

**Agenda item 9 – IALA TECHNICAL ACTIVITIES**

**9.5 VTS**

**9.5.2 Documents to note**

***9.5.2-3 Report of the IALA Seminar on Simulation in VTS Training***

**Note by the Secretariat**

**1 SUMMARY**

This workshop was held on the use of simulation in VTS training at MARIN, Wageningen, the Netherlands between 9 and 13 September 2013. There were 13 conclusions and 10 recommendations (annex E). The document starts with an executive summary.

**2 ACTION REQUESTED**

The Council is requested to Note.



## **Report of the IALA Seminar on Simulation in VTS Training**

## **Executive Summary**

A seminar on the subject of Simulation in VTS Training was held at MARIN and Hotel Hof van Wageningen in Wageningen, the Netherlands between 9 and 13 September 2013. A Technical Tour was made to the VTS Centre of the Port of Rotterdam in Hook of Holland. There was also a Technical Tour of MARIN.

The seminar was kindly sponsored by MARIN, NNVO and the Port of Rotterdam.

The seminar was attended by fifty delegates representing twenty countries (see Annex A).

The seminar aims were to:

- promote best practise in VTS Simulator training;
- demonstrate how simulator training may be established and
- provide input to the review of Guideline 1027 - Simulation in VTS Training.

With the purpose to:

- present the use of simulation as a training tool;
- information exchange on VTS Simulation training;
- new developments in VTS simulators;
- measurement of simulator training effect;
- emergency preparedness - proactive approach;
- preparing exercises and
- evaluation / debriefing / assessment

The workshop broke into ten Training Groups

The social programme consisted of a workshop dinner on the second evening and seminar drinks on the fourth evening.

The conclusions reached by the workshop are at ANNEX E.

The conclusions, recommendations and other issues identified by the workshop will be considered for the VTS Committee's 2014 – 2018 Work Programme at VTS37 (September 2013).

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## IALA SEMINAR ON SIMULATION IN VTS TRAINING

### 3 INTRODUCTION

A seminar on the subject of Simulation in VTS Training was held at MARIN and Hotel Hof van Wageningen in Wageningen, the Netherlands between 9 and 13 September 2013. A Technical Tour was made on 11 September to the VTS Centre of the Port of Rotterdam in Hook of Holland. The seminar was kindly sponsored by MARIN, NNVO and the Port of Rotterdam.

Fifty delegates, representing twenty countries attended the workshop.



A list of participants is at ANNEX A.

This report will be available on the IALA web site [www.iala-aism.org](http://www.iala-aism.org) : Publications – Reports and Proceedings.

All presentations form part of the output of the workshop and are posted on the web-site of MARIN: [www.marin.nl](http://www.marin.nl) .

The workshop's programme is at ANNEX C

#### 4 PRE-MEETING

Before the Seminar started, a pre-meeting was organised to investigate the status of the organisation which was a co-operative task of the IALA's VTS Committee Steering Group (SG) and the Dutch Steering Group (DSG).

The members of the SG and the DSG are:

	Name	Organisation / Country	
1	Tuncay Çehreli	DGCS / Turkey, VTS Committee Chairman	SG
2	Neil Trainor	AMSA / Australia, seminar Chairman, vice chair VTS Committee	SG
3	Jean-Charles LeClair	Dean IALA WWA	SG
4	Cees Stedehouder	MARIN	SG/DSG
5	Lilian Biber Kleber	NNVO	SG/DSG
6	Terry Hughes	Trinity House, Chairman Personnel and Training WG3	SG
7	Raymond Seignette	Port of Rotterdam Authority	SG/DSG
8	Neils Jacob Mygind	DMA	SG
9	Michael Card	Deputy Secretary-General, IALA	SG
10	Mike Hadley Wim van der Heijden	IALA, TCM (Secretary) (until July 2013) IALA, Secretary VTS Committee (aft July 2013)	SG/DSG

#### 5 SESSION 1 – OPENING OF THE VTS SIMULATOR TRAINING SEMINAR

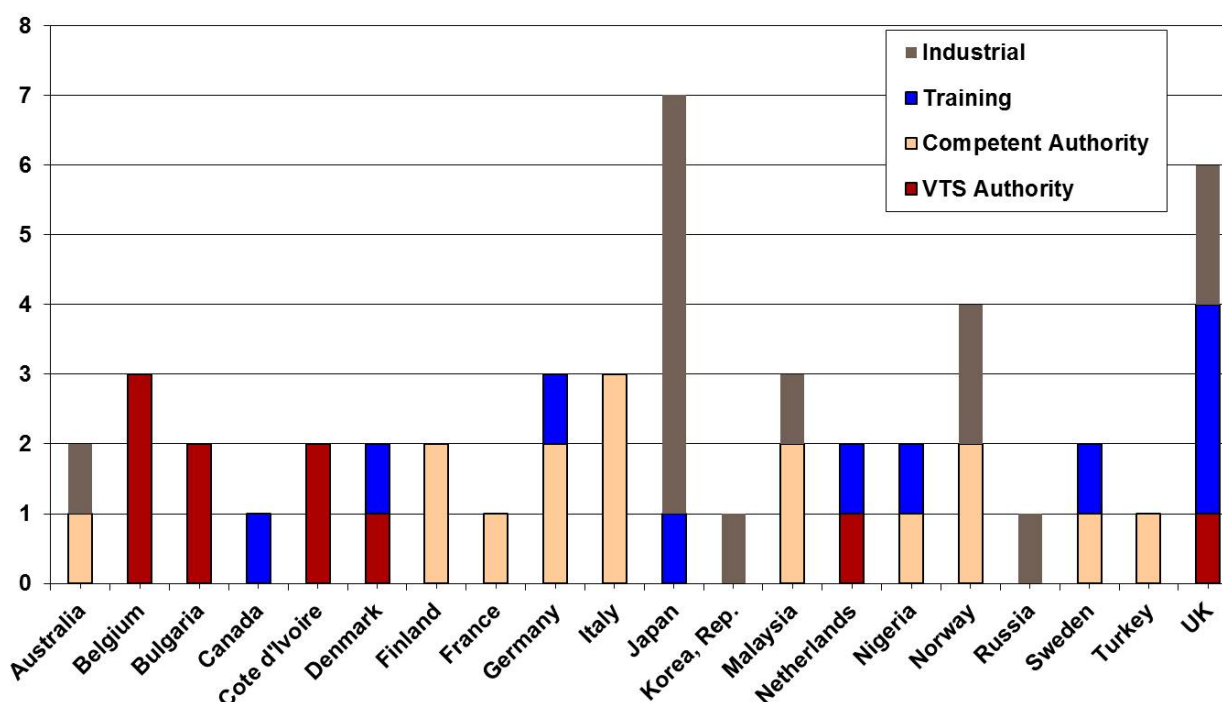
**Neil Trainor**, AMSA and Vice Chairman of the IALA VTS Committee and Chair of the Seminar and this session, welcomed participants to the IALA Seminar on Simulation in VTS Training on behalf of IALA and thanked MARIN, the Dutch VTS Operator Training Foundation (NNVO) and the Port of Rotterdam Authority for their efforts over the past 12 months in bringing the Seminar together in conjunction with IALA.

Advising that the Seminar had attracted well over 50 participants from over 20 countries he concluded that it could be safely assumed that this reflects the growing use and importance of simulation in VTS to provide:

- effective and realistic training to VTS, and
- a means for evaluating VTS personnel
- On-the-Job training / Refresher training

Further, the breakdown of participants was well distributed between participants from VTS Authorities/Centres (10), Competent Authorities (16), training organisations (10) and software/hardware providers (14). This provides an excellent mix of expertise and experience to facilitate a successful seminar.

In addition, he stated that emerging technologies, increasing needs from stakeholders and increasing public expectation regarding the benefits of VTS is placing an increasing demand for simulation training in VTS.



To assist IALA in evaluating the delivery of seminars and workshops to meet developing needs and expectations participants were asked to complete the brief questionnaire regarding the items highlighted in the Seminar Brochure regarding the:

- Benefits participants are expected to obtain
- Seminar Goals, and
- Purpose of the Seminar

Further, two inputs were also highlighted for consideration by participants during the Seminar. These included:

- Firstly, noting that simulation has long been used as a safe and effective means of providing realistic training to ship based personnel there may be opportunities to lever off the Convention on the Standards of Training, Certification and Watch keeping (STCW). With regards to simulation, the convention provides regulation, standards and guidelines for use of simulators'. Copies were made available.
- Secondly, a recent publication from the Nautical Institute entitled "*A Simulations Instructors Handbook – A practical Guide*" (Jillian Carson-Jackson).

In concluding, participants were wished a successful workshop and the speakers for session 1 introduced in turn.

### 5.1 Welcome from MARIN and opening remarks

Mr **Bas Buchner**, President of MARIN opened the workshop by welcoming everyone. He explained what MARIN does. MARIN helps the maritime sector by model tests, training, monitoring and simulation programs. If you combine these 4, then you have a realistic view. An important aim for this IALA conference is the VTS simulation. Later this week we visit the simulator.

### 5.2 Welcome from IALA and opening remarks

**Captain Tuncay Çehreli**, DGCS and Chairman of the IALA VTS Committee, welcomed the delegates to the seminar. He noted that the importance of VTS grows every day e.g. caused by.



Increasing use of innovative equipment. Human error is a huge problem for 'smart' vessels, but also for VTS. It is important to know this now, but also for the future.

His speaking notes for the opening session are at ANNEX F.

### 5.3 Seminar Aim and Objectives

After a short Administrative and Safety briefing of Cees Stedehouder, MARIN, **Terry Hughes**, Chairman of the IALA VTS Committee's Training and Personnel Working Group, outlined the aims and objectives of the seminar.

The seminar aims were to:

- promote best practise in VTS Simulator training;
- demonstrate how simulator training may be established and
- provide input to the review of Guideline 1027 - Simulation in VTS Training.

With the purpose to:

- present the use of simulation as a training tool;
- information exchange on VTS Simulation training;
- new developments in VTS simulators;
- measurement of simulator training effect;
- emergency preparedness - proactive approach;
- preparing exercises and
- evaluation / debriefing / assessment

Simulation can take many forms from table-top to dedicated computer systems. However you can have the best simulation in the world, but you need a good instructor and instruction to benefit from the simulation.

Simulator exercises are not easy to make, because they need to be realistic.

It is important to have IALA Guideline 1027 this seminar and remember **this is your seminar**.

## 6 SESSIONS 2 – PRESENTATIONS REGARDING THE KEY QUESTIONS

The session was chaired by **Jos van Doorn**, MARIN manager MSCN.

### 6.1 Introduction to the key questions and their speakers

The session chair highlighted 7 purposes of simulation in VTS training:

- Present the use of simulation as a training tool.
- Information exchange
- New developments in VTS simulations
- Talk about emergency preparedness
- Preparing exercises
- Evaluation, debriefing and assessments

### 6.2 World Wide Academy and their view on VTS Simulator Training

R-Adm. **Jean-Charles LeClair**, Dean IALA WWA, presented the IALA World Wide Academy. In the beginning only a few organisations were training according to the IALA standards, but today there are 20 organisations accredited according to IALA.

The IALA World Wide Academy is the vehicle by which IALA delivers training and capacity building. The academy itself does not deliver training. The academy promotes the work of the IALA Committees.

The academy deliverables capacity building – the 4A's: Awareness, Assessment, Analysis, Actions.

He drew attention to the following developments:

- IMO audit soon become mandatory.
- The tools are more complex and sophisticated.
- Evolution towards global monitoring maritime domain awareness: different types of VTS
- Evolution towards mandatory training: increase number of trainees.

**Questions to think about:**

- How to develop training facilities?
- Move the trainees or move the trainers?
- Funding?
- Portable simulator/use of internet?

Accreditation process for the simulation part (IALA Guideline 1014 and 1027)

### **6.3 Simulation as a training tool in Dutch Air Traffic Control**

**Jurgen van Avermaete**, LVNL, explained simulation as a training tool in Air Traffic Control (ATC). There are different simulators for different tasks. You don't need a complex simulator for a difficult task.

The training process for ATC begins with the competent staff. They have a competence check. After this competence check they continue, re-train or do additional training.

If someone retires there is an initial training for upcoming traffic controllers (1 year). Then they go to the unit training (2 to 3 years).

Every three years instructors are trained

*Growing use of simulation, why?*

1. Didactical:
  - It gives us the opportunity to control the gradual growth competence scheme. You can add elements much more gradually.
  - You can have several solutions for one situation. In the simulator you can see what happens if an instructor does not intervene. In real life an instructor will intervene earlier.
  - Remedial training. If there is an area where the traffic controller has problems, he can practice this area at the simulator.
2. Exposure to traffic situations
  - Complexity traffic
  - Crisis and emergency training
3. Standardizing training
  - Availability of training seats. There are limited seats on the workplace.

**Expected results**

- Reduction of On the Job Training (OJT) time
- Standardised performance on competence scheme
- Increased success rate
- Better pass/fail decisions

**Requirements on simulator**

- Licensed operator
- Organisation
- Training process
- Instructors
- Simulators (simulator fidelity)

Zero OJT not to be expected. You need the time behind the scope, to feel what it means.

## Conclusions

- Growing need for use of simulators
- Simulator fidelity needed depending training use.
- Growing regulatory requirements
- Face validity discussions may reveal hidden task aspects

Add simulator modification to standard change project deliverables.

## 6.4 Measurement of simulator training effect and situational awareness

Dr **Erik Wiersma**, consultant on Human Factors, asked the question: What next? How effective is simulator training (Situational Awareness).

*What is situational awareness (SA)?*

The perception of elements in the environment within a volume of time and space. The comprehension of their meaning, and the projection of their status in the near future. The VTS-operator needs skills, knowledge, competences, but also needs to know his surroundings.

*SA in VTS simulators*

If the communication and the ships are moving in a realistic way, the VTS-operators found it easier to believe the simulation.

It is important to integrate SA in the training program as an aspect of an VTS-operator.

*SA and simulation training*

- SA is important for the VTS-operator
- SA can be trained and evaluated in a simulated environment,
- Maintaining SA is not a stand-alone skill.

## 6.5 Benefits of VTS Simulator Training - 1

**Tom Dehmel**, Hochschule Wismar, Germany, came with the next question: What is the benefit of simulation?

The best way of learning is doing the task.

Experiential learning cycle:

1. Do it
2. What happened (results)
3. So what (what do these results imply)
4. Now what (what will I do differently next time).

By simulation you do these steps very fast. Faster than in reality.

A simulator provides a working/learning environment which is/should be:

1. Artificial & Controlled: simulation is a working representation of reality (where reality is too expensive, too complex, too slow, etc.). A course of events cannot be precisely planned over the whole exercise run time, because a trainee can take a decision you never expected, an exercise is never ready.
2. Realistic: the outer world, the VTS technical system, VTS centre/watch needs to be realistic.
3. Interactive

Elements of competence which can be addressed by VTS simulator training: knowledge (VTS area topography), basic skills (handling of equipment, logkeeping), procedures, communication skills (80% of the game for VTS), problem detection & problem solving, team skills, meta-skills (motivation, attitude).

In VTS the reality is 'boring'. The training scenario would be useless if you only train in reality.

Conclusion: it's only a tool. It's the instructor who makes it effective.

## 6.6 Benefits of VTS Simulator Training - 2

**John Hewett**, South Tyneside College, UK stated the third question: How can we make VTS simulation beneficial?

Benefits:

- It is important to have a good simulation fidelity to prevent that people think it is only a toy.
- The trainees who act as vessel operators gain experience as the receivers of VTS information
- Trainee operators are observed by an instructor and nominated observer from within a group
- Debriefing takes the form of a pan overview of the exercise scenario accompanied by voice playback.
- During the debrief feedback is given from the instructor, observer, and the people in the outside world.
- ANY EXERCISE YOU RUN → THE MOST IMPORTANT PART IS THE DEBRIEFING!

Mistakes equals learning: Making mistakes in the real world the consequences can be catastrophic. Other than pride, there are no consequences in VTS simulation. But: Only if you admit the mistake it equals learning.

End of Day 1

## 7 SESSION 3 – PREPARATION REGARDING SIMULATOR TRAINING

The session was chaired by **Neil Trainor**.

After some administrative and safety information Cees Stedehouder introduced 3 working steps for today:

1. Developing/research training objective
2. preparation exercise
3. implementation exercise

### 7.1 VTS and Simulation

**Terry Hughes** Reviewed V103 Operator Training (last edition 2009): This is a standard for VTS Training. It contains 8 modules. In these modules you can use different methods of simulation like: desktop, whiteboard, personal computer, presentation, radio, radar/ARPA, bridge simulators, VTS, simulators.

There are different definitions of simulators by IMO and DNV for different Simulators (like special task simulator, full mission simulator).

Organisations that are approved for STCW are using RADAR, because this is mandatory for STCW.

Different simulators were highlighted, as:

1. Bridge simulator. This simulator is non-mandatory but large training organisations may well have one. They can be very expensive. There are Radar/ARPA, communications, charts and visual cues on the bridge simulator.
2. VTS-simulator. This simulator is non-mandatory, but some training organisations may well have one. It is a specialist type of simulator. The size and complexity depends on budget and it needs to be expandable. A typical VTS simulator has Radar, communications and chart. A radar echo is also important for a VTS-operator, but there is still a discussion going on about this subject.

If you use simulators in VTS-training it is important to think about the environment. Different authorities may use different kinds of technical equipment with VTS, but all radar and VTS-displays are the same. As long you know how to interpret that, you are half way there.

You can use a VTS-simulator for different things like: aptitude testing, initial training, assessment, refresher/updating, case studies, continual professional development.

We discussed different kind of simulation. One kind we did not discuss is serious gaming (like ship simulator, flight simulator, SAR, ATC). **Why do we not use something like this for VTS?**

For those countries who are developing VTS-training and do not have simulation serious gaming software something to think about, because you can have all sort scenario's.

IMO AND SIMULATION - Train the simulator trainer and assessor (model course 6.10)

STCW simulator requirements: suitable for training and/or assessment objectives; physical realism appropriate training or assessment objectives, capable of producing a variety of conditions, trainee should be able to interact.

STCW Manila 2010: navigation and watch keeping simulation, realistically simulate VTS communication procedures between ship and shore.

Communication format between ship and VTS should be the same, unfortunately it is not. There is a lot of discussion what the role of VTS is.

IALA GUIDELINE 1027 (edition 1.1 December 2005) is an important document.

IALA REQUIREMENT: ... for mandatory VTS training and simulation including accreditation/approval. It is up to the competent authority to make the VTS training mandatory. More countries should look at this very carefully.

### **Simulation holds the key to successful education and training.**

Simulation is limited only by one's imagination.

## **7.2 Theoretical background of VTS (Simulator) Training**

**Lilian Biber:** If we talk about VTS training, we need to look at IALA Guideline 1027 on simulation on VTS training.

The process of designing and exercise is important to know for making an exercise later this day.

1. First of all you need a **profile**.
  2. Once you have set your profile you need to define **learning objectives**.
  3. Then starts the **design** of the exercise.
  4. After you designed it, you **build** it at the simulator. You must not design the exercise at the simulator!
  5. Then you have to **try** it out.
  6. **In corporate**.
  7. At the end you have to **validate** it.
- 
1. Profile  
In order to make a good task analysis we talked to VTS-authorities who look to the future, read every literature about VTS, talked to VTS-operators, and observed what VTS-operators are doing. At last we have send a questionnaire with what VTS-operator does and how often.

An example of a task is: Provides ins. With this task it is important to have good communication skills, create situational awareness, cooperate with other job-holders, cope with stress.

*Lilian showed a competence model.* The word competence is often used in the wrong way. When you are born you have certain skills, personality and intelligence. During your life you develop knowledge, skills and attitude. All these aspects define how you cope with your work. It is important for a trainer to know **what and how** a VTS-operator is doing a task.

NNVO has done an entire development process and came to following competencies in the profile: Work together, manage information, create a traffic image, guides traffic, manage incidents.

Is it possible to have an international profile?

2. Learning objective  
After designing a profile you need 'learning objectives' before you can design your training. Learning objectives need to be SMART (specific, measurable, achievable, relevant, time bound).

NNVO defined the learning objectives in 5 different levels. From easy to complex (level 1. Define, list, name, state; level 2. Describe, explain, characterize; level 3. Collect, choose; level 4. Analyse, coordinate; level 5. Balance, evaluate.

What do these things have to do with simulator exercises? It is important, because you want to establish the learning process; the simulator is just a tool.

How realistic should an exercise need to be (Guideline 1027)? Behavioural realism. The equipment needs to be realistic, but you can start with low fidelity exercises. An exercise does not need to be realistic at the beginning.

3. Design

Lilian explained the new training in the Netherlands. In the new training they go from knowledge (syllabus), to insight (workbook), to application/integration (app, pc, simulator). Because it is important that the trainees first exercise the pattern before they are settled behind a simulator. Why would you practice procedures in an expensive simulator? If you make an environment too complex the students are focusing on how to work with a simulator instead of the learning goal.

4. Build

When you build the exercise you see the mistakes in the design and you have to adjust the design.

5. Try-out

In the try-out an experienced panel gives feedback

6. Incorporate

You need to link exercise number to learning goals. Do not make the mistake to put a lot of learning goals to one exercise.

7. Validate

Reliability: Test-Retest.

Validity: Unique+Error (an example of an error is sickness=Result face-validity (this resembles the task of the VTS-operator) criterion validity (with criterion validity you go to the workplace of the ex-trainee and ask the supervisor who are good VTS-operators and who are not).

## 8 SESSION 4 – SIMULATOR USE 1: DEVELOPMENT OF EXERCISES

Session Chair **Neil Trainor**

### 8.1 Explanation theory and practice

**Cees Stedehouder:** One of the purposes of this seminar is to let the participants experience how to make an exercise for simulation.

1. The first step of making an exercise is thinking: what should the trainee learn? You are going to think about a training objective.
2. The second step: put as much as you can on paper, because simulator time is expensive. There is a preparation document; there you have to think about topography, ship, procedures, et cetera.
3. The third step: At last you put the exercise in the simulator.

## **8.2 Developing / research / preparation (theory)**

The participants were divided in different training groups as described in ANNEX B. All groups get an assessor/instructor.

In these groups they set learning goals before they made the exercise. After setting the learning goals the exercise was made on paper. They wrote down the topography, ships, traffic situations fairway conditions, weather, conversation and procedures.

A few comments were made in these groups:

- SMCP needs an update, because there are imperfections in it.
- Learning goal G can be done in a simulator. It is not directly necessary, but it can be an advantage to learn how to spell in a more stressful situation
- Oscar is the most difficult learning goal
- Can you put more learning goals in 1 exercise?
- Does an exercise need to be realistic?
- Maybe you need an accident every now and then, because otherwise bureaucrats are going to say: why do we need VTS?

## **9 SESSION 5 – SIMULATOR INTRODUCTION**

Session Chair **Neil Trainor**. The seminar is continued at MARIN.

### **9.1 Simulator demonstration**

The participants were divided in three groups to watch the simulator demonstration of the bridge and of the VTS.

### **9.2 1: Implementation (practice)**

The participants put an exercise (made that morning) in the simulator coached by an assessor. Different questions were asked like:

- Can you change the course and speed during the exercise? This is possible.
- Can you run the exercise faster? This is also possible
- You can also simulate that AIS data is not correct.
- If they don't have AIS data, how do you know the name of the ship?
- You cannot get the full name on the screen.
- What is right? Ingoing/outgoing or inbound/outbound?
- Most of the time an unknown vessel does not know he is unknown. You need to consider this as VTS.
- It is a good idea to name the channel and to say you are a VTS authority.
- While writing the scenario there were people in different groups who were not only result oriented.
- General observation: if you have a good preparation document, it is easier to make the exercise on the simulator. But there are things decided behind the simulator, instead of this morning. Do you have to see some things on the simulator before you can decide what to do next when making an exercise on the simulator?

End of Day 2



## 10 TECHNICAL TOUR TO THE VTS HOOK OF HOLLAND OF THE PORT OF ROTTERDAM

**Rob Scheepbouwer**, Manager VTS of the VTS Centre Hook of Holland welcomed the participants of the seminar. The group was divided in four smaller groups for some presentations and a visit to the VTS operational room and the Back-up room. The Back-up room has also facilities for simulated VTS training in a realistic environment in co-operation with MARIN and NNVO. Copies of the presentations were handed out to all participants on a memory stick.



On the end of this very interesting and informative day **Tuncay Çehreli** thanked Rob Scheepbouwer and the staff of the VTS Centre for the excellent presentations and guidance and Ben Röhner and Raymond Seignette for the organisation and hospitality of this day.

End of Day 3

## 11 SESSION 6 – SIMULATOR USE 2: TRAINING EXERCICES

Chair of this session was **Neil Trainor**. He stated that today is a crucial day.

All participants have the Guidelines 1027. The VTS Committee appreciate if you tell us if there is anything that needs to be changed or added in these Guidelines.

### 11.1 Training 2a and 2b: Executing exercises

**Cees Stedehouder** gave instructions for the execution of the exercises. Today we are going to look at the role of trainee and instructor. Tuesday we made the exercises in three steps. Today we are at the fourth step: Executing the exercise.

In each training group there is the role of a trainee and an instructor, but the other persons in the group are important too. They are the observers.

#### Training 2a en 2b

The exercise starts with the instructor of one group briefing the trainee of another group. They explain the situation and answer questions the trainee has. A trainee can have different kinds of questions, a view questions are:

- Who goes first in this area?
- Which channel should I use?

As an instructor you have to mention every important detail of the exercise in the briefing (like constrained by draft), otherwise the trainee is going to make mistakes and the exercise can fail. And it is important to do the exact same briefing with different trainees. But can every briefing be the same if the trainees ask different questions?

During the exercise there were 5 groups in the instructor room. A few observations during the exercise:

- The words 'out' and 'over' are sometimes forgotten or used in a wrong way. One trainee said 'out' before giving the information.
- Some trainees find it hard to give an instruction, while an instruction is necessary.
- Some trainees mention two times the name of the ship and of the VTS (Victoria, Victoria, this is Sector West, Sector West), others forgot to mention the name of the VTS.
- In an exercise you can write the whole scenario, but you have to wait what the trainee is going to say. A trainee can do something you did not expect. So you can have the same exercise for different students at the beginning of the exercise, but a very different result at the end of an exercise. This is one of the reasons to have a good instructor.

### 11.2 Sharing experiences from both roles: instructor and trainee

One representative of each group reviews the role of the instructor and the role of the trainee.

The role of the instructor is:

- Preparation briefing
- Briefing
- Training scenario
- Making notes
- Ending exercise

What lessons can be learned?

- Some groups made a simple exercise, because they did not know who the trainee was going to be. They would have made the exercise more complex if they had known the level of the trainee. In the briefing it was already clear what was going to happen in the exercise, because of the learning goal (unknown ship). Maybe you should not tell the learning goal in the briefing. Other groups think it is important to mention the learning goal in the briefing. So what do you say in the briefing, because if you explain the whole exercise you can say too much.

- Some groups missed the background of the area. They could not answer some of the questions of the trainee. It was also difficult to react to the trainee, because you do not know what the questions are going to be. There is a great need for a good preparation of an exercise. It is important to take the time at front and anticipate what the trainee is going to say. Trainees can take different pathways. The less experienced a trainee is, the better an exercise needs to be.
- If you have a number of trainees you can give them a task if they are not behind the simulator. They can be an observer or be the one behind the other screen as captains of the ships. The trainee and instructor benefit from this because it is hard for an instructor to run and observe at the same time. Can you make this mandatory? Some trainees would not like to have someone behind them who is watching what he is doing. But now the instructor teaching all the time, the trainee can have an important role in this. If the trainee runs the scenario, he learns something about ships. This can be an advantage.
- One group had a discussion about how many learning goals they should use in an exercise. They had two learning goals, but it was one too many. Simulator objectives in general should be generated step by step and the objectives should be realistic. Other groups had one learning goal. Other objectives could be measured too (like using message markers) even though this was not the objective at the start. But you always need to be aware of your training objective. Do you need to train the learning goals which have already been reached?
- The briefing should be as clean as possible. A trainee needs to know if he provides INS, NAS, or TOS. At the end of a briefing the instructor should ask if the trainee understood everything.
- The role of instructor is not easy. An instructor needs to be prepared for anything. He cannot always stick to the script. The script is not rigid, but is a guideline. The instructor needs to be flexible. And an instructor needs the background knowledge of the fictive area. He needs to control the scenario.
- In normal VTS-situation the VTS-operator is the communication holder, in the simulator it is the instructor.
- The exercise starts at a certain time. Is it just happening or has something already happened in the past (is a ship still unknown). In the briefing you should say something about his.
- It is good to have a group of instructors to build an exercise.

Is it an advantage to have instructors who build and run the exercise? Or can an instructor run the exercise without being involved in the building part? This is possible with a good briefing from the other instructor.

## **12 SESSION 7 – SIMULATOR USE 3: DEBRIEFING EXERCISES**

Chair of this session was **Neil Trainor**

**Cees Stedehouder** stated that if you use a simulator, the last step is debriefing the exercise. An ordinary right/wrong?

### **12.1 Debriefing 3a and 3b: Debrief exercises**

One representative of each group reviews whether the training objectives are achieved.

- What was the goal? Did both parties had the same objective in mind?
- How was the role 'instructor' executed?
- How was the trainee triggered to participate?
- Has trainee learned something (but was it the objective)?
- Was this executing the best way to debrief?

### **12.2 Sharing experiences from debriefing**

What lessons can be learned from the debriefing?

- There were cultural differences in debriefing (Sweden and Russia). The instructor came with great authority and said: this was good and that was not good. The trainee felt he did not get the chance to say anything.
- Preparing time before the debriefing is helpful. Debriefing is very difficult if you do not know how to do it.
- It is good that you highlight positives and negatives. In some cultures (Malaysia) it is not possible to make negative remarks. You can also ask the trainee: How do you think it went? Most of the time the trainee is the most critical person in the room. But the trainee can be silent or think he was very good (when he was really not). Some people think you lose the control if you ask the trainee how he thinks the exercise went. A proposal was to debrief with a group.
- The exercise was in the morning, the debriefing was in the afternoon. The debriefing should be just after the run. As an instructor you need different skills with debriefing and the run behind the simulator. With debriefing it is important to let the trainee know he is not going to be executed.
- The instructor should manage the stress-level of the trainee in order to achieve the goal. You can do this by always using positive phrases, even if they made mistakes (what can we improve instead of what went wrong) → constructive criticism.
- Evaluation standards should be clear to trainees to make the simulator training efficient.
- The best form of debriefing is the peer-review: going to the trainee first and then go to the other trainees. In this way you assess their knowledge as well. Because the trainee is being watched he will be more critical towards himself. You learn by making mistakes.
- With debriefing it is important that there is trust in the room. And there need to be a good mix in positive and negative remarks. After the debriefing everything should be reported.
- A competency checklist can be helpful in debriefing. Is the trainee competent or not, and can the trainee be competent?
- The instructor should ensure that he and the trainee are on the same page. You should repeat the learning goal as a reminder.
- If you write reports after the exercises, you can read back what is done and show this during the evaluation. If a trainee is weak, the sponsor of the trainee gets the progress-reports. In this case it is important that the trainee is informed at the beginning of training that the manager gets the progress-reports.
- It is also important to train the simulator instructor where he learns how to do a debriefing, etc.
- If you are a VTS-operator and an instructor at the same time, than it is possible that you must assess your friends. That is very difficult. How to handle this?

Debriefing is the most important part of the whole exercise. If you forget the debriefing: the trainee does not learn anything.

### **Are there things in the current IALA Guideline 1027 that needs to be changed or should be added in IALA Guideline 1027?**

The outcome of this discussion is incorporated in the Conclusions of the Seminar (ANNEX E, attachment)

It was suggested to use material from STCW as well.

## **13 MARIN TOUR**

There was an optional tour through MARIN organised to show a selection of the facilities.

## 14 SESSION 8 – SIMULATOR USE 4: ASSESSMENT OF EXERCICES

Chair of this session was **Neil Trainor**

### 14.1 Brief review yesterday: Assessment and debriefing

**Cees Stedehouder** gave a short review of yesterday:

- (How) did we keep head up during execute exercise?
- (How) did we struggle with de-briefing?
- (How) did we listen to other remarks?
- How about personal 'lessons learned'?

### 14.2 Demo VTS Simulator Training Exercise

Demo VTS simulator training exercise

- $\frac{3}{4}$  away in IALA VTS Basic Course
- Listen, look and enjoy.

### 14.3 Instructor role: Assessment and debriefing, a theoretical background

**Lilian Biber**

How do you assess the performance of the trainee?

Assessment should be:

- **Fair**
- **Effective** - train with at little cost as possible, with the best result as possible
- **Reliable** - whoever does the assessment, the results should be the same
- **Efficient** - you reach your training objective. Do not discuss the things that are not the learning goal for that exercise.

For that the following should be in mind:

- **Halo vs. Horn effect** - Halo is if you are impressed by someone, that you give him a better rating. Horn is the opposite of Halo.
- **Self-fulfilling prophecy**. If you think you are going to bad at an exercise, the exercise will go bad.
- **Social attribution mistake**. We rate 'our' people higher than other people.
- **Contrast effect**. You compare someone to yourself. If you are very precise, you want the trainee to be precise.
- **Leniency error**. It is difficult to give negative feedback to someone you like.
- **Effect of relativity**. You compare the trainee to the trainees you had before
- **Effect of central tendency**. People tend to cross in the middle with a three point or five point scale
- **Primacy effect vs. Recency effect**. Some people will remember the last part of the exercise better and judge the trainee namely on the last part of the exercise instead of the whole exercise.
- **Severity effect**. You will focus more on the mistakes a trainee has made before.
- **Inter-rater reliability**. Whoever is the instructor, the outcome must be the same.

A five points scale can be used: insufficient, weak, sufficient, amply sufficient, good. But what is sufficient? That is a very unreliable assessment system

#### **Reliability**

You only need three categories: Insufficient, sufficient, good. But the problem with these categories is that people tend to cross in the middle. A good alternative is to make a three point scale with 2 negatives and 1 positive. And if you have a good form, you should have a remarks box.

Whatever system you develop, the instructor will start at the end (what is the end result?), because instructors are very practical people. You can never design a system that is full proof but if you make it as complete as possible at least is fair.

You make the system very reliable if you couple different instructors to a trainee. But if you do it this way, no instructor will know the trainee. A solution for this is: A student has one instructor and if he do not pass his exercise, he will be coupled to another instructor. If you make a system based on coaching an instructor needs to know the trainee.

### **Debriefing**

Debriefing should be student oriented:

- Student is active, does the thinking and the talking
- Instructor listens, asks questions, and makes notes.

Debriefing in groups is not desirable. If two students make the same mistake it can have different reasons.

An instructor should ask the following questions during debriefing:

- What were the learning goals?
- What went right?
- What went wrong?
- Why it went wrong?
- What would I do different next time?

What should the instructor do during debriefing?

- Complete missed items.
- Recover erroneous statements of the trainee.
- Provide necessary information.
- Give positive feedback.
- Encourage quiet trainees.
- Provide trainees with sufficient time for analysis.
- Give a high-performing trainee as much time for analysis as anybody else.

The instructor avoids:

- To make it an instructor-oriented session
- Et cetera.

### **Poul Vibsig Pederson**

VTS is about persons and communication. Equipment and technology is less important.

An example of debriefing:

During exercise the instructor/assessor takes notes and is making score on used learning objectives.

After exercise the trainee is making reflections in a logbook in writing (what went well, where could he improve, what did he learn).

Then they have a meeting were the trainee tells what is in the logbook. It is possible for observers to give their statement and maybe there is a replay, CCTV, et cetera.

So there is a logbook and the notes/remarks of the instructor. The instructor comments and writes a general mark. The instructor and the trainee write areas that need to be improved on. *Everything is open and available to the trainee.*

In the next exercise the Instructor/assessor will take notes again and the trainee will write his reflections in a logbook after the exercise. In the meeting the instructor and trainee will check together if the items that needed improvement from previous exercise are improved during this exercise.

With all this it is important that the Instructor/assessor is polite, open-minded, uses 'active listening' and is assertive!

## 15 SESSION 9 – TOWARDS THE FUTURE

Chair of this session was **Neil Trainor**

### 15.1 Emergency preparedness – a proactive approach

**Raymond Seignette**, Port of Rotterdam.

IALA Guidelines No. 1027 on Simulation in VTS Training says a few things about emergency. But: What is knowledge about emergency response procedures?

What are emergency procedures?

The ability to respond is equally important for a VTS operator. When the situation changes significantly he must inform all ships affected. It is the responsibility of the VTSO to ensure that all ships adapt to the new situation.

#### ***Emergency preparedness***

1. Rules and regulations
  2. Good seamanship
  3. Why things go wrong
  4. Safety, not a system property
  5. Resilience
  6. Emergency preparedness – a proactive approach
- 
1. Rules:
    - looking at the past, stretching the present.
    - necessary for designing any rational system.
    - prepared for the known, not for the unknown.
  2. Good seamanship
    - VTS-operators identify traffic monitoring as one of the most essential tasks of their work as it is a precondition to be able to provide any kind of service level to the participating vessels.
    - Monitoring also highlight the importance of knowing what to look for.
  3. Why this go wrong
    - It is a universal experience that things sooner or later will go wrong.
    - Risk analysis – **when and how** things go wrong.
    - From a resilience point of view – **why** things go wrong.
    - Changed practices to improve efficiency may result in a drift to danger.
  4. Safety is not a system property
    - Safety results from the behaviour of an organization or system.
    - This creates the dilemma that safety is shown more by the absence of accidents than by the presence of accidents.
  5. Resilience
    - Recover from disturbing events, adjust operations when necessary and anticipate on expected vessel response in the area.
    - There are a few abilities that are essential for resilience: respond to what happens, monitor critical developments, anticipate future threats and opportunities.
    - Required qualities of a resilient system are knowledge, competence, resources and times.
  6. Emergency preparedness

- A resilient organisation is inherent prepared to respond to surprises. Its primary response is adapting to the situation and restores its performance, given the new situations.
- Don't exclude Human Factor!
  
- 7. The proactive approach
- Do not fix your mind-set, be flexible, create collective mindfulness throughout the organization.
- Monitor and sustain an open dialogue, for reporting of safety concerns and problems.
- Observe and respect humans at the front end.
- Accept the inevitability of error.

### **Questions/Answers/Remarks**

- Resilience is the capability of organizations to cover with stress. You should change ideas what should be done instead of write down what should be done.

## **15.2 The future of VTS training technology**

**Noël Bovens**, MARIN, presented some ideas for future developments in VTS training.

### **3D VTS: The idea behind it:**

How to get from the 2D picture on your (radar)screen to the 3D scene?

With 3D you can see the situation from the perspective of the ship and fly from one vessel to another. You are not looking at a real life camera, but a general created environment.

3D VTS/Camera will give:

- Mental picture 3D scene
- CPA/TCPA
- Prediction
- Various tools
  - Emulated CCTV without environmental effects
  - Incident analysis
  - Vessels perspective

### **Risk index**

Using a risk index can be the next step in assistance.

A lot of work has been done with risks. Can we do anything with it for VTSO? If you are a VTSO you want to know where the risks are higher.

Risk module looks at:

- Ship characteristics
- Geographic position
- Weather
- Traffic
- Cargo
- It calculates the chance of an incident
- Incident types
- Risk addresses

### **Concluding**

It is important to know how to implement this and then an interesting future lies ahead.

### **Questions/Answers/Remarks**

- Present risk calculation does not give attention to (local) change of knowledge only the change of data.
- The area is ENC based.
- The core of this idea is that you go to a detailed situation and understand what it means.



- If the system misses a problem, the VTSO is not relying on his own skill. A VTSO should also rely on his own skill!
- You have to need a relevant representation of the area in 3D.

## **16 SESSION 10 – CLOSING OF THE SEMINAR**

Chair of this session was **Neil Trainor**

### **16.1 Observations and findings**

The Chairman explained how the conclusions had been derived. Neil Trainor then walked the participants through the draft conclusions and recommendations, which were presented. Finally he presented the results of the questionnaire which was completed by 86% of the participants. The results are at ANNEX E.

### **16.2 Closure and thanks from IALA**

**Captain Tuncay Çehreli**, DGCS and Chairman of the IALA VTS Committee concluded that 50 people from 20 different countries participated the seminar with many subjects, many simulation techniques and assessment techniques, many other operational issues on which there are some differences between countries.

This seminar has reached its expected and desired goals.

He then thanked in particular:

- The Dutch instructors for their guidance
- The speakers for the good and informative presentations
- The IALA Steering Group and the Dutch Steering Group for the organisational aspects
- The drafting group members and reviewers during the sessions
- Neil Trainor for the excellent Chairmanship
- Wim van der Heijden for the secretary work
- And last but not least Jos van Doorn, Cees Stedehouder and Lilian Biber for the organisation and to make this a success.

Special thanks for MARIN, NNVO and the Port of Rotterdam as host of the Seminar. All three organisations get an IALA plaque as reminder for this IALA Seminar.

He thanked everyone for attending and working so hard and productively, adding that the results from the seminar would be reflected in the 2014 – 2018 Work Programme. He wished everyone a safe journey home.

There being no further business, the Chairman then declared the workshop closed.

## **17 PRESENT CERTIFICATES**

As evidence that the participants attended the *working* program of the seminar, they received an IALA certificate for attending the VTS Simulator Training. Registration and copies will be held at the IALA office.

End of Workshop

## **18 SOCIAL PROGRAMME**

On Tuesday 10 September there was a seminar dinner, kindly sponsored by MARIN, at the Restaurant Campman, Renkum.

On Thursday 12 September there was seminar drinks party, kindly sponsored by NNVO, at Hotel Hof van Wageningen.

## **19 ACKNOWLEDGEMENTS**

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Thanks are also due to Raymond Seignette and Ben Röhner, Port Authority Rotterdam, for hosting and arranging the technical tour to the VTS Hook of Holland.

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**ANNEX B      TRAINING GROUP PARTICIPANTS****Training Group 1**

	Name	Organisation / Country
	<b>BRANDJES Alex</b>	VTs instructor
1.	BALASHOV Andrey	FSUE“Rosmorport“
2.	HEARN Steve	MOD (UK)
3.	PARK Kwang Bok	GCSC

**Training Group 2**

	Name	Organisation / Country
	<b>DELANOYE Gerardine</b>	VTs instructor
1.	CHIDANBARAM Nadaraj	Navicom Resources Sdn BHD
2.	GODLIEB Jillis	STC B.V.
3.	KLEMETTI Kai	Finnish Transport Agency
4.	PRATLEY Peter	TST Corporation

**Training Group 3**

	Name	Organisation / Country
	<b>HERKS Rolph</b>	VTs instructor
1.	DOSSO, Idrissa	Port Autonome d'Abidjan
2.	HEWETT John	South Tyneside College
3.	LANDI Michele	IT Coast Guard
4.	RABEAU, Sylvain	Directions Affaires Maritimes

**Training Group 4**

	Name	Organisation / Country
	<b>KAASHOEK Gerard</b>	VTs instructor
1.	DREIJER Malin	Norwegian Coastal Administration
2.	MacEWAN Neil	Denbridge Marine
3.	PERCHARD Robert	Canadian Coast Guard College
4.	SAIDI Norjipin	Marine Dept Malaysia
5.	SEKIYA , Jyunji	TST Corporation

### Training Group 5

	Name	Organisation / Country
	<b>KELLER Andreas</b>	VTS instructor
1.	EKECHI, Leonard	Nigerian Maritime Administration
2.	MURVANA Raffaele Danilo	IT Coast Guard
3.	PETROV, Petar	Bulgarian Ports Infrastructure
4.	SCHUETT, Todd	Kongsberg Norcontrol IT
5.	AKIKO, Shina	TST Corporation

### Training Group 6

	Name	Organisation / Country
	<b>van den NIEUWENDIJK John</b>	VTS instructor
1.	KALO, Bi Seri	Port Autonome d'Abdjan
2.	PEDERSEN Poul Vibsig	SIMAC
3.	PRIEM Stefaan	VTS Belgium
4.	SOUTHALL Thomas	Port of London Authority
5.	YAMASAKI Tetsuya	Furuno Electric Co. Ltd

### Training Group 7

	Name	Organisation / Country
	<b>WESTSTRATE Jaco</b>	VTS instructor
1.	CEHRELI Tuncay	DGCS
2.	KURIOKA Yuka	TST Corporation
3.	LEE, Simon	Denbridge Marine
4.	TODOROV, Milen	Bulgarian Ports Infrastructure

### Training Group 8

	Name	Organisation / Country
	<b>van ECK Jan</b>	VTS instructor
1.	DEHMEL Tom	Hochschule Wismar
2.	IKEDA Tamotsu	Japan Aids to Navigation Assoc.
3.	KVICK Per-Ake	Kalmar Maritime Academy
4.	MAGRO Barbara	IT Coast Guard
5.	ZSCHARNACK Minna	Finnish Transport Agency

### Training Group 9

	Name	Organisation / Country
	<b>van der DUSSEN Johan</b>	VTS instructor
1.	ARAI, Hidenobu	Japan Radio Co. Ltd
2.	DELCROIX Philippe	VTS Belgium
3.	MOHAMADIN Nordin	Marine Dept Malaysia
4.	TABAK, Harry	Loodswezen Rotterdam

### Training Group 10

	Name	Organisation / Country
	<b>HEIJLAERTS Frans</b>	VTS instructor
1.	DOLBERG, Max	Federal Waterways & Shipping
2.	GEERTS Gunter	VTS Belgium
3.	JOHANNESSON Anders	Swedish Maritime Administration
4.	MYGIND Niels Jacob	Admiral Danish Fleet HQS



**ANNEX C**

**PROGRAM OF THE SEMINAR**

**IALA SEMINAR ON SIMULATION IN VTS TRAINING**



**Date**

**9 – 13 September**

**Venue**

Hof van Wageningen / MARIN  
The Netherlands

**Seminar Programme**

**DAY 1 - MONDAY 9 SEPTEMBER 2013**

<u>Time</u>		<u>Activity</u>	<u>Speaker or lead person(s)</u>
1100 - 1200		Registration (+ name check for certificates) at Hof van Wageningen	
<b>1200 - 1300</b>		<b>Lunch</b>	
<b>1300 - 1415</b>		<b>Session 1 - Opening of the VTS Simulator Training Seminar</b> <b><u>Venue: Hof van Wageningen</u></b>	<b>Chair: Neil Trainor, AMSA, Vice Chairman of the IALA VTS Committee &amp; Seminar Chairman</b>
1300 - 1305		Opening VTS Simulator Training Seminar	Neil Trainor (Chair)
1305 - 1330	1	Welcome from MARIN & opening remarks	Bas Buchner, President, MARIN
1330 - 1345	2	Welcome from IALA & opening remarks	Tuncay Çehreli, DGCS and Chairman of the IALA VTS Committee
1345 - 1400		Administration & Safety Brief	Cees Stedehouder, MARIN, VTS manager, NL
1400 - 1415	3	Seminar aim & objectives	Terry Hughes, Chairman VTS Committee Training and Personnel working group
<b>1415 - 1720</b>		<b>Session 2 – Presentations regarding the Key Questions</b> <b><u>Venue: Hof van Wageningen</u></b>	<b>Chair: Jos van Doorn, MARIN, manager MSCN, NL</b>
1415 - 1420	4	Introduction to the key questions and their speakers	Jos van Doorn
1420 - 1435	5	World Wide Academy and their view on VTS Simulator Training	Jean-Charles Leclair, Dean IALA WWA
1435 - 1505	6	Simulation as a training tool in Dutch air traffic control	Jurgen van Avermaete, LVNL, NL

1505 - 1535	7	Measurement of simulator training effect and situational awareness	Erik Wiersma, Technical University of Delft, NL
<b>1535 - 1605</b>		<b>Coffee break</b>	
1605 - 1635	8	Benefits of VTS Simulator Training (1)	Tom Dehmel, Hochschule Wismar, Germany
1635 - 1705	9	Benefits of VTS Simulator Training (2)	John Hewett, South Tyneside College, UK
1705 - 1720		Questions - Summary and findings	Neil Trainor (Chair) Janneke de Jong, NNVO, NL Cees Stedehouder, MARIN, NL

**End of Day 1**

**Free evening**

**DAY 2 - TUESDAY 10 SEPTEMBER 2013**

<u>Time</u>		<u>Activity</u>	<u>Speaker or lead person(s)</u>
<b>0900 - 1015</b>		<b>Session 3 – Preparation regarding simulator training</b> <b><u>Venue: Hof van Wageningen</u></b>	<b>Chair: Neil Trainor</b>
0900 - 0905		Opening day 2	Neil Trainor (Chair)
0905 - 0915		Administration and safety brief	Cees Stedehouder
0915 - 0945	10	Relationship between V-103 and VTS Simulator Training	Terry Hughes
0945 - 1015	11	Theoretical background of VTS (Simulator) Training <ul style="list-style-type: none"> <li>• profile and competences;</li> <li>• training objectives, theory, briefing, exercise</li> </ul>	Lilian Biber, NNVO, NL
<b>1015 - 1045</b>			<b>Coffee break</b>
<b>1045 - 1230</b>		<b>Session 4 – Simulator use 1: Development of 12 exercises</b> <b><u>Venue: Hof van Wageningen</u></b>	<b>Chair: Neil Trainor</b>
1045 - 1100	12	Presentation: Explanation theory and practice	Cees Stedehouder
1100 - 1130	13	Developing / research (theory): <ul style="list-style-type: none"> <li>• division into groups coached by an assessor / instructor</li> <li>• selection of at least 1 training objective from a list</li> <li>• determine the need for the use of a VTS simulator</li> </ul>	Cees Stedehouder & assessors / instructors

<u>Time</u>		<u>Activity</u>	<u>Speaker or lead person(s)</u>
1130 - 1230	14	Preparation (theory): <ul style="list-style-type: none"> <li>• make a preparation document (paper version)</li> <li>• keep in mind: ships, traffic situation(s), topography, fairway conditions, weather, conversation, procedures</li> </ul>	Cees Stedehouder & assessors / instructors
<b>1230 - 1330</b>			<b>Lunch</b>
1330 - 1345		Walk to MARIN	
1345 - 1400		Seminar photograph at the entrance of MARIN building	Cees Stedehouder
<b>1400 - 1745</b>		<b>Session 5 – Simulator introduction</b> <b><u>Venue: MARIN</u></b>	<b>Chair: Neil Trainor</b>
1400 - 1500	15	Simulator demonstration, combined with mobile bridge simulator	Cees Stedehouder & assessors / instructors
<b>1500 - 1530</b>		<b>Coffee break</b>	
1530 - 1730	16	Implementation (practice) <ul style="list-style-type: none"> <li>• make an exercise (1 per group) coached by an assessor / instructor</li> </ul>	Cees Stedehouder & assessors / instructors
1730 - 1745		Questions - Summary and findings	Neil Trainor (Chair) Janneke de Jong, NNVO, NL Cees Stedehouder, MARIN, NL

**End of Day 2**

**Seminar dinner, courtesy of MARIN – Restaurant Campman, Hartenseweg 23, 6871 NB Renkum**  
**MARIN will arrange transport from Hof van Wageningen to the restaurant (approximate departure time: 19:00 hours)**  
**Dress code – Smart casual**

**DAY 3 - WEDNESDAY 11 SEPTEMBER 2013**

**Visit to Port of Rotterdam: Vessel Traffic Service centre Hook of Holland**

Whole day by courtesy of the Port of Rotterdam Authority

(visit is only for registered persons)

<u>Time</u>	<u>Activity</u>	<u>Speaker or lead person(s)</u>
0830	Coach departs Hof van Wageningen	Raymond Seignette
1030	Arrival at Hook of Holland at restaurant Unicum	
1030 - 1040	Welcome + coffee	Rob Scheepbouwer
1040 - 1050	Administration & Safety Brief	Ben Röhner
1050 - 1100	Walk to Vessel Traffic Service Centre Hook of Holland	Raymond Seignette
1100 - 1230	<p>Division into 2 groups (± 25 persons) I and II and division group II in 2 smaller groups IIa and IIb, visits to:</p> <ul style="list-style-type: none"> <li>Meeting room group I</li> <li>Operations workspace group IIa</li> <li>Back-up space group IIb</li> </ul> <p><b>At 11:45 groups IIa and IIb changing rooms</b></p>	<p>Ben Röhner</p> <p>Raymond Seignette</p> <p>VTS Supervisor</p> <p>Ben Röhner</p>
1230 - 1245	Walk to restaurant Unicum	Raymond Seignette
<b>1245 - 1400</b>	<b>Lunch and brief speech by Harbourmaster PoR</b>	<b>Rene de Vries</b>
1400 - 1415	Walk to Vessel Traffic Service Centre Hook of Holland	Raymond Seignette

<u>Time</u>	<u>Activity</u>	<u>Speaker or lead person(s)</u>
1415 - 1545	<p>Following morning program: division group I in 2 smaller groups Ia and Ib and the two groups II comes together, visits to:</p> <ul style="list-style-type: none"> <li>• Meeting room group II</li> <li>• Operations workspace group Ia</li> <li>• Back-up space group Ib</li> </ul> <p><b>At 15:00 groups Ia and Ib changing rooms</b></p>	<p>Ben Röhner</p> <p>Raymond Seignette</p> <p>VTS Supervisor</p> <p>Ben Röhner</p>
1545 - 1600	Closing remarks	Rob Scheepbouwer
1600	Coach departs Vessel Traffic Service Centre Hook of Holland	Raymond Seignette
1800	Arrival at Hof van Wageningen	

**End of Day 3**

**Free evening**

**DAY 4 - THURSDAY 12 SEPTEMBER 2013**

<u>Time</u>		<u>Activity</u>	<u>Speaker or lead person(s)</u>
<b>0900 - 1245</b>		<b>Session 6 – Simulator use 2: Training exercises</b> <u>Venue: MARIN</u>	<b>Chair: Neil Trainor</b>
0900 - 0905		Opening day 4	Neil Trainor (Chair)
0905 - 0930	17	Instructions for executing the exercises	Cees Stedehouder
0930 - 1030		<b>Training 2a:</b> executing exercises	Cees Stedehouder & assessors / instructors
<b>1030 - 1100</b>			<b>Coffee break</b>
1100 - 1200		<b>Training 2b:</b> executing exercises	Cees Stedehouder & assessors / instructors
1200 - 1245		Sharing experiences from both roles: instructor and trainee One representative of each group reviews the role of the instructor and the role of the trainee	Neil Trainor (Chair) Cees Stedehouder
<b>1245 - 1330</b>			<b>Lunch</b>
1330		Plenary in the lounge	
<b>1330 - 1630</b>		<b>Session 7 – Simulator use 3: Debriefing exercises</b> <u>Venue: MARIN</u>	<b>Chair: Neil Trainor</b>
1330 - 1345	18	Instructions for debriefing the exercises	Cees Stedehouder
1345		To the VTS Simulator	
1345 - 1415		<b>Debriefing 3a:</b> debrief exercises	Cees Stedehouder & assessors / instructors
1415 - 1445		<b>Debriefing 3a:</b> debrief exercises	Cees Stedehouder & assessors / instructors



<b>1445 - 1515</b>			<b>Coffee break</b>
1515		Plenary in the lounge	
1515- 1600		Sharing experiences from the debriefing One representative of each group reviews whether the training objectives are achieved	Neil Trainor (Chair) Cees Stedehouder
1600 - 1630		Questions - Summary and findings	Neil Trainor (Chair) Janneke de Jong, NNVO, NL Cees Stedehouder, MARIN, NL
1630 - 1730		MARIN tour (optional)	Jos van Doorn
1800		Seminar drinks	NNVO

**End of Day 4**

**1800 Seminar drinks, courtesy of NNVO, in Hotel Hof van Wageningen, Wageningen**  
**Free evening**

**DAY 5 - FRIDAY 13 SEPTEMBER 2013**

<u>Time</u>		<u>Activity</u>	<u>Speaker or lead person(s)</u>
<b>0900 - 1020</b>		<b>Session 8 - Simulator use 4: Assessment of exercises</b> <b><u>Venue:</u> Hof van Wageningen</b>	<b>Chair: Neil Trainor</b>
0900 - 0905		Opening day 5	Neil Trainor (Chair)
0905 - 0915		Administrative details (as required)	Cees Stedehouder
0915 - 0920		Short review yesterday: Assessment and debriefing	Cees Stedehouder
0920 - 0950		Demo VTS Simulator Training Exercise (3/4 away in VTS Basic Course)	Cees Stedehouder
0950 - 1020	19	Instructor role: Assessment and debriefing a theoretical background, with <ul style="list-style-type: none"> <li>• purpose of the assessment</li> <li>• consistency in assessing</li> <li>• technique of assessing</li> <li>• practical example</li> </ul>	Lilian Biber
<b>1020 - 1050</b>			<b>Coffee break</b>
<b>1050 - 1150</b>		<b>Session 9 – Towards the future</b> <b><u>Venue:</u> Hof van Wageningen</b>	<b>Chair: Neil Trainor</b>
1050 - 1120	21	Emergency preparedness - a proactive approach	Raymond Seignette, Port of Rotterdam, NL
1120 - 1150	22	The future of VTS training technology	Noël Bovens, MARIN, manager MSG, NL
<b>1150 - 1230</b>		<b>Session 10 – Closing of the seminar</b> <b><u>Venue:</u> Hof van Wageningen</b>	<b>Chair: Neil Trainor</b>
1150 - 1205		Seminar review	Cees Stedehouder

1205 - 1220	23	Observations and findings Conclusions of the seminar regarding the review of guideline 1027	Neil Trainor (Chair) Janneke de Jong, NNVO, NL Cees Stedehouder, MARIN, NL
1220 - 1230		Closure and thanks from IALA	Tuncay Çehreli, DGCS and Chairman of the IALA VTS Committee
<b>1230 - 1245</b>		<b>Present certificates</b>	
<b>1245 - 1330</b>		<b>Lunch</b>	

**End of Seminar**

## **ANNEX D      SEMINAR INPUT PAPERS**

The following paper was input to the workshop.

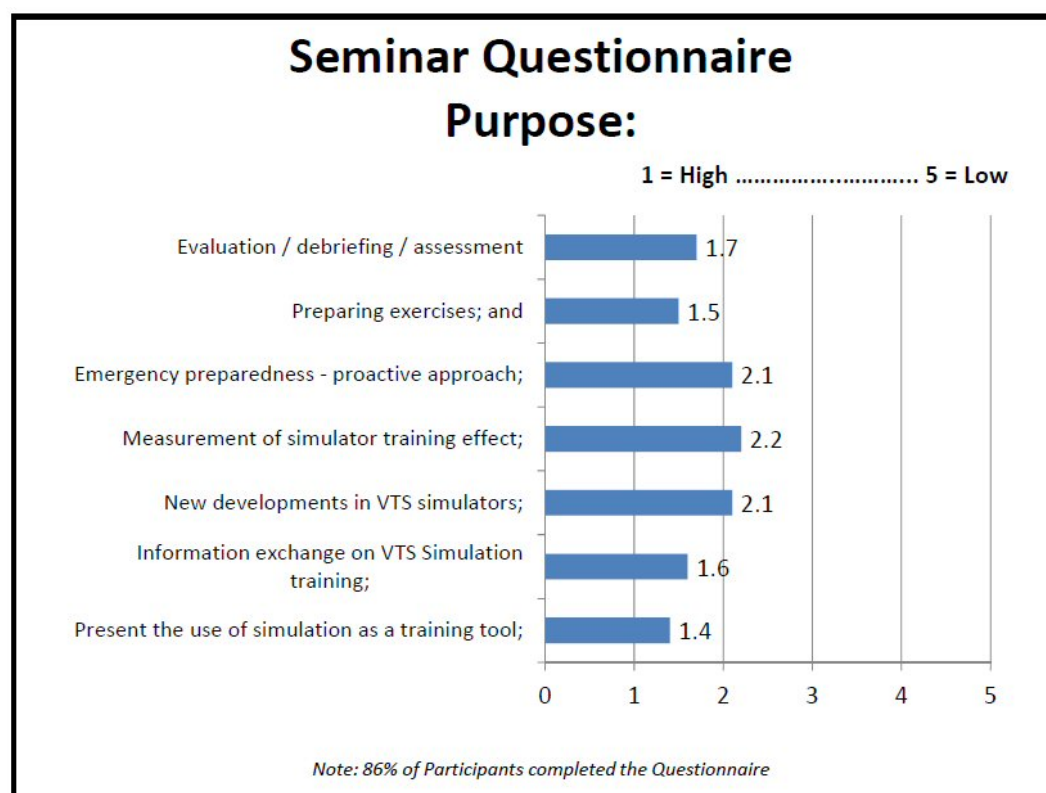
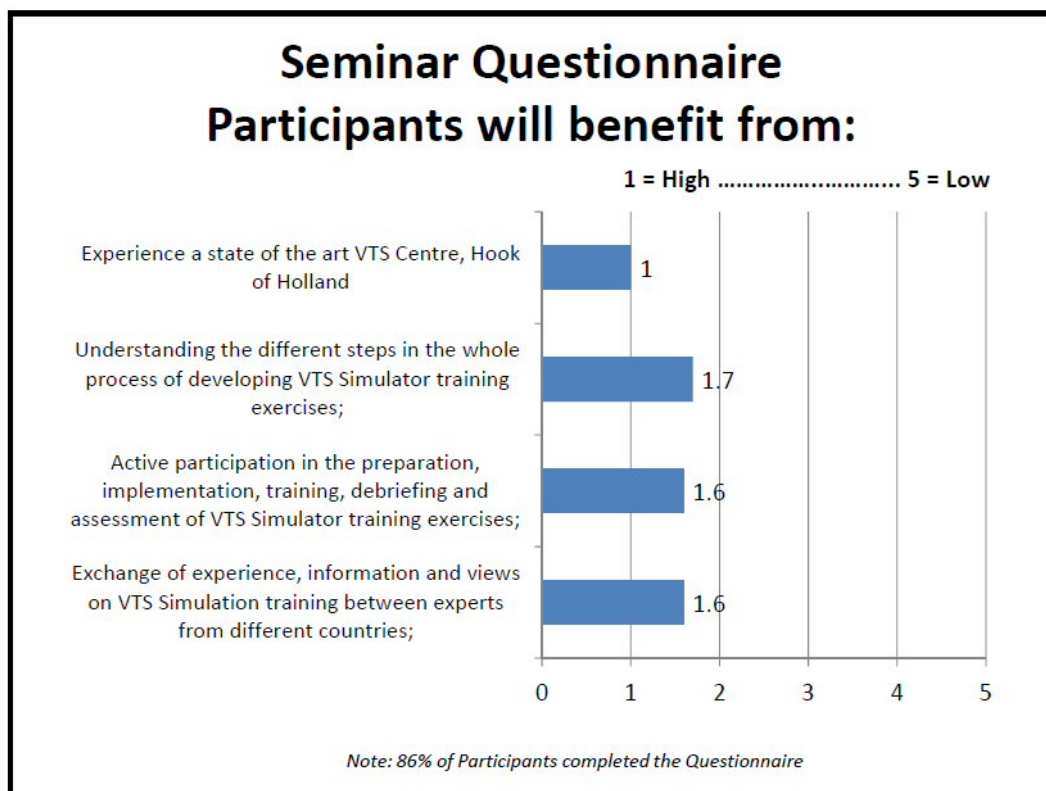
### **1      INPUT PAPERS**

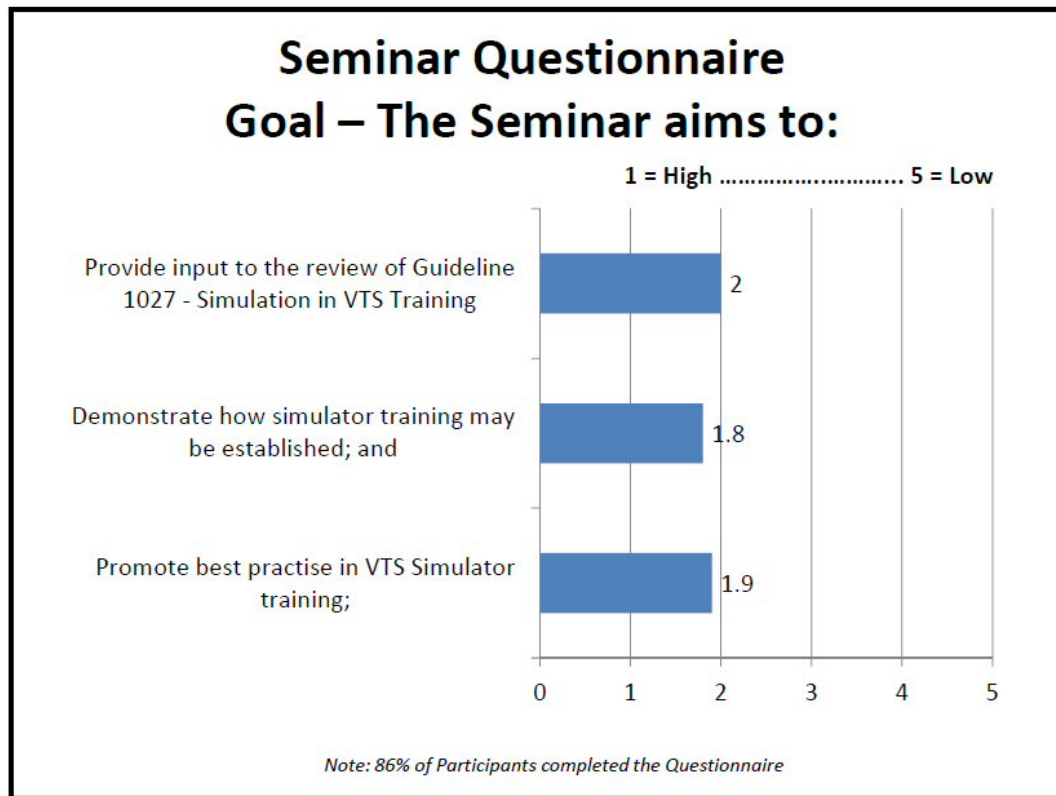
- 1      IALA Guideline 1027 Simulation in VTS Training, Ed 1.1, December 2005.

## **ANNEX E SEMINAR CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

- 2 Simulation training provides an effective tool to:
  - Maximise training of VTS personnel through the capability to allow situations and scenarios to be stopped, replayed and varied
  - Increase the trainer/trainee interaction, particularly during briefing and debriefing stages
  - Increase the value of exercise debriefs, for example, through the use of record and replay capabilities
  - May reduce time requirements for OJT where the simulator equipment is the same as the operational equipment
  - Facilitating standardised assessment of performance and competency of VTS personnel
- 3 There is an increasing demand for effective, efficient and realistic simulation in VTS training with regards to:
  - Formal training and assessment of VTS personnel skills and competence
  - On-the-Job training
  - Refresher / Updating / Revalidation training
- 4 There are significant parallels in simulation training requirements and methodology between the aviation and maritime worlds that should be further explored.
- 5 There are potential benefits for using portable/mobile VTS simulation training in order to reduce costs and provide greater accessibility and flexibility.
- 6 The benefits of delivering simulation training as a “serious gaming” tool (e.g. ATC simulator) for candidate and existing VTS personnel should be investigated.
- 7 VTS training utilising IALA Recommendation V-103 and associated model courses should be adopted on a mandatory basis.
- 8 There is a need for additional training, including simulation, for the delivery of Navigational Assistance Service within V-103/1 and V-103/2 curriculums.
- 9 There is a need for more comprehensive training for navigating officers in STCW with regards to the types of service delivered by VTS.
- 10 There is a need for guidance for train-the-trainer with regards to simulation training.
- 11 There is a need for standardised assessment procedures for simulation training.
- 12 The simulation exercises conducted during the seminar highlighted the importance of communications and cultural background in the interaction between the shore and the ship.
- 13 A number of elements were identified as possible input to a revision in IALA Guideline 1027 (See Attachment at this annex).
- 14 The results from the Questionnaire are given in graphical form on the next page.





## **Recommendations**

- 15 That the principles of simulation used in Air Traffic Control be considered with a view to providing input to the development of guidance for simulation in VTS training.
- 16 Training organisations are encouraged to consider the use of portable/mobile/on-line simulation in VTS training.
- 17 Competent / VTS authorities are encouraged to adopt IALA Recommendation V-103 and associated model courses as the basis for mandatory training.
- 18 IALA Guideline 1017 on the Assessment of Training for VTS and Guideline 1027 on Simulation in VTS Training be reviewed as part of the IALA VTS Committee's 2014-18 work programme to include guidance on simulation in VTS training.
- 19 That consideration be given to developing an IALA Guideline on VTS communication procedures consistent with SMCP.
- 20 That Competent Authorities are encouraged to actively cooperate with the IALA World-Wide Academy in terms of registering accredited training organisations and approval of VTS training.
- 21 VTS Authorities are encouraged to ensure that their VTS/s are registered in the IALA World VTS Guide.
- 22 That Competent Authorities and accredited training organisations are encouraged to promote reciprocal arrangements for approved VTS training internationally.
- 23 That additional training for the delivery of Navigational Assistance Service, including simulation, be included within V-103 model courses.
- 24 That training organisations providing STCW training are encouraged to include a comprehensive VTS training module utilising IALA Guideline 1089 on Provision of Vessel Traffic Services (INS, TOS & NAS).



## Annex E Attachment

### PURPOSE OF THE MODEL COURSE

The primary goal of this document is to provide guidance to Competent authorities/VTS-authorities and/or training organisations using a simulator as training device. The document will provide information on the use of the simulator and the design of simulator exercises.

- INTRODUCTION
- PRINCIPLES
- COMPETENCE PROFILE / LEARNING OBJECTIVES
- DESIGN
- PLANNING
- IMPLEMENTATION
- CONDUCT
- ROLES AND RESPONSIBILITIES
- ASSESSMENT
- VALIDATION
- INCLUDE GLOSSARY/DEFINITIONS
- In section 2:
  - INCLUDE (ARPA) RADAR SIMULATOR
  - BRIDGE SIMULATOR
- 2.1 Extend with other innovations
- 2.3 Indicate the class of the simulator from IMO model course 'Train the simulator trainer and assessor'.
- delete 2.6 on assessment more towards the end 7.2, 7.3
- Describe methodology of debriefing
- Put models in, use more diagrams wherever appropriate.
- Use some colour.
- Section 4 'Design of simulation exercise', rewrite include Human Factor.
- Include paragraph on learning outcome.
- Include interpersonal and communication skills.
- Extending 7.4 feedback
- Basic equipment to be used like CCTV, and so on.
- Extend 7.5 training evaluation / assessment
- Extend with OJT.
- Place text from Annexes in document, remove Annexes.
- Reference list at the end.

## **ANNEX F            OPENING REMARKS BY CAPTAIN TUNCAY ÇEHRELI**

Welcome to IALA Seminar on Simulation in VTS Training. First, on behalf of IALA and myself, I would like to thank MARIN, Port of Rotterdam Authority and NNVO the Dutch VTS Operator Training Foundation for hosting this seminar. And thank you all for coming and participating. I should say that I'm very happy with the number of participants to this Seminar and particularly with the level of participant's knowledge and expertise.

The small meetings such as workshop and seminars have a particular importance for IALA, because, related experts and key personnel may have an appropriate platform to work, consult and exchange their knowledge and experiences on a specified subject within the field of IALA such as simulation in VTS training.

Obviously, the importance of VTS is increasing day by day all over the world and it plays or has a big potential to play very important role within the emerging concepts such as e-NAV, VTM and MDA. Why, why does VTS play such important roles in the safety of navigation despite all new and hi-tech onboard navigational equipments? If we review technological developments in the onboard navigational equipments over past 30 years, we could see a huge difference. 30 years ago, there were only basic radar, DF, Loran and VHF for positioning and monitoring the traffic. Even, many vessels have been using their radars while entering or leaving ports or congested areas only and keep radars turned off at open seas in order to extend its life cycle. Just a few new vessels were equipped with ARPA radar and satnav and you should feel very lucky if you have satnav on board because that means you don't need to struggle with astronomical navigation and calibration of your sextant any more. But, satnav system 30 years ago had been providing a fix position only every 3 or 4 hours because of the less number of satellites.

Today, advanced radars, GPS, AIS, ECDIS, integrated bridge navigation and watch alarm systems, onboard decision making tools and more make navigation safer. Yes, that is true, it could be safer and even we might think that all these technological developments in onboard navigational equipments could reduce the needs for shore based assistance systems like VTS. Let's assume that it could be, I mean high-tech onboard navigational equipment reduce the need for VTS, because ships have all traffic image, a lot of communication means and decision making tools, but still a lot of accidents happen, even in the area where VTS is exist. Of course there are a lot of reasons for accidents, but a very important reason is very clear, human error or let's say human factor in general although all technological developments on both onboard and ashore. And I believe that this issue I mean human error or the accidents caused by human error will be voiced 30 years later as well. Today, everybody agreed that, VTS plays a crucial role on the safety and efficiency of vessel traffic and protection of the marine environment, and it is increasing continuously, but we have almost the same concern with vessels, it is human error or human factor which must be carefully assessed and managed.

Besides compelling needs, the emerging technologies and increasing demands also increase the expectations from VTS. Maritime transportation is faster than past and today maritime sector requires high level, high quality and faster maritime services. And media affect and reflect increasing public expectations after almost all accidents resulted loss of life and sea pollution. And many times, public and media sharply criticise related authorities after many accidents and even near misses. So, it is very clear that VTS should be continuously developed to meet all increasing needs, demands and expectations.

It is not so easy to forecast the future of VTS, its roles and functions but we can easily say that all will be improved, aims, roles, functions and expectations, all with VTS will be improved and force the VTSs to meet all future demands and expectations. And both Competent and VTS Authorities should be aware of that and inevitably update their VTS systems as appropriate. And of course IALA should do the same, even more; because IALA is only international organization deals all with VTS and should also keep its leading and guiding position within VTS and maritime world.

You know, IALA, through the VTS Committee has produced and published a number of VTS training related recommendation, guidelines and model courses and those are regularly reviewed and updated as well. For instance; IALA Guideline 1027 on "Simulation in VTS Training" has been

produced in 2002 and revised in 2005. And second revision of this document is planned after this Seminar, so outcomes of this seminar will be helpful for the revision of this IALA Guideline.

As you know recently IMO has more focused on VTS and VTS related issues with Zero Accident Campaign. Preparation of IMO/IALA Award for Zero Accident Campaign is going well. It has been announced to the maritime world during IMO NAV Sub-Committee meeting last week and will be launched second part of next year, 2014. The purpose of this Award is to provide a unique, international recognition for established VTS which contribute to safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, work sites and offshore installations. And the objective of the campaign is to encourage all IMO Member States to contribute towards a common and great objective a continuous period of Zero Accident with best practices of their VTS systems. One of the basic requirements for nominating a VTS for this Award is; the VTS personnel should be appropriately qualified, suitably trained and certified according to the IALA Recommendation V-103 and its associated model courses and training should have been carried out by an accredited training organisation. So, undoubtedly this campaign will have a very positive effect on the development of VTS and of course on the VTS training. Because, at this occasion, Member States and related Authorities will review their VTS systems within the scope of this campaign. And of course IMO and IALA may have many feedbacks from those Member States and Authorities and review their related documents. You know our submission to IMO last year related to STW was resulted in negative and I believe that this campaign may have a positive effect on such submissions to IMO in the future.

You know, a VTS consist of three main legs; technical equipments, operating procedures and personnel. Of course each of them is crucial and should be optimized, ideally. And, besides of individual optimisation of these three legs, they should also be compatible with each other and aims and objectives of the VTS. Seems easy, but all developments and dynamism of the VTS make this harmonization a bit complicated because there are a lot of factors need to be taken into consideration and some of them are the local needs and factors. So, the best optimization of a VTS needs a tailored approach with national and international standards.

According to IMO Res. A.857(20), Authorities should establish concomitant (attendant) training standards to train VTS operators. These training standards should form the basis of any training programme. And then authorities should be prepared to develop and implement a training programme will provide the VTS operator with necessary skills and knowledge to perform his/her tasks to the required standards. The same IMO Resolution states also; authorities may also wish to consider the need to provide different types of training, with different levels relative to each type, in order to ensure acquisition and maintenance of the relevant skills and knowledge necessary to meet job requirements. And these different types of training are listed as; classroom, simulator and on-the-job training. Simulator Training is being defined by IMO in the A.857(20) as; the training carried out in an appropriate environment in order to practice skills and perform the duties of the position. And IALA Recommendation V-103 defines simulated training as; the simulation of operational events, practices and procedures to assess the ability of candidates to demonstrate their levels of competence. So, using simulation is not only complementing for VTS training but also provides a means for evaluating skills, knowledge and competence of VTS personnel.

During the Seminar this week, we will deal with not only delivery and benefits of VTS simulation training but also deal with technologies of VTS simulators. Developments in the computer science have a great impact on the both VTS and simulator systems and this makes simulator training and the assessing candidates more complicated. 10 years ago identification of the vessels was a very important part of almost all VTS simulator trainings but after AIS, all changed. Today, advanced database systems, decision making tools, advances sensors and their control interfaces, AIS binary messages and more became or becoming important parts of VTS simulator training.

I wish you a very good and successful Seminar.