VOYAGES of DISCOVERY

Exploring the Sunda Shelf with Universiti Malaysia Terengganu

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ICoE Maritime
Building University-Industry Rapport

UMT and STU
United in Marine Research

Ocean Solution to protect Malaysia's Future

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ICOE MARITIME

Building University–Industry Rapport

by:
Assoc. Prof. Datin Dr. Norhayati Shariff
Prof. Dr. Wan Mohd Norsani Wan Nik
Assoc. Prof. Dr. Mohd Nizam Lani

The Ministry of Education (MOE) has introduced the National Higher Education Strategic Plan Phase II (2011-2015) on June 7, 2011. The essence of the plan is to intensify and strengthen collaboration between universities and the industry. As a result, several universities have been identified to host the Industry Centre of Excellence (ICoE) initiative on December, 2011, as defined under the National Graduate Employability Blueprint (2012-2017). The main objectives are to improve graduate marketability through industrial, technical and soft skill training, and to increase knowledge and technology-sharing between universities and the industry.

A smart collaboration between the two parties has been the government's aspiration for a long time. However, it needs more aggressive support in the context of national development. Strategic collaborations with

the industry, especially in research and development, improving graduate marketability, idea commercialization, and innovation and consultancy, are ongoing processes that contribute to the sustainability and competitiveness of universities. Universities should establish industry linkages to move towards self-sufficiency, generating their own revenue as they rely less on public funds to operate.

As Malaysia's leading maritime and marine sciences university, Universiti Malaysia Terengganu (UMT) has been selected by MOE on July 6, 2017, to be the frontrunner of the Maritime Cluster (ICoE Maritime). It was given the designation of "university leader" (lead university). Professor Dr Wan Mohd Norsani Wan Nik from the Faculty of Ocean Engineering Technology and Informatics was appointed to head the initiative. The ICoE program at UMT was officially launched by the Honorable Professor Dr Noor Azizi Ismail, deputy director-general of higher education, who represented Tan Sri Dr Noorul Ainur Mohd Nur, the secretary general of MOHE. It was witnessed by Vice-Chancellor Professor Dato' Dr Nor Aieni Haji Mokhtar.

Thus, the establishment of ICoE Maritime at UMT is the right approach because it is the university's niche, where it offers the largest number of maritime programs in Malaysia, not to mention the comprehensive facilities to conduct such research.

1. *Launching ceremony of ICoE Maritime*

Graduate Employability (GE)	A program that focuses on student technical skills and personality, and conducted for a period of not more than six months. Job Employment Guaranteed
Structured Internship Program (SIP)	A training program that is designed to expose and train students at the university or industry during the semester or weekend breaks.
ICoE Industry Training	An attachment program to improve skills and gain real experience in the industry. This program is for third-year students and the training is not more than six months.
Training of Trainers (ToT)	A training program for academic staff, non-academic staff and students to enhance their technical skills, professionalism, teaching and learning for sustainability of ICoE.
Technology Sharing	A collaboration between the university and industry to share the latest technoloy with students to improve their employability.

Five concepts of UMT's ICoE Maritime programs

ICoE PROGRAM CONCEPT

The objective of ICoE Maritime is to set the ball rolling in enhancing graduate employability, human capital development, knowledge transfer, and training and learning through the cluster's three programmes. Besides, it also aims to generate economic growth, encourage research and development, and share facilities and technology between UMT and its industry partners.

THE IMPORTANCE OF COLLABORATIONS

ICoE Maritime plays a role in assisting the country's effort in boosting the maritime sector to ensure the nation's economic wellbeing. It creates university–industry linkages that will help in snowballing the employability of local maritime graduates.

The global collaboration was initiated by Professor Wan Mohd Norsani in his role as the ICoE cluster head. Since 2018, ICoE Maritime has built a rapport with the Korea Marine Equipment Research Institute (KOMERI). UMT made its debut in reaching an agreement with South Korean agencies and industries through the KOMERI–Samwoo Immersion–Busan Techno Park strategic collaboration program. The signing of various agreements under the program was officiated by Deputy Vice-Chancellor (Academic and International) Professor Ir Dr Noor Azuan Abu Osman on June 13 at Suria KLCC, Kuala Lumpur.

UMT delegates attending Signing Ceremony for Memorandum of Agreement between UMT and KOMERI, Busan TechnoPark and Samwoo Immersion on 13 June 2019

Even before that, two general MoUs had been signed with KOMERI earlier on February 27. Those MoUs were a milestone between UMT and South Korean maritime agencies and industries, which paved the way for the latter to provide technological assistance and training in support of the former's ICoE Maritime programmes.

Two days after the KOMERI–Samwoo Immersion–Busan Techno Park strategic collaboration program was signed, the Koreans contributed hardware and software relating to simulations, augmented reality and technical assistance on virtual reality (VR) to UMT.

This gesture had created an insightful learning environment at UMT in promoting maritime technology, informatics, transport and nautical science. It was a technology transfer that would encourage mutual cooperation towards further projects and research.

The Korean contributions played a vital role to ensure the success of UMT's ICoE programs. For instance, a teaching equipment worth more than US$170,000 (RM705,500) was donated by Samwoo Immersion Co. Ltd. under the UMT-Samwoo Immersion mutual agreement. Samwoo Immersion is a global leader in technology convergence in the Fourth Industrial Revolution (IR 4.0), particularly in VR maritime training solutions.

According to Professor Noor Azuan, ICoE Maritime has resulted

UMT representatives briefing Boustead Heavy Industries Corp Bhd executive deputy chairman and managing director Tan Sri Ahmad Ramli Mohd Nor on the collaboration between UMT and Boustead Naval Shipyard.

in many collaborations with South Korean agencies and industries that enables UMT to widen its @Industry Unity wing in key technology market focuses under IR 4.0. This has driven smart partnerships for both parties. Hence, UMT is fortunate to have the industry@university initiative to enhance teaching, training and research with the latest technology transfers, which may prevail and support the Malaysian Industry 4WRD policy. The KOMERI–Samwoo Immersion–Busan Techno Park endeavor will provide the best support in developing local shipbuilding capabilities, offshore R&D and maritime companies.

A WIN-WIN COLLABRATION WITH LOCAL INDUSTRIES

In many ways, ICoE Maritime is a win-win collaboration as UMT may tailor its courses to industry demand and ensure its graduates' employability, while the industry makes use of the university's expertise to boost productivity. For instance, the collaboration between UMT and Boustead Naval Shipyard (BNS), a local conglomerate in maritime high technology, especially in ship design, building, repair and maintenance.

The collaboration may partly contribute towards the national

The signing of a Memorandum of Agreement between UMT and KOMERI on February 27.

aspiration of self-reliance in the defence and security sector by tapping into the expertise of local higher-learning institutions, such as UMT. Furthermore, the BNS-UMT collaboration can assist in enhancing local designs, engineering and human capital capabilities to realise the objectives of the shipping industry in Malaysia. This collaboration will also enhance the standing of UMT in the Malaysian Research Assessment (MyRA) instrument and highlights the university's cooperation with a local industry giant, thereby increasing its graduates' marketability and employability.

ACTIVITIES IMPLEMENTED

UMT ICoE deputy director Associate Professor Datin Dr Norhayati Shariff said to improve the marketability of maritime graduates, ICoE Maritime would focus on building rapport with global maritime and marine science organisations to conduct professional certification programs for UMT graduates, such as:

1. Certificate of Ship Management Simulation;
2. Certificate of Simulation Operation & Maintenance of Ship Engine;
3. Certificate of Coatings and Material Details;
4. Material Strength Certificate;
5. Certificate of Ship Construction & Repair;
6. Mooring & Riser Certificate;
7. Ship Towing Certificate;
8. Ship Global & Local Certificate; and,
9. AIS Certificate & Sea Traffic

The other certificates include Tropical Basic Offshore, Safety Introduction and Emergency Training (T-BOSIET), Oil and Gas Safety Passport (OGSP-NIOSH, Green card (CIDB), Basic Fire Watch, Basic First Aid, Safety Supervisor (SSS) and Occupational Safety and Health. Those certification programs are offered to UMT graduates and those from other public and private universities that conduct maritime courses. These professional certification programs are in line with UMT's ICoE Maritime efforts.

Recently, Omahams Corporation Sdn Bhd (OCSB), Ranaco Marine Sdn Bhd and UMT Jaya Holdings, in collaboration with CIESH Excellent Academy Sdn Bhd, have secured a RM600,000 grant under the graduate employability (GE) fund. The grant from the Ministry of Education is for carrying out academic-industry collaborations, which will benefit 120 students studying in various maritime courses at UMT.

In addition, ICoE Maritime UMT has been strengthening and empowering its existence through its programs and projects. For instance, tthe university has been participating in maritime promotions, potential consultancy projects and organizing forums. Recent forums include those entitled “Industrial Revolution 4.0: Academic-industrial synergy in empowering maritime industry and graduate empowerment” and “Discover current issues and practices in maritime sector related to Industry Revolution 4.0 in Malaysia”.

Furthermore, in fostering the sustainability of ICoE Maritime programs, a project on IR 4.0 Competence Centre for Maritime Industry under the Industry@ University 2019 program is in the pipeline.

THE MALAYSIAN MARITIME LOGISTICS AND TRANSPORT CENTRE (MALTRAC)

The Future of Technology, Sustainability and Logistics efficiency in the Malaysian Maritime Industry

by:
Associate Prof. Ts. Dr. Mohamad Rosni Othman
Faculty of Maritime Studies

Logistics primarily involves various transport modes and storage options, as well as services and regulatory processes. Connectivity and convenience in logistics operations are key in sustaining global trade growth. Logistics infrastructure such as roads, railways, pipelines, waterways and air networks play a major role in establishing connectivity. However, the cost of logistics within the Asean Economic Community (AEC) is very high, sometimes exceeding 10 per cent of the members' gross domestic product (GDP). Therefore, integrated development is essential in improving the overall logistics performance of a country.

Maritime logistics mobility, especially for Asean cargo and workers, is expected to increase due to AEC's aim of promoting effective mobility using a single window platform. Better cargo and labour mobility will help AEC achieve its goal of having a highly-integrated and cohesive economy, which reflects the modality and career opportunities for its maritime workers. Hence, how can local industries, especially in the maritime sector, explore the latent mobility opportunities within the Asean community every year?

These mobility opportunities constitute substantial productivity gains from more widespread technology adoption, which will drive growth and create new demand for logistics, especially in the maritime sector. Malaysia can be considered a maritime nation with excellent high-speed Internet connectivity and data infrastructure. By 2028, the country will achieve fairly advanced automation in low-value, routine and hazardous jobs. Development of the Internet of Things (IOT) is potentially positive, hence, new jobs will be created and existing manpower will be upskilled to adapt to future requirements.

The scale and complexity of technology shifts in the maritime industry over the coming decade mean that workers will be facing great competition among themselves. It is important to highlight the role of technology through Sustainable Development Goals (SDG)

in generating greater productivity across this sector, and hence, new opportunities for future business can be developed. Shipping, port and logistics sectors have become a backbone of Malaysia's development, and good strategies and investment decisions are needed to reap the benefits.

The Malaysian Maritime Logistics and Transport Centre (MaLTrac) in Universiti Malaysia Terengganu (UMT) has been established in line with the Transport Ministry's policy and the Logistics and Trade Facilitation Master Plan (2015-2020). It is a response to the challenges faced by the maritime industry in producing professional and knowledgeable human capital for future transport technology adaptation, sustainability and logistical efficiency. Therefore, setting up MaLTrac is a holistic step that will bring high impact in terms of technological advancements and professional human capital development in the country's transport and logistics sector. The range of initiatives will facilitate development plans to synergise multimodal logistics and overall performance improvements. They include:

i. Undertaking, aiding, promoting and coordinating research its own or in collaboration with agencies, both national and international;
ii. Undertaking and assisting in organising training and professional education programs;
iii. Becoming a think tank to formulate policies;
iv. Preparing and publishing papers, periodicals and books on logistics for dissemination of knowledge within the industry;
v. Establishing and maintaining data and information services relating to logistics;

The Malaysian Maritime Logistics and Transport Centre (MaLTrac) is established to produce professional and knowledgeable human capital for the country's transport and logistics sector.

vi. Serving as an innovation centre for research and development in logistics and transport;

vii. Raising the stature of UMT as THE university that focuses on providing quality learning and research through cooperation with industry partners and government agencies. Terengganu will become a new icon of logistics because of its unique location, function and community demand. This will help it achieve its vision of becoming a "Preferred Logistics Gateway to Asia" by 2020; and,

viii. A platform to collect data on national logistics and transport activities. MaLTrac works directly with the information data system and will cooperate with strategic partners, such as the Transport Ministry, port authorities and other agencies that deal with logistics and multimodal transport.

TEACHING PORT CONCEPT IN DEVELOPMENT OF SMART DIGITAL GREEN PORTS AND CITIES

Port cities, or port-based major cities, need to operate sustainably and minimize their environmental impact. In addition to dealing with chaotic traffic and never-ending logistics flow, mega ports in major cities like Shanghai (China), Hamburg (Germany), Singapore, New York and Los Angeles (United States) should also be conscientious stewards of the environment.

They must take the lead in finding ways and implementing regulations to minimize the pollution, noise and congestion they create. For a major port and city to coexist as sustainably as possible, the port authorities must monitor and reduce the environmental impact in moving huge loads of cargo.

The launching ceremony of the Sea Patriots Club UMT and Bot Controlling System in conjunction with the World Oceans Week.

The signing of the MoU between MaLTrac and Teraju Tri-Tech Sdn Bhd to collaborate on research activities, especially in maritime communication and technology.

1


2

Smart digital technologies can manage the wear-and-tear caused by heavy traffic on city roads and port infrastructure. They can also help to meet increasingly stringent safety and security requirements in administrating a port. Singapore and Hamburg have installed sensors and cameras to monitor traffic on port access roads. In Malaysia's West Port in Port Klang, the Customs Department has introduced its uCustoms online system in December last year, involving 55 pilot freight forwarding companies and is slated for expansion to all ports in the country. The system allows forwarding companies to declare their shipments and pay duties online. The Port Klang Authority has also set up Port Klang *Net as a marine and logistics community platform.

Other technologies monitor air and water pollution, employing a network of sensors like the system in Rotterdam (the Netherlands). Data can be fed into port-wide platforms that aggregate and disseminate the information among stakeholders. At ports in Hamburg and Antwerp (Belgium), for example, such data platforms create additional operating efficiencies across the ports' ecosystem.

The game-changers lie in technologies that can reduce a port's carbon footprint, challenging the way ships and ports are designed and operated. Future regulations will require significant investment in ensuring compliance with environmental codes, like the Code for Approval of Ballast Water Management System.

In order to comply with the International Maritime Organization's objective to half greenhouse gas emission by 2050, energy-efficiency efforts and development of alternative fuels are on the rise, regardless of trade growth. These challenges may potentially be best alleviated through a university-led strategy focusing on a quadruple-helix collaboration of university-industry-community-government, which

Teaching Port@Port of Kemaman 4th meeting at Kemaman Port Authority on 18 June, chaired by Kuantan Port Authority senior manager Datuk Asmawi Nordin

The Kemaman Port has been envisioned as a smart digital green teaching port for Universiti Malaysia Terengganu. In line with the International Maritime Organization's objective, ports around the world are moving towards cutting their greenhouse gas emission by half in 2050.

joins together the main players in the implementation of SDG at the national level.

UMT has embarked on many initiatives to achieve these objectives, which include setting up a teaching port at Kemaman Port, establishing MALTRAC and the Centre of Knowledge Transfer and Industrial Networks (PIJI), becoming an Industry Centre of Excellence (ICoE) under the Maritime Cluster, and offering maritime courses at its School of the Maritime Management and Business.

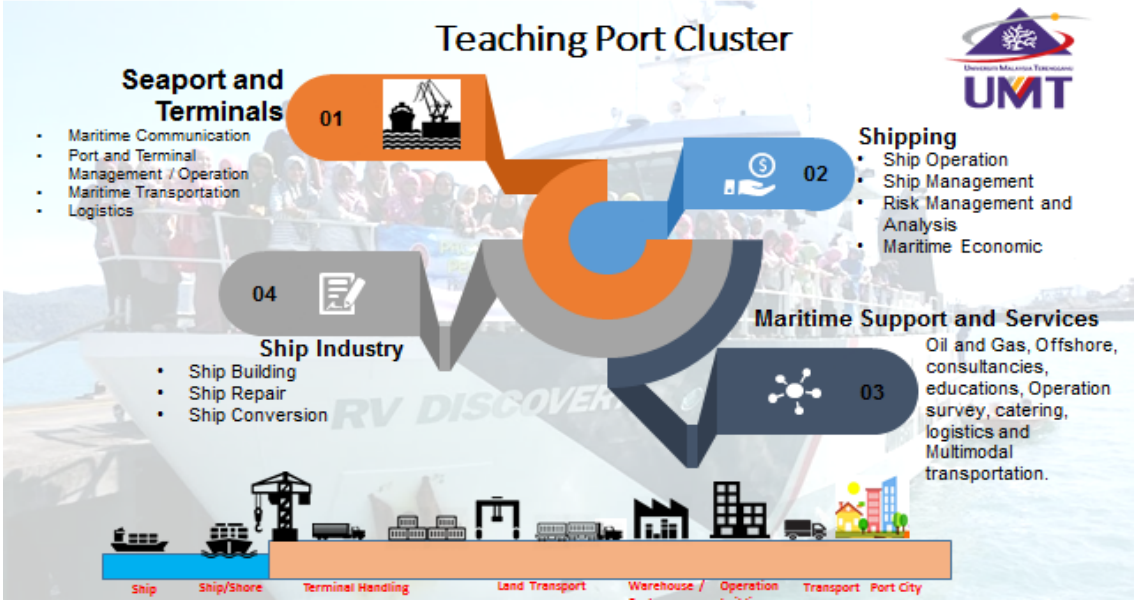
These initiatives support and contribute to the country's aspiration of achieving Maritime Nation status.

Looking into the future and aligning with the goals of the 2030 agenda for sustainable development, the maritime industry must work towards balancing the three dimensions of sustainable development — the profit, the planet and the people.

KEMAMAN PORT AS A SMART DIGITAL GREEN TEACHING PORT

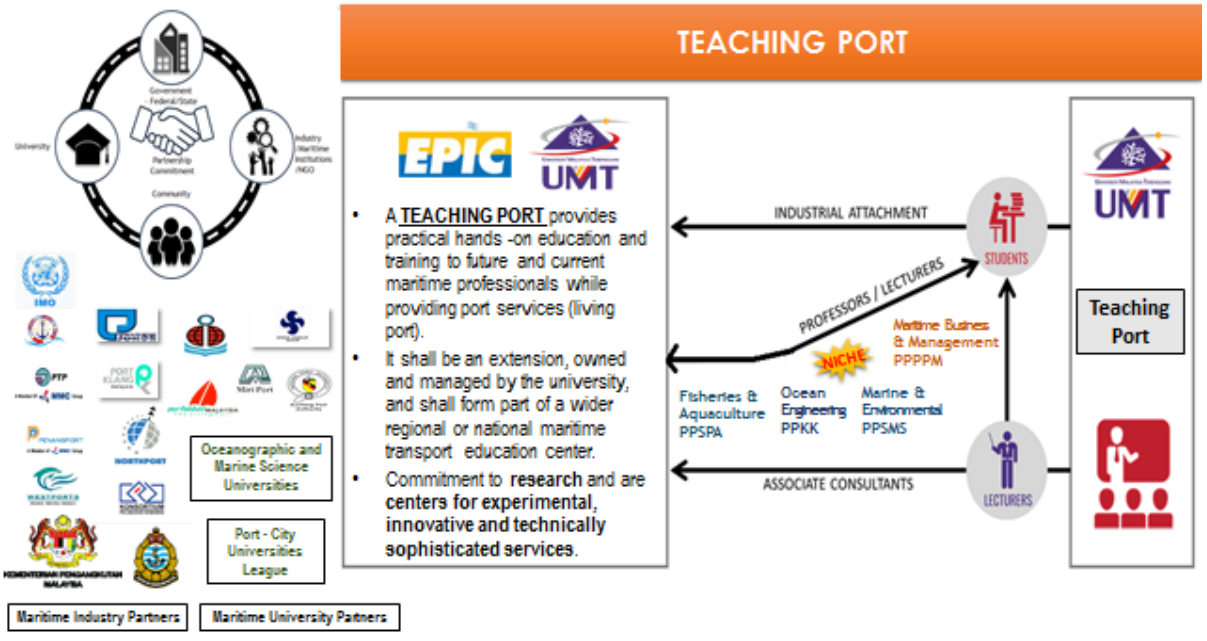
Teaching port is the strategic human capital development plan based on the Blue Ocean Economy and Sustainable Development Goal (SDG) 2020. The objectives of establishing the Teaching Port Centre at Kemaman Port include:

1. Providing practical hands-on education and training to future and current maritime professionals while providing port services (living port);
2. As an extension of UMT, which owns and manages the port as a wider regional maritime transport education centre;
3. A commitment to research and innovate on technically-sophisticated services; and,
4. To comply with the country's SDGs.



The main expected outcome will affect three important stakeholders:

1. Students — Increase graduate employability by enhancing their technical competency. They will be encouraged to practise critical-thinking and problem-solving skills, as well as developing soft skills through industrial attachments and student research platforms;
2. Lecturers — Promote their consultancy, technical expertise and industrial exposure, besides encouraging them to obtain professional recognition, form industrial attachments, and cultivate national and international collaboration/linkages; and,
3. Industry — Boosting competency training for port workers, port performance index and lifelong learning mentality. The teaching port will also generate new services and linkages, encourage the formation of new start-ups and provide competitive advantages.



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KENYIR NATURE RESEARCH STATION
Hotspot for Birdwatchers

by:
Ahmad Fakhrurrazi bin Mokhtar
Centre of Research and Field Service

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Kenyir Lake is home to numerous species of birds and has become one of the main spots to do bird watching. Birding activity initially started at Kenyir Nature Research Station in 2017. The activity was resumed in 2019 for six months. Bird counting and checklist were conducted within a one-kilometre radius along the Kenyir Nature Research Station road trail.

During the birding activity, the location and number of observations of all birds seen (naked eye) and heard (avian chirps) were simultaneously recorded over the fixed area. The avian ecology field methods used by some of the researchers and students are point count and mist-netting.

7x50 binoculars and DSLR cameras with a 400-500 mm lens were used to improve data capture. Avian species were identified using colouration and patterns on the crown, nape, throat, wing, rump, belly, breast and tail from guide books.

The identification was also based on previous experiences presented as family groups with similar feeding guild, the status of the bird population in the wild and locality. Many different bird species can be found like iora, oriental magpie-robin, wagtail, cuckoo, malkoha, kingfisher, fulvetta, hornbill, eagle, broadbill, leafbird, bulbul, barbet, woodpecker, crested jay, oriole, minivet, partridge, myna, and others.

previously in 2017, about 457 avian individuals were sighted at this road trail. During the five months opportunistic find, data shows a total of 113 avian species from 36 bird family groups were collected and analysed to indicate a seasonal movement of several species of these birds.

1. *The bird activity team in front of Kenyir Nature Research Station cabin.*
2. *The picture taken for collection and improve data capture.*

Using binoculars and DSLR camera for birding activity.

This bird activity team comprises researchers from Central Laboratory, School of Marine and Environmental Sciences and Institute for Tropical Biodiversity and Sustainable Development. The results of Kenyir Nature Research Station Birding Activity will help promote avitourism and making the newly identified 1km road trail a potential hotspot for birdwatchers.

Black Hornbill
Photo Courtesy of Mr. Mazrul Aswady

Whiskered Treeswift
Photo Courtesy of Mr. Mazrul Aswady

Lesser Green Leafbird
Photo Courtesy of Mr. Mazrul Aswady

Banded Kingfisher
Photo Courtesy of Mr. Mazrul Aswady

Academic Pioneer of Logistics and the Sea

Professor Dato' Dr Saharuddin Abdul Hamid was born in Kuantan, Pahang, in 1962. He graduated with a Bachelor of Science (Fisheries) in 1985 from the Faculty of Fisheries and Marine Science at Universiti Pertanian Malaysia (UPM) Kuala Terengganu — the precursor of Universiti Malaysia Terengganu (UMT).

After working as an executive for a year in an aquaculture farm in Tawau, Sabah, opportunity came a-calling when he obtained the Japanese Ministry of Education scholarship (MOMBUSHO) in 1987 to further his studies at the Tokyo University of Fisheries. Prior to that, as his postgraduate course requirement, he spent six months deeping his skills in the Japanese language at Osaka University of Foreign Language.

In February 1990, he obtained his Master in Fisheries Science and Technology and, in the following month, he returned to serve as a lecturer at his alma mater. Two years later, in October 1992, he was awarded the prestigious Commonwealth Education Scholarship to pursue his doctoral studies in the field of maritime policy and resource management at the University of Wales in Cardiff, the United Kingdom. He graduated in April 1996 and returned again as a lecturer at UPM Kuala Terengganu. He helmed main positions, such as campus Education Unit coordinator and captain of the university's Civil Defense Corps (presently, he has been promoted to assistant commissioner).

TRAILBLAZING IN THE EARLY DAYS

Professor Saharuddin was one of the pioneer academicians selected to be part of the working committee to upgrade the UPM branch campus into an autonomous higher-learning institution. One of his main assignments in 1998 was to set up a new academic program, in which he eventually produced the Bachelor in Maritime Management course offered in UMT today.

When the full-fledged campus became a reality in 2000 as Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM), he was the first coordinator of his new degree program, which made its inaugural intake the same year. He was also given the responsibility to become the first principal of KUSTEM's student residential college.

Due to his commitments and given the excellent results he produced, he was invited to hold the position of deputy dean of academics and student affairs at the Faculty of Management and Economics (FPE) in November 2001. In 2002, he was promoted to associate professor.

As KUSTEM sought to expand and upgrade itself into a university, he was given the immense responsibility to set up a new faculty in addition to the original three. With his working team, he successfully set up the Faculty of Maritime Studies and Marine Science (FMSM), which began conducting courses in June 2006 — eight months before KUSTEM officially became UMT. He was recognised as the founding dean of the faculty and had contributed to the development of UMT through his leadership roles in various university committees.

As the dean of FMSM, Professor Saharuddin succeeded in implementing a national agenda in higher education, which was to create and promote opportunities in maritime education and training. One of the impactful contributions he made during the early days of FMSM was to closely integrate university/industry linkages. He managed to persuade experienced industry players to collaborate with the faculty and also secured sponsorship for students. Additionally, to strengthen the linkages, he played a vital role

in the signing of several MOU's with relevant industry partners.

After six years in FMSM, in February 2012, Saharuddin was appointed as dean of the UMT Graduate School and, in the following year, he became a managing director of UMT Jaya Holding Sdn Bhd. When UMT went through a restructuring exercise in 2015, he was appointed as the director of the Postgraduate Management Centre and, in 2017, he took over the Co-Curriculum Management Centre until today. At national level, he is the chairman of the National Universities Co-Curicullum Directors Council (UNiCC) and chairman of the Management Committee of Universities Civil Defence Corps. As UMT currently undergoes another restructuring exercise, he has been tasked to lead a committee to re-establish a new maritime faculty, making a total of five faculties in UMT once it is established.

ACADEMIC CONTRIBUTIONS AND TOUCHING THE LIVES OF STUDENTS

During his tenure as an academician and researcher, he received numerous invitations and to serve as a panellist in various national seminars and symposiums, delivering lectures and publishing papers on his subjects of expertise. On those platforms, Saharuddin had proposed ideas in journals and proceedings to address maritime education issues in Malaysia. In recognition of his efforts, he was appointed by the Ministry of Higher Education of Malaysia (MOHE) to chair a National Action Committee to produce a blueprint on the future direction of maritime and marine science education and training.

Currently, he has been appointed by the Public Service Department and the National Accreditation Board as a panel assessor to evaluate new maritime programs offered by higher-learning institutions nationwide. He is also one of the panel assessors for the Higher Institute Centre of Excellence (HICoE) initiative. He was appointed in his capacity as a maritime expert to contribute to the Maritime and Marine Science Encyclopedia project under Dewan Bahasa dan Pustaka.

As a lecturer, Saharuddin has taught undergraduate and supervised postgraduate students. He has conducted a long list of courses since he joined the academia in 1990. His favourite subjects include Maritime Policy, Ocean Management, Policy and Law of Aquatic Resources for undergraduate studies, and Coastal Zone Law and Policy in postgraduate courses. He has successfully supervised 40 postgraduate students. His research interest in the field of maritime developmental policy and marine environmental and resource management has secured him and his team a number of grants from UMT and other contributing agencies.

To date, Professor Saharuddin has attended about 30 international and 42 national level of conferences, seminars, meetings, workshops, trainings and visits as a speaker, resource person and invited participant. He has authored and co-authored more than 100 publications, which include 44 proceedings and 51 journal papers. He has contributed to 25 publications as book chapters, monographs, translations, seminar papers and other publications.

As an academic professional, he has been appointed to the editorial board of local journals, such as IKMAL Maritime Journal and Al-Sirat Management Journal, and two international journals i.e. the Journal of Sustainability Science and Management and Journal E-Navigation and Maritime Economics. He is also a scientific programme committee/ editorial board member for the International Journal on Marine Navigation and Safety of Sea Transportation (TransNav-Elsevier Publication).

The highlights of his career came when he was bestowed the Darjah Indera Mahkota Pahang (DIMP), which carries the title Datuk, by the late Sultan Ahmad Shah of Pahang in 2007 and in September 2011, he was elevated to a professor of UMT.

Saharuddin's work is well-known among the academic community and maritime industry. He is a fellow of the Institute of Marine Engineering, Science and Technology (FIMarEST) and chartered member of the Chartered Institute of Logistics and Transport (CILT) in the United Kingdom. Locally, he is a member of the Malaysian Maritime Institute (MIK) and he sits in the board of governors of Kolej Universiti Islam Pahang Sultan Ahmad Shah (KUIPSAS).

He was nominated by the Ministry of Science, Technology and Environment (now the Ministry of Energy, Science, Technology, Environment and Climate Change) to serve as a national expert in the Intergovernmental Oceanographic Commission of Unesco (IOC-Unesco) and to formulate proposals on marine scientific research for use in special arbitration in the United Nations Convention for the Law of the Sea (UNCLOS).

In July 2011, he was invited by the Ministry of Foreign Affairs to become a delegate to the Marine Environmental Protection Committee meeting under the International Maritime Organization (IMO), which was held in London. He represented Malaysia at the International Workshop on Cooperation and Development in the South China Sea organized by the China Institute of Marine Affairs (CIMA) in Beijing in August 2011. In 2012, he gave a plenary speech in an International Conference at the Mokpo National Maritime University in South Korea, and was invited again in 2014, 2016 and 2018.

UMT AND STU UNITED IN MARINE RESEARCH

by:
Assoc. Prof. Dr. Ahmad Faisal Mohamad Ayob
International Centre

The inaugural International Forum on Marine Sciences and Aquaculture (IFOMSA) was hosted by Shantou University of China (STU) on July 9 and 10, 2018. The event was a result of a proposed collaboration that was inked between the Chinese university and Universiti Malaysia Terengganu (UMT) during the forum itself on July 9, 2018.

The program aimed to strengthen cooperation between the two universities and would be organised annually. The two-day forum's objective was to provide and share the latest information and developments among marine scientists, academics and stakeholders. The forum topics were related to the management of marine aquarium resources and aquaculture sustainability.

UMT Vice-Chancellor Dato' Dr Nor Aieni Haji Mokhtar attended the event together with UMT Institute of Tropical Aquaculture (Akuatrop) director Professor Dr Mhd Ikhwanuddin Abdullah. Others in the delegation included Associate Professor Dr Marina Hassan, Dr Lillian Wong, Dr Liew Hon Jung, Dr Nor Azman Kasan, Norainy Mohd Husin, Rohisyamuddin Othman and Azmie Ghazali, who were lecturers and staff at Akuatrop.

In addition, the delegation also attended the opening of the Joint Shellfish Research Laboratory between UMT and STU on July 9. The UMT delegates took the opportunity to visit the laboratory and research station of STU's Marine Biology Institute in Nan Ao Island, Shantou, China, on July 10 before returning home.

In 2019, it was UMT's turn to host IFOMSA and it was an honour to receive the 10-member STU delegation from March 2 to 6. They were given a tour of the research projects and facilities at UMT, particularly those relating to maritime management and technology.

During IFOMSA 2019, there were 11 presentations by five STU delegates and six speakers from UMT. The opening of IFOMSA 2019 on March 3 had attracted the participation of 117 UMT postgraduate students and 60 staff members.

The event had provided UMT the opportunity to build networks with the Chinese visitors and enhanced collaborative research opportunities between the two universities. Lastly, this program had absolutely strengthened the relationship between UMT and STU, and introduced UMT's capabilities to the world.

1. *In 2019, it was UMT's turn to organise IFOMSA. A 10-member delegation from STU visited UMT from March 2 to 6, and they were taken on a tour to UMT's marine research station in Pulau Bidong off the coast of Merang, Setiu.*
2. *The Chinese delegates visiting a ship simulator at the School of Ocean Engineering in UMT during IFOMSA 2019.*
3. *The STU visitors being shown the fish tanks at the Akuatrop hatchery in UMT's Institute of Tropical Aquaculture.*

Academic Voyage from UMT to Mokpo National Maritime University (MNMU), South Korea

by:
Dr. Jagan Jeevan
Faculty of Maritime Studies

BEGINNING OF THE VOYAGE

On September 9th, 2018, I was invited as a visiting scholar to Mokpo National Maritime University (MNMU) in Mokpo, South Korea, for five months. This opportunity arose after a significant exposure of Universiti Malaysia Terengganu (UMT) in the international agenda, especially its maritime and logistics research.

It all began when UMT maritime management founder Professor Dato' Dr Saharuddin Abdul Hamid introduced me to Professor G.K. Park, who is a prominent e-navigation researcher at MNMU and well known in international circles. Besides that, the latter is also the Korean Port Economic Association president, Association of International E-Navigation and Ocean Economy president and head of human resource training for e-navigation in South Korea.

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At MNMU, I was attached to the Division of International Maritime Transport Science under the supervision of Park himself. Even before my attachment, our professional relationship, especially between UMT and MNMU, had grown tremendously and this was evidenced by several invitations for me to speak at seaport conferences in Seoul and Busan between 2017 and 2018, as well as numerous research collaborations forged between the two higher-learning institutions.

This academic attachment has opened new channels which might provide many significant advantages to both universities. For example, it has revealed the importance of building an international network of maritime universities, especially in generating new research platforms, enhancing new opportunities for undergraduates to experience the international academic system, and benchmarking the application of a research monitoring system among postgraduate students to ensure that they graduated on time. Hence, many academicians need to take this opportunity to expose themselves to the international academic system for self-improvement, bridge the research agenda of both universities, and provide learning opportunities for students.

ROLE AS VISITING SCHOLAR AT MNMU

At MNMU, I was assigned to co-supervise four PhD candidates, who were studying maritime logistics and management as well as e-navigation. Three of them were from the Vietnam Maritime University and one was from Shandong Jiaotong University in China. We all had weekly meetings with the primary supervisor (Park) for almost two hours. The important point was that the team considered this meeting as a weekly seminar, whereby the students had to present the corrected version of their research discussed in previous

1. *Professor G.K. Park (on my left) and his postgraduate students at Mokpo National Maritime University (MNMU) in South Korea*
2. *National Port Policy Seminar in Seosan-Daesan, South Korea*
3. *Participants of the International Conference of E-Navigation in Wehai, China, where I represented UMT and MNMU*

meetings. They had to update each other on their work progress and their plans for the following week. A close monitoring system on the postgraduate candidates ensured that they did not deviate from their scope of research, which allowed them to graduate on time.

INTERNATIONAL EXPOSURE

During my attachment, I obtained many opportunities to present my research papers in national and international conferences. Nationally, I presented several papers in the Busan National Port Conference and Seoul Seosan-Daesan Port Policy Seminar.

On the international arena, I presented a research paper at the International Conference of E-Navigation in Wehai, China. At those events, many networks had been formed with other regional maritime-based universities in South Korea.

For example, an informal network had been initiated with Tongmyong University (Busan), Sumgkyunkwan University (Seoul), Sunchon National University (Jeonnam), Korean Maritime and Ocean University (Busan), Geumgang University (Chungnam), Incheon National University (Incheon), Gyeongnam National Univeristy of Science and Technology (Gyeongnam) and the Korean Maritime Institute (Busan) to boost research, teaching and learning, as well as student activities with UMT.

These academic centres had a lot of experience in port and logistics research, marine safety, maritime transport, distribution, maritime autonomous, seaport policy, shipping and maritime education. These networks were eventually converged and managed by the Department of Maritime Management at UMT. Henceforth, new research circles were formed, resulting in several research papers being published in maritime logistics and management.

In addition, during the e-navigation conference in China, I was elected as the academic affairs chair and appointed as an international delegate to witness an MOU signing ceremony between MNMU and China's

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Shandong Jiaotong University. The MOU between these institutions were expected to provide considerable benefits, especially on research and development in e-navigation and seafarers' training. It will be a great advantage for UMT to develop an official relationship with Shandong Jiaotong University to execute a seafarers' exchange program for students. This had vast potential to enhance their employability at the international level besides augmenting their knowledge to remain competitive.

Besides participating in national and international conferences, MNMU, especially under the watch of Professor Park, would invite renowned researchers to share their work. For example, researchers from Japan, Russia, Vietnam, China, Malaysia and South Korea were invited to MNMU to talk about their recent research outcome, especially in the maritime logistics and e-navigation. Through this approach, the students and the researchers at MNMU, including myself, were able to gain substantial amount of knowledge on research methodologies and insight into the prospects of the maritime field.

The most important point here was that we had a great opportunity to sit together and informally discuss with these prominent professors about their research agenda and the challenges they faced. From the discussions, I discovered that sufficient financial support from universities, industrial cooperation and the willingness to explore new domains were vital in ensuring the sustainability of researchers in the academia.

1. *Delivering a speech for Best Paper Award during the Ai-Mast Conference 2018 in Wehai, China*
2. *Sharing intercultural competence between Malaysian, South Korean, Chinese and Vietnamese students and lecturers*

EXPLORING BENEFITS FOR STUDENTS

A dedicated cooperation between UMT's School of Business and Maritime Management dean and MNMU Maritime Management chairman has been utilised to benefit undergraduate students through an exchange program. In the pilot stage, two students from UMT will be sent to MNMU for a six-month internship and, in return, UMT will receive the same number from MNMU to carry out their final-year project (FYP) under the supervision of lecturers in the School of Business and Maritime Management.

The number of student will be increased to ensure stronger academic bonding between UMT and MNMU. In line with this cooperation, three UMT students have been invited for a summer camp in MNMU for five weeks. This summer camp is fully sponsored by the South Korean government for students from Southeast Asia to learn from the sophisticated academic environment at various regional universities in South Korea.

I believe this opportunity can be utilised for our lecturers and postgraduate students. UMT lecturers may use this channel to gain additional international exposure and joint supervision can be carried out with MNMU for Masters and PhD students of both universities. The international collaboration via postgraduate supervision can be applied to take UMT to another chapter of international networking.

RESEARCH CULTURE

A very close relationship was noticed between MNMU and maritime industries in South Korea. This strong bond was developed through frequent invitations of experts for industrial talks, as well as boosting new and real agenda in research. Most of the lecturers in this university were elected as advisers in research and development (R&D) in particular maritime industries. Likewise, many experts would be invited to the university to deliver a talk/ discussion/colloquium on current developments in the Korean maritime sector. Through this strong collaboration, the academicians and industry players would know how to align academic research to fulfil the needs of the industry.

Industry players and the academic institution constantly kept in touch with each other to resolve issues. Based on this approach, a new paradigm in research had been explored at MNMU, especially on artificial intelligence, neuro-learning and machine learning corresponding to the maritime province. In fact, the importance of this new research paths had been explained to experts and mutual cooperation have been obtained to explore these areas for the managerial and academic benefits at MNMU.

I believe, besides inviting industry players to talk in the classroom via the “Industry in the Classroom” program, this opportunity needs to be utilised by academicians to gain an immense amount of input to conduct valid research in UMT.

INTERCULTURAL COMPETENCE

Being away from home has motivated me to adapt to a new culture, physiology, language, and education system. This opportunity inspires me to focus on the ability to move beyond one's comfort zone to explore diverse ethics, cultures and languages. From the academic perspective, this attachment has provided me with substantial opportunities, such as being proactive and improving my intercultural competence. I believe these skills need to be embraced by every academician to ensure successful international mobility, boosting their confidence and as a significant marketing tool for their research.

During this stint, I noticed that punctuality, student respect towards their lecturers/supervisors, and a significant interest of academicians in new agendas could improve research methodologies, besides aligning objectives to the current agenda. These are some important elements that need to be benchmarked in the UMT system. Through these virtues, we may witness a significant improvement in our research and publications. Hence, there is a need to introduce and implement intercultural competence from various regions at UMT to cultivate a market-oriented education system.

END OF THE VOYAGE

At this point I would like to convey my sincere gratitude to Professor Park for hosting and sharing this valuable experience with me at MNMU. During this "voyage", I have been actively involved in e-navigation projects that greatly enriched my academic experience. I have learnt a lot from discussions with his postgraduate students, published papers with the team and presented academic papers in national and international conferences. I have contributed as the editor of the *Journal of E-Navigation and Maritime Economy* and attended e-navigation seminars by renowned researchers. I hope all academicians at UMT will take this as a motivation to create opportunities, explore academic attachments and experience voluminous events themselves. It will be a great stepping stone to develop their career and broaden their horizon.

Furthermore, I like to thank the lab members (postgraduate students), who have provided a great experience to me during my attachment. They were really good colleagues, treating me as a friend and family member by assisting me in all my endeavours. Thank you and I wish you all the best!

Ocean Solution to protect Malaysia's Future

by:
Assoc. Prof. Dr. Mohd Fadzil Mohd Akhir
Institute of Oceanography and Environment

RESEARCH AND DEVELOPMENT

In order to safeguard marine resources for the nation's wellbeing, a very systematic effort to understand the ocean ecosystem and its challenges must be established. In recent decades, our scientists have shown that the future of our ocean is in great danger. It is a fact today that the seas are experiencing drastic changes; they are warming up fast and becoming more polluted than ever.

Threats faced by the world's oceans include rising sea levels, coastal erosion, acidification, coral bleaching, death of marine species and microplastic pollution. These are detrimental to food chains and the ecosystem service, as well as the livelihood of those who depend on the sea, which will eventually affect our wellbeing in general. In all the many problems that we face regarding the ocean, almost all require some kind of knowledge on their dynamics to resolve them.

As a Higher Center of Excellence (HICOE) for marine science research in Malaysia, the Institute of Oceanography and Environment (INOS) at Universiti Malaysia Terengganu (UMT) has come up with a strategic research framework to incorporate current needs in ocean dynamic studies with different groups in the country and overseas to enhance our involvement in research, especially in resolving issues affecting the marine environment in Malaysian waters.

MALAYSIAN COASTAL DYNAMICS

In 2011, one oceanographic cruise was undertaken by INOS to explore the dynamics between the coast of Terengganu and the South China Sea. The outcome was very interesting, where for the first time, we were able to map the area of upwelling off the coast of Terengganu.

The upwelling area, defined as a zone with high fishing yield and rich resources, is an excellent site to study marine lifeform interactions because it is an ultimate “energy base” to feed a vast food chain. This includes

all kinds of fish, mammals, seabirds and other organisms, all depending on each another for survival in a delicate ecosystem balance.

This upwelling area along the east coast of Peninsular Malaysia will thrive and become enriched only during the Southwest Monsoon (June-September). The monsoon wind has been identified as a major element that influenced the ocean's upwelling dynamics, and has become a very important focus in our research as it may also be affected by El-Nino and climate change.

Changes in wind intensity and direction can easily reduce or intensify the upwelling system which, in turn, will hamper or enhance fishing productivity and resources. The ability to predict wind changes after a rigorous study by the INOS team will, hopefully, help us understand the challenges we face in ensuring food security from the marine industry.

Meanwhile, our sea turtle research unit (SEATRU) has leveraged its expertise to study

the movement of hatchlings to understand turtle behavior in the ocean. Thanks to our knowledge in local ocean dynamics and using a current modeling simulation, it is possible to observe the movement of hatchlings in the open sea. The hatchlings have very little energy to swim, thus they depend on the sea current to travel to other habitats. This study is very important to understand how hatchlings survive and arrive at their destinations.

In our recent endeavor, we used a similar approach (numerical model) to look at the distribution and movement of microplastics in the ocean. This new approach has allowed us to understand how microplastics travel along currents (gyres) and accumulate in hotspots. The "Great Pacific Garbage Patch" in the north Pacific has been identified as the world's largest marine waste site, reportedly containing 80,000 tonnes of plastic, spanning 1.6 million km^2 (the size of Iran or Mongolia).

There is great concern on the accumulation of microplastics in the marine food chain that may eventually end up in humans. A recent study by the University of Newcastle in Australia reported that humans may be consuming around 5g of microplastics a week, roughly the size of a credit card. Annually, it may reach as high as 250g, roughly the size of a small water jug. Drinking water, followed by shellfish, salt and alcoholic beverage, have been identified as the main sources of ingestion.

Although little is known and scepticism exists on the long-term health effects, experts have acknowledged that such leakage into nature is a major problem and should be stemmed. This requires multinational efforts and international treaties to ensure that all plastics are recycled back into the economy and not disposed of improperly.

OCEAN FORECAST SYSTEM

Our international collaboration has allowed us to take our expertise in ocean dynamics into the next level. The First Institute of Oceanography in China has been our partner and regional collaborator for more than 10 years, and we are working closely to enhance data collection and numerical modeling capacity. One outcome is the development of the Ocean Forecasting System (OFS), which is instrumental in providing an understanding of dynamics in the South China Sea.

The OFS is similar to weather forecasting, and it can provide up to three-day predictions on information such as ocean temperature, current speed and wave height. The information provided by OFS is very important to facilitate fishing activities, oil and gas operations, tourism and disaster preparation for coastal communities in the region.

During the Northeast Monsoon in December 2018, the east coast of Peninsular Malaysia was hit by Tropical Storm Pabuk from the South China Sea, causing a huge disruption in the fishing industry, severe coastal erosion in Kuala Terengganu and endangering offshore oil and

gas platforms. The OFS had produced a very reliable simulation of the tropical storm because its marine buoys managed to capture important data as the storm passed the open ocean before making landfall.

The information gained had aided many parties in preparing for Pabuk, thus avoiding losses in terms of property and lives. We expect that when our study has been fully developed, a proper disaster preparation plan for storm surges or extreme events can be established to benefit our coastal communities and industry operators.

Our continuous commitment to collect long-term data from field surveys, research explorations, buoy moorings and developing an integrated data system with satellite images and numerical modeling will improve how we understand our oceans. We are living in a fast-changing world, where systems developed to solve problems must be automated and easily accessible. INOS hopes that its systematic approach in scientific studies can be translated into solutions that benefit the nation as a whole. This will be one giant leap for UMT in providing solutions for marine issues to protect Malaysia's future.

3u1i Programme UMT-PTP

Enhancement Programme to Produce Talent for the Port Industry

by:
Assoc. Prof. Dr. Mohd Nizam Lani & Dr Rudiah Md Hanafiah
Centre of Knowledge Transfer and Industrial Networking

Realising how important the collaboration between the academia and industry, the Ministry of Education has launched its "Two years at university + two years in the industry" (2u2i) and "Three years at university + one year in the industry" (3u1i) initiatives to gain collaborations that lead to win-win outcomes.

They were introduced in 2016 as part of the Malaysia Education Blueprint 2015-2025 (Higher Education), with the purpose of connecting industry experts with academicians to provide real-learning experience for students. By the time they graduate, all attributes expected of them by the industry would be fulfilled, and this will increase the employability of the now-experienced graduates.

Universiti Malaysia Terengganu, through the Faculty of Maritime Studies, has embarked on its first 2u2i/3u1i initiative through a partnership with Salihin Consulting Group in the Bachelor of Accounting programme. Salihin Consulting is a well-known global provider of Syariah-based knowledge, assurance, advisory and solutions since 2002. This collaboration was recognised when UMT won runners-up in the Best Academia-Industry Collaboration Award (Public University) in 2017, organised by the Ministry of Education (MOE) and Talent Corp Malaysia.

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Yet on June 5th that very same year, Professor Dr Arham Abdullah, the director of industry relations at the Higher Education Department, had given me a similar task to uplift the name of UMT when he invited me to join an official visit to the Port of Tanjung Pelepas in Iskandar Puteri, Johor. Among the aims of this visit was to convince the port administrator, Pelabuhan Tanjung Pelepas Sdn Bhd (PTP), to sign an MoA with UMT to make the company our industry partner for the next 2u2i/3u1i programme.

Before any collaboration between UMT and PTP could begin, one of the most important aspects was to make it sustainable and find the right liaison office which could effectively communicate between UMT and PTP.

Alas, the mandate from MOHE was given to UMT's Centre of Knowledge Transfer and Industrial

1. *Official results of the Best Academia-Industry Collaboration Award (Public University) supported by the Ministry of Education and Talent Corp Malaysia.*
2. *Professor Dr Arham Abdullah (right) presenting a souvenir to Pelabuhan Tanjung Pelepas Sdn Bhd chief executive officer Marco Neelsen at the latter's office in June 2017.*
3. *Delegates from Ministry of Education, UMT and UTM listening to a briefing on the operations at the Port of Tanjung Pelepas.*

Networks (PIJI). Its director, Associate Professor Dr Mohd Nizam Lani, had taken the initiative to prepare the paperwork. The areas of collaboration were as follows:

(a) mutually develop talents and training through structured internship programs and industrial training of UMT students at PTP;

(b) perform research and development in maritime technology, port management and any other related fields of interest in relation to the Collaboration;

(c) mutually share expertise for the execution of the Collaboration;

(d) PTP to set up financial assistance for qualified UMT students through awards and/or scholarship programs to produce quality talents subject always to further conditions as shall be agreed between PTP and UMT. PTP and UMT shall mutually agree on the qualifications of the students and the type of awards and/or scholarship program; and,

(e) mutually prepare industrial training modules and 2u2i/3u1i programs.

It did not take long for the efforts in realising this 2u2i/3u1i collaboration to begin bearing fruit. UMT continued to create history when it was appointed to lead the Industry Centre of Excellence (ICoE) Maritime Cluster. The launching ceremony was officiated by Department of Higher Education Deputy Director-General Professor Dr Noor Azizi Ismail, on behalf of MOE Secretary-General Tan Sri Dr Noorul Ainur Mohd Nur, on October 12th, 2017, at TH Hotel & Convention Centre Terengganu.

In his opening speech, Noor Azizi said through structured industrial training and professional certification, more graduates could be produced with high technical

After undergoing a rigorious selection process for UMT's 3u1i programme with Pelabuhan Tanjung Pelepas Sdn Bhd, the successful students (front row) received their certificates from PTP CEO Marco Neelsen. Accompanying them are PTP human capital management head Jaizal Kamar Jalaluddin (back, third from left) and representatives of PIJI and Faculty of Maritime Studies.

skills that fitted well in the maritime sector. Therefore, the sector could move forward quickly with more innovative, creative and adaptation of the latest technology via collaborations with industry players.

UMT would be working together with Technology Depository Agency (TDA) as the lead agencies, with Destini Bhd and PTP as lead industries. During the ceremony, UMT also signed an MoA with TDA, Destini Bhd and PTP as a commitment to implement this ICoE together.

After the MoA was signed between UMT and PTP, PIJI identified the modules that suited the 2u2i/3u1i programme after meetings and engagement with various schools.

Bachelor of Management (Maritime) programme head Dr Nurul Haqimin Mohd Salleh was one of the academics who gave his full support to collaborate with PIJI to make this initiative a success. The first technical meeting chaired by Professor Dr Fauziah Abu Hasan, the assistant vice-chancellor of corporate affairs and industrial networks, was held on February 12th, 2018, at Strategic Communication Office in Putrajaya.

During the meeting, the prospective collaboration framework of curriculum programme and activities, timeframe or roadmap of collaboration, and industry-academia expectation and outcomes were discussed in detail among key UMT academicians, supporting academic staff and PTP representatives led by Mr Jaizal Kamar Jalaludin, who is the company's head of human capital management. The meeting produced a timeline for the 3u1i programme, and the tasks were delegated between UMT and PTP.

Selection of students for the programme began with an invitation announcement to all Bachelor of Management (Maritime) students at the Faculty of Maritime Studies.

Industry lecturers and their supporting staff attending an e-learning workshop at PTP in January this year.

The selection process was very tough, where candidates had to undergo psychometric tests, aptitude tests, an English test and ace an interview with PTP representatives. The interview was conducted from February 20th to 22nd, 2018, led by Mr Noordin Sulaiman, the senior manager in PTP's Planning and Operation Division. The cream of the crop were invited for evening tea with Neelsen on April 11th, 2018.

After the selection of students were finalised, another important milestone was the programme's implementation. Faculty of Maritime Studies dean Professor Dr Mohd Shaladdin Muda had appointed a group of lecturers to be the 3u1i Committee under PPPPM, with Dr Rudiah Md Hanafiah as the coordinator. The list of lecturers in the committee is displayed in Table 2.

Table 2: Lecturers in the 3u1i Committee under PPPPM

Course Code	Course Name	Content
MMM 3201	Container System	• Dr Kasypi Mokhtar
MMM 3202	Liner Management	• Dr Siti Marsila Mhd Ruslan • Mohd Rizal Ismail
MMM 3601	Maritime Occupational Safety and Health Management	• Dr Mohd Saiful Izwaan Saadon • Dr Masha Nur Salsabiela Menhat
MMM 4303	Management of Marine Pollution	• Dr Rudiah Md Hanafiah
MMM 4105	Logistics Management and Distribution	• Professor Madya Datin Dr Norhayati Shariff • Dr N. Muhammad Aslaam Mohamed Abdul Ghani • Dr Loke Keng Bin
MMM4999	Final-Year Project	• Dr Loke Keng Bin

During the programme, six students were co-supervised by industry lecturers from PTP. They were very experienced and comprised the top management of PTP. This was the best advantage for the UMT students because they had the opportunity to learn from the very best in the industry. They conducted a real-case study on port operations and their research titles and scopes were scrutinised together with their mentors at UMT and PTP. Several meetings, including some conducted through Skype, were initiated by PIJI to ensure that both parties agreed with the scope and content of research that would eventually benefit PTP. The list of students, the titles of their research project and supervisory committee members is shown in Table 3.

Table 3: The title of final year project joint supervision between UMT and PTP

Student	Title FYP	Supervisor I (UMT)	Supervisor II (PTP)
Rashidah Osman (S43854)	Functional Skill of Foreign Prime Mover's Drivers at Port of Tanjung Pelepas	Dr Loke Keng Bin	Chandran Raman Kutty
Mohamad Asri Ismail (S42175)	Measuring Quay Crane Efficiency At Port of Tanjung Pelepas Container Terminal	Dr Rudiah Md Hanafiah	Noordin Sulaiman Zulbahari Yaacob
Mohd Fazli Alimuddin (S42286)	Cost Benefit Analysis for the Implementation of Electrical Rubber Tyre Gantry (ERTG) at Port of Tanjung Pelepas	Dr Nurul Haqimin Mohd Salleh	Tuan Mohd Hazaluddin Hasim
Ainnur Mardiah Ahmad Fuaat (S41536)	Empowering Women in Male Dominated Industry – Women Experience in Port Industry	Dr Masha Nur Salsabiela Menhat	Dr Irwana Abd Malek
Nur Syahirah Rahimi (S43373)	ABC (Activity Based Costing) Analysis Implementation to Improve Engineering Spare Part Inventory At Port of Tanjung Pelepas	Dr Rudiah Md Hanafiah	Dr Irwana Abd Malek
Amirul Hakim Zuhairi (S44518)	The Key Determinants of Prime Mover Accidents in Container Terminal: A Study of Risk Factor at Port of Tanjung Pelepas, Johor.	Dr Nurul Haqimin Mohd Salleh	Dr Othman Ibrahim

One important thing in ensuring that the quality of teaching and learning at PTP was up to standard was by providing the students and industry lecturers with similar access to academic resources at UMT.

They included Oceania (e-learning for degree programme), library facilities, e-journal databases, e-books and other academic materials. We were lucky that UMT Deputy Vice-Chancellor (Academic and Internationalisation) Professor Ir Dr Noor Azuan Abu Osman had agreed to PIJI's proposal to allow PTP access to UMT's Oceania and library facilities. This demonstrated the strong support and commitment given by UMT's board of management.

Therefore, one important workshop, the PTP-UMT 3u1i Workshop cum E-learning Briefing, was conducted at PTP on January 9th this year. This workshop aimed to provide hands-on experience to industry lecturers in using Oceania and e-library resources. It was conducted by Associate Professor Ts Dr Noraida Haji Ali, the head of e-learning at the Centre of Academic Planning, Development and Quality in UMT.

The 3u1i students were very fortunate because besides having the heads of department as their industry lecturers and co-supervisors, they were also given industry exposure throughout their learning process at PTP. They had experienced working in port warehouses, attended conferences and volunteered in PTP's corporate social responsibility projects.

The students participated in PTP's Safety Day 2019, made a site visit to PV Cabin to learn about OSR equipment and facilities, joined the Maersk Line Vessel Tour and joined a lunch engagement with the CEO and their industry lecturers. Besides those, they also worked together to clean up a beach, distribute bubur

lambuk during the fasting month, made a warehouse site visit to CIBa Vision company, attended a course on oil spill response, learned how to handle the recruitment of terminal operators and contributed to PTP's berth planning attachment (new system N4).

All these experiences would develop them to become holistic, entrepreneurial and balanced graduates as envisioned in the Malaysia Education Blueprint 2015-2025 (Higher Education).

The good news is three of the 3u1i students had been selected to join PTP's Port Planning Apprentice (POPA) programme, thereby providing an avenue to launch their careers after graduating. The students were Ainnur Mardiah Ahmad Fuaat, Rashidah Osman and Mohamad Asri Ismail.

At the end of it all, UMT is proud to know that its graduates have always been the majority chosen to join PTP's POPA programme since 2015 as shown in Figure 2. This is evidence that its graduates have the quality and capability to fulfil industry expectations.

Row Labels	Count of Name
UMT	45
UiTM	19
UUM	13
UniKL	9
UMS	5
UPNM	5
UTeM	5
other (oversea UNI)	4
UNIMAS	3
USM	2
UPSI	2
UNIRAZAK	2
UM	2
UPM	2
UIA	2
UniMAP	2
UNISEL	1
UTM	1
UKM	1
UMK	1
Grand Total	126

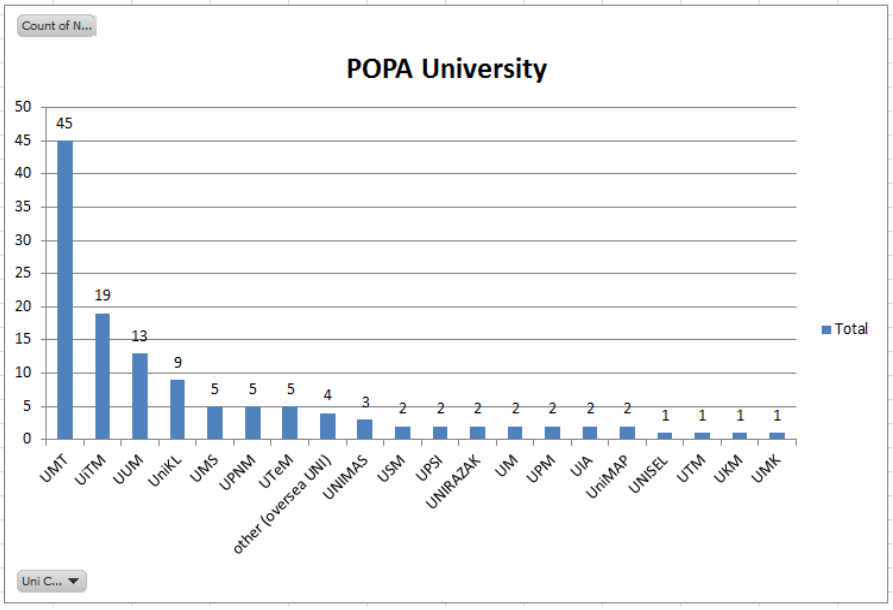

Figure 2: UMT graduates formed the highest intake of PTP's POPA programme since 2015

WAY FORWARD

There are a lot of things that need to be relooked and realigned on how UMT and PTP can collaborate in this 3u1i programme. It is a successful one, indeed, and feedback from students and the industry is amazing. PIJI, as the liaison office for this programme, would like to thank all those involved directly and indirectly, who made sure this programme is successful.

Special thanks to Dr Nurul Haqimin Mohd Salleh and Dr Rudiah Md Hanafiah from PPPPM, and Ms Heng Chen Wearn from PTP, who have worked extremely hard to make sure our students did well in their training. We also want to specially thank Vice-Chancellor YBhg. Datuk Dr Nor Aieni Mokhtar and senior board members for giving endless support and encouragement to PIJI to enhance the collaboration between UMT and the industry. Thank you also to Mr Marco Neelsen and Mr Jaizal Kamar Jalaluddin. We acknowledge the roles of the Industry Relations Division in the Department of Higher Education, Ministry of Education, who connected UMT with PTP. It is a successful collaboration that UMT and its stakeholders can be proud of.

1. *Final-year UMT students being trained by PTP personnel under the 3u1i programme.*
2. *The UMT students were involved as committee members in the 2019 PTP Global event.*

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Dr Ahmad Faizal Ahmad Fuad

My name is Dr Ahmad Faizal Ahmad Fuad. Born in and raised in Ipoh, Perak. I married my soulmate who is from the same state, and together we are blessed with two beautiful children. I received my primary and secondary education in my hometown before doing a matriculation course at Universiti Putra Malaysia in Serdang, Selangor, and later continued with my undergraduate studies in marine science.

Hoping to expand my horizon and obtain an international experience, I decided to venture overseas to pursue a postgraduate degree. Hence, I enrolled in the World Maritime University (WMU) in Sweden to do a Master's in Maritime Safety and Environmental Protection

WMU is an institution under International Maritime Organization (IMO), which is a special agency under the United Nations. My master's dissertation was on a ballast water treatment system.

Finally, I returned to Malaysia to study for my PhD in mechanical engineering at Universiti Teknologi Malaysia in Skudai, Johor, from which I graduated in 2015. My doctoral research was related to safety of passenger vessels and developing a personal floatation device.

My first job upon graduation in 1999 was an oceanographer in a government agency. It was an exciting tropical adventure as I visited the islands off Sabah and the east coast of Peninsular Malaysia to collect data on various locations of the South China Sea. Besides, I also collected and analysed the environmental data at the Port of Tanjung Pelepas in Johor and Port Klang in Selangor.

In 2002, I joined the Marine Department as a marine officer. I was assigned to the safety of navigation division and hydrography services division at the department. In the safety of navigation division,

1. *Me and my class professor when I was pursuing my masters at the World Maritime University (WMU) in Sweden.*
2. *My coursemates at WMU, comprising students of various nationalities.*

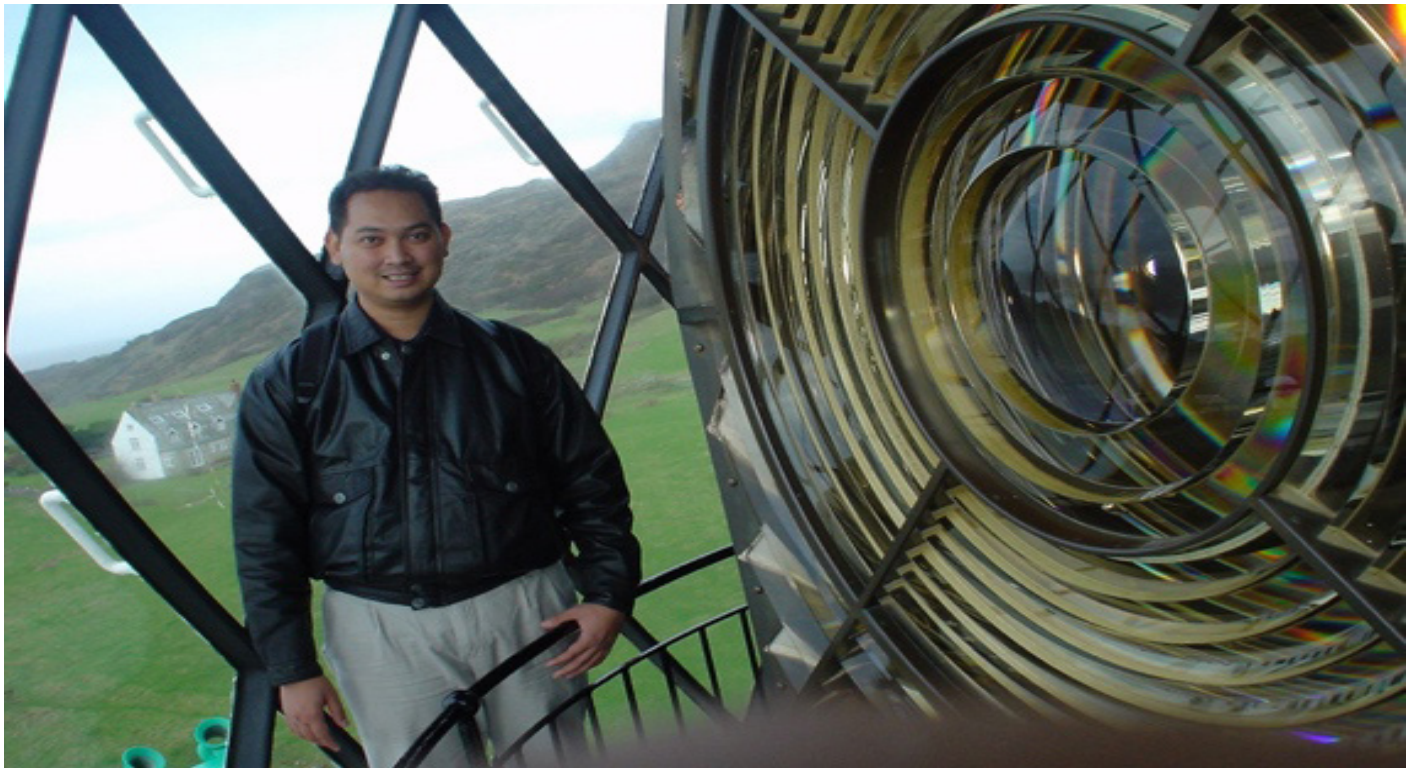
I was involved in establishing and maintaining marine navigational facilities along the 1,000km coastline of Sarawak. I was put in charge of seven major lighthouses, 120 beacons, 30 leading lights, 99 navigation buoys, a 52-meter buoy tender ship and a 30-meter landing ship. In addition, I also organised workshops for marine operators and managed a DGPS Bboadcasting station. I served as the secretary of the Light Dues Board of Sarawak from 2002 to 2007.

In the hydrography services division, I was involved in hydrographic surveys and cartography. In 2009, due to my passion in academic work, I decided to switch career and joined Universiti Malaysia Terengganu (UMT) as a lecturer.

My research interest lies in marine navigational aids. This arose when I was in charge of marine aids to navigation (AtoN) while working in Sarawak. I had the opportunity to attend courses relating to AtoN provided by manufacturers and workshops organised the International Association of Lighthouse Authorities (IALA).

I have been involved in the establishment and upgrading of navigational equipment in Sarawak. Among the major projects were the upgrading of the Tanjung Po lighthouse in Kuching, where the old "Stone Chance Lens" was replaced with a new lighting system, the establishment of new leading lights and tower at Bintulu Port and the establishment of new leading lights and tower at Kuching Port (Senari

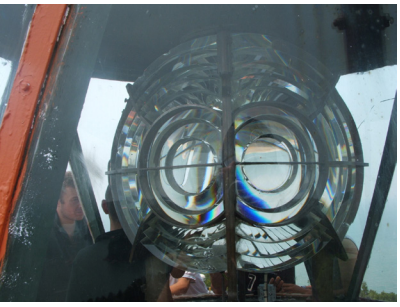
operation training in the United Kingdom.



Since joining UMT, I have brought my knowledge and experience in operating and maintaining marine AtoN to teach and share with my students. I have conducted research and published several articles. Two of my favourites were entitled "The Role of Lighthouse in GNSS Era" and "The Establishment of Minimum Luminous Range for Existing Lighthouses in the Age of GNSS" (Fig. 6). My current research is in establishing new marine AtoN at Kuantan Port New Deep Water Terminal and the utilization of Pulau Pisang off Pontian, Johor, as a maritime safety and security hub to monitor the Straits of Malacca.

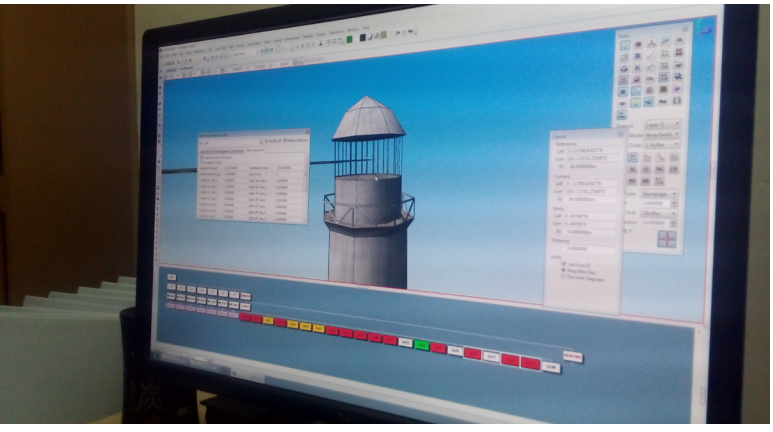
My secondary interest is in navigational safety and marine traffic risk assessment. I am a member a consultancy project team that conducts risk assessment on shipping and fishing activities to offshore oil and gas pipelines in Malaysia (Fig. 7). We have completed two projects, namely in East Malaysia and Peninsular Malaysia.

As I strive to deepen my knowledge in my areas of interest, I hope the results of my pursuits could be used to improve the safety of marine navigation in Malaysia and make Malaysian waterways as secure as possible.



The old 'Stone-Chance lens' (left) at the Tanjung Po lighthouse in Kuching, Sarawak, and the lighthouse lantern (right).

Construction of new leading lights and a 55m tower at Kuching port (left), and new leading lights and a 30m tower at Bintulu Port (right), both located in Sarawak.



Part of my research is the validation of light distance from lighthouses using the full mission ship simulator at Universiti Malaysia Terengganu.

Site survey of shipping and fishing activities off the coast of Sabah.

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