

HORIZON

MPA ACADEMY NEWSLETTER
APRIL 2018

ISSUE 03



Organised by MPA Academy, the inaugural Maritime Outlook Forum 2018 was a platform for insight-sharing on the year ahead to examine the latest market trends and outlook for the shipping industry.



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01: EDITOR'S NOTE

SHARPENING MARITIME COMPETENCIES THROUGH TRAINING

MPA Academy kicked off 2018 with the inaugural Maritime Outlook Forum, as part of our broader efforts to engage and support the maritime community on the latest in market intelligence as we start the New Year. The event was organised in partnership with our colleagues from MPA's Planning Division and the International Maritime Centre Division. Our *Feature* story on the forum examines the latest market trends and outlook for the shipping industry, and brings together insights and perspectives from industry experts of the World Bank, Bancosta (Oriente) and Ocean Shipping Consultants.

We also organised a *Fireside Chat* with Mr Ooi Boon Hoe, Chief Executive Officer of Jurong Port and Senior Adjunct Fellow of the MPA Academy, as well as Mr Terence Moo, Chief Strategy Officer of Jurong Port, on their organisation's journey of transformation, challenges, growth opportunities, and plans to be a Next Generation Multipurpose Port. We bring you the highlights of the chat in this issue of 'Horizon'.

As the training arm of MPA, the MPA Academy spearheads the organisation's efforts to sharpen the competencies of MPA officers and better equip them to perform their jobs effectively. In *Training*, the article talks about the importance of honing our instructors' training skills. Since 2014, over 60 senior officers from the different vocations in MPA have been sent to the Train the Trainer Course, and selected officers are being sent for specialised training to improve their instructional skills in their respective vocations.

01: EDITOR'S NOTE

In *People*, we hear from Ken Lee of the Cartographic Section in the MPA Hydrographic Department, as he shares his thoughts on the niche skillset trainings he has received, and his experiences in surveying and charting our waters and approaches. Working quietly behind the scenes, cartographers play an integral role in ensuring safe navigation through Singapore's waters.

The Academy has also been working with relevant parties on case studies to document major maritime developments or projects and the key lessons learnt. In *Case Study*, you can learn more about the innovative engineering solutions employed for the reclamation works of Pasir Panjang Terminal Phases 3 and 4, as well as some learning points for MPA in our future marine construction projects.

Sharing maritime knowledge and expertise through training continues to drive our work. MPA Academy provides global maritime leadership training to overseas port and maritime administrators and supports the training needs of the International Maritime Organization (IMO). During the upcoming Singapore Maritime Week this year, we will be organising the 2nd Maritime Administrators' Forum in support of the IMO World Maritime Day theme, "IMO 70: Our Heritage – Better Shipping for a Better Future". We will also see a gathering of overseas senior maritime officials at our MPA Academy Alumni Gathering held during this period. These two events provide an important platform for maritime administrators from different regions of the world to network, collaborate and exchange views with their peers.

Over the years, the MPA Academy's Alumni Community has grown to some 230 members from Asia, Africa, Europe, Middle East, the Americas, the Caribbean and Oceania. In *Interview*, we speak with recent graduates of the 2nd Advanced Maritime Leaders' Programme held in 2017. The two alumni, Admiral Ayman Saleh Mohamed Ibrahim from Egypt and Lui Naisara from Fiji, tell us how the programme has provided invaluable networking opportunities with their peers from around the world, and paved the way for more effective bilateral relations.

We hope you enjoy this issue of Horizon and look forward to bringing you more interesting stories and insights in the future issues.

Tan Suan Jow
Dean, MPA Academy





02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018

By Angela Chew

About 70 CEOs and CFOs of leading maritime companies came together on 24 January for the inaugural Maritime Outlook Forum 2018 organised by the MPA Academy. It was a platform for insight-sharing on the year ahead to address current and future trends in the maritime sector. The event saw three speakers share their insights on the prospects for global trade and globalisation, the outlook for seaborne trade in key commodities vis-à-vis fleet development and the trends regarding container shipping's trade, growth and consolidation respectively. The forum was part of our broader efforts to engage and support the maritime community on the latest in market intelligence as we start the new year.

Global Trade and Globalisation

The forum opened with a presentation by Mr Marcus Bartley Johns, a Senior Trade Specialist at the World Bank, who provided a broad outlook for global trade and globalisation. More than just contributing to an increase in global Gross Domestic Product over the past five decades, globalisation has played a role in reducing poverty levels in regions across the world. Alongside this, the direction of global trade has also shifted. In the early 1990s, developing countries only participated in around one-third of global trade, but in the last decade almost two-thirds of global trade involved developing countries.

02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018



Mr Johns highlighted that globalisation faces four major challenges in the coming years. These range from the weaker pace of global trade liberalisation to protectionist risks, and diverging public opinion on the benefits of trade to the slowdown in global trade growth over the last 15 years. To mitigate against these risks, three policy responses could be considered. These include renewing trade cooperation, pushing for trade agreements that focus on deeper integration and tackling low-income countries' higher trade costs.

Outlook for Seaborne Trade

Second speaker, Mr Ralph Leszcynski, Global Head of Research at Bancosta (Oriente), touched on the demand, fleet delivery and fleet development prospects for dry bulk, crude oil tankers and oil product tankers. On the dry bulk front, shipping demand for industry-related and agriculture sector-related commodities such as iron ore, coal, steel products, wheat and soybeans continues to be healthy, and growth has been accelerating. With regard to dry bulk shipping, fleet growth has normalised on the back of lower fleet expansion and decrease in overcapacity. Over the next two years, dry bulk fleet expansion is projected to grow at a modest pace of between one to two percent.

Although crude oil remains the top seaborne traded bulk commodity globally, its growth rate and that for oil products is expected to moderate in the years ahead. Meanwhile, tanker fleet growth is anticipated to slow down to between two to three percent in the coming two years, with the product tanker sector projected to recover earlier than that for crude tankers. At the same time, increased demolition of older crude tankers and more orders has resulted in fleet replacement on balance instead of net fleet growth.



02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018

Trends in Container Shipping

In the final presentation, Mr Jason Chiang, Director of Ocean Shipping Consultants, discussed the latest trends in the container shipping and container port industry. Vessel capacity has grown even though ship sizes have remained largely unchanged. In view of the large capital expenditure needed to upgrade port infrastructure, it may take an additional five years before the next vessel size upgrade.

Meanwhile, the development of overland rail routes from China to Europe is unlikely to have a significant impact on container shipping. Time sensitive and high value cargo would usually go via the air route. If the air route is not available, the next best option would be by rail. The potential impact could come from crude oil shipping with the construction of two crude oil pipelines from China to Pakistan and Myanmar.

On the technological front, the number of automated terminals across the globe has been increasing, while the push for digitalisation in shipping has increased through technological advances such as real-time ship chartering and web-based terminal operating systems.

Concerning regional developments, the Straits of Malacca is home to three main transshipment ports: Port Klang, Port Tanjung Pelapas and Singapore. While there are plans to further develop port capacity in West Malaysia, these developments face challenges with inland connectivity. It is unlikely that a fourth transshipment port entrant will join the fray as most of the shipping lines have anchored in one of the three ports.

Moving forward, direct shipping growth is expected to grow faster than regional transshipment, with the former's 5% growth rate expected to surpass the latter's projected slower pace of 3%. On top of managing costs, port operators will have to handle other concerns such as shipping alliances, possible market erosion, higher capital expenditure and operating expenditure, in addition to lower volume growth.



02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018

Q&A with Our Speakers

After the event, we sat down with our speakers to glean more insights on the maritime scene.



Mr Marcus Bartley Johns

Q: How will the challenges to globalisation impact trade and growth in Asian countries?

Although risks like weaker trade liberalisation have negative implications for Asia, it is important to explore ways to lower trade barriers while tackling inefficient customs and regulatory procedures. Asia has the potential to take on a greater leadership role globally in fostering trade liberalisation by demonstrating its benefits through stronger economic growth and reduced poverty.

Q: How can Asian economies ensure they are well-equipped to increase their trade competitiveness and growth prospects in the coming years against the backdrop of Industry 4.0?

It is key for Asian economies to be open to trade, address information and communications technology connectivity constraints, improve digital skills and offer efficient logistics, while providing cutting-edge services in an open and well-regulated environment.

02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018



Mr Ralph Leszczynski

Q: How will the trends in dry bulk and crude and product tankers affect Asia's maritime sector?

Economic expansion in China and the rest of Asia is expected to drive robust growth for dry bulk, crude oil and oil products, with shipping demand for these commodities expected to increasingly shift to the Asian markets in the long term.

Q: How is the drive for renewable and cleaner energy sources in China expected to impact the region's seaborne commodities trade in the coming years?

While the share of coal and oil in China's energy needs are expected to steadily decline over time, it is too early to say whether absolute volumes will decline, given that total energy demand in China keeps growing.

Q: How can the shipping industry respond to these developments to capture opportunities and mitigate risks?

Trends like a fast-developing Asia and a shift to a more multi-polar world – with various centres of power globally – are positive for shipping, and will continue to be so.

02: FEATURE

SHIPPING TRENDS AND MORE AT THE MARITIME OUTLOOK FORUM 2018



Mr Jason Chiang

Q: How will trends in the containership order book affect competitive dynamics between alliances?

The bulk of new orders will be for larger vessels, and once the new vessels are introduced, it could intensify competition and put downward pressure on freight rates.

Q: What are some of the opportunities and challenges regarding the adoption of new technological advancements in the shipping industry?

The mass adoption of these technologies has not been realised yet owing to the lack of a compelling product.

Q: What are some practical ways port operators can prepare existing ports for growing ship sizes and capacities?

Port infrastructure would need to be upgraded to handle the wider vessels, for example deepening the channel and berth, increasing the outreach of the cranes and raising operational capacity.



03: INTERVIEW

CONVERSATIONS WITH MPA ACADEMY ALUMNI

By Rahita Elias

The MPA Academy runs three flagship programmes – Advanced Maritime Leaders’ Programme, Maritime Public Leaders’ Programme and Port Management Programme. In this article, two alumni tell us how the programmes they underwent had helped them to better understand Singapore while helping others gain a better understanding of their countries. They also highlight how the programmes have provided invaluable networking opportunities with their peers from around the world, and paved the way for more effective bilateral relations.



03: INTERVIEW

CONVERSATIONS WITH MPA ACADEMY ALUMNI



**Admiral Ayman Saleh
Mohamed Ibrahim**
Chairman
Damietta Port Authority
Egypt

Egypt and Singapore share a common advantage in international trade, namely their respective prime locations in East Mediterranean and in South East Asia. Both are also inspiring examples of countries which have fully capitalised on their strategic locations to serve the maritime world.

I attended the Advanced Maritime Leaders' Programme (AMLP), organised by the Maritime and Port Authority of Singapore, in 2017.

The programme was both very interesting and informative. It used case studies and contemporary examples to provide us with deeper insights to the complexities and challenges confronting the international maritime industry.

In my opinion, the main benefit of the programme is that it helps participants acquire new techniques and skills. It also gives us the opportunity to interact and bond with our peers and counterparts from other parts of the world. Through peer-to-peer sharing and learning, participants can therefore develop an invaluable network with their global peers in the maritime world. Together, these experiences will help the programme's participants improve our leadership capabilities in managing our respective organisations.

I would definitely recommend this programme to my colleagues and peers. One reason is that this programme highlights new concepts and ideas which contemporary leaders have to take into account so as to remain relevant. In addition, the AMLP gave us greater insights on the challenges being faced by the international maritime industry.

However, various changes could be made to improve the programme. For example, more site visits could be organised. Participants could also be given more opportunities to interact with maritime companies and organisations and their people. Extending the course from one week to two weeks would also be helpful to the participants.

03: INTERVIEW

CONVERSATIONS WITH MPA ACADEMY ALUMNI



Overall, the programme was a great way to better understand Singapore and its people. One of the most remarkable aspects of Singapore is the truly cosmopolitan nature of its population – a result of the country’s geographical position and commercial success. Singapore is considered an inspiring country for all other countries in all aspects of life and industries, especially the maritime industry.

Egypt is also strategically located. Our country’s geographical location on East Mediterranean is especially significant for international trade between Asia and Europe. The best possible route for the Asia-Europe trade is the Suez Canal route, nothing else can compare to it.

Damietta Port is itself in a prime location, being about 23 nautical miles from the northern entrance of the Suez Canal. Various ongoing and future projects are being developed which will enhance Damietta’s competitive advantage as an East Mediterranean port. As part of a 10 billion Egyptian pound investment plan, a logistics and storage hub is being developed at Damietta. The hub will serve the ground pipeline set to connect the Zohr gas fields to the port’s processing plant. New finds at the Zohr fields will enhance the port of Damietta’s importance to the region.

03: INTERVIEW

CONVERSATIONS WITH MPA ACADEMY ALUMNI



Lui Naisara

Deputy Secretary, Ministry of Infrastructure and Transport, Fiji

He believes that Fiji and Singapore have much to learn from each other despite the differences in culture and approach. Therefore, Naisara, who holds a Master's degree in Transport Management from the University of Sydney, thinks that the two countries need to enhance their engagement levels in the maritime field for their mutual benefit.

I was in Singapore last year to attend the Advanced Maritime Leaders' Programme (AMLP), and found it most beneficial. On a scale of one to 10, with 10 being the highest, I would rate the AMLP a nine. I think this programme is important because Singapore uses its resources well, and maintains a very good relationship with its neighbouring countries.

Overall, I would definitely recommend the programme to my colleagues and peers.

The programme itself was structured well. I loved the way Singapore coincided the AMLP with the Singapore Maritime Week (SMW). The exhibits at SMW were very interesting. I also witnessed ChemSpill 2017, which simulated a collision between a fully laden chemical tanker and a bunker barge off Raffles Reserved Anchorage. Seeing Singapore's national multi-agency plan put into action was an eye opener. I think that a Fiji contingent should make field trips to Singapore's Information Fusion Centre, Oil Spill Operation exercises etc.

Among the main benefits of the AMLP is that it has enabled me to make new friends and build new professional networks. Through the AMLP Alumni, I was able to share our common interest in progressing our respective professional careers with the aim of becoming a better leader in the maritime industry.

The connections and contacts I made during my time in Singapore for AMLP have had a longer-term positive impact. For instance, I was fortunate to meet and re-connect with some of my AMLP colleagues at the recent International Maritime Organization Assembly, and our close association through the programme proved to be useful in our bilateral discussions.

03: INTERVIEW

CONVERSATIONS WITH MPA ACADEMY ALUMNI



In addition, the programme has helped me to better understand Singapore – in particular the determination of its leaders and its people to change Singapore for the better. Singapore and its people understand that in order to progress in life, sacrifices have to be made. This is a lesson that everyone should learn and leverage on to achieve their aspirations.

I also love how Singapore has worked its way to become a learned society, and created its own form of democracy by awarding through merit.

There are, of course, differences between Fiji and Singapore.

My own people, the Fijians, are one of the happiest people in the world and have a very good sense of humour. Fijians work well and are very productive when they are happy and free. Our people produce the best results when they are more relaxed.

Conversely, Singapore is guided with a more structured set-up, on which Fijians will need to fully capitalise while enjoying what they do best. The structured set-ups will have to be adapted so that they are not too restrictive to explore and realise the talents of the Fijian people.

Between our two countries, Fiji and Singapore, there needs to be a greater level of engagement in maritime issues. I suggest that apart from the AMLP, it would be good for Singapore to have a programme for aspiring senior officers who could hold leadership roles down the road.

I also believe that Fiji can adopt some of Singapore's strategies. For instance, our country needs to exploit more of Singapore's land transport corporation programme. Fiji, like Singapore, should acquire its own rescue command vessel to coordinate its work. The Government of Fiji's tertiary education system should adopt Singapore's model in terms research and development. There needs to be a coordinated effort between the tertiary institutions, the industry and government.

In all, I believe that our countries have much to learn from each other, and look forward to enhancing our engagement efforts in maritime matters.



04: HIGHLIGHTS

2018

World Maritime
University Study Visit



Maritime
Outlook Forum



04: HIGHLIGHTS

2018



Fireside Chat with Mr Ooi Boon Hoe, CEO of Jurong Port Pte Ltd and Mr Terence Moo, Chief Strategy Officer of Jurong Port



Centre for Liveable Cities 13th Executive Development & Growth Exchange (EDGE)



Blockchain Sharing Session



Sharing Session on Startups



International Hydrographic Organization Cat 'B' Course

04: HIGHLIGHTS

2018



**Technical Workshop
on Aids to Navigation**

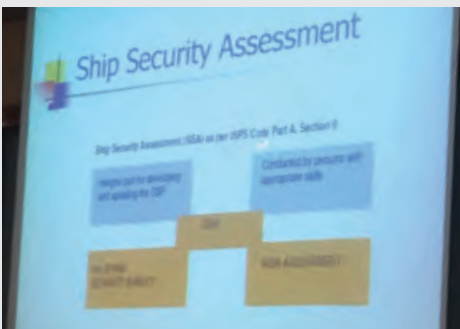


Credit: Marine Department Malaysia

**Aids to Navigation
Manager Training**



**Internal Auditor International
Safety Management Code/
ISO 9001 Course**



**Ship Security
Officer Course**



**International Law
of the Sea Course**



05: PEOPLE

CHARTING OUR WATERS FOR SAFE NAVIGATION

By Chris Chua

Working quietly behind the scenes, cartographers play an integral role in ensuring safe navigation through Singapore's waters. Understanding the niche skillsets and experiences needed for the job, MPA Academy, the training arm of the Maritime and Port Authority of Singapore (MPA), works together with the MPA Hydrographic Department, to drive technical training of staff to enhance their competencies and to be better equipped to perform their jobs. Among the training programmes are the Hydrographic Surveying and the Foundational Course for Cartographers (Category 'C') courses. These courses were developed by East Asia Hydrographic Commission and taught by senior officers in MPA. These courses are part of Hydrographic Department's (HYD) training programme for new hydrographic surveyors and cartographers.

One of the programmes' graduates is Ken Lee, a Technical Executive with the Cartographic Section of the Hydrographic Department. Having spent two years on the job, he shared his thoughts on the training and his experience in surveying and charting our waters.



05: PEOPLE

CHARTING OUR WATERS FOR SAFE NAVIGATION



Q: What made you pursue a career at MPA?

Previously I was a navigation specialist in the Navy for six years where I helped to do up charts. I wanted to expand my knowledge in the maritime industry and decided to join MPA. My first job here was as an Assistant Vessel Traffic Officer (AVTO). After three years, I switched to the Hydrographic Department as I have a strong interest in this area.

Q: What do you do as a Cartographer?

I compile and analyse information and select the data to be updated in the charts. This includes things like buoys, newly reclaimed land and sunken vessels. The information comes from various internal and external sources, including surveys carried out by HYD, the Singapore Land Authority and the Urban Redevelopment Authority as well as my counterparts in countries such as Indonesia, Malaysia and the UK.

Q: How does your previous experience as a navigation specialist in the Navy and an AVTO help you in your current job?

With my sailing experience in the Navy, I understand how mariners will use navigational charts, while as an AVTO, I gained strong on-the-ground knowledge of how vessels navigate Singapore's port waters. Together, these experiences help guide my decisions, especially when I need to select suitable information for the charts.

Q: What do you like most about your job?

My work is published every month in the Notices to Mariners. I feel satisfied knowing that what I do is used by mariners to navigate the Singapore and Malacca Straits.

05: PEOPLE

CHARTING OUR WATERS FOR SAFE NAVIGATION



Q: What does it take to be a good cartographer?

You need to be meticulous, patient and have good analytical skills. We deal with a lot of information at any one time and we need to always provide relevant, accurate data without making mistakes. So these qualities are definitely important.

Q: What are the challenges you face in your job?

There is a constant flood of information that comes in every day, and I have to gauge which are the critical ones. The bigger the scale of the chart, the more information we can show, but we have to think from the mariners' perspective and only include information that is useful to them. For the more complicated cases, I consult my senior colleagues.

Q: How is the environment like at work?

We have a nice work environment here. There's a good balance between work and play and we bond over meals or outings. My seniors are passionate about their work and are very willing to share their knowledge with me. When I first joined the department, I was attached to a senior colleague who has over 40 years' experience, and I learnt a lot from him over the past two years. He just retired recently and I miss him already.

05: PEOPLE

CHARTING OUR WATERS FOR SAFE NAVIGATION



Q: What were some highlights of your Hydrographic Surveying course and Foundation Course for Cartographers?

When I first joined the Hydrographic Department, I underwent the Hydrographic Surveying course where I learnt to carry out surveys of the seabed to determine the depth of the water and any possible hazards, so we can show mariners what lies below the surface.

After that, I attended the Foundation Course for Cartographers (Cat 'C') which taught me how to utilise survey data to create paper charts and Electronic Navigational Charts. While undergoing these programmes, I continued to learn on the job, so I gained both theoretical and practical knowledge at the same time.

Q: How has your training benefitted you in your work?

The Hydrographic Surveying course provided me with an appreciation of the survey data that goes into the charts and highlighted the importance of checking source data before it is charted. In addition, the Foundation Course for Cartographers (Cat 'C') taught me the foundations of charting, including assessing the information that needs to be charted.

Q: Where do you see your career going in the future?

I want to upgrade my knowledge by going for more advanced courses, such as the Category 'B' Cartography Course which is internationally-accredited by FIG/IHO/ICA. This will equip me with more skills, and I hope that it will open up opportunities for me to take up training and supervisory roles in the future.



06: TRAINING

HONING OUR INSTRUCTORS' TRAINING SKILLS

By Rahita Elias

The Importance of Training the Trainers

As the training arm of the Maritime and Port Authority of Singapore (MPA), the MPA Academy (MPAA) spearheads the organisation's efforts to sharpen the competencies of MPA officers and better equip them to perform their jobs effectively. The Academy plays a key role in coordinating and driving the technical training of MPA officers, and is continually expanding the pool of experienced instructors within MPA. In line with this goal, MPAA works in tandem with the various line divisions to regularly organise courses to train and up-skill MPA's senior officers in key vocations.

Since 2014, over 60 senior officers from the different vocations in MPA have been sent to the Train the Trainer Course conducted by DNV-GL Maritime Academy Singapore. The three-day course equips participants with the knowledge, skills and understanding to better design, organise and deliver maritime training programmes.



06: TRAINING

HONING OUR INSTRUCTORS' TRAINING SKILLS



To further enhance the professionalism of our trainers, selected officers are sent for specialised training to improve their instructional skills in their respective vocations. Over the past year, several experienced officers from Vessel Traffic Management Department, Shipping Division, and Hydrography Department have attended courses to sharpen their teaching skills.

Vessel Traffic Service Operators and Managers

MPA's Vessel Traffic Service (VTS) operators and managers undergo on-the-job training (OTJ) regularly to upgrade their competencies according to the Vessel Traffic Management – Knowledge Domain Expert framework. To boost the OTJ training component for VTS operators, MPA is building certified training capacity, and is sending experienced VTS personnel for training to be certified VTS-OTJ Instructors. The inaugural run was conducted by the London Maritime Group from 13 to 16 November 2017.

“The course conducted by the London Maritime Group was useful as it taught the process needed to conduct lessons on Vessel Traffic Service Management, and how to go about with individual lessons or group sessions.”

Ms Lim Man Jia, Vessel Traffic Officer, Vessel Traffic Management Department, MPA

Senior Marine Surveyors

MPA's Marine Surveyors are frequently called upon to deliver courses under the Singapore-IMO Third Country Training Programme and other technical assistance programmes. To enhance their capabilities and professionalism as qualified trainers and to seek accreditation, several MPA senior marine surveyors attended the abridged IMO Model Course 6.09 – Training Course for Instructors from 6 to 10 November 2017.

“It was indeed a memorable learning experience! The instructor, Captain Foong Yee Kuan, employed various methods and shared with us practical and useful methodologies from which we gained the ideas and knowledge to draw up appropriate and effective training plans for our participants.”

Mr Zheng Yi, Senior Marine Surveyor (Port State Control), Shipping Division, MPA

06: TRAINING

HONING OUR INSTRUCTORS' TRAINING SKILLS



Hydrographers and Cartographers

Under the East Asia Hydrographic Commission (EAHC) Capacity Building Programme, Training for Trainers (TFT) courses on Cartography and Hydrography were developed to create a core of master trainers to conduct in-house training.

TFT for Cartography was held in 2013 and 2014, while TFT for Hydrography was held in 2016 and 2017. Both courses were held in Busan, Republic of Korea. The events gave MPA officers excellent opportunities to interact with their counterparts from other countries, share experiences and foster friendship regionally.

“The 2nd Training For Trainers course in hydrography was a fruitful trip as the different Member States shared different techniques and experiences in conducting the Category C Courses. The new knowledge certainly helped me in training and understanding the trainees better. The trip was also a rewarding time, catching up with friends from the different Member States, most of whom had attended the first course held in 2016.”

Mr Ang Li-Sheng Edwyn, Senior Technical Executive, Hydrographic Department, MPA



07: FIRESIDE CHAT

JURONG PORT'S TRANSFORMATIONAL JOURNEY FOR GROWTH

By Chris Chua

Over the years, Jurong Port has successfully navigated the changing trends and challenges of the maritime sector over the years and continues to drive competitiveness and growth for the future. At the MPA Academy's Fireside Chat on 22 March, Mr Ooi Boon Hoe, Chief Executive Officer of Jurong Port and Senior Adjunct Fellow of the MPA Academy, as well as Mr Terence Moo, Chief Strategy Officer at Jurong Port, shared Jurong Port's journey of transformation and how it will tap on opportunities for future growth as it journeys towards becoming a Next Generation Multipurpose Port (NGMPP).

The Need for Change

Mr Ooi explained that Jurong Port's original model of a landlord port resulted in several challenges. These included an ageing stevedoring workforce, the lack of improvement in cargo handling and labour productivity, and low and inefficient asset utilisation, among others.



07: FIRESIDE CHAT

JURONG PORT'S TRANSFORMATIONAL JOURNEY FOR GROWTH



Hence, in late 2017, Jurong Port transitioned to the terminal operating model. The implementation of steel tariffs enabled Jurong Port to contract directly with port users for the provision of stevedoring services. Under this new operating model, port users could nominate their preferred licensed stevedoring companies, while stevedoring companies licensed by Jurong Port could offer ancillary services to port users. This effectively made stevedore companies “business partners” of Jurong Port as they served the needs of the port users together in an integrated manner. In embarking on its transformation, Jurong Port sought to strengthen its core competencies, while optimising asset utilisation to grow and sustain its competitive edge.

Driving Diversification and Growth through Technology

Mr Moo went on to discuss the technological initiatives implemented to enhance productivity at Jurong Port from 2015 to 2017 with the aim of becoming future-ready. These included the introduction of the Combi Terminal and the Project Logistics Hub to the Jurong Port Tank Terminal (JPPT). During this time, the port attained significant productivity improvements in the handling of steel, cement and containers.



07: FIRESIDE CHAT

JURONG PORT'S TRANSFORMATIONAL JOURNEY FOR GROWTH



Tackling Industry Trends and Challenges

In addition to the projected tepid cargo growth in segments such as steel and cement, other industry trends that will impact Jurong Port's future include the disruption in traditional cargo sources and increased competition. Additionally, Jurong Port is hindered by a lack of scale and faces the prospect of higher costs from future capital expenditure requirements.

With these challenges come fresh opportunities for Jurong Port to diversify and grow. By employing data analytics, artificial intelligence and automation, the port will leverage on technology to develop a digitised platform for its operations, so as to enhance efficiency, safety and security.

In the Pipeline

Over the next few years, Jurong Port will implement a variety of new initiatives aimed at expanding its throughput, while spurring growth and diversification. Plans are underway to diversify into new sectors such as Liquefied Natural Gas (LNG), while new construction technology such as Prefabricated Prefinished Volumetric Construction offers opportunities to handle new types of cargo. Additionally, the planned construction of a second Combi Terminal and the launch of the port centric ecosystem will reinforce Singapore's maritime hub status by creating value for the industry. Together, these initiatives will position Jurong Port to optimise its assets for value creation, while enhancing its efficiency and competitiveness, as it emerges as a NGMPP in the years to come.



08: CASE STUDY

ON THE RECLAMATION WORKS FOR PASIR PANJANG TERMINAL PHASES 3 AND 4

By Chris Chua

As part of the MPA Academy's efforts to capture institutional knowledge, the Academy works with relevant parties on case studies to document major maritime developments or projects and the key lessons learnt. One such development was the reclamation works for Pasir Panjang Terminal (PPT) Phases 3 and 4.

Background

To meet future growth in container volumes and maintain Singapore's attractiveness as a global hub port, reclamation works were carried out to expand the PPT. The construction of PPT Phases 3 and 4 involved the construction of 5.6 km of wharves and the dredging of basins to a design depth of minus 18 metres chart datum (CD). Aside from the \$2 billion spent on reclaiming 200 hectares of land, some \$3.5 billion was invested for new container handling facilities.

First mooted in 2004, the construction for PPT Phases 3 and 4 commenced in 2007 and was completed in 2015. This development will add new annual handling capacity of 15 million 20-foot equivalent units (TEUs) and increase Singapore's overall container handling capacity by 40% to 50 million TEUs. The project site at the southern part of Singapore was selected based on its suitability for constructing a mega port capable of handling 36 million TEUs at a single location in addition to its ability to accommodate larger vessels of up to 18,000 TEUs and 400 metres in length.

08: CASE STUDY

ON THE RECLAMATION WORKS FOR PASIR PANJANG TERMINAL PHASES 3 AND 4



The construction of PPT Phases 3 and 4 employed innovative engineering solutions and presented learning points for MPA for future marine construction projects.

Learning Point #1: Alternative Materials for Reclamation Fill

The issue of reclamation fill was one of the challenges faced. In looking for a more sustainable development, MPA embarked on the project targeting to rely less on sand, which was traditionally used as the preferred engineering fill material, and to use more alternative materials. The alternative materials included marine clay and other soft clayey materials dredged from the sandkey for the caisson foundation and the deepening of harbour basins and navigational channels; excavated earth from land construction projects; cement mixed soil as well as construction waste from the demolition of the conventional cargo berths and warehouses at Pasir Panjang. Beyond reducing sand usage by about 40% and generating \$470 million in cost savings for the Singapore Government, the use of alternative materials minimised the need for offshore dumping grounds for the disposal of these recycled materials in Singapore.

Learning point: The use of alternative materials for reclamation fill can contribute to significant cost savings while also fostering sustainable development.

Learning Point #2: Diversion of Submarine Services

Before the reclamation works could commence, submarine services between Pasir Panjang and Pulau Bukom – which comprised power cables, water pipelines and telecom cables – had to be diverted. As part of the diversion works, a layer of rock armour was installed to protect the submarine services. However, a disruption in the granite supply required for the project impacted the progress of the works.

Learning point: Obtaining raw materials from different sources can help to mitigate against the risks of supply disruption.

08: CASE STUDY

ON THE RECLAMATION WORKS FOR PASIR PANJANG TERMINAL PHASES 3 AND 4



Learning Point #3: Minimising Environmental Impact during Construction

Recognising that the dredging and filling works during the PPT project might affect marine habitats, an Environmental Management and Monitoring Plan (EMMP) was implemented to mitigate against this. Dredging works were carried out in accordance with current patterns to minimise the exposure of corals and sea grass habitats to suspended sediments, a spill barricade was installed during dredging works and corals near the affected regions were relocated. Collectively, these measures helped to reduce the long-term environmental impact of the construction project.

Learning point: In fostering sustainable developments, an environment management programme was put in place prior to the start of marine construction projects. An EMMP should be put in place prior to the start of future marine construction projects.

Learning Point #4: Offshore Caisson Fabrication Yard

The fabrication of caissons – large concrete blocks that form the sea wall and wharf structure – was one of the engineering innovations in the PPT project. They were constructed by pre-casting using specialised machines in a factory-like environment at site. This not only contributed to higher productivity but also increased the quality of the caissons. To overcome the challenge of the lack of a suitable mainland site for the caisson fabrication yard, a piece of offshore land was reclaimed a short distance away and then connected to shore to facilitate the transportation of materials for the fabrication of the caissons.

Learning point: Logistics, materials and time to reclaim any offshore land for the project needs to be factored into reclamation tender specifications.

08: CASE STUDY

ON THE RECLAMATION WORKS FOR PASIR PANJANG TERMINAL PHASES 3 AND 4



Learning Point #5: Stakeholder Management

Efforts were made to engage the multiple stakeholders in the PPT project, which ranged from government agencies to PSA Corporation (PSAC), distripark operators and tenants to cruise terminal operators, and residents in the Pasir Panjang area to non-governmental organisations (NGOs). These included regular dialogue sessions and meetings with stakeholders during the planning and implementation stages to address any technical issues and minimise disturbances relating to the project.

Learning point: Engagement with stakeholders is important to ensure success and excellence in project outcomes.

Overall, PPT's development blended innovative engineering solutions with sustainable development to overcome diverse challenges and secure its success. By continually reviewing and learning from our experiences, MPA is able to gain new knowledge to bridge gaps and enhance capabilities to deliver excellence in future engineering projects.

09: UPCOMING EVENTS

BY INVITATION

MPA Academy Alumni Gathering

Venue: Singapore
Date: 23 – 26 Apr 2018
Participants: MPA Academy alumni members

11th Maritime Safety Management Course conducted by MPA and Japan Coast Guard

Venue: MPA Academy, Singapore
Date: Aug 2018
Participants: Maritime officials

2nd Maritime Administrators' Forum

Venue: Singapore
Date: 25 Apr 2018
Participants: Senior maritime officials

5th Port Management Programme

Venue: MPA Academy, Singapore
Date: 18 – 22 Jun 2018
Participants: Port masters, harbour masters, middle management personnel

8th Maritime Public Leaders' Programme

Venue: MPA Academy, Singapore
Date: 12 – 16 Nov 2018
Participants: Senior maritime officials

FOR MPA STAFF

MARINE OFFICERS AND SURVEYORS

International Ship and Port Facility Security Code – Auditor Course

Date: 17 – 19 Apr/ 5 – 7 Jun/
31 Jul – 2 Aug/ 2 – 4 Oct/ 20 – 22 Nov

International Law of the Sea Course by Centre for International Law

Date: 26 & 28 June 2018

ISO 9001 ISM/ ISPS/ MLC – Auditor Course

Date: 14 – 15 Mar/ 2 – 3 Apr/ 17 – 18 Apr/ 24 – 25 Apr

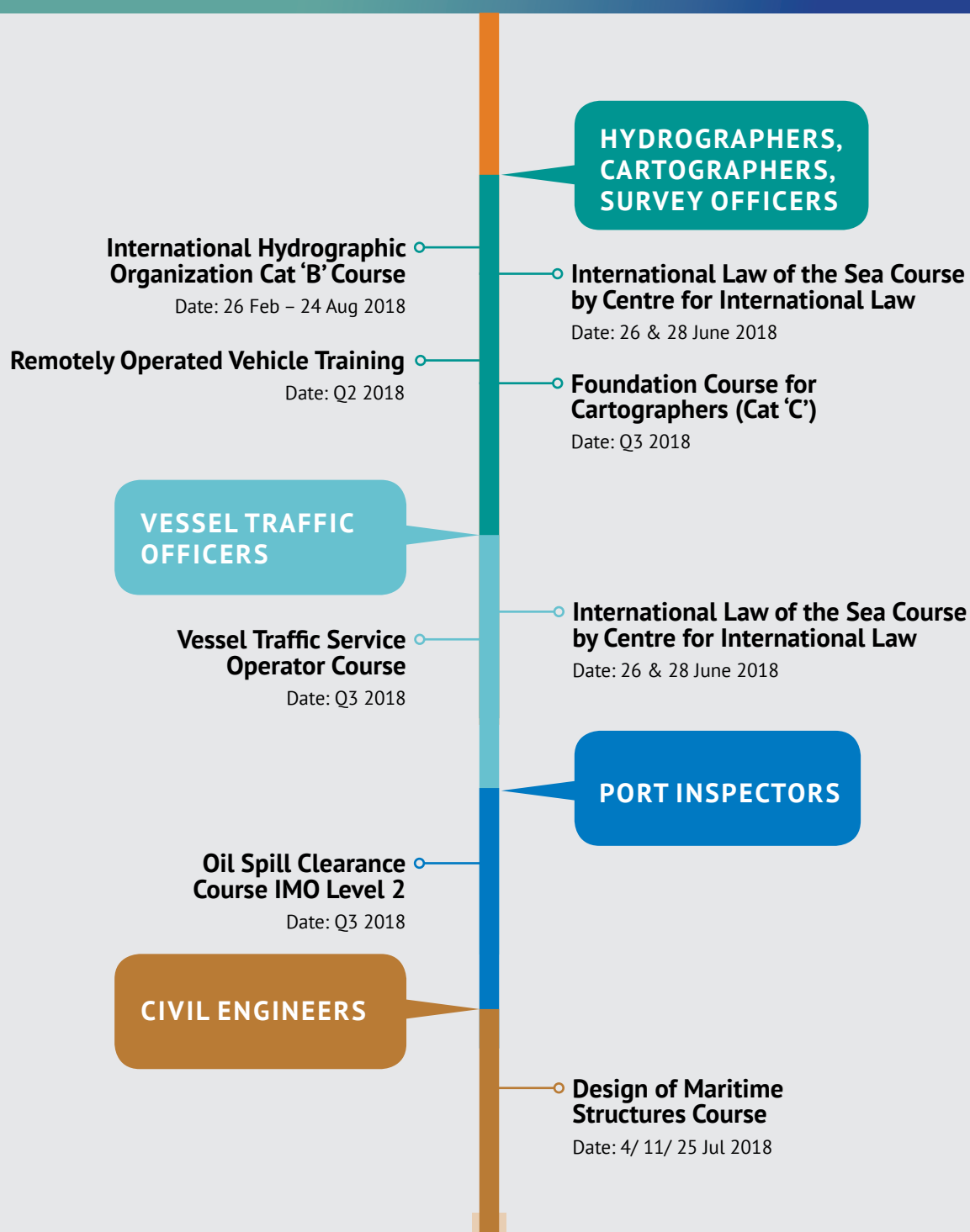
Ship Structural Design Course

Date: 5 June and 31 July

Search and Rescue Course

Date: Q4 2018

09: UPCOMING EVENTS



About Us

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

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