MPA ACADEMY SINGAPORE

HORIZON

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01
EDITOR'S NOTE

BEYOND THE PANDEMIC: TOWARDS A SUSTAINABLE FUTURE

Source: PSA Corporation Ltd

As countries move beyond the pandemic into a new normal way of living, it is timely to reflect and ask ourselves what we envision the future of shipping to be. Today, the maritime industry is caught up in a flurry of rapid technological advancements such as the development of maritime autonomous surface ships, as well as an era of digitalisation quickly transforming traditional operational practices. Amidst these exciting new developments, it is equally important to place an emphasis on ensuring that the maritime industry continues to develop sustainably. The theme of Horizon's current edition explores this concept of a sustainable future for maritime.

In Feature, we publish some of our conversations with MPA Academy Alumni to reveal a personal insight into MPAA's Flagship Programmes, which were conducted virtually in 2021. Ms Salmaya, Senior Manager, Regional & International Maritime Affairs Section, Maritime and Port Authority of Brunei Darussalam, and Commander Dall'Orto Díaz, Assistant Defence Attaché, Embassy of Peru in the Republic of Singapore, shared their personal experiences and key takeaways from MPAA's 11th Maritime Public Leaders' Programme (MPLP) held in November 2021. The participants highlighted some benefits and inevitable drawbacks of virtual formats of the Flagship Programmes.

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We are also pleased to publish an interview of Dr Sanjay Kuttan, Chief Technology Officer of the Global Centre for Maritime Decarbonisation (GCMD). Dr Kuttan shared his views on the importance of maritime decarbonisation, challenges faced by the shipping industry in their decarbonisation journey, as well as how the GCMD helps support companies tackle such challenges. Dr Sanjay also shared how the shipping industry needs to change to drive maritime decarbonisation, as well as potential growth opportunities for firms investing in this sector.

Mr Tan Wee Meng, Chief Technical Officer and Chief Sustainability Officer of Jurong Port (JP), contributed a pertinent article on exploring sustainable pathways to a greener future. In his article, Mr Tan provided an overview of JP's environmental sustainability effort and shared key ways to accelerate decarbonisation efforts and help build greener supply chains, including positioning JP to contribute towards a sustainable maritime Singapore.

This issue of Horizon also features a valuable contribution by Mr Steen Lund, Chief Executive Officer, RightShip, on navigating the course towards zero emissions for maritime. Mr Lund shares his thoughts on the importance of collaboration between different stakeholders, as well as pragmatic, supportive regulation to help support decarbonisation targets. Mr Lund also touched on the need for continued focus on crew and employee welfare as they are on the frontlines carrying out initiatives towards maritime decarbonisation.

In Highlights, we provide a summary of two webinars on COVID-19 and international shipping, which were co-organised by the Centre for International Law (CIL) of the National University of Singapore and MPAA in early 2022. The first webinar discussed how different actors in the shipping industry responded to challenges that flag States faced in fulfilling their obligations to conduct ship inspections and issue statutory certificates arising from border restrictions amidst the COVID-19 pandemic. The second webinar discussed methods to improve the welfare of seafarers during the COVID-19 pandemic, including crew change and vaccinations.

We hope that you will enjoy reading this issue of HORIZON. If you have any comments or suggestions for future issues, please send us an email at MPA_Academy@mpa.gov.sg.

We wish you safe and well.

Tan Suan Jow
Dean, MPA Academy

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02
FEATURE

CONVERSATIONS WITH MPA ACADEMY ALUMNI

BY RAHITA ELIAS

| MPLP Class of 2019

Due to the ongoing global pandemic, many courses have had to be held online, via Zoom. The MPA Academy has likewise embraced this trend so as to ensure that training and skills upgrading can continue despite the challenging conditions. Two participants – one from Peru and the other from Brunei – relate their experiences attending online programmes, and what they learnt from them.

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Ms Salmaya attended the MPLP on the recommendation of her colleagues, who had previously participated in the programme. She talks about her experiences taking part in an event which had to be held virtually because of the global COVID-19 pandemic.

SALMAYA RAHAYU SALLEH
Senior Manager,
Regional & International Maritime Affairs Section
Maritime and Port Authority of Brunei Darussalam

I attended the Maritime Public Leaders' Programme (MPLP), organised by the Maritime and Port Authority in Singapore, in November last year. I decided to take part based on recommendations by my colleagues who had attended the programme in the previous years.

Besides providing the rare opportunity for officials from various maritime administrations to come together to have meaningful exchanges, it was also described as a comprehensive programme that discussed, at length, governance in shipping and port, innovations to improve port and shipping experiences for regulators, operators and businesses alike, crisis mitigation, and leadership in maritime administration.

Since I am currently a Senior Manager in the Regional & International Maritime Affairs Section, a senior management position, I found the programme's premise compelling, and was eager to learn from MPA and other participants.

As it turned out, the MPLP really did deliver on so many levels.

Lessons Learnt

My main takeaways from the programme were related to the worldwide COVID-19 pandemic. I got to understand how MPA handled the impact of the pandemic and ensured that its operations remained minimally disrupted – specifically how to lead in times of crises such as the pandemic.

I learnt how digital transformation, crisis communications, and risk management played a key role in mitigating the impact of the pandemic. It is undeniable that clear and timely communication is critical not only to overcome challenges but also to execute the Administration's plans, be it the day-to-day work plan or its strategic plan to realise its long-term vision.

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MPA's sustainability initiative was an eye opener to me. It helped to put into perspective the global maritime concerns on climate change and sustainability as it has been intricately designed to facilitate the implementation of national strategy and international instruments related to decarbonisation – thus paving the pathways for the industry to play their roles in a systematic and environmentally responsible way.

Collaboration required from all stakeholders

It takes a village, as the saying goes, to plan, implement and sustain a strategy or initiative. Everything from developing the policy to drafting the legislation, designing the infrastructure and engineering the processes, these cannot be done just by regulators alone. Port operators, businesses and ship owners all play a role, and their voices are what help the Administration to put into place sustainable initiatives.

The pandemic is accelerating digital growth, which in turn seems to present itself as a "solution" to working in the new normal where physical human interactions are highly discouraged. While we have adapted to physically distancing from one another, we still need to face clients or stakeholders. Digital transformation was therefore urgently called on to quickly replace the physical interactions.

As much as digitalisation seems to be the answer to keep businesses going during the pandemic, the MPLP, which delved into the complexities of the digitalisation process, showed the reality, namely that there are actually barriers to its implementation in both organisations and businesses.

For instance, digitalisation is not always wholeheartedly welcomed. In fact, the barriers are not confined to financial constraints or a lack of expertise. Instead, trust and security concerns top the list.

Digitalisation raises a raft of questions, including how can different agencies come together to agree on the mechanism of verifying digitalised documents while at the same time ensuring that their systems are not breached or compromised. Such important questions that need to addressed may be the reason for the lukewarm response to digitalisation from some quarters, and slow down digitalisation transformation.

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Applying the MPLP lessons

Thus, MPA's experience navigating this process is valuable and becomes an excellent reference tool for Maritime and Port Authority of Brunei Darussalam (MPABD). As we undertake our own initiatives, the lessons learnt from MPLP has helped us to ask the right questions, and know where to find the answers.

Let me explain a little about MPABD. The MPABD was established as a statutory body on 28th September 2017. In line with our vision, A Conducive and Dynamic Maritime and Port Environment, we developed a three-pronged strategy of:

- Reinforcing safe and secure shipping and environment,
- Cultivating the growth of maritime and port industry, and
- Internally, ensuring that we are a vibrant and progressive organisation.

Path towards digitalisation

Since every country's strategic plan, needs, resources and landscape differ, our own route towards full digitalisation and sustainability will be unique. Ultimately, as we serve our stakeholders – whose needs and expectations may differ from Singapore's – we hope we can complement Singapore's maritime digital infrastructure and long-term sustainability, where we can be of benefit to each other and other maritime administrations in the region. At a regional level, we aim to elevate our contribution to the growth of the maritime industry in ASEAN.

Having said that, the MPLP gave a long-term view of digitalisation and sustainability. It gives a look into what MPABD can expect as we forge towards digitalisation, and plan a sustainable future for MPABD and the maritime industry in Brunei Darussalam – all of which will have to be aligned with our overall vision.

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Rating the MPLP experience

With such valuable and useful takeaways from the MPLP, I would absolutely recommend the MPLP to my colleagues. And I look forward to the opportunity to participate in the Advanced Maritime Leaders' Programme (AMLP) one day.

One of benefits of having the programme run virtually was we were able to participate in a global event despite the then-prevailing travel restrictions and safety concerns. Drawbacks to this were also plenty, unfortunately. The coffee breaks at physical events would usually give participants and facilitators the opportunity to have informal chats where we exchange views, and ask for further information. We were not able to visit sites such as the MPA office or ports. It would have been interesting if we could see in person how the digitalPORT@SG™ operates or works.

Personally I would prefer physical events, if and when the pandemic is well under control. I find physical events enable more robust interactions with other participants and facilitators. In addition, site visits would reinforce classroom lectures. If a virtual component is still required, it would be useful in terms of lectures and break out discussions.

I would also like to suggest that while MPA's experiences were inspiring, perhaps inviting port operators from the region to share their experiences in terms of maritime leadership and innovations could be beneficial as well.

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Commander Dall'Orto Díaz is a man wearing many hats in Singapore. In this interview, he talks about his work in Singapore, and his takeaways from the MPLP event he took part last year.

Before coming to Singapore last year, I had worked as part of the staff of the General Commander of the Peruvian Navy, in the field of Operation Plans and Communication. Here in Singapore, where I have been living for about a year, I have three appointments – all of which are related to defence and maritime security in the Southeast Asian region.

COMMANDER CARLOS ENRIQUE DALL'ORTO DÍAZ
Assistant Defence Attaché,
Embassy of Peru in the Republic of Singapore

Main responsibilities

My primary role is being an Assistant Defence Attaché at the Embassy of Perú in the Republic of Singapore. I am also working at the Information Fusion Centre (IFC), Singapore, as an International Liaison Officer. The IFC is a regional Maritime Security (MARSEC) centre, hosted by the Republic of Singapore Navy. The Centre provides actionable information to cue responses by maritime agencies to deal with the full range of MARSEC threats and incidents, including piracy, sea robbery, maritime terrorism, and so on.

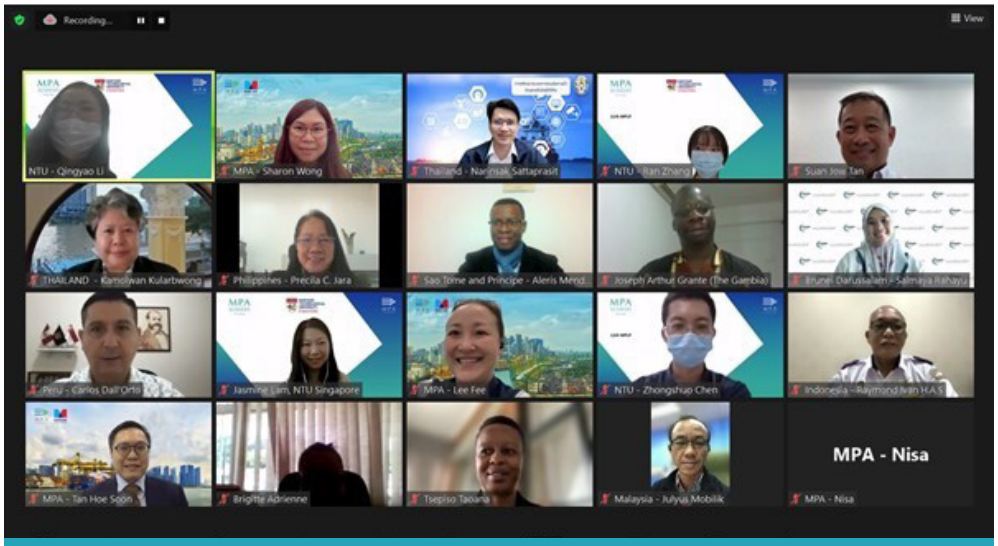
I am also involved with the Changi Regional Humanitarian Assistance and Disaster Relief (HADR) Coordination Centre (RHCC) as an International Liaison Officer. Among its many functions, the RHCC facilitates military-to-military coordination in HADR, focusing on supporting the disaster affected state's military in coordinating assistance provided by foreign militaries.

As both an Assistant Defence Attaché at the Embassy of Perú in the Republic of Singapore, Republic of Indonesia and in the Commonwealth of Australia, and a Liaison Officer in Singapore, I interact and work with people from different countries.

Understanding other cultures

I believe that learning other languages can help me better understand people from other countries and cultures. That is why I have made the effort to be conversant in languages other than my native language, which is Spanish. I can also speak English, Mandarin and Korean. I studied Mandarin at the People's Liberation Army University of Foreign Languages in China, as well as attended the Staff and Joint Planning Course, Master, at the Naval Staff College of Joint Forces Military in South Korea.

I think undertaking courses such as these are important to not only acquire knowledge but also make new contacts. Because my career and my work are related to the maritime field and port systems, I decided to take part in the Maritime Public Leaders' Programme (MPLP), organised by the Maritime and Port Authority of Singapore.



Group picture of the 11th MPLP participants

MPLP Experience

I participated in the MPLP last year, which was held as a virtual event because of the COVID-19 pandemic.

My experience was very good, and I would recommend it to my colleagues. From the course, I learned a great deal about the port systems of Singapore. However, the virtual format had some disadvantages.

One of the biggest benefits from attending courses is having the opportunity to expand one's network of contacts because you get to meet your colleagues from other parts of the world and different sectors. During a physical event, you also get to personally have the experience of visiting the ports and gaining first-hand knowledge of the processes within the Singapore port system. A virtual event is unable to offer such benefits.

I hope that by this year, a physical training programme can be held, especially in view of the easing of the anti-COVID-19 measures. A hybrid MPLP event, combining the best parts of virtual and face-to-face classes, would be useful. Such a format would be more beneficial to both the organisers and the participants. This is because the virtual element would optimise their time, while the face-to-face classes and physical visits would give participants networking opportunities and first-hand experiences.

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03
INTERVIEW

STEERING SUSTAINABLE SHIPPING THROUGH DECARBONISATION

BY ANGELA CHEW AND CHRIS CHUA

Globally, environmental responsibility is increasingly taking centre stage as companies and governments recognise the value in safeguarding the planet for future generations. Aimed at guiding the maritime sector's decarbonisation efforts, the Global Centre for Maritime Decarbonisation (GCMD) was established in August 2021. Set up by MPA, together with six founding partners who are key industry players, GCMD seeks to spearhead the industry's energy transition journey, while lowering greenhouse gas (GHG) emissions by shaping standards, deploying solutions, financing projects and fostering collaboration across sectors. Already, the centre has received over 30 expressions of interest from organisations eager to partner it in advancing the deployment of low- and zero-carbon maritime solutions, and deliver value to the industry across the globe.

DR SANJAY KUTTAN
Chief Technology Officer, Global Centre for Maritime Decarbonisation

At the helm of GCMD's research and projects development is its Chief Technology Officer, Dr Sanjay Chittarajan Kuttan. He plays a pivotal role in energising the GCMD team and its partners to collaborate on pilot and demonstration projects aimed at driving the collective decarbonisation efforts of the maritime sector.

Drawing on his extensive experience in the maritime industry, Dr Sanjay delves into the importance and challenges of decarbonising shipping and galvanising partnerships internationally to achieve greater sustainability.

| What is maritime decarbonisation and why is it important for the shipping industry to embrace it?

In a nutshell, maritime decarbonisation is about reducing and eliminating dependency on energy sources that emit GHG in every aspect of maritime operations. As awareness of climate change grows, consumers will demand products and services with low or no carbon footprint. The current economy will thus evolve into a greener one and companies must follow suit to remain economically relevant. At the same time, given that shipping will remain a major mode of transportation of goods and services in the future, we all have a moral obligation to ensure our sector is part of the solution.

| How will maritime decarbonisation benefit the shipping industry?

The biggest benefit is becoming future ready. Attaining compliance ahead of the green economy will ensure maritime organisations remain in line with tightening environment-related government policies and legislative constraints, while enjoying continued access to financing and insurance. This in turn will not only secure economic relevancy, but also attract green-conscious youth to join the shipping sector.

| What are the challenges faced by the shipping industry in their decarbonisation journey?

Embarking on decarbonisation affects diverse aspects of maritime operations. Such changes, which include a retrofit to or new build of low-carbon shipping assets, are costly. Getting decent returns on investment is therefore a very practical concern, given that consumers have low appetite for higher green logistics costs.

Apart from the bottom line, maritime companies often face technologies with limited evidence of performance and deploying these solutions are costly as vessels need to be dry docked. Furthermore, different energy efficient solutions need to be deployed together to have a cumulative impact on lowering the carbon intensity. There are also safety concerns around the handling of alternative fuels, such as ammonia and hydrogen. These fuels also have a higher space requirement for the same energy content when compared to hydrocarbon fuels, which affects the effectiveness of shipping operations. Externally, maritime firms must navigate the varying green compliance requirements of different ports, limited synchronised transition across the supply chain and a multi-fuel future landscape.

| How does GCMD support companies in tackling these challenges?

We fund pilot projects to provide fact-based outcomes that assist decision makers to accelerate the adoption of decarbonisation solutions. In addition, GCMD shapes standards to protect lives, the environment and shipping assets, and unites key stakeholders to create a collective voice of progress. For example, in January 2022, we awarded an ammonia bunkering safety study to a DNV-led consortium that comprises Surbana Jurong and Singapore Maritime Academy. This study will define safety and operational guidelines for trials at two bunkering locations in Singapore.

Ribbon-cutting ceremony during GCMD's opening

| What are the major challenges for GCMD in advancing decarbonisation?

There are two main challenges. The first is ideating, designing and executing the right pilot projects to move the maritime sector forward quickly. To this end, we engage the industry to understand the issues, access knowledge and partner like-minded organisations to better define "needle-moving" projects. The second challenge is the inertia of stakeholders and industry leaders to make bolder decisions on decarbonisation. This is why we team up with progressive leaders to encourage their peers, using our pilots as examples to showcase possibilities in the road ahead.

| Taking a macro perspective, what needs to happen within the shipping industry to drive maritime decarbonisation?

Decarbonisation is a long-term objective. The industry first needs to be aligned with the shared goal of battling climate change. This can be achieved through collaborative engagement where like-minded organisations dialogue with industry players to make data-driven decisions on decarbonisation. Amidst the pandemic, increasing digitalisation has seen greater deployment of sensors and enterprise systems, resulting in greater availability of data, which supports decarbonisation efforts.

At the same time, governing bodies like the International Maritime Organization (IMO), flag states and government agencies need to collectively issue clear policies and targets to help level the playing field. These can include GHG tax credits to offset the cost of adopting new fuels, first-mover incentives and targets based on a clear methodology of measuring the life cycle of carbon footprint of alternative fuels used in vessels, among others.

| Amidst the challenges of decarbonisation, what growth opportunities are there for firms that invest in this sector?

Decarbonisation opens a new chapter for the industry and impacts almost every aspect of maritime operations. In terms of hardware, shipping assets need to be retrofitted to achieve a lower carbon footprint. Apart from this, the sector will require a steady supply of low- or zero-carbon fuels with enhanced traceability to ensure their quality, quantity and abatement potential. These new fuels will demand new materials for new storage systems and new energy converters. Renewable energy systems will also need to be efficiently coupled to energy storage systems. Meanwhile, demand for new low-carbon technologies will rise alongside the growing need for green consultancy and carbon trading. These developments will offer plentiful growth opportunities for companies as we shape a greener maritime future.

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04
CONTRIBUTION

EXPLORING SUSTAINABLE PATHWAYS TO A GREENER FUTURE

BY MR TAN WEE MENG, CHIEF TECHNICAL OFFICER AND CHIEF SUSTAINABILITY OFFICER, JURONG PORT

In this article, Tan Wee Meng, Chief Technical Officer and Chief Sustainability Officer of Jurong Port (JP) shares key ways to accelerate decarbonization efforts and help build greener supply chains that will contribute to the national and global sustainability agenda.

MR TAN WEE MENG
Chief Technical Officer and Chief Sustainability Officer, Jurong Port

| Can you share with us JP's next generation multipurpose port (NGMPP) vision?

As environmental sustainability took an increasingly important role in JP's development plans, a dedicated Environmental Sustainability Office (ESO) is setup to oversee and push the sustainability agenda to greater heights. Our sustainability agenda was first broached back in 2010 and we have since incorporated various enhancements to our framework and processes, as well as to our governance structure, to strengthen our ability to support sustainability matters. With the aim of reducing the port's carbon footprint, energy consumption, and tapping on renewable energy sources, we have systematically embarked on green initiatives to develop ourselves as a port that is sustainable and environmentally conscious.

We believe that being environmentally sustainable is an integral part towards our journey of becoming a NGMPP. By placing environmental sustainability as a key strategic thrust, JP aims to be environmentally responsible and to incorporate green practices in the port-centric ecosystems that we are developing. This will be carried out within a robust governance framework, underpinned by policies and a strong vision that defines our commitment and approach. As the primary multipurpose port in Singapore, we are committed to supporting the national and the international maritime community decarbonization efforts and seek to continuously innovate to become a smart, and environmentally sustainable port.

| As a key node in landward and seaward supply chains, how is JP's environmental sustainability effort relevant to the national agenda?

We can enhance the sustainability of the supply chains we serve, in a commercially viable way. For example, through the development of Port-Centric Ecosystems (PCEs), we can enable shorter and leaner supply chains. This will bring about efficient logistics and reduce overall carbon footprint.

In 2022, we will complete phase 1 of our Ready-Mixed Concrete (RMC) ecosystem. This will co-locate existing port infrastructure with facilities such as fully enclosed aggregate storage areas and RMC batching plants. This facility catered for a one-stop congregation of all the raw materials needed to produce ready-mixed concrete, greatly reducing the number of truck trips needed as compared to traditional methods where raw materials need to be hauled from different locations to the batching plants located typically near to the construction sites. This innovative facility is set to enable a greener footprint and optimize supply chains for construction materials while minimizing land use in land-scarce Singapore. Upon completion, it is estimated to generate savings of about 600,000 truck trips a year, resulting in an estimated national abatement of about 20,000 tCO_2 per year.

As part of our digitalisation strategy, we continue to accelerate the development of our Digital Collaborative Platforms (DCPs) to strengthen linkages across and within the maritime ecosystem to improve connectivity and achieve greater sustainability. In addition, DCPs will enable us to connect with key participants and organize the supply chain digitally. This will result in optimized turnaround times and the facilitation of just-in-time port calls, reducing their overall fuel consumption and emissions of the trucks and harbour crafts. All these innovations come together not only to reduce the green-house gas footprint, increase productivity and safety but also to reap a multiplier effect by bringing benefits to entire industry supply chains.

Artist's Impression of RMC Ecosystem

| As we position ourselves to contribute towards Singapore Green Plan 2030, how you do envision us facilitating access to cleaner fuels?

With the imminent challenges brought about by climate change, Singapore continues to harness energy efficiency to reduce energy demand. This is evident by the '4 Switches' namely natural gas, solar energy, regional power grids and tapping on emerging low-carbon alternatives.

These efforts are meant to position JP as a terminal with a clear intent to entrench ourselves in the upcoming future fuels development. Our role as a Terminal Operator for both Jurong Port Tank Terminals (JPTT) and Jurong Port Universal Terminal (JPUT) will put us in good stead to provide terminal handling and storage services for potential & relevant future fuels. This will play a pivotal role to support and strengthen Singapore's transition towards cleaner energy.

Solar panels at Jurong Port

4 Switches

1

Natural Gas

Natural gas will continue to be a dominant fuel for Singapore in the near future. Adoption of natural gas as a long-range base fuel will require long term investments and implementation of Carbon Capture and Storage (CCS) technology to ensure that we are able to maintain and reduce our GHG emission targets sustainably.

2

Solar

JP is currently home to the largest port-based Solar Photovoltaics (PV) system in the world with more than 30,000 solar panels on the roofs of our warehouses. This enabled us to tap on a peak capacity of 9.5 megawatt of electricity while helping to offset electricity consumption with clean energy and allows us to achieve 900 tCO_2 emissions savings annually. At the same time, we are actively working on replicating solar installation in other areas of the port such as the development of JP's RMC Ecosystem which is expected to host solar PV panels capable of generating more than 4.5 megawatt peak of power.

3

Regional Power Grids

Despite solar being a promising renewable energy source, there is still an intermittency effect of the energy generated which is needed to be supplemented by energy storage systems. To optimize energy use and develop new solutions for a smarter grid management system in the port, JP is also collaborating with Nanyang Technological University (NTU) to deploy Smart Multi-Energy System (SMES) to manage our energy intake in more efficient ways. This is part of the JP's Living Lab Programme which aims to support the maritime decarbonisation effort to develop a greener next generation port.

4

Emerging Low-Carbon Alternatives

Using low-carbon alternatives such as hydrogen or carbon capture will involve new technologies, and multi-prong approaches, each of which are vying for investors' funding and adoption. JP, together with a consortium comprising of PSA, City Gas, Sembcorp Industries, Singapore LNG, Chiyoda, and Mitsubishi Corporation signed a Memorandum of Understanding (MOU) in March 2020 to explore hydrogen import via Liquid Organic Hydrogen Carrier (LOHC). JP is also in discussion with industry partners to explore other forms of hydrogen carriers, viz. methanol, and ammonia. In December 2021, JP joins the Castor Initiative with keen interest to facilitate the adoption of future marine fuels, by providing suitable supporting bunkering infrastructure. JP has also conducted multiple exercises for Liquefied Natural Gas (LNG) truck-to-ship bunkering in support of vessels using LNG for vessel propulsion and facilitated truck-to-ship biodiesel bunkering trial with Toyota Tsusho.

| Looking into the future, how will you continue to champion environmental stewardship and position JP to contribute towards a sustainable maritime Singapore?

To foster a green culture in JP, the ESO will focus on active engagement and communication efforts to inculcate informed and responsible sustainability habits. This entails a mindset of growth to understand what it means to live sustainably and make positive differences in our community, workplace, and homes.

For example, we tap on nationwide campaigns such as Eco-Action and Earth Hour to encourage staff year-round to integrate simple green acts including recycling and water-saving into their daily routine. From a more macro perspective, the ESO will continue to engage the industry and position JP as a preferred location for the terminal handling and storage for low-carbon alternative fuels. This applies both for the maritime bunker fuels, as well as fuels for the electricity generation used by power companies. As JP continues our transformation journey, sustainability efforts remain a key pillar of focus.

Jurong Port staff volunteering at Singapore's OneMillionTrees Movement,
a nationwide effort to plant a million trees across Singapore over the next 10 years starting from April 2020

We will continue our conversation and partnerships with Institutes of Higher Learning (IHLs), industry partners, and like-minded companies to co-create opportunities for a brighter and greener future.

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05
CONTRIBUTION

ZERO EMISSIONS FOR MARITIME: NAVIGATING THE COURSE

BY MR STEEN LUND, CEO OF RIGHTSHIP AND MPAA ADJUNCT FELLOW

When asked to write this, my reaction was 'How can I address one of the biggest challenges the world has seen in limited time?'

I then considered the critical actions needed across the maritime industry. These are far reaching and require the global coordination of multiple actors to be a success.

MR STEEN LUND
CEO of Rightship and
MPAA Adjunct Fellow

We all know that maritime industry emissions are large, with estimates of around 3% of the global total. Without action, these could increase to constitute as much as 17% of all emissions by 2050. Maritime, if viewed as a country, would be the sixth largest in the world, ahead of Germany and South Korea.

The International Maritime Organization (IMO) targets reducing shipping emissions by 50% compared to 2008 rates by the year 2050, a target increasingly labelled unambitious by vessel owners, who call for early actions.

To achieve the IMO target reductions, numerous diverse global elements must come together. Let's consider the main actions helping shipping, and the holistic maritime industry, meet emissions and decarbonisation targets.

Collaboration

This critical factor means that several disparate parties must work together to achieve industry goals. This includes whole countries, governments, researchers, academia, the private sector and social services.

There are already many examples of positive collaboration.

The Getting to Zero Coalition is a powerful alliance of more than 150 companies within the maritime, energy, infrastructure and finance sectors, supported by key governments and IGOs. The Coalition is working towards 643 target climate actions encapsulating the whole maritime industry, with targets including deploying zero-emission vessels and fuels by 2030.

Singapore-based Global Centre for Maritime Decarbonisation (GCMD), has the mission to shape standards, find and deploy solutions, finance projects and foster collaboration across the maritime ecosystem.

These are just two examples, but many more such collaborations are essential to meet industry targets.

Pragmatic, supportive regulation

Regulation must support developments that are needed to meet emission and decarbonisation targets.

The World Economic Forum summarises this as the "Exploration of policies, demand drivers and funding mechanisms to motivate and de-risk first mover investments."

One major outcome of last year's CoP 26 was the Clydebank Declaration supporting the establishment of at least six green shipping corridors (zero emission routes between two ports) by 2025, that can subsequently scale up.

This is exactly the type of initiative needed to meet decarbonisation targets.

Governments, the IMO and other vital stakeholders, must support and encourage those trying to change the industry, whether by way of immediate actions providing instant abatement or the more complex and financially demanding orchestration of an array of future zero carbon fuels. Barriers to regulation need to be addressed, frameworks encouraged, and incentives provided when called for.

First movers and early adopters

With any great initiative, there will always be pioneers exploring novel solutions and those eager to adopt innovation. First movers and early adopters must be encouraged, as we always need those who are prepared to be brave and face risk head on.

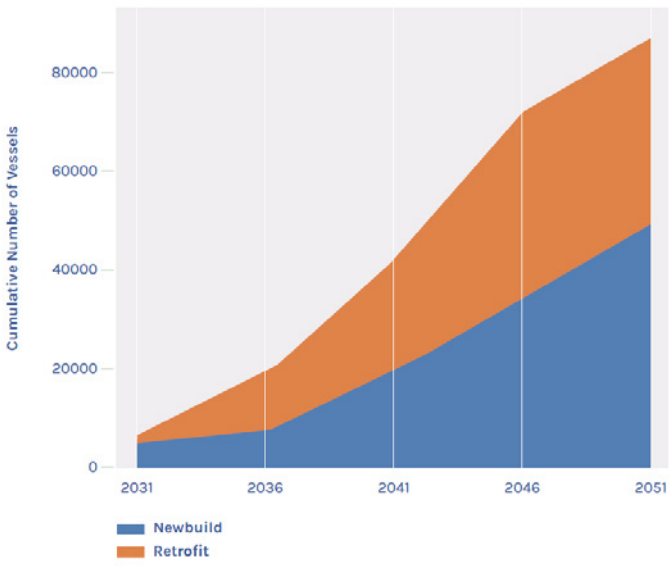
The collaborations already mentioned encourage innovation, and it is essential these are supported by governments, the industry and financiers. We need visionaries taking a holistic view of the shipping ecosystem form well-to-wake, (or maybe 'wind-to-wake'?) in the future.

Supply chain changes

The issues faced are not purely focused on newer, cleaner ships. We must remain cognisant that the supply chain consists of many distinct aspects.

In addition to new vessels, the Getting to Zero Coalition calculates the number of vessels requiring retrofitting before 2050 is around the same number as new vessels ordered. Shipowners need to scale up these retrofits and produce emissions reductions in the existing fleet where this was not attainable by the shipyards at the original launch.

Figure 1: Similar magnitudes of newbuilding and retrofitting to SZEF use will l needed, unless ship lives are significantly reduced for the fossil fuelled fleet.



Source: Getting to Zero Coalition, *A Strategy for the Transition to Zero-Emission Shipping*

Research must also concentrate on managing greenhouse gas emissions by assessing the feasibility of green hydrogen, green ammonia, methanol and biofuels, and such alternative fuels must be developed and be scalable.

Maritime infrastructures also need to be explored and updated. The appropriate 'clean' delivery system must be in place to get fuel and other land-based support assets to vessels, as and when needed.

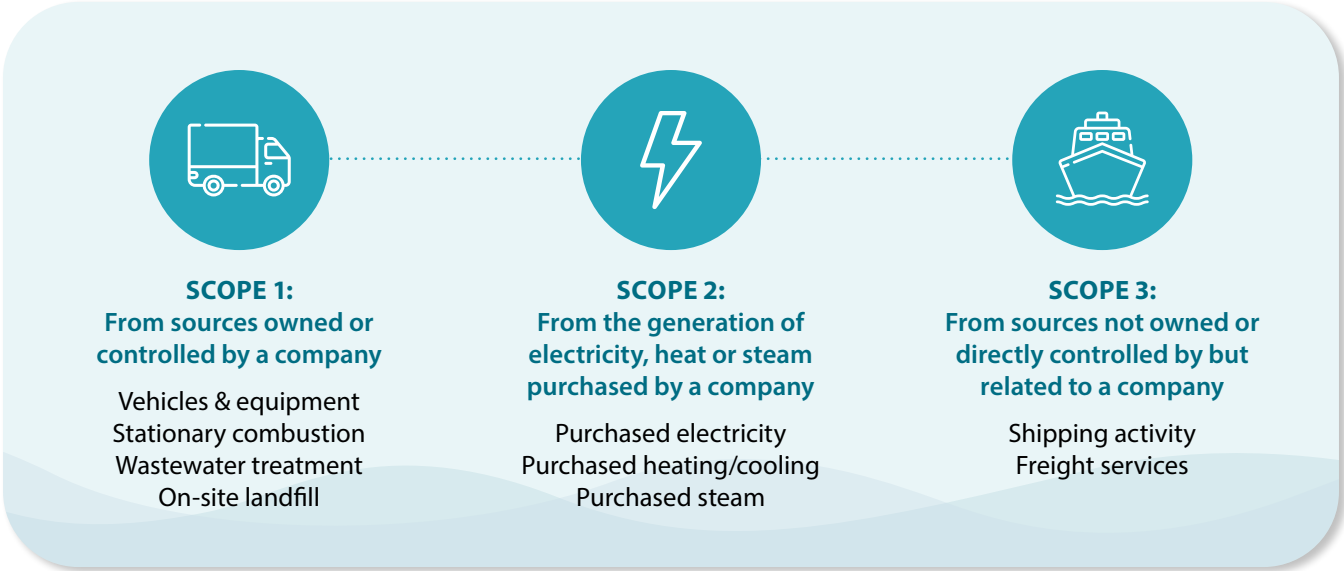
Data, data, data

If you can't measure, you can't improve.

Every day I see the need for consistent, reliable and transparent data, vital to measuring and managing emissions. Ship owners, managers, operators, ports, lenders, insurers and regulators all need such data.

Robust data helps support the various protocols organisations have agreed to. They include the Sea Cargo Charter obligations (for Charterers), Poseidon Principles and Net Zero Banking Alliance (Financiers), The Environmental Ship Index and RightShip GHG rating (Shipowners) and ports measuring emissions in and around their geographic location.

And there are not just 'direct' Scope 1 and 2 emissions. Increasingly organisations are exploring scope 3 emissions incurred throughout supply chains, and how to measure these via 'Carbon Accounting' methodologies.



Crew welfare

The maritime industry must have a greater and continued focus on crew, and employee, welfare.

All the changes outlined create the need for a different mix of talent and seafaring skills. None of this will be achieved without motivated, and ultimately healthy, crew and employees.

The pandemic highlighted crew change issues, and the challenges posed by being at sea for prolonged periods of time. It showed the risks to crew and ultimately ships and others in the maritime ecosystem, and laid bare the obvious links between accounting for the human factor and an industry in harmony.

RightShip actively collaborate with the Sustainable Shipping Initiative, the Institute for Human Rights in Business and the Rafto Foundation on a campaign of 'Delivering on seafarers' rights.' This encourages all in the maritime industry to focus on the crew being treated with care, compassion and due consideration for the important work delivered, not just to the vessel owner, but to society at large by guaranteeing the continued availability of all the goods we as consumers take for granted.

More should, and must, be done to provide a motivating foundation to the seafarers, keeping them safe and healthy and engaging them to return to sea after a well-deserved break at the end of a successful journey. Demonstrating a duty of care and an ambition of evolve the engagement with the crew is made possible via the RightShip Code of Conduct that now more than 130 ship management companies have been assessed against and set improvement targets with.

Conclusion

In summary, the maritime industry has ambitious goals to reach over the next three decades.

To succeed, several factors, involving many varied global stakeholders, must come together on a global scale.

Success depends on stakeholders collaborating as never before, regulators being pragmatic and sensible in their approach, allowing first movers and early adopters to do what they do best – innovate and develop fresh ideas and approaches.

This involves everyone across the maritime ecosystem including whole countries, governments, researchers, academia, the private sector and social services.

Underpinning the progress we need will be vast amounts of data, and we cannot, and must not, lose sight of the welfare of our people – none of this will happen without a motivated, skilled and healthy workforce.

We are facing massive challenges. As we rise to what is demanded of us so together, we can navigate the course ahead.

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06
HIGHLIGHTS

CIL-MPAA WEBINAR ON COVID-19 AND INTERNATIONAL SHIPPING

BY DAWOON JUNG (RESEARCH FELLOW, CIL)

Source: SSA

The Centre for International Law (CIL) of the National University of Singapore and the Maritime and Port Authority of Singapore Academy (MPAA) co-organised two webinars on COVID-19 and international shipping in early 2022. Dr Nilufer Oral, the Director of the CIL, gave the opening remarks while Professor Robert Beckman, Head of CIL's Ocean Law and Policy Programme, moderated both webinars. The panel members at the two Webinars featured key players in international shipping. Panel members shared their experiences in responding to the challenges brought about by the pandemic as well as their outlook on how international organisations, governments and the shipping industry can better prepare for and respond to future global health pandemics. Together, the two webinars were attended by 259 persons from 29 different countries, including representatives from international organisations, maritime and port authorities, industry and academia.

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Webinar on Ship Inspections and Certificates during the COVID-19 Pandemic (19 January 2022)

Ms Claudia OHLMEIER

DER NORSKE VERITAS (DNV)

HEAD OF SECTION CLASS SYSTEMATICS, DATA AND OPERATION CENTRE

Mr CHEN Kit Jam

MARITIME AND PORT AUTHORITY OF SINGAPORE

DEPUTY DIRECTOR OF SHIPPING

Mr HU Ronghua

SHANGHAI MARITIME SAFETY ADMINISTRATION OF P. R. CHINA

DEPUTY DIRECTOR, DIVISION OF SHIP REGISTRY AND SUPERVISION

Moderator

Professor Robert Beckman

CENTRE OF INTERNATIONAL LAW OF THE NATIONAL UNIVERSITY OF SINGAPORE

HEAD OF OCEAN LAW AND POLICY PROGRAMME

Flag States have had difficulties fulfilling their obligations under the International Maritime Organization (IMO) Conventions to conduct ship inspections and issue statutory certificates due to border restrictions to prevent the spread of the COVID-19. The first webinar discussed how different actors in the shipping industry such as flag States, port States and classification societies, have responded to these challenges.

Ms Claudia OHLMEIER *(Head of Section Class Systematics, Data and Operation Centre, Der Norske Veritas (DNV))* gave a presentation on "surveys in COVID-19 times", reflecting current developments at classification societies. She explained how DNV, as one of the leading classification societies for ships and offshore structures, responded to the pandemic by using digitalisation initiatives, including the use of remote inspections and electronic certificates. Although classification societies had adopted digitalisation initiatives before COVID-19, the use of remote surveys was accelerated during the pandemic. She provided practical details such as the scope, methods and requirements of remote surveys.

Mr CHEN Kit Jam *(Deputy Director of Shipping, Maritime and Port Authority of Singapore)* shared his experience on Port State Control (PSC) remote inspections. He noted that remote PSC inspections were increasingly being used as a practical alternative to physical inspections during the COVID-19 pandemic. The Tokyo MoU, formally known as the Memorandum of Understanding on Port State Control in the Asia-Pacific region, had introduced guidance for remote PSC inspection, including stipulating the principles, and the procedures/processes for the conduct of remote and follow-up inspections. He explained that although the Port State authority had discretion in the selection of ships for remote PSC inspection, the remote inspections should minimise interruption to the crew's watchkeeping and rest hours.

Mr HU Ronghua *(Deputy Director, Division of Ship Registry and Supervision, Shanghai Maritime Safety Administration of P. R. China)* explained that there had been a movement from physical PSC inspection to remote PSC inspections during the COVID-19 pandemic. He pointed out that in some ports there were challenges in carrying out remote inspections, such as insufficient bandwidth for network coverage, lack of mobile devices, cybersecurity concerns and national legislation. He also pointed out that remote PSC inspections were not conducted by the Paris MoU, and that some members of the Tokyo MoU still only conduct physical PSC inspections, despite the Tokyo MoU guidance allowing for remote inspections. He suggested that ports use a combination of remote and physical inspections after the COVID-19 pandemic.

There is no doubt that digitalisation initiatives, including the use of remote inspections, have helped States to fulfil their obligations under the IMO conventions during the pandemic. The maritime industry is likely to continue to use and improve remote inspections so that they can be as good and reliable as traditional physical inspections, even after the COVID-19 pandemic. However, all three panel members agreed that remote inspections are unlikely to completely replace physical inspections and that the shipping industry should consider developing a hybrid model which combines remote and physical inspections to improve productivity and efficiency.

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The Second Webinar on Seafarers' Welfare during the COVID-19 Pandemic, Including Crew Changes and Vaccinations (16 February 2022)

Mr Larry GWEE

SINGAPORE MARITIME OFFICERS' UNION (SMOU)
ASSISTANT GENERAL SECRETARY

Mr Michael PHOON

SINGAPORE SHIPPING ASSOCIATION (SSA)
EXECUTIVE DIRECTOR

Mr Jeffrey P SOLON

MARINA

DEPUTY EXECUTIVE DIRECTOR, STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) OFFICE | FOCAL PERSON, CREW CHANGE

Moderator

Professor Robert Beckman

CENTRE OF INTERNATIONAL LAW OF THE NATIONAL UNIVERSITY OF SINGAPORE
HEAD OF OCEAN LAW AND POLICY PROGRAMME

The COVID-19 pandemic created serious hardships for seafarers who were stranded on ships and serving for periods far longer than provided under their contracts and as allowed under the Maritime Labour Convention. New and more contagious variants of the COVID-19 virus continue to threaten the health and mental well-being of seafarers. During this Webinar three representatives from organisations who work closely with seafarers discussed how to improve seafarers' welfare during the COVID-19 pandemic.

Mr Larry GWEE *(Assistant General Secretary, Singapore Maritime Officers' Union (SMOU))* gave a presentation on seafarers' welfare as a representative of a seafarer's union. He explained that the tripartite partnership between the Maritime and Port Authority of Singapore (MPA) - Singapore Shipping Association (SSA) and Singapore Maritime Officers' Union (SMOU) was instrumental in dealing with crew change issues. As a result of this efficient cooperation, the tripartite task force was able to issue the Singapore Crew Change Guidebook in June 2020 and introduced the Seafarers' Relief Package (SRP), a financial assistance scheme to help local seafarers. It also initiated the Singapore Shipping Tripartite Alliance Resilience (SG-STAR) Fund to work on solutions for crew changes with international partners. He also touched on mental health of seafarers which was one of the significant issues facing seafarers during the COVID-19 pandemic. The SMOU tapped on technological equipment to continue to provide touch points for seafaring members and developed training programmes to improve the mental health of seafarers.

Mr Michael PHOON *(Executive Director, Singapore Shipping Association (SSA))* spoke about the "Seafarers Vaccination Programme (SeaVax)". Under this programme, Singapore has been offering vaccinations to all international seafarers who are onboard vessels arriving in Singapore. These include crews who are onboard vessels at the anchorages, for crews onboard vessels at berth doing cargo operations, and crew onboard vessels at shipyards doing yard work. Vaccinations are also available for seafarers who arrive in Singapore to sign on to vessels. The SeaVax program currently at the time of this article, over 900 seafarers have registered for vaccination while their vessels are in the port of Singapore. In addition to the current Moderna vaccine being offered, the SeaVax program will be offering Sinopharm as well catering to Chinese seafarers who are currently on non-mRNA vaccinations. Safeguards such as maintaining a tight bubble wrap protocol for crew members to minimise the risk of infection, implementing upstream administration management, and developing a joint MPA-SMOU Audit were implemented. He suggested that SeaVax was a possible model for other States to emulate because there were only a few countries that offering vaccinations to foreign crew members during the COVID-19 pandemic.

| Seafarers at the SeaVax Programme. Source: SSA

Mr Jeffrey P SOLON *(Deputy Executive Director, Standards of Training, Certification and Watchkeeping (STCW) Office | Focal Person, Crew Change in MARINA)* gave a presentation titled "Seafarers' welfare during the COVID-19 pandemic – the Philippines' experience". He introduced various programmes and activities that had been adopted by the Philippines' Maritime Industry Authority (MARINA). Regarding the validity of seafarers' certificates during the pandemic, he said that MARINA adopted several measures, including: 1) extending the validity of Standards of Training Certification and Watchkeeping (STCW) certificates to guarantee; 2) implementing remote inspections; 3) implementing blended learning in case crews cannot attend training or courses; and 4) developing a monitoring system of a shipping operation. He also explained how the Philippines had adopted necessary quarantine and testing requirements to facilitate crew changes. He added that the Philippines also implemented a protocol for seafarers' vaccinations in 2021. Solon opined that this protocol could serve as a model for other labour-supply States because it would enable the government to easily track and update the records of vaccinated seafarers.

| Crew Change in the Philippines. Source: MARINA

Major port States such as Singapore have introduced initiatives to promote seafarers' welfare during the COVID-19 pandemic. However, seafarers still face difficulties with crew changes and vaccinations because of inconsistent national processes and procedures in different port states, such as differing requirements for polymerase chain reaction (PCR) tests and quarantine. There is scope for international organisations to work with relevant stakeholders to develop guidelines and regulations to help seafarers overcome these challenges.

Conclusion

The outbreak of the COVID-19 pandemic has had a significant impact on the maritime transport sector. The two CIL-MPAA webinars provided valuable insights on how the shipping industry, including flag States, port States, major labour States, classification societies, shipping associations and seafarers' unions have responded to the challenges arising from the COVID-19 pandemic, as well as how the industry can better prepare for the next pandemic. The proper functioning of the maritime supply chain is critical to the fight against the pandemic. The health and welfare of seafarers, the men and women working behind the scene, should not be neglected. Guidelines and regulations should be developed in preparation for the next pandemic, and it needs to involve relevant stakeholders, including international organisations such as the IMO, World Health Organization (WHO), International Labour Organization (ILO) and International Civil Aviation Organization (ICAO).

The webinars provided a meaningful forum to discuss the implication of the COVID-19 pandemic on international shipping and to share experiences from different perspectives in the shipping industry. CIL and MPAA look forward to continuous support of discussions on important maritime issues.

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TRAINING COURSES FROM

NOVEMBER 2021–APRIL 2022

VESSEL TRAFFIC OFFICERS

- IMO Model Course 3.12 – Nov 2021
- Remote On-Scene Commander (IMO Level 2 Equivalent) - Practical Day – Nov 2021
- Various E-learning Modules – Ongoing

MARINE OFFICERS, PORT CHEMISTS AND PORT INSPECTORS

- Bunker Surveying Course – Dec 2021
- Common Infringements - Identifying the Elements – Dec 2021
- Incident Investigation and Root Cause Analysis – Mar 2022
- Investigation Report Writing and Interview Techniques – Apr 2022
- Remote On-Scene Commander (IMO Level2 Equivalent) - Practical Day – Nov 2021
- Write Concisely & Managing Stress – Mar 2022

OPS PLANNING & PILOTAGE

- Common Infringements - Identifying the Elements – Dec 2021

MARINE SURVEYORS

- Common Infringements - Identifying the Elements – Dec 2021
- Hull Inspections – Apr 2022
- Introduction and familiarization to ECDIS – Apr 2022
- IMO Model Course 3.12 – Nov 2021
- NAPA Training - Geometry Related – Nov 2021
- NAPA Training - Stability Related – Dec 2021 and Jan 2022
- Various E-learning Modules – Ongoing

REGISTRY AND SEAFARERS MANAGEMENT OFFICERS

- Basic Understanding of ISM Code and ISPS Code – Mar 2022
- Basic Understanding of MLC 2006 – Mar 2022

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BUNKER SERVICES OFFICERS

- Basic Bunkering Course – Feb 2022 and Apr 2022

HYDROGRAPHERS

- Basic Cartography & Hydrography Course – Mar to Jun 2022
- UK Hydrographic Office - "Introduction to S-100 virtual training courses" – Mar 2022 and Apr 2022

ENGINEERS

- Procurement 1.1 e-Learning – Apr 2022

PORT SYSTEMS OFFICERS

- CENS Cyber Policy Executive Course – Feb 2022
- Systems Reliability-Availability-Maintenance (RAM) Course – Apr 2022
- VMware vSphere: Install, Configure, Manage
- VMware vSphere: Optimise and Scale

INFORMATION TECHNOLOGY OFFICERS

- AZ-303 Microsoft Azure Architect Technologies – Nov 2021
- DevOps Engineering and Automation – Nov 2021
- Procurement 1.1 e-Learning – Apr 2022
- Certified Scrum Master – 2H2022

BUSINESS CAPABILITY DEVELOPMENT OFFICERS

- KPMG Singapore Budget 2022 Webinar – Mar 2022
- PwC Singapore Budget 2022 Webcast – Mar 2022
- ISCA Budget & Tax Conference 2022 – Mar 2022
- EY Singapore Budget 2022 Webinar – Mar 2022
- Executive Tax Programme Level III (Income Tax): Advanced Tax Programme – April 2022

ALL MPA OFFICERS

- Design Thinking Workshop for MPA Officers – Nov 2021
- Spokesmanship Training for MPA Senior Management – Jan 2022

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TRAINING COURSES FROM

MAY 2022–OCTOBER 2022

VESSEL TRAFFIC OFFICERS/SUPERVISORS

- IALA V103/1 – Operator Course (Module 3 and 6) – Q3 2022
- IMO Model Course 3.11 – Jun 2022

PORT CHEMISTS

- Basic Ionising Radiation Safety Course – May 2022
- Basic Tanker Training – Jun 2022

PORT INSPECTORS

- Oil Spill Clearance - On-Scene Commander (IMO Level 2 Equivalent) – Jun 2022

MARINE SURVEYORS

- IMO Model Course 3.11 – Jun 2022

REGISTRY AND SEAFARERS MANAGEMENT OFFICERS

- Basic understanding of the various IMO Conventions and certificates – H2 2022
- Understanding of Laid up ships – H2 2022
- What is PSC and PSC procedures – H2 2022

HYDROGRAPHERS

- Basic Cartography & Hydrography Course – Mar to Jun 2022

ENGINEERS

- Interpretation of Soil Parameters for Design of Geotechnical Works – Aug 2022
- Procurement 1.1 e-Learning – H2 2022

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PORT SYSTEMS

- Project Management Professional (PMP) + Examination
- Certified Scrum Master
- Leading SAFe 5.1 Certification
- Vision Systems
- Machine Reasoning

INFORMATION TECHNOLOGY

- SEC504: Hacker Tools, Techniques, Exploits, and Incident Handling – H2 2022
- Managing Digital Products – H2 2022
- Nutanix Administration – H2 2022
- MS Azure Administrator – H2 2022

INTERNATIONAL MARITIME CENTRE

- Digital Marketing Strategy – Q4 2022
- Decarbonisation and Greenhouse Gas Accounting for Organisations – Q3 2022

BUSINESS CAPABILITY DEVELOPMENT

- Process Improvement 101 – July 2022
- Executive Tax Programme Level II (International Tax) – Oct 2022

INNOVATION, TECHNOLOGY AND TALENT DEVELOPMENT

- Venture Capital Financing for Start ups – Q3 2022
- Applied Predictive Analytics in HR– Q3 2022
- MySQL (MyStructured Query Language) – May 2022
- Text Analytics – May 2022 and Nov 2022
- Predictive Analytics – May 2022 and Nov 2022
- Intellectual Property Rights (IPR) Management – May 2022

STRATEGY AND POLICY

- Futurecraft 101: Introduction to Foresight – May 2022
- Futurecraft 102: SP+ Tools and Facilitation – May 2022
- Futurecraft 201: Scenario Planning Workshop – Aug 2022

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UPCOMING EVENTS
(BY INVITATION)

MAY 2022–FEBRUARY 2023

Maritime Transformation and Innovation Programme – 4–8 April 2022
Participants: Senior-level officers from the maritime or port administration overseeing technology, innovation programmes and change management

14th Maritime Safety Management Course conducted by MPA and Japan Coast Guard – Mar 2022
Participants: Maritime officials

World Maritime University Study Visits for MSc Students Specialising in Shipping Management and Logistics, as well as Port Management – Q3 2022

Participants: WMU MSc students specialising in Shipping Management and Logistics, and MSc students specialising in Port Management

12th Maritime Public Leaders' Programme – Q4 2022
Participants: Senior officials in maritime administrations of director level and above

8th Port Management Programme – Q3/4 2022
Participants: Port masters, harbour masters, middle management personnel

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About us

As the training arm of the Maritime and Port Authority of Singapore (MPA), the MPA Academy was repositioned in 2014 to be a full-fledged academy with a dedicated premise with a focus on global maritime leadership training. The academy's vision is to be a global learning centre for maritime and port administration. The academy's mission is to enhance the skills and knowledge of MPA officers and to conduct flagship training programmes for overseas port and maritime officials, including supporting the training needs of the International Maritime Organization (IMO) as a Council member. The MPA Academy's dedicated facility is located at mTower and was officially launched in October 2015.

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