the agent will continue to fulfil their important role of husbanding the ships, attending the welfare of the crew, supervising cargo, managing documentation, and finding solutions to emerging problems.

The human touch takes on new value in a sector that is constantly pursuing cost efficiency. As it has been for years, local knowledge is an invaluable commodity, and it is something that only the human capital of a trusted ship agent can provide.

We must also consider the continued uptake of digital technologies. The current context will not derail our sector's uptake of data, but rather heighten our understanding of its potential and accelerate its usage.

In the short-to-medium terms, there is a risk that customers will accept the benefits of data in the name of optimisation and efficiencies. But data alone is not enough to form the basis for smart decisions. Without the human element, quality of service will ultimately suffer.

The simple fact is that technology will never replace the skill and experience of a good ship agent. At the ship's side, ship agents monitor first-hand what is going on, and their wealth of experience enables them to react to issues as they arise. This is something that technology will never be able to substitute.

The new model for ship agency will therefore be characterised by a blend of human capital and digital insights. This

must harmonise with the wider ports sector, particularly as customers demand more real-time information and new technologies such as 5G and internet of things (IoT) promise to boost efficiencies even further.

### **Integration sweeps across the global ports industry**

New technologies are being adopted primarily because of customer demand. Complexity in the supply chain is only likely to increase. A full view of cargo or vessel movement is now a commercial requirement, rather than an option.

Due to their position in the supply chain, ship agents have always had to manage multiple factors at once. What is new now is the growing requirement for their services to become more integrated and seamless – a one-stop shop for a wide range of activities, taking place within the port.

Service integration is a challenging trend, particularly in times of capital constraint. But in ship agency's new model, such added oversight and an increasing digital footprint ultimately adds value for ship agents' customers.

### **New model, new era**

Regionalisation, digitalisation, and integration are putting unheard of stress on the ports sector – and the ship agents that work within it. Even as the temptation to respond to COVID-19 with short-term reactivity grows, we must adopt new ways of working and set ourselves up strongly for the future.

If this pandemic has shown us anything, it is that we should constantly expect the unexpected. This has been the rule of doing business in maritime for many decades. It will continue to be the rule for the foreseeable future. **PH**

In many ways, this is nothing new. Port development has followed the demands of a growing middle class across Asia and Africa, as well as national and international initiatives such as China's Belt and Road initiative.

This landscape reflects the globalised world economy, which has prompted nation states, particularly in the developing world, to increase investment in ports and specialised terminals to handle a greater volume of cargo.

Right now, there is not much consensus about COVID-19's long-term impact on global trade. In the short term, there is no doubt most indicators of global cargo movements have been affected negatively. Ship agents have had to be agile and quick to identify and deliver solutions needed for ships, cargo, and crew to keep moving.

Longer term, in recovery, new and old ports will likely seek higher levels of automation to increase efficiency and reduce costs. The challenge for ships agents will be to find their role and ways to add value

# Brace for impact

Expecting the impact of COVID-19 to last into 2022, ports seek to stabilise their financial position by offering fee reductions and forming new alliances, *Ines Nastali* has found

**P**orts around the world are assessing how COVID-19 has affected their business. While calculations are hard to make given the unprecedented situation, some emergency measures were put in place.

To save money, ports have sent staff on furlough, while others, such as the Port of Helsinki in Finland, went as far as to reduce its personnel. The Finnish port announced it will temporarily dismiss its staff in two separate time frames: for 30 days in between August and the end of this year, and “for a maximum of 30 days in early 2021”. “The management of the Port of Helsinki will also participate in the adjustment measures by waiving their holiday bonuses for 2020,” the port added.

Some ports are offering reduced port fees to their clients or allow to defer payments to after the pandemic to give shippers financial breathing space. The landlord Port of Barcelona has agreed to offer a discount to terminal operators for this year.

“For the passenger terminals, a 30% reduction in the occupation fee will be applied to concessions whose activity has fallen by between 20% and 40% compared to 2019, and a 60% reduction where the impact on the activity is more than 40%. For the remaining concessions and authorisations, the reductions in the occupation fee will be 15% when the impact on activity is between 10% and 15%, and 20% when the impact is greater than 15%,” the port announced in June.

Expecting the impact of the pandemic to last into the coming two years, the Port of Barcelona also agreed to discounts on fees for the occupation of container terminals at 25% in 2021 and 20% in 2022, depending on the volume of transshipment traffic handled. Furthermore, car terminals will receive discounts at 30% in 2021 and 15% in 2022, while multipurpose and roll-on-roll-off (ro-ro) terminals will be discounted at 10% in 2021 and 5% in 2022. The port expects a total saving of USD23 million.

Back in February, the Maritime and Port Authority of Singapore (MPA) offered a 50% discount to the battered cruise industry. “It is expected to benefit more than 600 cruise vessels, regional ferries and passenger-carrying harbour craft, bringing total savings of over USD1 million in the six-month period,” the MPA stated.

## Making new friends

While only the future will tell if these measures help to limit the financial COVID-19 damage, the pandemic has set developments in ports in motion. They look to diversify their offerings to not only rely financially on cargo throughput.

Looking to China, news of activities picking up came in during May and June, after about 70,000 fewer port calls were recorded in February–April 2020 compared with 2019 numbers, according to IHS Markit data.

“Ports in China report a significant increase in domestic cargo transits, which is compensating in part for reduced international volumes,” the IAPH’s World Ports Sustainability Program stated in one of its June COVID-19 barometer.

So, what do ports do to make up for decreased throughput? China Merchant Ports, online retail giant Alibaba, and its subsidiary, blockchain experts Ant Financial, announced at the end of May that they will work on a digital port logistics ecosystem. Prior to this announcement, the port operator signed a similar agreement in March with insurer Ping An’s financial technology (fintech) arm OneConnect to develop a blockchain trade platform for the Guangdong-Hong Kong-Macao Greater Bay Area.

Pulling retail giants such as Alibaba closer to port dealings is one strategy to ensure constant trade volumes, with the added benefit of digitising port supply chains.

Envisioning a combination of financial and port services, the Alibaba partnership also hopes for “multidisciplinary and in-depth co-operation in the countries along the Belt and Road initiative”, a China Merchant Ports press release said. This echoes the recently shared sentiment, caused by the COVID-19 disruptions, of a better connected and digital supply chain.

## Mergers on the menu

In Europe, even before COVID-19, ports situated close to each other have started conversations about joining forces. This is on the cards for Antwerp and Zeebrugge in Belgium, which have been in on-and-off merger talks for years. This time, accelerated by COVID-19 but also the looming Brexit deadline, discussions are as advanced as never before. Both ports will report back to their board in summer about how the merger





could look like. Le Havre, Rouen, and Paris (HAROPA) in France are already one step ahead. They will merge with the beginning of 2021.

The focus for this new venture will be – hardly surprising – on data sharing. Wanting to become a “smart corridor”, HAROPA has secured investment for its smart port city project that will include developing a data exchange platform.

As a first step, the Port of Le Havre has joined the International Port Community Systems Association (IPCSEA) in May 2020 – as did the Port of Zeebrugge in June. Jérôme Besancenot, information systems manager at HAROPA’s Le Havre port commented on the step, “We want to work with IPCSEA on priorities such as standards, including blockchain and intelligent containers.”

The Port of Hammerfest, Norway, is headed into the same, digital direction. In May, offshore base operator ASCO received a GBP1.6 million (USD1.97 million) funding from the Norwegian Coastal Administration as it plans to develop and digitise its Hammerfest supply base near Leirvika.

ASCO Norge’s chief digital innovation officer, Christopher Hoftun, estimated efficiency gains to be “80% for trucks and 20% for vessels, which will also provide an environmental benefit with vessels having a shorter lay time at the quay, resulting in less noise and carbon dioxide emissions”.

With the European focus on adding more renewable power into the energy mix, it is a smart move for ports to show they are available to facilitate offshore

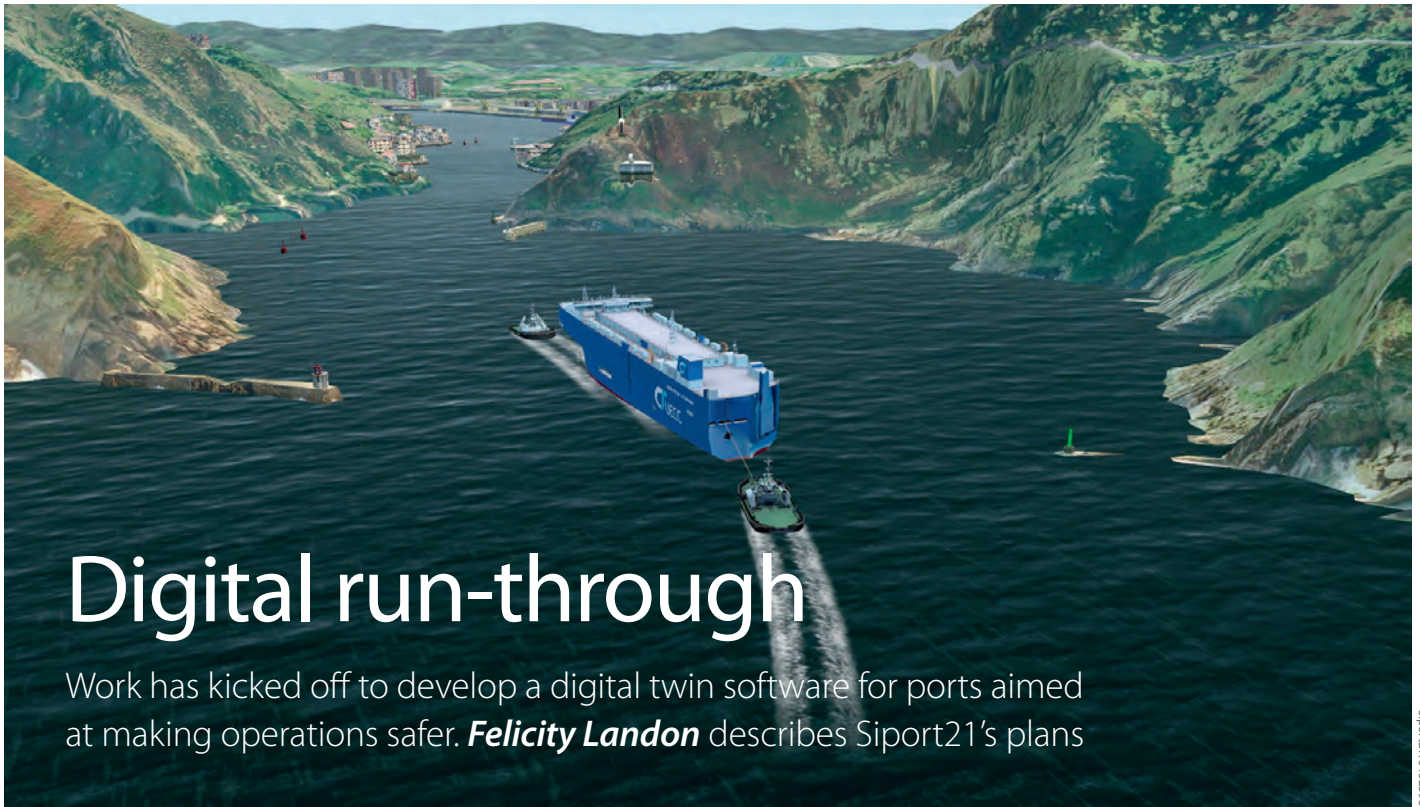
wind projects. “Containerisation, automotive, food, and agriculture are uncertain elements. However, logistics, energy production, cruises and leisure, as well as information management will grow,” said Carles Rua, chief innovation officer at Port of Barcelona, during a Port Technology International webinar in May.

“Some port industry is endangered, such as the heavy industry, oil refining, coal products, those will decline,” he predicted, adding that “traditional port operations are becoming a commodity”.

### The pressure is on

These offerings ensure to diversify ports’ income and will also make operations safer. The Digital Container Shipping Association (DSCA), with members CMA CGM, Evergreen, Hapag-Lloyd, Hyundai Merchant Marine, Maersk, MSC, ONE, Yang Ming, and ZIM, issued a call to action to make 50% of all bills of lading electronic within the next decade. Together, these nine companies operate nearly 70% of the world’s capacity.

Freight transport insurer TT Club welcomed the commitment urged by the DSCA members. “The initiative is consistent with the increased trend towards digitisation across the industry to improve efficiency and reduce costs. However, the current pressures felt through the supply chain as a result of the COVID-19 pandemic have no doubt spurred the action,” TT Club stated – a verdict that summarises the ongoing sentiment in the maritime sphere. **RH**



Siport21: S15293

# Digital run-through

Work has kicked off to develop a digital twin software for ports aimed at making operations safer. **Felicity Landon** describes Siport21's plans

**M**ost of the stuff we put away “just in case it comes in handy in future” will never again see the light of day. But what about data? For Siport21, a Madrid-based consultant specialising in the installation of ship manoeuvring models and simulators, it is finally time to pull everything out of storage.

For 21 years, Siport21 has been working with port and terminal operators, supporting new and expanding port infrastructure projects by providing technical services based on mathematical modelling and advanced simulation.

## New age

Funding is in place for the development of the Smart System for the Evaluation and Control of Maritime Safety in Port Access and Operation – SafePort – the system it has designed to provide terminal operators and port authorities with tools to support safety, efficiency, and emergency response for ship operations in port.

The first phase of the system has been granted funding from the European Union's Horizon 2020 research and innovation framework programme.

Based on the Smart Port 4.0 concept, SafePort combines simulation and modelling, integration of different digital methodologies, data collection and analysis, and prediction through machine-learning algorithms. Siport21 said it is a big step towards the digital twin of a port or terminal that will change the view of port authorities and operators.

“In the 21 years since starting the company, we have been involved in hundreds of projects developing new port infrastructure,” said José Iribarren, managing director of Siport21. Over the past 10 years, the company has been increasingly present in the international market, with 70–80% of work in projects around the world in 47 different countries. “Our technical studies over the years provided much more detailed and operational information than was really needed for the design and construction of port facilities,” Iribarren said, adding, “We can take advantage of this relevant information and provide operators with detailed and precise criteria for the operation of ships in ports – loading, unloading, emergency response – all of this is the basis for developing SafePort.”

## Talk to each other

Siport21 first started thinking about this some 15 years ago, said Iribarren, but found port authorities were not keen on the idea. Mainly, this was down to a lack of communication between ports' infrastructure and operational teams, he added.

“On the other hand, we had a lot of information and data that needed to be treated using IT instruments, which were not as easy and cheap as they are now, and, of course, in many places around the world it was not easy to have access for forecast information.”

Now this has changed, and Siport21 is seeing much more interest in the issues and more connection



between port departments – across infrastructure, operations, and the management of port safety and efficiency, as well as environmental issues, energy saving, risk management, and tackling or avoiding congestion.

“These issues are all being looked at in a more global way,” he said. “We had previously made suggestions to several ports, but the market was not ready for this type of tool. There has been a huge evolution in the past few years, so that organisations are more open to improvement and optimisation, and to using all the information available as deeply as possible.”

When build, Safeport software will integrate information relating to berthing conditions, such as loads transmitted to fenders, ship traffic in port, and meteorological data, together with analysis and technical studies of draught conditions in port areas, to provide detailed and well-informed operational rules for ships, said Siport21.

#### Access to data

To be able and turn this idea into concrete action, the company is now looking for support from partners and information sources across three broad sectors.

First, IT developers and port community system platforms that could be integrated into the system. Second, weather forecast agencies. Iribarren explains, “We need access to forecast data and, in some cases, we need to develop forecast systems where they are not readily available, especially in remote areas and specialist terminals that are outside the infrastructure of a national network.” Third, instrumentation – the system will incorporate ships’ operational data collected by sensors, as well as equipment such as tidal gauges, to measure ship motions in an exposed terminal.

The process of identifying partners to co-operate with is well advanced, said Iribarren.

make decisions and optimise the management of port activities and operations.

“We are building a system that will provide information and recommendations regarding all aspects related to port safety and efficiency, including emergency response,” said Iribarren.

The company estimates in the Horizon 2020 project description that it can charge about EUR50,000 (USD56,239) per port for the core product.

Iribarren said SafePort will be complementary to vessel traffic services, but provide greater detail and information more specific to a vessel at a particular time, for example. It could be integrated into the IT systems of port and maritime authorities, terminal operators, and pilot organisations, to be accessible on PCs, tablets, and mobile phones. It could provide forecast information a few days in advance and this information would be updated every three hours, with an increasing level of detail and accuracy. It would not make decisions, but help users to decide.

As to specifics, Iribarren said SafePort could provide information on the level of risk in a particular course of action; it could show what efficiency improvements could be achieved if specific measures were applied. It could recommend changes in the scheduling of vessel movements to maximise the use of tidal windows. It could reduce risks in port manoeuvres by analysing tidal data, weather forecast, and ship characteristics by showing when it would be wise to delay a ship entering port, because forecasts show that loading or unloading would likely be interrupted by poor weather conditions.

“Using SafePort could enable you to expand your window of activity and operations, as you will know more precisely the risk level and can take decisions more objectively,” he said. “Many decisions taken in port are based on experience and empirical criteria. SafePort can help ports see where they are not taking advantage of all the possibilities. If you work with all the available and precise analyses – loading and unloading, combining type of ship and operation, dimensions, loading conditions, tidal window, wind, waves, you can put all that together and have a very objective basis for decisions, all based on real-time measurement onsite.”

SafePort is a strategic target for Siport21, he added. “It is supported by our strong factors, mainly deep know-how and vast international experience. At the same time, it is a huge opportunity to provide the market with a powerful tool using up-to-date technology.”

The system, once in use, would be progressively updated as more detailed information and data is collected. The first phase of SafePort development will last six months.

“We will develop the whole technical, commercial, and financial feasibility of SafePort and analyse how to reach the market,” said Iribarren. “Phase two will be the accelerator – the real development of the product, which will take a maximum of two years. At the end we should have a complete product ready to be in the market.” PH

SafePort is created to aid users make decisions

“Our studies provided more detail than needed to design port facilities”

**José Iribarren**, managing director of Siport21

He also mentioned that the company has analysed competitors around the world and found some similar ideas to SafePort, “but they are more limited”.

“We have enormous experience in more than 1,000 technical studies related to operations and navigation in very diverse port environments, across a huge variety of tidal influences, weather conditions, traffic, ship types, and port configurations, so we have a very wide know-how and huge amount of data from 21 years.”

The ambition is this: SafePort will provide port authorities or operators with criteria to help them



Elyxandro Cegarra/NurPhoto via Getty Images 5150282

# Reduce the risk

**James Mountain**, director of Fire Shield Systems, talks about fire safety at ports and how port operators can secure their assets

**T**o meet tight schedules, ports around the world are in constant operation, meaning there is no room for any down time.

From the storage of flammable materials to the continual use of industrial vehicles, ports face myriad fire risks. These are evidenced by numerous recent cases of fires.

Taking two examples from the UK, such as the fire within the grounds of the Ineos site at the Grangemouth Petrochemical complex, or when a tractor was destroyed in the port of Tyne blaze, which

fire services have determined was likely caused by an electrical fault. Port operators are liable to identify the areas on site that are at risk and implement appropriate measures to mitigate such risks. These measures will safeguard the wellbeing of teams and assets, while minimising any down time.

## Safety regulations in play

Standard health and safety obligations are outlined in both the UK Health and Safety at Work Act 1974 (HSW Act) and the Management of Health and Safety at Work Regulations 1999. Despite relevance of these for ports, there is a lack of clear, industry-specific legislation surrounding fire safety at ports.

The UK's Health and Safety Executive's Approved Code of Practice Safety in Docks was implemented in 2014 to help the industry to comply with the requirements detailed in the HSW Act and enhance the overall safety of the port sector.

The UK Department of Transport's Port Marine Safety Code (2016) is a non-obligatory regulation – supported by the government – which outlines a pragmatic





approach to ensuring high levels of safety across the industry. Looking beyond the UK, port operators, health and safety managers or facilities managers globally all have an obligation to ensure compliance and safety for their sites. A key part of this is carrying out regular risk assessments that should identify all areas at risk of fire and present recommendations to mitigate the risks.

### Common risks

Ports face many fire risks. Taking the UK as an example, which mirrors port operations around the world, sites susceptible to fire include the storage area.

Thousands of vehicles pass through ports each day, with around 5.8 million vehicles passing through UK ports annually. These vehicles are responsible for delivering and collecting a wide range of materials including dry bulk, liquid bulk, roll-on/roll-off, and lift-on/lift-off contents. The majority of cargo in the UK is made up of dry bulk (94 million tonnes) and liquid bulk (184 million tonnes); both have the potential to cause fire when in storage. Some of the more common risks associated with the storage of dry bulk and liquid bulk materials include flammable materials.

Containers enclosing flammable liquid bulk, such as fuels or alcohols, should be stored away from other, non-flammable materials and a safe distance away from the port's operations area while awaiting onward transport. When not in use, these containers should be kept closed to reduce the risk of fire spreading, should one break out.

Loose materials can also become a fire threat if not stored correctly. The transportation of loose, dry bulk materials, such as biomass or wood chippings, present significant fire risks as they can self-combust during transportation and storage.

As dry bulk is transported in a ship's hold, hot spots can form within the matter. These hot spots can remain inactive until the material is transported. As bulk materials are separated into smaller piles, hot spots can become activated, potentially causing self-combustion. It is vital to monitor temperatures to prevent hot spots from overheating.

Allocating each building's operational use can allow you to identify safety risks

**James Mountain**, *director of Fire Shield Systems*

Ports are also vulnerable to hidden fire risks, as sealed shipping containers often pass through the site. As such, the materials on site – and their possible risks – are not always known. Closely monitoring the materials that are passing through the port allows appropriate measures in place to reduce any possible fire risks.

Onsite vehicles and machineries are instrumental in fulfilling the continuous programme of imports and exports each day at ports, but pose several fire risks. All vehicles on site should be subject to regular servicing and, as per the regulations of the port authority, be fitted with fire protection equipment.

Machineries pose a risk of overheating. As such, they should be regularly maintained, serviced, and inspected to monitor temperatures, reduce dust build-up, and ensure their continued use is safe.

Owing to the exposed conditions of the coast, ports are also vulnerable to extreme weather conditions. High coastal winds, for example, can cause fires to spread more aggressively. Therefore, ensuring ports' fire protection solution considers environmental factors, such as extreme weather, is crucial to warrant plans are as effective as possible.

### Minimising down time

For port operators, keeping teams safe, minimising any possible down time, and ensuring compliance is crucial. Practical steps for port operators include creating a site map. The map should detail all buildings, their locations, uses, and all routes in and out of the port.

Allocating each building's operational use can allow you to identify common safety risks to individual areas and act to reduce the risks by implementing corresponding protective measures.

Regular fire risk assessments should also be available to identify where and how sites are susceptible to fire, and to monitor any evolving risks. This will provide recommendations how sites can be made safer.

In addition, the fire protection solution implemented should be tailored to the ports' unique needs. These will be identified within fire risk assessment, which can assist port operators in choosing the most effective fire detection and suppression solution.

For key responsible staff, training on the emergency equipment, its location, and its use, will help to ensure emergency procedures are as effective as possible should a fire occur. **PH**

**Firemen try to extinguish flames at the autonomous Port of Strasbourg, France**

Loose materials can also become a fire threat if not stored correctly

**James Mountain**

*Director of Fire Shield Systems*



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# Around the world in 30 days

With the opening of the Northern Sea Route, Iceland, Norway, and Russia compete for port investments – exacerbated by the COVID-19 pandemic, **Charlie Bartlett** reports

**S**ituated at the outlet of the transpolar drift stream, Iceland might be ideally placed to become a transshipment hub in the High North. A terminal here could unload boxes arriving on ice-class ships and load them onto sea-going vessels. Having a more centralised position in the North Atlantic than, for example, Norway, means Iceland could just as easily be used to route cargoes to North America as Europe.

At least, that was the justification for the recent investment by Germany's Bremenports. Construction of the new port in Finnaþjörður is due to begin in 2021, with development to continue for decades; initially, 1,300 ha (13 km<sup>2</sup>) have been slated for development.

From a pure environmental point of view, the Finnaþjörður case seems particularly strong. Energy in Iceland is 85% produced by renewables, most prominently geothermal, meaning that synthetic and so-called electro-fuels could be produced onsite. Bremenports argued there is also room to process raw materials and minerals from mines in the Arctic.

## A warning

According to the University of Iceland's Institute of Economic Studies, the port's profitability depends on a route directly across the North Pole becoming viable through global warming. "If warming continues and sea ice continues to recede, so that conditions on the route straight across the North Pole will eventually be good, it makes sense to use that route," the study indicated. However, this will not happen for decades even in the most severe of climate change scenarios; in almost all cases, ice-strengthened vessels calling at Norway's Kirkenes or Svalbard would have the edge economically. For such an alternative to work, these vessels will have to use the Northern Sea Route (NSR).

Things change very quickly in the NSR region. Whether in the worst possible climate change case – business as usual as the United Nations refers to it – or that of an enormous shift towards renewable energy, a tangle of factors makes pre-empting the Arctic's upcoming economic landscape difficult. Polar regions are warming faster than anywhere else, thanks to the vast sheets of white ice surface, which would otherwise be reflecting light into space, being replaced with dark, heat-absorbing stretches of open water.

However, one thing is almost certain: the retreating ice will make the NSR a viable channel for Asia-Europe shipping, dodging the equatorial Suez Canal route, which is 40% longer, and the arduous Cape of Good

Hope transit, which is 60% longer.

What is less clear is the extent of Russian assistance that may be needed. Russia claims the North Pole is Russian territory beginning at the Norwegian border and ending at the Bering Strait – nearly half of the Arctic circle. Its dominance puts geopolitical adversaries, the United States and Europe, in uncomfortably pressed negotiating positions. Unlikely to take this lying down, in May 2020, the US Navy made forays into the Barents Sea with surface vessels, something not seen since the Cold War, to "assert freedom of navigation" – a transparently NSR-related mission statement.

## Linking up

It has been six years since an army with no insignias annexed Crimea for Russia. While it was a human rights concern and probably a violation of international law for other UN members, for Russia it was seen as a vital strategic manoeuvre in securing future economic growth – in the face of never-ending sanctions – by gaining port access outside the Arctic Circle.

Most Russian ports spend some part of the year or other frozen over; they are also harder to get to. Murmansk and Arkhangelsk, for example, require feeders to sail around the cloven hoof of Norway and Sweden, well into Arctic territory. Even the more southerly Port of St Petersburg requires passage through the seasonally frozen Baltic. This is why, so often, one of Russia's 40 icebreakers has to assist when vessels get into trouble in the Arctic. Likewise, it is Russia's Antonov short take-off and landing (STOL) aircraft, which lands on ice floes to resupply the multinational Multidisciplinary drifting Observatory for the Study of Arctic Climate expedition.

This has not been great news from an efficiency point of view. However, it does mean that Russia knows a thing or two about operating maritime assets in some woefully adverse conditions.

## Arctic gold rush

This lead on Arctic development has positioned Russia to take full advantage of the upcoming Arctic gold rush. President Vladimir Putin wants to increase Russian cargo along the NSR to 81 million tonnes by 2024 – 31.5 million tonnes were carried in 2019. In 2019, nuclear icebreaking cargo vessel *Sevmorput* underwent a test voyage carrying Pacific salmon from Petropavlovsk-Kamchatsky to St Petersburg. This year, Kamchatka Territory acting governor Vladimir Solodov indicated that as much as 300,000 tonnes of salmon could be



shipped to Russian ports along the NSR.

Plans are abound for further development in the region. The Belkomur railway project, intended to link Arkhangelsk with Siberia and the Urals, is getting a new branch line heading to Indiga, where a new “year-round” deepwater port is being planned. The port will form a crucial NSR connection, handling coking coal, wood, fertilisers, chemical products, and paper for export.

“We shall be able to handle most export cargo, which now is shipped via St Petersburg, and thus we shall offer economic conditions for our investors to be able to develop here more actively and not to waste money on transport expenses,” said Arkhangelsk Region acting governor Alexander Tsybulsky. “On the other hand, we shall boost the economy, including that of the Northern Sea Route.”

“The work is under way. It is not extensive yet, but anyway about USD5 million has been invested,” Tsybulsky added. However, total investment of this project is anticipated to amount to RUB300 billion (USD4.13 billion). “This year, they arrived at the site and conducted geological studies. And next year they will begin to build a mooring wall there.”

China, which will be providing some of the funding for the Indiga port project, is expected to contribute to its cargoes via the Belkomur railway. The expectation is that Russia and China will be connected by a rail link through Kyrgyzstan. In 2016, an agreement of intent was signed between Arctic Transport, Industrial Centre Arkhangelsk, and Beijing-based Poly International Holding. “The Chinese People’s Republic is for us a key partner in implementation of Arctic projects, including the big ones, the most important,” former Arkhangelsk governor Igor Orlov said.

If all goes according to plan, construction will begin in 2021; 80 million tonnes of annual throughput capacity will be completed by 2025, with Japan specifically in mind as one of the interested parties for its various exports. However, Russia is also grappling with a new and less predictable type of export landscape, owing to COVID-19.

### All to play for

In the wake of the virus and the withdrawal of labour in many countries, humanity is understood to be poised on the brink of an economic crisis much greater than that of 2008. The Russian Export Centre (REC), a state-run body tasked with ironing out the challenges in exporting Russian goods and resources, has indicated that it will be providing support, particularly for small businesses, in securing buyers and staying afloat.

With supply chains severed, the confusion may offer these companies opportunities to secure new business, REC director general Veronika Nikishina indicated, “The Russian Export Centre, amid the COVID-19 pandemic, is ready to expand its work with exporters to help solve problems arising from possible rupture of foreign trade chains as a result of quarantine in a number of states.”

The news could have a considerable impact for Russian ports, particularly those along the NSR. “Given the high risks on the markets, we primarily focus on supporting small and medium enterprises, as mostly these companies have difficulties in facing the global challenges of world trade,” said Roman Smimbin, deputy chairman of the board of Russia’s Eximbank, a part of REC. “Under existing conditions, the value of government decisions to support exporters is significantly increased. It is important that most of our financial products have already passed test and established themselves among exporters.”

Despite recent trends in cargo handling along the NSR – notably, a 60% increase from 2018 to 2019 – it is uncertain whether the investments being made will pay-off, with COVID-19 having thrown a spanner in those works. However, with the Arctic becoming navigable for a longer duration with every passing year, it is a good bet that shipowners will want to bring larger vessels on this shorter route.

While the environmental protests surrounding maritime activity in the Arctic have failed, the silver lining may be an ironic one, since Asia-Europe trades relocating to these waters will stand to make a serious dent in carbon emissions in the decades to come. **PH**

**Reefer vessel  
Simfoniya unloads  
refrigerated fish at  
Arkhangelsk port**





# Useful material

Dredged sediment from ports and harbours can function as a valuable ingredient in construction materials such as brick, concrete, or ceramic as a more sustainable and practical alternative to confined storage on land or dumping at sea. *Stephen Cousins* reports

Researchers are constantly finding ways to repurpose dredged material and sediment

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**M**illions of tonnes of sediment are dredged worldwide each year to maintain access to ports and harbours, but finding beneficial methods to recycle and reuse the material to reduce environmental impacts can be a significant challenge.

One option increasingly being investigated by researchers and businesses is to incorporate dredged material into building products such as bricks, concrete, aggregates, and ceramics.

This can be used to construct anything from new infrastructure, such as roads, dams, and breakwaters, to homes, schools, and offices.

Repurposing sediment, including contaminated material, for construction can reduce demand for precious natural resources, cut greenhouse gas emissions associated with manufacture, and contribute towards more sustainable sediment management.

Natalia Junakova, a professor for material science and chemical engineering at the Technical University of Košice (TUKE) in Slovakia told *P&H*, "The management of dredged sediments is a significant issue worldwide due to the huge amount of dredged sediments and their varying quality. As eroded particles in the watershed that contain clay and silt particles, sediments can find many engineering uses, for example as a partial substitution in concrete production as a filler."

The widespread availability as well as the mineral and chemical compositions of dredged sediments make them suitable to produce lightweight aggregates (LWA).

### **Material from ports**

Between 2004 and 2016, some 65,000 tonnes of dredged material treated at Hamburg Port Authority's METHA plant, which mechanically separates contaminated harbour sediment and sand, was used as a substitute for clay in the production of LWAs by manufacturer FIBO ExClay Deutschland.

The METHA-derived material comprised 10–15% of raw material used in the product, which had no impact on kiln performance and required no technical process adjustments. Production for this



purpose only came to an end when the clay pit was shut down in 2016.

Dredged materials include a high proportion of clay particles, therefore could be used in the production of bricks for engineering purposes, including for the construction of foundations, walls, and roads.

A study carried out by researchers at Universiti Tun Hussein Onn Malaysia, in 2016, tested the strength of bricks that included between 15% and 25% sediment dredged from two rivers in Malaysia. All were demonstrated to exceed the strength of standard bricks made in Malaysia, supporting their use in the local construction industry.

Sediments have been used as a substitute for quartz sand in fired bricks. One research project produced 15,000 perforated bricks made with 15% treated sediment, which in tests were shown to meet the necessary structural and environmental requirements for clay bricks.

While brick production using dredged sediment is feasible, there remain certain economic, technical, and social barriers to uptake. A 2015 survey of consumers in Flanders, by researchers at KU Leuven Centre for Economics and Corporate Sustainability, found that many were suspicious of bricks produced this way, mainly due to fears that they were of inferior quality and had associations with chemical contamination.

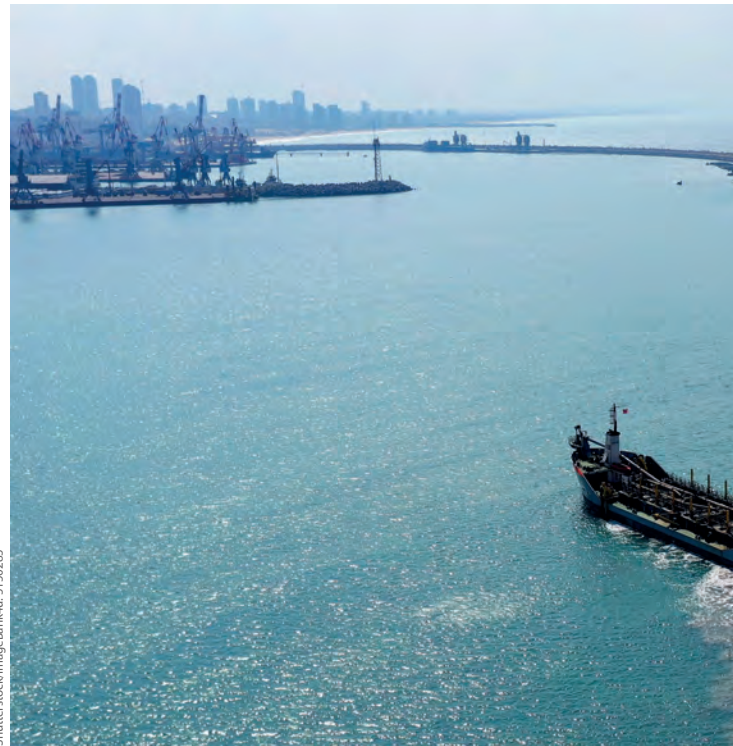
### Grey matter

Concrete is the world's most ubiquitous construction material, used to build everything from roads to schools, hospitals, and apartment blocks. But our continued dependence on concrete is also polluting the planet.

Cement, the key ingredient in concrete used to bind it together, is the source of about 8% of the world's carbon dioxide (CO<sub>2</sub>) emissions, according to estimates by think tank Chatham House. This oversized footprint is projected to grow as economic development and rapid urbanisation sweep through countries in Southeast Asia and sub-Saharan Africa.

According to the International Energy Agency and the Cement Sustainability Initiative, cement production could increase by as much as 23% by 2050.

Researchers and scientists around the globe have been working to find more environmentally friendly materials that can fully or partially replace the cement component in concrete, and dredged sediment has



emerged as one attractive solution.

A TUKE research team demonstrated in 2017 over the possibility of reusing sediment taken from two reservoirs, Klusov and Ruzin, to replace a significant 40% of regular Portland cement in concrete.

Three specimens were prepared: the first used only original reservoir sediment; the second used reservoir sediment mechanically activated by dry milling to create finer grains; and the third sample used reservoir sediment mechanically activated by dry milling combined with biomass incinerator fly-ash as a binder. The specimens were tested for their flexural and compressive strengths.

Test result of each specimen, after 28, 90, and 365 days of curing, revealed that the second and third samples satisfied the strength requirements for the C16/20 concrete strength class, European Standard EN 206-1.

The researchers concluded that dredged sediment can be considered as 40% cement substitution in concrete, with associated benefits for CO<sub>2</sub> reductions in

## Port of Rotterdam sediment examined for use in building materials

A team of researchers in the Netherlands has won a grant from the Dutch Research Council to investigate the potential use of dredged harbour sediment as a carbon-neutral resource for building materials. Utrecht University and the NIOZ Royal Netherlands

Institute for Sea Research will collaborate with the Port of Rotterdam and dredging contractors Royal IHC and Van Oord on the project. The research will test the feasibility of transforming harbour sediment into a product with a neutral or negative CO<sub>2</sub> footprint. The other

partners in the research are NETICS, TNO, and Wetsus.

They will assess how the addition of reactive silicate minerals, particularly olivine, which is known to support natural carbon sequestration, impacts on different grades of sediment dredged from the Port of Rotterdam.





**Suction dredger  
at a harbour in  
the Mediterranean**

manufacturing and more beneficial reuse of materials from maintenance dredging.

Professor Junakova told *P&H*, "By using sediments as the partial filler and binder substitute in concrete, more sustainable concrete production can be achieved worldwide in terms of saving natural resources and reducing CO<sub>2</sub> emissions. It also ensures more sustainable sediment management."

The team is currently conducting a study to assess the environmental impacts associated with the use and production of sediment-based concrete, including its carbon footprint.

### **Sustainable substitution**

Frequent dredging has caused serious problems for harbour managers in the Port of Oran in Algeria, due to lack of storage space for the material on land. Yet, research published in 2015 showed that these sediments could be reused as a substitute for between 5% and 20% of cement, by mass, in concrete. Ultimately the 5% cement replacement was identified as the most appropriate due to improved mechanical properties and durability.

Contaminated dredged material is classified as waste and must either be disposed of in landfill, stored, or treated to remove pollutants. However, a more sustainable option is to use it as a replacement for naturally occurring materials – such as chunks of rock and sand – to construct new land for development.

Gothenburg Port Authority (GPA) is planning to use large volumes of contaminated sediment as part of work to create what it claims will be the largest expansion project in the port since the 1970s.

The New Arendal terminal for containers and roll-on-roll-off (ro-ro) traffic is slated for completion in 2025, and will be erected on a 220,000 m<sup>2</sup> area of reclaimed land in the Arendal Basin.

Field trials of the technique involved combining contaminated clay containing tributyltin (TBT) with a mixture of slag, fly-ash, and cement, used as binding agents. The contaminated clay-TBT compound was extracted from the nearby Göta River. The resulting mixture was pumped into cells ringed with sheet piles and stone embankments, then capped it by a 1.2 m thick layer of rock. This is the model for full-scale construction, which is now under way.

Speaking to *P&H*, Eduardo Epifanio, project manager at GPA commented, "This project will give us the chance to use our contaminated sediment in a sustainable way and create a much-needed new terminal. Instead of disposing the materials on land, they will be part of the construction of the new terminal."

Contaminated sediments can be put to beneficial use in port construction and civil engineering projects when they are pumped into geotextile tubes – large synthetic tubes filled with material to create solid structural elements. A report published in 2018, by a team of researchers at the Department of Civil & Environmental

Engineering at Mississippi State University (MSU), concluded that using geotextile tubes in port construction projects could help build structures faster, more cheaply, and using fewer imported materials than traditional construction techniques.

The process also generates fewer carbon emissions, the report claimed.

### **Multiple applications**

Recent port projects have shown how geotextile tubes filled with local dredged material can be used to create breakwaters, revetments, and new land without the need to import expensive raw materials.

Farshid Vahedifard, associate professor at MSU, told *P&H*, "The most practical application for geotextile tubes for construction work in ports include applications that need large volume, cost-effective, flexible, construction materials with low- to medium-range strength. These applications can include those in port expansion and management, restoration projects, emergency construction, and disaster recovery."

One large-scale example of a recent project was the construction of Embraport, a container and bulk liquid terminal on the north shore of the Port of Santos in Brazil.

To build the footprint for the facility, some 600,000 m<sup>3</sup> of contaminated sediments were dredged from the access channel and turning basin and placed into geotextile tubes, which was manufactured by TenCate. These dredged materials formed about 40% of the total 1.5 million m<sup>3</sup> of fill required to complete the project.

The filled geotextile tubes were first dewatered, to capture effluent water that was treated prior to release back into the environment, then a drainage layer and over-burden were placed on top. The completed terminal was strong enough to withstand the weight of up to seven stacked fully loaded ocean containers and the carbon footprint was reduced by 7,903 tonnes of CO<sub>2</sub>.

But the use of geotextile tubes is no silver bullet for construction and involves technical limitations. Tubes filled with sediment can be used for applications requiring low- to medium-range strength, but applications requiring higher strength may be better suited to traditional construction techniques, such as using concrete.

The technology has been deployed in South America, Europe, and Asia, but has so far failed to take off in the United States, according to Vahedifard. "Despite the eagerness of federal, state, and local agencies to increase beneficial reuse of dredged materials, millions of cubic metres of potentially useable dredged materials are still disposed of by, for example, confinement," he said.

As ports continue to grapple with sediment management and storage, and as regulators ramp-up pressure to improve environmental performance, more beneficial uses for sediment in construction are likely to emerge in the years ahead. **PH**



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# Powering up

**Shem Oirere** on how a new port aids Morocco's energy security amid COVID-19 disruptions

**M**orocco joined other African countries in enforcing a lockdown and curfew due to COVID-19 in April 2020, which is likely to delay delivery of new maritime projects, such as the ongoing construction of Nador West Med (NWM), a deepwater port on the country's western coast.

The restriction of movement within Morocco – the ban on train and bus transport between cities and stay-at-home orders – meant many project workers would not access the new construction site that is being developed by Société Nador West Med, a state-owned limited company established specifically to promote the new port project.

Furthermore, the closure of the country's airspace and shutdown of business operations by many companies disrupted the supply chain of necessary infrastructure projects. Morocco's port operator, the National Ports Agency (ANP), has not given specific updates on the impact the pandemic has made on those projects.

Belgian marine contractor Jan De Nul (JDN), a member of the consortium that is constructing the

NWM port, said that at the moment the company is "highly committed to warrant the safety and health of its employees worldwide".

Other consortium members include Moroccan civil engineering giant Société Générale des Travaux du Maroc (SGTM) and Turkish group STFA. The JDN-SGTM-STM consortium reportedly edged out several international bidding groups for this project, including China Harbour Engineering Company, a subsidiary of China Communications Construction Company.

## Diverse distribution

Morocco, which is a net importer of energy, is racing to integrate these multibillion-dollar ambitious port development programmes with its national long-term goal of achieving security in the supply of oil, gas, and coal to boost electricity generation, transmission, and distribution.

New ports, and expansion of existing ones, are critical in achieving Morocco's planned importation of 7 billion m<sup>3</sup> of liquefied natural gas (LNG) by 2025 to support its USD4.5 billion gas-to-power programme.

Some of the proposed new ports are designed to have LNG import terminals and onshore regasification facilities such as those proposed for Jorf Lasfar, a deepwater commercial port located on the country's Atlantic coast.

## All eyes on Nador West Med

NWM is Morocco's biggest port project, which will push Morocco closer to acquiring additional storage and distribution capacity for coal and hydrocarbon



## Section of NWM port under construction

products including LNG, which the nation urgently needs if it is to ramp-up its installed electricity capacity.

The new port, which was launched in 2012 with a completion date of 2021, is being developed alongside an industrial complex as part of Morocco's 20-year National Transport Sector and Logistics Development Strategy, an ambitious national infrastructure plan estimated at USD18 billion. NWM alone is estimated to cost USD1 billion, and was initially slated for completion in the first quarter of 2020.

Works include backfilling of container terminal embankments and dredging at separate sites around the port, according to a project brief by the Arab Fund for Economic and Social Development (AFESD). Dredging is to be carried out around the port basin and the approach channel to a depth of about 20 m, and in front of the port berths to a depth ranging between 16 m and 18 m.

According to AFESD briefing, the backfilling works are "required for land reclamation behind the berths to be used as storage areas".

The AFESD has provided nearly USD194 million in project financing. Other project financiers include Société Nador West Med, which is providing equity financing of more than USD1 billion; the European Bank for Reconstruction and Development has given USD220 million; and the African Development Bank (AfDB) is providing up to USD110 million.

Additionally, the JDN-SGTM-STM consortium will build a harbour infrastructure, 5.4 km long and 35 m deep, with one main water breaker spanning 4.2 km to protect the northern and western sides of the port and a secondary one running 1.2 km to protect the eastern side.

### Port details

Furthermore, NWM will have five different berths including a container berth on the eastern side with four docks, each measuring 380 m.

A general cargo handling berth and a coal berth are also being constructed to the western side of the port. The general cargo and coal sections are about 300 m long each.

Moreover, three new hydrocarbon berths are being built and attached to the main breakwater.

On the southern side of the port, the contractor is putting up a 380 m long service and roll-on-roll-off (ro-ro) berth. At least 50 m of the berth is for receiving ro-ro ships, while the rest of the berth is reserved for other port services.

The port will have new annual handling capacity of up to 3 teu, with potential to increase it by 2 million teu; 25 million tonnes of hydrocarbons; 7 million tonnes of coal; and 3 million tonnes of other bulk cargo exports and imports.

"The project seeks to secure the supply of energy commodities to Morocco by establishing a second pole, particularly by increasing reception and storage

capacity in the project area," the AfDB described in a project brief.

The port and an associated commercial, industrial, and logistics centre would sit on a free zone in the Oriental region's Betoya Bay within a reforested dune area, nearly 30 km from western coast city of Nador.

### Looking abroad

Locating the new port in the Oriental region was a deliberate decision in line with the government's intention to leverage on the vantage location to easily access foreign markets.

The Oriental region shares a border with gas-rich Algeria hence becoming one of Morocco's 12 administrative regions to be the closest to the other Maghreb nations, despite the location being "somewhat remote from the most populated and economically active areas in Morocco," according to the UN Conference on Trade and Development (UNCTAD).

Furthermore, the region's Mediterranean coastline makes it easier for NWM to provide an alternative to the Port of Tanger Med in accessing the European markets—a key destination for Morocco's exports and source for import and tourism earnings.

Morocco reported its export and import volumes reached nearly 86 million tonnes by 2017, with 95% of it going through its ports.

Currently, Tanger Med port, developed in three phases, has enabled the port to accommodate large container vessels with the gateway's total capacity rising to 5 million teu. It is now the largest container port in Africa and Mediterranean regions.

Morocco is investing in NWM port through public sector financing, after an analysis of other possible financing options for the project revealed the private sector may not be keen on taking up the project because of "its low financial profitability" according to the AfDB.

The bank stated Morocco will, once the NWM port project comes online, "eliminate regional disparities, particularly by accelerating and strengthening the economic and social developments of Oriental region through enhancement of its attractiveness and creation of wealth and jobs".

"With no major port facility in northeastern Morocco, there is a major constraint of the country to establish an economic pole in this region, which has some of the lowest socio-economic development indicators," the bank warned.

Besides, Morocco is located at a prime geopolitical location next to the 58 km long Strait of Gibraltar, a narrow channel linking the Atlantic Ocean and the Mediterranean Sea. The Strait of Gibraltar, one of the busiest waterways in the world, also separates Gibraltar and peninsular Spain in Europe from Morocco.

With the anticipated completion of NWM port, Morocco could boost the logistical competitiveness of its economy that is forecast to grow by 3.1% by the end of this year, independent of COVID-19 impacts. **PH**

# Growth in jeopardy

The COVID-19 pandemic could threaten and compromise past efforts made to grow West African ports, says **Shem Oirere**

**P**orts in West Africa have no plans of scaling down operations despite the COVID-19 pandemic because the gateways are critical for the survival of economies in the region, according to a port operators' organisation and some private sector container terminal investors.

Keeping the ports operational defies projections by stakeholders in West Africa's maritime industry of a looming decline in throughput of the region's ports as the pandemic continues to constrict global economic growth.

According to Jean Marie Koffi, secretary-general of Port Management Association of West and Central Africa (PMAWCA), a West Africa subregional, intergovernmental economic organisation, what governments and port operators in West Africa require during the COVID-19 pandemic period is enforcement of "stringent health and safety measures in all western and central Africa ports in order to preserve workers' health to limit the spread of the virus and to avoid the prolongation of this public health crisis and its economic consequences".

Currently, according to Koffi, every port operator in western and central Africa must do their utmost best in assuring the health preservation and safety of maritime workers. "Port authorities should call on all workers to strictly adhere to the health and safety measures that have been put in place to face this serious emergency," said Koffi.

## Staying open

APM Terminals, the container terminal operator that has invested in some West African ports, such as Apapa in Nigeria and Tema in Ghana, said the company remains operational during the pandemic period to ensure an uninterrupted global supply chain.

"Ports and terminals are part of critical infrastructure, and we will continue maintaining global supply chains while ensuring the safety of our people, customers, suppliers, and the communities we serve," said APM Terminals chief operating officer Keith Svendsen.

"Our global and local management teams are working with local authorities, unions, shipping lines, truckers, and other stakeholders to keep our people healthy and global supply chains flowing," added Svendsen.

According to Diego Aponte, president and CEO of MSC Group, the COVID-19 outbreak has placed the



maritime industry in "unchartered seas".

MSC Group, through its affiliate Terminal Investment, has invested in the port of Lomé, where the company operates the Lomé Container Terminal, and at the port of San Pedro, where the company is developing and expanding the San Pedro Container Terminal.

"As an essential cog for global trade, it is imperative that we, together with our customers, keep the world moving despite the difficult operating conditions we are all experiencing," Aponte said in a recent company operation update.

## Past growth

Just before the COVID-19 outbreak emerged, several West African countries had maintained positive growth of their gross domestic product (GDP) with the overall region's economic performance rising from 2.7% in 2017 to 3.3% in 2018.

Despite low commodity prices, and declining global oil prices in some part of West Africa, the overall economic growth of the region for 2019/20 is expected to go up 3.6%, according to African Development Bank projections.

Before the pandemic, West African economies had posted steady economic growth that attracted increased local and international investments, hence the substantial increase in the export and import





An African woman carrying a load on her head near Port of Lomé, Togo

Gedong/Universal Images Group via Getty Images 5152397

volumes through the region's 25 commercial ports, 20 of which handle container and general cargo trade.

In the last 15 years and prior to the pandemic, West African ports had been ramping up their throughput volumes despite concerns by stakeholders such as DP World that sluggish economic of some countries in South and West Africa could hold back the rest of Africa with "container handling reporting the sharpest decline of any region".

However, DP World, which invested in the Dakar Container Terminal, added that "an uptick in activity was visible in the last quarter of the year 2019, which is expected to continue into 2020".

The World Bank has previously observed that the overall growth in total throughput for West African ports between 2006 and 2012 increased from 105 million tonnes to 165 million tonnes and a similar performance is expected during the 2017–20 period.

Such an economic trend is likely to influence performance of container trade in the region as the container traffic largely follows growth of GDP.

The World Bank said that in early 2015, container traffic in the West African ports was low, although the ports "could not cope because of low handling productively caused by inadequate facilities, and most of them were heavily congested, prompting shipping lines to apply in the form of congestion surcharges".

Nevertheless, over the past five years, a notable surge in container traffic has resulted in West African port operators, some in partnership with private container terminal operators, to invest in capacity expansion with more projects in the pipeline.

### Spanner in the works

"Despite recent dampening of economic growth within the region, projected growth of container throughput in West Africa indicates that activity at port terminals could reach almost 6.2 million teu in 2020 and 9 million teu in 2025 or a little more than twice its 2011 level," the bank predicted in a worst-case scenario.

The bank added that in a slightly better scenario, "West African container traffic could reach 7.5 million teu in 2020 and 11.2 million teu by 2025." There is potential for achieving 11.2 million teu in 2020 and 18.6 million teu in 2025, but this is in the optimistic scenario."

Probably based on such predictions, port operators in West Africa have intensified efforts to create additional container-handling capacity, including deepening of existing ports and construction of new ones to accommodate larger ships.

### Countering challenges

For example, Meridian Port Services in Ghana, a joint venture between Ghana Ports and Harbours Authority (30%), APM Terminals (35%), and Bolloré Transport and Logistics (35%), announced the successful completion of Phase 1 works of the Tema Port Expansion Project or Terminal 3 in early May 2020.

The phase entailed building a 1,000m long wharf with three berths and a 98ha terminal facility on land reclaimed from the sea.

In June 2019, Chinese contractor China Harbour Engineering Company, had been awarded a contract for the USD1.5 billion Phase 2 Tema expansion project that involved dredging a 19m deep port access channel, a new 1.4km long quay for four container berths, with a 16 m draught, and a 4km long breakwater, creating adequate capacity for the port to handle the world's largest container ships.

At the Apapa port in Nigeria, APM Terminals has announced a new USD80 million investment in modernisation that includes the acquisition of two new state-of-the-art mobile harbour cranes, bringing the company's investment at the port since 2006 to nearly USD440 million.

More container handling capacity creation projects have been completed or are under way in other West African ports, such as Dakar, Abidjan, Lomé, and Cotonou, in anticipation of sustainable container trade in the medium and long term.

At the Abidjan port in Côte d'Ivoire, dredging works are ongoing for the creation of a cereal berth with the support of Japan through its Ministry of Affairs affiliate, official development assistance (ODA), which has provided more than USD100 million for the project.

ODA said the initiative would enable Abidjan to "meet growing demand for rice and other cereals in Côte d'Ivoire and other Sahel-landlocked countries such as Burkina Faso and Mali".

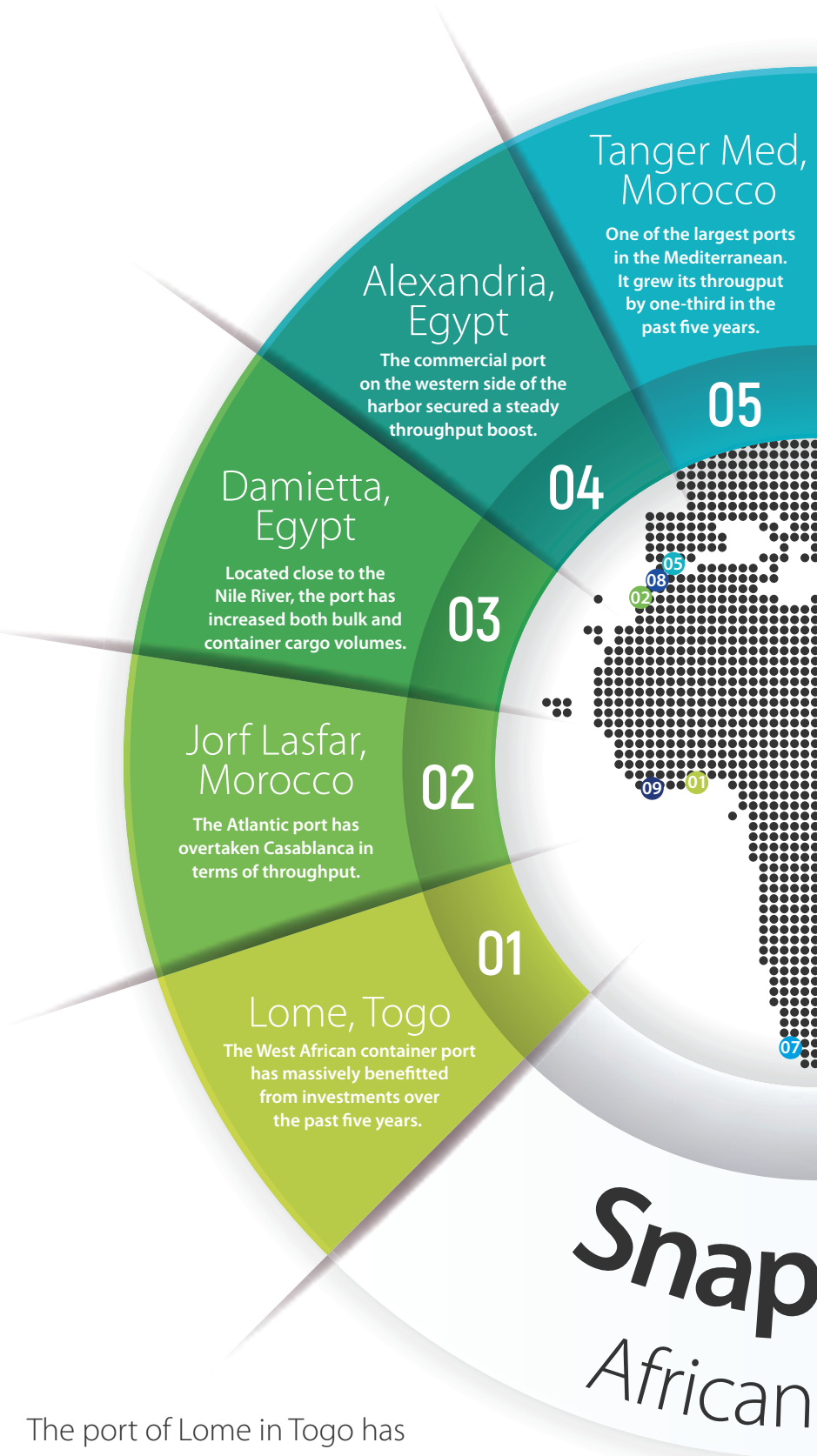
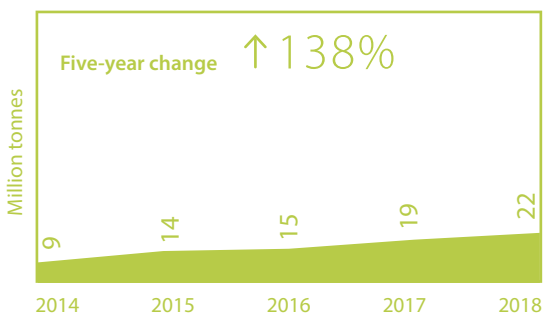
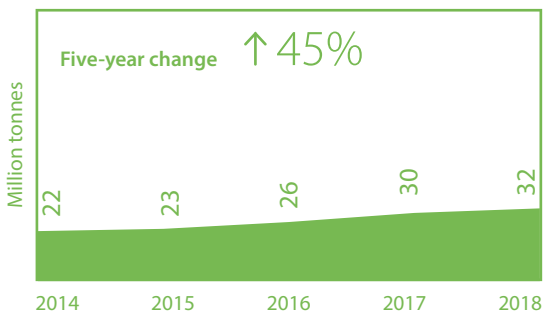
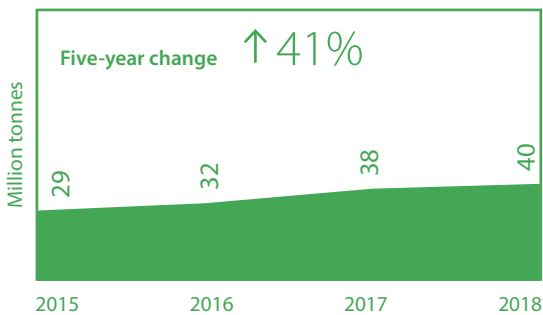
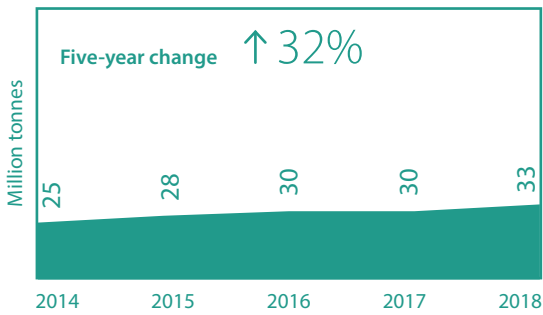
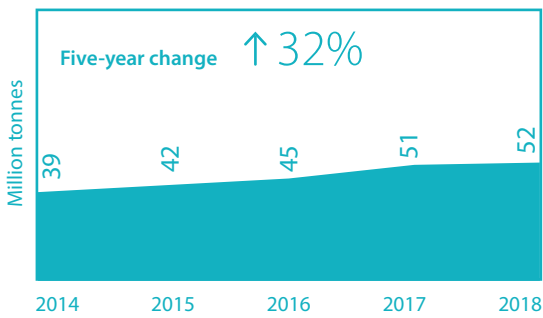
Ramping up container handling capacity has also included deployment of modern and bigger equipment to load and unload containers, making the process faster and more efficient.

Conakry Terminal, which is operated by Bolloré Ports, is the latest port in West Africa to increase crane capacity after four new rubber-tyred gantry cranes were delivered in early April 2020. With a lifting capacity of 40 tonnes each, the ultra-modern gantries will improve container storage capacity at the terminal.

"The new equipment will make our stevedoring operations even more seamless and improve service quality for our shipping company and consignee customers," said Traoré Tahirou Barry, CEO of Conakry Terminal in a statement.

Despite the growth potential for container trade in West Africa, countries in the region are still facing the challenge of security, especially in Mali, Niger, and northern Nigeria, and macroeconomic policy shortcomings that could jeopardise additional investment in the region's maritime sector.

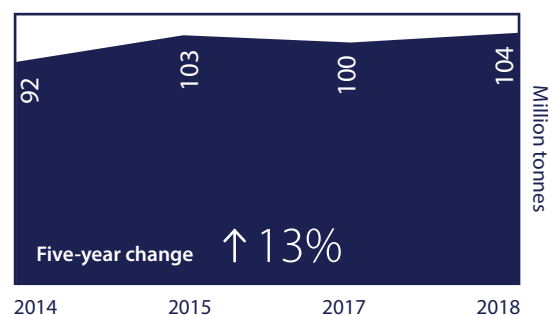
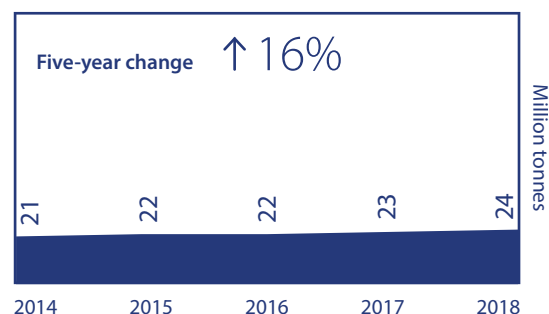
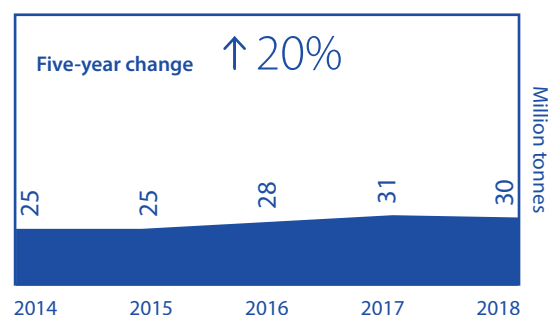
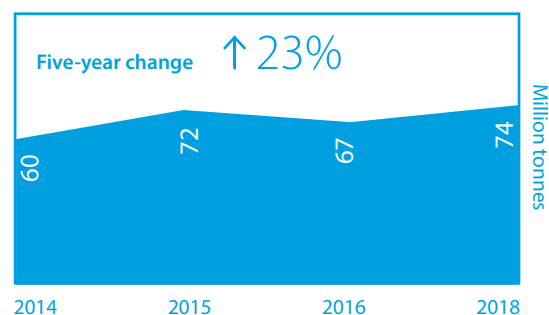
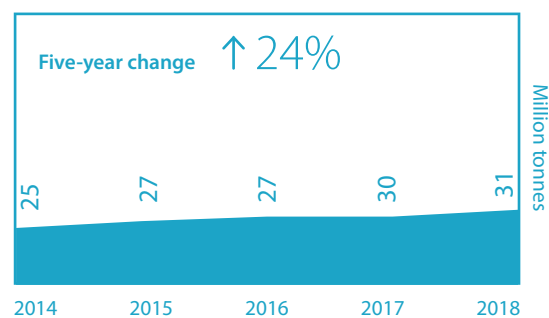
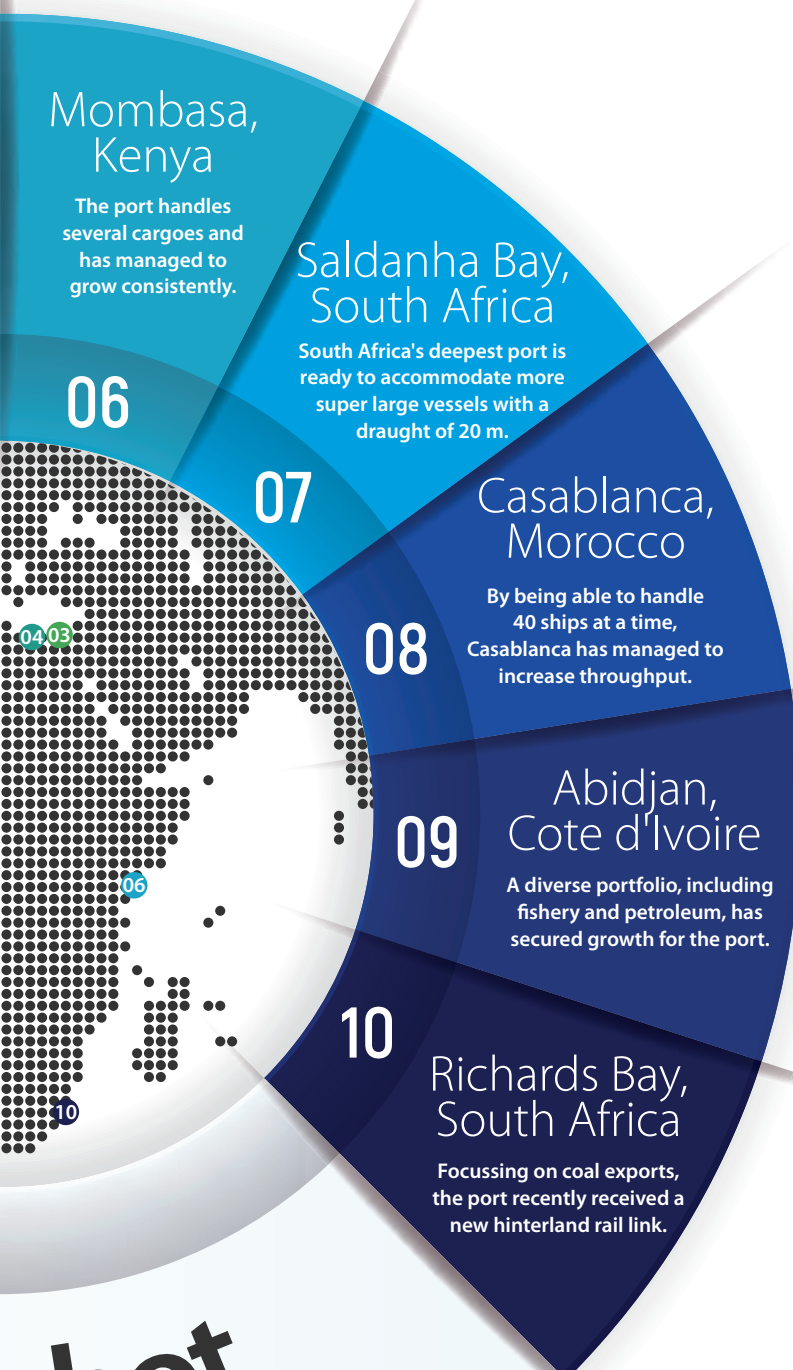
However, as the World Bank aptly put it, "Meeting the challenge of future demand of container trade would not only require expanding terminal capacity in existing ports, but also building new ports, thus justifying the pipeline of port projects already announced by port authorities and terminal operating companies." **PH**



The port of Lome in Togo has increased its throughput significantly over the past five years and is catching up with other African ports.



# shot ports



Note: all volumes displayed in metric tonnes  
Source: IHS Markit – Ports and Terminals © 2020 IHS Markit/Shutterstock: 5100812



Moderator Ines Nastali and speakers Guy Platten, Ley Hoon Quah, and Kitack Lim during a COVID-19 webinar

## IAPH-IHS Markit COVID-19 webinars off to a flying start

The first in the series of the IAPH-IHS Markit COVID-19 webinars was broadcast on 13 May 2020. IHS Markit vice-president Maritime and Trade, Peter Tirschwell moderated the discussion while Gene Seroka, executive director of the Port of Los Angeles; Theo Notteboom, Shanghai Maritime University; and Jan Hoffmann, chief of the Logistics Branch of the UN Conference Trade and Development, discussed how ports could survive and thrive in the post-COVID-19 landscape.

Rather than casting a negative perspective on the current crisis, speakers highlighted the

opportunities for ports to embrace digitalisation and decarbonisation in the new normal. Nearly 1,200 delegates registered for this first webinar in a series produced by the team behind the World Ports Conference.

The second webinar was held on 10 June. The webinar focused on how ship-shore co-operation can be improved in the post-COVID-19 era. *Ports & Harbors* editor Ines Nastali guided the discussion during which panelists Kitack Lim, secretary general of the International Maritime Organization (IMO); Guy Platten, secretary general of the

International Chamber of Shipping; and Ley Hoon Quah, CEO of the Maritime and Port Authority of Singapore, agreed that the level of sector co-operation during the pandemic, be it at local, national, or international level, had been unprecedented.

Joint actions to facilitate crew changes, improve safety in the ship-shore interface, and initiatives to accelerate digitalisation demonstrate how various sides of the industry have come together in a very short period to drive a common agenda. "We have shown the best side of our industry during COVID-19 and we

need to capitalise on this moving forward," said Platten, summarising the spirit of co-operation that presently prevails.

However, the panelists also agreed that the maritime industry needs to capitalise this momentum. "COVID-19 has shown there are gaps in connectivity, for example only 49 of 174 IMO members have functioning port community systems, which means there are a lot of ports out there relying on direct personal contact and paper exchange between people," explained Nastali. "This undoubtedly increases the number of people working in port, which in times of pandemic creates a potentially dangerous situation to health and may result in ports not being able to forward cargo."

Following on from this, the final summer webinar discussed if COVID-19 really is a catalyst to overcome obstacles to true data sharing between port stakeholders. Eric Johnson, technology editor at the *Journal of Commerce*, talked to Noura Al Dhaheri, the CEO of MAQTA Gateway/Abu Dhabi Ports; Jens Meier, CEO Hamburg Port Authority; and Geert De Wilde, the CEO of NxtPort.

Subsequent series are planned for autumn this year and spring 2021, leading right up to the 2021 World Ports Conference, which will be held in Antwerp, 23–25 June next year.

Participation is free of charge and webinars can be viewed via the World Ports Conference website via the link below.

**i INFO AND REGISTRATION:**  
<https://www.worldportsconference.com/coronaviruswebinars>



### We value your opinion

Do you have strong views about any of the articles in *Ports & Harbors*?

Are there other industry issues you feel strongly about?

**Email your views to [ph@iaphworldports.org](mailto:ph@iaphworldports.org) and we will be happy to include them**



## IAPH in your language

Since 1 January 2020, the IAPH website can be accessed in many languages. Just click the tab 'Translate' on the top right of your screen and a selection of languages will be provided. If you have any questions, please contact IAPH secretariat at [info@iaphworldports.org](mailto:info@iaphworldports.org).

## Flor Pitty takes charge of the IAPH Women's Forum

The IAPH board confirmed the appointment of Flor Pitty, general director of the Ports and Maritime Ancillary Industries at Panama Maritime Authority, as the new chair of the IAPH Women's Forum.

She succeeds Jeanine Drummond, who left the position in 2019. The Women's Forum runs a scholarship and mentoring programme. The latter was established under the leadership of Drummond. We welcome Flor on board and wish her success.



Flor Pitty




Panama Maritime Authority: 5156779

## Membership notes






We are pleased to welcome new members to the association:

### Associate members

#### Hudson Cyber

 Address: 1800 Chapel Avenue West, Suite 360, Cherry Hill, New Jersey 08002, United States  
 Telephone: +1 856 342 7500  
 Fax: +1 856 966 5157  
 Email: [max.bobys@hudsoncyber.com](mailto:max.bobys@hudsoncyber.com)  
 Website: <https://www.ha-cyber.com>  
 Representative: Max Bobys, vice-president

#### The Maritime & Port Security ISAO (MPS-ISAO)

 Address: IACI-CERT, Center for Space Education, Kennedy Space Center, Florida 32899, United States  
 Telephone: +1 904 476 7858  
 Email: [dkobza@certifiedisao.org](mailto:dkobza@certifiedisao.org)  
 Website: <http://mpsisao.org>  
 Representative: Deborah Kobza, chief executive officer

2020


2021

2022

## Dates for your diary

The first three IHS Markit-IAPH webinars can be viewed on demand via the World Ports Conference website via this link:



 [www.worldportsconference.com/coronaviruswebinars](http://www.worldportsconference.com/coronaviruswebinars)

### July

**29 June:** IPER seminar: Séminaire Port Leadership  
**-3 July** Le Havre, France  
[www.iper.fr](http://www.iper.fr)

**06-16:** Strategic Port Logistics & Global Supply Chain Management  
 London, United Kingdom  
<https://tppinternational.co.uk/>

**06-16:** (moved to 20-22 October 2020)  
 Trans Middle East 2020  
 Beirut, Lebanon  
<http://www.transportevents.com/ForthcomingEventsdetails.aspx?EventID=EVE165>

**20-30:** Managing Strategic Marketing & Competition in Ports & Maritime Trade  
 London, United Kingdom  
<https://tppinternational.co.uk/>

### December

**1-2:** Dredging for Sustainable Infrastructure

The Central European Dredging Association and International Association of Dredging Contractors have launched the Dredging for Sustainable Infrastructure course, which will take place at The Hague, Netherlands.

The course is based on the associations' guidebook with the same title. Participants involved in dredging-related activities will learn how to achieve dredging projects that fulfil primary functional requirements while adding value to the natural and socio-economic systems.

Experienced lecturers will inform about the latest approaches, explain methodologies and techniques, as well as demonstrate how to implement this information in practice with challenging workshops and case studies. All participants will receive a copy of the book, with an assignment to work on before the course starts.

More information about the programme, registration, and logistics can be found at <https://dfsi-course-0620-nl.iadc-events.com/>

**This information is correct as of 12 June 2020. Changes may take place due to COVID-19. Check websites for details.**

# IAPH announces winners and runners-up of World Ports Sustainability Awards

Making up for the – due to COVID-19 – cancelled award's show, IAPH shines a light on the winning projects in an online-ceremony. To watch the video, go to [bit.ly/WPSPawards](https://bit.ly/WPSPawards)



## RESILIENT INFRASTRUCTURE



Venice Port: 5151702

## CLIMATE AND ENERGY



Port of Valencia: 5151700

## COMMUNITY OUTREACH & PORT CITY DIALOGUE



Tuas Port: 5151703

### Collaborative project – Green and connected ports

The Green and Connected Ports (GREEN C Ports) project pilots the use of sensors, big data, and artificial intelligence to reduce the impact of port operations on their cities, monitor emissions from ports and vessels, and optimise performance of port operations in the EU TEN-T Core Network.

GREEN C Ports is co-ordinated by the Valenciaport Foundation with 10 other partners. It involves six specific case studies, among which are aiming to decrease port traffic congestion and reduce carbon dioxide (CO<sub>2</sub>) emissions by 10% from trucks in the Port of Valencia; optimise vessel calls at the Port of Venice before and after port closure owing to bad meteorological conditions; predict air as well as noise quality levels at Valencia and Piraeus ports, and generate notifications to government institutions when certain emission levels are exceeded; and inform shippers about actual emissions generated by their shipments in door-to-door transport chains between the Iberian peninsula and the Balearic Islands.

GREEN C Ports also aims to develop a port environmental performance IT platform that will receive real-time data from the sensor networks and from existing operating systems in each port.

### Collaborative projects – The LOOP-Ports

The LOOP-Ports project analyses a circular economy (CE) approach for EU ports. This is where products, materials, and resources are maintained in the economy for as long as possible, and waste is minimised. This is the first project analysing the CE approach for ports in the European Union.

Forty-four stakeholders from 14 EU countries engaged in the project: 32 port authorities, one environmental organisation, three industry associations, four public authorities, and the Baltic Ports Organisation, European Sea Ports Organisation, Medports, and Danske Havn port associations.

Key success cases and an in-depth analysis of the main barriers and enablers have been identified, with more than 450 ports analysed and 200 CE activities pinpointed. Ad hoc training materials are developed with more than 25 workshops on CE with key stakeholders.

The aim is to replicate seven business models and develop a tailored web tool showing project results that are already live, listing concrete initiatives.

Co-winning an unprecedented second award, the Valenciaport Foundation is co-ordinating the LOOP-Ports – Circular Economy Network of Ports project.

### Focus area 1 Port development and “license to operate”

#### Maritime and Port Authority of Singapore – Singapore's next-generation Tuas port

Sustainability is integral to the construction of Singapore's Tuas Port project. To adapt to rising sea levels, this new mega-port will have an operational platform of 5 m above mean sea level. More than 50% of the total fill materials for Phases 1 and 2 were dredged material and excavated earth from construction projects.

Tuas Port aims to become the world's single-largest container port. It will provide one consolidated location for all container activities within Singapore, which is aimed at reducing inter-terminal haulage operations and greenhouse gas (GHG) emissions. Port operations will be aided by digital, automated, and electrified equipment to enable just-in-time operations.

In order to protect marine habitats, environmental impact assessments were done. Also, strict environmental quality objectives were applied during the reclamation and construction works. Prior to these works, corals that could be affected from the construction of the Tuas mega-port were relocated to St John's and Sisters' Islands. These corals stood an 80% survival rate after relocation.





## SAFETY AND SECURITY



Port of Açú: 5151699

## GOVERNANCE AND ETHICS



Dutch Seaports: 5151704

## Focus area 2 Addressing the externalities of port operations

### Port of Vigo – Sunset Dock project

The Sunset Dock project forms an integral part of the Port of Vigo's Blue Growth strategy.

Sunset Dock was created to develop innovative practices to achieve sustainability goals by recovering the good state of marine ecosystems in the port area, promoting awareness of ecosystem conservation in the port area, and reducing carbon emissions through CO<sub>2</sub>-capture techniques. The port aims to reduce its GHG emissions close to 30% by 2022.

Located on the Ria de Vigo bay on the northwest coast of Spain, Port of Vigo is a natural port sheltered from the ocean, and is surrounded by the Illas Atlánticas National Park and other natural protected areas. This location is an important zone for artisanal fishing and aquaculture.

A study is under way to create a marine natural ecosystem in the port's waters to protect and increase the biodiversity around the port. The design and installation of structures for colonisation by fauna and flora species is ongoing.

The Blue Growth strategy also complements the green objectives set out in the Sunset Dock plan. Marine litter along the Galician Coastline has been collected to improve the state of port and marine ecosystems. To date, the Port of Vigo has removed 123 tonnes of marine litter, with the help of local fishermen's organisations around the area.

Sunset Dock is aimed at local companies, research institutions, and technological centres to share knowledge and technology. Its monitoring and dissemination plan aimed to offer a live experience to the local community, where they can follow the process of marine habitats' colonisation and restoration.

### Port of Açú – Emergency Preparedness Project

This project was implemented in response to a 2019 oil spill off the coast of Brazil, which was an unprecedented incident of catastrophic proportions. It highlights the important role ports can play in emergency-response actions. The Port of Açú is strategically located, with its terminals providing specialised offshore support to oil companies. The port set-up a multifaceted taskforce, which carried out drills, community engagement, wildlife monitoring, and drone flights as part of the project.

In 2019, an oil spill spread more than 2,000 km off the Brazilian coast. More than 5,000 tonnes of oil waste was collected from shores in 11 states, a volume 20 times larger than the sum of all oil incidents reported since 2012. The origin of the spill remains unknown.

The incident shed light on the challenges related to the ability to respond to major oil incidents. As connecting nodes between land and sea, ports are key stakeholders for collaborating on emergency-response actions. They concentrate on significant emergency resources, act as support base for sea operations, and are ideally placed to gather those involved in an emergency response.

Table-top and fully operational drills with booms, clean-ups and containment simulations; wildlife monitoring; and drone supervision flights have all been tested and implemented as part of the Port of Açú Emergency Preparedness Project.

The port administration as well as the Brazilian Navy, together with companies and terminals operating at Port of Açú, conducted lectures and campaigns with local community representatives as well as fishermen. They advised them on monitoring and reinforced safety and clean-up procedures. The Port of Açú developed integrated actions and set safety standards that can actively respond to emergency spills.

### Dutch seaports – Applying the OECD guidance for responsible business conduct

Based on the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises for and by seaports, Dutch seaports carried out research into their corporate social responsibility (CSR) assessment of their current and prospective cargo flows.

This exercise resulted in a comprehensive list of cargo flows and, consequently, a step-by-step approach was developed to assist individual ports draft a plan at their own pace. Elements requiring inter-port collaboration were highlighted.

Dutch seaports are ranked among the world's key logistics hubs for the storage and transshipment of international cargo flows, including liquid bulk such as gasoline, minerals, and agri-products such as cocoa. They also serve comparatively new cargo flows arising from the emergence of bio-based CEs.

However, the production of these flows can cause environmental damage, poor working conditions, and even human rights violations. Protection of people, enforcement, and supervision of regulations can be flawed.

Dutch seaports decided to join forces to investigate their own roles and responsibilities as well as identify potential actions to reduce the CSR risks associated with international cargo flows. This joint initiative has since been incorporated into the Maritime Strategy and Seaports Programme (2018–25) of the Dutch government.

Two pilot studies were made to investigate the role, influence, and possibilities of seaports to promote responsible palm oil and e-waste chains from an OECD perspective. The project has enhanced the Dutch seaports' mutual reliance and cohesion. It has also created a level playing field and knowledge transfer between them. This project shows how the port sector can positively impact multiple supply chains.

Port of Vigo: 5151701

## RESILIENT INFRASTRUCTURE



Port of Brisbane: 5151726

### Port of Brisbane – NCOS Online

Since 2017, the Port of Brisbane (PBPL) has partnered with technology companies to develop NCOS Online, a platform that provides a near-real-time seven-day detailed forecast of environmental conditions and vessel's under keel clearance. NCOS Online has played a pivotal role in increasing the Port of Brisbane's navigational channel capacity and reducing its environmental impact.

The platform has also boosted capacity at the port, with an increased vessel length by 13.6% to 350 m and vessel beam by 11.1% to 50 m, which enabled it to accommodate larger vessels. This in turn led to reduced transit times and improved shipping efficiency for customers, and the subsequent reduction in vessel emissions.

Leveraging NCOS Online, PBPL (with Seaport OPX) is developing and trialling additional capability modules, aimed at further reducing environmental impacts and improving shipping efficiency. The modules will be used to inform and improve operational decisions as well as project planning – this is distinct from historical approaches where modelling is typically undertaken during the planning phase of a project.

The climate change module, for example, already delivered a tool that allowed PBPL to determine the risk of various climate change parameters such as sea and flood levels and their severity, or storm surge impacts on physical port infrastructure. The sustainable sediment module, which is under development, allows PBPL to better understand the sediment dynamics throughout the port's critical maritime infrastructure. The vessel emission reduction module, also under development, will provide a recommended speed to the vessel master that ensures the vessel arrives on time while minimising emissions – specific to the vessel class and actual weather conditions.



Port of Rotterdam: 5151717

### PortXchange – Pronto

As part of its vision to be the world's smartest port and its commitment to reduce GHG emissions, the Port of Rotterdam has established a start-up called PortXchange for the global roll-out of Pronto: a platform for optimising port calls to reduce CO<sub>2</sub> emissions globally in shipping. Through Pronto, vessels can sail just in time to ports that reduces CO<sub>2</sub> emissions as well as anchor time resulting in lower NO<sub>x</sub> emissions.

In August 2019, PortXchange was launched as an independent organisation. Pronto is currently being tested in Rotterdam, Felixstowe, Algeciras, and Houston and will be expanding to more ports in 2020. Maersk and Shell, Pronto's launching customers, are testing its potential to reduce emissions in shipping globally.

Pronto provides shipping companies, agents, terminals, and other service providers with a shared platform that they can use to exchange information about their port calls based on a global standard. As soon as the estimated time of arrival is known, the vessel is assigned its own timeline in Pronto, where all events during the port call are shown. The progress and status of the events are continuously updated on the dashboard. Users can monitor events and make adjustments where necessary. They can also opt to receive notifications and warnings if there are status changes, delays, or planning conflicts in real time.

Pronto's interface allows the calculation of emissions and saving potential at port call level during and after arrival at the port.

Pronto encourages ports and shipping companies to collaborate to achieve just-in-time sailing and to significantly reduce CO<sub>2</sub> and NO<sub>x</sub> emissions. Inherent to the success of Pronto is the collaboration of all parties within the port such as agents, shipping lines, terminals, and nautical service providers.

## CLIMATE AND ENERGY



Port of Marseille: 5151722

### Port of Marseille – Jupiter 1000

The Jupiter 1000 power-to-gas project is the transformation of electrical current into gas through electrolysis of water. Such a process can serve as storage for excess renewable energy.

This project is the first industrial demonstrator of power-to-gas with a power rating of 1 megawatt electrical (MWe) for electrolysis and a methanation process with carbon capture. Worth EUR30 million (USD32.83 million), the demonstrator will be implemented on a selected industrial site at Marseille-Fos Port in France.

Green hydrogen will be produced using two electrolyzers involving different technologies, from 100% renewable energy. The produced hydrogen will then feed the gas network. In parallel, the hydrogen will be reacting with CO<sub>2</sub> captured from a nearby industrial site to produce methane through an innovative methanation technology. The methane can then be injected into the gas network, closing a CE loop as CO<sub>2</sub> will be used to produce energy.

Various French companies are collaborating with the Port of Marseille in the Jupiter 1000 project: Atmosat, CEA, GRTgaz, Leroux and Lotz Technologies, McPhy Energy, and TIGF. GRTgaz and TIGF will be in charge of the injection in the gas networks.

After evaluating the performance of the demonstrator project, all partners will work on future technical and economic standards for deploying full-sized installations of this type. The idea is to implement the concept throughout France in the long term.

More than 15 terawatt-hour (TWh) of gas could be produced each year using the power-to-gas system by 2050. There is a high international interest in Jupiter 1000, with more than 1,000 visitors and 20 delegations from all over the world having visited the site to date.





## COMMUNITY OUTREACH & PORT CITY DIALOGUE



Port of Helsinki: 5151723



Port of Huelva: 5151724



Port of Montreal: 5151720

### Port of Helsinki – Carbon Neutral Port 2035

Aside from the port pledging to be fully carbon neutral by 2035, a strong focus of the Port of Helsinki's programme is to incentivise and help customers and stakeholders in their own carbon neutrality and equip nine berths with onshore power, offering auto-mooring, low-emission incentive programmes, build solar plants, convert electrified heavy machinery, as well as help to reduce city congestion.

In 2018, the Finnish port identified four sources of CO<sub>2</sub> emissions around its harbour: vessels, heavy machinery, traffic, and its own port operations.

The Finnish port plans to support shipowners' transition to biofuels in the future, for example by carrying part of the price difference for fuels used in the harbour.

At the same time, it plans to introduce an incentive scheme to persuade companies to use low-emission vehicles when driving around its harbour area.

By committing to this action plan, the Port of Helsinki will cut harbour area CO<sub>2</sub> emissions above 30%, while its own emissions constitute 5% of total area emissions.

In addition, the port will build solar plants on top of the buildings under port ownership. It is looking into facilitating other harbour users' transition, for example by joint investments into panel infrastructure.

It also aims to reduce its energy consumption by switching to LED lighting, streamlining heat recycling and recovery programmes, improving the premises' resource efficiency, as well as increasing the retention of solar power.

The Port of Helsinki also works with the city of Helsinki on emission reduction.

Most of the planned measures are envisioned to be in place within the next five years, the port stated.

### Focus area 1 Port development and "license to operate"

#### Port of Huelva – Ecological recovery project

The Port of Huelva is located in an estuary of high ecological value and, at the same time, in one of the most important industrial areas in Spain. The singular challenge for the port is therefore to balance economic with social interests, and with the conservation of more than 245,000 ha (2,450 km<sup>2</sup>) of protected areas.

These protected areas cover land and marine areas, all preserved by the European Nature2000 Network, or Biosphere Reserve MaB, RAMSAR wetlands, and some are Spanish natural sites.

The commitment of the port, at the highest level, is reflected in its environmental strategy that sets ambitious policy objectives. In co-operation with its port community, Port of Huelva aims towards leadership in the fields of energy, conservation, water, and air quality management.

The ecological recovery project is a concrete, successful example in that respect. It addressed the environmental recovery of the degraded left bank of the Odiel estuary and the conservation of habitats and their environmental values.

The environmental work was complemented with the construction of a boulevard along 1 km of the Odiel estuary and a 4 km pedestrian path. This has provided citizens with a recreational area of high environmental and social values. The project took up more than 10 years and a total investment of EUR27 million.

In addition, native species such as 'Spartina maritima' were recovered, a carbon sink that captures more than 300 tonnes of carbon annually were created, and marshes eroded by sea level changes were stabilised.

### Port of Montreal – Grand Quay development project

The Grand Quay of the Port of Montreal is a new urban space developed by the Montreal Port Authority (MPA). Located between the river and the city in the heart of Old Montreal, it features a contemporary cruise terminal, new green spaces open to the public, and the Port Centre. It stood out for its positive benefits in terms of sustainable development, its landscape planning, its electric shore power technology for cruise vessels, and its approach to connecting with the community.

The Grand Quay reinvented port spaces and port-city relations. It responded to a wish made by Montreal residents to provide better access to the river. It revitalised a century-old site into a modern cruise terminal; its architectural design ensures a quality welcome for cruise ships and their guests. It reduced the port's environmental footprints by installing shore power supply system, the first green initiative of its kind in Quebec; by creating green spaces, including a green roof that is original in design; and by reorganising the area to encourage active transportation. The Port Centre gallery opened a cultural window on the maritime industry and enhanced the public's perception about the port.

Prior to developing the project, the MPA held numerous meetings with key partners from the economic and tourism sectors, political and social stakeholders, and stakeholders committed to Montreal's development. It also held open houses to present the project to residents, gathering their input and answering their questions.

The Grand Quay project showed the port's desire to get closer to the community, offering the public better access to the river and better integration with its surrounding environment. It reduced the port's environmental footprint and meets the operational needs of cruise lines and their guests.

## COMMUNITY OUTREACH & PORT CITY DIALOGUE

## SAFETY AND SECURITY



Northwest Seaport Alliance: 5151718



Yeosu Gwangyang Port: 5151728



Port of Amsterdam: 5151727

### Focus area 2 Addressing the externalities of port operations

#### The Northwest Seaport Alliance – Clean Truck Program

Under the Northwest Ports Clean Air Strategy, the ports of Seattle, Tacoma, Vancouver, and British Columbia together with the Northwest Seaport Alliance (NWSA) collectively set a goal of having trucks manufactured in 2014 or later model years to serve their respective container terminals.

This amendment of the Clean Truck Program was originally set to go into effect in 2018, but only 53% of NWSA trucks were compliant as the deadline approached. To provide additional time and resources to purchase a compliant truck, the deadline was extended through the end of the year.

The NWSA implemented a large-scale effort to improve outreach and education on trucking issues in the gateway, working closely with their stakeholders. Communication was conducted through various channels: online, physically through banners and flyers at terminal gates, and through evening and weekend workshops.

The NWSA partnered with the African Chamber of Commerce to host workshops on a range of topics such as diesel particulate filter maintenance, safety and financing, providing translation and support.

Port staff sought cost-effective ways for drivers to update their trucks and presented findings at the Trucker's Outreach Forum.

The programme also provided support to the Puget Sound Clean Air Agency's online DPF maintenance training videos.

The NWSA programme has decreased diesel particulate matter (DPM) emissions from trucks, reducing the pollutant load on neighbouring communities by 33.4 tonnes of DPM per year.

#### Yeosu Gwangyang Port – Community Outreach Programme

Yeosu Gwangyang Port is South Korea's essential industrial backbone and the Yeosu Gwangyang Port Authority (YGPA) is managing and developing a total area of 110 km<sup>2</sup> and 103 berths. Aiming to strike a balance between economic and social objectives, the YGPA Port Community Outreach Programme was implemented to bring the port and local communities closer.

YGPA staff members contribute a total of 22 hours annually each to community outreach activities; so far, 3,000 hours have been dedicated to these activities.

The programme was developed around four pillars:

- **Yeosu Project and Academy:** The Yeosu Project provides education and training on ocean affairs to developing countries to cope with maritime challenges. The Yeosu Academy offers a two-week programme on ocean affairs for graduate students from developing countries.
- **Running Community Outreach Programme:** Every year, YGPA implements a series of community outreach initiatives such as the Ocean Natural purification volunteer service, the senior lunch box delivery service, the house repair-volunteer service, and a talent donation to children in the local area.
- **Sunflower Garden Project:** YGPA restructured the space around its Gwangyang Distripark area to attract recreational activities and to support the local economy. As part of this effort, YGPA planted sunflowers, which covered 53,000 m<sup>2</sup> of the area. The number of tourists visiting the area increased up to 13.5% thereafter.
- **Port-City Dialogue Programme:** YGPA brought together local authorities and the local chamber of commerce to agree on common policies and joint initiatives addressing the sustainability of the port.

#### Port of Amsterdam – MOBI platform

In 2017, the Port of Amsterdam launched its Methodology for Impartial Security Assessments (MISA) risk assessment application for port terminals. Over time, the MISA application evolved into MOBI, the Dutch abbreviation for the port security platform, and has been in use since 2019 by all Dutch main seaports: Groningen Seaports, North Sea Port, Port of Den Helder, Port of Moerdijk, Port of Rotterdam, and Port of Amsterdam.

Administrative port security activities can often be time-consuming and require proper communication between the port terminal and the authority. The MOBI platform and its smart web-based software application facilitates a public-private co-operation between port terminals and designated authorities for port security activities, thus making these processes effective and efficient.

Port facility security officers, port security auditors, and port security supervisors work together in one transparent digital environment, carrying out real-time tasks and sending each other notifications, messages, documents, and images through MOBI.

This ensured that information is always up to date and that the status of the processes was transparent to its users.

MOBI supports International Ship and Port Facility Security (ISPS) certification and reapplications for ISPS certificates. It could also be used to report ISPS drills and exercises, as well as to notify ISPS security incidents to port facility security officers. The application is tested regularly to ensure its security protocols are intact.

MOBI handles certifications, notifications, and management of changes and compliance. The development of MOBI continues in 2020, with a more thorough integration of cyber security. Also, a real-time cyber-incident notification module, called MOBI-Alert, will be added.





## GOVERNANCE AND ETHICS



Port of Los Angeles: 5151719



Port of Seattle: 5151721



Port of San Diego: 5151725

### Port of Los Angeles – 2nd Generation Cyber Security Operations Centre

In 2014, the Port of Los Angeles established its state-of-the-art Cyber Security Operations Centre (CSOC), which acts as a centralised location to proactively monitor network traffic to prevent and detect cyber incidents under port control. In 2015, it attained the ISO 27001 certification, the international cyber-security standard. Continuing to advance its cyber-security programme, in 2019, the Port of Los Angeles successfully completed its 2nd Generation (G2) CSOC.

The G2 CSOC is built upon the original with upgraded technologies, new analytical tools, and leveraging its own five years of cyber-operations data to focus on highest-priority issues. Today, the G2 CSOC protects the port against more frequent, sophisticated, and damaging attacks, including 40 million unauthorised intrusion attempts per month.

The Port of Los Angeles' cyber-security programme is to extend beyond the port authority and into the port community with a Cyber Resilience Centre (CRC), a first-of-its-kind solution to reduce cyber risks of the port ecosystem. The G2 CSOC will be an important component of the CRC by sharing information with the Port of Los Angeles ecosystem for collaboration and engagement with stakeholders, which will result in greater collective knowledge and stronger community defence against cyber threats.

In addition to defensive measures, the CRC will serve as an information resource stakeholders may use to help restore operations following an attack.

The CRC will receive, analyse, and share information to and from direct stakeholders such as cargo handlers and tenants, and cross-sector providers of essential services to direct stakeholders who choose to become members of the cyber-resilience centre of the Port of Los Angeles.

### Port of Seattle – Duwamish Valley Community Benefits Commitment

In December 2019, Port of Seattle commissioners voted unanimously to adopt Resolution 3767, the Duwamish Valley Community Benefits Commitment. This adoption marked the culmination of three years of engagement and collaborative innovation between the port and the Port Community Action Team, an advisory group consisting of stakeholders from the South Park and Georgetown neighbourhoods in Duwamish Valley.

The 2013 Cumulative Health Impact Analysis, published by Just Health Action and the Duwamish River Cleanup Coalition NGOs, identified that the community living in Duwamish Valley experienced multiple environmental justice concerns. Community members bore significantly disproportionate port-related environmental impacts and lacked fair access to port-related economic benefits.

The purpose of Resolution 3767 is to guide the Port of Seattle operations that impact the Duwamish Valley by institutionalising the voices of community into port processes.

This commitment is upheld by the port's long-term investment and staffing of a programme that collaborates with Duwamish Valley stakeholders. This partnership advances three broad, shared goals to transform the port's relationship with its most-affected communities: community and port capacity building; healthy environment and communities; and economic prosperity. Measures taken by the Port of Seattle include providing training for port staff and community members, improving community engagement practices, investing in community-based climate change solutions, collaborating with industry for air quality improvements as well as increasing local recruitment for port-related jobs and allyship to support a diverse and green economy.

### Port of San Diego – Blue Economy Incubator Program

In 2016, the Port of San Diego launched the Blue Economy Incubator Program to attract innovators with novel solutions to address port environmental challenges. To date, the port has funded eight pilot projects including shellfish nursery operations, copper remediation technology, a drive-in boat-wash, a smart marina application, seaweed aquaculture, a marine debris removal vessel, a shoreline project to enhance biodiversity, and a new approach to sediment remediation in marine environments.

Regarding the port's pilot five-year shellfish nursery programme, it is collaborating with a local company to establish and maintain a year-round shellfish nursery in San Diego Bay. Also through the Blue Economy Incubator Program, the port partnered with a California-based company to design a custom-made vessel to remove marine debris around San Diego Bay. This partnership yielded positive results in 2018: more than 33,000 pounds (14,969 kg) of marine detritus were collected.

The port-led Blue Economy Incubator Program harnessed advance innovations to help drive the blue economy. Through this programme, the port has contributed USD1.4 million in funding for the eight pilot projects; provided use of port-owned property, provided assistance with obtaining all necessary regulatory and operational permits; co-ordinated the installation of projects; and provided assistance with community and media relations.

Traditionally, ports fund innovative projects through service agreements or grants. However, the port's Blue Economy Incubator Program provided a new and innovative procurement pathway to attract and efficiently deploy innovative ideas and projects to address port-related environmental challenges and opportunities. **PH**

# UN entities urge to keep ships moving, ports open, and cross-border trade flowing

The world's reliance on maritime transport makes it more important than ever to keep ships moving, ports open, cross-border trade flowing, and ship crew change-overs supported, the United Nations maritime and trade entities said in a joint statement.

The International Maritime Organization (IMO) and the United Nations Conference on Trade and Development (UNCTAD) reiterated calls for governments to promote crew wellbeing by allowing crew changes and ensuring seafarers and other maritime personnel have access to documentation and travel options so that they can return home safely.

It is estimated that from mid-June 2020, as many as 300,000 seafarers will require international flights every month to enable ships' crew changeover – about half will travel home by aircraft for repatriation, while the other half will join ships, and 70,000 cruise ship staff are waiting for their repatriation.

This process is currently hampered by travel restrictions imposed because of the COVID-19 pandemic. However, to comply with international safety and employment regulations, and also for humanitarian reasons, crew changes cannot be postponed indefinitely. The Maritime Labour Convention clearly states that "maximum



Maritime workers are essential during COVID-19, IMO and UNCTAD argue

duration of service periods on board following which a seafarer is entitled to repatriation is to be less than 12 months".

Access to medical care for sick or injured crew and medical prescriptions must also be provided.

IMO and UNCTAD also reaffirmed the urgent need for essential worker designation for seafarers, marine personnel, fishing vessel personnel, offshore energy sector personnel, and service personnel at ports. Governments and relevant national and local authorities

must recognise that these workers provide essential services, regardless of their nationality, and should exempt them from travel restrictions when in their jurisdiction. "Such designation will ensure that the trade in essential goods, including medical supplies and food, is not hampered by the pandemic and the associated containment measures," the joint statement said.

"We emphasise that for trade to continue during these critical times, there is a need to keep ships moving, ports open, and cross-border trade

flowing, while at the same time ensuring that border agencies can safely undertake all necessary controls. International collaboration, co-ordination, and solidarity among all are going to be key to overcoming the unprecedented global challenge posed by the pandemic and its longer-term repercussions," the joint statement said.

Looking beyond the current situation, the IMO and UNCTAD urged governments to pursue collaborative efforts to identify and remove any unnecessary regulatory obstacles to post-pandemic recovery and to facilitate maritime transport and trade in these difficult times.

They encouraged pragmatic approaches, such as granting exemptions and waivers where necessary and appropriate.

Efforts should be made to facilitate electronic means for ship-shore, administrative, and commercial interactions.

Pre-arrival information and other COVID-19-related reporting requirements for ships need to be shared, and adequate equipment and resources to border control stations in ports be provided.

In the longer term, some of the COVID-19 measures may offer other benefits, for instance, encouraging further investment in digitalisation and advancing efforts to improve ships' energy efficiency and reduce greenhouse gas emissions from shipping.

## Notable numbers

300,000

seafarers will undergo crew change-over every month through flights

70,000

cruise ship staff are waiting for their repatriation



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