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International shipping carries over 90 per cent of global trade. As an industry, it contributes to less than 3 per cent of the world's total greenhouse gas emissions. It remains one of the most energy-efficient modes of transporting goods around the world, especially pertinent now with recent developments such as ships growing larger in size and adopting slow steaming.

But as the world pays closer attention to the environment, the maritime industry must also do its part and contribute as part of the international community, especially in preventing air and water pollution, as well as the protection of the wider environment.

This issue of *Singapore Nautilus* showcases the efforts of Singapore's maritime industry members and their partners in finding sustainable solutions to some of the most pressing environmental challenges of our time. In this regard, the Maritime and Port Authority of Singapore (MPA) plays a proactive and leading role, insofar as to set up the MPA Sustainability Office in April last year to help to coordinate and drive overall sustainability efforts within the industry.

In this issue's main feature, we discuss how MPA encourages maritime companies in Singapore to aim for and adopt higher standards of environmental sustainability – sometimes beyond the minimum mandated requirements of the International Maritime Organization – and clean technologies and green practices through the Maritime Singapore Green Initiative.

Besides adhering to international

regulations to reduce shipping emissions, the international maritime community has also been looking at ways to tackle the environmental impact caused by the transfer of ballast water. In this issue's Technology section, read about recent developments in the management of ballast water and the key challenges ahead as the industry prepares for the eventual implementation of the Ballast Water Management Convention.

In building a sustainable global maritime industry, we know that sustainable development is not just about addressing environmental concerns, but also ensuring the economic sustainability of the industry. We gather a panel of industry players in the Community Talk section to share how integrating sustainability efforts into companies' business strategies can lead to long-term gains for them, their stakeholders and the wider society.

Through the experiences shared by our partners, I hope you will gain insights into the role played by the maritime community in protecting our environment. But more importantly, I hope you will join us on this journey to make a bigger, positive difference.



AU KHENG SHENG
EXECUTIVE EDITOR



PORT OF SINGAPORE CONTINUES GOOD GROWTH IN 2014



At the Singapore Maritime Foundation New Year cocktail reception on Jan 16, 2015, Mr Lui Tuck Yew, Minister for Transport, announced the advance estimates of Singapore's 2014 port performance. The indicators showed that the Port of Singapore remained the world's top bunkering port in 2014 and achieved good growth in annual vessel arrival tonnage, container and cargo throughput in 2014. The Singapore Registry of Ships also grew steadily and continued to rank among the top 10 ship registries in the world.

Here are some key figures:

- Annual vessel arrival tonnage reached a record high of 2.37 billion gross tonnes (GT) in 2014, a 1.9 per cent increase over the 2.33 billion GT achieved in 2013. Container ships and tankers were the top contributors, each accounting for around 30 per cent of total vessel arrival tonnage.

- Container throughput hit 33.9 million twenty-foot equivalent units (TEUs) in 2014, a 4 per cent increase from the 32.6 million TEUs registered in 2013.
- Total cargo tonnage handled in 2014 also rose 3.5 per cent over 2013 figures to reach 580.8 million tonnes.
- The total volume of bunkers sold in the Port of Singapore in 2014 was 42.4 million tonnes, a slight dip compared to 42.7 million tonnes in 2013.
- Compared to 2013, the total tonnage of ships under the Maritime and Port Authority of Singapore's register grew year-on-year by 11.7 per cent, or 8.6 million GT, in 2014.
- In 2014, the total tonnage of ships under the Singapore flag climbed to 82.2 million GT, from 73.6 million GT recorded in 2013.

ENHANCING MARITIME SAFETY

Since the launch of the Safety@Sea Singapore campaign in July 2014, the Maritime and Port Authority of Singapore (MPA) has introduced a slew of initiatives to make safety a top priority in the maritime industry.

Most recently, the Maritime Safety Forum was launched in November 2014 by MPA as part of the inaugural Safety@Sea Week to share and promote safe practices within Singapore's maritime community. At the forum, the industry's various operational safety veterans spoke on topics such as navigation and shipboard safety, as well as passenger ferry and cruise safety. Ten PSA Marine harbour pilots were also presented with certificates of commendation as part of an MPA award programme, which recognises those who display exemplary effort in safe practices. The award will be extended to include shipping companies, vessel owners and shipmasters in the coming months.

During the Safety@Sea Week, there were also specially tailored workshops and forums for the regional and international ferries sector, as well as the pleasure craft community to share experiences and discuss best practices. MPA also brought together its vessel traffic management officers, PSA Marine harbour pilots and shipmasters for a workshop to brainstorm new ideas and processes to improve operational safety.

MPA has reached out to over 500 shipping companies and distributed 1,500 information kits containing posters and decals since the start of the safety campaign in July 2014. To date, MPA has organised nine briefing sessions and a Small Craft Forum to emphasise the importance of safe practices at sea.



MPA ACADEMY SHARES ITS EXPERTISE AND KNOWLEDGE

The last quarter of 2014 has been fruitful for the MPA Academy, the training arm of the Maritime and Port Authority of Singapore (MPA), with the launch of two maiden programmes for overseas maritime personnel.

In September 2014, it launched the inaugural train-the-trainer Electronic Chart Display and Information System (ECDIS) workshop for 18 participants from 11 countries. ECDIS is an integrated navigational aid aimed at reducing navigational accidents caused by human error.

The five-day workshop was jointly organised with the International Maritime Organization (IMO) and the Ministry of Foreign Affairs, under the Singapore-IMO Memorandum of Understanding on Third Country Training Programme.

Following this, the MPA Academy introduced the first Port Management Programme in December 2014. It is one of the new flagship programmes developed by the recently repositioned MPA Academy for overseas port and maritime officials.

Covering a broad range of topics facing the maritime industry, such as master planning for container terminals, vessel traffic management and, emergency planning and response, the programme underscores MPA's commitment to share its knowledge and experiences with the international maritime community.

The five-day programme

was attended by 15 officials from around the world, who are also recipients of the MPA Academy Training Award, which covered their programme fees, airfares and accommodation.

Said Mr Andrew Tan, Chief Executive, MPA: "MPA believes that developing maritime talent is a common denominator that cuts across different maritime nations. This will help to ensure that the global maritime workforce is well prepared to meet the industry's current and future needs."



"Hence, we are happy to share our experiences and insights in port operations and management, as well as the opportunities and challenges we face as a global hub port, quality flag state and coastal state of a key waterway. At the same time, we can mutually benefit through sharing of best practices and exchange of ideas with the participants and the industry professionals."



Encouraged by the results of the campaign, MPA plans to extend its educational outreach to youth in sea sports clubs and the Singapore Maritime Academy to inculcate a safety-first mindset from a young age. MPA is also looking at ways to implement a framework, which will facilitate the reporting of good practices and near-miss cases.

Mr Andrew Tan, Chief Executive, MPA, said: "Safety is a top priority for all maritime professionals, especially seafarers who have to navigate vessels in all weather conditions as well as in and out of busy ports around the world. Having more than 130 international shipping groups in Singapore makes it an excellent location to promote safety to the international maritime community."

There were four major incidents in Singapore's waters in 2014, compared to 13 in 2011, eight in 2012 and six in 2013. But that did not mean that the maritime community could let up on its efforts to promote safe practices, said Mr Tan. He added: "Achieving a low incident rate can only be met if all our stakeholders work closely together."

ABOVE Captain Charles De Souza, Deputy Port Master, MPA, speaking at the inaugural Maritime Safety Forum. **LEFT** PSA Marine harbour pilots commended at the forum.

RIGHT, TOP Port and maritime officials from around the world took part in the Port Management Programme.

BOTTOM The inaugural train-the-trainer ECDIS workshop was attended by 18 participants from 11 countries.

JURONG PORT TOPS WORLD PORTS IN SOLAR ENERGY GENERATION

Jurong Port, Singapore's main gateway for general and bulk cargo, will soon have the largest port-based solar panel facility in the world. More than 95,000 sq m of warehouse roof space, equivalent to 13 football fields, will be installed with solar panels. The system is expected to generate 10 megawatts of electricity at its peak capacity; the electricity produced is equivalent to the consumption of 2,800 units of 4-room HDB flats annually.

Jurong Port will use the electricity generated, with excess being channelled into the Singapore power grid for other users. "This project is testimony to our ongoing efforts to promote environmental sustainability," said Jurong Port's chief executive officer, Ooi Boon Hoe. "It will help promote Singapore as a hub for green energy generation." An agreement was signed between Jurong Port and Sunseap for the installation of the solar panels on Jan 16, 2015. The installation of the panels is expected to commence in February 2015 and to be completed in December 2015.

HARMONISING LNG BUNKERING STANDARDS AND PROCEDURES

Three European port authorities and the Maritime and Port Authority of Singapore (MPA) participated in a liquefied natural gas (LNG) bunkering focus group discussion on the sidelines of the Singapore International Bunkering Conference and Exhibition (SIBCON) 2014 in October.

The Antwerp Port Authority, the Port of Rotterdam, the Port of Zeebrugge and MPA touched on issues related to harmonising technical standards and procedures for LNG bunkering and examining risk management, emergency procedures and crew competency standards for international shipping.

Mr Andrew Tan, Chief Executive, MPA, said: "Given the international nature of shipping, we are excited to work with the Antwerp Port Authority, Port of Rotterdam and Port of Zeebrugge to harmonise global LNG bunkering standards. We have made good progress in our discussions and will continue with our efforts to prepare the Port of Singapore to be ready for LNG bunkering in the near future."

GLOBAL MARITIME ISSUES DISCUSSED AT MPLP



Evolving global trade patterns, technological advancements and growing environmental concerns are but some of the challenges facing the international maritime community. To look into and exchange ideas on these and other issues, 21 maritime representatives from 20 countries gathered in Singapore for the 4th Maritime Public Leaders' Programme (MPLP) from Oct 13 to 18, 2014.

Through lectures by distinguished speakers from the private and public sectors, participants discussed issues such as port planning and management, shipping economics and maritime law, as well as security and management of the marine environment.

Organised by the Maritime and Port Authority of Singapore (MPA) and the Nanyang Technological University, and supported by the Ministry of Foreign Affairs under the Singapore Cooperation Programme, the

annual MPLP has benefitted 52 representatives from 28 countries since it started in 2011.

Said Mr Andrew Tan, Chief Executive, MPA: "Singapore is a leading maritime nation with one of the world's busiest ports. Over the years, we have developed strong expertise as a responsible port state and flag state administration. We are happy to share our experience with other port administrators and regulators from around the world. I am confident that the exchange of views and best practices will add to a stronger maritime community with greater attention to safety, efficiency and sustainability of future shipping."

Participants also learned about Singapore's rich maritime heritage and strengths in port planning and management through field visits to MPA's Port Operations Control Centre, PSA's container terminal and the Urban Redevelopment Authority Centre.

MPA DRIVES SUSTAINABLE GROWTH

Shipping, which carries over 90 per cent of the world's trade, is one of the least environmentally damaging modes of transport. But shipping's central role also means that achieving sustainable growth has become a key challenge for the international maritime industry.

To meet future challenges and encourage the adoption of sustainable initiatives within the maritime community, the Maritime and Port Authority of Singapore (MPA) organised the 2nd Singapore Registry of Ships (SRS) Forum on Nov 25, 2014.

Focusing on the importance of sustainable maritime development, four distinguished speakers shared their expertise and insights on implementing sustainable practices with some 250 senior maritime professionals and partners from Institutes of Higher Learning.

At the forum, MPA also announced its collaboration with the Singapore Management University (SMU) to promote research and innovation for a clean and green next-generation port, which was inked by a Memorandum of Understanding between the two organisations.

Said Mr Andrew Tan, Chief Executive, MPA: "This forum brings together the various stakeholders to discuss ways to leverage information and communications technologies to enhance the efficiency and sustainability of shipping and port operations. In this regard, we are pleased to collaborate with SMU to harness its strengths in environment and energy management, as well as data analytics to improve the efficiency and sustainability of our port."

Professor Steven Miller, SMU's Vice Provost (Research) and Dean (School of Information Systems), said: "Aligning data analytics with managerial decision-making helps to alleviate resource deployment efficiency to new levels. This is crucial in support of Green Port operations but also a tough one to achieve. SMU is delighted to work with MPA as it embarks on the transition, overcoming challenges together."

Thirty maritime organisations also took the opportunity to sign the Maritime Singapore Green Pledge at the SRS Forum, bringing the total number of signatories to 90 since its launch in 2011.

\$S400,000 RAISED FOR COMMUNITY CHEST AND MPA'S ADOPTED CHARITIES

The Maritime and Port Authority of Singapore (MPA) and the maritime community raised a total of \$S400,000 through the inaugural MPA Charity Golf event held in November 2014.

For the first time MPA appointed two organisations, The Salvation Army's Prison Support Services - Kids in Play and Lighthouse School, as its adopted charities. Each will receive a donation of \$S100,000. The Prison Support Services - Kids In Play is an outreach programme that helps families to maintain relationships while one or both parents are imprisoned. Lighthouse School provides special education to children with visual or hearing impairments. The remaining \$S200,000 will go towards other social service programmes supported by the Community Chest.

Mr Andrew Tan, Chief Executive, MPA, presented the cheque for \$S400,000 to Mr Chew Kwee San, Vice-Chairman of Community Chest, at MPA's Family Day on Nov 29, 2014. MPA board members and more than 900 employees and their family members shared their Family Day outing at the Singapore Zoo and River Safari with about 80 beneficiaries and their caregivers.

Said Mr Tan: "Every year, MPA encourages our employees to give back to society in many ways, be it through volunteering, donations or other meaningful efforts. This time, in support of Singapore's 50th birthday, we are delighted to be joined by our partners in the maritime community in making a significant contribution to the Community Chest and our two adopted charities. Both charities touched our hearts because they have meaningful programmes that empower children with special needs and youth-at-risk to fulfil their potential."

Expressing appreciation, Mr Chew said: "MPA's sustained support will ensure children with special needs and youth in challenging situations will have equal opportunities to succeed in life."

OPPOSITE The 4th MPLP was attended by 21 officials from Asia, Africa, Europe, the Middle East, the Caribbean and Oceania.

RIGHT Participants of the inaugural MPA Charity Golf event.



SHIP'S LOG HAPPENINGS

7TH MARITIME SAFETY MANAGEMENT COURSE



The Maritime Safety Management course, conducted by the MPA Academy and the Japan Coast Guard under the auspices of the Japan-Singapore Partnership Programme for the 21st Century, was attended by 23 participants from Brunei, Cambodia, Laos, Malaysia, Myanmar, the Philippines, Timor-Leste and Vietnam.

SAFETY WORKSHOP FOR REGIONAL AND INTERNATIONAL FERRY OPERATIONS



Throughout the inaugural Safety@Sea Week, specially tailored workshops and forums were held for the regional and international ferries sector, as well as the pleasure craft community to share experiences and discuss best practices.

SHIP'S LOG HAPPENINGS

VISIT BY KEPRI DELEGATION



A delegation from the Riau Islands (KEPRI) Provincial Government, led by Mr Syamsul Bahrum, paid a visit to the Maritime and Port Authority of Singapore (MPA).

INTERNATIONAL FUTSAL TOURNAMENT FOR SEAFARERS 2014



An international futsal tournament for seafarers was organised by MPA in November 2014.

MPA SEA TOUR



Students from the Institute of Technical Education and the Singapore Homeschooling Group went on a sea tour organised by MPA.

VISIT BY GUANGDONG OFFICIALS



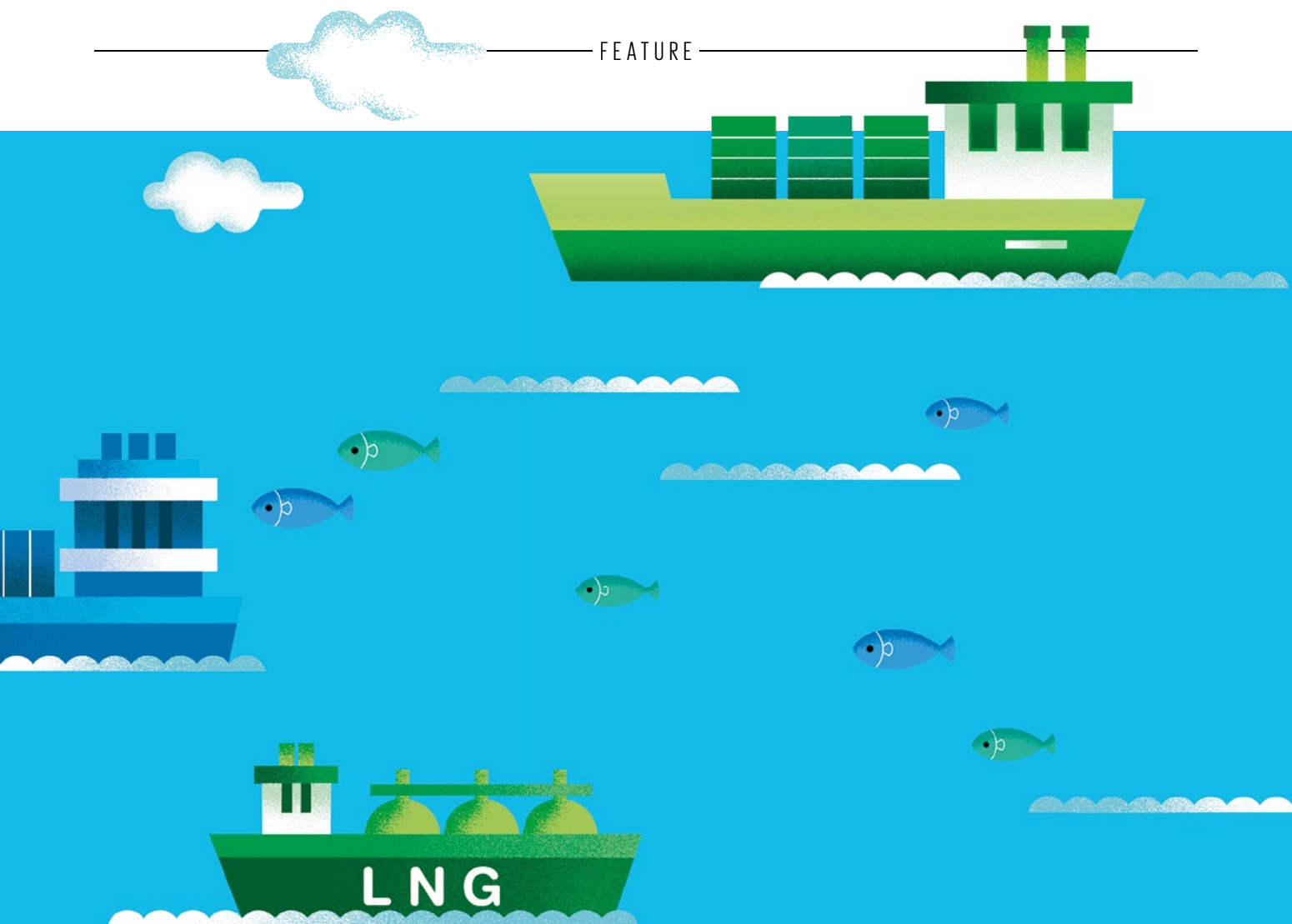
A delegation from Guangdong's government departments, led by Mr Wen Bin, Director-General, Guangdong Ocean And Fishery Administration, visited MPA.



GREEN HELPING HAND

Rahita Elias finds out how Singapore's shipping industry is addressing environmental concerns through the Maritime Singapore Green Initiative, and what else is in store for the industry to sustain the green movement

FEATURE



For an industry that carries 90 per cent of all global trade, shipping accounts for less than 3 per cent of all man-made carbon emissions. Despite this, the international shipping community, led by the International Maritime Organization (IMO), is working to further reduce this figure by 30 per cent between 2025 and 2030 under an IMO convention that was brought into force in 2013.

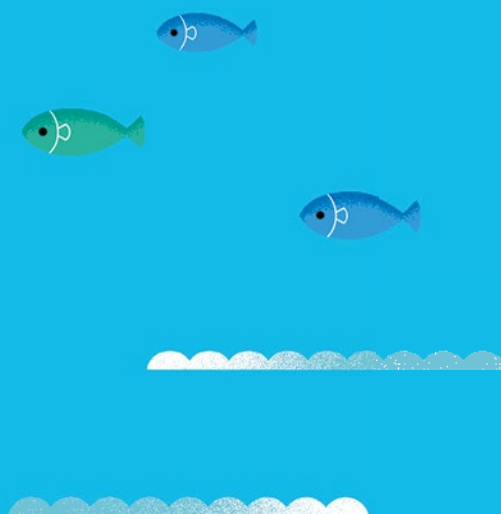
As a responsible

member of the global maritime community, Singapore is also doing its part.

The Maritime and Port Authority of Singapore (MPA) has taken active and concrete steps to build a more sustainable shipping sector in the long-term – a move that has received considerable support from the industry.

What has helped to power the shipping community is the Maritime Singapore Green Initiative,

launched by MPA in 2011 to reduce the industry's impact on the environment while promoting clean and green shipping. MPA has pledged up to S\$100 million over five years to this. Through the initiative, Singapore's shipping community is making headway in the development and implementation of green technologies, as well as environmentally friendly practices and processes.



FEATURE

REDUCING EMISSIONS

Under the Maritime Singapore Green Initiative umbrella, there are three voluntary programmes – the Green Ship, Green Port and Green Technology programmes – designed to both provide incentives to and recognise companies that adopt clean and green shipping practices over and above the minimum required by IMO conventions.

The Green Ship Programme encourages Singapore-flagged ships to reduce carbon dioxide (CO₂) and sulphur oxides (SO_x) emissions. As of December 2014, 203 Singapore-flagged ships have been recognised as Green Ships under this programme.

In the same vein, the Green Port Programme encourages ocean-going ships calling here to reduce their pollutant emissions.

To boost uptake of sustainable solutions, the Green Technology Programme (GTP) – open to Singapore-registered companies engaged in maritime-related businesses – provides a grant of up to 50 per cent of total qualifying costs to co-fund the development and adoption of green technological solutions or systems. Grants are capped at S\$2 million or S\$3 million per project depending on the level of reduction in CO₂, SO_x and nitrogen oxides (NO_x) emissions. As of December 2014, 21 projects have been approved, leading to significant emission reduction and financial savings for ship operators, terminal operators and harbour craft operators.



NO_x





SO_x



FEATURE

TOWARDS CLEANER FUELS

With the shipping industry exploring the use of cleaner fuels such as liquefied natural gas (LNG) to power their vessels, Singapore is gearing up for LNG bunkering.

MPA will be commencing work on a pilot programme by early 2017, to establish safety and operation protocols for LNG bunkering. Under the programme, MPA will provide funding of up to S\$2 million per vessel for up to six LNG-fuelled vessels.

Andrew Tan, Chief Executive of MPA says: "As the world's top bunkering port, we will continue to raise our bunkering standards to ensure fuel quality and reliability. MPA continues to work closely with all our stakeholders to address the key issues and prepare the bunkering industry for the future."

With LNG making headlines as a viable fuel alternative in the market, there is a need for ports that provide LNG bunkering for ships. Currently, LNG bunkers are delivered via a number of methods, such as ISO tank containers, ship-to-ship transfer and terminal-to-ship transfer.

MPA will be evaluating these existing methods for the most cost-effective one.



CO₂



BETTER TECHNOLOGY

Shipping company APL's fuel emulsion technology is one of the projects currently being developed under the GTP.

Shaj Thayil, APL's Global Head of Technical Services, says: "Over the past few years, APL has been working with fuel emulsion technology to reduce emissions. This technology involves dosing fuel oil with small quantities of water in a controlled manner to achieve better combustion in marine diesel engines, leading to reduced fuel consumption. With less fuel consumed, nitrogen oxides and CO₂ emissions are in turn decreased."

Financial support from the GTP enabled APL to determine the feasibility of the technology. "Having undergone test-bedding, APL is now planning on applying this technology to its fleet," says Thayil.

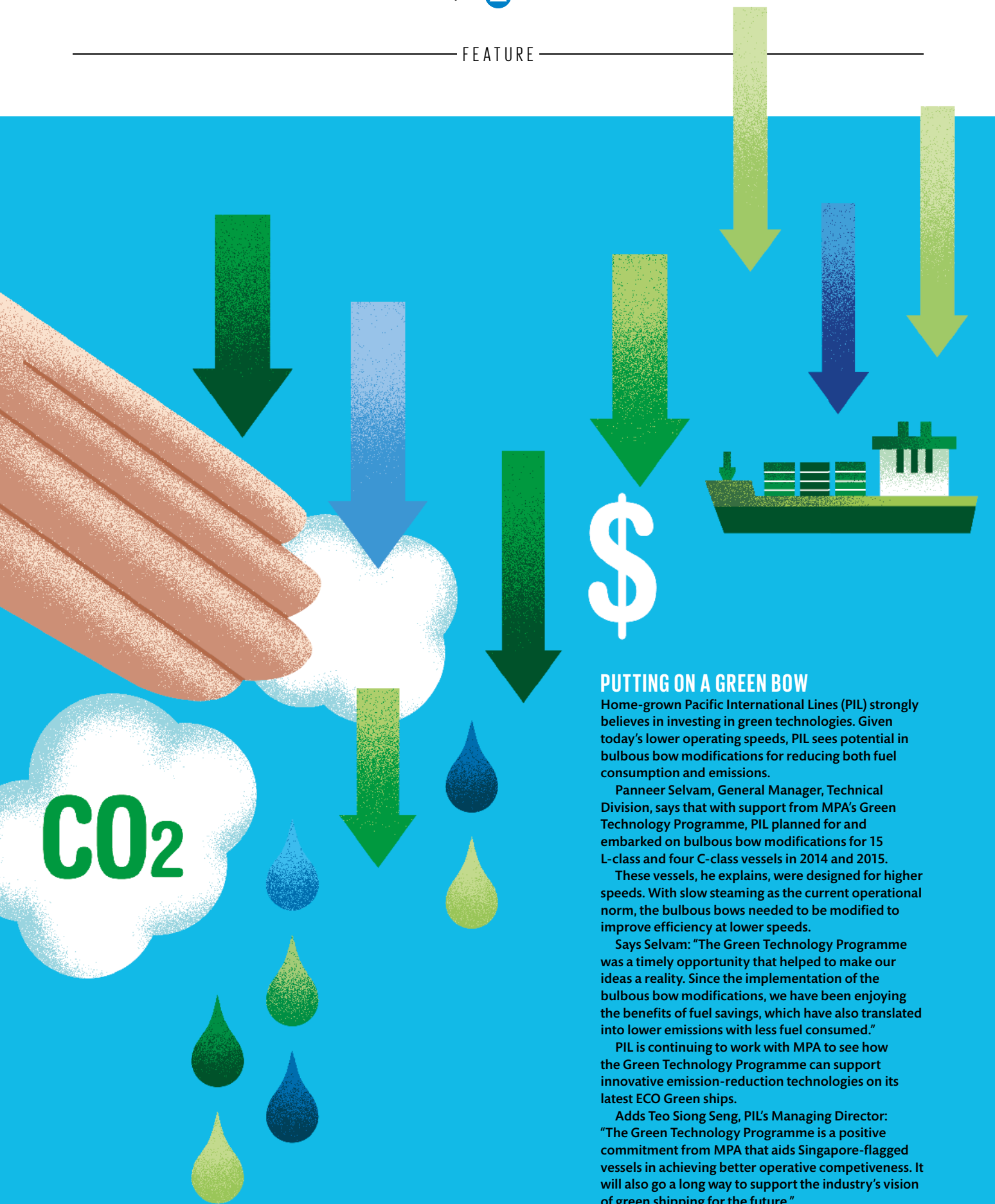
Others, such as Pacific International Lines and NYK, are turning to hull modifications and more efficient propulsion systems to reduce fuel consumption and CO₂ emission. The Singapore branch of NYK's research and development arm, Monohakobi

Technology Institute (MTI), played a key role in determining the technologies, which NYK successfully applied for support from the programme.

Tomonori Ishii, Branch Manager of MTI Singapore, says that while NYK recognised that existing container ships were not operating optimally under current slow-steaming conditions, implementing new technologies to redesign ships would be both challenging and risky. This was where the GTP made a difference.

"The GTP support reduced the risk and helped us decide to go ahead with this project," says Ishii, adding that the firm expects to achieve more than 20 per cent reduction in CO₂ emission with the improvements.





PUTTING ON A GREEN BOW

Home-grown Pacific International Lines (PIL) strongly believes in investing in green technologies. Given today's lower operating speeds, PIL sees potential in bulbous bow modifications for reducing both fuel consumption and emissions.

Panneer Selvam, General Manager, Technical Division, says that with support from MPA's Green Technology Programme, PIL planned for and embarked on bulbous bow modifications for 15 L-class and four C-class vessels in 2014 and 2015.

These vessels, he explains, were designed for higher speeds. With slow steaming as the current operational norm, the bulbous bows needed to be modified to improve efficiency at lower speeds.

Says Selvam: "The Green Technology Programme was a timely opportunity that helped to make our ideas a reality. Since the implementation of the bulbous bow modifications, we have been enjoying the benefits of fuel savings, which have also translated into lower emissions with less fuel consumed."

PIL is continuing to work with MPA to see how the Green Technology Programme can support innovative emission-reduction technologies on its latest ECO Green ships.

Adds Teo Siang Seng, PIL's Managing Director: "The Green Technology Programme is a positive commitment from MPA that aids Singapore-flagged vessels in achieving better operative competitiveness. It will also go a long way to support the industry's vision of green shipping for the future."

MPA SUSTAINABILITY OFFICE

Launched by Andrew Tan, Chief Executive of MPA, in April 2014, the office is headed by Tan Suan Jow, Director (Shipping), and will report directly to the Chief Executive.

The key objective of the Sustainability Office is to promote a culture of good practices in governance, resource management and environmental sustainability within MPA and the wider maritime industry in Singapore.

MPA's sustainability efforts span four key areas – Environment, Governance, Social and Financial – with greater emphasis on the first two areas.

By taking the lead and getting an early start in sustainability efforts, MPA will be able to test-bed many of the new concepts now and incorporate the implementable ideas and designs into the Next Generation Port 2030 project. Singapore can then further differentiate itself from other global ports in building a more environmentally friendly and resource efficient port at Tuas in the future.





GROWING CONSENSUS

Integral to the success of the Maritime Singapore Green Initiative is the support of stakeholders from the industry. To this end, the Maritime Singapore Green Pledge was inaugurated in 2011 to reflect this continuous commitment.

In November 2014, 30 more maritime organisations pledged to support and promote clean and green shipping in Singapore.

Speaking then at the Singapore Registry of Ships Forum, Andrew Tan, Chief Executive of MPA said: "Singapore is committed to promoting a maritime

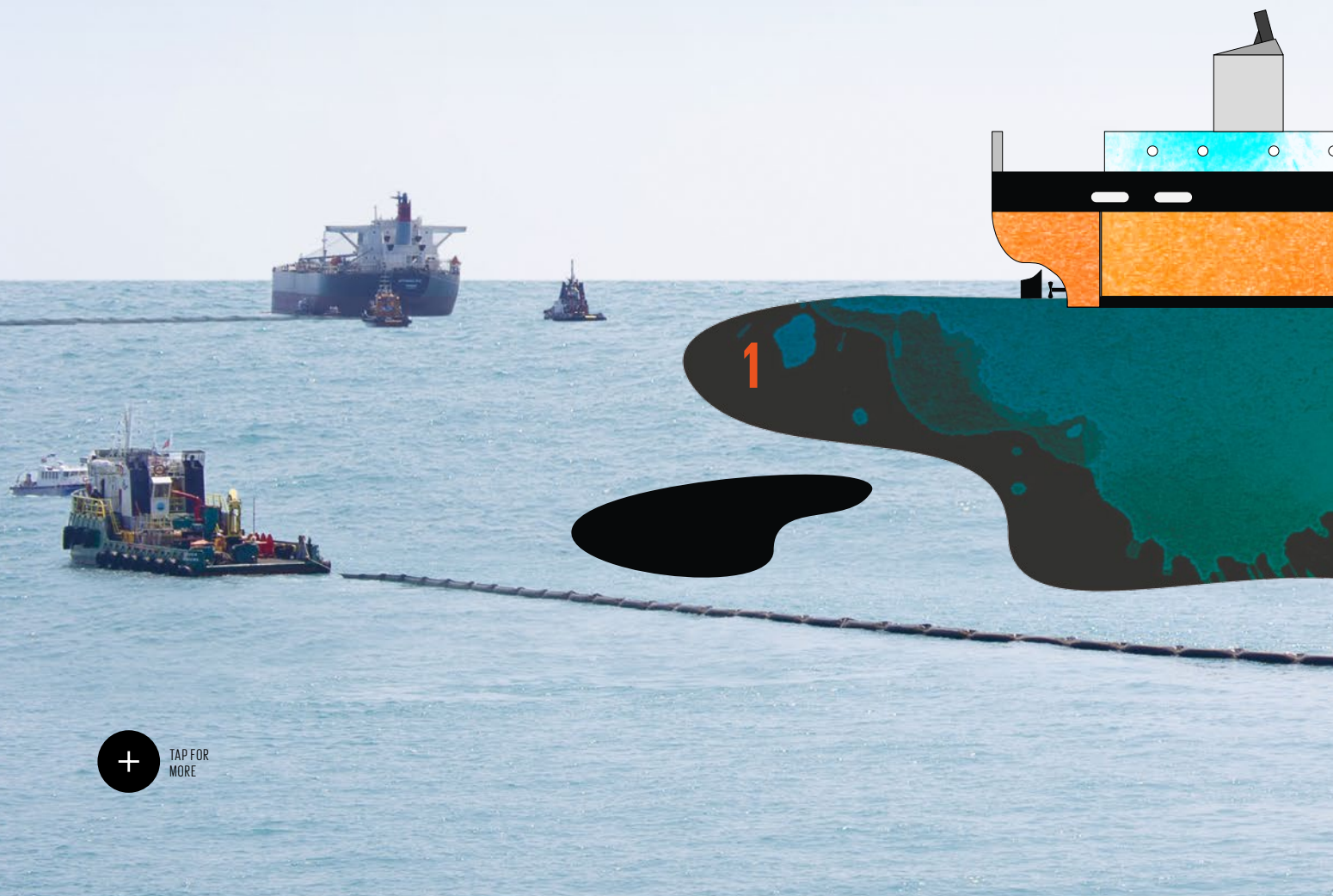
industry that is not only competitive but also efficient, responsible and sustainable. Today's forum brings together the various stakeholders to discuss ways to leverage information and communications technologies to enhance the efficiency and sustainability of shipping and port operations.

"We are also pleased that 30 more companies have come on board to sign the Maritime Singapore Green Pledge since the scheme was launched. This is the largest group for a signing so far, and brings the total to 90 companies."

singapore at the ready

A total of 19 agencies took part in a multi-agency joint oil spill exercise off Pulau Bukom to test their readiness to respond to oil spills at sea. *Singapore Nautilus* reports on the details

Oil spills can happen without warning. As one of the world's busiest ports, with a ship entering or leaving our waters every two to three minutes, it is important for Singapore to be well prepared in order to be able to respond quickly and effectively to any related emergencies. To test and demonstrate Singapore's readiness in responding to oil spills at sea, the Maritime and Port Authority of Singapore (MPA) led a multi-agency joint oil spill exercise, code-named JOSE 2014, on the morning of Oct 17, 2014. Some 180 personnel from 19 agencies participated in the exercise. Held in conjunction with the 18th Singapore International Bunkering Conference and Exhibition, the exercise comprised two parts - a tabletop exercise at the Port Operations Control Centre-Vista and a seaward exercise off Pulau Bukom, about 9km from Harbourfront.



1. EXERCISE SCENARIO

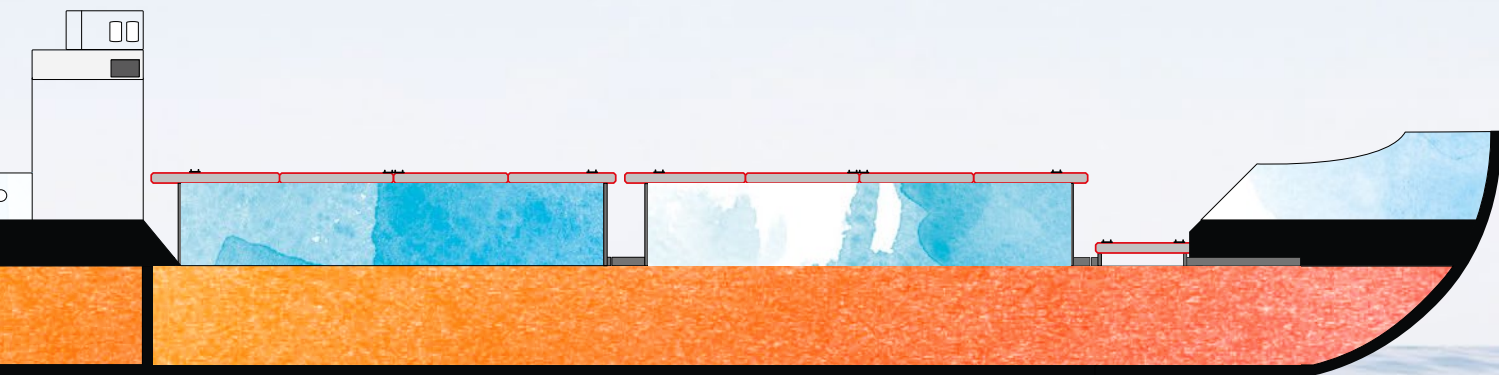
A very large crude carrier (VLCC), named Blue Moon, was discharging her oil at Shell Bukom Single-Buoy Mooring (SBM) when one of the sub-sea hoses located at the mooring ruptured. About 6,000 tonnes of light crude oil was spilt into the sea. The master of the VLCC immediately reported the incident to MPA and requested assistance.

2. RESPONSE

The spill response teams deployed equipment such as oil containment booms around the VLCC and the SBM to prevent further escape of the oil. Specialised skimmers were involved in the recovery of oil. MPA also deployed 16 anti-pollution craft, as well as an aircraft fitted with an aerial dispersant spraying system to combat the spill.

“AS THE WORLD’S TOP BUNKERING PORT AND A MAJOR OIL REFINING CENTRE, IT IS IMPORTANT FOR SINGAPORE TO REMAIN VIGILANT AND PREPARED IN THE EVENT OF A MARINE POLLUTION INCIDENT. THE EXERCISE NOT ONLY ALLOWS US TO TEST OUR INTER-AGENCY RESPONSE BUT ALSO TO SHARE THE BEST PRACTICES IN MANAGING A SPILL WITH THE INTERNATIONAL AND LOCAL MARITIME COMMUNITY.”

ANDREW TAN, CHIEF EXECUTIVE, MARITIME AND PORT AUTHORITY OF SINGAPORE





Founded in 1911, and awarded a Royal Charter in 1920, the Institute of Chartered Shipbrokers (ICS) has made a mission out of ensuring that the shipping sector is equipped with highly qualified and professional individuals.

Explaining its origins, Captain Subhangshu Dutt, Chairman of the Singapore branch of ICS, says: "The institute was set up by Royal Charter in the UK to provide education and training to the shipping community, and to enshrine the principle of 'Our Word, Our Bond', which was especially significant

back then, as business was entirely done by word of mouth."

As demand for the institute's services increased and its examinations started being conducted outside the UK, its international membership also grew. Today, ICS has 25 branches in key locations, representing some 4,000 members. It remains the only internationally recognised professional body

the competitive advantage

Lynn Seah finds out why the Institute of Chartered Shipbrokers, a century-old professional body, is more relevant than ever in these challenging times

in the commercial maritime industry, representing shipbrokers, ship managers and agents worldwide. The Singapore branch, set up in 1979, has about 150 members.

STAYING RELEVANT

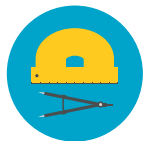
Times may have changed since its founding, but the institute's role in education and in promoting competence is even more pertinent in

today's challenging business environment.

The landscape has become competitive due to the large number of shipbroking companies in Singapore – over 100 local and international firms operate here – and the current overcapacity in the shipping industry, which has led to a long period of low freight rates. As a result, the industry is paying more attention to qualifications to overcome these challenges.

This is where ICS shows its strengths. Its members are recognised in the global arena as professionals with

COMPANY SPOTLIGHT



TOP ICS Singapore Management Committee, 2013-2015.
BOTTOM Tan Beng Tee, Assistant Chief Executive (Development) of MPA, with Robert Haggquist, the best overall student in Singapore, at the 2014 ICS Annual Prize Giving Ceremony.

proven knowledge, competence and understanding of the shipping business – key skills that this sector is dependent on. This is especially important given the global nature of the shipping profession, where individuals often move from country to country.

“It’s getting harder and harder to squeeze out profits these days. Tight operations and clear understanding of contract terms is paramount. We recognise this need, and that’s what we aim to give the industry,” says Capt Dutt.

Ron Wilson, Vice Chairman of the Singapore branch of

ICS, adds: “There’s been a real upward trend in terms of professional education and training. We’ve been seeing more people obtaining double degrees from universities, and companies are placing more emphasis on training programmes. Knowledge is definitely key these days.”

Although formal qualifications are not required to be a shipbroker, many in the industry still sign up for the institute’s Professional Qualifying Examinations. Set and marked in the UK, and held twice a year all over the world, recent examinations in Singapore saw over

a hundred candidates each time.

Those who pass the institute’s examinations can apply to become ICS members, who can then append the initials “MICS” (which stands for Member of the Institute of Chartered Shipbrokers) or “FICS” (Fellow of the Institute and an official Chartered Shipbroker) after their name.

Membership has its benefits, as Wilson can personally attest to.

“I work in the derivatives market where a lot of people know nothing about ships. But if they see FICS on my business card, it shows that I have ship knowledge.

COMPANY SPOTLIGHT



That gets me a lot of added value," he says. That is why he has never let his membership lapse since he joined the institute in 1976, when he was in South Africa.

SHARING KNOWLEDGE

Besides examinations, the Singapore branch of ICS runs an Institute Teaching Centre, which provides tutoring for examination candidates who feel they need it. Both Capt Dutt and Wilson are among the centre's tutors, all of whom are required to obtain accreditation from ICS London. Students who are Singapore citizens and permanent residents are eligible

for a subsidy from the Maritime and Port Authority of Singapore when they take up the tutorship programme.

Other organisations have also tapped on the institute's skills and experience. Tutors from the Singapore branch have been known to conduct in-house training programmes upon organisations' requests. It also holds talks twice a month on a wide range of topics relevant to the industry.

Previously, tutors from the institute also taught the Shipping Business course for undergraduates at the Singapore Management

University. This culminated in the signing of a Memorandum of Understanding between ICS and the university in August 2014 to further their collaborations in education and research.

Capt Dutt feels assured of the future of the institute. He says: "We are in a great place. We see the number of students wanting to do the exams growing and, as a result, we see membership growing. We plan to leverage this membership growth to talk to our UK office and give more recognition to this region."

BRIEF HISTORY OF ICS

Founded in 1911, it was awarded a Royal Charter in 1920. Its charter was amended in 1984 to open the membership to companies and non-British subjects. It is the only internationally recognised professional body in the maritime arena, representing shipbrokers, ship managers and agents around the world. Currently, it has 25 branches in key shipping locations, and 4,000 individual members and 120 company members.

MARITIME SERVICES

The decision to set up its regional headquarters in Singapore and deepen the diversification of its businesses have led to big gains for China Shipping Group's operations in South-east Asia

When China Shipping Regional Holdings (Southeast Asia) relocated from Malaysia to Singapore in December 2013, it had one aim in mind: To explore overseas markets by branching out its operations.

With its various businesses here seeing good and stable growth in just over a year, the company seems to be well on its way to achieving that goal. It has a total of seven Singapore-based companies under its wing, ranging from container

shipping to fuel trading to logistics, and several of them have delivered impressive results since its relocation.

The holding company is the South-east Asia arm of Shanghai-based China Shipping Group, a state-owned shipping conglomerate founded in 1997, with a wide array of businesses including container shipping, bulk carrier service and passenger transport, as well as related operations in ship and terminal management, shipping finance and investment, and human resource management.

to relocate, Gu Jingsong, President of China Shipping Regional Holdings (Southeast Asia), says it represented an important shift in the worldwide investment strategy for the Group to allow it to explore overseas markets by adopting a diversified development approach.

Touching on Singapore's uniqueness, and the reasons it was picked as the location for its South-east Asia headquarters, Gu says: "Singapore's pro-business policies have drawn many organisations from the shipping and the trading and finance

SINGAPORE BASE
On the decision

broadening horizons



MARITIME SERVICES

sectors to set up their operations here over the years, turning it into one of the fastest growing financial centres in the world. Overall, its market conditions have matured, and its rapidly developing financial sector is more regulated and hence more attractive compared to other older financial centres.

"Singapore's talent pool, language and geography is especially attractive to Chinese businesses, particularly for shipping, as it lies at the crossroads of the east-west and north-south shipping routes."

The bold move has paid off for the organisation. For instance, its tanker business, which moved from China to Singapore in May 2014, has handled over 1.5 million tons of crude oil in its first five months. Its bulk carrier service, another new outfit that started operating out of Singapore in 2014, handled over 700,000 tons of goods in its first year of operations.

One of its companies, Golden Sea Shipping, which provides container shipping feeder services within south-east and west Asia, has seen rapid development since it was set up in November 2012. In 2014, it moved over 600,000 TEUs of goods. It now has a stable business network, which acts as a platform for the continued growth of its feeder service regionally.

The fast rate of growth in its businesses here, says Gu, is ahead of its Group's operations in Europe and US, and comparable to

that in Hong Kong. He attributes this rapid expansion to a change in investment strategy from its China headquarters, which saw more investments being directed to the region and the relocation of several of its shipping fleet from China to Singapore. This was helped by the proximity between its Singapore-based companies and their clients, which allows them to respond quickly to any changes in market sentiments.

He adds that the pro-business environment and support from the Government and the Maritime and Port Authority of Singapore also contributed to its expansion and development here.

FUTURE GROWTH

Moving ahead, Gu says the company has some concerns as it continues to grow its operations here. Internally, he says, the challenge is in attracting professionals to join the maritime industry. He adds: "Most of the university graduates here prefer working

BIG AMBITIONS

In December 2014, China Shipping Group made headlines around the world with the launch of one of the world's largest container ships, the *CSCL Globe*, which is owned by one of its subsidiaries, China Shipping Container Lines (CSCL).

At the time of its maiden voyage in December 2014, it was the largest container ship in the world, eclipsing the previous world record holder, the *Maersk Triple-E*, by over 1,000 TEUs in capacity.

It is the first of five such ships of the same size to be built by South Korea's Hyundai Heavy Industries in a US\$700m contract. CSCL has also taken delivery of the second ship in the series, the *CSCL Pacific Ocean*, in late December. Together with *CSCL Globe*, they will ply the Far East-Europe route.

The rest of the vessels are expected to be delivered in 2015.

MARITIME SERVICES

in the finance sector. There is a lack of talent who want to join the shipping industry and we find it difficult to recruit suitable candidates for our operations here.”

He also highlighted concerns over the lack of space in Singapore as his organisation continues to grow its logistics arm and is worried about how labour shortage and manpower policies would impact its plan to grow its business in the port logistics sector. He sees new technology and higher rates of automation in port operations to increase efficiency, as some of the ways to overcome the land and manpower challenges faced by the company.

Still, Gu is hopeful of the company’s

potential for growth, both locally and regionally. He says the focus of its businesses will continue to be in port-related investments in Singapore and the region, and other shipping-related services, including trading and ship financing, as well as exploring new sectors that the company has not ventured into.

Singapore will remain pivotal in the company’s future plans. “Singapore is an important market to us in terms of its sound legal environment and other important factors. It is also central to our regional operations and a platform for us to explore and develop the South-east Asian market,” says Gu.

ABOUT THE CSCL GLOBE

- Registered in Hong Kong
- Over 400m in length - longer than the length of four football pitches
- 56.8m wide and 73m high
- Weighs 186,000 tonnes
- Carries up to 19,100 standard 20ft containers (or twenty-foot equivalent units, TEUs) - estimated to be able to hold 156 million pairs of shoes, 300 million tablet computers or 900 million standard tins of baked beans
- Manned by a crew of 23 during voyages

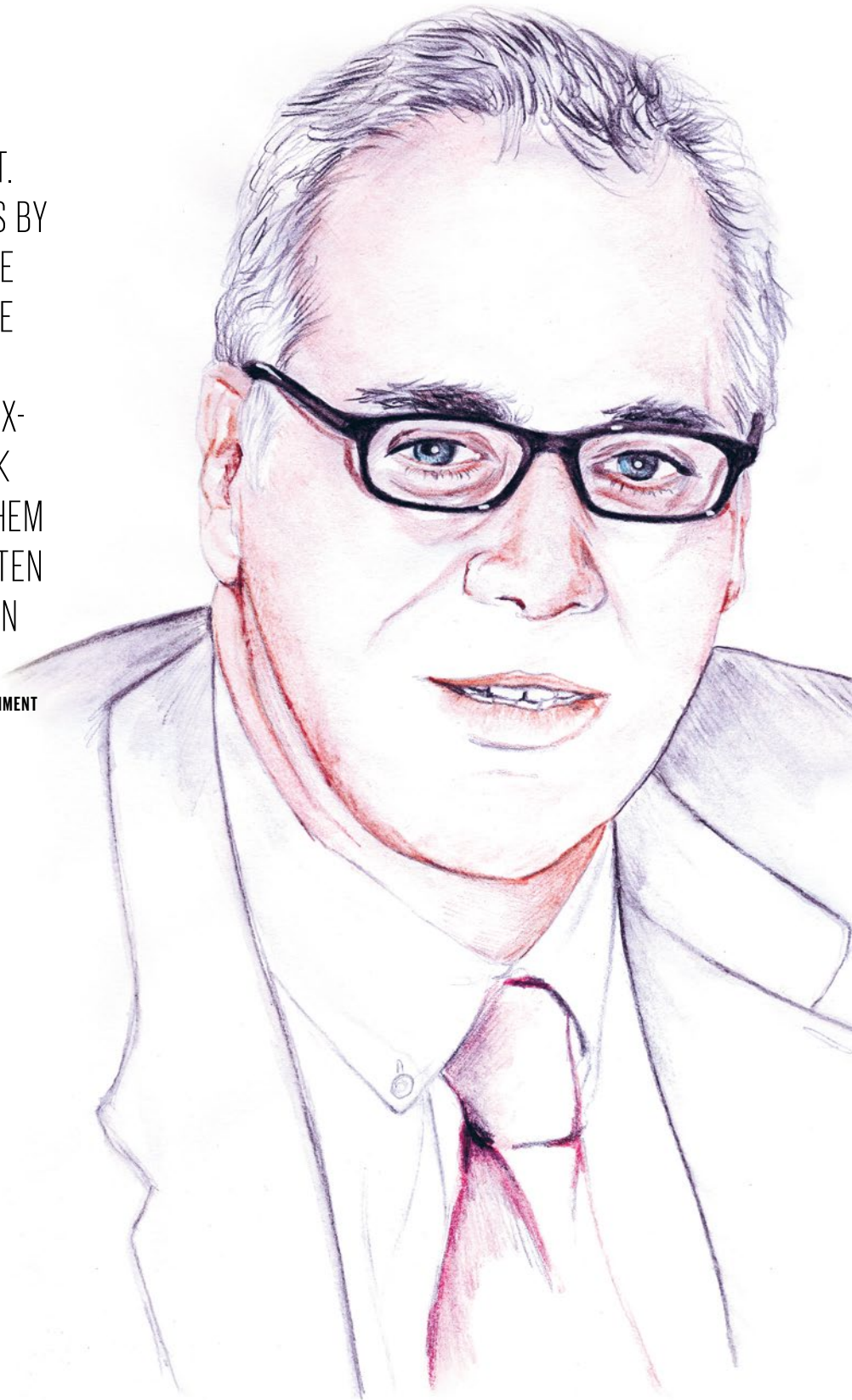
“SINGAPORE’S PRO-BUSINESS POLICIES HAVE DRAWN MANY ORGANISATIONS FROM THE SHIPPING AND THE TRADING AND FINANCE SECTORS TO SET UP THEIR OPERATIONS HERE OVER THE YEARS, TURNING IT INTO ONE OF THE FASTEST GROWING FINANCIAL CENTRES IN THE WORLD.”

GU JINGSONG



"MY ETHOS IS TO TREAT THE ENVIRONMENT WITH RESPECT. MY FAMILY SPENDS HOLIDAYS BY THE BEACH, AND I MAKE SURE TO KEEP THEM AWARE OF THE ENVIRONMENT AROUND US. I ENJOY THIS TIME WITH MY SIX-YEAR-OLD DAUGHTER. I THINK IT'S IMPORTANT TO CATCH THEM YOUNG, ALTHOUGH SHE'S OFTEN THE ONE WHO PUTS THINGS IN PERSPECTIVE FOR ME."

DR STEFAN MICALLEF, DIRECTOR OF THE MARINE ENVIRONMENT DIVISION, INTERNATIONAL MARITIME ORGANIZATION



from blue to green

Jessica Leow speaks to Dr Stefan Micallef, who pushes the green agenda while recognising the need for sustainable growth in the blue economy

As Director of the Marine Environment Division at the International Maritime Organization (IMO), Dr Micallef champions industry-wide environmental regulation and protection. In Singapore for the 7th International Conference & Exhibition on Ballast Water Management 2014, held from Nov 5 to 7, he discusses green issues affecting the maritime industry with Singapore Nautilus.

WHAT ATTRACTED YOU TO THE MARITIME INDUSTRY?

Growing up on the island of Malta, I played on the beach. So ships were always part of the natural seascape. I naturally developed an affinity for ships. From a very young age, I knew exactly what I wanted to pursue. I enjoyed both science and marine biology, so I combined the two – and there you go! At face value, my academic qualification (a PhD in marine toxicology) is not typically associated

with the maritime industry, but through a combination of circumstance and interest, I've been able to apply myself to the business, particularly in the area of environmental protection. I've had the opportunity to use my technical background to understand the challenges that the organisation faces.

YOU DEAL WITH A GLOBAL LANDSCAPE INVOLVING MULTIPLE PARTIES, OFTEN WITH CONFLICTING VIEWS AND AGENDAS. HOW DO YOU JUGGLE IT ALL?

I recognise that the IMO's role is to be a facilitator – we don't make decisions; the member states do. Our contribution is to provide advice on situations. Our role as secretariat is to be impartial, to give balanced advice, and to give it in a transparent way.

WHAT ARE THE BIGGEST ENVIRONMENTAL ISSUES CURRENTLY AFFECTING THE MARITIME INDUSTRY?

Air emissions, ballast water and biofouling are some issues. I think the larger issue – and a challenge for

the industry – is to adopt international regulations. But it takes a long time to achieve this. It creates a certain element of uncertainty, and what I call "a fragmentation of interests", such that the integrity of what we set out to do comes under threat. It becomes difficult to predict what happens next.

HOW DO YOU CONVINCE SHIP OPERATORS WHO MAY NOT SEE THE BENEFITS OF SUPPORTING BALLAST WATER MANAGEMENT?

We have to show that while environmental regulation presents challenges, it also provides opportunities and innovation. It's a balancing act – that of ensuring sustainable growth while promoting environmental protection.

IS THAT HAPPENING NOW? WHAT NEEDS TO BE DONE TO RENEW MEMBERS' FOCUS, AND UPHOLD THE INTEGRITY OF THE ORGANISATION?

In my view, it has already happened with ballast water issues. But recent decisions have alleviated a lot of the concerns.

I've no doubt that recommendations covered during this conference will facilitate recent decisions and follow-up action agreed to by members. We do need to continue meaningful debate, ensure participation as well as transparency, and allow all members to state their case. We must respect due process so that IMO can make the right decision based on consensus.

WHAT'S YOUR PERSONAL GREEN PHILOSOPHY?

My ethos is to treat the environment with respect. My family spends holidays by the beach, and I make sure to keep them aware of the environment around us. I enjoy this time with my six-year-old daughter. I think it's important to catch them young, although she's often the one who puts things in perspective for me.

DO YOU HAVE LEISURE ACTIVITIES?

I like golf. It can be alone, with my buddies or anyone patient enough to play with me. I find it very peaceful and relaxing. I enjoy going from blue to green!

gateway to europe

Allard Castelein, CEO of the Port of Rotterdam, tells Audrina Gan his plans to connect European companies with their Asian counterparts

Allard Castelein, CEO of the Port of Rotterdam, is guided by the virtues of diligence and constant self-improvement. Keen to identify new business opportunities for his port, Castelein, who assumed his post at the beginning of 2014, visited Singapore in November as part of his trip to South-east Asia to forge relations with regional companies and organisations, including the Maritime and Port Authority of Singapore (MPA).

YOU WORKED AT SHELL FOR DECADES BEFORE MOVING INTO YOUR NEW ROLE AS CEO OF THE PORT OF ROTTERDAM. WHAT ATTRACTED YOU TO THE MARITIME INDUSTRY?

The Port of Rotterdam has always been close to my heart, as I was born and raised in Rotterdam. I have thoroughly enjoyed my work with Shell for the past 26 years, but I could not miss the opportunity to lead one of the biggest ports in the world. I take pride in being part of the maritime industry, a major economic contributor to the Netherlands' prosperity, employment, social fabric and cultural infrastructure.

HAVING LIVED AND WORKED IN ASIA PREVIOUSLY, TELL US SOME INTERESTING EXPERIENCES THAT HELP YOU IN YOUR CURRENT ROLE.

One thing I've observed while working in Asia is the high level of professionalism and dedication to one's job. There is a passion to increase prosperity, be it for personal success or to contribute to the good of the nation. To a certain extent, Europe is slightly complacent. Many Europeans harp on the past and what they had achieved previously. If we are not careful, others will catch up and we will be left behind. Asia has made me want to improve myself by continually educating myself, and working hard.



WHAT ARE SOME OF YOUR PLANS FOR THE PORT OF ROTTERDAM?

We've reclaimed 2,000ha of land, and new terminals are being built as we speak. It will be a new milestone for us when they start operations in early 2015. We need to stay focused on our existing businesses, in particular the petrochemical, oil refineries and dry bulk businesses we have. At the same time, we need to identify new business opportunities in the bio-based and offshore industries. For instance, we recently welcomed the world's biggest crane ship, the *Pieter Schelte* – owned by offshore company Allseas. It will be used for decommissioning redundant oil and gas rigs, as well as to lay pipes in the sea.

The next big thing for us could be in 3-D application printing for the maritime industry. We are in talks with parties such as Keppel Offshore & Marine, Franklin Offshore and potential Chinese partners on this.

WHAT ARE THE AREAS OF COLLABORATION THAT YOU WOULD LIKE TO SEE BETWEEN THE PORTS OF ROTTERDAM AND SINGAPORE?

I think there is potential for collaboration in areas such as the development of liquefied natural gas (LNG) as a fuel for shipping and managing the flow of ships in and out of both ports as efficiently as possible. We could also work on technological information sharing and efficient port designs to cater to bigger ships and their maintenance.

In the months to come, we will work with MPA to formalise that relationship and see how we can jointly identify the areas of collaboration to achieve a meaningful outcome. I'm optimistic that we are about to enter a new era of collaboration between the two ports.



As the global maritime industry becomes increasingly complex and intertwined, ecologically responsible and sustainable maritime operations are becoming more and more important in safeguarding our seas.

One of the major threats to the marine environment and global biodiversity is the invasion of harmful aquatic organisms into new environments through the discharge of ships' ballast water. The industry has been proactive in addressing its impact, with stakeholders meeting regularly in Singapore since 2001 to discuss issues and provide solutions to the management of ballast water.

The 7th International Conference & Exhibition on Ballast Water Management 2014, held in Singapore from Nov 5 to 7,

takes on even greater significance and timeliness following recent developments on the legal front. The International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004) – a cornerstone in protecting the health of the world's seas – is expected to enter into force within the next two years.

Also known as BWM 2004, the Convention aims to decrease the rate of bio-invasions from shipping through establishing standards and procedures for the management and control of ships' ballast water and sediments.

The conference brings greater clarity to the practical implementation of the Convention at all levels, providing a platform for participants, from the International Maritime

Organization (IMO) and ship owners to researchers, to discuss and share their experiences and knowledge of ballast water management.

MILESTONES

In his keynote address, Dr Stefan Micallef, Director of IMO's Marine Environment Division, shared that as of November 2014, 43 countries – representing 32.54 per cent of the world merchant fleet's gross tonnage – have ratified BWM 2004.

"Only an additional 2.46 per cent is now needed to meet the threshold figure of 35 per cent that will trigger fulfilment of the entry-into-force requirements. In other words, we are almost there," he said.

On behalf of IMO Secretary-General Koji Sekimizu, Dr Micallef highlighted the need to accelerate the ratification of BWM

The 7th International Conference & Exhibition on Ballast Water Management 2014 was held in Singapore in November. Jessica Leow reports on the highlights, milestones and key challenges ahead for the industry

protecting our oceans' health



**ORGANISERS OF THE
7TH INTERNATIONAL
CONFERENCE & EXHIBITION
ON BALLAST WATER
MANAGEMENT 2014:**

- Maritime and Port Authority of Singapore
- DHI
- GEF-UNDP-IMO GloBallast Partnerships Programme
- Institute of Marine Engineering, Science and Technology
- DHI-NTU Water and Environment Research Centre and Education Hub



EXAMPLES OF HARMFUL AQUATIC ORGANISMS FOUND IN BALLAST WATER

SPECIES	NATIVE TO	INTRODUCED TO	IMPACT
Cholera	Various areas depending on strain	South America, Gulf of Mexico and other areas	Possible cholera epidemics
Mitten Crab	Northern Asia	Western Europe, Baltic Sea and the west coast of North America	Erosion and siltation of riverbanks and dykes; local extinction of native fishes and invertebrate species that it feeds on; disrupts fishing activities
Zebra Mussel	Eastern Europe (Black Sea)	Western and northern Europe, including Ireland and Baltic Sea, and the eastern half of North America	Colonises hard surfaces in mass numbers and displaces native aquatic life; alters habitat, ecosystem and food web; causes severe fouling problems on infrastructure and vessels - for instance, by blocking water intake pipes, sluices and irrigation ditches

SOURCE: INTERNATIONAL MARITIME ORGANIZATION

TECHNOLOGY

2004: "I would urge all governments that have not yet done so to take immediate action to begin and expedite the national ratification process, and thus accelerate the entry into force of the Convention. This is all the more desirable in view of the pivotal decisions that have been taken by IMO."

These decisions includes the IMO's agreement in 2013

to a pragmatic implementation schedule for existing ships, which provides more flexibility with regard to the timing of compliance with the mandatory ballast water performance standard described in the Convention.

Dr Micallef added that the 67th session of IMO's Marine Environment Protection Committee (MEPC 67), held

in October 2014, was a momentous breakthrough that saw the adoption of long-awaited guidelines on port state control under BWM 2004, which will provide clarity and fairness for ship owners, and also benefit port states.

In preparation for the imminent entry into force of the Convention, the Committee has, among other measures, taken steps towards creating a suite of globally accepted and consistent procedures that port state authorities can employ to undertake ballast water sampling and analysis. According to Dr Micallef, these initiatives will help to protect the rigour of the Convention.

CHALLENGES

Aside from the legal aspects of ballast water management, a key theme of the conference were the challenges

and operational experiences of ballast water treatment systems.

The conference looked at various ballast water treatment technologies that are currently being developed. Participants also shared their concerns over the operation of approved ballast water treatment systems under the highly variable environmental conditions that ships typically face, while industry experts shared their experience of retrofitting ballast water treatment systems.

Dr Micallef added: "A conference such as this provides a unique platform for bringing together the shipping, technology and research communities – all the entities that spare no effort in rising to the new challenges posed by our modern world and for the protection of the marine environment."

"THE FULL AND EFFECTIVE IMPLEMENTATION OF ALL BWM 2004 PROVISIONS AT THE GLOBAL LEVEL WILL BE THE ONLY VIABLE AND COMPREHENSIVE MEANS TO COMBAT MARINE BIO-INVASIONS WORLDWIDE AND THUS SAFEGUARD OCEAN HEALTH FOR FUTURE GENERATIONS."

DR STEFAN MICALLEF



COMMUNITY TALK



good for business

Speakers from the Singapore Registry of Ships Forum on Sustainable Shipping share their views on how the maritime industry can stand to gain by investing in sustainability efforts

CLOCKWISE FROM TOP LEFT Stephan Schablinski, Director, DHL-SMU Green Transformation Lab; Simon Bennett, General Manager for Sustainable Development, The China Navigation Company; Juan Aguiriano, President, Asia-Pacific, DuPont Sustainable Solutions; Dr Khorshed Alam, Vice President and Regional Manager (South-east Asia and Asia-Pacific) DNV GL Maritime Advisory.

SINGAPORE NAUTILUS (SN): WHY IS SUSTAINABILITY IMPORTANT TO THE MARITIME INDUSTRY?

DR KHORSHED ALAM (KA): The maritime industry is not isolated from the rest of the world in terms of economic growth; neither is sustainability. Sustainability is about economic growth without harming the environment and social well-being. For its future survival, the industry needs to achieve sustainability and show that shipping can still be the cheapest mode of goods transportation without an adverse impact on the environment.

JUAN AGUIRIANO (JA): Societal needs and expectations are rapidly changing due to several major trends, including the competition for natural resources, coupled with concerns over the environment. For any industry to stay relevant, there is a compelling need to pursue a sustainable economy that delivers environmental and social performance alongside traditional economic results. To remain competitive, leading maritime companies have to balance shareholder accountability with stakeholder concerns, and company success with social progress.

STEPHAN SCHABLINSKI (SS): Although maritime transport is comparatively efficient in terms of its carbon emissions per transport unit compared to other modes of transport, it still accounts for about 10 per cent of total transport energy use, compared to 12 per cent for air transport, where the transport of passengers plays a bigger role.

With the maritime industry assuming growing importance, there is a responsibility to ensure clean and efficient transport. Without efficient maritime transport, the transport of raw materials and chemicals in bulk, as well as consumer goods and other manufactured products required for growth and development would not be possible.

SIMON BENNETT (SB): All businesses, including those in the maritime sector, should operate sustainably so as to preserve and enhance our environment and communities for future generations.

Historically, shipping has been responsible for moving 90 per cent of the world's trade, while remaining almost invisible to the global population, except on rare occasions when there is a major marine incident close to shore. This will change going forward as the world experiences global warming and climate change. The much more visible aviation industry has publicly accepted its obligations to be a better corporate citizen in this area, so it is only a matter

COMMUNITY TALK

of time before public attention turns to our industry. As aviation and land transport becomes more efficient at a faster rate than shipping, our contribution to global warming will increase proportionally by comparison.

SN: HOW CAN WE ENCOURAGE THE MARITIME COMMUNITY TO ADOPT SUSTAINABLE PRACTICES?

KA: Awareness building amongst maritime stakeholders is a key pillar in moulding and inculcating sustainable practices. This can be done through campaigning and introducing curriculum in institutes of education. Regulations, on the other hand, ensure adaptation of sustainable practices among maritime stakeholders in tandem with other industries.

Governments and flag states can play their part by providing maritime stakeholders with the necessary funding and incentives to undertake sustainability projects and practices. At the same time, the efforts to develop sustainable technology through research and development (R&D) must continue to be supported through collaboration between governments and industries.

JA: While many maritime players recognise that sustainability issues impact their operations and bottom line, responses are often still reactive and limited in scope. The actual business value at stake and the business case for sustainability are often not well understood. Capital investment decisions are often still based on traditional return-on-investment financial metrics in many companies, and do not always consider the value of non-traditional risks, such as the future costs of externalities and regulations.

When a new regulation is enacted, the cost of compliance, in the form of a shutdown, retrofitting or replacement of the asset, is usually much higher compared to the cost of designing with sustainability as a key consideration at the outset. It is, therefore, extremely wise to consider and include the value of internalising non-economic externalities in financial metrics calculations, so as to drive the right investment decisions. Regardless of where companies want to focus their attention along the spectrum of sustainability, there is always a business case for sustainability.

SS: On the one hand, we see an increasing number of regulations and policies for more sustainable shipping practices. For instance, the International Maritime Organization has adopted mandatory measures to reduce greenhouse gas emissions from international shipping.

On the other hand, there is a growing awareness in the logistics industry that sustainability – if addressed and aligned with the company's business objectives – can be a strong driver for growth as it helps cut costs. Investments in sustainability awareness and capacity building may help, as well as the provision of a platform for sustainability leaders in the industry to share and support others in the process of adopting more sustainable business practices.

SB: The standard, ISO 26000:2010, Guidance on Social Responsibility, defines how organisations should operate in a socially responsible way. But sustainability is more than just climate change and tree-hugging. It encompasses health and safety, and competence training for ships' crews and managers. If we act proactively in this area, it will be easier to attract and retain talent; there will be fewer accidents and other positive outcomes, which add value to shipping firms' bottom line.

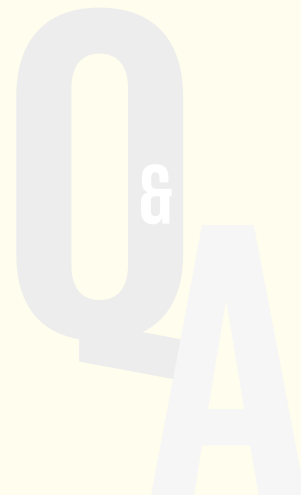
It is critical for the maritime community to accept that operating sustainably and responsibly is not a cost centre but a revenue earner that underpins long-term survival. The same is true of other areas covered by ISO 26000, including human rights and fair operating practices. With these added value, the question, really, should be: How could an enlightened management not operate sustainably today?

SN: WHAT DO YOU SEE AS THE TOP CHALLENGE FOR SUSTAINABLE MARITIME DEVELOPMENT IN THE NEXT DECADE? HOW CAN IT BE OVERCOME?

KA: The lack of mature real players in the industry will be the top challenge as it has been adulterated with opportunistic and speculative shareholders and investors who build low-tech and inefficient ships just to reap short-term profits. Sustainable practices are simply not on their agenda. Financial institutions that provide funds to maritime operators who do not prioritise and favour sustainable ships also add to the problem.

Operators remain reluctant to spend a few more dollars to benefit from cost-saving measures that not only add to the health of companies but also lead to sustainability gains. There is inertia in scrapping old and inefficient fuel guzzlers and retrofitting ships to make them more efficient in this slow steaming era.

JA: In today's world, business growth should not lead to an increase in carbon footprint. As resources are finite, businesses must take responsibility in finding ways to grow profitably



with less resources. Companies need to adopt sustainability best practices and long-term public targets, as well as add a social dimension to their economic value proposition. The future lies with those who are able to leverage on their core competencies to generate economic value through the development of profitable business strategies that deliver tangible social benefits. In a nutshell, it is about striking the right balance.

SS: Regulations and policies can help guide the private sector towards more sustainable business practices, while providing a level playing field as they apply across the industry. However, given the global nature of maritime transport, it is important to ensure regulations result in a fair and level playing field for everybody and avoid a situation where businesses are subjected to different standards in different locations. Governments, port operators, businesses and society need to work together across countries to overcome this.

Another challenge is that growth in the logistics industry is expected to become more fragmented, less predictable and more volatile, while supply chains become more complex. The ability to adapt quickly to unexpected circumstances will be more important, so is the ability to serve customers at multiple locations with multiple transport modes at different times as purchase orders become smaller and more frequent. To overcome this, the maritime industry needs to align data analytics with managerial decision-making to achieve higher levels of resource usage efficiency.

SB: The biggest challenge ahead for many of us will be the attraction and retention of competent seafaring staff that align well with our corporate values. Many factors decrease the desirability of seafaring as a career amongst today's youth who increasingly view seafaring as a job and not a career. This lack of entrants results in a severely constricted pipeline of experienced professionals who are essential to maintaining the professionalism of the maritime support industries. In a very mobile labour market, increasing the terms and conditions of employment merely secures the employees, but does not ensure their competence, alignment and engagement. There is no silver bullet, but commitment from the top levels of management is essential. The Sustainable Shipping Initiative will be working to address this.

SN: WHAT ARE THE KEY AREAS IN THE MARITIME INDUSTRY THAT HAS ROOM FOR IMPROVEMENT IN TERMS OF SUSTAINABILITY EFFORTS?

KA: They can be categorised under design and operational optimisation. Design optimisation happens during the newbuilding stage, where operators have the freedom to make the ships as efficient as possible, from hull line optimisation to incorporating propulsion improvement devices. For existing ships, operators can embark on many energy-saving measures to take advantage of the recently introduced Ship Energy Efficiency Management Plan.

JA: There is a long list of issues that the industry needs to address, including introducing pollution-control regulations and clean fuels, as well as addressing challenges in manpower and resource scarcity. Companies should rethink their strategic goals and expand their horizon towards future value-creation scenarios. They need to fully understand the business case, and allocate their limited resources to meet these broader societal expectations. They need to shift their focus from inputs and outputs to impacts and outcomes.

SS: From a supply chain perspective, the maritime journey of transporting goods starts even before they reach the loading port and go beyond the discharging port. The seamless integration of inland transport on both ends of the supply chain is vital in achieving both cost and carbon efficiency. For the maritime industry, inland transport can add significant carbon emissions and spoil its comparatively high efficiency in carbon emissions per transport unit compared to other modes of transport. Resolving this requires close collaboration between maritime operators and operators of inland logistics processes.

SB: The industry must stop burying its head in the sand and accept its share of responsibility for its greenhouse gas emissions before it is forced to adopt solutions imposed by those who do not understand the industry. The aviation industry's run-in with regulatory authorities from the European Union a few years ago is a case in point. Multiple regional, or worse, local emission reduction schemes supported by different regional monitoring systems will be a financial disaster for shipping companies trading globally.

SN: CAN YOU SHARE SOME ANECDOTES ON HOW WE CAN BALANCE THE CARE FOR THE ENVIRONMENT WITH THE NEED FOR BUSINESS GROWTH?

KA: Sustainability is no longer an afterthought; it is at the nucleus of DNV GL's business. For example, in our daily operations, our employees use a flight tracker to track the number of flights

“TO STAY RELEVANT, THERE IS A COMPELLING NEED TO PURSUE A SUSTAINABLE ECONOMY THAT DELIVERS ENVIRONMENTAL AND SOCIAL PERFORMANCE ALONGSIDE TRADITIONAL ECONOMIC RESULTS...MARITIME COMPANIES HAVE TO BALANCE SHAREHOLDER ACCOUNTABILITY WITH STAKEHOLDER CONCERNS, AND COMPANY SUCCESS WITH SOCIAL PROGRESS.”

JUAN AGUIRIANO, PRESIDENT, ASIA-PACIFIC, DUPONT
SUSTAINABLE SOLUTIONS



and the resulting carbon emissions. From that, we work out a baseline and try to reduce our carbon footprint by encouraging online meetings and video conferences as much as possible.

At the same time, we invest heavily in R&D to come up with breakthrough innovation, which will benefit operators in reducing their operational costs, while improving their contribution to environmental and social sustainability.

JA: We have to address global human and environmental needs in a way that makes a difference in peoples' lives, creates shareholder and market value, and can be accomplished sustainably. At DuPont, sustainability is a business growth strategy. Our sustainability commitments aren't just good for business – they are our business. We believe sustainability has to be built into the solutions we invest in and deliver to our clients. To fully integrate sustainability in the commitment, mindset and culture of the

organisation, its impact has to be measured.

As an example, since 2011, DuPont has invested nearly \$1 billion in R&D programmes to develop products with direct, quantifiable environmental benefits for our customers. In this short time, these products have already generated over \$2 billion in revenue for the company. We have also generated close to \$12 billion in revenues from products that are based on non-depletable resources.

SS: Sustainability is incorporated in DHL's corporate strategy, and viewed as an opportunity to create and share value with customers. At DHL, we employ diverse carbon efficiency measures and have a portfolio of GoGreen products and services, including a new web-based carbon emission management platform, which not only benefits society and the environment, but also creates added value for our customers.

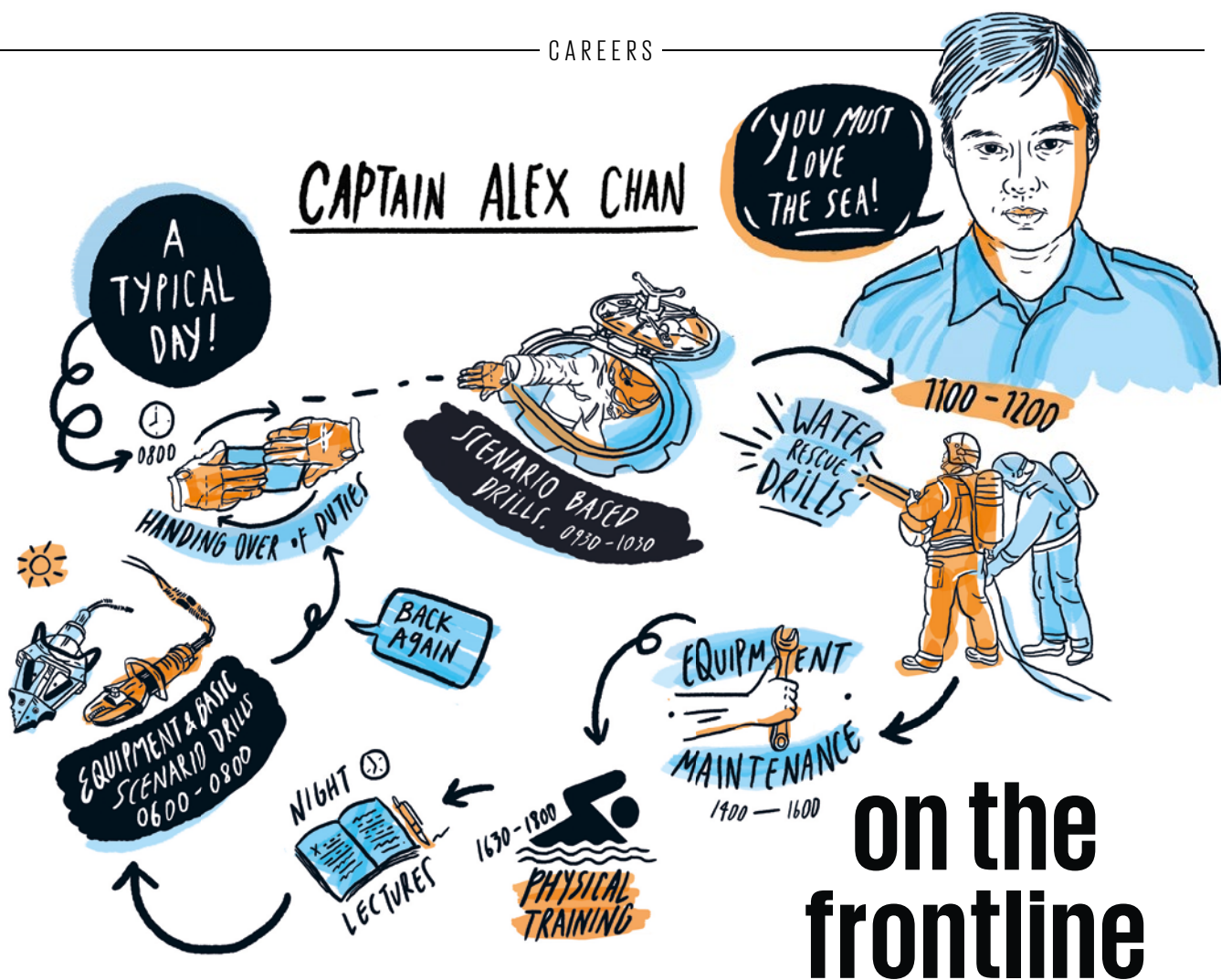
Our environmental protection programme GoGreen focuses on minimising carbon emissions – our operations' greatest impact on the environment. As the first global logistics company to set a concrete target of improving carbon efficiency of its own operations and that of its subcontractors by 30 per cent by 2020, we achieved more than half of that by the end of 2013 through fleet renewal, energy efficiency, new technologies and employee engagement. Through the DHL-SMU Green Transformation Lab, a joint partnership with the Singapore Management University, we are constantly developing innovative solutions to support our customers' sustainability aspirations.

SB: A significant concern for The China Navigation Company (CNCo) is the unsustainable recycling of ships at the end of their useful lives. Sustainable recycling of ships is both environmentally desirable and efficient. However, the working conditions reported in many ship recycling facilities are unacceptable and unsustainable. Certain minimum standards must be met, such as all workers must be adults who are competently trained and all hazardous waste disposal must be appropriately managed.

CNCo abides by a Sustainable Ship Recycling policy where we contract yards that operate in accordance with certain international ship recycling regulations. We also engage yards that are certified by international independent bodies to meet the standard ISO 30000, and accept audits against the above standards.

We “do” sustainability, not because we are boy scouts, but because it's good for business.

CAREERS



on the frontline

Battling flames in a marine environment is an intricate and dangerous operation, as Captain Alex Chan Yong Ren takes Audrina Gan through the essentials of his job as a marine firefighter

With the port of Singapore seeing an average of 1,000 ships in our waters at any one time, our nation's marine firefighters play a pivotal role in ensuring our nation's waters are safe from fire incidents and pollution by responding quickly and effectively to fires and emergencies.

But fighting fire in the sea has its challenges, from confined spaces on board a ship to the risk of it capsizing. It requires specialised training and expertise. Previously under the purview of the

Maritime and Port Authority of Singapore (MPA), the Singapore Civil Defence Force (SCDF) took over the marine firefighting and rescue duties at sea in April 2012.

Captain Alex Chan Yong Ren, Rota Commander at the West Coast Marine Fire Station, tells *Singapore Nautilus* the demands of his job:

VITAL ROLE

We respond to any fire incident that occurs in the marine environment, whether it is on land (such as an island) or a vessel. For rescue operations,

we also respond with our expertise and assistance as required by the MPA or the Police Coast Guard.

In a marine fire station, there are three shifts of about 15 men each. Each shift lasts around 24 hours. I typically start at 7.45am and finish work at 9 the next morning.

As Rota Commander, I'm in charge of the

individual shift and managing the men on my watch.

DAILY TRAINING

We keep ourselves physically and mentally fit through daily scenario drills and physical training.

We also conduct height-rescue drills. At times, we scale heights of up to nine storeys in the simulator in full firefighting attire,

CAREERS

COOL HEADS UNDER FIRE



1. WE RECEIVED A CALL FOR HELP ON SEPT 13, 2013 AT 10.20PM.



2. THE CALLER ALERTED US TO A FIRE ON A SHIP AT WEST JURONG ANCHORAGE.



3. THE SHIP INVOLVED IS A 54M-LONG TUGBOAT NAMED LANPAN 26.



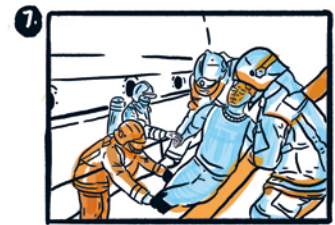
4. ARRIVING AT THE SCENE, WE SEE POCKETS OF FIRE IN ITS ENGINE ROOM.



5. WE COOLED THE ENGINE ROOM WALLS USING A 38mm WATER JET & ITS MECHANICAL VENTILATION SYSTEM WITH A SMOKE EXTRACTOR.



6. THE FIRE IS FINALLY PUT OUT. ALL 12 PEOPLE ON BOARD ARE SAVED.



7. THE OPERATION WAS A SUCCESS THANKS TO 28 FIREFIGHTERS WORKING FROM TWO MARINE FIREFIGHTING VESSELS.

complete with our breathing apparatus and heavy equipment, such as hoses. These can weigh between 30kg and 40kg in total. Such drills are useful for more challenging incidents, such as rescuing people trapped on an oil rig.

IN EMERGENCIES

During an emergency, the SCDF's 995 Operations Centre will direct the call for assistance to our watch room. We are given a 10-minute turnaround time to put on our protective gear, gather all necessary equipment and set

off in our vessels. We will usually send one or two men ahead of us to start the boat engine, as starting a boat takes longer than doing it with a car.





The first thing that I consider in an emergency is whether there are casualties or lives in danger. This would determine our firefighting and rescue strategy.

If there are lives at stake, we adopt an offensive firefighting plan. This would require us to go into dangerous zones, such as boarding a vessel that is on fire or one that's sinking.

In such situations, it's important for me to keep calm when making decisions, as the lives of the men in my rota depend on my command and instructions.

During the emergency, the situation is often dangerous and unpredictable. For example, we could be facing a vessel in danger of capsizing. In the more confined environment of a vessel, fire is a lot hotter than one on land, and we face the added challenge of manoeuvring in a more enclosed space.

TO BECOME A REGULAR FIREFIGHTER*

1.  **MINIMUM 2 YEARS** OF OPERATIONAL EXPERIENCE AT THE FIRE STATIONS.
2.  **A BACKGROUND IN MARINE & OFFSHORE STUDIES OR DIVING EXPERIENCE IS PREFERRED.**
3.  **ABLE TO SWIM AT LEAST 100M NON-STOP IN ANY STYLE, WITH NO SEASICKNESS.**
4.  **ABLE TO TREAD WATER FOR 3 MINS.**
5.  **UNDERGO A 5-WEEK TRAINING & EQUIPPING COURSE IN MARINE FIREFIGHTING.**

*Unlike National Service Marine Firefighters Selected During Their Basic Military Training, Regular Marine Firefighters Undergo Rigorous Interviews & Assessment Tests. They are also required to learn how to pilot & maintain a marine firefighting vessel.

ENLARGED THROUGH RECLAMATION IN 1975, THE SAME YEAR A PUBLIC FERRY SERVICE STARTED



Located 5.6 km south of Singapore



Did you know?

Kusu Island* is the stuff of legends - the most well known is the tale of a magical giant turtle that turned itself into an island to save two shipwrecked sailors. Here are some interesting facts about the tortoise-shaped island:



An annual pilgrimage to Kusu Island takes place during the 9th month of the Chinese lunar calendar

In its heyday in the 1990s, more than

200,000

pilgrims visited the island during the annual pilgrimage season

MARINA SOUTH PIER



KUSU ISLAND



HOUSES A CHINESE TEMPLE AND THREE MALAY KERAMATS (SHRINES)

During the 2014 pilgrimage season (Sept 24-Oct 23), over

44,000

passengers took the ferry across from Marina South Pier

Grew seven times its original size of *1.2ha*

to *8.5ha*



HOW TO GET THERE:

Take a train to Marina South Pier MRT Station, and hop on board a ferry (the trip takes about 45 minutes). A return ticket costs \$18 for adults and \$12 for children up to 12 years old.

*"KUSU" MEANS "TORTOISE" IN HOKKIEN, A CHINESE DIALECT.

CALL FOR PROPOSALS

SMI ASSET INTEGRITY & RISK MANAGEMENT (AIM) RESEARCH AND DEVELOPMENT PROGRAMME

OFFSHORE ASSET INTEGRITY AND RISK MANAGEMENT IN OIL & GAS EXPLORATION AND PRODUCTION

As part of the Singapore Maritime Institute's (SMI) efforts to support the offshore industry in Singapore, the S\$6 million Asset Integrity & Risk Management (AIM) Research and Development (R&D) Programme is established to address industry challenges and develop R&D capabilities in areas relating to offshore asset integrity and risk management in oil & gas exploration and production (E&P). This call for proposals under the AIM R&D Programme seeks proposals involving innovative ideas, approaches and technologies towards improving the safety of offshore E&P activities.



www.maritimeinstitute.sg

More info on the call for proposals: serene@maritimeinstitute.sg

ANNOUNCING THE ARRIVAL OF

THE **FIRST**
Green Berths
IN THE **WORLD**

at **JURONG PORT**



The first Green Berths in the world have landed at Singapore's Jurong Port. The Building and Construction Authority (BCA) of Singapore has awarded a Green Mark (Gold) certification for two berths at the port. The award recognizes the berths' green construction methods and materials, and environmental sustainability features. The Green Berths are yet another step forward on our journey towards environmental sustainability. This is one of our several ongoing green initiatives supported by the Maritime and Port Authority of Singapore (MPA).



BCA GREEN MARK



Jurong Port
Singapore www.jp.com.sg