

## **Cultural Change – shifting the investigation paradigm**

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### **Introduction.**

I would like to thank EMSA for inviting me to take part in , and I hope contribute to, this workshop. I have been asked to talk about the current state of the IMO Code and my vision of a future mandatory Code.

First it may be helpful to understand ‘where I am coming from’. What is the justification for change? Why change – disrupt even – a system that has been in place for years?

Quite simply my view is that the current SOLAS requirements do not meet the requirements of a modern industry. The language used, at least in the English version of SOLAS, leaves too much discretion to flag States as to what is investigated and whether the findings of the investigation are disseminated to others in the industry. SOLAS, until 1998, was exclusively about hardware, design and equipment. It was only with the introduction of the International Ship Management Code through the adoption of Chapter IX that any human involvement was included in the Convention.

The requirement to investigate marine casualties was first introduced in the 1948 SOLAS Convention. Chapter I-21 required each administration to conduct an investigation into a casualty involving any of its ships and report to IMO:

*‘when it judges that such an investigation may assist in determining what changes in the present regulations might be desirable.’*

The nationality of the ship involved in any such investigation was granted anonymity (hardly a practicable or possible provision) and the reports were not to imply responsibility to any person or ship.

The 1948 provision was transferred to the 1960 and 1974 SOLAS Conventions. I would argue that the provisions are inconsistent with UNCLOS and do not take into account the interests of the coastal State. More often than not it is in coastal State that waters accidents occur and whose laws may be applied to an investigation. Also the SOLAS provisions do not allow for the public and political interests of coastal States. The SOLAS casualty investigation provision have not been seriously challenged for over 55 years, that is until last 2004 when Vanuatu, Canada and Australia put a joint submission to MSC and MEPC that the annex to IMO Resolution A.849 (20) should be reviewed and made mandatory. But of that, more later . . .

### **‘Cultural change’**

The title of this paper ‘Cultural Change – shifting the investigation paradigm’ was inspired (if inspired is the right word) by the writings of Barry Turner, a sociologist from the University of East Anglia. His doctoral thesis was called ‘The Failure of Foresight’ and in 1978 he published ‘Man-Made Disasters’. In the book he analysed 84

formal inquiries conducted in the UK between 1 January 1965 and 31 December 1975 in an attempt to understand and develop a model of how disasters occur. Using the UK formal inquiries gave a common base in terms of procedures and objectives from which to make his analysis.

Barry Turner identified six stages (and some sub-stages) that could be applied to the 84 case studies, 33 of which were marine courts of inquiry.

These stages he termed:

| <b><i>Stage</i></b> | <b><i>Description</i></b>   |
|---------------------|---|
| Stage 1             | <i>Notionally normal starting point</i> a) Initially culturally accepted beliefs about the world and its hazards<br>b) Associated precautionary norms set out in laws, codes of practices, mores and folkways |
| Stage 2             | <i>Incubation period</i> the accumulation of an unnoticed set of events that are at odds with the accepted beliefs about hazards and the norms for their avoidance  |
| Stage 3             | <i>Precipitating event</i> brings attention to itself and transforms general perceptions of stage 2   |
| Stage 4             | <i>Onset</i> the immediate consequences of the collapse of cultural precautions become apparent   |
| Stage 5             | <i>Rescue and Salvage - First stage adjustment</i> the immediate post collapse situation is recognised in as hoc adjustments which permit the work of rescue and salvage to be started                        |
| Stage 6             | <i>Full cultural readjustment</i> an inquiry or assessment is carried out and beliefs and precautionary norms are adjusted to fit the newly gained understanding of the world.                                |

The title of this paper is taken from the sixth and last stage of Turner's model, which is the investigation/inquiry stage. This stage of *full cultural readjustment* is that which develops safety actions or recommendations. Acceptance of new procedures, design or attitude requires a readjustment of thinking by those who continue to operate or use the operation in question. In my view, the review by IMO of the Code is similar. We need to question the way investigations have been carried out in the past, assess how they would best meet the needs of an international shipping industry and develop procedures that will best serve the maritime industry as a whole into the future.

### **Defining moments**

In coming to this view I would like to indulge in a few 'defining moments' based on a career at sea and as an investigator. These are essentially personal and help to explain my passion for this issue.

One of the marine courts of inquiry that Turner analysed was the explosion and fire on board the BP tanker *British Crown* while loading at the sea berth at Umm Said in August 1966 with the loss of 19 lives. The inquiry identified a number of issues which we would now term 'latent factors' such as the incompatibility with 1952 electrical safety standards when exposed to the 1966 loading rates of highly gaseous crude oil. The inquiry found that the source of ignition was probably a spark from a commutator in a DC air conditioning motor. The inquiry demonstrated how a spark can travel along an enclosed pipe with such tragic results. Just over a year later I was mate on the sister

ship to *British Crown*, at the same berth. *British Crown* was a burnt out hulk with her back broken on the shore which could be seen through the sand haze. The experience was salutary.

The next defining moment was as master of a steam turbine cross channel ferry in 1979. It was a first generation ro-ro ferry built in the early 1950s with a stern door only. In its history it had had a number of accidents, five or more, and a number of new sterns. The accident I was involved in was relatively minor, involved no damage to the ship, but led to a company inquiry. I was to con the ship stern first out of the harbour. The immediate problem was that the starboard engine was being manoeuvred in the wrong direction. As I rang the starboard telegraph to achieve more astern revolutions, so the revolutions ahead increased. The two wrong way alarms in the engine room failed to alert the engineers at the controls. Although the cause became obvious (at least to me) at a very early stage, there were so many other factors that were relevant. The wrong way alarms had been ineffective for at least fifteen years. (I know that from the newspapers stuffed into the audible alarm) The marine managers had approved the sound proof booth that obscured the wrong way alarm light from the control plate and management had blue pencilled routine requests for better instrumentation on the upper bridge, such as shaft tachometers. Sitting at the interview I was struck by the fact that the Chief Marine Superintendent, and the other management staff putting questions to me as they pushed a model of the ferry around a model harbour, were actually part of the problem. They had a major conflict of interest.

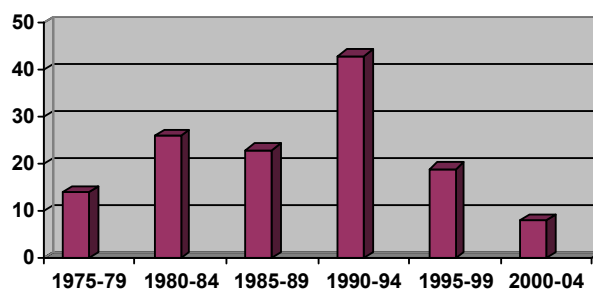
The third defining moment for me came in the winter (Australian winter) of 1987. The bulk carrier *Singa Sea* had sailed from the Australian port of Bunbury bound for Europe with a cargo of about 26 000 tonnes of mineral sand and concentrate. The ship broke in two and sank in two minutes with the loss of 19 lives some 600 miles west of Fremantle in Western Australia. Twenty eight days later five survivors were picked up from a lifeboat south of Australia. Australia operates a positive reporting system in which ships within a certain distance of the Australian coast report daily to AusSAR. When the ship failed to report, the search and rescue (SAR) authority did not follow their published procedures. They made assumptions about a faulty radio. They could not believe a large ship could go missing. They were generally subject to confirmation bias. Additionally there were insurmountable difficulties in cooperating with the flag State, and impenetrable legal walls when inquiring into structural problems on sister ships. I belonged to the same Division as the SAR officers and answered to the same Director. There was the perception at least of a conflict of interest. To his credit the Director accepted and published the report as it was presented to him. This was however the trigger for the creation of an independent marine investigation unit in Australia.

The fourth defining moment occurred in Ottawa in May 1992. This was the first gathering of the organisation we now know as the Marine Accident Investigators International Forum. The Chairman of the Canadian Transport Safety Bureau, which had formed two years earlier, had asked if the marine world had an equivalent body to the International Society of Air Safety Investigators, and if not, why not. Several of us arrived clutching copies of Annex 13 to the Convention on International Civil Aviation. It was determined that we should create an international investigators' forum, with the aim of improving cooperation, investigation methodology and supporting IMO. Our first objective was to develop a document similar to Annex 13.

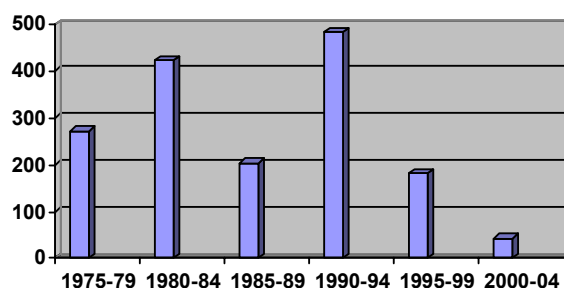
### **Following the aviation example**

Perrow (1984) characterised systems by their complexity and coupling. He saw system as being either of either high or low complexity and being tightly or loosely coupled. Nuclear power plants are highly complex and tightly coupled in that a fault or error in operation will have an overall effect on the operation; whereas in a factory working on the basis of production lines is linear and loosely coupled, where a fault or error may be easily worked round. An individual passenger aircraft is a complex tightly coupled sub-system of a complex but loosely coupled transport system. An accident involving a single aircraft does not close down the whole system. The aviation industry, being new and without 5000 years of tradition and insurance law, recognised that investigating accidents using a uniform approach would benefit air safety.

The idea behind reviewing the IMO Code and making it mandatory is to adopt a system by which it becomes mandatory to investigate, report on and publish marine accident reports. A Code for the investigation of marine casualties and incidents should enable trends in accidents, through design faults, procedural deficiencies, or human error to be identified at an early stage. The maritime industry must not accept, it cannot afford, another scandal such as that experienced with the loss of bulk carriers through the 1980s.



**1: Number of vessels>10000gt lost from structural or hatch failure or classed as missing**



**2: Lives lost bulk carriers > 10000 gt from structural or hatch failure or classed as 'missing'**

### **The Code – Current Status**

The current status of the Code is that of an existing Code under review. When the original submission (MSC 63/21/6 by Australia, Hong Kong and Vanuatu) was presented to MSC in 1993 a number of the concepts for cooperative, safety investigations (but did not attribute liability or assign blame) were contrary to the practice in a number of states. The Code, by implication, challenged the SOLAS provisions relating to the role of the flag State in accident investigation and recognised the interests and possible role of the coastal State.

The question that had to be answered at FSI 4 was, ‘were an Australian ship to have a high profile accident in the waters of a European State, would the coastal administration agree to Australia conducting the investigation alone?’ Would the coastal State be content to allow Australia to decide against publishing the report because it was our view that there were no implications for the SOLAS Convention? Would such an arrangement satisfy the public interest and the political reality? I suggest not. Would the coastal State allow Australia to interview its VTS operators, pilots or SAR authority? Experience, such as the *River Trent/Western Winner* collision, suggests not. Add to this the apparent ability of flag State and substantially interested State investigators being barred from ships by legal practitioners.

The reality is that, in many cases, the coastal state has a critical interest in understanding what went wrong and assuring its public that the accident has been investigated and something done about it. However, other than civil action for loss or criminal action for a breach of the law, the onus is on the flag State to take procedural action. Cooperation therefore is a vital part of such an investigation.

The other innovation brought about by the Code is that coastal state reports into marine casualties are sent to IMO. In the last list of casualty incidents considered by the FSI casualty analysis working group, about 50 per cent were submitted by coastal states and 50 per cent by flag states.

Developing the annex to Resolution 849(20) was essentially one of compromise, reflecting the committee process and what was possible at the time. The Code has become widely used as the model for investigation, albeit with national variations to suit municipal law and marine practice. However, we are justified in claiming that the Code has become one of the ‘*generally accepted international regulations, procedures and practices*’ and the flag State is obliged ‘*to take any steps which may be necessary to secure their observance.*’ (LOS 94.5) It has been argued that this provision refers only to issues of construction, equipment, manning, training and signals. As these issues would be subject to any investigation under LOS 94.7, I believe that there is a good argument to include the ever wider acceptance of the Code under the heading of ‘generally accepted procedures and practices.’

Australia, Canada and Vanuatu submitted MSC 79/20/4, inviting the Committee to add a review of the Code to the FSI work programme and asking them to consider annexing the Code to SOLAS. The Committee agreed to the review and instructed that FSI should develop options for making the Code mandatory. To this end FSI 13 set up a correspondence group which I am coordinating.

After an initial round of correspondence based on a draft discussion paper the Code has been redrafted. In appearance it is radically different, packaged into 12 Chapters, but its content is based on the original annex to Resolution A.849(20) with repetition removed. Some new provisions relating to voyage data recorders, criminalisation of seafarers and protection against self incrimination have been added.

Essentially, however, it has been formatted to capture some basic mandatory principles, these being:

- very serious and serious investigations must be investigated;
- matters of fact must be made available to investigating States;
- investigation reports must be provided to IMO;

- an investigation under the Code must have access to the ship(s) involved and the crew(s); and
- no seafarer will be incarcerated or held in close confinement as a consequence of any investigation conducted under the provisions of the Code.

Other provisions will be optional with a strong hint they should be adopted. Experience suggests that this is an evolutionary process, rather than revolutionary.

### **Making the Code Mandatory**

There are a number of options by which the Code could be made mandatory if IMO members so wished. These include:

- A complete re-write to create a new SOLAS Convention. This may be desirable but it is impracticable. The chances of such a diplomatic conference are remote and the time frame would delay implementation.
- An amendment and complete redraft of the existing Regulation I/21. To amend SOLAS Chapter I two thirds of member States have to positively support the amendment. This is unlikely to be achieved in terms of positive rather than tacit amendment provisions.
- The creation of a new Chapter 13 specifically for casualty investigations, made mandatory by the same mechanism as the ISM Code procedures.
- Amend Chapter XI-1 to include a regulation 6 to give force to the Code.

### **Vision for a mandatory Code**

My vision is to achieve a workable international safety investigation process that is followed by all States with a substantial interest in a marine accident. This process should satisfy the interests of the flag and coastal States and that of IMO. The Code should allow cooperation to the maximum extent possible and allow access of all the interested parties to information and evidence that will promote safety at sea.

My vision for the seafarer, in cases other than criminal actions, is that the masters and crews of ships can reasonably expect to be investigated in the same manner in any port or harbour, wherever they may be in the world. They should not be criminalised because of an accident. And the shipowner should have confidence that the thrust of any investigation should be safety.

I do not pretend that this achievable in the short term, but given time and an understanding of what safety investigations can achieve to enhance safety at sea and to protect the environment, it can be achieved over time. This will inevitably require some administrations to change their thinking and remodel their institutions to achieve these ends. For some it will require a paradigm shift in thinking and full cultural readjustment.

ATSB  
October 2005-10-20

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