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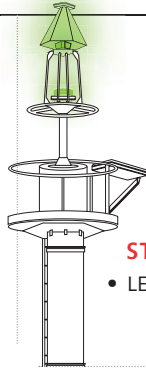
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WORKING OUR PORTS

publisher



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Afternoon
THE ASIAN VOICE IN WORLD SHIPPING: THE MAJOR BULK TRADES

Wednesday 13 April

Morning
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Andreas Sohmen-Pao, CEO, BW Group
Session Chairman of the Offshore & Energy Day: Drivers of the Offshore Industry in Asia

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Sharpening the saw

Maritime education and training takes the spotlight in this issue of *Singapore Nautilus*. Using a simplified board game analogy, we showcase some of the key pillars of Maritime Singapore's education and training landscape in our main feature.

Local company NewEarth registered another key milestone in their quest to turn unwanted materials such as marine clay into useful construction resources, as they broke ground for a large-scale factory.

This issue will also feature an innovative solution MPA is adopting to boost the visibility of marine aids to navigation in *LED-ing the Way*, our Port and Starboard story.

With another year behind us, and 2011 picking up steam, Vincent Wee sums up some of the highlights of 2010 in the Commentary section.

Drop us a line at SN_feedback@mpa.gov.sg if you have any feedback or suggestions for *Singapore Nautilus*. In the meantime, here's wishing all a great 2011 ahead.

wee shann

executive editor



Testing operational readiness to tackle oil spills



► In an effort to test and demonstrate Singapore's readiness to respond effectively to oil spills at sea, the Maritime and Port Authority of Singapore (MPA) led a multi-agency joint oil spill exercise (code-named JOSE 2010) on October 29, 2010.

The aim of JOSE 2010 was to familiarise responding agencies to the Oil Spill Contingency Plan (OSCP) for combating major oil spills at sea. Over 150 personnel from various agencies participated in the tabletop exercise and seaward exercise, located along Sinki Fairway, approximately 8km south-west of Sentosa Island.

"Singapore, as the world's major hub port, is well-connected to 600 ports in 120 countries. Hence, it is critical for Singapore to

remain vigilant and maintain operational readiness at all times. This year's exercise demonstrates the close coordination of both aircraft and vessel-based dispersant spraying systems in the busy waterways of the Port of Singapore," said Capt M Segar, MPA's Group Director (Hub Port Cluster).

JOSE 2010 involved a scenario where an oil tanker, loaded with 62,000 tonnes of Arabian Heavy crude oil, was hit by a cargo vessel at Sinki Fairway.

As a lot of oil was spilled and was spreading quickly, MPA deployed the aircraft fitted with the aerial dispersant spraying system to combat the spill.

JOSE 2010 showed the close cooperation between MPA, government agencies and industry partners.

New Maritime Fuel Cell Research Initiative

► The Maritime and Port Authority of Singapore (MPA) and Temasek Polytechnic (TP) jointly launched a new Maritime Fuel Cell Research Initiative, through a Memorandum of Understanding (MOU) signed by MPA Chief Executive Lam Yi Young and TP Principal and CEO Boo Kheng Hua.

The main aim of the MOU is to seed and encourage projects that will yield improvements and breakthroughs in the use of fuel cells and other technologies applicable to the maritime industry.

Co-funded by MPA's Maritime Innovation and Technology (MINT) Fund and TP, research grants of up to \$4 million and \$1 million will be contributed

by MPA and TP respectively. Both organisations will work towards securing industry co-funding of up to \$1 million too.

"Through MPA's MINT fund, we have been actively working with institutes of higher learning to promote maritime research and development. We are glad to expand our collaboration to include Temasek Polytechnic with the inking of this MOU," said Mr Lam.

Two research projects have been identified under the MOU. The first includes testing fuel cells as auxiliary power in vessels, while the second involves developing an automated process of supplying continuous clean power to underwater systems and devices.



MPA Chief Executive Lam Yi Young (left) and TP Principal and CEO Boo Kheng Hua at the MOU signing ceremony.

THROWING WEIGHT

OVER 12,000 MARITIME PROFESSIONALS AND PREMIER BUSINESS LEADERS ARE EXPECTED TO PARTICIPATE IN SEA ASIA AND DISCUSS WAYS AND MEANS OF MAKING THE ASIAN VOICE IN WORLD SHIPPING HEARD



▶ Key players representing major maritime sectors will unite in Singapore for three days from April 12 to 14 as part of Sea Asia to project The Asian Voice in World Shipping. The region's leading maritime event, Sea Asia, will have top executives of leading companies from China, India, Japan and Singapore, among others, debate on the significance of the Asian voice.

Sea Asia comes at a time when the international maritime community is recovering from the global economic crisis. Organised by Seatrade and co-organising partner, Singapore Maritime Foundation (SMF), the event is expected to see the presence of more than 12,000 maritime professionals from over 62 countries.

According to Mr Christopher Hayman, Chairman of co-organiser Seatrade: "Over 50 per cent of the world's fleet is being owned and operated in Asia and 85 per cent of global

shipbuilding capacity is based in the region." Sea Asia's aim is to reflect and discuss ways in which Asia can ensure its voice is heard clearly and coherently on the global stage.

The first day of the conference will focus on the central theme, The Asian Voice in World Shipping, with the first session on container shipping and logistics and the second on the major bulk trades.

Pacific International Lines' (PIL) MD and President of the Singapore Shipping Association, Mr S.S. Teo, will chair the container and logistics session. Speakers for this session will include APL's President Eng Aik Meng, "K" Line's President and CEO Kenichi Kuroya, Maersk Line and the Container Business' CEO Eivind Kolding, SITC International Holdings Company's Chairman and Executive Director Yang Shaopeng, and Wan Hai Lines' Special Assistant to the President, Randy Chen.

Mr Yudhishtir Khatau, Vice Chairman and Managing Director of India's Varun Shipping, and President Designate of the Baltic and International Maritime Council (BIMCO), will chair the session on major bulk trades. Speakers for this session will include TCC Group's Group Chairman and CEO Kenneth Koo.

The second day of Sea Asia will deal with ship finance, cardinal aspects of the LNG market and other wide-ranging technical issues. Two sessions on ship finance will run during the day, the first on the global ship finance market and the state of the shipping industry.

The second session will address alternative instruments of ship finance. LNG activities in the Far East will also be debated in a parallel session.

The second day, designated Technical Day, will feature two sessions addressing regulations, rules and legislation (with opening remarks by Mr Noboru

Ueda, Chairman and President of Japan's ClassNK, also Chairman of IACS Council), as well as sustainable approaches to technology.

The last day of Sea Asia will be dominated by the offshore and energy sector, with sessions on drivers of the offshore industry in Asia and the interface with the Asian maritime sector.

The three-day event at Marina Bay Sands is principally sponsored by DnB NOR Bank ASA, Executive Ship Management, Lloyd's Register, NOL Group and Rightship. Other sponsors include ABB Pte. Ltd., ABS, Nippon Kaiji Kyokai (ClassNK), DNV, DVB Bank, GAC, HMS Far East Pte Ltd, Ince & Co, Jurong Port, Keppel Offshore & Marine, M.T.M. Ship Management, Panama Maritime Authority, PIL, PSA, Sembcorp Marine, ShipServ, Standard Chartered Bank, The Standard P&I Club, Tiger Oil Marine and V.Ships.

Pivotal business leaders, including Mr S.S. Teo (centre of picture below left) of PIL, are being lined up to speak at Sea Asia 2011.



Visit by Royal Thai Navy



MPA hosts the Royal Thai Navy at the Port Operations Control Centre (POCC2).

Visit by Vietnam Maritime Administration



Delegation from the Vietnam Maritime Administration, led by Director General Vuong Dinh Lam, visits MPA.



Singapore's Minister for Transport and Second Minister for Foreign Affairs, Raymond Lim, launched the Singapore International Bunkering Conference and Exhibition (SIBCON) at Resorts World Sentosa.

SIBCON 2010



MPA-SSA Maritime Forum



MPA and the Singapore Shipping Association (SSA) co-organised a forum on "Maritime Safety in the Traffic Separation Scheme of the Singapore Strait".

Young Mariners Networking Day



The Young Mariners Networking Event was recently organised by MPA and the Singapore Maritime Officers' Union (SMOU) for seafaring students to network with their peers and ex-mariners.

Futsal Tournament



In October 2010, MPA organised the annual futsal tournament for seafarers.

New Year wish list



MPA staff fulfilled a New Year wish list for the elderly and low-income families. Organised by the MPA CARE team, food and electrical appliances were donated to the Moral Seniors Activity Centre, AWWA Seniors Activity Centre and the Tanjong Pagar Family Service Centre.



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Lloyd's Register Educational Trust Visiting Professor, NUS

Professor Torgeir Moan

Director of Centre of Excellence for Ships and Ocean Structures (CeSOS), Norwegian University of Science & Technology (NTNU)

Professor KIM Yonghwan

Seoul National University

Programme At a Glance

Day One:

0900 - 1000 hrs	Opening Ceremony
1030 - 1230 hrs	Plenary Session 1 and Discussion Panel
1400 - 1730 hrs	Parallel Sessions 1
1830 - 2030 hrs	Conference Reception

Day Two:

0900 - 1000 hrs	Plenary Session 2
1030 - 1230 hrs	Plenary Session 3
1400 - 1730 hrs	Parallel Sessions 2
1830 - 2030 hrs	Conference Dinner

Day Three:

0900 - 1000 hrs	Parallel Sessions 3
1030 - 1230 hrs	Parallel Sessions 4
1400 - 1530 hrs	Parallel Sessions 5
1600 - 1730 hrs	Plenary Session 4 and Closing

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INDUSTRIALISATION ALONG THE COASTLINE INCREASES BACKSCATTER LIGHTING, CALLING FOR NAVIGATION AIDS WITH HIGHER VISIBILITY TO HELP MARINERS STEER VESSELS SAFELY. BY PRISCILLA WONG

LED THE WAY

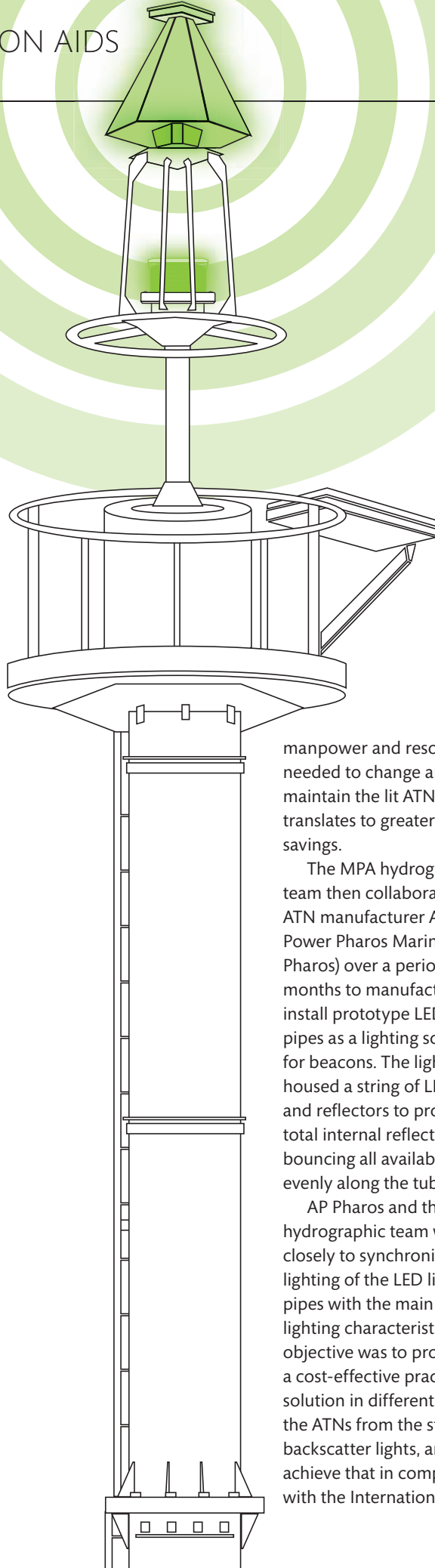


► While roads and highways use traffic lights, road signs and road surface markings to help drivers get around, waterways use objects such as buoys, beacons and lighthouses, commonly known as aids to navigation (ATN), to help ships determine their position and to chart a safe course.

So imagine taking a quiet late night drive in the dark and gradually coming face-to-face with two dozen dazzling lights all at once. Which way to turn to safety? This is an increasingly common occurrence for

mariners when they face coastlines which are dotted with lights from buildings. So guesswork is sometimes required before steering the boats – and unfortunately for some, especially small vessels which do not have electronic navigational aids installed, the wrong decision made could end up grounding the vessel.

“Aids to navigation are essential means of highlighting navigational dangers and provide position information to mariners, but in order for them to be effective, ATNs need



TOP: Outer Shoal Beacon with LED-lit topmark.
 BOTTOM: Cyrene Beacon with light pipes.

to be easy to locate and distinctive,” says Jamie Chen, Deputy Chief Hydrographer at the Maritime and Port Authority of Singapore (MPA). “Bright lights from buildings cause ATNs to be less conspicuous, and at locations where background light clutter is intense, grounding incidents can occur.”

The changing coastline is an unavoidable result of socio-economic factors dotting the foreshore: new commercial buildings, condominiums and residential properties under development, as well as more container terminals and oil refineries. With these developments, the ATNs have become harder to differentiate from backscatter lighting emitted by these new structures, especially at night.

Light pipe moment

To counter this situation, the Hydrographic Department at MPA first increased the light intensity and quickened

the flashing pace of the lights in order to raise the conspicuousness of the ATNs. There was some level of success, but it also meant using more energy to power the intensified lighting.

“These ATNs are out at sea, and we wanted something efficient and as far as possible, independent, and powered by renewable energy,” said Chen. “Since the late 1970s, we have been making a progressive move – from gas, batteries, and finally to using solar energy.”

Since 1993, the hydrographic team at MPA have been evaluating light emitting diode (LED) technology. While LED lights have slightly lower light output than incandescent bulbs, the benefits of LED technology are vast: The LED marine lanterns can last a hundred times longer than incandescent lamps and are far more reliable as there were no moving parts in the lantern. This resulted in less

manpower and resources needed to change and maintain the lit ATNs – which translates to greater cost savings.

The MPA hydrographic team then collaborated with ATN manufacturer Automatic Power Pharos Marine (AP Pharos) over a period of three months to manufacture and install prototype LED light pipes as a lighting source for beacons. The light pipes housed a string of LED lights and reflectors to produce total internal reflection, bouncing all available light evenly along the tube.

AP Pharos and the MPA hydrographic team worked closely to synchronise the lighting of the LED light pipes with the main lantern’s lighting characteristic. The objective was to provide a cost-effective practical solution in differentiating the ATNs from the strong backscatter lights, and to achieve that in compliance with the International

Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

For the first year-long trial which started in December 2009, the team chose the Cyrene beacon, which warns vessels of the Cyrene reef region situated close to the brightly lit container terminals at Jurong Island and Pulau Bukom. Four 1.2m LED light pipes were then attached to the corners of the beacon, providing clarity all around. The team carried out observations at night and discovered that the light pipes successfully enhanced the conspicuousness of the beacon, even among the backscatter lights.



Thereafter, the MPA hydrographic team polled a number of mariners and pilots on the post-installation effect, and feedback was positive. No groundings have been reported in the Cyrene reef region since then.

Given the success of this

trial, the MPA hydrographic team will be implementing the solution on other key beacons and buoys. The LED light pipe is an effective energy-saving solution that helps balance safe vessel movements and coastal development along Singapore's shores.

Based on the initial results of the LED-lit beacon, the MPA Hydrographic team has also begun cooperation with another ATN manufacturer for the development of LED-lit topmarks, and trials have been carried out on Outer Shoal Beacon.

“Since the late 1970s, we have been making a progressive move – from gas, batteries, and finally to using solar energy.”

Jamie Chen, Deputy Chief Hydrographer at the Maritime and Port Authority of Singapore

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MARITIME SINGAPORE'S RICH EDUCATION AND TRAINING LANDSCAPE ENSURES A STEADY FLOW OF MANPOWER AND KEEPS THE INDUSTRY AHEAD OF THE COMPETITION. BUT IF YOU DON'T KNOW WHAT'S OUT THERE FOR YOU OR YOUR STAFF, IT'S TIME YOU PLAYED...

THE GAME OF LIFELONG LEARNING



START



INSTRUCTIONS

Welcome to the Game of Lifelong Learning, Maritime Singapore edition! As a maritime professional who is about to enter or already working in Maritime Singapore, you are part of a game community of over 170,000 players working in more than 5,000 maritime establishments.

Study, train, upgrade - players who do these best

will find themselves excelling in the game. So grab the dice and step up to the board. A sea of opportunities awaits.

PLAYER PROFILES

Turn the page and choose a player profile that best describes you or what you aim to be, and join us in this game of lifelong learning, played in three stages, depending on your profile.



PLAYER TYPES



- PLAYER 1**
 A student taking up maritime education in Maritime Singapore.



- PLAYER 2**
 A fresh recruit about to join the maritime industry.



- PLAYER 3**
 A maritime professional with experience in the industry, looking to move up the ranks or switch to new job areas.



- PLAYER 4**
 A senior executive who is in a leadership position for maritime operations based in Singapore.



CHANCE!

Player selected for a scholarship. Spoilt for choice by the scholarships offered by MPA, businesses, tertiary institutions and other maritime-related organisations, player receives a boost in career prospects.

MOVE AHEAD 3 SPACES

STAGE ONE Preparing for a rewarding career

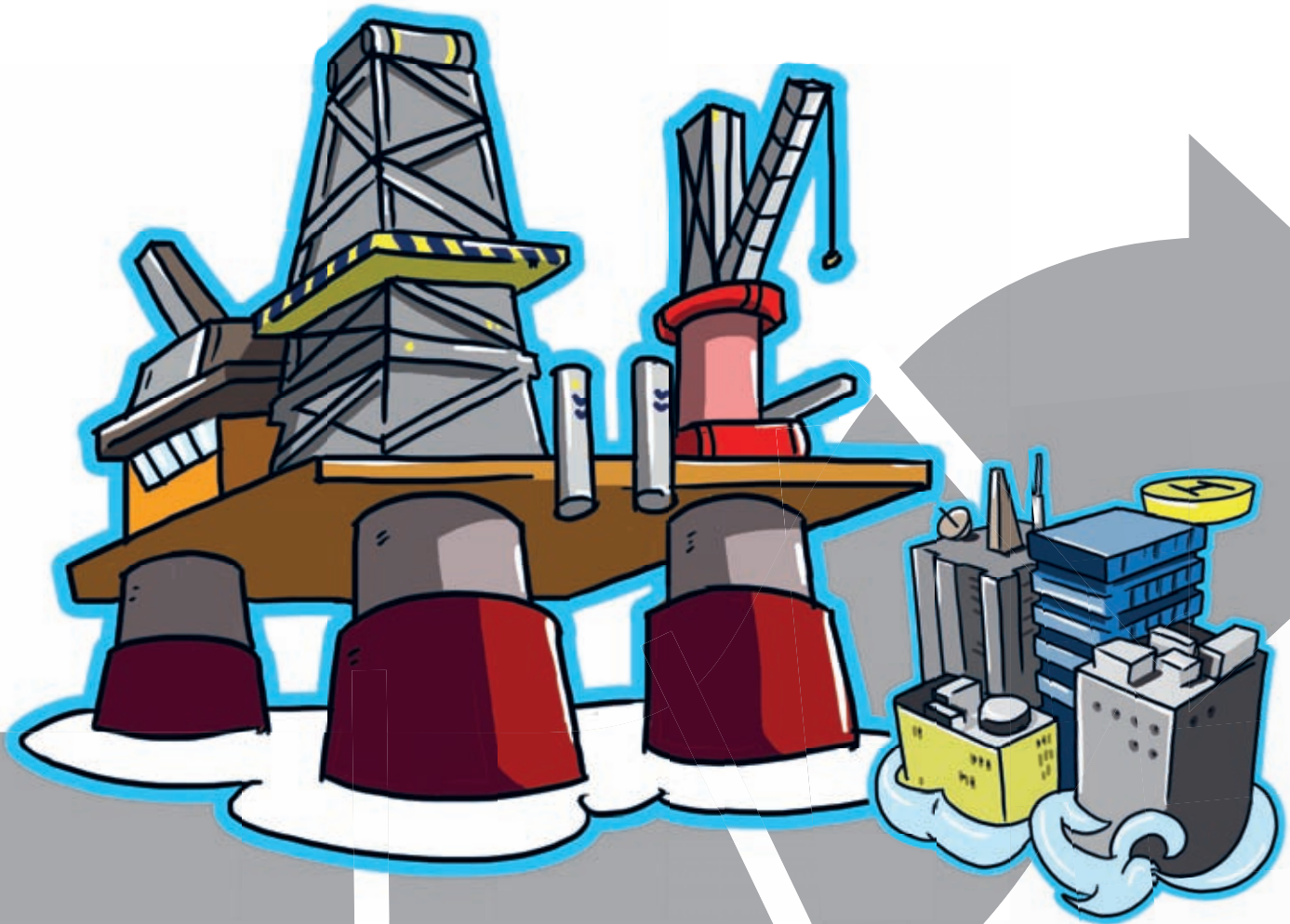
► As a student player, your starting position in this game would be to consider the many maritime academic courses offered by Singapore's polytechnics and universities. You can choose to specialise in courses ranging from maritime business subjects to engineering or seafaring.

The list of maritime courses are varied and include the Diploma in Nautical Studies, Diploma in Marine Engineering and Diploma in Maritime Business offered

by local polytechnics such as Singapore Polytechnic (Singapore Maritime Academy) and Ngee Ann Polytechnic. For players seeking to do degree-level programmes, Nanyang Technological University offers the Bachelor in Maritime Studies programme. Engineering-focused players at Ngee Ann Polytechnic, Singapore Polytechnic, National University of Singapore and Nanyang Technological University can opt to do a

specialisation in offshore and marine engineering. For players who prefer studying law, economics, finance or business courses, you can also prepare yourself to be part of a growing pool of professionals specialising in maritime services.

As part of a community of more than 1,000 student players taking up maritime courses annually, you can participate and benefit from many of the activities under the MaritimeONE



(Maritime Outreach Network) platform. MaritimeONE is an industry-wide initiative by the Maritime and Port Authority of Singapore (MPA), the Association of Singapore Marine Industries, the Singapore Shipping Association and the Singapore Maritime Foundation.

Working with maritime companies and institutes of higher learning, the four partners source for internships and scholarships for maritime-related studies

and organise activities such as NetworkONE receptions, which allow student players to get to know their future employers or what it will be like when they move to stage two of the game.

Industry bodies including unions such as the Singapore Maritime Officers' Union and Singapore Organisation of Seamen also work closely with MPA and maritime enterprises to recruit and train student players to take up seafaring careers.

CHANCE!

Player has received realistic training at the Integrated Simulation Centre, better known as ISC. The Full Mission Ship Handling Simulator has given you the confidence you need to handle a range of scenarios out at sea.

MOVE FORWARD 3 SPACES



STAGE TWO Building your career

► Whether you are a fresh player about to join the Singapore maritime industry or an experienced maritime professional player, you will be spoiled for career choices.

Depending on the course you took in the first stage of the game and the experience you gained from working in a dynamic environment like Maritime Singapore, you can choose to work in a wide range of maritime enterprises.

These can vary from shipping lines, port operators, classification societies, shipyards or maritime service enterprises such as ship-broking companies, shipping banks, P&I clubs, to law

firms specialising in maritime law and more.

Picking up in-depth industry knowledge would be a critical part of your strategy at this stage. Players can choose to take up short sector-specific courses or certified programmes offered by institutes of higher learning or private training providers working in collaboration with industry associations.

For example, the ITI-ICS shipbroking course is jointly offered by Institute of Chartered Shipbrokers (Singapore branch) and Singapore Management University (SMU). Singapore Shipping Association

also worked with private training institutions to offer shipping-related courses, while Singapore Maritime Foundation worked with the University of Southampton, UK to bring in the Maritime Law and Practice course.

Some players may even wish to commit their time by taking up post-graduate programmes such as Graduate Diploma in Maritime Law and Arbitration, Master of Science in Maritime Studies or Master of Science in Offshore Technology. Many of these courses are supported under the MPA's Maritime Cluster Fund – Training@Maritime Singapore programme.



MISSED CHANCE!

Player gets complacent and decides against going for regular training and upgrading. Develops chronic difficulty in coping with change.

MISS 2 TURNS



STAGE THREE

Establishing your leadership position

▶ Players with leadership roles have an important part to play in all three stages of the game. To stay ahead of your opponents, you will need a team of dedicated and highly qualified maritime professional players to deliver your business objectives. A winning strategy is to ensure you continually promote and implement initiatives to support lifelong learning for yourself and your colleagues.

There are various government co-funding schemes such as MPA's Maritime Cluster Fund (MCF) programmes which co-funds training and development activities under three broad categories, namely Training@Maritime Singapore, Talent@Maritime Singapore and InvestManpower@Maritime Singapore. You can look at how these programmes can help you execute such a winning talent development strategy.

You can send your team for pre-approved short courses provided by external training providers too, or some of you may even steam ahead by developing your own in-house training. Both types of activities are eligible for co-funding support under the Training@Maritime Singapore programme.

To further develop the management potential of your young players, you can also consider starting a Management Associate programme for your organisation where such an activity can be considered for co-funding support under Talent@Maritime Singapore. If players with leadership roles wish to invest in best human resource practices, processes or tools or take a quantum leap by setting up a centralised/regional training centre, you can tap on co-funding support from InvestManpower@Maritime Singapore as well.

While you are helping others to learn, don't forget that you need to walk the talk too. You can commit your time to attend many seminars offered in Singapore, or even pursue an Executive MBA in Shipping, Offshore and Finance offered jointly by BI Norwegian School of Management in Oslo and Nanyang Technological University in Singapore. Also, you can contribute by supporting MaritimeONE activities via career talks, setting up booths or offering internships, scholarships or sponsorships to benefit young and aspiring student players looking to join Maritime Singapore.



Government support for skill enhancement in the maritime sector allows companies to scale up their training programmes to help employees strengthen their capabilities.



► In what is expected to be a boon for ballast water treatment systems providers, Danish environmental consulting company DHI opened the doors to its new Singapore land-based ballast water testing facility in January 2011.

Not only is this the first testing facility of its kind in South-east Asia, it's also the only one in the tropics – a timely move ahead of new regulations governing the treatment of ballast water expected to come into effect around 2012.

In addition, having the facility in Singapore will enable local developers of ballast water treatment (BWT) systems to have a test bed right in their own backyards. This enables the developers to carry out cost-effective proofs of concept. Previously,

developers had to go abroad (Europe, for instance) for months at a time – to test their BWT technology. In addition to a lengthy queueing time, this was cost-prohibitive for many. The 1,000 sq m facility, located at Pandan Road at the mouth of Sungei Pandan, will

WATER



be manned by a team of 10 to 15 biologists, engineers, and lab technicians – as part of a 140-strong employee base in DHI Singapore.

The environmental impact of harmful aquatic organisms and pathogens, transported by ballast water

via international shipping, has raised concerns in recent years. The International Maritime Organization (IMO) lists examples such as the introduction of the European zebra mussel in the Great Lakes between Canada and the US, resulting in extensive

expenses for pollution control and cleaning of affected underwater structures; as well as the introduction of the American comb jelly to the Black and Azov Seas, causing the near extinction of anchovy and sprat fisheries.

This has led to the adoption of the IMO International Convention for the Control and Management of Ships' Ballast Water and Sediments. Signed in 2004, this convention takes effect over several years and aims to mitigate the potentially

WORKS

THE FIRST OF ITS KIND IN THE TROPICS, THE TESTING FACILITY IS BASED ON THE IMO CONVENTION THAT AIMS TO MITIGATE THE NEGATIVE IMPACT OF UNTREATED BALLAST WATER IN SHIPS.

BY GERALDINE KAN



ANALYST OUTLOOK ON GLOBAL WATER MARKET

EXPONENTIAL GROWTH EXPECTED IN THE BWT MARKET FROM 2009 TO 2020 WITH A COMPOUNDED ANNUAL GROWTH RATE OF 52.8 PER CENT.

- Market growth will be largely determined by the compliance timelines of the IMO convention.
- Thus, only four per cent of market revenues will be projected from 2009 to 2012.
- Bulk of market revenues expected from 2017 to 2020 will be driven by legislation implementation agenda.
- In total, over 57,000 ships will require BWT systems from 2009 to 2020.



huge negative impact of “alien invasive species”.

According to the IMO Resolution A.1005(25), most vessels will need to start complying with the new regulations in stages. This includes installing BWT equipment on board. Currently, much of the equipment is from Europe, with some from North Asia. Singapore is still a nascent, although promising, source of BWT technologies.

Benefits for Singapore and the region

The DHI facility provides local BWT technology developers more testing resources and gives them greater potential to bring to the market groundbreaking offerings, said Martin Andersen, Head of the DHI Ballast Water Centre in Singapore.

“We’ve had a lack of breakthrough technology in the South-east Asia region,” he said, citing the cost of the three- to four-month technology test period abroad as a key obstacle to the development in terms of time and cost. These are often small and medium-sized businesses, sometimes tied to universities.

“Having a facility here means barriers of entry for the technology developers are much lower,” he added.

DHI decided to build the testing facility in Singapore, thanks to strong collaboration with the Economic Development Board and the Maritime and

HOW IT WORKS

- Up to 600 cubic metres per hour of seawater, brackish water, or freshwater is pumped through the testing system.
- Sediments and organic substances are added into the feed. It is crucial to simulate conditions at sea, for example, mimicking a severe algae bloom.
- The piping system is made up of 250 mm PVC pipes.
- Three replicate samples of 1,000 litres each are taken before and after treatment, as well as after storage, and are tested for both biological and chemical quality.
- The technology treats ballast water on the way into and out of the ballast tanks. (Alternatives could include in-tank methods where the ballast water is treated during the voyage of the ship.)
- Simulated ballast water tanks, 250 cubic metres each, store “treated” water and “control” water for a minimum of five days – mimicking the voyage of a ship at sea.

Port Authority of Singapore. The ability to operate the facility all-year round, Singapore’s shipyard capacity, its location and its status as a shipping hub were also promising factors.

Shipping analysts, Andersen said, expect Singapore to become a major retrofitting centre, as older ships will need to install ballast water treatment systems as well.

Although cautious in the short run, analyst Frost & Sullivan sees the solid long-term drivers of this market. According to its March 2010 Global Water Market Outlook report, Frost & Sullivan expects the market to “explode” in this decade, leading to a cumulative value

of US\$34 billion thanks, in part, to legislation. Europe and Asia Pacific are expected to generate 90 per cent of market demand for BWT systems from 2009 to 2020.

Asia, the largest shipbuilding region in the world and the second largest market for existing vessels, is also expected to be a large base of local system and component suppliers, the report said.

“There’s significant interest from the local technology developers for testing,” said Andersen. “A large number of ships come to Singapore, as the shipyards here have huge capacity. There’s great potential for Singapore to play a key role in the development of this market.”

MEET THE MODERN-DAY ALCHEMISTS: NEWEARTH SPECIALISES IN TURNING TOXIC SLUDGE, CONTAMINATED MARINE CLAY AND SEWAGE INTO USEFUL MATERIALS THAT CAN BE USED IN CONSTRUCTION. BY SHERALYN TAY

GIVING NEW LIFE TO WASTE



► It all began in 2001 as a university project with the support of the Nanyang Technological University (NTU) and the Maritime and Port Authority of Singapore (MPA) to recycle marine clay. Roy Tan, with university mate Tang Tsen Meng and Dr Wang Danmei, came up with a process to isolate and stabilise contaminants present in marine clay.

It is estimated that some two million tonnes of marine clay, equivalent

marine clay is landfilled and covered up.

With funding from The Enterprise Challenge (TEC) under the Prime Minister's Office, NTU, MPA and Surbana International, the trio started a pilot plant to showcase their "crystallisation technology" and how it could be applied not only to marine clay, but also to other industrial waste such as incinerator bottom ash, sewage sludge, copper slag and more. "Such common industrial waste is usually



to 900 Olympic-sized swimming pools, is generated from harbour dredging – a process that maintains sufficient seabed depth, so large ships can pass safely. "This clay is tainted with heavy metals and other organic and inorganic contaminants, so it cannot be used and has to be disposed of," Tan explains. Conventionally, the

incinerated or landfilled, but our technology transforms it into ecologically sound, value-added products like bricks, pavers and aggregate for the civil and construction sector," said Tan. The patented process is able to stabilise the contaminants present in industrial waste and "bakes" the resultant clay and waste mixture into granules which can

be repurposed as civil and construction materials.

The potential of the technology sparked an entrepreneurial flame in them. Tan and his friends then founded NewEarth in 2003 and started to seek the support of angel investors. "At the start, as young entrepreneurs, credibility and funding were our main challenges," recalled Tan. "We

had to prove that our solution was feasible, and more funds were required to fully showcase the technology with our pilot plant." Support from government entities such as MPA and Surbana – a Temasek Holdings-owned consultancy and township development company – as well as the private sector, opened up opportunities for the team.



“NewEarth’s process can be applied across a broad spectrum of industries, such as the pharmaceutical, semi-conductor, petrochemical and chemical sectors.”

for their first large-scale factory in Tuas.

The 2ha factory will be ready by 2012 and will be able to take in 85,000 tonnes of waste from various industries annually. It will then produce 55,000 tonnes of aggregate (material that can be used to substitute granite, cement and road-making components) – a highly sought-after commodity given the boom in the construction sector.

Along the way, NewEarth garnered not only interest from the industry, but several environmental awards too, including the Innovator Award presented by TEC under the Prime Minister’s Office, the Outstanding Maritime R&D and Technology Award at the International Maritime Awards 2006, and the Environment Protection Award at the inaugural Seatrade Asia Awards in 2008.

It is no wonder NewEarth’s technology fills a critical gap in land-scarce

Singapore. Lam Yi Young, Chief Executive, MPA, noted: “Not only does it allow us to recycle waste material, it also addresses the problem of proper disposal of such waste products.” With only one landfill – Semakau Island – left to accommodate all the waste produced in Singapore, solutions that close the waste cycle play are increasingly sought after by industries. “The business landscape is open to finding sustainable solutions to handle industrial waste,” notes Tan.

“We feel very privileged to have gone through the entire process of growth from idea to fruition over the last seven years,” he says. “Every phase has been a challenge and a milestone, and we have learnt a lot along the way.” Each step, he noted, has reaffirmed their confidence in their technology and the role it can play in Singapore. “Our aim is to be a one-stop solution for disposal and recycling of waste – it stops here and is reborn.”

Making their mark

Their efforts were further validated when they secured investment from both Beng Kuang Marine Limited and Tuas Power in 2007, with the latter becoming a partner and majority shareholder in NewEarth.

In December 2010, the NewEarth team got an early Christmas present when they broke ground



POWER EAST

► Contrary to the belief that Rolls-Royce is just a maker of luxury motor cars, the company is, in actuality, also a world-leading provider of power systems and services for use on land, at sea and in the air. Rolls-Royce provides products and services to over 30,000 vessels in the offshore, merchant and naval markets.

With such credentials, it is certainly a cause for celebration when Rolls-Royce decided to establish its global marine headquarters

right here in Singapore.

Headquartering the Rolls-Royce Marine business in the city state acknowledges the growing importance of Asia Pacific markets to the company, where a significant proportion of its manufacturing, supply chain and customers are based, and where an increasing amount of global commercial shipping activity takes place.

John Paterson, President – Marine, shares his excitement in establishing a focal point to further

grow the company's global footprint. "While Europe remains a significant market for marine, headquartering our business in Singapore further enhances our global position and will facilitate the development of growing markets in Asia," he says.

The foundation for the move has been building up as early as 30 years ago, when Rolls-Royce first established its marine operations in Singapore, where it is already home to many segments of the

Rolls-Royce Marine business, specifically the firm's global marine services and the regional headquarters of its commercial marine business.

"It is well known that Singapore is a good place to conduct business, with well-developed infrastructure, human capital and a central location within Asia," Paterson adds.

"The Singapore facilities function as the global head office for the marine business today, while the operating business for offshore is still

NG

ROLLS-ROYCE PLAYS
AN IMPORTANT
ROLE IN PROVIDING
MARINE SERVICES
AND SOLUTIONS
GLOBALLY FROM ITS
NEW HEADQUARTERS
IN SINGAPORE.

BY VISHWESH IYER



run out of the Nordics. The Global Services business was also placed in Singapore because of the talent present in the market here."

The Rolls-Royce Marine business

Rolls-Royce sees Singapore's long-term positive outlook on the offshore and marine industry, as well as its focus on growing the breadth and depth of local maritime services, as closely aligned with its own growth strategies. Its Singapore facility offers sales and after-sales service support, and also provides ship design expertise with a main focus on offshore supply vessels and tugs, as well as a complete range of UT design, conversion and modification of offshore vessels. Working closely with its parent design centre in Norway, the Rolls-Royce Marine business in Singapore is able to come up with customer-specific turnkey solutions locally.

Looking at greener technologies for the industry, Rolls-Royce has also been active in developing solutions around diesel electric propulsion and LNG-powered marine gas engines. The decreased environmental impact of these engines is important

and will enable the marine sector to significantly reduce emissions – particularly for operations in harbours and coastal areas – where LNG fuel support systems can easily be put in place. "Technology and the environment go hand in hand and Rolls-Royce is working hard to make major contributions in the areas it is active in," notes Paterson.

Eye on the horizon

On plans to expand the Rolls-Royce Marine business into other markets, Paterson shares: "Unlike in the aerospace industry where you can get the engines off-wing and send them anywhere, in the marine world, we need to be close to where the customers and the vessels are, which could be any place in the world."

Further to that, the company aims to continuously challenge itself from a research and development, innovation and technology perspective. The offshore business, in particular, requires more complex solutions and is currently an area where Rolls-Royce will look at building on its position to grow its other divisions.

On the local front, Rolls-Royce has signed agreements with the Institute



It is well known that Singapore is a good place to conduct business, with well-developed infrastructure, human capital and a central location within Asia.

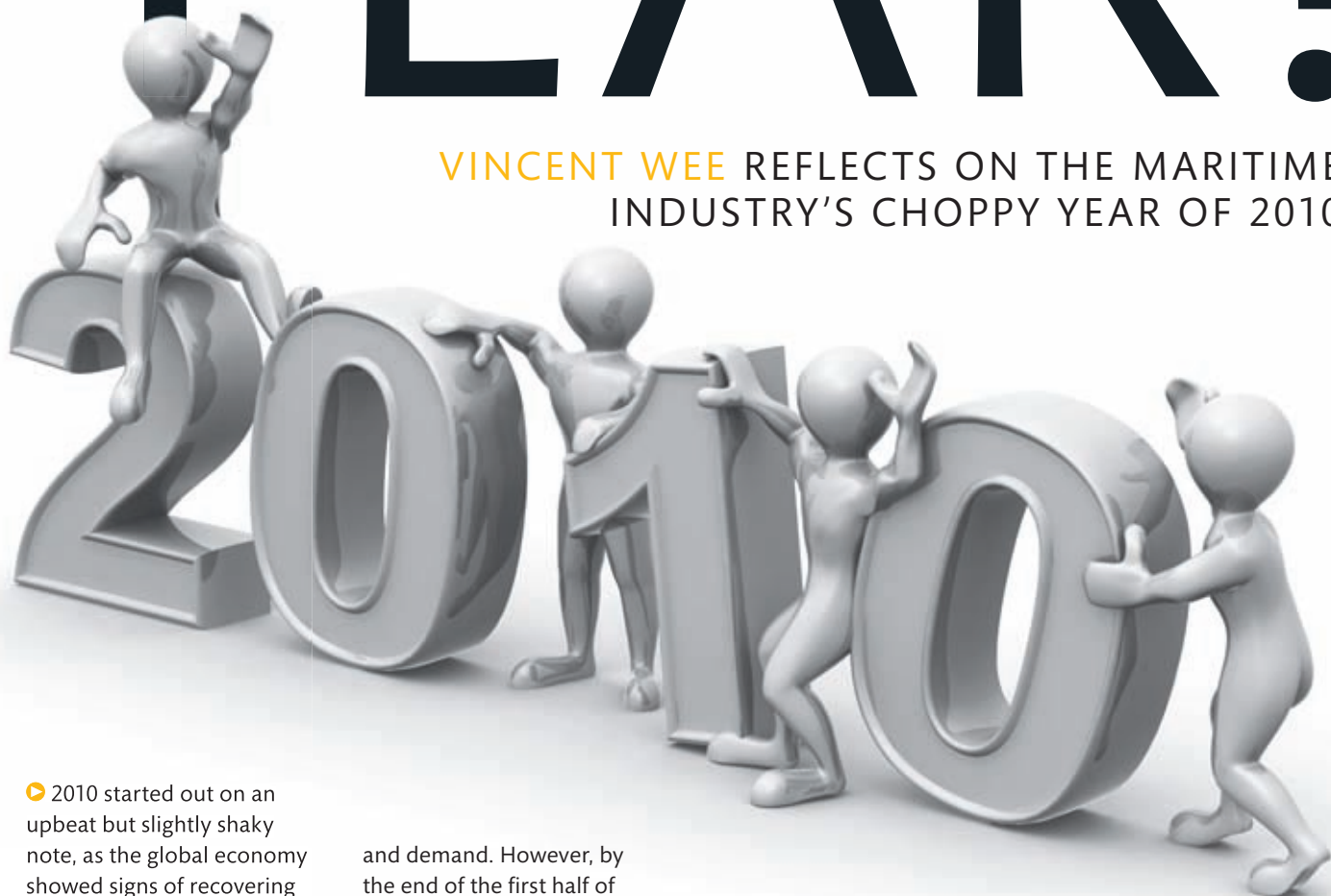
of Technical Education and the Singapore Workforce Development Agency to enhance the level of skills within Singapore's aerospace manufacturing and marine industries. These agreements enable a series of new specialist courses to be developed and delivered, which will equip future engineers with the technical skills that are required by both the aerospace and marine industries.

"Our goal today is to be

the customer's first choice within a wide spectrum in marine. Rolls-Royce is probably number one in terms of portfolio breadth, and now has to consolidate on this to develop a truly world-class services organisation supporting the original equipment business. This will further enable the company to use the available technology around us to engage in various initiatives for more efficient and greener solutions," he says.

WHAT A YEAR!

VINCENT WEE REFLECTS ON THE MARITIME
INDUSTRY'S CHOPPY YEAR OF 2010



► 2010 started out on an upbeat but slightly shaky note, as the global economy showed signs of recovering and container lines, in particular, looked forward to higher freight rates as volumes rose. There was some uncertainty in the first two quarters, as the lines fretted over the delicate balance between capacity

and demand. However, by the end of the first half of the year, most container lines had returned to profit, clawing themselves back from the steep losses of the year before, as volumes on the trans-Pacific trade improved dramatically and growth in the intra-Asia

trades made up for the still laggard Asia-Europe trade.

The world watched the worst oil spill in the Gulf of Mexico following an accident on the Deepwater Horizon semi-submersible in April, and coincidentally, local

waters also suffered from an oil spill-related incident when the tanker *Bunga Kelana 3* collided with the bulk carrier *Waily* in the Traffic Separation Scheme

of the Singapore Strait in May. About 2,500 tonnes of crude oil was estimated to have been spilled, and a multi-agency operation was launched to clean up Singapore's port waters and affected coastal areas such as East Coast Park.

During the year, efforts were also made to increase Singapore's knowledge base as part of its efforts to develop as an international maritime centre. In February, the Maritime and Port Authority of Singapore (MPA) and Nanyang Technological University (NTU) jointly

launched the Maritime Clean Energy Research Programme (MCERP) to focus on research platforms which promote green, carbon-neutral, energy management solutions.

The programme is co-funded by MPA's Maritime Innovation and Technology (MINT) Fund and NTU, and the research will be done at NTU's Centre for Maritime Energy Research, concentrating on developing system-level solutions in the green shipping and green port areas. Research grants of up to \$8 million and \$2

million will be contributed over a five-year period by MPA and NTU respectively. Both institutions will also work towards securing industry co-funding of up to \$5 million.

During the 25th anniversary gala dinner of the Singapore Shipping Association (SSA), the Singapore Maritime Institute initiative was announced. A joint effort by MPA, the Agency for Science, Technology and Research and the Economic Development Board, in partnership with local

educational institutes, the Singapore Maritime Institute aims to develop strategies and programmes related to the academic, policy as well as research and development aspects of the maritime industry, and will help boost local maritime talent in academia.

Further strengthening research in the area of environmental technologies, MPA and Det Norske Veritas' Clean Technology Centre signed a partnership agreement in June to initiate and promote research and development, as well as test-



bedding projects in the areas of maritime environment and clean technologies.

The Singapore Registry of Ships continued to grow, ranking among the top 10 registries worldwide.

The local maritime industry also continued to showcase itself well with major benchmark events, such as the biennial Asia Pacific Maritime Conference and Exhibition, Singapore Maritime Week and the Singapore International Bunkering Conference and Exhibition (SIBCON), with all of them continuing their

successful runs in the year.

The 2010 edition of Asia Pacific Maritime set a new record with a 39 per cent growth in visitors over the previous edition, in addition to a 25 per cent expansion in show size and a 12 per cent increase in participating companies. At the local maritime community's biggest week of the year, the MPA-organised Singapore Maritime Week (SMW), now in its fifth run, featured a massive 26 maritime events to allow everyone – from students and families to

industry players – to join in the Maritime Singapore celebrations.

In 2010, MPA, the Association of Singapore Marine Industries, the Singapore Maritime Foundation and the SSA collaborated to organise the Amazing Maritime Race and SMW Photography Competition, and helped to reach out to various sectors beyond the maritime community.

The highlight of SMW's line-up of events was MPA's 4th Singapore Maritime Lecture, which was

presented by Cosco Group Executive President and CEO Capt Wei Jiafu.

On the economic front, MPA kept up its efforts to help the maritime community through the tough economic times, with the extension of port dues concessions from March 2010 to March 2011, although with a steadily decreasing quantum. The expansion of the Pasir Panjang terminal continued despite economic uncertainty – to develop Singapore's long-term cargo handling capacity.



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BW IS A LEADING MARITIME COMPANY INVOLVED IN PRODUCING OIL AND GAS IN DEEPWATER FIELDS GLOBALLY, AND SHIPPING THESE TO WORLD MARKETS.

JACQUELINE CHIA TALKS TO BW GROUP CEO ANDREAS SOHMEN-PAO ABOUT HIS REFLECTIONS ON THE YEAR AND THE LOCAL MARITIME SCENE



ARCHITECT FOR ENERGY

Do you have any reflections on 2010 for BW Group?

2010 was an unusual year with a lot of mixed signals, both for shipping and the general economy. Our group has had a very good run for the last 10 years. In the past couple of years, we have taken a cautious approach and haven't been ordering a lot of new ships or overextending ourselves. But in 2010, we bought Prosafe Production, our next biggest rival in the offshore deepwater oil production sector.

We're very much focused on expansion to achieve outstanding operational efficiency in our core business and develop marine-based solutions to the world's energy challenges.

How does BW Group weather the maritime industry's challenges?

The maritime industry is by nature volatile and unpredictable. It's very much linked to the global economy, so there are always surprises. We've bought five companies in the past 10 years, but we've also raised new funding through two IPOs and an international bond issue, so we always make sure we're building on firm ground and not taking on more commitments than we can handle. This industry is always guaranteed to provide a lot of excitement and opportunities, whatever the weather.

What are some of the areas that Maritime Singapore needs to work on to stay ahead?

Singapore is a fantastic place to operate in.

It is very business-friendly on the whole, and has worked hard to create a positive environment for the maritime industry. I'm always astonished by the number of initiatives being undertaken by the government to create this platform.

There are some major issues like developing a deep talent pool, which is being addressed but will take time, and some potential quick fixes like relieving tax on interest payments. The most important thing is not to make drastic changes that destabilise the strong foundations that have been laid.

What is the most unforgettable event in your life to date?

Some of the most memorable business events have happened during mergers and acquisitions.

I remember one particular incident when we acquired the Norwegian shipping company Bergesen in 2003. We were at the house of Morten Bergesen, ready to close the transaction after months of hard work, when he said: "Well, there's one more thing." And everyone's hearts fell.

I was thinking: What are we going to do now if he's coming up with new demands? He then said he wanted all the bottles of Aquavit (a Scandinavian-flavoured spirit) in the cellar of the office. It was such a relief. It was something like 600 bottles of Aquavit! But that was probably the easiest thing I've ever had to give up in a business negotiation because I'm not a huge fan of Aquavit anyway.

What is a typical day for you?

Every day is different. On some days, it's very focused on people and on other days, it would be more related to reading reports and thinking about what we need to focus on as a business. There is no single typical day for me.

How do you relax and unwind?

I do a lot of sports such as tennis and skiing. I like driving long distances through the mountains. Maybe it's my Austrian heritage. I also like reading and playing the violin, or any activity that enables me to disconnect from the rest of the world. I get that feeling at work sometimes too, where I'm so absorbed by what I'm doing that I lose sense of time passing.

You also sit on the boards of the Esplanade and the Singapore Sports Council. Do you have a keen interest in the arts and sports?

I've always been interested in sports and the arts. I'm very happy to see how Singapore is embracing these areas. I strongly believe one needs the arts and sports to develop individuals who can succeed in a complex world, and to build a society with depth and character. These activities help to light sparks in people's minds, and they can be a powerful source of inspiration.

If you weren't working in maritime, what would you like to be doing?

I'd be an architect. I'm not sure if I would be good at it, but that's what I'd do!

What was the hardest thing about taking over your father's business as a teenager? Was this something you instantly took to?

When my father passed away, I was 16 and still in school. He left me a legacy – a lighterage company with three tugboats, eight or nine lighters, and an office along the Singapore River. At that time, being the eldest, I was dropped into the business, coming to work between classes. How did I feel? It was like an albatross hanging over my head. I couldn't further my studies and I had to go into this very tough business.

I would say "toiling away" describes those days more aptly. This wasn't the kind of work you could learn from textbooks – you need a lot of experience. The choice before me was quite obvious – you sink or swim. I was determined to work very hard and not sink.

What were the biggest obstacles when you built up Stamford Land Corp, Singapore Shipping Corp and Cougar Logistics Corp?

It was a long haul and a hard climb. I knew the lighterage business was labour-

intensive and a dead-end business with no future, but it was a means of living. I had many workers and it was the family's income, so I had to keep it going.

Consciously, I was determined not just to do well, but to progress beyond being in the lighter business. It was not going to be easy – I had no mentor. But even then, I aspired to go upstream. There were so many aspects of cargo handling besides lighterage, so I built up a company that could provide these various facets of the "value chain". I would tell the shipping agents: "Entrust me not just with the lighters, but the comprehensive range of other services to handle your ship." That worked well and I was able to gain substantial market share of the business.

In the '60s, the British trading houses had shipping agency divisions (eg Borneo Shipping and Anglo French) and they reigned supreme. How does a contractor like me break into this area? It was a big challenge, so I had to recruit talent from foreign agency houses, and at the same time, get qualified personally as a chartered shipbroker.

The challenge was against myself in things I had never done before. But I

was able to not only build up an agency office, but eventually, I must have done sufficiently well to be appointed as the chairman of Mitsui O.S.K. Lines (Singapore) Pte Ltd.

I was restless, so I went into ship-owning. At our peak, we owned close to one million deadweight tonnes – a combination of specialised car carriers, super tankers, bulk carriers and state-of-the-art container ships. We were listed in 1989 – the second local company to do so – as Hai Sun Hup Group Ltd (better known as Singapore Shipping Corp now).

What is your view of Singapore's maritime industry today, and what would you like to see changed?

I think the government has done a great job in attracting many international shipping operators, ship agents and Singapore-registered ships and operators. My personal view is that we need to go further. We still cannot be compared to Oslo, New York or London as we're not a thriving centre for shipping companies who want to get listed. If you were a publicly listed shipping company, where would you find capital?

DROPPED INTO THE DEEP END AT THE TENDER AGE OF 16, C.K. OW ROSE FROM WORKING WITH BUMBOATS TO MANAGING THREE PUBLICLY LISTED COMPANIES WITH DIVERSIFIED INTERESTS. BY ANGELIA SEETHO

SENSE AND SENSIBILITY



There's a dearth of publicly listed shipping companies in Singapore because there aren't sophisticated shipping investors here. We haven't developed enough depth in that area yet. Sophisticated capital markets for shipping mean there are enough investors who are able to match their capital with the right shipping entities. That makes the industry very vibrant, when you have many financial institutions that understand shipping.

I'd like to see Singapore develop into a centre comparable to London or Oslo, such that free-floating capital can feel secure investing in a whole range of shipping companies listed in Singapore.

What's in the pipeline for Singapore Shipping Corporation?

We used to have 13 ships, but ship prices had risen too fast and reached dizzying heights. So I sold down the fleet and took some handsome profits for the shareholders.

Now, we have four ships. Don't just look at quantity, but also the quality of the vessels and the blue-chip names of the charterers.

We now specialise in Roll On Roll Off (Ro-Ro) ships. I see myself as a tonnage supplier to blue-chip shipping companies. There are only seven Ro-Ro operators in the world and I want to operate in niche markets. In the last 18 months, the oversupply situation has been rectified, unlike for container ships.

Besides managing Singapore Shipping Corp and Cougar Logistics Corp, you run Stamford Land Corp, which owns hotels and residences in Australia and New Zealand. Do you see yourself more as a shipping professional or a hotelier?

I'm equally at home as a hotelier and a shipping professional. Having been through the school of hard knocks, I've learnt everything hands-on.

There have been many surprises to



I see myself as a tonnage supplier to blue-chip shipping companies. There are only seven Ro-Ro operators in the world and I want to operate in niche markets.

deal with along the way, but I've also revolutionised a number of areas that were copied by other hotel chains. I take that as a good thing, as copying is the most sincere form of flattery. In hotels, we were the new kid on the block, but we were able to bring about many positive changes to the industry.

What's a typical day for you like?

The day never ends for me now, especially with the mobile phone and e-mails. Night morphs into day and day into night. But I find time to work out every day. I have my own gym in all my residences and I work out for an hour in the mornings.

How do you like to relax?

The hour I spend in the gym is very relaxing. But it's not as relaxing when I'm travelling, because the work never ends and it's harder to stay on top of things when you're away. I entertain a lot, but one can't be out every night – it's tiring. And when I'm not entertaining, I like to stay home and watch DVDs.

You collect 18th-century art and antiques, what fascinates you about them?

I've been collecting for 30 years. I have porcelain, silver, oil paintings, sculptures, English furniture – the whole lot. I'm also

producing a catalogue of my collection. I started with 300 pages, but I am now at 700 pages.

With English antique furniture, I love the beautiful lines and the craftsmanship. They are both functional and aesthetically beautiful. The quality cannot be replicated too. Despite being 200 or more years old, they are still in a wonderful condition. 17th- and 18th-century furniture are not garish or outlandish – they're simple, beautiful, useful and they appreciate in value. What else would you collect?

Which of your achievements are you most proud of?

I don't think one should talk about his achievements in his lifetime. It's like what Lee Kuan Yew said – do not judge a man until his coffin is closed. You could still do something stupid. Why tempt fate by talking big?

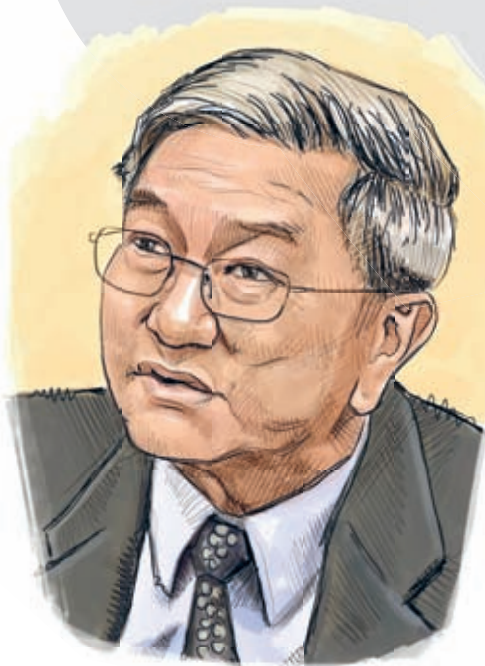
You can see what I have achieved – from running a lighterage to being the chairman and CEO of three listed groups. These are modest in comparison to more notable luminaries. However, I could justifiably be proud that many companies that were around when I grew up in the lighterage and shipping agency business are perhaps long gone. If I compare myself to other luminaries, I have nothing to crow about. So I think the word "achievement" is really relative.

BUILDING THE CAREER POOL

TODAY'S GENERATION IS NOT TAKING UP A MARITIME CAREER IN NUMBERS THAT THE INDUSTRY WOULD WANT. WHAT DOES IT TAKE TO MAKE THIS PROFESSION MORE ATTRACTIVE? HOW SHOULD THE INDUSTRY POSITION ITSELF?

David Chin

Professor Bernard Tan



While it seems easy to list what is critical to the maritime industry – be it capital, infrastructure, legislation or the state of the world economy, one cannot forget that the chief resource we have is knowledge, and it is the strength of the maritime industry's knowledge workers that determines whether we flourish or fumble.

How can the maritime industry attract talented individuals and help our workforce sharpen their "saws"? *Singapore Nautilus* consults two experts to find out more about maritime education and training in the maritime industry. They are:

- David Chin, Executive Director, Singapore Maritime Foundation
- Professor Bernard Tan, Director, Center for Maritime Studies

SINGAPORE NAUTILUS: How is the general business and education climate changing? How does that impact the maritime industry?

CHIN: With the world economy regaining its pace, things are certainly much better compared to two years ago. Maritime activities and transactions are on the rise and many companies are establishing their footholds in Singapore to expand their businesses in Asia. The maritime sector in this region will become more vibrant and Singapore will reap the benefits of these developments. The education scene has matured and maritime-related courses are much more readily available today. The easy access to these maritime courses in Singapore and the MaritimeONE scholarships pledged by our partners will enhance our efforts to grow the maritime talent pool in Singapore, and attract young people to pursue maritime careers.

TAN: From my contacts in the maritime and marine industry, the present business climate is challenging, though there is room for optimism which is somewhat dependent on the various sectors. The maritime industry is highly dependent on a sustained and credible recovery in world markets. In the rig-building sector, there is more optimism as rising oil prices drive the search for more sources of oil and gas. In education, more choices are opening up for students at the



tertiary level, which can only be good for the maritime industry.

SN: What are some of the challenges of growing Singapore's pool of maritime professionals?

CHIN: Changing people's mindsets about the maritime industry and their preconceived notions about maritime careers remains one of the key challenges. Often, the maritime sector is not deemed to be as glamorous as other fields like banking and finance, especially among the youth. Singapore Maritime Foundation (SMF) has been spearheading new initiatives

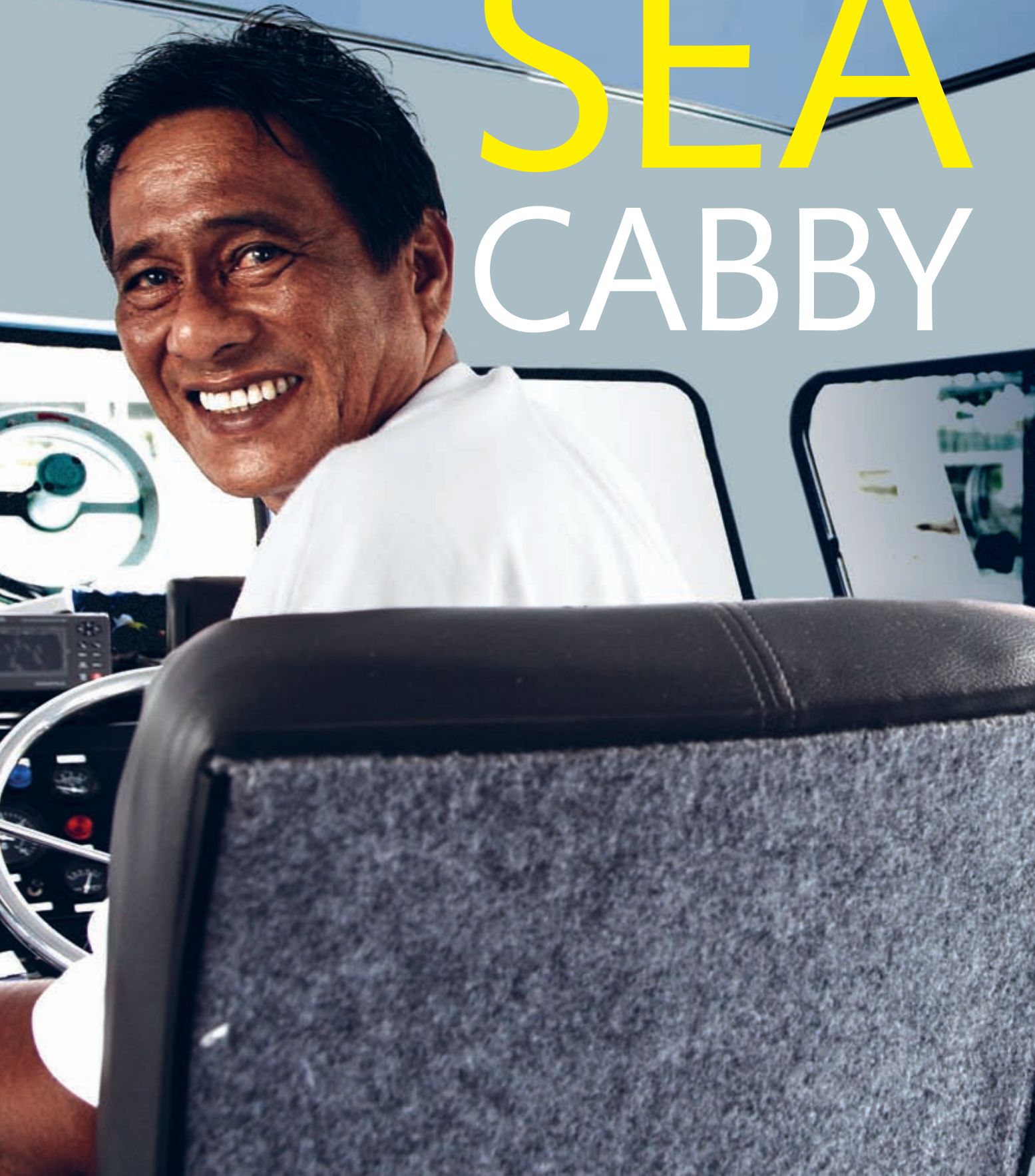
to raise the "hip" quotient of the maritime sector, and highlight the diversity of career opportunities. The sector would need to constantly explore ways to ensure experienced maritime professionals continue to stay in the field. This is especially critical when the economy is doing well and other industries are also in search of talents for their sectors.

TAN: The challenge lies in attracting the best and

brightest young people to be a part of the maritime industry, and showing them the industry offers worthy challenges and commensurate rewards for ambitious and talented people. Many students who are considering a career in the financial sector should be shown that they can also pursue such a career within the maritime industry.

SN: How can we attract talents from other fields to join the maritime industry?

SEA CABBY



SERVING AS THE
LINK BETWEEN
THE SHORE AND
SHIPS, HARBOUR
CRAFT STEERSMEN
LIKE JASMIN
BIN KHAMIS
TRANSPORT
PERSONNEL AND
EQUIPMENT. BY
STACEY CHIA

▶ The harbour craft steersman plays an important role in supporting maritime activities in the port of Singapore. This includes ferrying ship agents and seafarers between vessel and shore, ferrying harbour pilots to board commercial ships, and the transporting and supplying of ship stores and provisions to ships at anchorages.

Jasmin Bin Khamis has served as a steersman for the last 24 years of his life and has been with York Launch Service Pte Ltd for the last nine years. He tells *Singapore Nautilus* more about his job as a "taxi driver" out at sea.

What does your job entail?

My job as a steersman is like being a taxi driver – the only difference is that you're at sea. When ships anchor in Singapore, my job as a steersman is to assist with the changing of crews and ferrying of technicians to the ship for maintenance work. I am also needed to help send documents or transport provisions.

What kind of training is involved?

I started sailing at the age of 16 and I worked with a sea service company for about 20 years. As I had so much experience being out

at sea, all I really needed was to attend a course for steersmen. The course was held twice a week for 12 weeks. I believe if you want to be a steersman today, the same requirements apply.

What kind of qualifications do you have?

I only finished my O-levels, so the good thing about this job is that you don't need much educational qualifications other than the course that I've mentioned. Interest also helps.

What are the biggest challenges of your job?

Mother Nature is my biggest challenge. The weather can be very unpredictable here in Singapore. When it rains, your visibility is reduced. The waves can also cause the ride to be very choppy.

Another challenge would be differing opinions of people. At times, it's inevitable that we get into disagreements with the crew of the ship, as we all have our own opinions about the best way to do things.

Describe the events in your workday.

At the start of my day, I have to inspect the boat and make sure everything is in running order before we start ferrying the crew out to sea.

We have a 12-hour shift and our services are required at any time. On an average, we make about 15 trips a day out to sea.

Why do you enjoy doing what you do and would you encourage people to embark on this career?

I can't imagine what my life would be like if I had to work onshore. I enjoy being out at sea. I'm very fortunate to have this job since it pays well despite my lack of educational qualifications. The work also allows me to interact with many people. Before this job, I could hardly speak English, but now my English has improved tremendously.

The good thing is that you can do this job even if you're not "book-smart". If you lack the paper qualifications for other jobs, you can consider taking up this career, but you need to be quick on your feet and make the right decisions.

What do you see in your future?

If I was younger, I would look out for the opportunity to be a captain of a big ship! But I've passed that stage in my life, and right now, I still see myself being a steersman. I'm very happy with what I'm doing now and I can't ask for more in life.





THE YARDS

▶ Each day, 14,000 workers walk into Singapore's Keppel Shipyard, home to the world's largest conversion dockyard.

Traditionally, labourers turned up at the docks in the morning, hoping to find someone willing to employ them for the day. Things

have since changed and dock workers have been a part of the modern labour movement across the world. Today, they either have permanent jobs or work on contract and are an integral part of the operations in one of the world's busiest ports.

Stefen Chow is an accomplished photographer and has won many accolades, with Nikon Singapore recently naming him a "Nikon Singapore Professional". He has worked with *Geo*, *Time Magazine*, *Wall Street Journal*, Associated Press, Keppel Shipyard and Shell International, and his works have been exhibited in many cities around the world including Los Angeles, Paris, Beijing and Singapore.



SNAPSHOTS OF THE 5TH SINGAPORE MARITIME WEEK 2010

6TH SINGAPORE MARITIME WEEK 10 – 15 APRIL 2011

Singapore Maritime Week (SMW) is the leading maritime event in Singapore. Driven by the Maritime and Port Authority of Singapore (MPA), SMW gathers the international maritime community in Singapore for a week of conferences, dialogues, exhibitions and social events in celebration of all things maritime.

The range of activities and events organised by MPA, the industry, and research and educational institutions, as well as the cosmopolitan profile of participants, reflect the vibrancy and diversity of Singapore as a major international maritime centre. The dynamism and the good range of issues discussed during SMW are major draws for maritime decision-makers, as are the many business networking platforms. This is why Singapore Maritime Week is all about *PEOPLE, IDEAS and OPPORTUNITIES* for the maritime community.



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SINGAPORE

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