

# INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS



## 39<sup>TH</sup> ANNUAL GENERAL ASSEMBLY

MELBOURNE, AUSTRALIA, 16-17 APRIL 2013

### MINUTES AND ANNEXES

- |                |  |
|----------------|--|
| <b>Annex 1</b> | <b>39th AGA Resolutions</b>  |
| <b>Annex 2</b> | <b>Young Persons and a Career in Logistics and Supply Chain Management</b> |
| <b>Annex 3</b> | <b>Criminalisation of Seafarers</b>  |
| <b>Annex 4</b> | <b>Safety and Security Trainer</b>   |

### **39th AGA Proceedings PART B**

With the Compliments of  
The Secretary General

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## MINUTES OF THE 39<sup>th</sup> ANNUAL GENERAL ASSEMBLY

### Melbourne, Australia

The 39<sup>th</sup> Annual General Assembly was held in the Intercontinental Hotel (The Rialto), Melbourne, Australia, on Tuesday 16<sup>th</sup> and Wednesday 17<sup>th</sup> April 2013 at the invitation of the Company of Master Mariners of Australia (CMMA).

#### LIST OF DELEGATES

##### EXECUTIVE COUNCIL

Christer Lindvall (Sweden)	President
Koichi Akatsuka (Japan)	Deputy President
Jerome Benyo (USA)	Vice President
Marcel van den Broek (Netherlands)	Vice President
Willi Wittig (Germany)	Vice President

##### FROM MEMBERS OF ASSOCIATIONS

Bronswijk, Ted Van	CMMA	Australia
Buuren, Ernie van	CMMA	Australia
Gray, Allan	CMMA	Australia
Heppingstone, David	CMMA	Australia
Kaleveld, Frank	CMMA	Australia
Kuiper, Kasper	CMMA	Australia
Shennan, David	CMMA	Australia
Steverson, Iain	CMMA	Australia
Cuyt, Jef	KBZ	Belgium
Dimitrov, Dimitar	BSMA	Bulgaria
Turner, Peter	CMMC	Canada
Gamper, Juan	Nautilus (Chile)	Chile
Ganzhorn, Fritz	DMO	Denmark
Partanen, Pekka	FSOU	Finland
Wittig, Willi	VDKS / ExCo	Germany
Mathur, Sanjeev	AESM	Hong Kong
Akatsuka, Koichi	JCA / ExCo	Japan
Masuda, Megumi	JCA	Japan
Van den Broek, Marcel	Nautilus NL / ExCo	Netherlands
Zaheer, Raffat	MMSoP	Pakistan
Loren, Jorgen	MOA	Sweden
Lindvall, Christer	MOA / ExCo / President	Sweden
Benyo, Jerome	CAMM / ExCo	USA

**INDIVIDUAL MEMBERS**

Gil, Christopher	Australia
Akatsuka, Koichi	Japan (Ind Mem & JCA & ExCo)
Dickie, John	UK (Ind Mem & Secretariat)
Owen, Paul	UK (Ind Mem & Secretariat)
Benyo, Jerome	USA (Ind Mem & CAMM & ExCo)

**GUEST SPEAKERS**

Coventry, Darryl	AMSA	Australia
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**SECRETARIAT**

Captain John Dickie	Secretary General
Captain Paul Owen	Assistant Secretary General
Ms. Roberta Howlett	Administration Officer

A list of apologies received is held at the IFSMA Office.

**AGENDA ITEM 1 – Welcome**

Captain Allan Gray, CMMA Federal Master, welcomed all present to Melbourne, Australia. He mentioned that there was a full agenda with the Annual Dinner on Wednesday evening and that various of the CMMA Branch Secretaries were present if anyone needed assistance. He also provided a short safety briefing. He concluded by reminding all IFSMA Members they are invited to attend the CMMA Congress on the afternoon of Wednesday 17<sup>th</sup> April before the Annual Dinner.

Captain Lindvall, President of IFSMA, thanked Captain Gray for his warm welcome and gave his opening address (see page XXX in the IFSMA Annual Review). He then declared the 39<sup>th</sup> Annual General Assembly formally open.

**AGENDA ITEM 2 – Adoption of Agenda**

The President announced that agenda item 7 would be replaced by a report from Fritz Ganzhorn on the follow-up to the Lean Ship of the Future, which was featured in last year's AGA.

Agenda item 14 would be swapped with Agenda item 10 due to schedule of one of the speakers.

Peter Turner requested a five-minute slot to show a video on a Canadian Nautical Skills Competition project. The President agreed to this and that the time would be arranged later.

The Agenda was adopted with these amendments.

**AGENDA ITEM 3 – Adoption of the Minutes to the 38<sup>th</sup> AGA.**

The Minutes to the 38<sup>th</sup> Annual General Assembly held in Copenhagen, Denmark on 14-15 June 2012, were adopted without amendment.

**AGENDA ITEM 4 – Establish Drafting Group.**

The Drafting Group was established and comprised: Willi Wittig, Peter Turner and John Dickie

**AGENDA ITEM 5 – Secretary General’s Report and Hon Auditor’s Report****SECRETARY GENERAL’S REPORT**

The **Secretary General** (John Dickie) gave his report, which is reproduced in the IFSMA Annual Review 2012-2013, starting on page XXX. He expanded on various matters covered therein.

In his summary he emphasised that in 2014 the President, Deputy President and a number of the Vice Presidents will be standing down and the need to find their successors starts now. Christer Lindvall reminded that there are costs involved for Executive Council Members i.e. travelling and accommodation costs.

**HONORARY TREASURER’S REPORT**

**John Dickie** (acting as Honorary Treasurer) reported that, following the increase in subscriptions last year; we had a positive cash flow of £12,993.00 during 2012. He referred to the end of year Balance Sheet and the Profit and Loss Account for 2012 that are both available in the AGA Part A document, together with the Honorary Auditor’s Report, and took delegates through the various figures produced in these documents. He emphasised that we cannot carry bad debts and these hold up the progress of IFSMA and every effort is made to resolve these situations.

The Budgets for 2013 and 2014 were presented and **approved**. He added that if there were no bad debts on subscriptions for 2013 then we would have a small positive cash flow.

Marcel van den Broek asked why the loss on individual subscriptions for 2012 was so high to which John Dickie replied at length.

Peter Turner asked about the Corporation Tax, John replied that it was paid to the UK Revenue and Customs and was liable only on the interest earned from our savings and Bond investments, the income from all subscriptions being exempt from tax.

Dimitar Dimitrov suggested that a payment system for subscriptions be made available. John thanked him for the suggestion and added that we need to minimise charges for payments for both ends as far as possible.

Christer Lindvall read out the Honorary Auditor’s Report.

The Secretary General’s Report and Hon Treasurer’s Report were both **approved**.

It was proposed and **agreed** to reappoint Rodger MacDonald as the Hon Auditor for another year.

#### **AGENDA ITEM 6 – Selection of Venue for 40<sup>th</sup> AGA in 2014**

**Paul Owen** read the invitation letter received from the Norwegian Maritime Officers' Association to hold the 2014 AGA in Oslo, Norway during May (See Annex XXX).

**John Dickie** read out the invitation from the Irish Institute of Master Mariners who also invited IFSMA to hold the 2104 AGA in Cork, Ireland.

There had also been an invitation for the 2014 AGA from the Master Mariners Society of Pakistan; the Executive Council had considered this carefully and decided that, in view of the political climate, attacks and kidnapping risks present, that we could not recommend this invitation at this time. It was hoped that in the years ahead the situation would improve and another invitation would be forthcoming in the future.

By a show of hands **the General Assembly chose Oslo, Norway as the venue for the 2014 AGA**. The President added that he hoped we could go to Ireland another year.

#### **AGENDA ITEM 7 – Lean Ship of the Future – Follow-up Report**

**Presented by Fritz Ganzhorn (DMO)**

See - <http://tinyurl.com/dyxl8xk> - for the presentation document.

Fritz explained the survey that resulted from the project and presented some of the results and conclusions.

#### **Q&A**

**Christer Lindvall** wondered how the results will be forwarded to IMO, perhaps an INFO Paper which IFSMA could co-sponsor. **Fritz** added that the results will also be available on the Danish Government website. **Allan Gray** commented that the subject will be discussed at the IHMA Congress next year where he anticipated more success in presenting to IMO. **Peter Turner** - regarding standardised forms there is a tendency for individual departments to add their own items to the form, care should be taken that this does not happen. **Jef Cuyt** added that the subject was also covered in the past during the AGA held in Antwerp during 2008. **Fritz** added – there is now less focus on seamanship and more focus on the compliance culture, he suggested that a focus point for IFSMA at IMO should be when new regulations are introduced, what can be taken away and what is the purpose of any new requirement. **CMMA** – there is a craft to seamanship with lots of rules to be followed. Need knowledge base and skills to function. If there is no ownership of the system then we are not going to have uptake at sea. **Marcel van der Broek** – applauded the Danish initiative. Agreed that we need to push this subject at IMO. Some aspects mentioned last time but not mentioned so far today, including retention of seafarers; high on the list for quitting the sea is the admin burden. A person ashore could be given responsibility for the admin for several ships.

**AGENDA ITEM 8 – Time for Change****Presented by Allan Gray, (Federal Master CMMA)**

Extract - We are seeing claims of declining crew competencies, we are advised that there is a world shortage of skilled seafarers we watch in dismay as the world desire for litigation is aimed squarely at the vessel's master and we see career paths for mariners diminish as sectors of the industry try to protect their own turf. All this in a year that IMO say we should focus on sustainability. Now more than ever master mariner associations need to change and adapt and show the stewardship the industry requires. But are they capable of change?

See - <http://tinyurl.com/d9kxrvr> - for the presentation document.

**AGENDA ITEM 9 – An Introduction for Shipmasters on Motivating Young Men and Women in Pursuing a Career in Logistics and Supply Chain Management****Presented by Raffat Zaheer, (MMSoP)**

See [Annex 2](#) for copy of the paper.

See - <http://tinyurl.com/d3rcaxu> - for the presentation document.

**AGENDA ITEM 10 – Criminalisation of Seafarers****Presented by Ernie van Buuren, (CMMA)**

See [Annex 3](#) for copy of the notes for the paper.

See - <http://tinyurl.com/cde8qk2> - for the presentation document.

**Q&A**

**Marcel van den Broek** commented that seafarers often do not fill out the hours of work record and asked if this could be considered to be perverting the course of justice. **Ernie** answered no, as perverting the course usually happens after the offence. **Paul Owen** asked what advice he would give a Master or watchkeeper after an incident and does independent insurance offer a useful protection. **Ernie** agreed that insurance would be useful after the interests of the Master and the Owner diverge. Regarding advice after an incident, he suggested that they should always stick to the facts. **Allan Gray** said that for oil spills there is a strict liability on the ships that caused the spill. How do you remain innocent until proved guilty under these circumstances. **Ernie** answered, they still need to demonstrate that negligence took place to prove liability. **Peter Turner** – administrative monetary penalties, keeps it out of court and avoids criminal charges, he asked if Australia had any similar system. **Ernie** answered, there are summary offences but the trend is towards indictable offences. **Jef Cuyt** mentioned drugs and **Dimitar Dimitrov** mentioned the case where there is a shipmaster imprisoned in Panama without trial. **Ernie** replied it is not possible to obtain insurance for criminal offences but suggested that there is still a role for the shipowner to step in.

**AGENDA ITEM 11 – The Role of the Master****Presented by Peter Turner (CMMC)**

See page XXX of the IFSMA Annual review 2012-2013 for the paper

See - <http://tinyurl.com/bwqln95> - for the presentation document.

**Q&A**

**Allan Gray** – Commented that crews are cut to bare minimum today. When you had ships of 42 crew there was time to train officers to achieve the right experience or mentoring. Today there is not enough time to ‘solidify’ what you have learnt. Even for Pilots it’s not possible for lengthy training periods. **Peter** replied, by agreeing that most of us in the room went to sea with 4 watch-keepers and there used to be ample time for training, his main concerns were for shipmasters. **Jorgen Loren**, all officers today have the opportunity to command the ship which is a problem with insufficient qualifications.

**Willi Wittig** – When it comes to the education and qualification of future shipmasters not only STCW has a role to play, but those in command who meet students, today’s shipmasters are not prepared to share their knowledge. First step, before changing STCW Convention, is to intervene and ask them to do a proper job onboard together with colleges to instil this requirement. **Peter** responded, if the ILO and others should fit their courses into the STCW so that the Master has the qualifications to say ‘I am in command’. **Fritz Ganzhorn** - 200 years ago partnerships bought a vessel, they hired a captain to look after their investment and he was able to hire his own crew, today the master must work with what he is given, he often finds an inexperienced person on the other end of the fax message. Important that we have a little more money. We have uniformed everything today to a higher or lower level. The question is so good but who should you put the question to, the shipowner? **Peter** replied, looking at the modern shipowner as opposed to the ship manager, not much difference who engages the Master, it is his training that is important, if the man does not have the training or experience then he cannot do the job and becomes a liability. **Jef Cuyt** – in view of the reduced manning levels today there is not much time or opportunity for the Master and officers to be involved in training. **Peter** concluded by agreeing that the Master does not have enough time to train, with the modern handling system we have he warned how long is it going to be before the shipowner will say “This man has a business degree he must be better to manage my ship”

**AGENDA ITEM 12 – Study of Vessel Traffic Safety Measures off Japanese Coast****Presented by Megumi Masuda (JCA)**

See - <http://tinyurl.com/clvtyq7> - for the presentation document.

**Q&A**

**Fritz Ganzhorn** – asked how the traffic safety measures are put in place, only in Japanese Charts? **Megumi** answered that it is a voluntary scheme only, adding that sometimes it is misunderstood as being official, so that it may not be appropriate to mark on the charts with ink. He warned that the general flow of traffic might differ from the JCA Separation Scheme.

**AGENDA ITEM 13 – Maritime Labour Convention****Presented by Darryl Coventry, Australian Maritime Safety Agency**See - <http://tinyurl.com/cberwyx> - for the presentation document.**Q&A**

**Paul Owen** – Asked that when medical emergencies on board an Australian vessel occurred and the standard Australian form was used, had consideration been given to how the information could be interpreted when the Australian vessel was in overseas territories. **Darryl** replied that this needed looking at.

**Koichi Akatsuka** – remarked that regarding hours of work, once employers and seafarers' unions agree, the working hours restrictions will not apply to shipmasters. **Darryl** – we would not disagree with other countries decisions. But in Australian legislation the shipmaster is also defined as a seafarer, so they would have to apply those protections to shipmasters as well.

**Peter Turner** - The compliance surveyors you put in place are they only covered by the MLC. **Darryl** replied that the Fairwork Act only applies to Australian vessels, foreign flag including the new offshore Australian Register vessels are not covered by the Act, unless they have a coastal trading licence, Fairwork Act does not apply. **Peter Turner** continued by asking if the Master and seafarer are subject to further inspections on the ship **Darryl** – responded that issues on foreign flag vessels fall on the Flag state. AMSA will only ensure that seafarers are getting paid and will not look at pay rates and does not comply with MLC.

**Fritz Ganzhorn** said that in Europe the Paris MOU Common Policy issue a list of deficiencies. **Darryl** added that the Tokyo MOU has similar policy. However, the administrative process to consistency amongst surveyors has yet to be determined.

**CMMA** Didn't see why we have to go back to STW to get changes in development, standards in accommodation, are you going to ISO? **Darryl** – we have IMO Noise levels and we have regulated also WHO for water standards. The ILO Code on ambient factors in the workplace has been codified.

**AGENDA ITEM 14 – Project Horizon****Presented by Marcel van den Broek**

See page XXX of the IFSMA Annual Review 2012-2013 for the paper

See - <http://tinyurl.com/cdgn yhd> - for the presentation document.**Q&A**

**CMMA** – University of South Australia, has a free download on internet. With FADE system when you score 100 is considered to be equivalent to blood alcohol level of 0.5. Did the MARTHA researchers consider the FADE project as part of their study. **Marcel** – answered that the Horizon booklet is extensive and encouraged all to read it to see what areas it covers, many of the solutions to our problems often come from the insurance sector. Once the authorities approved the tools it can also be used for checking the minimum safe



manning. Many of the solutions to the problems of our world come from the insurance world. **Jef Cuyt** – while driving around last week he saw many warning signs on the road saying do not drive while sleepy. He added that we have had the tools to measure fatigue and known about it for many years and wondered why nothing has been done about it before now. **Marcel** replied that it was not correct to say nothing had been done about it. The project Horizon research took place last year. This year the UK Administration will come to IMO with a paper on the Project Horizon. He added that everywhere his organisation goes they use the results of the project, it must not end up somewhere in a drawer. There are many partners in the project, one of which is the Association of European Shipowners, and also Intertanko, they are not complaining. This can mean the end of the six on six off system for example. **Willi Wittig** – Thanked Marcel once again for bringing this project to our attention. Aware of a similar study for lorry and bus drivers, he had tried to set up a consortium to transfer this knowledge to the sea but pressure was not high enough for success. There was a similar project from Germany and EU Space Agency to produce a tool to calculate the times for sleep. It is very useful to have a confirmation study. He recommended that this be brought to the researchers' attention. He added that while talking about fatigue, he is in consultations with medical doctors to identify the status of fatigue by studying body samples. **Christer Lindvall** mentioned IFSMA efforts to solve the fatigue problem in the past including at ILO. **Marcel** asked for a link to make contact and pass on the results. **Fritz Ganzhorn** – Hopes that this is the last project. The time is now to end discussion on fatigue and press for enforcement. He concluded his remarks by stating that the study seems to confirm that 4 on 8 off is OK - but that 6 on 6 off is not OK. **Marcel** – Commented that research shows that night hours are the most dangerous. So we should make night hours shorter. There was further discussion on this project

## **AGENDA ITEM 15 – Master-Pilot Relationship in The Electronic World**

**Presented by Dimitar Dimitrov, (BSMA)**

See page XXX of the IFSMA Annual Review 2012-2013 for the paper

See - <http://tinyurl.com/ch7y7x7> - for the presentation document.

### **Q&A**

**Peter Turner**, mentioned the Portable Pilot Unit (PPU) used on board sometimes by pilots and asked about the amount of team work on the bridge. **Dimitar** replied that it depended on the ship and the port, his port has two parts one part 1906 and the other from 1970s, in his experience there is no time to use the PPU, accidents can occur in seconds or minutes, he showed that the distances between the quays is only 200m, you can have ships of 30m width alongside. He added it might be helpful in the long canals and in reduced visibility. **Jef Cuyt** remarked that in Belgium he had the impression that the PPU are used by pilots as a private toy and that the Master and officers on the ship do not interfere with what the pilot is doing with his PPU. **Dimitar** responded that sometimes when he has a Russian Master with a Turkish helmsman he will communicate directly with the helmsman in Turkish and the Masters do not complain this is the reality. **CMMA** commented that the pilot is expected to have an independent means of fixing the vessel's position and the Master is expected to challenge the pilot especially prior to an alter course. In Australia such challenges are encouraged. **Jef Cuyt** There could be a legal issue as the crew have no idea as to whether the PPU has been approved and if it is reliable. **Dimitar** replied that through EMPA and IMPA there is now a harmonisation of standards for PPU. There are now more that 20 pilot stations

around the world that are authorised, Lloyd's Register is the body that authorises the standards.

#### **AGENDA ITEM 16 – Safety and Security Trainer**

**Presented by Willi Wittig (VDKS) [Author Claus Bornhorst of VDKS]**

See page Annex 4 for the paper

#### **AGENDA ITEM 17 – Approval of Resolutions**

##### ***Res 1/2013 Dealing with Fatigue***

Following discussions concerning other fatigue avoidance programmes, it was agreed that Project Horizon with MARTHA should take priority for this Resolution.

##### ***Res 2/2013 Qualifications for Command***

Draft wording not supported – withdrawn for the time being.

##### ***Res 3/2013 Criminalization of Shipmasters***

After discussion it was adopted.

##### ***Res 4/2013 Shipmasters Administrative Workload***

Adopted after a brief discussion.

Three AGA Resolutions were adopted, (Res 2/2013 withdrawn) – see Annex 1.

The Drafting Committee were thanked for their excellent work and given a round of applause.

#### **AGENDA ITEM 18 – Any Other Business**

1. **Jorgen Loren**, amongst other rescue and safety systems, he described a system to rescue survivors directly in their liferafts all-together as opposed to the present idea to rescue persons from liferafts one by one. These had been demonstrated in sea conditions wind 5m/sec, 3m wave and 0°C temperature. His ship has demonstrated the rescue of 39 persons in seven minutes. He also described a man overboard rescue system that works in similar conditions to recover the rescue boat and a mass rescue system. He also mentioned the sea-calming turn. He concluded by saying that development continues and that he had described only one system, and that if others also worked on developing safety systems we could improve safety at sea.
2. **Peter Turner** –informed the Assembly about a project setup where young people can learn from relevant seafaring tasks, (including seamanship, loading and navigation,) set with the chance to earn money prizes by competing with other teams; this is run in Newfoundland. The whole project is run by the Maritime Institute and supported financially by the maritime industry.

3. **Juan Gamper** – Gave preliminary information on the proposed arrangements for the 2015 AGA to be held in Chile. The formal invitation will be made at the Oslo AGA next year. **Christer Lindvall** thanked Juan for his presentation and asked him to ensure the Secretariat had all the necessary details in good time for the AGA in Oslo next year.

#### **Close of General Assembly**

The President thanked the speakers, the audience, the staff in the London office and last but not least the Company of Master Mariners of Australia for inviting us to Melbourne for this Annual General Assembly. He reminded everyone that elections will take place in Oslo next year and asked members to consider who to nominate.

Finally he wished all present a safe journey home.

**ANNEX 1****General Assembly Resolutions****IFSMA RES 1/2013 (AGA 39):**

On the occasion of the 39<sup>th</sup> AGA, the delegates of IFSMA assembled in

**IFSMA RES 2/2013 (AGA 39):**

On the occasion of the 39th AGA, the delegates of IFSMA assembled in

**IFSMA RES 3/2013 (AGA 39):**

On the occasion of the 39th AGA, the delegates of IFSMA assembled in

**IFSMA RES 4/2013 (AGA 39):**

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## **ANNEX 2**

### **AN INTRODUCTION FOR SHIPMASTERS ON MOTIVATING YOUNG MEN AND WOMEN IN PURSUING A CAREER IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

Paper presented by Capt. Raffat Zaheer BSc (Tech) Hons  
Master Mariner, FCILT, FNI, IFSMA, MMSP

#### **INTRODUCTION**

The modern day shipmaster faces many decisions about his long term career path. In today's environment, given the number of safety issues due to acts of piracy and greater emphasis placed on maintaining a good work-life balance, many shipmasters do not envisage spending their entire professional working life at sea. After a certain number of years at sea, most shipmasters strive to attain shore-based jobs. Traditionally this has meant jobs within the maritime world. But there are a limited number of jobs available in this sector and it is highly competitive. Therefore shipmasters need to broaden their scope of potential career paths and look beyond the maritime world for careers.

One industry, which is a natural fit for shipmasters, is the Logistics and Supply Chain Management industry. Shipmasters' seagoing experience is relevant to this industry and their skills are easily transferrable as well as being valuable to this sector (skills such as: organisational & attention to detail; ability to handle pressure & work to tight deadlines; IT & technology skills; communications; numeracy; analytical & problem solving; team management; motivational; commercial and flexibility).

The aim of this paper is to give shipmasters an overview on the role and importance of the Logistics and Supply Chain Management Industry so that they are better equipped to consider a career path in this industry. I will also highlight on one key challenges facing this industry today, which is the attraction and retention of qualified professionals to this industry, in particular women and youth.

#### **IMPORTANCE OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT INDUSTRY**

There has been a continuous development and evolution of the Logistics & Supply Chain management industry over the last two decades. It was previously viewed as a supportive sector to other industries but is now regarded as a strategic industry on its own. In fact, logistics & supply chain management had already become prominent and acknowledged as a critical factor of competitive advantage in several developed countries.

The expansion of the international trade and the globalisation strategy of many companies has resulted in the vital importance of the logistics & supply chain management. Reduction in total costs of goods and commodities is very important and much of this can be achieved by reducing the cost of movement of goods through effective logistics & supply chain management. Such a reduction has a profound effect on exports of goods. The aggregate cost of supply chain and logistics can be up to 30 percent of the total landed costs of goods at the destination. It is therefore important to give careful attention to the elements of logistics & supply chain management in order to reduce costs. For this reason, most organizations are

committed to investing in logistics and supply chain management resources (staff and systems).

Beyond the commercial world, effective logistics and supply chain management is also fundamental to the successful operation of Governments; Armed Forces; and Welfare Agencies.

The logistics & supply chain management industry directly or indirectly contributes an estimated 25% of most countries GDP and employs several million people.

### **WHAT IS LOGISTICS & SUPPLY CHAIN MANAGEMENT?**

The Institute of Logistics defines Logistics as “the time related positioning of resources within the supply chain”.

Academics define it as “the management of the supply chain from source of procurement to the final user”.

In more simple terms, logistics & supply chain management can be defined as:

- getting the right goods,
- to the right place
- at the right time
- at the right cost
- in the right condition
- and with due care and attention to the environment.

### **WHAT DOES LOGISTICS & SUPPLY CHAIN MANAGEMENT INVOLVE?**

Typically, logistics & supply chain management involves the design and implementation of processes & resources required to provide effective day to day management of the following functions:-

- transport
- storage & warehousing
- purchasing
- inventory/stock control
- packaging
- manufacturing management

The following infrastructure must be in place to support logistics and supply chain management:-

- Finance
- Human Resources
- Information Technology & Systems
- Safety, Health, Environment
- Education and Training

From an organization perspective, logistics & supply chain management integrates with and is essential to the successful performance in the following areas of business operations:-

- Retailing
- Production management & control
- Forecasting
- Purchasing & supply
- Materials management
- Packaging
- Installation & servicing
- Property management
- Quality control
- Order processing
- Project management
- Information technology
- Importing & exporting

## **CHALLENGES**

The following are five key challenges to logistics & supply chain management :-.

### ***Lack of skilled & trained manpower***

A growing demand for skilled professionals in this industry but the supply is not able to keep up with demand. Need to develop strategies to attract, develop and retain the workforce in this industry.

### ***Customer service***

Managing customer expectations versus the need to evaluate cost/performance tradeoffs. Need to take into account strategies for meeting new customer expectations & respond to domestic and global market growth.

### ***Cost control***

Under constant pressure to control logistics & supply chain operating costs. Need to identify proper metrics that drive total logistics & supply chain costs.

### ***Planning and Risk Management***

Must periodically be assessed and redesigned in response to risk assessments; market changes; global sourcing; new acquisitions; credit availability etc.

### ***Communication with supplier/partners***

There can be differences in understanding performance expectations and standards. Need to use a common language and framework that makes it easier to communicate, speeds benchmarking efforts, and enhances the evaluation of best practices.

## **ATTRACTING TALENT – FOCUSING ON WOMEN AND YOUTH**

As stated above, at present the demand for qualified personnel in the logistics and supply chain management sector far exceeds supply. Therefore it is critical to attract and sustain new talent in this sector.

When thinking about careers in logistics & supply chain management many people may think that the sector is simply about “trucks and sheds”. However, logistics & supply chain management offer a variety of career pathways at all levels with progression opportunities across all sectors through senior management.

In general, workforce and working patterns are changing. The working population is getting older, and increasing numbers of youth, women and people from different cultural and ethnic backgrounds are entering the workforce. Thus it makes perfect sense to target the demographics of women and youth.

Today only approx 20% of logistics and supply chain management professionals are women. 51% of the world population consists of women. Women today are entering almost every industry. Thus, there is a large pool of potential workforce available for this industry. Even in developing countries like Pakistan, we are seeing the removal of traditional “barriers” to women entering sectors such as transport and logistics. I am pleased to draw your attention to a simple but effective example a photograph published in the “International Express Tribune” Karachi on 12-02-2013 showing a Burqa-clad Pakistani woman driving an auto-rickshaw in Nazimabad, Karachi, to supplement her family income. This simple example proves the capacity & capability of woman to work in the transport field in developing countries.

Attracting women and youth talent would also improve the diversity of the workforce within the Logistics and Supply Chain Management industry. Organisations can't thrive and grow if everyone in them thinks and behaves the same way. There is a clear competitive advantage to be gained from employing a diverse workforce with people from different racial, educational and social backgrounds and a diverse age range. An organisation with a diverse range of employees is well placed to understand the needs of a wide range of customers, and can interact with a broad client base, will have better decision making and improved problem solving, greater creativity & innovation and it opens up a wealth of possibilities.

Women bring different life experiences and values to the workplace. They provide different perspectives when dealing with workplace scenarios. Some studies have shown that women are perceived to be more empathetic, with better awareness & insight into how decisions play out in the wider organization and more effective when it comes to communications & collaboration.

At present the logistics and supply chain management sector is not an industry that manages to attract a lot of fresh degree/diploma level graduates. The benefits of youth in the workplace are well documented. They bring energy into the work environment and are often perceived to be more productive than a mature workforce. In this rapidly changing world of the logistics & supply chain management industry, new elements, technologies and techniques are being introduced continuously. Young graduates are definitely more receptive to such regular changes in the industry and to adopting new techniques. Young graduates also have a shorter learning curve and can be trained in a shorter & more cost effective manner.

If the logistics and supply chain management industry focuses on attracting and retaining talent in the demographics of women and youth, they should be able to address the current shortage of skilled professionals in this industry. They need to have in place well thought out programs for induction, training and developing this workforce into dedicated professionals in the field of Logistics and Supply Chain Management. There should also be policies in place that make the work environment conducive to retaining these people in the industry.



## **ANNEX 3**

### **Criminalisation of Seafarers**

#### **An Australian Perspective**

Ernest van Buuren  
Partner Norton Rose

#### **Introduction**

In recent years, the criminalization of seafarers has become an issue of growing interest for regulators at the international, regional and national levels. Commentators such as Professor Edgar Gold observe the “growing regulatory net of bloodhounds” and the escalating legal standards which criminalise previously lawful seafarer activities. In this presentation I will briefly address a number of issues arising with respect to these developments.

Firstly, I will address whether prosecuting seafarers is the appropriate policy response to significant incidents at sea, and will underscore the lack of efforts to address accountability at the management level.

Secondly, I will briefly look at the issue of due process and fair treatment of seafarers in such prosecutions and the need for improved support and practical advice for seafarers.

#### **Targeting of seafarers for prosecution**

In April 2012, the NGO, Seafarers’ Rights International, made headlines with a survey it conducted of 3,480 seafarers from 18 countries and 68 different nationalities on their experience of criminal prosecutions. The report found that 8 per cent had faced criminal prosecutions, 4 per cent had been witnesses in criminal prosecutions, 33 per cent knew of colleagues who had faced criminal prosecutions and almost 24 per cent of Masters had faced criminal charges. The report served to reinforce the argument made by commentators such as Gold that seafarers are increasingly targeted as the “scapegoat” for maritime accidents, regardless of whether they are directly or indirectly responsible.

#### **Reasons for increase in prosecutions**

Gold attributes the increase in regulation and prosecution of seafarers to improvements in shipboard technology and better navigation and security which has led the maritime sectors to a more preventive mode. On the other hand, another author on the topic, Sarah Kirby, attributes the shift to the good publicity impulse of governments, the shipping industry being an easy target with deep pockets, and frustration regarding the failure of “flag of convenience states” to take appropriate action to prevent sub-standard shipping. Coupled with the growing shortage of skilled seafarers, the growing potential for criminal prosecution may deter qualified people seeking employment as seafarers into the future.

#### **An appropriate target? The failure to address management**

Prosecuting an individual in a casualty situation may not be the more appropriate response. As Gold explains, “as almost all accidents show, it is not usually single individuals who are to blame for what has occurred by a combination of omission, commission or error, that lies much deeper in the system”. Gold suggests that management or the shipping “Fat Cats”

should be held accountable however “in many states, the legal requirements dealing with corporate ‘crime’ are not clearly spelt out or are not appropriate for complex technical situations”. As Gold notes, the door to such prosecutions is gradually opening.

### **Regulatory landscape in Australia**

As the Australia context demonstrates, however, progress in this regard will be slow. In the Navigation Act 2012 (Cth), seafarers are still subject to a range of provisions relating to navigation carrying severe criminal penalties as well as civil penalties in the context of environmental harm, whereas management are not contemplated in the same Act.

### **Growing trend towards the imposition of custodial sentences**

It is clear that there has been a growing trend worldwide towards the imposition of custodial sentences on seafarers, with a number of Masters, chief engineers, and other sea-going personnel arrested, imprisoned or otherwise detained, under a variety of criminal law and other proceedings for extensive periods.[1]

This trend is one which has not been restricted to specific countries, and which can be clearly seen from the list of high profile cases, including Exxon Valdez (USA), Zim Mexico (USA), Erika (France), Prestige (Spain) and Tasman Spirit (Pakistan).[2] In this part of the world the prosecution of the Master and 2/0 is also another example of custodial sentences being imposed. I will discuss that later in this presentation in the context of the Crimes Act and perverting the course of justice.

### **MARPOL and UNCLOS, article 230**

In the context of pollution offences, the international conventions, MARPOL and UNCLOS, of which Australia is a signatory to, provides that other than wilful and serious acts of pollution, monetary penalties are the normal sanction for oil pollution offences occurring in the territorial sea. The principle provision is article 230 of UNCLOS, which bars coastal states from imprisoning foreign seafarers for any pollution offence beyond their territorial waters, or for one within their waters, unless involving a wilful and serious act of pollution. Articles 73 and 292 also contain rules against the unreasonable detention of seafarers and for their release against a suitable bond or guarantee.

### **IMO Casualty Investigation Code**

In addition to MARPOL, UNCLOS and the 2005 IMO Guidelines on the Fair Treatment of Seafarers, the IMO Casualty Investigation Code is also binding upon all UN/IMO members, and their investigative procedures are required to follow the Code. The overall purpose of the Code is to facilitate objective marine investigations for the benefit of the shipping sector as a whole. Chapter 12, for example, deals with obtaining evidence from seafarers, and requires that seafarers’ rights must be upheld at all times, and further that seafarers must be allowed legal advice if there is any risk of self incrimination.

However, it is important to remember that safety investigations such as MAIB, TAIC or ATSB sit outside the role of prosecutions as the purpose of those investigations is purely the advancement of safety and not to attribute blame.

[1] Edgar Gold, ‘Commentary: The fair treatment of seafarers: An update on international development’ (2008) 160 Maritime Studies 15.

[2] John Hare, 'Criminalisation & Fair Treatment of Seafarers – Punishable Miscreants or Political Pawns' (September 2011), The Nautical Institute, Command Seminar.

Circumvention of article 230 by imposition of "holding charges"

The Comite Maritime International has observed that States have been failing to comply with their treaty obligations under UNCLOS, particularly article 230, by imposing custodial penalties where it is expressly ruled out, despite inadequate justification for detention.[1] In order to circumvent obligations under article 230, the IMO suggests that "holding" charges are levelled at detained seafarers, which are unrelated to pollution but which carry a custodial sentence, in order to oppose repatriation. The Baltic and International Maritime Council Organisation (BIMCO) notes that legitimate fair laws are used to enforce a more severe liability regime that is in direct contrast to obligations under international law.[2]

### **Policy choice influenced by political tension**

The path taken by many of these countries reflects a policy choice influenced by political tension. It is clear that in the context of marine accidents, administrative or criminal action for damage resulting from a maritime accident against those considered to have been at fault, or otherwise negligent, is resorted to more frequently today.[3] In 2005, CMI conducted a questionnaire on the fair treatment of seafarers and of the 23 countries questioned, only three countries, Norway, Denmark and Chile, responded that their jurisdictions' maritime accident and pollution investigative process did not contemplate the imposition of criminal charges.[4]

### **Legislative scheme in Australia**

In Australia, there is a variety of legislation that could lead to sanctions being taken against seafarers, both in relation to marine pollution but also other offences, including under the Navigation Act 2012 (Cth), which commences on 1 July 2013; the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth); the Crimes Act 1914 (Cth), the Great Barrier Reef Marine Park Act 1975 (Cth), and the Environment Protection and Biodiversity Conservation Act 1999 (Cth).

In relation to pollution offences under both the Navigation Act and the Prevention of Pollution from Ships Act, the Master of the vessel will face monetary penalties only. Recklessness or negligence is the fault element under the Navigation Act that must be proven.

However, under the Great Barrier Reef Marine Park Act, custodial sentences may apply to seafarers, for example, section 38DA, which provides that a person in charge of the vessel in the Marine Park which causes damage to the environment could face imprisonment of up to 3 years. In addition, under the Environment Protection and Biodiversity Conservation Act, foreign nationals suspected of committing an offence under the Act may be detained for up to 168 hours while being investigated for the suspected offence.

### **Sheng Neng 1 case**

The Sheng Neng 1 case illustrates that Australia is part of the trend towards the imposition of custodial sentences on seafarers. In that case, the chief officer of the vessel, was sentenced to three months in custody and the Master fined \$25,000 for what was the "worst environmental shipping disaster" on the Great Barrier Reef.[5] The 225m long Sheng Neng 1 caused

damage to 400,000 square metres, the equivalent of 58 football fields. The prosecution submitted that the chief officer had been on duty less than an hour and had failed to change course. The chief officer pleaded guilty to being in control of a vessel causing damage in a marine park, the Master to the charge of causing damage to a marine park.[6] At the time, Prime Minister Kevin Rudd said that the government was to “bring to account those who are responsible”. [7] It is clear therefore, that seafarers will not be immune to being sentenced to custodial sentences in Australia, despite Australia being a signatory to both MARPOL and UNCLOS.

[1] IMO, ‘Fair Treatment to Seafarers in the Event of a Maritime Accident: Application of article 230 of the United Nations Convention on the Law of the Sea (UNCLOS)’ LEG97/6/2, 1 October 2010, 2.

[2] BIMCO, Study of the Treatment of Seafarers, LEG97/INF.3, Annex September 2010.

[3] IMO/ILO WGFTS 2/3, Annex 2.

[4] John Hare, ‘Criminalisation & Fair Treatment of Seafarers – Punishable Miscreants or Political Pawns’ (September 2011), The Nautical Institute, Command Seminar, 11.

[5] <http://www.heraldsun.com.au/news/national/court-told-grounding-of-bulk-coal-carrier-shen-neng-1-on-the-great-barrier-reef-could-have-been-avoided-by-a-competent-weekend-fisherman-chief-officer-xuengang-wang/story-fndo45r1-1226503996680>.

[6] <http://www.abc.net.au/news/2012-11-14/captain-fined-25k-over-shen-neng-oil-spill/4370828>.

[7] <http://www.telegraph.co.uk/news/7559272/Ships-using-Great-Barrier-Reef-as-rat-run.html>.

## **Rena – brief discussion**

### ***Crimes Act 1914 s 43***

Seafarers may also face criminal prosecution for conduct involving, for example, the altering of navigational records, under the Crimes Act 1914 (Cth) for perverting the course of justice. International conventions such as UNCLOS would be of no assistance in preventing the imposition of a custodial sentence in such circumstances as the offences do not relate to marine pollution.

### ***Absolute liability offence***

Section 43 of the Act is an absolute liability offence, the result being that a seafarer will commit an offence if they attempt to obstruct, prevent, pervert or defeat the course of justice in relation to the judicial power of the Commonwealth.[1] The maximum custodial sentence for such an offence is imprisonment of 10 years. Similar provisions exist at state level, for example under the Crimes Act 1900 (NSW), and in common law or statute in other states.

### ***Section 11.1(1) of the Criminal Code 1995 (Cth)***

Perverting the course of justice means to adversely interfere with the due exercise of a court of competent judicial authority in the exercise of its jurisdiction.[2] Although this does not include police investigations, an act done during a police investigation that has a tendency to interfere with possible future judicial proceedings and is done with the intention to so interfere, could constitute an attempt to pervert the course of justice.[3] Section 11.1(1) of the Criminal Code (Cth) provides that a person convicted of an attempt to commit an offence is liable to punishment as if the attempted offence had been committed. Importantly, the offence

includes fabricating evidence, and as such, it may be that the altering of navigational records and log books could result in an offence being committed.[4]

### *Navigation Act 2012*

In addition, the Navigation Act also creates offences in relation to destruction, mutilation, or knowingly making false or fraudulent entries or omissions in a vessel's official logbook. The Act provides for both a criminal and civil offence, the criminal offence being imprisonment for 12 months, or 60 penalty units, or both.

In summary, although their rights are enshrined in customary International Law, UNCLOS, MARPOL and the IMO/ILO Guidelines, detaining ports or coastal states continue to contradict provisions in these instruments and impose custodial sentences. It may be, that in relation to pollution provisions under the Navigation Act and Prevention of Pollution from Ships Act, seafarers face monetary penalties only. However, as argued by Captain Richards A Coates FNI in the 2010 Boulton Lecture, in cases concerning damage to the marine environment, "the full weight of the law is mobilised immediately".[5] Seafarers may, in Australia, nevertheless find themselves subject to criminal charges.

[1] S 43(1).

[2] See *Meissner v R* (1995) 184 CLR 132 at 148.

[3] See *R v Rogerson* (1992) 174 CLR 268 at 277 per Mason CJ, at 281-4 per Brennan and Toohy JJ.

[4] *R v St Jean and Death* (1903) 20 WN (NSW) 211.

[5] <http://www.mastermariners.org.au/about-us/boulton-lecture/2010-boulton-lecture>.

Seafarers are not alone when it comes to the threat of criminalisation and imprisonment arising from their employment. I will briefly examine developments in 2 different areas of the law which have some similarity to the risks faced by seafarers, namely in the areas of Occupational Health & Safety and land based environmental offences.

On 1 January 2012, a largely harmonised work health and safety legislation was introduced in the Commonwealth, New South Wales, Queensland and the Territories with the remainder of the States following with similar legislation.

One of the key changes introduced by the work health and safety legislation was the inclusion of the definition of 'reasonably practicable' into the legislation. In addition, the scope of the legislation has broadened the responsibility to imposing duties on a person that conducts a business or undertaking (PCBU) to ensure that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.

Recent prosecutions from the UK demonstrate how we can expect the duty to other persons to be expansive and how it is to be applied in Australia.

### **Jowett's case**

Mr Jowett, a plumber, carrying out illegal work on domestic gas appliances and was sentenced to a six month custodial sentence. Mr Jowett falsely told householders he was registered on the Gas Safe Register and used an invalid registration number. In spite of a written Prohibition Notice issued by the Health and Safety Executive on 22 April 2010, Mr Jowett continued to work on gas appliances.

The Court heard that examples of Mr Jowett's work were assessed to have been so unsafe as to represent an immediate danger to life or property.

Mr. Jowett admitted to breaching the Health and Safety at Work Act 1974 (UK), for contravening the Prohibition Notice and also admitted to four offences for carrying out gas work whilst unregistered.

In handing down sentence, His Honour Judge Thompson said that "the offences are far too serious for anything other than an immediate prison sentence. "[Mr Jowett] put the public and private individuals at risk and...did that in a reckless fashion."

### **Lessons for Australia**

Offences under the work health and safety legislation are graduated, based on the seriousness of the offence. In order to fall within the most serious category of offence, an element of recklessness must be involved. Jowett's case demonstrates the type of action that would fall within that category.

Under the new Australian laws, custodial sentences of up to five years may be imposed on a PCBU. In addition, monetary penalties of up to \$600,000 may be imposed on an individual who conducts a business or undertaking. Jowett's case demonstrates that, internationally, the Courts take a firm line with respect to sentencing offenders against work health and safety legislation. Australia can expect a similar approach to be taken, especially for those offences where reckless conduct is involved.

Although the Land and Environment Courts in Australia regularly determine pollution related matters in their criminal jurisdiction, it is very rare for custodial sentences to be given. In a recent decision in NSW, Justice Pain found the operator of a waste transport business guilty of contempt for disposing of waste at places that were not approved, and sentenced him to 3 months in prison. The sentence was ultimately suspended for 3 months on condition that he enter into, and comply with, a good behaviour bond. He was also ordered to pay the EPA's costs.

This case however demonstrates the increasing scrutiny that the EPA is placing on waste, and waste transportation, and the seriousness that the Court places on such offences, particularly where asbestos is involved.

So now I briefly turn to the 2nd part of the presentation, how is due process being observed for seafarers

### **Fair Treatment – recent survey results**

A particular issue in relation to criminal prosecutions of seafarers is their treatment in investigations. In the Seafarer Rights' International survey, 80 per cent who faced criminal charges said they felt intimidated or threatened and 81 per cent said they did not consider they had received fair treatment. The report further disclosed that 87 per cent of those charged did not have legal representation, 91 per cent were not provided with interpretation services where needed and 89 per cent did not have their rights explained to them.

## International Responses

The international community sought to respond to this issue with the release of the International Maritime Organization (IMO)'s Guidelines on fair treatment of seafarers in the event of the maritime accident in 2006. The IMO guidelines were premised on the notion that seafarers were in a special category and needed special protection, given the global nature of the shipping industry, and that protection was necessary to avoid the financial, physical and emotional burden which prolonged detention inflicts on seafarers and their families. Nevertheless the Guidelines need to be promoted and incorporated into domestic legal systems for these standards to improve the treatment of seafarers.

## Protections needed

On a practical level, seafarers also need to be afforded legal advice so they can properly understand the legal obligations they face in order to protect their interests, for example in questioning, bringing about a speedy trial, re-joining their ship until trial and avoiding pre-trial detention. When facing criminal charges seafarers would also benefit from a safety net, including the support of ship owners, insurers and competent lawyers.

## Conclusions

- ***Criminalisation is a common feature for seafarer risk***
  - Custodial sentences feature regularly despite prohibition article 230 UNCLOS
- ***Aggravated offences***
  - Sheng Neng 1
  - acts falling outside pollution offences - Crimes Act & Navigation Act perverting course of justice
- ***Trends in other areas - harmonised OH&S laws***
  - extend to persons who conduct a business or undertaking
  - “reasonably practicable” obligations (Jowett’s case on recklessness – 6 months imprisonment)
- ***ISM Code and the “fat cats”***
  - difficulty of causation
  - systemic root cause analysis of incidents - TAIC
- ***More to do***
  - ensure support for seafarers

## **ANNEX 4**

### **Safety and Security Trainer (SST)**

– A new way to prepare crews managing emergency situations –

Dipl.-Ing. Claus Bornhorst

Vice President Sales Maritime Account Simulation Products

Emergency Response, Crew Resource and Crisis Management are one of the most important parts in the education and training of nautical officers and engineers. The increasing size of cargo and number of passenger ships, decreasing number of crew members, highly complex electronic support systems and additional threats in some dangerous waters necessitates better preparation for unforeseen maritime emergency cases at all times. This can also be seen in the new Manila Amendments coming into force on 1 January 2012. But how can crews be prepared and trained accordingly, without complex and costly training scenarios, because especially the right behaviour and communication under stress situations in regard to maritime emergency cases like fire on board, water inrush, evacuation or maritime piracy is difficult to be trained.

It is already accepted worldwide, that modern simulation systems can support training more effectively, intensively and economically. Therefore recently Rheinmetall Defence Electronics introduced a totally new type of simulator which is perfectly matched to these requirements – the new “Safety and Security Trainer SST”. This simulator is focused on management and decision of emergency scenarios and provides exercises which have to be managed by an emergency team under conditions close to reality. The system is based on 3D serious gaming technology and provides a high degree of realism. The main goal of this simulator is to train how to analyse, decide, conclude and communicate in emergency situations.

#### **1 INTRODUCTION**

For some years, besides the typical threats of fire and water inrush, the greatest risks at sea are maritime terrorism and piracy. Therefore safety and security issues are thus a high priority, as also shown in the new STCW Manila Amendments with its considerably tightened safety and security requirements signed recently.

Among others this results in a growing demand for training and education in this field. Universities, academies and other education centres as well as companies operating in the maritime environment have to prepare themselves to manage all kinds of maritime emergencies. Especially an increasing demand on emergency training providers is recognisable, to ensure that, in the event of an emergency situation, the onboard management level is capable to make the right decision just in time. In this context, damage limitation can only be realised, if competent crisis management is enacted by the crew. But how can the crews prepare themselves for these emergency situations that will hopefully never occur? How can the cooperation between nautical and the technical crew be practised? In the course of conventional practical safety training, the focus is more on practical handling of safety equipment, whereas until now team training at management level has only been possible in classrooms. At this point the new generation of simulator provides a significant improvement. In a crisis situation, the following skills are required from the leadership on board:



- fast competent action
- correct appraisal of the situation
- effective communications structures
- a strategy to maintain operation of the ship
- protection of persons and the environment

The most important aspect in managing a crisis is a fast, communicative and professional collaboration of the crew members. Each crew member must know and fulfil his function in accordance with the safety role. However, this can only function, if the command structures, safety and security processes and communications are clear and established.

In a crisis situation, each crew member must immediately remember safety rules and processes and has to act accordingly. This can only be achieved again and again if preservative safety exercises are carried out frequently and as close as possible to reality. But in times of economic pressure and rationalisation, these safety exercises cannot be carried out as frequently as necessary. Furthermore, in many safety exercises the situation is not close enough to reality, crew members are not taking it seriously and stress is missing, which makes it more difficult to act correctly in a crisis situation.

In order to provide a solution by means of a high fidelity and professional simulation system Rheinmetall Defence Electronics GmbH / Germany started the design and development of its Maritime Safety and Security Trainer SST

Today RDE is able to offer the first holistic training and education system for Safety and Security at Sea. The concept covers nearly all aspects of Safety and Security like fire on board, inrush of water, collision, running aground, Man/person Over Board (MOB), evacuation, damage/destruction of ship, hi-jacking or seizure, attacks, use of ship to cause incidents or as a weapon etc.

The system provides a perfect combination of simulated emergency scenarios including introduction of technical malfunctions and a most realistic training environment.

The new Safety and Security Trainer SST comprises amongst others the following highlights:

- covers all ISPS required training aspects, from Advanced Fire Fighting to Ship Security / Company Security Officers Training and Crowd and Crisis Management
- is in accordance with new Manila Amendments
- Safety and Security Trainer can be configured in two different modes: team training and individual student training
- modern 3D visualisation of training platforms based on serious game engine, e. g. container vessel or Ro/Pax ferry
- own ship model can be tailored to customers' requirements
- for greater lasting effects of training, debriefing with replay of exercises and assessment is possible

The Safety and Security Trainer SST can be configured for team training or individual student training. In team mode the students are situated on one and the same ship, so communication, interactions and decision making of an emergency situation can effectively be trained. Alternatively to a team, students can individually train their skills in their own exercises on their own ship.

Access to every deck by a detailed graphical 3D representation, complete functional systems (electrical systems, engines, rudder, etc), communication possibilities as aboard a real ship and everything in real time characterises the major functionalities of the simulator.

## **2 SST CONFIGURATION**

Onboard most ships the crew, involved in managing emergency situations is organised in a bridge team, ship safety office and local teams. This kind of organisation was the model for the SST and is reflected in corresponding SST installations: instructor and trainee workstations organised in bridge, safety office and local teams. Each station consists of two monitors, one being the situation monitor, the other being the action monitor, keyboard and mouse to guide a virtual person and a headset for communication.

The instructor, who is setting-up the simulator, preparing, starting and monitoring the exercise as well as conducting the debriefing afterwards, can start the system in different modes: team training or student training.

In team training the same assignment is used as on-board, one workstation for the bridge team, one for the ship safety office and several for the local teams. In addition the instructor can also participate in the exercise, e. g. as an additional crew member, passenger or as a shore based unit. In student training, each trainee has to act on his own and has to manage the task by himself. He is assigned to a ship and he has to play all roles. In both modes he can introduce malfunctions and controls the entire communication, including recording of data and communication.

## **3 EXERCISE PLATFORM**

The SST is based on a virtual 3D ship model. Currently, two models are available, a 4500 TEU container carrier and a combined RoRo / Passenger ferry. Both ships are fully modelled (all desks) and type free, which means, the ships are in accordance to real ships, but not representing a specific one (if requested, specific ships can be modelled).

Each trainee, assigned to a workstation, is representing one crew member. The crew member is guiding a virtual person called an avatar. By using the key-board and the mouse, the trainee is able to direct his avatar through the ship, executing operations, like analysing sensors or using fire fighting components etc. During the whole exercise, every crew member is able to communicate accordingly, either directly, by intercom or walkie-talkie.

## **4 COMMUNICATION**

A sophisticated VoIP (Voice over Internet Protocol) Communication system allows communication as in reality. Crew members can talk to each other, if their avatars are located in the same room. If not, communication has to be done by intercom or walkie-talkies, if the avatar is equipped with one. Also public announcements can be done. The complete communication is recorded and can be used for detailed debriefing.

## **5 PHYSICAL MODELS**

The backbone of the complete SST simulation is various mathematical/physical models. The highest goal of the development is, to simulate all processes as close to reality as possible, in order to provide the most realistic training environment. Main physical models are for:

- ship systems
- automation systems
- fire, incl. smoke
- fire extinguishing
- sensors
- water in rush, incl. stability
- human health
- safety equipment

Derived from RDE's well known and mature Ship Engine Simulator SES important ship systems (e. g. propulsion, ballast system, power supply) are implemented, completed by various automation systems.

The fire model is based on thermodynamic calculations allowing a fire simulation close to reality. Oxygen and CO are taken into account as well as propagation, thermo conductivity and other effects. For example this results in effects like flash over and back draft. Fire on board can be extinguished with different fire fighting material. Water, foam and powder are at the trainee's disposal as well as CO and FM 200. A60 walls and doors are modelled and implemented. The complete ship model is divided into fire cells. Each fire cell can be programmed by the instructor, in relation to the kind of material, amount of material, start of fire etc.

Cracks or holes can be defined by diameter or length. Water inrush has influence on stability, the ship can capsize or even sink. Safety measures like water tight compartments, bilge pumps or the ballast system can be used and operated. The health status of the avatar is continuously indicated and if a trainee is not taking care, the avatar can be seriously injured or be killed.

Typical safety equipment is modelled, up to a water drenching system (Ro/Pax). A lot of protection and counter activities can be selected like fire hoses and extinguisher, CO system survival suit and even gas detectors.

## **6 SAFETY AND SECURITY PROCEDURES**

Apart from already mentioned safety processes like fire fighting and water inrush other accompanying procedures like evacuation and security related processes can be trained. To support these functions a ship security alarm and a ship security room is modelled. The crew can train how to behave in case of a security threat. In addition protection suits, explosimeter and gas detectors can be used in order to train search and rescue routines in order to identify explosive or toxic materials.

## **7 INTERFACE AND SUPPORT SYSTEM**

To make the SST even more valuable, the system can be interfaced to other simulation systems. A Ship Handling Simulator can be connected as well as a Ship Engine Simulator. This allows even more complex team training scenarios e. g. for Emergency Response Training.

Furthermore SST can be linked to an original Decision Support Systems, e.g. MADRAS, a product produced by the German company MARSIG. Together with these components, high-

level emergency team training can be conducted providing the highest value for training and the crews.

## **8 REGULATIONS AND CERTIFICATION**

SST was designed in accordance to STCW 95 and takes into account the recent Manila Amendments, ISM/ISPS and SOLAS regulations. The system is certified by Germanischer Lloyd and DNV and was achieved with the support of the University of Applied Science Wismar / Warnemuende and company MARSIG mbH, both located in Germany.

## **9 CONCLUSION**

Until today there is no comparable system on the market, providing maritime Safety and Security training for management levels. SST provides an unique and holistic concept for emergency training and assures all users a high standard of qualification without complicated, complex, time-consuming and costly simulation set-ups. SST opens a new door for modern and efficient training, provides professional trained crew members, protecting human life and valuable cargo as well as the environment against injuries and damages.

Rheinmetall Defence Electronics (RDE) is an internationally recognised supplier for the development of state-of-the-art systems and products for maritime applications and efficient simulation and training systems. The simulation systems cover the entire range of simulation systems - from Computer Based Training (CBT) to full mission simulators, including part task trainers, tactical simulators and appropriate courseware.

Within the business division Simulation and Training RDE offers a wide range of simulators for merchant marine and naval applications, including navigation and radar simulators, marine engineering and heavy lift and offshore simulators. Experienced in manufacturing and installation of Integrated Maritime Training Centres RDE's simulators provide students, trainees and seafarers in Europe and around the globe with an excellent environment for initial and advanced training. RDEs simulation systems exceed customers' demands, requirements and official regulations.