



# MARINA

The Quarterly Newsletter of  
The Hong Kong Institute of Marine Technology and  
The Hong Kong Joint Branch of The Royal Institution of Naval Architects  
and The Institute of Marine Engineering, Science and Technology

## IMAREST

香港海事科技學會及皇家造船師學會  
暨輪機工程及海事科技學會香港聯合分會季刊

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### HKJB & HKIMT Activities

#### Career Talk to IVE students

On the 8 June, 2011, HKJB/HKIMT arranged a career talk to HD Mechanical Engineering (Transport Technology Stream) students of IVE (Tsing Yi Campus). The purpose of this talk was to highlight the golden opportunity for students to choose marine related fields as their future career.

The first talk was conducted by Ir Albert W.S. Lo, the Vice-Chairman of HKJB then followed by Ir K.K. Lo from HKPU, he said he was only a fourth engineer onboard the vessel first time. After working hard and studying hard on board the vessel he finally obtained the first class engineer certificate. It is very easy to find a job on land even if you do not want to stay onboard the vessel.

Then followed by Captain Marso Law, he said right now was the golden opportunity to join the marine industry. He said existing shipping companies or marine related fields were short of marine engineers. HD students of the Transport Technology Stream after their graduation, they can take 6 basic certificate courses as conducted by the Maritime Services Training Institute (MSTI) which leads to the issue of Seaman's Discharge Books. After five to six years sea life onboard vessel, one can be promoted to first engineer after obtaining the Certificate of competency.



Ir Albert Lo gave the opening address



Ir K.K. Lo gave his presentation

The last speaker was Ir K.F. Kwan, the examiner from Marine Department, HKSAR, he gave a talk on the career path and prospects of certificated Marine Engineer Officers and Seafarers Certification system for engineer cadets.

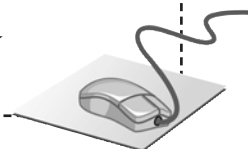
Ir Kwan said in order to encourage young students to join the marine profession, the Government with the full



Capt. Marso Law gave his presentation

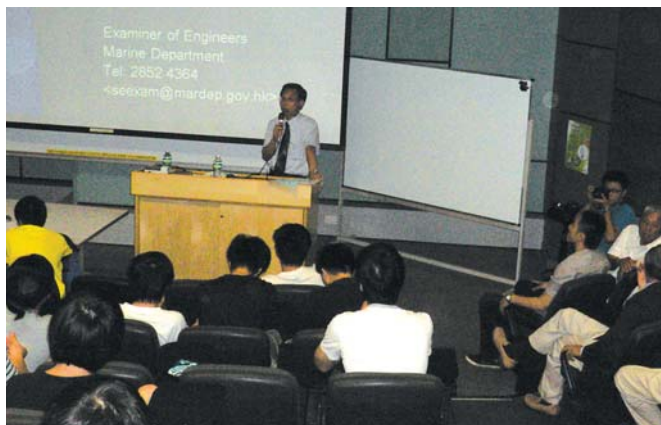
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*Ir K.F. Kwan gave his presentation*



*Students attending the Career Talk*

support of the Hong Kong Maritime Industry Council did launch the sea-going Training Incentive Scheme in 2004. Starting from 2004 till now, there have been around 170 students applied such a scheme.

Finally, Dr. Tupurkovska Poppska Sultana, Department Head of Mechanical Engineering of IVE-Tsing Yi campus gave a closing remarks and thanks HKJB/HKIMT arranged such an important talk to their students.

As usual, HKJB/HKIMT will continue to arrange such a career talk from time to time to students from local Universities or other Institutes in order to promote maritime industry to young students.

*(Ir Tang Kai Fun)*

## Green Design for powering of ships

On the 25 June, 2011, HKJB/HKIMT together with HKIE-MMNC Division had arranged a half day seminar at HKIE regarding green design for powering of ships. There were total 3 papers presented namely:

- LNG as a marine fuel by Mr. David Power of Lloyds Register Asia Hong Kong.
- Marine LNG – the equipment perspective by Mr. Keon Vonk of Wartsila China Ltd.
- Alternative fuels for marine power by Mr. Dick Kam of Bureau Veritas, H.K.

All the above 3 papers were saying that due to the coming environmental issues, such as CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> emission controls, engine designers or other power generation designers are working hard on this issue.

Actually, CO<sub>2</sub> emission by ships has been coming down by 70% since 1950. Existing emission control area includes Baltic sea, North sea, North American Coasts and Central American and more will be included. NO<sub>x</sub> and SO<sub>x</sub> emissions regulated by MARPOL Annex VI and NO<sub>x</sub> Technical code came into force on 1<sup>ST</sup> July, 2010.

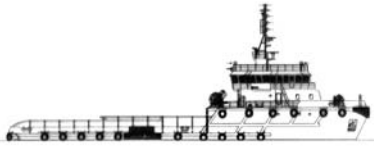
IMO requirements for maximum sulphur content of 1.0% in the Baltic Sea and the North Sea (later in North America) emission control area (ECA) has been enforced.

Up to now Green House Gas (GHG) and CO<sub>2</sub> emissions from shipping have not been regulated but may be expected to be developed on short notice. Also IMO has developed voluntary guidelines and instruments to reduce CO<sub>2</sub> emissions for new designs, as well as new and existing ships in operation.

LNG as bunker is not yet commercialized due to the chain of facilities are still not mature in most of the shipping countries, especially the development of shore-based infrastructures such as:

- LNG fuel storage
- Bunkering system/equipment
- Bunkering operation
- Gas Tank location
- Gas Fuel piping
- LNG ship to ship (STS) transfer
- LNG STS cargo transfer and bunkering
- Ventilation
- World firsts - risk assessment





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Group photo among chairmen of HKJB/HKIMT and the guest speakers.

Other considerations to convert on existing ship/fleet to LNG powering have a heavy commercial issue plus the compliance to ECA requirement as well as the operational costs and potential profit/loss for using LNG.

Safety features such as safe gas composition, safe storage and distribution of gas, engine room safety and risk analysis all have to be considered.

Fuel cell is another power alternation. Existing fuel cells have several types to choose depending on operation temperature and power. Today fuel cell technology is hardly mature it is due to the high capacity storage of hydrogen as compared to fuel oil and LNG.

Other power alternation such as hybrid powering system: diesel generators & batteries for stand-by, transit and ship assist. Or may be the use of wind energy or solar energy.

In conclusion, gas propulsion and fuel cells appear to be a promising solution for cleaner and more energy efficient power generation.

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LNG appears to be an interesting fuel, in particular for short sea shipping, due to reduced air emissions and the potential to meet the most stringent environmental regulations envisaged by IMO and EU. Technical means for installation and safety rules and regulations are in place, demonstrating the feasibility of LNG as an alternative to fuel oils.

Hydrogen, providing the opportunity for a zero emission ship, seems a more long term alternative fuel due to the immaturity of fuel cell technology on board ships, as well as a number of feasibility issues.

Still a hybrid concept of hydrogen fueled fuel cells with fuel oil powered generators and batteries is technically feasible and may soon become a very clean and efficient means to drastically reduce the environmental impact of some ship types (tugs, supply vessels, etc).

As David Power said the choice of power alternation may be the chicken and egg mystery.

The above technical seminar had attracted more than 35 audiences and we trust that more latest developments of power generations can be brought to members for technology up-dating.

(Ir Tang Kai Fun)

## Technical visit to Hong Kong Aero Engine Services Ltd. (HAESL) on 30 July, 2011 (Sat.)

A technical visit to HAESL was organized by HKJB/HKIMT on 30 July, 2011. There were total 17 members and friends from both Institutes attended this visit.



Group photo in front of HAESL



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Souvenir presentation by Chairman of HKJB to Ir Alex Yu of HAESL

First we had a briefing session by viewing a Video knowing that HAESL provides world class aero engine overhaul and component repair services to many of the world's most respected airlines with an annual throughput of approximately 230 engines. HAESL have overhauled more than 2200 Rolls-Royce RB211 and TRENT engines since her establishment. The newly completed phase IV workshop facility enables HAESL to further increase its engine throughput by up to 25 per cent, improve workflow efficiencies and grow capacity to meet increasing demand for component repair.

Then we had the chance to take a look of the engine testing room which is a U-shaped building with one air intake channel and one air outlet channel at the other



Explanation by HAESL's staff inside the engine test control room

end. When the engine is under test, the engine testing room is actually in a negative pressure. But unfortunately there was no engine under test by the time of our visit.

We understand that the overhauled engine from the assembly workshop will be transferred to the engine testing room by an overhead hoist running on rail. Then the right type of engine holding jig will hold the engine in firm position and the engine can start to run.

On a separate level inside the engine testing room, there is a control room to monitor the testing conditions. Of course, they are all computerized.

Then we walked around several work stations and found out that HAESL have all the advanced machines for engine parts/components repairing together with laser welding as well as an electronic repairing room. Also a blasting and painting facilities for repairing of engine blades are also provided. After the blade was repaired, the blade had to be put inside a balancing machine to check for balancing.

For defect detection, they have all the necessary NDT equipments for testing. Also special tools and storage jig are specially made for some particular parts/components.

From this visit, we are proud that Hong Kong has such an advanced engine overhaul and repairing organization in operation.

(Ir Tang Kai Fun)



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## “Sea” your Future-continue

With 70% of the earth's surface covered by oceans, and 90% of the world's trade carried by ship, it's hardly surprising that there are lots of related career opportunities, especially if you are interested in science, technology and engineering. IMarEST and Castrol Marine worked together to publish "A guide to Marine careers" to introduce some of the exciting careers available in marine science, engineering and technology.

In particular, it looks at the professional engineers trained scientists, skilled technicians and support workers who are needed in various marine related fields. For each of those related marine fields, you can find out:

- what opportunities there are and what people do in their different jobs.
- the skills and personal qualities you need.
- entry, training and qualifications.
- typical employers.
- prospects for career progression.

More on this subject will be published in the following MARINA issues.

*(Ir Tang Kai Fun)*

## HKJB/HKIMT 2011 Annual Ball to be held on 4 November, 2011

This is an annual golden opportunity to meet with Maritime Professionals and business counterparts in a friendly and enjoyable evening. We appeal all HKJB/NKIMT members to show their support by trying their very best to contact their friends or business associates by booking tables or individual seat or to sponsor this Annual Golden event.

The promotion leaflet and booking / table sponsorship form are posted on [www.hkimt.org.hk](http://www.hkimt.org.hk) for members and table sponsors to download.

See you all then.

*(Ir Tang Kai Fun)*

## IMO Regulations Development

One of the major International Maritime Organisation (IMO) committee meetings, the 89th session of the Maritime Safety Committee, was held between 11 and 20 May 2011, at the headquarters of the IMO in London.

In this 89th session of the MSC (MSC 89), the following major items were discussed:

- Lifeboat release and retrieval System
- Piracy and maritime security issues
- Conclusion of generic GBS (Goal Based Standard) guideline
- Bulk carrier related matters (list of cargoes that qualify for exemption of the fixed gas fire-extinguishers and liquefaction of cargo)
- Application of coating requirements to the wing spaces of ore carriers and combination carriers
- Passenger ship stability - introducing a mandatory requirement for either onboard stability computers or shore-based support for passenger ships which have to comply with the safe return to port requirements
- The colour of life saving appliances, including lifeboat
- Progress on the Formal Safety Assessment

For further information on the above, a summary report can be downloaded from the website <http://www.lr.org/sectors/marine/Compliance/LRIMO.aspx>.

Separately, a summary report specifically relating to piracy issue provides a more detailed insight into this, where discussions on the following were reported:

- MSC circular on interim guidance to shipowners, ship operators and shipmasters on the use of privately contracted armed security personnel onboard ship in the High Risk Area;
- MSC Circular on Interim recommendations for flag States regarding the use of privately contracted armed security personnel on board ships in the High Risk Area;
- MSC circular Guidelines to assist the investigation of crimes of piracy and armed robbery against ships; and

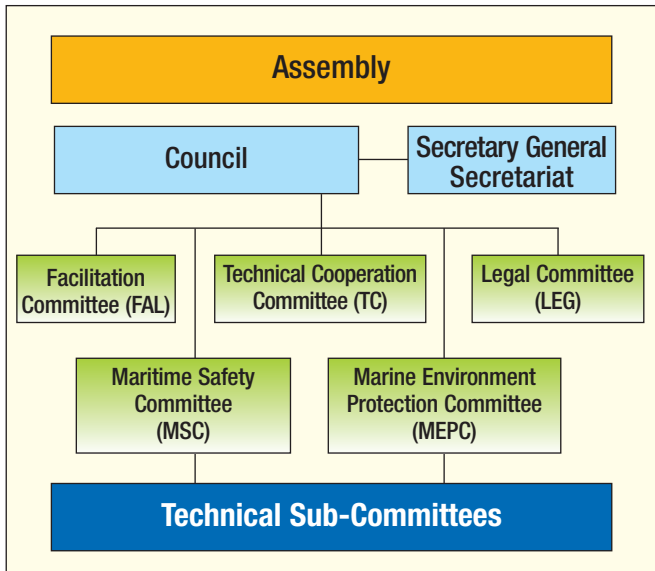
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- MSC Resolution on Implementation of Best Management Practice Guidance.

For further information on piracy issue, the specific summary report can be downloaded from the website <http://www.lr.org/sectors/marine/Compliance/LRIMO.aspx>.



Technical Sub-Committees	
BLG	Bulk, Liquid and Gas
COMSAR	Radio-communications and Search & Rescue
DE	Ship Design and Equipment
DSC	Carriage of Dangerous Goods, Solid Cargoes, and Containers
FP	Fire Protection
FSI	Flag State Implementation
NAV	Safety of Navigation
SLF	Stability, Load Line, and Fishing Vessel Safety
STW	Standards of Training and Watch-keeping

Year	Meeting Dates		Com / Sub-Com / Others	
	From	To		
2011	10-Jan	14-Jan	SLF	53
	24-Jan	28-Jan	STW	42
	07-Feb	11-Feb	BLG	15
	21-Feb	25-Feb	FSI	19
	07-Mar	11-Mar	COMSAR	15
	21-Mar	25-Mar	DE	55
	04-Apr	08-Apr	LEG	98
	11-May	20-May	MSC	89
	06-Jun	10-Jun	NAV	57
	21-Jun	23-Jun	TC	61
	27-Jun	01-Jul	Council	106
	11-Jul	15-Jul	MEPC	62
	25-Jul	29-Jul	FP	55
	05-Sep	09-Sep	FAL	37
	19-Sep	23-Sep	DSC	16
	17-Nov	18-Nov	Council 26th Extra	
21-Nov	30-Nov	Assembly	27	
01-Dec	01-Dec	Council	107	

(submitted by Ben Y.W. Lau, Honorary Secretary, HKJB of RINA & IMarEST, who can be contacted via [ben.lau@lr.org](mailto:ben.lau@lr.org))



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## Tokyo MoU – Summary Report 2010

The Tokyo MoU is an inter-governmental co-operative organization on Port State Control (PSC) in the Asia-Pacific region, for promoting the effective implementation, and the universal and uniform application, of relevant IMO/ILO instruments on ships operating in the region, with the aim to eliminate substandard shipping.

Port State Control (PSC) is one of the major channels in ensuring that the requirements of the international maritime conventions are complied with by various stakeholders. Although it is well understood that the ultimate responsibility for implementing conventions is left to the flag States, port States are entitled to control foreign ships visiting their own ports to ensure that any deficiencies found are rectified before they are allowed to sail. Port State control is regarded as measures complementary to the flag State control.

Currently there are 18 authorities which are full members adhering to the Tokyo MoU, including Hong Kong, China. The Port State Control Committee established under the Memorandum monitors and controls the implementation and on-going operation of the Memorandum.

The Port State Control Committee of the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MOU) has published the Annual Report covering their activities in the year 2010.

In addition to routine inspections carried out by the Port State Control Officers (PSCO), concentrated inspection campaigns (CIC) are also carried out. In 2010, the concentrated inspection campaign (CIC) on Harmful Substances (Marine Pollutants) Carried in Packaged Form in accordance with MARPOL Annex III, SOLAS Chapter VII and the IMDG Code was conducted from 1 September to 30 November 2010. The campaign was intended to check whether:

- the ship had an appropriate document of compliance (DOC) which covered the harmful substances (Marine Pollutants) being carried;
- the ship was provided with relevant documents and information corresponding to the harmful substances (marine pollutants) carried onboard;

- emergency procedures to be employed in the event of an incident involving harmful substances (marine pollutants) were in place and the crew were aware of them; and
- harmful substances (marine pollutants) carried were marked, stowed and secured appropriately.

During the campaign period, a total of 4,079 CIC inspections were carried out, of which 589 (14.4%) are ships either carrying or loading marine pollutants and of which 542 are container ships. There were a total of 305 instances of non-compliance observed, of which areas related to documentation were 178 (58.4%) and areas related to cargo marking, stowing and securing were 127 (41.6%). Of the ships carrying or loading Marine Pollutants, 10 detentions were recorded. The detention rate is 1.7% of ships that were carrying or loading marine pollutants.

For the purpose of giving highlight on closer co-operation and promoting further joint CICs with the Paris MOU, the Committee agreed to adjust the original plan for future CICs. In this regard, the Committee decided to deal with the same subject – structural safety and Load Lines as the Paris MOU for the CIC in 2011. The Committee decided to conduct a joint CIC on Fire Safety System (FSS) with the Paris MOU in 2012.

In 2010, 25,762 inspections, involving 14,536 individual ships, were carried out on ships registered under 101 flags. Out of 25,762 inspections, there were 16,575 inspections where ships were found with deficiencies. Since the total number of individual ships operating in the region was estimated at 22,058, the inspection rate in the region was approximately 66% in 2010.

Ships are detained when the condition of the ship or its crew does not correspond substantially with the applicable conventions. Such strong action is to ensure that the ship will not sail until it can proceed to sea without presenting a danger to the ship or persons on board, or without presenting an unreasonable threat of harm to the marine environment. In 2010, 1,411 ships registered under 64 flags were detained because of serious deficiencies found onboard. The detention rate of ships inspected was 5.48%. Comparing with the last year, detentions increased 75 by number or 6% by percentage. Table Y1 provides a summary of the

activities and results of members of Tokyo MoU in 2010, where Japan carried out the highest number of initial inspections at 5,308 with China closely followed by 5,186 such inspections. Hong Kong carried out 734 initial inspections. It is worth noting that China has the highest detention rate of 10.26%.

As shown in Table Y2, a total of 90,177 deficiencies were recorded in 2010. It has been noted that fire safety measures, life-saving appliances and safety of navigation are the three major categories of deficiencies which are frequently discovered on ships. In 2010, 15,998 fire safety measures related deficiencies, 15,648 safety of navigation related deficiencies and 11,077 life-saving appliances related deficiencies were recorded, representing nearly 50% of the total number of deficiencies.

It is notable that the number of deficiencies on fire safety measures and safety of navigation have been increased nearly 10% in 2010 but the number of deficiencies on lifesaving appliances reduced about 9%. Furthermore, it can be seen as the results of the CIC of the year that the number of deficiencies relating to carriage of cargo and dangerous goods increased around 20%.

The above data are extracted from the “Annual Report on Port State Control in the Asia-Pacific Region, 2010”, and this full report can be downloaded from <http://www.tokyo-mou.org> on the Internet.

(submitted by Ben Y. W. Lau, Honorary Secretary, HKJB of RINA & IMarEST, who can be contacted via [ben.lau@lr.org](mailto:ben.lau@lr.org))

## Coming Events / Activities in 2011

- September** • Publish MARINA September issue
- October**
  - Seminar on Process Performance Enhancement
  - Visit Guangdong Wartsile Marine Engines Service
- November**
  - 4 November, 2011 HKJB/HKIMT Joint Annual Ball
  - 10 November, 2011 “Lean and Green – Challenges for the Ship Repair Industry in China”
- December**
  - Marintec China 2011 in Shanghai (29 November 2011– 2 December 2011)
  - Publish MARINA December issue

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