http://dx.doi.org/10.21172/ijiet.104.11

Ship Operational Issues - Human element perspective

CaptK.Karthik[1]

[1]*Dean – Department of Nautical Science, AMET deemed to be University, Chennai, Tamilnadu, India*

Abstract- At its 20th session in November 1997, the IMO Assembly adopted resolution A.850(20) on the human element vision, principles and goals for the Organization.The resolution recalled a previous resolution (A.680(17)) which invited Governments to encourage those responsible for the management and operation of ships to develop, implement and assess safety and pollution prevention management systems and another (A.772(18)), concerning fatigue factors in manning and safety, which aims at increasing awareness of the complexity of fatigue and encourages all parties involved in ship operations to take these factors into account when making operational decisions. The resolution acknowledged the need for increased focus on human-related activities in the safe operation of ships, and the need to achieve and maintain high standards of safety and environmental protection for the purpose of significantly reducing maritime casualties. The resolution was updated by resolution A.947(23) Human element vision, principles and goals for the Organization adopted by the 23rd Assembly in November-December 2003. Through this paper I would like to draw attention to three aspects of significance. First to recall the human element vision, principles and goals for the organization, Next to review some of major maritime disasters that had taken place in the last century in order to highlight on the role of human element that led to such disasters and then to focus on the needfor sustained and progressive training essentially to the seagoing component of human element in order to overcome the challenges posted by the dizzying rate of change in technology.
Key words: Human element; Human performance; Human errors; STCW2010

I. INTRODUCTION

There are more than 50,000 merchant ships trading internationally, transporting every kind of cargo. The world fleet is registered in over 150 nations and manned by more than a million seafarers of virtually from every nationality. When such is the present condition it is undeniable to say that human element is one of the most important contributory aspects to the causation and avoidance of accidents. A careful study of the accident reports reveals that 85% of all accidents are either directly initiated by human error or are associated with human error by means of inappropriate human response (Ziarati, 2006). This is in line with the findings of a recent paper (IMO, 2005) that 80% of accidents at sea are caused by human error. The research shows that mistakes are usually made not because of deficient or inadequate regulations, but because the regulations and standards, that do exist, are often ignored. The research findings remind time and again that if shipping is indispensible a sustained and progressive training to the human element of shipping is equally indispensible. “Maritime education and training must be of a high and consistent quality, throughout the world. They must be skills based, competence based and utilize the latest technology such as simulators reflecting modern ships and upto date bridge layouts” said Mr.KojiSekimizu, Secretary general, IMO, in his message during world maritime day 2015.

II. RECALL - HUMAN ELEMENT VISION, PRINCIPLES AND GOALS FOR THE ORGANIZATION

The resolution A.947 (23) Human element vision, principles and goals for the Organization adopted by the 23rd Assembly in November-December 2003 is as follows:

2.1 Vision

To significantly enhance maritime safety and the quality of the marine environment by addressing human element issues to improve performance;

2.2 Principles

(a) The human element is a complex multi-dimensional issue that affects maritime safety and marine environmental protection. It involves the entire spectrum of human activities performed by ships' crews, shore based management, regulatory bodies, recognized organizations, shipyards, legislators, and other relevant parties, all of whom need to cooperate to address human element issues effectively;

(b) The Organization, when developing regulations, should honour the seafarer by seeking and respecting the opinions of those that do the work at sea;

(c) Effective remedial action following maritime casualties requires a sound understanding of human element involvement in accident causation. This is gained by a thorough investigation and systematic analysis of casualties for contributory factors and the causal chain of events;
(d) In the process of developing regulations, it should be recognized that adequate safeguards must be in place to ensure that a "single person error" will not cause an accident through the application of these regulations;
(e) Rules and regulations addressing the seafarers directly should be simple, clear and comprehensive;
(f) Crew performance is a function of individual capabilities, management policies, cultural factors, experience, training, job skills, work environment and countless other factors;
(g) Dissemination of information through effective communication is essential to sound management and operational decisions; and
(h) Consideration of human element matters should aim at decreasing the possibility of human error as far as possible.

2.3 Goals
(a) To have in place a structured approach for the proper consideration of human element issues for use in the development of regulations and guidelines by all committees and sub-committees;
(b) To conduct a comprehensive review of selected existing IMO instruments from the human element perspective;
(c) To promote and communicate, through human element principles, a maritime safety culture and heightened marine environment awareness;
(d) To provide a framework to encourage the development of non-regulatory solutions and their assessment based upon human element principles;
(e) To have in place a system to discover and to disseminate to maritime interests studies, research and other relevant information on the human element, including findings from marine and non-marine incident investigations; and
(f) To provide material to educate seafarers so as to increase their knowledge and awareness of the impact of human element issues on safe ship operations, to help them do the right thing.
The vision, principles and goals are directed towards human element which is nothing but an union of human performance and human errors.

2.4 Human performance:
The definition of human performance is accomplishment of a task in accordance with agreed upon standards of accuracy, completeness, and efficiency.

2.5 Human Errors
Human Error is defined as “Departure from acceptable or desirable practice on the part of an individual that can result in unacceptable or undesirable results”.
As per the international management code for the safe operation of ships and for pollution prevention(ISM Code) adoptedby IMO ResolutionA.741(18) – The reason for accidents at sea is due to human error (95%), machinery failure(4%) and act of God (1%) and a review of the major maritime disaster in the last 100years adduces to the apportionment of blame as projected by ISM code

III. REVIEW OF MAJOR MARITIME DISASTER IN THE LAST 100 YEARS

Table 3.1 shows a selective list of maritime disasters that arguably left a lasting impression among several others in the last 100years. There were others reasons as well than mentioned in the table but invariably human element happens to be significant cause for such disasters. Although the investigation in the aftermath of every disaster has led to the review of the various IMO conventions and brought in significant amendments, the damage had already been caused and the inextricable pain and suffering of those lives that perished calls even more proactive and mightier means for safeguarding life, property and environment.
Table 3.1

Year	Name of vessel	Reason of Accident	Consequence	Reason	Reform
1912	Titanic/UK	Collision with iceberg	1517 lives perished	Design and Navigational errors	Birth of SOLAS
1967	SS Torrey	Grounded	Environmental	Design and	Steering gear

	Canyon/Liberia		disaster	Navigational errors	requirements
1980	Estonia	Sank	852 lives perished	Design and human errors	Bow door requirements
1987	Herald of free enterprise	Capsized	193 lives perished	Design and human error	Passenger/RORO constructional requirements
1987	Dona Paz	Sank	Estimated 4386 lives perished	Human error	Financial liability for over crowding
1989	Exxon Valdez	Grounded	Environmental disaster	Human error	OPA1990/MARPOL 73/78
2012	Costa Concordia	Capsized	32 lives perished	Human error	Drills and Route monitoring
2015	Sewol	Capsized	304 lives perished	Human error, Delinquency	Licensing/Compliance

IV. THE NEED FOR SUSTAINED AND PROGRESSIVE TRAINING FOR THE HUMAN ELEMENT IN SHIPPING.

The human element is one essential that is extremely difficult to modify since it needs a modification in both intentions and attitudes; it is an expression commonly used in the context of the maritime industry as well as shipping industry. The human element is a complex multidimensional issue that plays a most vital role in the operation of industry, in enhancing maritime safety, security and marine environment protection.

As per IMO Resolution A.741(18) which provides the guideline for the safe operation of ships and for pollution prevention "The most important means of preventing maritime causalities and pollution of the sea from ships is to design, construct, equip and maintain ships and to operate them with properly trained crew in compliance with international conventions and standards relating to maritime safety and pollution prevention.

To promote this a number of conventions and other instruments have been developed by IMO and other international organizations, such as:

The international convention for the safety of life at sea (SOLAS).

The international convention for the prevention of pollution at sea (MARPOL).

The international convention on load lines.

Convention on the international regulations for the preventing pollution at sea (COLREG)

International convention on standards of training, certification and watch keeping for seafarers(STCW).

4.1The Role of Management in training the human element

As per IMO Resolution A.741(18) Safety, pollution prevention and efficiency are integral to good management. They can only be as a result of structured painstaking policy and a combination of right skills, knowledge and experience. The direct involvement of decision making management in these matter is vital its attitude being reflected in company policy and thus directly in the work of all company employees. The corner stone of good management is commitment from top.

It is the commitment, competence, attitudes and motivation of all individuals engaged in activities pertaining to safety and pollution prevention at all levels that determine the end results.

The Ship personnel should have a proper knowledge of the technical aspects of the ship and its operation as necessary for the performance of their duties and the company should ensure that they are provided with necessary training for familiarization with the particular ship or equipment. The company should fully recognize the implications of commercial decisions in terms of safe ship operation and pollution prevention.

V. CONCLUSION

The shipping industry remains a stimulating, hiring and fulfilling vocation; a vocation that can employ human elements almost anywhere. It is the human element that handles what occurs daily at work; from the routine tasks of a ship's rating right through to the policy decisions of the IMO. It embraces the integral spectrum of human activities performed by the crew on ships, shore-based personnel, organizational bodies, recognized organizations, shipyards, legislators, maritime education and training and other related parties, all of whom need to cooperate in addressing human issues effectively. The human element embraces the integral spectrum of human activities performed by the crew on ships, shore-based personnel, organizational bodies, recognized organizations, shipyards, legislators, maritime education and training and other related parties, all of whom need to cooperate in addressing human issues

effectively. It is recognized that the quantification of the human element in general and its role can influence the methods of upgrading safety management systems. All should cooperate to address the human element.

VI. REFERENCES

[1] Armstrong M., "Armstrong's Handbook of Human Resource Management Practice", 11th edition, London and Philadelphia, 2009.
[2] Chawla P., "Building the Company Culture. The International Maritime Human Element Bulletin" Alert, 5, 2004.
[3] El Ashmawy M., "Effective Implementation of Safety Management System (SMS): An Overview of the Role of The Human Element", "MET Trends in the X:Xl Century", Admiral Makarov State Maritime Academy, 2009, page 246- 255.
[4] EtmanE.andHalawa A., "Safety Culture, The Cure for Human Error: A Crttique", Proceedings of"World Maritime Excellence" Odesa National Maritime Academy, 2007, page 115-126.
[5] The 13th Annual General Assembly of the IAMU Expanding Frontiers - Challenges and Opportunities in Maritime Education and Training, 2014.
[6] IMO guidelines on management for the safe operation of ships and for pollution prevention