ports & harbors

Providing thought leadership on the role of ports in a connected world

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Inspiring change through action

Sakura Kuma of Mitsui O.S.K. Lines, which traces its roots to Osaka, talks to P&H ahead of the World Ports Conference in Kobe on leadership and key industry challenges

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ports & harbors

Providing thought leadership on the role of ports in a connected world

EDITORIAL & CONTENT

Editor: Martin Clark
editor@ports-and-harbors.com

Features Editor: Felicity Landon

Publisher
Dr. Masahiko Furuichi
IAPH Secretary General
info@iaphworldports.org
Dr. Patrick Verhoeven
IAPH Managing Director
patrick.verhoeven@iaphworldports.org

Regular Correspondents:
AJ Keyes, Mike Mundy,
Vladislav Vorotnikov

Production
David Blake, Paul Dunnington
production@mercatormedia.com

SALES & MARKETING
t +44 1329 825335 f +44 1329 550192

Marketing
marketing@mercatormedia.com

Chief Executive: Andrew Webster
awebster@mercatormedia.com

Ports & Harbors magazine is produced and edited bi-monthly by Mercator Media Limited, Spinnaker House, Waterside Gardens, Fareham, Hants PO16 8SD UK
t +44 1329 825335 f +44 1329 550192
info@mercatormedia.com
www.mercatormedia.com

Subscriptions
INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS
IAPH members enjoy a free subscription to P&H. If your organisation is not a member and you would like a paying subscription to the magazine, please contact the IAPH for more information at:
7th Floor, South Tower,
New Pier Takeshiba
1-16-1 Kaigan, Minato-ku
Tokyo 105-0022, Japan
T: +81 (0) 3-5403-2770
F: +81 (0) 3-5403-7651
E: ph@iaphworldports.org
W: www.iaphworldports.org

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MARTIN CLARK
Editor

IAPH at 70

In 2025, as we mark the 70th anniversary of IAPH — culminating with the World Ports Conference in Kobe, Japan on 7-9 October— it is an opportune time to both reflect on the state of play in the industry and also look back on how far we have come.

Much has happened since IAPH was formed in the 1950s, though the core values that brought port executives together all those years ago remain very much intact — the spirit of collaboration and the sharing of knowledge and best practice in a bid to elevate standards, safety and community.

Inside this issue, you'll find some fascinating insights into the IAPH of yesteryear, including a look back at the very first issue of Ports & Harbors magazine and a couple of iconic photographs that capture key moments in the association's history.

There's also the final article in our series marking the 70th anniversary, which highlights how IAPH, in recent years, has forged stronger ties with institutional partners, built solid platforms for knowledge sharing and delivered new tools to support sustainability.

It is perhaps fitting that our main cover interview in this issue is with Sakura Kuma, managing director of MOL Mitsui O.S.K. Lines (Asia Oceania), who's home town is Osaka, close to Kobe. She talks to IAPH managing director Patrick Verhoeven about how the company is shaping the future of maritime transport through technology, collaboration, care and passion.

These are all essential new traits in a modern era characterised by change, evolution and uncertainty, all themes that are echoed throughout this issue.

The World Bank's new Port Reform Toolkit, the third edition, which has just been published and is available freely online, is a handy reference document for all industry executives seeking to understand some the profound shifts taking place.

The toolkit is a testament to open knowledge exchange and constructive partnerships in the

port and wider maritime transport sector and charts how the industry has evolved since previous editions.

It includes three completely new modules covering environmental sustainability, digitalisation and cybersecurity, as well as the port-city interface, with a structured roadmap for greening ports and explaining why environmental leadership enhances competitiveness.

Some of these themes ripple through other articles, for example, Bud Darr, president and chief executive officer of the Cruise Lines International Association shares his thoughts on how cruise terminals must evolve to stay relevant in a net-zero future.

The age of uncertainty is how James Baker of Lloyd's List refers to this position that we, as a global community, now find ourselves in. With uncertainty the only certainty, he says, the ports sector needs to build resilience that allows it to face shocks, whether they be climatic, economic or political.

As part of our 70th anniversary celebrations we also include a strong focus on Japan in this issue, with a round up of decarbonisation and other initiatives at some of the country's major ports, such as Yokohama, Nagoya and Kobe.

There is a profile featuring Kawasaki Heavy Industries and its pioneering work at Kobe for the international transport of liquefied hydrogen in support of a large-scale global supply chain, an important step to a cleaner energy future.

You will also see the stunning Sorakuen Garden, located in the heart of Kobe itself, one of the venues selected for the World Ports Conference in October.

If you do not have your tickets yet for the event, be sure to secure your spot. #IAPH2025 offers a unique forum for the industry to come together, not only to better understand the challenges and complexities facing the port sector, but also to network, explore new ideas and learn from others.

We look forward to seeing many of you there, as the global ports community gathers in Japan to celebrate a very special anniversary. ■

Get in touch: editor@ports-and-harbors.com



JAMES BAKER
News editor

James has been working as a business journalist for more than 25 years in his native New Zealand and the UK, which he now calls home. He is currently news editor at Lloyd's List. He has previously covered container carriers, terminals, shippers and regulation, having been a specialist reporter and editor for Lloyd's List for the past two decades. ■



FELICITY LANDON
Freelance journalist

Felicity Landon is a journalist and features editor on *P&H*. A well-known figure in maritime circles, with the depth of knowledge and network of contacts to prove it, Felicity is versatile in her areas of coverage from container, dry and liquid bulk to energy and other areas. ■



CHARLES 'BUD' DARR
President & CEO, CLIA

Charles 'Bud' Darr is president and CEO of Cruise Lines International Association (CLIA), where he leads efforts to support and advance safe, sustainable and innovative cruise operations. Appointed in January 2025, he is a respected voice at the International Maritime Organisation and other organisations that represent the broader maritime industry. ■



IN CONVERSATION WITH SAKURA KUMA

Inspiring change through action

Japanese shipping executive Sakura Kuma, executive officer of MOL and managing director of MOL (Asia and Oceania) Pte. Ltd., talks to IAPH's Patrick Verhoeven about the importance of nurturing new industry talent and how the maritime world must come together amid current geopolitical headwinds

MARTIN CLARK

Q Sakura (S), can you tell us about your current work and priorities?

S: I joined MOL last year, but I've been in this industry for over 25 years. For more than half of that time, I've worked closely with ports — from multiple perspectives, including as an investor, developer and an operator. That includes time spent on secondment to the Port of Yokohama.

My current role focuses on regional strategy for Southeast Asia and Oceania. I'm based in Singapore, which is really at the heart of the shipping world. It's an incredibly dynamic region. In April, we launched a new concept to identify Singapore as a our Sub-Headquarter, enabling us to quickly and efficiently catch industry trends and new business opportunities, both shipping and non-shipping related. It is also part of our Business Continuity Plan (BCP) supporting our HQ in Tokyo.

It's a big responsibility, but also a great opportunity to collaborate with regional organisations and to try to create more synergy. Right now, it's still a bit of a concept — we're working things out as we go — but I have a very good team with me. That's really the only way to achieve something that has not been achieved before. For now, my focus is on the process, taking the right steps toward our goal. Hopefully, success will follow naturally as a result of that process.

Q: What insights can you share as a senior executive in a male-dominated industry?

S: When I first joined this industry, people would ask me: Why did you choose to work in a male-dominated field? My answer was: Which industry isn't? Tell me where is it better!

But I am also someone who wants to see change and lead by taking action. That's why I'm now helping to establish the Japan chapter of the Women's International Shipping & Trading Association (WISTA), which we'll be unveiling at the Kobe conference. WISTA dates back to 1974 and is now a global organisation and Japan will soon be added to that list. I hope WISTA Japan can act as a lighthouse, not just for women, but for everyone; I do not exclude men, only inclusiveness can lead to equality.

Q: Patrick (P), I believe this is also an area IAPH is keen to support?

P: IAPH is very committed to supporting this kind of work. We're currently exploring a global programme to engage with young people already in the industry, and to attract new talent as well. That's an area where I think we could collaborate with WISTA, which of course already has a strong voice at the IMO.

Q: How do you interact with IAPH in your work, and what is the significance of this year's conference being held in Kobe, given MOL's Osaka roots?

S: I first connected with IAPH many years ago, and got to know Patrick since his on-boarding a decade ago. I think his team has significantly increased its international impact.

IAPH offers an excellent platform for networking exchanges, helping you understand what's happening beyond your own port. From the shipping side, it gives you better insight into what ports are doing and how we might work together.

As you probably know, the 'O' from MOL stands for Osaka, it is the roots of the company since its establishment in 1884. We have operations at both ports, Kobe and Osaka. They are actually adjacent to each other. From MOL's perspective, both ports are considered where our roots reside.



Q: Patrick, I believe this ties into one of the topics at #IAPH2025, about port mergers?
P: It's a very relevant point. We'll be hosting a session at the conference called Love Thy Neighbour about collaboration between neighbouring ports. It will feature two examples — Kobe-Osaka and Antwerp-Bruges — looking at how ports that were previously strong competitors came together. Seattle and Tacoma could be another example, or Le Havre, Rouen and Paris.

It's a fascinating discussion: how far can cooperation go, and when does it make sense to merge?

Really, if you have two ports in close proximity, it could make sense to look at far-reaching forms of cooperation. But politics may hamper this. Because, especially if the ports are owned by cities — which is the case in Japan, and in Belgium, and in the United States — you have this sort of 'this is my port' attitude. In Antwerp, if somebody had said 20 years ago that the port would merge with Zeebrugge, people would've said: 'You're crazy, it's never going to happen'. But a few years ago there was momentum, and there were strong economic reasons behind it, such as the energy transition and security of supply, so finally politicians got together, agreed, and said: 'Yes it does make sense, let's do it.'

> "I would like to emphasise the importance of WISTA and its work...this will be my key message in Kobe as we launch our Japan Chapter
>
> **SAKURA KUMA,** executive officer of MOL and managing director of MOL (Asia and Oceania) Pte. Ltd.

Pictured: Sakura Kuma with Patrick Verhoeven at a recent industry conference in Singapore



S: And I can give you another example from shipping, with the ONE Ocean Network Express that was a spin-off by three Japanese companies which had been competitors for years. Nobody believed that they would come together. But nothing is forever. The landscape had to evolve. When you're enjoying the good times, nobody wants to change, you just want to remain as you are; but when economics demands, you ought to respond, change becomes necessary.

> "How far can cooperation go, and when does it make sense to merge?
>
> **PATRICK VERHOEVEN,** MD, IAPH

P: They are very similar processes. With ports, of course, most are in public ownership, so they're not private, and that sometimes makes it more complicated to go into the path of collaboration or into a merger. But we've now seen a few examples, in Belgium and in Japan, and in the US, you also have Seattle-Tacoma, but I suspect we will probably see more as time evolves.

S: I do think you reach a point where you need to look into this industry landscape differently. We have actually been calling for greater collaboration for years. Perhaps it's time for the ports to align all the political interests, like the national governments or the city governments, to drive change. A compelling economic narrative needs to be developed and communicated to decision makers and all relevant stakeholders.

For the past 30 years, world trade has been driven by globalisation, but right now the trend appears to be reversing. Trade volumes and freight rates are key indicators. When it comes to investing in ports, particularly in technological innovation and decarbonisation, it is easier to proceed with confidence that cargo volumes will continue to grow. If that's not the case, yet transformation is necessary, then this might present an opportunity for closer collaboration for adjacent ports.

Q: Would you say the current climate of uncertainty is one of the main drivers of this trend?
P: It could be one of the accelerating factors. I think the driving factors were already there before. If you look at Seattle-Tacoma, for instance, that was at least 10 years ago that they brought their cargo operations under one alliance. But you could certainly see closer collaboration on the regional level, without it being mergers necessarily, and with ports needing to bundle knowledge and resources. Especially with the whole energy transition, this will be very important, where ports need to work together to make sure there's energy security. It's a very important topic and again one that will be on the agenda in Kobe.

S: The current geopolitical turbulence has made forecasting on cargo volume increasingly challenging. While it's hard to predict, it is clear that this uncertainty won't go away in a short period of time so it's better to prepare for that. How can we do that? If we have been too aggressive on growth then this is the time to slow down, to assess the surrounding environment. Sometimes, if you don't know which move is better, then it's wise to not move at all for a while. That doesn't mean you don't do anything; you observe, you assess and you communicate. But we are also hopeful for the future. This is an industry that has been around for millennia, when vessels were made of wood, and it will be there long after we are gone. So this is the time to slow down.

P: I also see security returning as a big topic. It was more than 20 years ago since the ISPS Code was introduced, but there is a very strong comeback in that discussion with ports also looking at cybersecurity, as well as physical security. I don't think that's going to change soon given the state of the world, and also the role of ports in military logistics is something that's coming up again as well. So, yes, we are in the middle of a storm, a geopolitical storm, and we need to stay put, but we also need to make sure our own house is safe and protected, and that's likely to be a major topic going forward again.

Q: Sakura, do you have any final messages for *P&H* readers?
S: I would just like to emphasise the importance of WISTA and its work once more. It's not just because I am a woman, I feel that it's important to lift all minority interests up, so that everybody has a fair and equal chance. This will be my key message at the IAPH conference in Kobe as we launch our Japan Chapter. Also, I would like to extend an invitation to all like-minded organisations to collaborate and work with us in this important work. ■



PERSPECTIVE CYBERSECURITY TRAINING

Strengthening cybersecurity through innovation

The maritime industry's increasing digitalisation and enhanced connectivity between ship and shore-based systems has heightened concerns over cyber-attacks on shipping vessels. In response to these growing cybersecurity risks, the Maritime and Port Authority of Singapore (MPA) has taken a pioneering step by commissioning the world's first industrial-grade cyber-physical platform.

Known as the Maritime Testbed of Shipboard Operational Technology (MariOT), this system is equipped with essential shipboard operational technology systems to offer a safe and realistic testing environment for cybersecurity technologies without disrupting actual vessel operations.

Development and collaboration

The development of MariOT represents an advancement in maritime cybersecurity, achieved through collaboration between the Singapore University of Technology and Design (SUTD) and industry partners, with support from Maritime and Port Authority of Singapore and the Singapore Maritime Institute (SMI). This innovative platform is designed to foster the next generation of maritime professionals, equipping them with the skills needed to protect shipboard Operational Technology (OT) systems against increasing cyber threats towards ships.

Pictured: SUTD students demonstrate a cyber-attack scenario on MariOT's navigation system
Photo: MPA/SUTD

Technical capabilities

MariOT's industrial-grade design delivers high-fidelity simulations of key maritime systems, including navigation, propulsion and power management systems. These realistic training scenarios enable trainees to gain hands-on practice and experience in dealing with potential cyber threats, effectively bridging the gap between theoretical knowledge and real-world operational challenges.

The platform strengthens the quality and rigour of cybersecurity training while reducing the reliance on physical shipboard infrastructure, fostering a collaborative environment where engineers, IT specialists and maritime personnel can share expertise, refine best practices and accelerate the testing of cybersecurity technologies and adoption of incident response protocols.

System architecture

At its core, the MariOT testbed functions as a hybrid cyber-physical platform that incorporates the essential components of shipboard OT systems, complemented by virtual simulation models and cyber-physical interfaces. This comprehensive setup enables stress-testing of systems, development of robust cyber defence strategies and the strengthening of maritime operations' resilience against emerging cyber threats.

The platform adopts common industry communication protocols and features an open, realistic framework that provides interfaces for simulating various cyber-attacks similar to a real system, while also allowing for the deployment and validation of detection and defence mechanisms.

Research and education

As the world's first maritime cyber-physical system testbed dedicated to cybersecurity research, MariOT provides researchers and educators with a valuable avenue for both experimental work and the development of maritime cybersecurity capabilities. The system offers cybersecurity researchers a safe, representative and controlled platform to design and validate both new and existing cybersecurity technologies for deployment in shipboard OT systems.

Inaugural cyber range exercise

The platform's capabilities were showcased during the inaugural MariOT cybersecurity exercise hosted by SUTD in March this year, in partnership with MPA. This event brought together a wide range of global partners from across the maritime sector, with the goal of simulating cyber threats targeting OT systems onboard vessels and testing participants' ability to detect cyber intrusions and implement appropriate incident response protocols.

The exercise benefited from expert support provided by iTrust, SUTD's Centre for Research in Cybersecurity, the Maritime Cybersecurity Centre at the Estonian Maritime Academy, and the School of IT at Tallinn University of Technology (TalTech).

Future applications and impact

Looking ahead, MPA plans to integrate MariOT training scenarios into academic curricula for maritime-related courses through partnerships with Institutes of Higher Learning. The platform will serve as a training ground for maritime cybersecurity professionals through cyber ranging exercises and readiness assessments, benefiting Singapore maritime stakeholders including port operators, cybersecurity solution providers, ship owners and classification societies.

Over the next three years, it is anticipated that more than 300 students and professionals, including ship crew, cybersecurity professionals and port operators, will benefit from this facility.

Conclusion

MPA and its partners remain committed to expanding MariOT's capabilities to address evolving cyber threats and conduct regular training exercises. They welcome further collaborations with international partners to strengthen the facility's simulation capabilities and support the development of global cybersecurity standards, ensuring that Singapore continues to contribute to maritime cybersecurity innovation and training. ■

ABOUT THE AUTHORS



RYAN CHENG is a senior consultant with the cyber capability and engineering team at Maritime and Port Authority of Singapore.



TABITHA CHEE is a consultant with the cyber international and industry team at Maritime and Port Authority of Singapore.

A new era for port reform

The launch of the World Bank's third edition of the Port Reform Toolkit heralds a new era of port reform at a time of global transitions

JAN HOFFMANN, DOMINIK ENGLERT and RICO SALGMANN

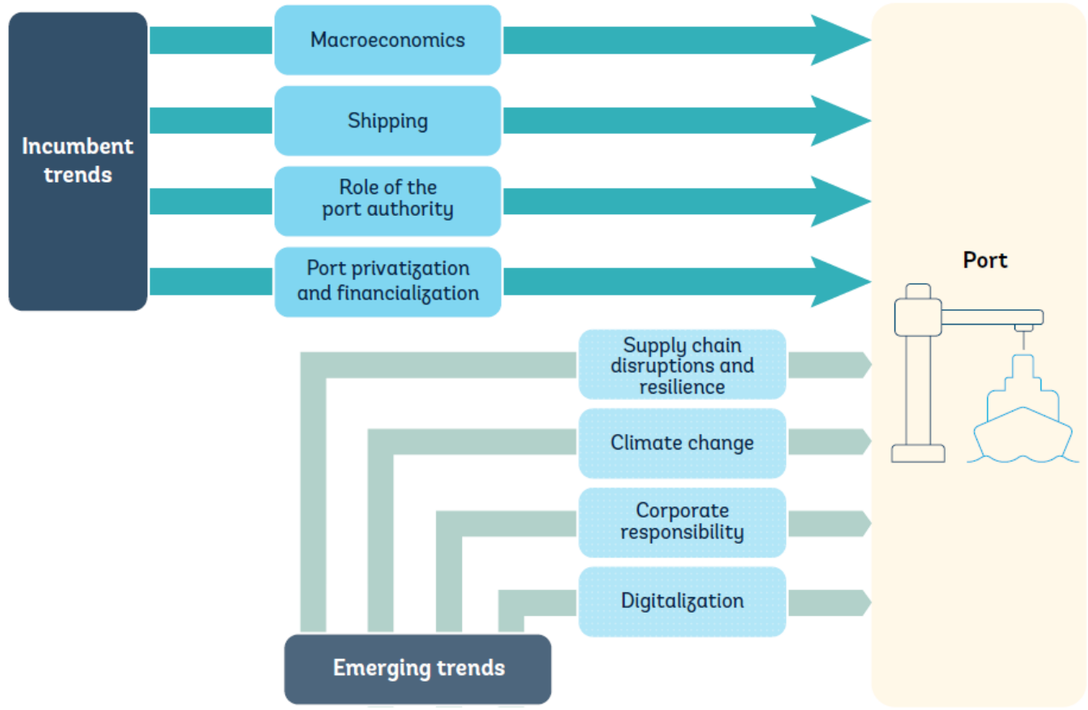


Since its first publication in 2001, the World Bank's Port Reform Toolkit has been the go-to reference for governments, port authorities, and private sector stakeholders navigating the complexities of port reform.

The original Toolkit represented a conceptual landmark. It systematised port reform thinking, explained widely applicable governance models like the landlord port, and provided guidance on private sector participation and institutional restructuring. The second edition, released in 2007, was informed by a first wave of port reforms in Latin America, Africa, and Asia in the 1990s and early 2000s. By that time, ports in developing economies had already attracted over US$21 billion in investments from over 200 public-private partnership projects.

Having shaped port reform processes for almost a quarter of a century, the World Bank has released the third edition of the Port Reform Toolkit. It reflects both the persistence of old challenges and the emergence of new trends which motivate port reform needs in an increasingly complex world.

Pictured: The new Toolkit from the World Bank reflects the current dynamics and many complexities facing the global ports sector
Photo: World Bank Port Reform Toolkit



New realities shape the port landscape

Today, the maritime transport sector, while traditionally conservative in structure and pace, is facing many interrelated transitions. Ports are no longer just physical interfaces between land and sea. They are also expected to serve as hubs for clean energy transformation, innovation and digitalisation, community building, and critical nodes in globally integrated supply chains.

After a long period of globalisation-driven economic growth, the recent decade has ushered in a new era of "slowbalisation" with trade fragmentation and friendshoring. Trade patterns are increasingly shaped by geopolitics, climate change, and risk mitigation strategies. At the same time, countries that once focused solely on commodity exports are now seeing rising middle classes, and with them, a surge in imports of manufactured goods and foodstuffs – creating new cargo flows that challenge legacy port models. The Toolkit points to how recent crises—from COVID-19 to climate-induced disruptions and geopolitical conflicts—have spotlighted vulnerabilities in maritime supply chains. Congestion in ports, empty containers in the wrong places, volatile freight rates, and more extreme weather events have made resilience a strategic imperative.

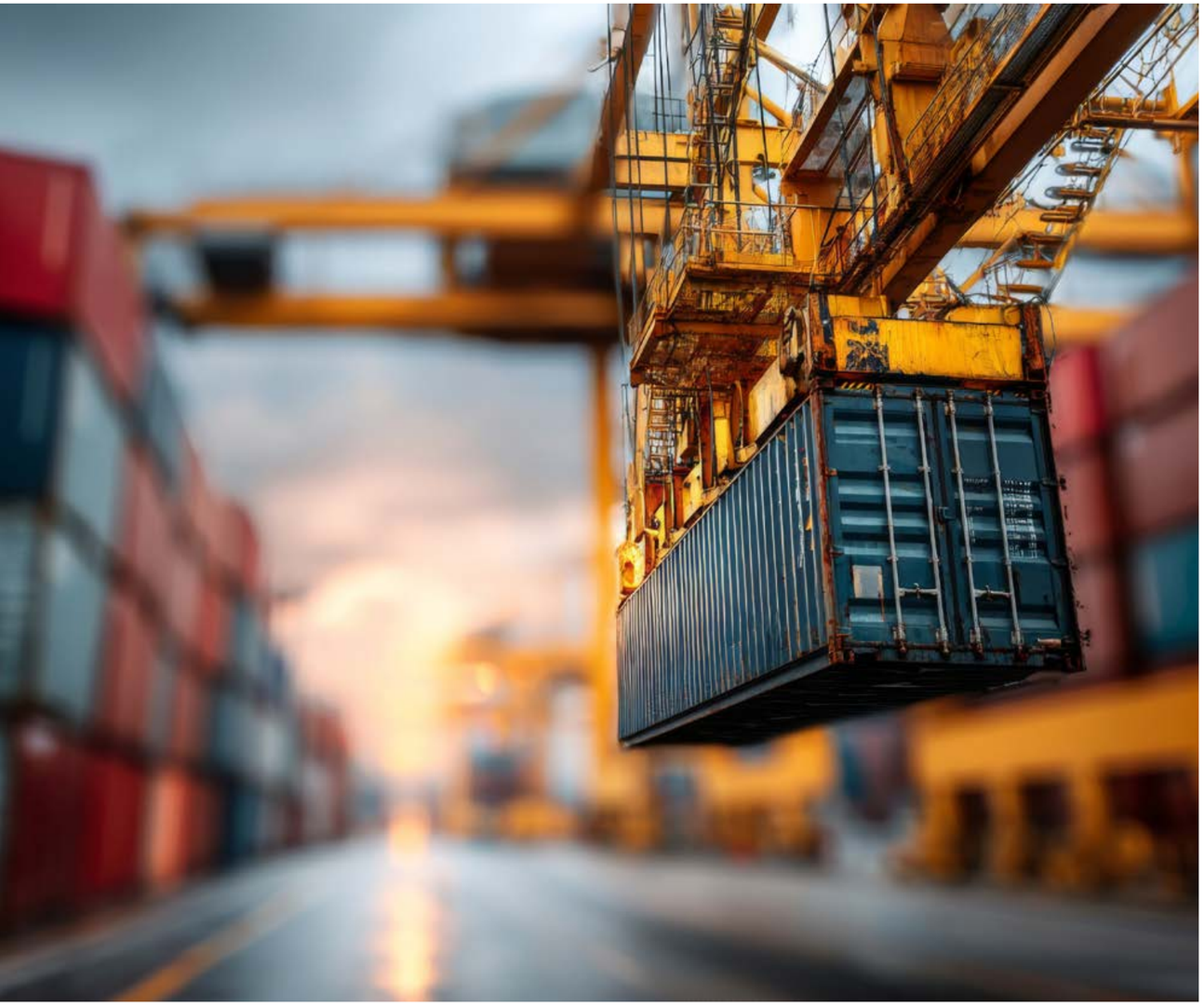
Modern ports are expected to be shock absorbers, with resilient infrastructure and operations, digitalised systems, and contingency planning. Ports are uniquely exposed to climate change: 14 of the 17 largest port cities are already at risk from sea level rise. But they are also pivotal to global climate solutions. For instance, ports do not only need to play a central role in the decarbonisation of shipping or reduce their own environmental footprints through electrification, digitalisation, and improved land-use planning. They are also required to serve as important nodes in clean energy value chains (for example, the import and export of hydrogen and biofuels). From port community systems to AI-driven berth scheduling and blockchain-based documentation, Port 4.0 is becoming a reality. Yet, the same systems that boost efficiency also expose ports to cyber risks. The Toolkit introduces cybersecurity not just as a technical necessity, but as a governance and risk management priority, underscoring the need for national frameworks and response mechanisms.

What's new in the third edition?

The third edition of the Port Reform Toolkit reflects a strategic and structural rethink. We are particularly proud that leading industry experts, including members of the IAPH, joined in developing this new edition.

Based on incumbent, current, and emerging trends, the new Toolkit comes at a time when port reforms need to be contextualised in a wider context and where implementation will necessarily happen within a highly dynamic global environment.

Pictured: The third edition of the Port Reform Toolkit captures existing and emerging trends
Photo: World Bank: Port Reform Toolkit



Accounting for these times of change, a whole new module on change management focuses on the management perspective, offering guidance on how to design and implement port reform projects through a five-step management approach. This module serves as the vital link between today's key trends and eight thematic technical modules.

When the first and second edition of the toolkit were launched, the landlord port model became the beacon of port reform. Today, ports are again rethinking their governance. The module on port governance helps ports to understand the evolving role of port authorities, building communities, and balancing commercial autonomy with public accountability to ensure long-term competitiveness.

A wave of port privatisation had shaped the second edition. Today, first-generation concessions are expiring. Private sector participation also takes different forms when, for example, terminal operators integrate vertically and horizontally. How stakeholders can assess which future structure fits their context best is outlined in an updated module on private sector participation. A revised module on economic regulation puts the focus on proportionality: When is regulatory intervention necessary? How can regulatory models be tailored to national contexts? And how can a balance be struck between protecting port users and encouraging private investment? In the context of developing economies, for instance, the Toolkit highlights that context-appropriate regulatory frameworks are often more appropriate than replicating overly complex systems from advanced economies.

Pictured: The third edition of the Toolkit reflects a strategic and structural rethinking as new and evolving trends continue to shape the industry
Photo: Dreamstime

The issue of optimal risk management and financing is discussed in a dedicated module. It highlights the complexity of modern port investments, requiring the integration of new risk, such as environmental, social, and governance (ESG), as well as cybersecurity. Since its inception until today, the human element remains core to successful port operation. Ports are engines of job creation, but the expectations towards the modern workforce have changed. The revised module on labor and social aspects in port reform processes therefore sets out considerations around upskilling, occupational health, but also gender equity and inclusion, recognising that labour should be primarily a reform partner, not a cost factor.

Finally, as first of their kinds: Environmental sustainability, digitalisation and cybersecurity, as well as the port-city interface, are three emerging trends, to which the third edition of the toolkit dedicates three substantive, completely new modules. These modules introduce a structured roadmap for greening ports and explain why environmental leadership enhances competitiveness. They also guide the reader how to implement digitalisation programs, manage related risks and detail the foundations of developing into a smart port. Finally, the city perspective brings together essential topics like governance, private sector, environment, and labor issues, allowing the reader to explore port reform through an urban people- and urban place-focused lens.

The World Bank's new Port Reform Toolkit is a testament to open knowledge exchange and constructive partnerships in the port and wider maritime transport sector. It is now freely available to all IAPH stakeholders and other interested parties.

Stay tuned for more upcoming World Bank content around port reform and engage with some of the lead authors of the Port Reform Toolkit at the World Ports Conference in Kobe.



Find the Port Reform Toolkit on the World Bank's Open Knowledge Repository: tiny.cc/port-reform-toolkit

Pictured: Ports remain engines of job creation, but expectations towards the modern workforce are changing fast
Photo: Dreamstime



WORLD PORTS CONFERENCE 2025

iaph international association of ports and harbors 2025 celebrating seventy years

mercator valued maritime marketplaces

Connect, listen and learn

SEPTEMBER 9
16:00 CET / 17:00 PDT

Upcoming crucial IMO MEPC decisions in 2025 - how they will impact ports

DECEMBER 3
17:00 CET / 08:00 PST

Investing in port decarbonisation infrastructure - managing risk



WEBINAR 2025 SCHEDULE

Our well-established IAPH-Mercator webinar series is back in the lead up to the World Ports Conference, taking place 7-9 October in Kobe, Japan. Open to members and non-members, register now to learn about key matters and challenges arising in the ports industry.

Interested in joining?
Contact wpc@mercatormedia.com

www.iaphworldports.org



BUD DARR
President & CEO, Cruise Lines International Association (CLIA)

Wake-up call

Cruise ports must evolve to stay relevant in a secure, net-zero future

As the cruise industry pursues a net-zero emissions future, ports are facing unprecedented demands and must evolve into energy-ready and digitally enabled hubs – or risk falling behind.

Security #1: Security is mission-critical. As ports integrate biometric screening, smart grid systems and autonomous logistics, their exposure to cyber and physical threats grows. The future cruise port must have robust cybersecurity protocols, real-time surveillance, emergency coordination plans and secure digital infrastructure built into every layer – all of which are fundamental to operational continuity and passenger trust.

Energy transition: The cruise industry is investing billions on ships with fuel flexibility and ports must be ready to support them. Ports offering fuel bunkering for zero- and near-zero fuels will be best positioned to attract cruise deployments. Onshore power supply provides additional benefits for ships to reduce fuel consumption and lower emissions. As regulations tighten, access to fuels, technologies and energy sources will increasingly be a factor in itinerary planning.

Transition economics: Make no mistake: the cost base of operations is going up. New fuels can cost 2-5 times more than conventional marine fuels. Carbon pricing, emissions regulations and infrastructure requirements all impact itineraries, ship design and port decisions. The sobering fact is that significant investments in fuel distribution, port storage and bunkering and ship technology are required to support the transition. Yet, investments remain stuck in a chicken-and-egg dilemma: fuel suppliers await demand, while operators need assurance of fuel availability.

Ports can help break the deadlock and support market momentum by facilitating agreements between cruise lines and fuel producers, coordinating permitting and planning for storage capabilities.

Onshore power: While the energy transition builds, onshore power—a cruise-driven innovation—offers a proven, immediate impact. Ships capable of shutting off engines while in port reduce emissions. Operational efficiency complements these efforts. Ports that streamline vessel turnaround and reduce delays help lower auxiliary engine use and improve a ship's overall emissions performance. These small but critical gains can improve compliance outcomes and reduce cost burdens for operators.

Global leadership: Ports worldwide are demonstrating leadership. PortMiami integrates LEED-certified design, biometrics and onshore power; Brisbane embeds clean energy; the EU Ports Strategy considers digital innovation, port-city integration and alternative fuel development; and Yokohama and Shimizu are adopting renewables and sustainable waterfront planning.

Bottom line: The cruise industry is advancing with innovative ships, alternative fuels, and flexible engines ready for low- to zero-carbon fuels when available. Ports must advance too by strengthening security, enhancing operational efficiency and accelerating clean-fuel infrastructure. Ports that act now will be more than just stops along a journey; they will be indispensable partners in shaping a more sustainable cruise future. ■



R. Duncan McIntosh

R. Duncan McIntosh, senior regional maritime specialist, Asian Development Bank, is helping Asia-Pacific ports evolve into smarter, more resilient gateways for future trade, connectivity and climate adaptation

MARTIN CLARK

Before steering maritime development strategy, R. Duncan McIntosh spent 41 days alone at sea, sailing across the Pacific Ocean. That experience continues to shape his approach to maritime planning. "When you're at sea, you plan for contingencies and make decisions based on incomplete information, much like infrastructure planning," he says. "My experiences at sea reinforced the importance of designing for redundancy, investing in preparedness and always thinking a few steps ahead."

Today, McIntosh leads the preparation of the Sustainable and Resilient Maritime Initiative (SRMI) at the Asian Development Bank (ADB), working to modernise port and shipping infrastructure across one of the world's most trade-dependent and disaster-prone regions. Current priorities include expanding regional connectivity, promoting digitalisation and improving resilience, particularly in small island and archipelagic countries.

Three challenges stand out. "First, many ports in the region face physical and operational constraints that limit their capacity to handle growing trade volumes, especially as shipping patterns evolve and vessels become larger," he says. "Second, there's a pressing need to modernise port operations through digital tools and smarter logistics to improve efficiency, reduce costs and attract investment. Third, resilience is increasingly important, not just in terms of climate risks, but also supply chain disruptions, natural disasters and cyber threats."

Sustainability is another priority, though ports vary widely in this domain. In the Pacific, for example, the Port of Apia has adopted a green ports policy and is implementing infrastructure upgrades to improve service continuity and safety, while Tuvalu has modernised its small-scale harbours to strengthen inter-island transport and emergency response. In South and Southeast Asia, several ports are exploring clean energy, electrification and digital platforms to streamline logistics and reduce idle time.

"These are all important steps," says McIntosh, "but most ports still need support to scale and sustain these initiatives. ADB's role is to help its developing member countries, especially Small Island Development States (SIDS), build capacity to manage and operate modern port systems."

Port connectivity & technology

Sustainability doesn't have to come at the cost of trade, he says. "Through SRMI and the emerging Sustainable and Resilient Maritime Fund (SRMF), we're trying to help developing countries, especially SIDS, prepare projects that improve port performance, reduce bottlenecks and enhance regional integration. Importantly, we tailor support to local contexts, ensuring solutions are viable and scalable."

Port connectivity is also central to regional integration and resilience. In today's trade environment, port networks allow countries to absorb shocks, re-route cargo and attract investment. Improved hinterland connections, multimodal logistics and cross-border harmonisation are all part of this.

"For landlocked and small island states, port connectivity also expands opportunity. ADB supports this through corridor-based development, digital integration and upgrades that serve both domestic and regional trade objectives."

Digitalisation is another key enabler of transparent, competitive port systems. ADB supports governments in deploying tools such as Port Community Systems, customs automation and vessel traffic management.

"Technologies that improve cargo flow, reduce dwell time and increase efficiency are also likely to have a big impact," he says. "This includes automated cargo handling, shore-side power, digital twins and predictive analytics for planning."

Looking forward

While these tools can boost throughput and reduce costs, they also require significant investment and skilled personnel. "For many ports, especially smaller ones, the challenge is not only adopting these technologies but doing so in a way that is financially and operationally sustainable."

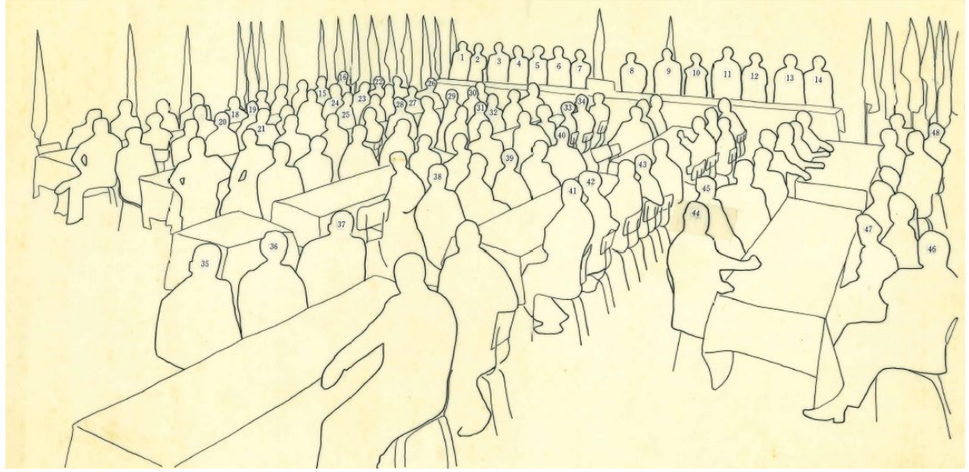
More broadly, McIntosh highlights three wider trends — the energy transition, workforce transformation and ports as industrial hubs — likely to shape the region's ports.

"Ports are becoming hubs for clean energy generation, storage and trade, whether for hydrogen, ammonia, or critical raw materials. Another issue is workforce transition. As automation and decarbonisation scale, there's a need for upskilling and reskilling."

At the same time, ports must maintain service continuity amid disruption and change. "Building resilience into port systems will be just as important as physical infrastructure," he says.

The choices we make today, he adds — about investments, technologies and partnerships — will shape Asia-Pacific's connectivity and competitiveness for decades. "ADB stands ready to support developing member countries in building the next generation of resilient and efficient port infrastructure that drives inclusive trade and economic growth." ■





WHO'S WHO? Delegates at the luncheon (identified by Mr. Bernard. J. Caughlin) at the inaugural International Port & Harbor Conference, Los Angeles, 1955

1. Mr. Bernard. J. Caughlin (Los Angeles, USA)	25. Adm. Higbee (Los Angeles, USA)
2. Mrs. John C. Cosgrove (Los Angeles, USA)	26. Mrs. Flemming (San Francisco, USA)
3. Mr. D. Dullum (Encial, USA)	27. Mr. Flemming (San Francisco, USA)
4. Mr. Gaku Matsumoto (Tokyo, Japan)	28. Mr. Ben E. Nutter (Honolulu, Hawaii)
5. Mrs. Kingman (Los Angeles, USA)	29. Mr. Toru Akiyama (Tokyo, Japan)
6. Dr. E.C. Spires (Los Angeles, USA)	30. Capt. Thomas L. Lewis (New Orleans, USA)
7. Mrs. Menveg (Los Angeles, USA)	3 1. Mrs. Rooney (Oakland, USA)
8. Mr. Lloyd A. Menveg (Los Angeles, USA)	32. Mr. J. Kerwin Rooney (Oakland, USA)
9. Mr. Dudley Frost (Oakland, USA)	33. Col. Dunlap C. Clark (Los Angeles, USA)
10. Mrs. Spires (Los Angeles, USA)	34. Mrs. Clark (Los Angeles, USA)
11. Mr. John C. Cosgrove (Los Angeles, USA)	35. Mr. Elmo Ferrari (Stockton, USA)
12. Mrs. Frost (Oakland, USA)	36. Mrs. McGurk (Stockton, USA)
13. Admiral H.F. Kingman (Los Angeles, USA)	37. Mr. McGurk (Stockton, USA)
14. Mrs. Caughlin (Los Angeles, USA)	38. Gen. H.T. Miller (Los Angeles, USA)
15. Mr. T.G. Maddox (Los Angeles, USA)	39. Mrs. Miller (Los Angeles, USA)
16. Mr. Troy S. Garrison (Los Angeles, USA)	40. Mr. Shojiro Kikuchi (Tokyo, Japan)
17. Mr. Henry Roloff (San Diego, USA)	4 1. Mr. E.H. Savage (Seattle, USA)
18. Mrs. B.D. L. Johnson (Vancouver, Canada)	42. Mrs. Savage (Seattle, USA)
19. Mr. B.J. Roberts (Ottawa, Canada)	43. Miss Miriam Wolff (San Francisco, USA)
20. Mr. Don E. DeLon (San Francisco, USA)	44. Brig. Gen R.H. Wylie (San Francisco, USA)
2 1. Mr. Isaac A. David (Monrovia, Liberia)	45. Mr. D.P. O'Brien (Alberni, Canada)
22. Mr. Nordstrom (Los Angeles, USA)	46. Mr. Carl M. Smith (San Francisco, USA)
23. Mr. C.M. Chen (Taiwan, China)	47. Mrs. Smith (San Francisco, USA)
24. Mr. C.N. Perkins (Los Angeles, USA)	48. Mr. James Visceglia (Calif., USA)

Past and Present

Look back on 70 years of IAPH history – in two iconic images. A glimpse back at the founding fathers of IAPH and the origins of the now hugely-successful IAPH World Ports Conference of today.

Los Angeles, 1955

The main photograph shows a business lunch at the inaugural International Port & Harbor Conference in Los Angeles in 1955. Underneath, you can also see the names of many of the delegates who attended.

Held with the intention of establishing a permanent global ports association, it followed a first meeting, held in Kobe, Japan, back in 1952 – bringing to life the vision of Gaku Matsumoto (pictured at the front table, identified as number 4) who had nurtured the idea since founding the Ports and Harbours Association of Japan three decades earlier.

The conference in LA was postponed until November 1955 to ensure maximum attendance, and is remembered as the founding meeting of IAPH. Gaku Matsumoto was appointed as the first secretary-general, with Bennett J. Roberts of Canada named as IAPH's first president. The following two conferences were held in Mexico City (1959) and New Orleans (1963).

London, 1965

The smaller image below shows the 4th Port & Harbor Conference in London in 1965, signalling the moment when IAPH became a truly global association. It is fitting that after returning to Kobe in 2025 for the World Ports Conference, a reminder of the association's origins, the venue for the next conference in 2026 will be London. ■



Main Picture: Inaugural International Port & Harbor Conference, Los Angeles, 1955
Inset: London's Café Royal was the venue for the fourth conference in 1965
All photos: IAPH

Kawasaki: hydrogen road

Kawasaki Heavy Industries is leading the way in the international transport of liquefied hydrogen in support of a future large-scale, global supply chain



Kawasaki Heavy Industries traces its origins back to 1878, when its founder, Shozo Kawasaki, established a shipyard in Tsukiji, Tokyo, Japan. Today, the company operates across five major business segments:

Motorcycle & engine business
In the transportation sector, Kawasaki manufactures ships, railway vehicles, aircraft, and the globally renowned 'Kawasaki' brand motorcycles.

Rolling stock business
As Japan's leading manufacturer of railway cars, the Kawasaki Group provides the world with a wide range of rolling stock, including Shinkansen, electric cars, passenger coaches, freight cars, locomotives, diesel locomotives, and new transit systems.

Energy & environmental plant and marine business
In the energy and environmental field, Kawasaki contributes to building a sustainable society through technologies such as gas turbines and hydrogen-related systems.

Aerospace business
In aerospace, Kawasaki develops aircraft for Japan's Ministry of Defence and manufactures components for commercial aircraft, showcasing its advanced technological capabilities.

Precision machinery & robot business
In the industrial equipment sector, Kawasaki supports automation and efficiency in manufacturing by providing hydraulic equipment and industrial robots. In robotics, Kawasaki develops industrial robots for the automotive and food industries, contributing to the realisation of smart factories.

World's first international transport of liquefied hydrogen
In recent years, Kawasaki has been actively working toward the development of a hydrogen-based society. To support the safe and large-scale transportation of hydrogen, the company is developing technologies for a supply chain using non-toxic liquefied hydrogen, aiming to make a significant contribution to this emerging field.

To realise a large-scale supply chain using liquefied hydrogen, Kawasaki Heavy Industries has successfully demonstrated the world's first international transport using a liquefied hydrogen carrier and a dedicated loading/unloading terminal, with the support of the New Energy and Industrial Technology Development Organisation (NEDO). The results of this demonstration have attracted global attention as a potential breakthrough for achieving a carbon-neutral society.

Pictured: The liquefied hydrogen carrier Suiso Frontier is moored near the LH2 terminal (Hy touch Kobe) in Kobe, Japan.
Photo: HySTRA/Kawasaki Heavy Industries



Since fiscal year 2022, the liquefied hydrogen carrier Suiso Frontier has completed three round trips between Japan and Australia, covering a total of 57,000 km—equivalent to 1.4 times the circumference of the Earth.

The liquefied hydrogen supply chain minimises losses from atmospheric release during marine transport. Boil-off gas (BOG) generated during navigation is used as propulsion fuel, significantly reducing heavy oil consumption. Alternatively, hydrogen gas can be pressure-accumulated and offloaded at the destination terminal to meet hydrogen power generation demand. The Japan-Australia demonstration project has validated these capabilities.

In fiscal year 2023, Suiso Frontier was dispatched to Saudi Arabia, the UAE, Oman, and Singapore, showcasing that the technology for marine transport of liquefied hydrogen is already established. The visits strongly reinforced awareness among energy sector stakeholders and government officials in these countries that liquefied hydrogen is a viable carrier for transporting hydrogen, which emits no CO_2 when used.



Differences from LNG
Liquefied hydrogen must be stored and transported at temperatures approximately 90°C lower than liquefied natural gas (LNG), requiring highly advanced insulation technology.

Thanks to Kawasaki's superior technological capabilities, we have achieved a Boil-Off Rate (BOR) of 0.3% per day in the 1,250 m^3 tank of the liquefied hydrogen carrier Suiso Frontier, and 0.06% per day in the 2,500 m^3 tank at the Hy touch Kobe terminal. These results demonstrate that liquefied hydrogen can be transported and stored at a boil-off rate equivalent to that of LNG carriers and terminals of similar scale.

Furthermore, captains, crew members, and terminal operators who have actually handled the operations have commented that liquefied hydrogen can be handled in much the same way as LNG.

Next steps
Kawasaki Heavy Industries has already begun work on the next scale-up phase, which involves the construction of a 40,000 m^3 liquefied hydrogen carrier and a 50,000 m^3 storage tank as part of its commercial demonstration efforts. A large-scale liquefied hydrogen supply chain is set to become a reality by 2030 – a milestone that is now just around the corner.

In addition, Kawasaki is actively exploring collaborations and feasibility studies in Europe and other regions to establish a proven track record for liquefied hydrogen.

Pictured: The Suiso Frontier has pioneered the transportation of liquefied hydrogen after successful voyages from Kobe to Australia and the Middle East
Pictured (left): This photo was taken during Mr. Jens Meier's visit to the Suiso Frontier. Mr. Meier, President of the International Association of Ports and Harbors (IAPH), is pictured here together with Mr. Nomura, General Manager of the Hydrogen Strategy Division at Kawasaki Heavy Industries

A strategic imperative

Equipping ports with safety tools for new marine fuels

PETER ALKEMA



As global shipping shifts towards decarbonization, the surge of vessels powered by LNG, hydrogen, methanol, ammonia, and other low-carbon alternatives demands not only infrastructure upgrades but also systematic preparation for safe, efficient, and reliable bunkering operations.

Ports stand at the frontline of this transformation, and the tools developed by the IAPH Clean Marine Fuels Working Group (CMF) through the World Ports Sustainability Program offer a structured path forward. These are not optional extras—they are essential for ensuring safety, operational efficiency, and competitiveness in the new energy era.

The Group first came together after the IAPH World Ports Conference in Busan in 2011, going into effect in the mid 2010s to look at developing specific safety tools for ports as shipping began to adopt LNG as a fuel. Nearly fifteen years later, the accumulated knowledge developed in that period has been expanded thanks to a significant body of work being prepared by a closely-knit network of industry specialists from IAPH's member ports. It is thanks to them that these sophisticated tools have been become fuel agnostic in a multi-fuel world.

One of the CMF Working Group's most practical contributions is the fuel-agnostic Bunker Operators Audit Tool, which has been launched in October last year for IAPH members. By laying out clear responsibilities for bunker facility operators, it allows ports and relevant authorities to evaluate and validate the safety management systems of candidates applying to operate bunkering facilities across multiple fuel types, including methanol, hydrogen, and ammonia. This kind of screening is a security backbone, ensuring that only operators meeting rigorous safety and sustainability standards are approved. Without such oversight, ports risk safety incidents, regulatory pushback, and reputational damage.

Harmonised bunkering checklists and terminal readiness

Equally important are the harmonised bunkering checklists designed to reduce variability in operational practices. Divergent local regulations can create confusion for ship operators and bunker suppliers. The CMF checklists, which now cover the entire range of alternative and future fuels including liquid gases, alcohol-based fuels and toxic gases like ammonia, are tailored for the many different ship-to-ship and truck-to-ship scenarios that can be found at different ports. These checklists, available to all parties in the public domain and published following consultation with industry partners, terminal operators, and classification societies alike, offer a level of standardisation that enhances safety and interoperability.

They account for different operational arrangements—such as whether the terminal significantly shares safety responsibility or simply needs to be informed—and allow operators to follow a consistent, familiar process across different ports. Adopting these checklists ensures uniformity, harmonises the way they are performed, reduces misunderstandings, and makes global bunkering operations more seamless.

Infrastructure readiness is another crucial dimension. LNG-capable or alternative fuel-capable ships cannot be served operationally if terminals are unprepared. The CMF's Terminal Readiness Guidance provides a procedural and operational blueprint for aligning safety management systems, training personnel, and reviewing ship-terminal interface protocols. By following such guidance, terminals can systematically address both technical requirements and operational safety for a wide range of fuels.

A suite of tools for ports by ports for a multi-fuel future

These tools matter for reasons far beyond compliance. New fuels introduce unique hazards—cryogenic temperatures for LNG and hydrogen, toxicity or corrosiveness for methanol and ammonia—that require specialised handling and robust safety measures.

Pictured: The IAPH Clean Marine Fuels Working Group met before the 2024 World Ports Conference in Hamburg. Right: The fuel-agnostic Audit tool, one of the Liquid Gases bunkering checklists and the recently developed checklist for ammonia bunkering
Photo: IAPH



PETER ALKEMA is harbour master strategic lead at Port of Amsterdam and has been chair of the Clean Marine Fuels Working Group alongside vice chair and Port of Rotterdam's senior coordinator of harbour master policy, Cees Boon (pictured, far left), since its foundation.

CMF resources help ports anticipate and mitigate these risks, protecting crews, terminal workers, and local communities. By providing a harmonised framework, CMF tools can also increase efficiency, allowing shipping companies to operate under consistent rules from one port to the next.

Regulatory preparedness is another crucial aspect. As environmental regulations for maritime fuels evolve rapidly, ports that align early with CMF guidance are better prepared to comply with regulations. This in turn can potentially attract funding or investment in new infrastructure as this sends a clear signal to industry partners and regulators alike: the port is committed to safe, sustainable growth.

The maritime sector's energy transition is already underway with ports playing a pivotal role as key enablers of a cleaner and more sustainable shipping industry. The IAPH Clean Marine Fuels Working Group's suite of tools developed by ports, for ports, offer a coherent framework to prepare for this future. ■

IAPH Audit Tool
for auditing Bunker Facility Operators



Bunker Checklist
Liquefied Gas Series



Bunker Checklist
Refrigerated Toxic Gas Series



REGIONAL FOCUS JAPAN

Decarbonising Japan's ports

National government policy and financial support, together with local strategy and funding programmes, are driving decarbonisation, energy transition and digitalisation investments across Japan's ports

FELICITY LANDON

Japan's Ministry of Land, Infrastructure, Transport and Tourism is a driving force and partner behind many of the decarbonisation projects in the country's ports. Five years ago, the government declared its aim to reduce greenhouse gas emissions to net zero and achieve a carbon-neutral, decarbonised society by 2050.

Specific to the ports sector, it has created a CNP (Carbon Neutral Port) certification for container terminals and has been trialling this to check the evaluation criteria, required capabilities and structure of the certification body. It also amended the Port and Harbour Act to allow the government to designate ports as base ports and harbours for offshore renewable energy power generation facilities.

The Ministry has noted that industries that account for about 60% of CO_2 emissions are concentrated in and around ports and coastal areas. These industries are

Pictured: Bustling day at Port of Yokohama
Photo: Dreamstime

promoting an energy transition, but "to build large-scale supply chains for hydrogen, ammonia and other energy sources", the Ministry states, "it is necessary to first develop a receiving environment in ports".

Port of Yokohama

Larger container vessels and increased cargo volumes are driving two major infrastructure investment projects at the Port of Yokohama. The Shin-Honmoku Wharf new development, featuring a 90-hectare reclamation, will create a cutting-edge logistics hub integrating a deepwater container terminal with logistics facilities equipped with advanced distribution and processing functions.

Alongside this project, Honmoku Wharf, first built in 1970, requires redevelopment due to its ageing infrastructure. In a project with the Ministry of Land, Infrastructure, Transport and Tourism, the berth at D5 terminal is being extended from 300 to 400 metres and the cargo handling area is being improved. Reefer storage capacity will be more than doubled, enabling the terminal to handle increasing volumes of fresh food imports.

Environmental issues, at the centre of several projects under way at Yokohama, also have their place in the Shin-Honmoku development; for the caissons used in construction, a bio-symbiotic choice has been made to promote coexistence with marine life.

Yokohama says that through its Port and Harbour Decarbonisation Plan it is responding to the needs of shippers and others who are working to decarbonise their supply chains – as recommended by ministry policy.

"In addition, we aim to contribute through public-private partnerships so that companies in the waterfront district advance their energy transitions," said Hitoshi Nakamura, director for carbon neutral port promotion at the City of Yokohama Port and Harbour Bureau.

Targets have been set for CO_2 emissions from the waterfront area, based on a 2013 baseline, aiming for 47% reduction by 2030, 74% by 2040 and to achieve net zero by 2050. CO2 absorption targets have also been set "by means of preservation, reproduction and creation of blue infrastructure" – to reach 250 tons per year by 2050..

The plan identifies a total 121 port decarbonisation promotion projects in three categories: decarbonisation of industries, decarbonisation at the terminals and creation of an abundant ocean.

Decarbonisation drive

According to the City of Yokohama Carbon-Neutral Port (CNP) council (which includes energy providers, oil refineries, financial institutions, manufacturers and shipping companies), the decarbonisation plan "is leading the way in carbon neutral port projects that the government is promoting throughout Japan."

It includes three unique elements: the promotion and development of supply systems to meet a variety of next-generation marine fuels such as green methanol for container ships; the launch of the Sustainable Finance Framework, to provide financial assistance for capital investments by companies in the waterfront area; and the vision of the waterfront area as a hub for receiving power generated by floating offshore wind (Flow) turbines planned for construction at the sea far away from Yokohama, such as the EEZ area.

As for the latter, the depth of water means that laying undersea power cables to transfer power from Flow turbines is challenging and battery tankers are the proposed solution. Power X subsidiary Ocean Power Grid plans to transport electricity between remote islands using battery tankers, scaling up to include power transmission between the mainland and islands and eventually between Flow turbines and the mainland. The City of Yokohama has signed an agreement with TEPCO Power Grid and Ocean Power Grid to establish a green power supply base as part of the project.

Sustainable finance

The Sustainable Finance Framework is a joint enterprise between the City of Yokohama and Mizuho Bank, which signed an MoU last year to develop the framework based on the port's decarbonisation plan. Companies can raise funds on favourable terms such as low interest rates to promote the transition to a carbon-neutral port and this is particularly seen as valuable for SMEs that lack the resources to make capital investments and work towards decarbonisation of their own operations.

It has been used first by Daito Corporation, which secured a green loan to support construction of an EV tugboat. Secondly, Uyeno Group, a comprehensive logistics provider based in Yokohama, secured a green loan through the framework to install solar panels, LED lighting and energy saving for air conditioning at its HQ building.

The possibility of supplying the port with green power derived from offshore wind, via battery tankers, is being examined through this MoU and framework. The partners will also consider the construction of electric power supply facilities to cope with increased demand in waterfront areas due to cruise ship requirements for onshore power.

Port of Kobe

The Port of Kobe is reorganising and expanding its PC13-17 container terminal in the Port Island area – a project it says will create "one of the largest, high-standard container terminals in Japan". Work started in 2021, with completion due in 2026. The terminal area will be expanded by about 10 hectares and the layout will be changed. In the container yard, private operators are to introduce 12 electric remote-controlled RTGs. New CFS facilities are being built and new entry and exit gates are being installed.

The new gate facilities will feature the CONPAS system, developed and operated by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) to improve efficiency by eliminating congestion at container terminal gates and reduce trailer waiting times. The system distributes and levels out the arrival of trailers; in a pilot operation at another terminal, 14% of incoming trailers were booked through CONPAS, and this reduced the total pre-gate waiting time of incoming trailers by 10%. Documentation can be checked in advance, enabling drivers to gain entry by swiping a PS (Port Security) card. MLIT says the processing time for bringing in containers can be reduced by 60% by the advance collation of information.

Onshore power supply is now available at the public berths (in Shinko Piers No.1 and Shinko Higashi Wharf) on the waterfront and being used by training vessels and domestic container ships. By supplying onshore power, approximately 200 tons of GHG emissions per year is eliminated. Kobe's city government is also the first in Japan to go ahead with construction of hybrid harbour patrol boats equipped with hydrogen fuel cells.

Port of Nagoya

The Nagoya Port Decarbonisation Promotion Plan launched in 2024 is aiming for a carbon-neutral port in cooperation with public and private entities. A total 52 initiatives have been identified to contribute to the goal, as well as 29 future concepts that are expected to be commercialised, said Shinichi Mizuno, assistant manager for Next-Generation Energy Promotion of Nagoya Port Authority.

The port authority has set up a subsidy programme to promote the introduction of hydrogen fuel cell (FC) equipment; this provides subsidies of up to 10 million yen for the introduction of hydrogen-powered RTGs and RTGs that can be converted to hydrogen fuel cells used at container terminals. "By combining this subsidy programme with the government subsidy programme, it is anticipated that RTGs capable of FC conversion can be introduced at the same cost as conventional machines," said Mizuno. Two RTGs that can be converted to use hydrogen fuel cells are already in operation using this programme.

Other advances at Nagoya include its first onshore power supply facility for workboats, opened at Kinjo Pier in April. The vessels can shut down their auxiliary engines while at berth and connect to the port's electricity system, which uses renewable energy sources. Feasibility studies are being carried out into introducing onshore power supply facilities for other vessels including container ships, cruise ships and PCCs.

Meanwhile, design and verification work has started for hydrogen supply infrastructure with a view to commercialisation in Nagoya port and the surrounding area. Toyota Tsusho Corporation, Taiyo Nippon Sanso Corporation and Toho Gas Co. Ltd were selected in May 2025 for a NEDO (New Energy and Industrial Technology Development Organisation) research project. The partners are aiming to develop methods for the efficient supply of hydrogen to support the conversion of container handling equipment and trucks to fuel cells. The research and survey work, which runs until March 2026, are being carried out in cooperation with the port authority, Aichi Prefecture and Toyota Motor Corporation. ■



Pictured: RTGs that can be converted to use hydrogen fuel cells in operation at the Port of Nagoya
Inset: Onshore power supply for workboats at Nagoya
Photos: Port of Nagoya



JAMES BAKER
News editor, Lloyd's List

THE COLUMN

The age of uncertainty

It is only five years since the world was hit with a 'black swan' event that changed everything without warning. Shipping, and the ports sector that acts as the interface to the landside economy, are used to rapid changes, but the sudden shutdown of global economic activity, followed by a rapid rebound, were too much for even this sector.

Since then, what were once considered black swans – highly unlikely events that carried great impacts – have become the norm. A war in Europe, a global trade war and the closure of the Red Sea as a shipping lane have all happened in the past three years. What will come next is anyone's guess, but with uncertainty the only certainty, the ports sector needs to build resilience that allows it to face shocks, whether climatic, economic or political.

Ports cannot rely solely on risk management that anticipates known hazards and mitigates them. Instead, they must focus on resilience-based approaches that prepare ports to absorb and adapt to both predictable and unforeseen shocks, for which probability and impact are hard to estimate.

> "With uncertainty the only certainty, the ports sector needs to build resilience that allows it to face shocks, whether they be climatic, economic or political

Resilience means ports should absorb shock, be capable of rapid recovery, and rebound stronger following any disruption. From an infrastructure perspective, that requires flexibility and adaptability. Whether it is frontages that allow for future sea-level rise or considering relocation or safeguarding of vulnerable assets in high-risk zones.

Ports also need to retrofit and redesign operations to accommodate low-carbon shipping technologies, whether electric or next-generation fuels. Even here, uncertainty reigns and investment decisions about port expansion or upgrades should account for uncertain future conditions.

Flexible investment timing and sizing can optimise returns amid fluctuating demand and risk – but increasing capacity too early, or too late, carries risks. Flexibility allows ports to adjust to market and environmental signals.

The pandemic served as a reminder that resilience needs to be built in to port infrastructure and business planning in the face of what cannot be forecast. But it also proved that change can happen. Four years ago, the ports of Los Angeles and Long Beach saw over 100 ships backed up in San Pedro Bay waiting to discharge. The ports' yards had become overwhelmed by the large volumes arriving as demand shot back up following the initial lockdown period.

Last year, however, those volume records were broken as the ports handled just shy of 20m teu between them. This time there were no ships anchored awaiting berths. Better planning tools, technology and business practices allowed higher throughput without onshore delays. The experience of the crisis left the ports prepared to meet the current frontloading challenges unscathed.

Crises these days are trending towards political rather than biological. Port congestion this year has centred on European ports, where a combination of altered schedules, labour relations and rerouting have taken their toll.

The on again-off again nature of US tariffs has made it difficult for shippers, carriers and ports to plan. Any preparations therefore require flexibility and responsiveness. Much of this had been faced by US west coast ports, so learning from the experiences of others is another key preparation ports should make. ■

ABOUT THE AUTHOR

JAMES BAKER is news editor at Lloyd's List, where he has also written on container shipping and the ports and logistics sectors.

QUICK 10



VILOSH NAIDOO
Sector Specialist - Transport Infrastructure
Development Bank of Southern Africa

Nº 1

Favourite app (and why)?
LinkedIn: I was randomly and successfully headhunted twice via LinkedIn into jobs I quite enjoyed/enjoy. It also helps me stay abreast with industry trends and developments and other like-minded people in my industry.

Nº 2

Something unexpected that brings you joy
I find joy in gardening. Planting, pruning and witnessing growth is fulfilling. Surprisingly, I feel the same about transport infrastructure investments, enabling socio-economic growth in developing countries.

Nº 3

An item you cannot live without and why?
My iPhone (Pro Max) can function like a reader, laptop, entertainment device, camera and phone. As I travel extensively, it's my handy versatile device. Apple should be paying me for this!

Nº 4

What world record do you have a shot at beating?
If there was an award for rapid turnaround in thoroughly assessing feasibility studies for bankability or refining PPP concessions, I could be a strong contender!

Nº 5

A quality that impresses you in a business partner?
Exercising wisdom. Wisdom is framed in patience, kindness, impartiality and sincerity, bearing good outcomes for everyone. It is easy working with someone who is transparent, not manipulative or constantly self-seeking.

Nº 6

If you could time travel, where would you go and what would you do?
I would travel into the future to see how AI has positively or negatively affected human life. I would then come back and warn everyone and make wiser decisions.

Nº 7

Dream dinner date and why?
As the most famous world 'influencer', I would choose Jesus Christ. Why? More than a dinner date, it would be an encounter with the divine, truth, compassion and eternal love, free of pretence and judgement.

Nº 8

Three things you take to a deserted island?
A big sun hat, my phone, and Superman to make fire with his eyes, catch my favourite fish, cook my food, charge my phone battery, link me up to satellite Wi-Fi, and fly me out of there when I get bored.

Nº 9

What keeps you awake at night?
The thought of strategic infrastructure in Africa that may not serve developing communities, but externalises raw minerals, resources and profits out of the continent into advanced economies.

Nº 10

Best advice ever received?
When you run in your own lane, there's no traffic. Also, that life is a journey which is far more valuable than the destination. It's in the journey that we grow and get refined in character.

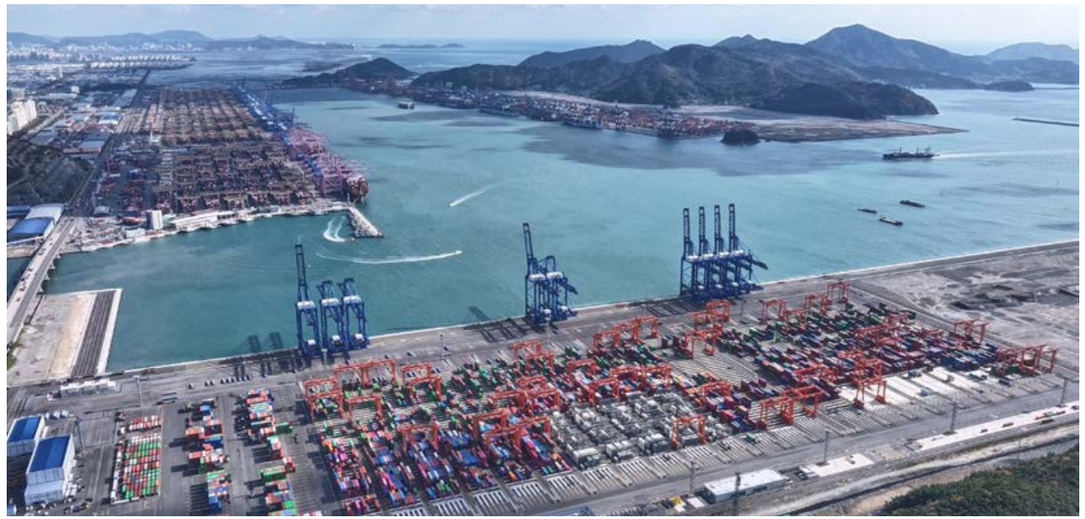
If you would like to be featured in this column in a future edition email: editor@ports-and-harbors.com

FEATURE FUTURE OF WORK

Safeguarding port jobs. Strengthening the community

How Busan Port retained jobs and retrained its workforce during a technological transition and now stands as an example in the IAPH World Ports Sustainability Program.

MARTIN CLARK



Busan Port recently faced two major workforce-related challenges. First, Jaseongdae Pier — the first dedicated container terminal in Busan — was on the verge of closure due to lease expiration and the North Port Redevelopment Project, putting 598 port workers at risk of losing their jobs.

Secondly, the relocation of DPCT, the operator of Singamman Terminal in North Port, to Korea's first fully automated terminal in New Port raised serious concerns about large-scale workforce reduction.

To mitigate the employment risks associated with DPCT's automation transition, BPA established a tripartite consultative body to mediate labour-management conflicts. In collaboration with the government, Busan Port Authority (BPA) invested a total of US$1.28 million to provide smart port–specific training for 560 employees, covering remote equipment operation, smart system management, IoT, and AI technologies. Thanks to this proactive approach, BPA successfully alleviated job insecurity and redeployed personnel without layoffs during the automation process.

Meanwhile, with Singamman Terminal left idle following DPCT's move, BPA designated the site as a replacement terminal for Jaseongdae Pier. In selecting a new operator, BPA prioritised employment succession in the evaluation criteria, ultimately awarding the lease to Hutchison, the previous operator of Jaseongdae. By leading tripartite negotiations, resolving compensation-related issues, and supporting operational stability to prevent vessel and cargo loss during the transition, BPA achieved the full succession of all 598 workers.

These two coordinated responses led to one remarkable outcome: 100% retention of existing port workers. Not only were directly employed workers protected, but the broader ecosystem including stevedoring, tallying and lashing services, was also stabilised. The effort restored labour trust, improved productivity and contributed to the successful early adoption of smart port operations in Busan.

Pictured: Fully automated terminal in New Port
All photos: Port of Busan Authority





Background
Busan North Port opened its first container terminal in 1978, establishing itself as a gateway port for Korea. To cope with the growing cargo volumes, the New Port was constructed and became operational in 2006. Since its opening, the New Port has steadily increased its container throughput. As of 2024, North Port handles approximately 26% of container volumes, while the New Port accounts for 74%.

The terminal operator, DPCT, which was operating the Singamman Terminal at North Port, participated in a bid to operate a newly-planned terminal at the New Port. Upon being selected, the operator was confirmed to relocate to the New Port.

The selected operator adopted a fully-automated terminal operation system using AGVs (Automated Guided Vehicles). This led to concerns among the existing port workers and the dockworkers' union regarding job losses and the need to adapt to new systems and roles, sparking intense conflict between labour and management.

Sudden introduction of full automation without prior agreement
The dockworkers' union vehemently opposed the introduction of AGVs, the unmanned container transport vehicles, claiming it had never been formally discussed and would result in mass layoffs. In protest, the union staged a two-day demonstration in front of BPA and DPCT's Singamman Terminal.

Successful job retention through a tripartite consultative body
To ease job insecurity caused by automation, BPA formed and operated a tripartite consultative body comprising the labour union, terminal operator and government. Over five rounds of official negotiations, they successfully reassigned all existing workers by redefining roles and tasks, achieving zero job losses.

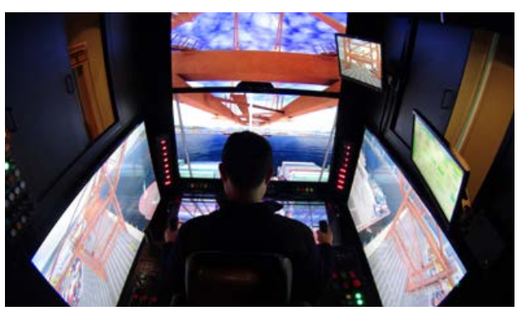
Smart port workforce training programme
In response to the opening of the fully automated terminal at New Port Pier 7, BPA and the Ministry of Oceans and Fisheries jointly launched the 'Smart Port Workforce Training Support Project' from 2021 to 2023.

With a total budget of US$1.28 million (US$600,000 from BPA and US$670,000 from the government), the project supported theoretical and practical training on automated equipment through the Korea Port Training Institute in Busan. A total of 560 professionals were trained.

Training topics included remote crane and yard equipment operation, smart equipment maintenance, smart port system management, and future technologies such as AI and blockchain. BPA also supplied three simulators (1 for S/C, 1 for remote C/C, and 1 for ARMGC), leased them, and provided training operation funds to ensure smooth programme implementation.

Achievements: technological transition and job protection
The selected terminal operator initially anticipated a stabilisation period of 12 to 18 months for the fully-automated terminal. However, by retaining existing workers and providing smart port technology training, the company successfully stabilised operations in just six months without any human accidents, thanks to the foundation laid by a skilled workforce. The terminal processed 560,000 TEUs — 163% more than the initial target of 340,000 TEUs. STS productivity also increased from 15 moves per hour to 23 moves per hour.

Through continuous dialogue and cooperation, Busan Port has been recognised as an exemplary case of maintaining employment while embracing technological change, preserving the three core values of trust, technology and job security.



Pictured (top left): AI and Blockchain training
Pictured (top right): Port safety training
Pictured (above): Remote crane operation training

Tranquility and tradition

In the heart of Kobe, one of Japan's most dynamic port cities, Sorakuen Garden offers a quiet retreat rooted in over a century of history.

Unlike many of Japan's ancient gardens, Sorakuen is relatively young. It was developed in the early 1900s as part of the private estate of Kodera Kenkichi, a former mayor of Kobe with a deep appreciation for traditional Japanese design. What began as a personal haven would later become one of the city's most cherished public spaces.

Opened to the public in 1941, Sorakuen was designed in the classic chisen kaiyu-shiki style, a type of strolling garden centred around a pond, encouraging visitors to experience changing views as they walk. The garden incorporates carefully placed stones, elegant bridges and artfully trimmed trees, all arranged to reflect natural landscapes in miniature.

Despite suffering damage during World War II, several historic structures were preserved, including a rare Edo-period houseboat and a Western-style stable, an unusual but telling symbol of Japan's Meiji-era cultural crossroads.

Today, Sorakuen is more than a historical site, it plays an active role in the cultural and civic life of Kobe. Seasonal flower displays, tea ceremonies and traditional festivals bring fresh energy to the garden throughout the year. In spring, cherry blossoms draw families and photographers alike; in autumn, fiery maple leaves transform the landscape into a painter's palette.

While skyscrapers and modern buildings have grown around it, Sorakuen remains a timeless sanctuary. It offers a space not only for reflection but for dialogue between past and present. Young couples come for engagement photos, school groups visit to learn about heritage and locals often pause here to find peace amid their daily routines.

In a fast-changing world, Sorakuen Garden stands as a graceful reminder that history and modernity can coexist, not just side by side, but in harmony. It is a living space, rooted in tradition yet always welcoming the present.

#IAPH2025 World Ports Conference

Sorakuen Garden is also the venue for the evening reception on the opening day of the IAPH World Ports Conference on 7th October, 2025. Enjoy a drink and network with colleagues in a warm atmosphere amongst the magnificent camphor trees, cycad wood and large lanterns that adorn the gardens. ■

Main picture: Sorakuen Garden, Kobe
Photo: Dreamstime

Welcome to New members

We are pleased to welcome as new members of the association:

Regular members

Lavrio Port Authority S.A.
Greece
(+30)2292027711
info@oll.gr
https://oll.gr/en/
George Vacondios, CEO

Andhra Pradesh Maritime Boar
India
91 0863-2442113
pratap.ed@apmaritime.in
https://apmaritime.in/#/
S. Pratap Reddy, Executive Director

Barbados Port Inc.
Barbados
(246) 434 6100
cwaithe@barbadosport.com
https://barbadosport.com/
David Jean-Marie, CEO

Associate members

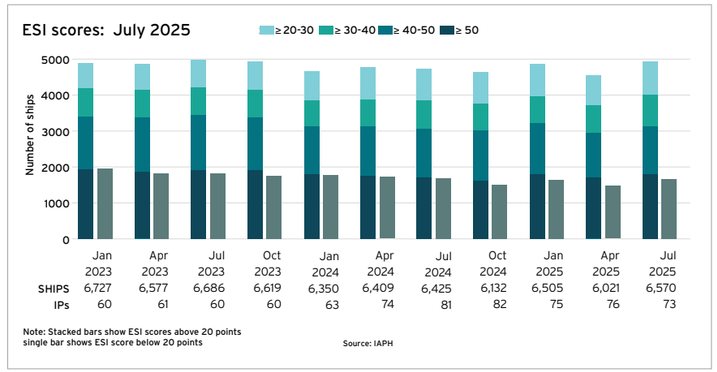
Capt. Umameh Friday Jeremiah
Nigeria
Assistant Harbour Master,
Bonny Portharcourt Pilotage District
(Rivers Port) Nigeria,
Nigerian Ports Authority

Moffatt & Nichol
Spain
opernia@nextport.ai
https://www.moffattnichol.com/
Andrew Ian Burton, Vice President

Aon
U.K.
felicita.fiala@aon.co.uk
https://www.aon.com/en
Paul Fuller, Director, Head of Ports & Terminals

iaph international association of ports and harbors 2025 celebrating seventy years

ESI : latest scores and new developments



IAPH moves to further optimise Environmental Ship Index (ESI) for a new era in light of IMO net-zero framework

Following the April agreement at MEPC83 on the proposed package of new greenhouse gas (GHG) emissions reduction regulations – known as the IMO net-zero framework (NZF) – IAPH is further revising the expanded suite of performance modules planned for the Environmental Ship Index (ESI).

Previously scheduled to come online in 2026, ESI's revised and expanded offering will now be further adjusted to align with and incorporate the requirements of the IMO NZF and the expectations of the global maritime and port industries.

These changes will take into account a range of potential emissions, introduce a new GHG methodology, and reward innovation and application of zero-emissions techniques onboard vessels.

The new ESI Core module will now come online at the beginning of 2027, following further significant revision of formulae, including the introduction of the new GHG emissions calculation.

In its revised format, ESI will remain consistent with the approach with which Incentive Providers and Incentive Receivers are familiar, supporting ports and vessel owners on the journey to decarbonisation and lowering emissions.

The transition process will continue through 2025 and 2026, with support from ESI's Board and administrator, as well as IAPH, ensuring ample support and time to facilitate a smooth migration for the scheme's Incentive Receivers and Incentive Providers.

ESI will continue to reward those vessels that exceed current IMO emissions standards, now and into the future. ESI is the global benchmark and industry standard tool for incentivising environmental performance. It has been recognised by the IMO as the standard basis for port incentives for low- and zero-carbon ships. The index was created by major ports in cooperation with the IAPH and has been fully integrated into the IAPH's governance structure since 2020.

In addition to air quality and GHG emissions, ESI also addresses global concerns about the environmental impact of vessels on marine life. From 2026 ESI will offer a new option to reward the mitigation of underwater radiated noise – a change that is unaffected by decisions at the IMO in April.

Visit the ESI website:
environmentalshipindex.org ■

Q&A

Sarah Ogier
Director, Maritime Environment & Sustainability, Port of Seattle



Recently appointed as the new vice chair of the IAPH Climate and Energy technical committee, Sarah Ogier, director, maritime environment & sustainability at Port of Seattle, talks to P&H about her hopes and expectations in her new role

Q: Can you tell us about your background?
A: I have a bachelor's degree in urban and environmental planning and a master's degree in water resources management and planning. With this background, I have been working in the environmental fields in the US Pacific Northwest for nearly 30 years. My expertise includes environmental policy and regulation, natural resources management, restoration and planning, industrial and transportation systems decarbonisation, development and maintenance of public infrastructure, and utility management. Not only do I have extensive experience working with local governments, but I have worked for NGOs and consulting firms as well.

Q: What is your current role at the Port of Seattle?
A: My title is director of maritime environment & sustainability at the Port of Seattle. As a director at the port, I have the pleasure of leading a brilliant team of environmental scientists, policy analysts, and engineers who share a deep commitment to building a better world. The Port of Seattle aims to be the greenest port in North America, a goal laid out by our duly elected Port Commission, and one which we are already achieving across many facets of the organisation.

> The Port of Seattle aims to be the greenest port in North America, a goal laid out by our duly elected Port Commission, and one which we are already achieving across many facets of the organisation.

This ambition drives key initiatives in our portfolio such as the Pacific Northwest to Alaska Green Corridor, expanding and improving shore power at all cruise terminals, electrification of the Seattle waterfront, our sustainable maritime fuels collaboration, habitat and shoreline restoration, and ensuring we integrate sustainability and equity considerations into our capital projects.

Q: What involvement have you had with IAPH in the past?
A: Since joining the Port of Seattle, I have participated extensively among the various environmental committees and meetings hosted by IAPH and have had opportunities to attend IMO (International Maritime Organisation) meetings as a representative of IAPH. And for the past two years, I have been following the IMO MEPC (Maritime Environmental Protection Committee) in their development of a new zero emissions framework, and I am hopeful this framework can help drive adoption of additional clean maritime fuels.

> IAPH committees have been incredibly helpful in providing practical tools for ports, such as the fuels checklists and sustainability indices. I hope to see us continue to deliver additional useful tools to our port members.
>
> **Sarah Ogier,**
> director, Maritime Environment & Sustainability, Port of Seattle

Q: Can you tell us about your new role at IAPH?
A: I am honoured to have been appointed vice chair of the IAPH Climate and Energy technical committee, which has done some impressive work to date. I am looking forward to helping enable even greater collaboration so that ports are better informed about energy transition opportunities – and issues – and can accelerate decarbonisation advancements in the maritime sector.

Q: What do you hope to achieve in this new role?
A: At both a personal and professional level, I am excited at the opportunity to work alongside expert peers from ports around the world. There are so many synergies and plenty of differences too. IAPH committees have been incredibly helpful in providing practical tools for ports, such as the fuels checklists and sustainability indices. I hope to see us continue to deliver additional useful tools to our port members – working together, we have the opportunity to make a truly meaningful impact. IAPH committees and events are fantastic forums for learning and sharing and I appreciate having a port-specific platform for discussing environmental issues. ■

IAPH Sustainability Awards

Meet the expert panel of judges appointed to select the winners of the IAPH Sustainability Awards...to be announced at the #IAPH2025 World Ports Conference in Kobe on 8 October

The IAPH Sustainability Awards celebrate the very highest quality port-sustainability projects from around the world submitted to the World Port Sustainability Program (WPSP) database. Each year, these submissions are judged by a jury of industry experts across six categories: Digitalization; Infrastructure; Health Safety and Security; Environmental Care; Community Building; Climate and Energy.

After selecting three from each category, 18 finalist projects are submitted to the public for a vote (weighted 70% toward the jury and 30% to the public) with the winners announced at a gala ceremony at the annual IAPH World Ports Conference.

This year marks the seventh year of the awards, which have grown in size since the launch in 2018. A record number of entries this year – 112 projects – meant the expert panel was increased to 15 people in order to work through the data and whittle the list down to just three in each category (or 18 projects in total). The final winners will be named in Kobe on 8 October.

**Winners and finalists of the IAPH Sustainability Awards 2025 will be included in the next edition of Ports & Harbors magazine*

EXPERT PANEL



MARK ASSAF
Mark is chief of the human resources development section at TrainForTrade at UN Trade and Development (UNCTAD). He has over 20 years experience with international institutions and private sector multinationals and oversees major programmes in the field of international trade statistics, e-commerce and port management in support of sustainable economic development.



INES NASTALI
Ines is a maritime expert and has served as an editor of various maritime print publications, including the role of editor of the IAPH membership publication *Ports & Harbors*. She holds a Bachelor of Arts in technical journalism from the Hochschule Bremen, Germany, and a Master of Arts in science journalism from London's City University.



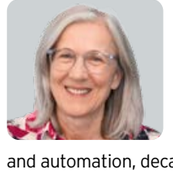
SANJAM SAHI GUPTA
Sanjam is director for Sitara Shipping Pvt. Ltd. She is also a founder member of the Women's International Shipping and Trading Association (WISTA) India and was a board member from 2014-2021. She was the first person from the private sector to be appointed to the executive board of the World Maritime University in Sweden and was recently appointed to the National Shipping Board of India. She is also part of the International Chamber of Shipping's Diversity Committee and is committed to driving change for a more inclusive maritime industry.



GERALDINE KNATZ
Geraldine is Professor of the Practice of Policy and Engineering, a joint appointment between the University of Southern California's School of Public Policy and the School of Engineering. She served as the first female director of the Port of Los Angeles from 2006 to January 2014 and prior to that was managing director at the Port of Long Beach. She is a past president of IAPH and the American Association of Port Authorities.



ERANDA KOTELAWALA
With over 25 years of senior management experience, Eranda is a former CEO of Solomon Islands Ports Authority and COO at Fiji Ports Corporation Limited. He also served as IAPH board member and vice president for Southeast Asia and Oceania from 2023-2025. He currently practises as a business process re-engineering specialist, with a focus on marine processes and digital transformation of ports, and has consulted on various major projects worldwide.



FELICITY LANDON
Felicity is an award-winning maritime journalist, writer and editor with 30 years' experience, specialising in ports, shipping, transport and logistics, Port Community Systems and Single Windows, digitalisation and automation, decarbonisation and the environment, P&I and insurance, classification, ship management and seafarers' interests. She is a regular contributor to numerous publications, including the IAPH's *Ports & Harbors* magazine.



SANDRA CHIRI
Sandra is an environmental professional with over 10 years experience. She is the international outreach manager of the shipping emissions team at Ocean Conservancy, which means creating partnerships, building coalitions and cultivating champions on shipping emissions carbon reductions, regionally and globally. Prior to this, she served for several years in the Ministry of Environment of Peru, supporting national conservation efforts in the Amazon.



WEI JIE LAU
Wei Jie is a director of partnerships at the Global Centre for Maritime Decarbonisation (GCMD) and is the co-lead for GCMD's enabling ammonia as a marine fuel initiative. Previously, Wei Jie was from the Maritime and Port Authority of Singapore where he was involved in projects to enable the use of drones in the maritime sector and the development of the maritime R&D roadmap, and in proposals leading to the awarding of the funding for the first three electric harbour crafts to be deployed within the Port of Singapore.



Prof. MAXIMO Q. MEJIA Jr.
President of the World Maritime University (WMU) in Sweden, the International Maritime Organisation's centre of excellence for postgraduate maritime education. Before joining WMU, he saw duty on board various naval and coast guard vessels, as well as in shore-based facilities in the Philippines. During a sabbatical from WMU from 2013 to 2016, he served as administrator (director general) of the Maritime Industry Authority, the Philippines' maritime administration.



GERALD MUNJANGANJA
Gerald is commercial line manager at Seatrade Chartering B.V. A maritime shipping and logistics professional, he specialises in the business functions of a commercial operator. He is principally focused on delivering profitable and organic growth, whilst providing sustainable and efficient customer solutions for a range of supply-chains which include chilled, fresh & frozen commodities, containerised & break-bulk cargoes, and dry-bulk, liquid-bulk and RoRo shipments.

WPSP
WORLD PORTS SUSTAINABILITY PROGRAM

https://sustainableworldports.org ■



VILOSH NAIDOO
Vilosh is a maritime economist and infrastructure investment professional with around 30 years' experience, spanning public and private sectors in South Africa. Her expertise lies in transport infrastructure finance, port sector reform, and regulatory development. Vilosh also serves on the IAPH Technical Committee on Port Operations and Finance, contributing to global research on the challenges of port PPP concession agreements.



NAMRATA NADKARNI
Namrata is CEO and founder of Intent Communications, which specialises in maritime and supply chain consulting, PR and communications. With two decades of editorial and marketing work in the industry, Namrata is an award-winning journalist who has worked on well-known maritime publications writing about merchant and cruise shipping, ports, safety, dredging, supply chains, decarbonisation, diversity, emerging technology and more.



THANOS PALLIS
Thanos is Professor in port and maritime economics and policy at the Department of Port Management and Shipping, at the University of Piraeus, Greece, and director of the university's Laboratory for Integrated Port Economy. He is co-director of Porteconomics.eu, immediate past president of the International Association of Maritime Economists (IAME), and a member of the IAPH Risk and Resilience Committee and the IAPH Cruise Committee.



KATHARINE PALMER
Katharine is maritime lead at the Climate Champions Team, supporting the UN Climate Change High-Level Champions to drive momentum in global climate action, is seconded from her role as global head of sustainability at Lloyd's Register. Katharine is also a fellow with IMarEST (Institute of Marine Engineers, Scientists, and Technologists) and serves as an elected trustee on the Board of the Sustainable Shipping Initiative.



Prof. Dr. GORDON WILMSMEIER
Director of the Centre for Shipping and Global Logistics (CSGL) at Kühne Logistics University (KLU), Hamburg, Germany. He also holds the Kühne Professorial Chair in Logistics at the School of Management, Universidad de los Andes, Bogotá, Colombia and serves as an honorary professor of Maritime Geography at the University of Applied Sciences in Bremen. He has published over 100 book chapters, journal papers, institutional publications and working papers.

A new era for IAPH

In our final article marking IAPH's 70th anniversary, *P&H* reveals how the association has forged stronger ties with institutional partners, built platforms for knowledge sharing and delivered tools to support sustainability

After successful conferences held in 2013 and 2015 – at the birthplaces of the association (Los Angeles) and the smartport concept (Hamburg) respectively – IAPH began a major evolution. The change was driven by a new constitution that covered the composition of the IAPH council, its election processes and the categorisation of its regions. In the words of then-president Santiago Garcia-Milà (Port of Barcelona), it aimed to 'give the organisation a relevant role in global maritime and transport affairs'.

When the IAPH convened in Bali in 2017 for its 30th conference, further organisational and strategic changes were confirmed. It was announced that the scope of the World Ports Climate Initiative (WPCI) would be extended from climate action to cover a full range of sustainable port development challenges facing the industry, guided by the 17 UN Strategic Development Goals. The new initiative, known as the IAPH World Ports Sustainability Program (WPSP), was officially launched in Antwerp during a two-day international conference in March 2018 with the participation of the IMO secretary general, the Queen of Belgium and maritime industry leaders.

By this time, IAPH had enacted a significant constitutional change: the appointment of its first managing director, Patrick Verhoeven, who was introduced to IAPH's global membership in person at the mid-term conference in Baku in 2018.

The association's newly established award scheme for projects submitted to WPSP resulted in 60 entries from global ports flowing into the new online database. The awards were bestowed at a gala dinner held during the following edition of the conference, which took place in Guangzhou, China in May 2019.

The show must go on

As a new decade dawned, IAPH's flagship conference underwent the most significant set of changes since its inception: moving from a biennial to an annual frequency and rebranded as the World Ports Conference from 2020. The new IAPH World Ports Conference was due to be held in March in Antwerp,



Belgium – yet, with only weeks to go, it had to be cancelled due to the pandemic lockdown. Undeterred, the association reimagined the conference as a five-day broadcast for a remote audience, and rescheduled it to June 2021, with the following Vancouver edition postponed to May 2022. The digital edition of the conference combined live events from the Antwerp Port House, with scheduled and recorded C-level keynotes, debates, demonstrations and one-on-one interviews, to great success.

Meanwhile, the unique working circumstances of the pandemic encouraged the creation of essential publications to support industry development, with the Cybersecurity Guidelines for Ports and Port Facilities published in September 2021. Further institutional changes were also afoot: IAPH was reorganised around a set of three leading technical committees and it also saw the organisational incorporation of the Environmental Ship Index (ESI).

The Vancouver conference included the presentation of the results of a global supply chain stakeholder engagement exercise and roadmap on how to 'Close The Gaps' in global port infrastructure, undertaken in collaboration with the World Bank, as well as the conference debut of the Port Endeavor business game, launched the previous year. The first IAPH World Ports Tracker report was later published, followed by the full Close the Gaps report and, shortly after that, the Risk and Resilience guidelines. It was a period of high energy and industry for IAPH.

Closer ties with the IMO

The growing influence of the association's cross-sectorial endeavors was reflected in the signing of a Memorandum of Understanding with the IMO in July 2023. Signed by IMO secretary-general Kitack Lim, then IAPH president Captain Subramaniam Karuppiah (Port Klang Authority) and IAPH managing director Patrick Verhoeven, the MoU agreed to closer collaboration on climate change, energy transition, digital transformation, trade facilitation and risk and resilience capacity building between shipping and ports.

In late October and early November, the IAPH World Ports Conference came to the Middle East for the first time.

Pictured: The World Ports Sustainability Program (WPSP) was launched in Antwerp in March 2018



The Abu Dhabi event, hosted by AD Ports Group, was held one month before the UN's COP 28 climate conference in Dubai. Appropriately, energy transition was the major focus of the conference; in fact, the UAE was one of the five first governments to back the Clean Energy Marine Hubs initiative that had been created by IAPH and ICS, and launched in late 2022.

IAPH's collaborations with its institutional partners continued to bear fruit and the conference saw the introduction of both the Guidelines on Cooperation between Customs and Port Authorities (created with the World Customs Organization) and a first look at the forthcoming Port Community Systems – Lessons from Global Experience, created with the World Bank.

Tools for future fuels

The IAPH World Ports Conference returned to Hamburg in 2024. IMO secretary general Arsenio Dominguez assured the assembled port professionals that progress was being made on whether, and how, to price emissions from global shipping – and that the ports sector was being listened to in that process.

Meanwhile, the development of IAPH's sustainability tools and initiatives continued at speed. The event saw the integration of the World Ports Climate Action Program (WPCAP) into the IAPH Climate & Energy technical committee. It also saw the launch of the first digital version of the Port Readiness Level for Marine Fuels (PRL-MF) self-assessment tool, created during a two-year period following work by the IAPH Clean Marine Fuels (CMF) Working Group, WPCAP and Mission Innovation's Zero Emission Shipping Mission. In addition, the CMF Working group further updated and introduced new low- and zero-carbon fuel-agnostic bunker checklists.

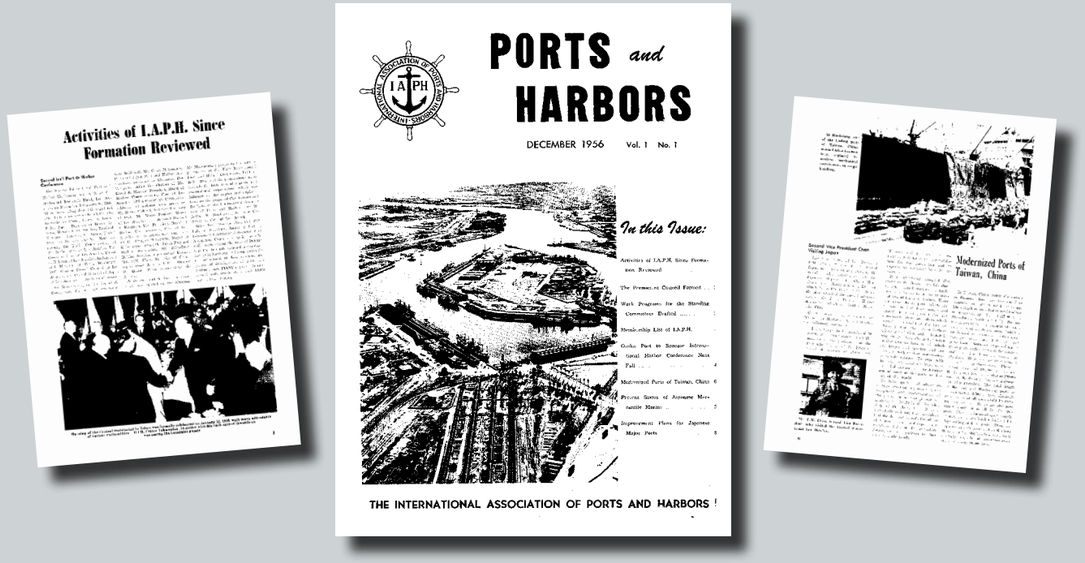
The conference, hosted by Hamburg Port Authority – where IAPH president Jens Meier is CEO – was another great success. Keynote speaker and MSC chief executive Soren Toft reflected on how the efficiency and productivity of the ports sector would help to build a more resilient and sustainable industry going forward – helping to serve vessels more effectively. "I think ports are sometimes undervalued in the supply chain," he observed, "but we really value the work that you do."

IAPH's work programme had certainly altered significantly following the constitutional changes of 2016, with managing director Patrick Verhoeven leading a European team that had taken responsibility for policy, strategy, communications and business development. With a formal address in London through a partnership with British Ports Association, the team works in close cooperation with the team at the Tokyo office, which is responsible for finance and membership administration.

And now, 70 years after IAPH's official founding, the stage is set for the association to return to the city where this story began. Kobe has always been a city of many Japanese 'firsts' and IAPH is a part of that proud tradition. This was the historic location where – at the first International Port & Harbor Conference – Japanese and American port professionals proposed a motion to create a new, permanent international association for ports around the world. Seven decades later, it is an idea that retains unanimous support. ■



Pictured top: The IAPH technical committee meetings took place in person after the 2022 World Ports Conference in Vancouver, Canada
Pictured left: In July 2023, an MoU was signed by (L-R) IMO secretary-general Kitack Lim, IAPH president Captain Subramaniam and IAPH managing director Patrick Verhoeven
All photos: IAPH



THE REVIEW

Ports & Harbors Vol. 1 No. 1 December 1956

MARTIN CLARK

The first issue of *Ports & Harbors (P&H)* magazine was published almost 70 years ago, in December 1956, soon after the inauguration of IAPH. Dwight Eisenhower was US President at the time, re-elected by the American people a month earlier, and the maritime world was reeling from the Suez Crisis, which closed the canal to international shipping for months in the wake of the conflict.

P&H has changed significantly since those times. While content and coverage originally looked at manual cargo handling, ship arrivals and basic trade routes, the themes of today explore smart ports and automation, AI-driven logistics, sustainability and cybersecurity, while infographics, data and digital dashboards have replaced black-and-white photography.

From 1957, *P&H* was produced four times a year, becoming a monthly magazine in 1968, and then settling at 10 issues from the 1980s through to the early 2000s. It was in 2006 that *P&H* began its current six issues per year frequency.

The print magazine continues today, though the internet has expanded its digital reach to a global readership, beyond port authorities to include technology firms, consultants and analysts, financial stakeholders, and many other industry bodies.

On the front cover is Los Angeles, one of the great man-made harbours of the world created from mudflats, that was at the time, "connected with more than 200 world ports by over 115 steamship lines," according to notes inside the issue. The Port of LA hosted the inaugural IAPH conference at the Hollywood Roosevelt hotel in 1955. which resulted in the formation of IAPH.

The lead story in the first issue reflects on the conference, which was attended by 145 delegates from as far afield as Brazil, India, Korea and South Africa, and names the new IAPH executive team. It also explores port improvements in Japan – a topic continued in this issue, seven decades later.

While so much has happened in the intervening years, *P&H* has been a constant. The magazine remains relevant by continuously adapting coverage to reflect the evolving global trade landscape to serve members. Its longevity also gives it a unique historical perspective – a true gift from the IAPH founders many years earlier.

This evolution will continue as an ever-widening global community committed to the port sector's future seeks to connect and reconnect in new ways. ■

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