HUMAN ELEMENT IN SHIPPING ACCIDENTS

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Ever since man first went to sea, human error has been blamed as the cause of accidents. Investigations have revealed that the human factor contributes to 80 percent of all maritime accidents.

2 In the grounding and subsequent oil spill from the *Torrey Canyon* off the Isles of Scilly in the English Channel on 18 March 1967, investigations revealed that the master had decided to change the ship's passage plan to cut a few corners in order to arrive at port early. In the sinking of the *Herald of Free Enterprise* off Zeebrugge on 6 March 1987, the immediate cause was the failure by a crew member to secure the inner and outer bow doors before the ship sailed. In another sinking involving the RoRo passenger ferry *Estonia* on 27 September 1994, it was established that the bridge officers had not not only failed to reduce speed after receiving two reports of metallic sounds in the bow area but did not order an investigation of the cause. Then, in the collision between the *Evoikos* and *Orapin Global* in the Singapore Strait on 15 October 1997, the cause was attributed to the failure of the masters to heed earlier warnings provided by the Singapore Vessel Traffic Information System and take early action.

3 Based on investigations carried out by Singapore and reports from other maritime agencies, many accidents are due to non-compliance with regulations and procedures. Some examples of this non-compliance are as follows:

a. Ships going to sea without properly securing their hatches or bow doors.

b. Hatch covers and openings so poorly maintained and deteriorated to such a bad condition as to cause their failure in a seaway.

c. Ships being loaded in such an unsafe manner as to cause them to damage their structures or capsize due to lack of stability.

d. Ships being navigated too close to shoals or submerged rocks such that a slight deviation will result in a grounding.

4 These examples not only point to non-compliance with rules and regulations. They also point to the lack of proficiency and training, and the need for us to intensify our efforts to address the human element in shipping. While various conventions and requirements have addressed the hardware aspect of ship safety, we must continue to develop the tools to address the software aspect of it, including that of human element. Fortunately, we have a sound starting point with the adoption of STCW 95 and the ISM Code. Through the establishment of a comprehensive system to ensure competence and a process to ensure safe practices, safety of operations and navigation would be enhanced.

5 We know that operating a ship is not just about having knowledge of the equipment and systems, but also, we have to be able to execute this knowledge properly. The operator must demonstrate his competence before he is licenced to operate. STCW 95 would ensure that the seafarer is properly trained and certified competent to operate the ship. With STCW, we expect there would be sufficient training, proficient trainers and proper certification processes to ensure that the seafarers leaving the training institution are competent to serve onboard. And while onboard, we expect the seafarer will acquire the appropriate on-the-job training experience before he can assume responsible positions. It provides the shipowner with the tool that would ensure that his operators have achieved the minimum level of **competence** to operate his ship safely.

6 We all know too that ship and shore management are complex operations that cover a range of factors from manning to operating machinery and systems. The operator must know what procedures to follow to ensure the safety of his ship. The ISM Code was established to promote a safety culture in the shipping community both among the seafarers and at the shore side. It requires the promulgation of documented instructions and procedures for the safe operation of a ship, defines levels of authority and lines of communications between the ship and the office ashore and caters for the reporting of non-conformities and hazardous occurrences. Like all quality systems, it requires the conduct of internal and external safety audits to verify compliance. In essence, the ISM Code would ensure that procedures are in place and practised on

board and ashore. With the ISM Code, we expect every ship to have the appropriate procedures and documentation to enable it to operate safely, and that someone on board is in charge and responsible for the implementation of these safety practices. It gives the shipowners a tool to enable them to enhance the quality of operations. It ensures that **processes** are in place and implemented.

7 Have these tools been successful in reducing the part played by the human element in maritime accidents?

8 We have come across ship managers, for instance, who were only interested in producing the ship's certificates for the purpose of getting port clearance while the equipment and standards on board were below that required under the relevant conventions. What is more worrying, is that some of these equipment are essential, like charts and nautical publications, and life saving and fire fighting appliances. We have also come across individuals who have obtained seagoing jobs, having got their CoCs without going through proper training or appropriate sea service. These seafarers are dangerous not only to themselves but also to others, the ship and the environment when they cannot discharge their responsibilities to the standards required for safe operation.

9 There are many practices on board that require compliance with certain procedures – and these operational procedures are there for a purpose, such as for safety and efficacy. Let us look at what some of investigations conducted by us have revealed about operational practices on board ships from various flags:

a. Shipboard operations had not been properly planned and if planned, were not executed according to the plans. Some of the common infringements are improper cargo loading and non-observance of special handling instructions when loading specialised cargoes.

b. In grounding incidents, masters had not prepared comprehensive passage plans and their charts had not been corrected to date. In some cases, the masters had not referred to the charts and had navigated by memory.

c. In cases related to machinery, there had been a poorly planned maintenance schedule and in some cases, the maintenance had not been completed according to the planned schedule or at the required frequency.

10 There have been many lessons learnt and conclusions from inquiries and investigations of maritime accidents relating to onboard practices but there are two main conclusions I would like to discuss. I would also like to point out that these are not new. They are principles that have been highlighted time and again. These conclusions are as follows:

a. First, the management of the shipping company must be **committed** to safety – not just rhetoric but demonstrated and real. The management must take the initiative to ensure the safe operation of the ship and that conditions exist to enable this to materialise. Not only should they have in place a clear safety policy and well defined responsibilities for shipboard officers and shore staff, but they must also have the mechanism to disseminate these to all levels of shore managers, shore staff and ship's personnel, and be understood. There must be sufficient resources to support the safety policy and encourage the development of a safety culture among the crew and shore staff. For example, industries such as the oil refining or construction industry set specific safety goals and display their achievements for all to see. Of course, we have to make appropriate adaptations to suit the circumstances. This, I feel, is something the shipping industry would do well to learn.

b. Then there must be proper **implementation** of rules and regulations, and we must have mechanisms in place to assure us that they have been complied with. The crew must know that the management is serious about the need to comply with the relevant rules and regulations. Placing copies of conventions onboard a ship and a management order for the "ship's staff to comply with these regulations" will not suffice. Again we could learn from other industries such as the aviation industry where the pilots and engineers have to follow checklists even though they may be well trained, qualified and experienced in their respective jobs. In our case, management could interpret the relevant regulations depending on the trade and type or class of ship, into an easily understandable checklist for the ship and shore office. We cannot leave safety to chance.

11 Yes, there must be safe operational practices on board, whether they are for cargo handling, navigation or machinery operation. This must be for all on board, from the highest-ranking officer to the lowest-level rating. The single message from these is that there must be a fail-safe **self-enforcement process** in place to ensure compliance, whether through inspections or submissions of status reports. If the shipping industry exercises self-enforcement, it will avoid the imposition of more external enforcement and with it, all the unnecessary encumbrances. This is what we should strive to achieve.

12 Besides enforcement, an important link in safe operations and compliance with correct practices is the quality and motivation of the personnel involved in the operations both at the office ashore and on board ships. We must know how reliable our personnel are. We have to know whether he has the relevant training and experience to operate the equipment or handle the responsibility. We need to know his weakness so that we can take measures to give him the required training or make allowance for his shortcoming in allocating him tasks and responsibilities. We must not shy away from reflecting such information in his record. Remember that it is the safety of the ship and the lives of others that are involved.

13 The starting point for all of these is of course training, both ashore and on board. Institutions responsible for training must ensure that it is conducted professionally and effectively. The administrations they report to must approve, validate, moderate if necessary and audit as often as is needed, both the conduct of the training and the certification process as provided for under STCW. Shore training must also be complemented by on board training. There is no short cut to experience. Shipowners must provide the facilities and opportunities for such on-the-job training. Only then can we be assured of the level of competence of our seafarers.

14 We must not accept any compromise in certification too but we know that there are compromises. In this regard, the sub-committee on Standards and Watchkeeping is considering the measures to be taken to address fraudulent certification such as the promulgation of information about certificates reported missing or suspected of having been compromised or fraudulent and verification by authorities on the authenticity of certificates. There are others that could be also be looked into such as the introduction of tamper-proof features, promulgating the list of “offenders” through an information network such as the Equasis, the conduct of random checks on the certificates of

shipboard officers by PSC inspectors and mandatory checks by shipowners/managers on the authenticity of the certificates of the personnel they employ.

15 Unless we get the full co-operation of all concerned, fraudulent certification and thus incompetence will prevail and continue to be one of the contributions to getting the human factor blamed for causing maritime accidents. If necessary, innovative ways have to be considered to encourage, persuade and coerce administrations, shipowners and managers, charterers and P&I clubs to give their full co-operation to stamp out this practice. They must report and take to task every individual or institution found to be involved in fraudulent certification.

16 In conclusion, I would like to reiterate that reducing accidents due to human error is a principal challenge before all of us. Risk is an inherent part of the maritime industry and can never be completely eliminated. However, the application of sound quality management principles and placing emphasis on people, both operators and managers of ships, enhancing their training and ensuring that they are properly qualified, is the most effective way to enhance safety and reduce this risk. We have taken great efforts to develop the STCW and ISM Code. They were designed to improve the competence of our seafarers and safety of operations, and thus reduce the risk in maritime operations. Let us implement them conscientiously and with professionalism to achieve this aim. It is time to raise the image of seafarers.