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WORLD MARITIME UNIVERSITY

Malmö, Sweden

**HUMAN ELEMENT IN SHIPPING -
TRAINING AND COMPETENCE
OF SHORE BASED PERSONNEL**

By

KEITH JOSEPH MIRANDA

India

A dissertation submitted to the World Maritime University in partial
fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

Maritime Education and Training

(Nautical)

1998

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.



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Title of Dissertation: **Human element in shipping - Training and competence of shore based personnel**

Degree: **Msc**

This dissertation examines the need for the training of shore based personnel employed in shipping companies.

Numerous studies address the human element in shipping - the Seafarer, as one of the main causes of accidents and pollution. As a result, regulations targeting the training of seafarers have been greatly enhanced in the recent past. Very little has been said about personnel manning shipping companies in numerous offices ashore.

Rapid strides in communication have brought the “seafarer” and the “shore-farer” in close contact, the two being separated virtually by just the dialling of a few buttons of a telephone or a fax. This study examines the role of the human element in maritime losses, a proportion of which can definitely be attributed to the role of the office staff or the “shore element”.

An examination of the present training being imparted to employees in shipping companies in India and the rest of the world has been carried out. A survey of shipping companies was conducted for this purpose. The author has observed that many companies refer to the experience gained while performing a job as ‘on the job training’. This dissertation deals with formal training of an employee.

Some accidents and incidents involving the human element have been examined. Hidden casualties and latent errors resulting in commercial losses have also been overviewed. The latter are normally not reported, and definitely do not form the basis of any investigations. Yet it is these commercial losses that can total up to

massive losses for a shipping company. The training of personnel so as to avoid these latent commercial losses is therefore of paramount importance.

An overall look at the regulatory environment in which the shipping industry operates today is provided. The development of safety management guidelines by the International Maritime Organisation, and the initiatives of various organisations within the shipping industry to develop safety, pollution prevention and quality codes, most of which are directed to the seafarer have been delineated. Safety management and quality management being intrinsically linked, the various aspects of quality management and their applicability to safety management have been examined. An analysis of the International Safety Management (ISM) Code, ISO 9002, and the STCW convention has been undertaken. In doing so, requirements of the regulations as related to the shore personnel have been examined.

Analysis of training needs have been carried out in the past. Some of these studies have been overviewed. An analysis of training requirements as perceived by employees in the shipping industry has been carried out by means of two separate surveys. One of these surveys was targeted at shipping company employees in India, and the other at shipping industry employees in the rest of the world.

The dissertation closes with conclusions drawn from the investigations of this study. Recommendations have been made on how various shipping companies can train their employees and contribute to the overall safety and successful running of their respective companies, and to shipping in general.

KEYWORDS: Human Element, Training, Shore Personnel, Indian Shipping, Training needs analysis, Management.

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LIST OF ABBREVIATIONS

ABS	American Bureau Of Shipping.
ANSI	American National Standard
AS	Australian Standard
BIAMS	Bombay Institute of Advanced Maritime Studies
BPIT	British Port Industry Training
BS	British Standard
CBT	Computer based training
DIN	German Standard
DMET	Directorate of Marine Engineering Training
DOC	Document of compliance
EC	European Community
EDP	Electronic data processing
EN	European Norm
ETA	Estimated time of arrival
EU	European Union
GESCO	Great Eastern Shipping Company
GM	Metacentric height
GPS	Global Positioning System
HELMEPA	Hellinic maritime
IACS	International Association of Classification Societies
IFSMA	International Federation of Shipmasters' Associations
IIM	Indian Institute of Management
IIMA	Indian Institute of Management, Ahmedabad
ILO	International Labour Organisation
IMLA	International Maritime Lecturers Association
IMO	International Maritime Organisation.
IMPA	International Maritime Pilots' Association

SMC	Safety management certificate
SMS	Safety management system
SOLAS	Safety of life at sea
STCW	Standards of Training, Certification and Watchkeeping for Seafarers.
SVQ	Scottish Vocational Qualification
T.S.	Training Ship
TIHR	Tavistock Institute of Human Relations
TNA	Training Needs Analysis.
UK	United Kingdom
UKHMA	United Kingdom Harbour Masters' Association
UNCTAD	United Nations Conference on Training and Development
VLCC	Very Large Crude Carrier
VTS	Vessel Traffic Services
WMU	World Maritime University

Chapter 1

General Introduction

There is no doubt that the human element dimension of maritime safety has moved very much to the forefront of international concern with shipping casualties. More specifically, such organisations as the International Labour Organisation (ILO), the International Maritime Organisation (IMO), the International Shipping Federation (ISF), the International Federation of Shipmasters' Associations (IFSMA), the seafaring unions, the International Maritime Pilots' Association (IMPA), the Nautical Institute, and the Royal Institute of Navigation, and their branches, have all increasingly begun to focus their attention on the general area of human factors, as well as on specific aspects (e.g. alcohol and drugs, stress, fatigue, boredom, motivation, vigilance, discipline, management.)

(The Tavistock Institute of Human Relations, 1988, II/2)

Shipping, as a service industry, is expected to provide a safe, high quality, environment-friendly service to its customers. Being an international industry, this makes it necessary for shipping companies to ensure that their operations fulfil high standards of safety and pollution prevention, which can live up to international standards. In order to achieve high international standards, they must achieve a zero defect status. This means no accidents or incidents that could jeopardise their international standing. Achievement of this means analysis of the root causes of

accidents, incidents, injury to personnel, etc., and eliminating the causes. International organisations worldwide, including Protection and Indemnity (P & I) clubs among others, have been quoting that about 80% of accidents are caused by human error. It is therefore an obvious conclusion that the aspect of human error needs to be tackled if the stated primary cause of accidents is to be eliminated or reduced. This can only be done by means of adequate training.

1.1 Background

During the nineteen eighties, as a result of the recession, many shipping companies sacrificed quality, maintenance and performance standards in order to improve profitability. They placed a greater emphasis on cost reduction, rather than on quality. There was a deterioration in the standards over the years. As a result, the standards of safety came down too. In order to achieve short term profits the industry had jeopardised its long term interests. Quality and safety are both interlinked, important instruments of long term profits. One cannot be neglected if the other is to be achieved.

In the nineteen nineties, there has been a change in the ownership of ships. This can be observed in the world fleet today. Major oil companies and traditional tanker owner-operators retreated from the market. There was a change from the traditional shipowners to the ship managers who entered the market with only short term profits as their near-sighted goal.

The existing ships are steadily increasing in age, the present average age of the world fleet being almost 18 years (Lloyd's Shipping Manager, Jan 1998). Due to the recession the ship owners did not want to invest in new tonnage. As the ships grow older, it will become necessary to give more attention to the maintenance and upkeep

of existing ships. But in reality this does not happen. Of course, this does not mean that all ships plying the trade routes are safety and environmental hazards. Some of the responsible owners and operators do maintain old tonnage in good condition. They have time-tested planned maintenance systems and policies and also go in for selective tonnage replacement. The Shipping Corporation of India is an example, with the average age of its fleet presently being 13.4 years. (Lloyd's Shipping Manager, Jan 1998, 22). The company also has a planned maintenance system in place.

1.2 INMARSAT and modern communications - A shift of control

Rensvik (1996) in his paper 'Information technology and efficient training methods in ship operation', presented at the International Maritime Lecturers' Association (IMLA) conference in Kobe, has stated:

New satellite communication systems will in the near future open for lower cost and possibility for high speed exchange of essential information. This will be the basis for better decisions both on board, in the shipowner's office and in co-operation with equipment suppliers and classification societies.

(IMLA 9, Kobe, 16-20 Sept. 1996)

Reliable and efficient ship-shore communication systems make it possible to contact a ship at sea today almost instantaneously. These communication links have virtually transferred the control of the ship from the ship, to the shore. It has always been the shipmaster who took decisions regarding the safety of his crew, the cargo his ship was carrying, and his ship. He used to be deeply involved in the commercial decision-making process for his own ship. The master's role has now diminished

with improved communication. Major decisions are made ashore by the owner or the ship operator and conveyed to the master for compliance.

With recessions, and depressed economic scenarios, sometimes commercial considerations may take precedence over safety aspects in the decision-making process ashore. The Master, though still responsible for the safety of the ship, its crew and cargo, may find it very difficult not to abide by an unsafe decision taken ashore. The IMO has already addressed this problem in 1979. IMO Resolution A. 443(XI), adopted on 15 November 1979 states:

Considering that maritime safety and protection of the marine environment must be the shipmaster's prime concern in all situations that arise and that economic and other pressures on the shipmaster should not at any time interfere with the decisions he must take in that regard,

Considering further that the decisions on maritime safety and marine environment protection by the shipmaster should not be unduly influenced by instructions given by the shipowners, charterers or others concerned, **Invites** Governments to take necessary steps to safeguard the shipmaster in proper discharge of his responsibilities in regard to maritime safety and the protection of marine environment by ensuring that:

- (a) The shipmaster is not constrained by the shipowner, charterer or any other person from taking in this respect any decision which, in the professional judgement of the shipmaster is necessary;
- (b) The shipmaster is protected by appropriate provisions, including the right of appeal, contained in, *inter alia*,

national legislation, collective agreements or contracts of employment, from unjustifiable dismissal or other unjustifiable action by shipowner, charterer or any other person as a consequence of the proper exercise of his professional judgement.

This Resolution never did become an international regulation. Even though the Master's responsibility in matters concerning maritime safety and protection of the marine environment was accepted, his authority to countermand a decision taken ashore by his shipowner or ship-operator, which may be detrimental to safety at sea and protection of the marine environment, was not explicit. These facts led to the conclusion that there must be some sort of regulatory control on the shipowner or ship-operator in matters concerning safety at sea and environmental protection.

1.3 Regulatory environment

Investigations following the loss of the Ro-Ro ferry *Herald of Free Enterprise*, on 6 March 1987, revealed a lack of standards in management of safety in shipping. In respect of this incident, on World Maritime Day 1994, the Secretary General of the IMO stated:

Bad management, however, is a problem everywhere. The inquiry into one accident involving a European ferry that capsized with heavy loss of life, said that '...from top to bottom the body corporate was infected with the disease of sloppiness.'

(<http://www.imo.org/imo/wmd/wmd94.htm>)

IMO Conventions, Classification Society Rules, Laws of the various Flag States, and

Port State Control Laws have, in the past, addressed the matters of construction, equipment and operation of general cargo vessels, oil tankers, chemical tankers, gas tankers, and bulk carriers. Safety and pollution prevention have been given paramount consideration in all these regulations. In spite of this, accidents have been occurring with attendant loss of life, damage to the environment, the ship, the cargo and property, possibly of third parties. After every major disaster, there is a huge public outcry, with a demand for legislative regulations to prevent such an event from recurring. Resultantly, new laws are passed and applicable rules amended.

A large scale maritime catastrophic incident reveals very little, if it is treated as an isolated incident. For every major incident that occurs, there are numerous minor incidents and even more numerous 'near misses'.

Whenever there is a maritime disaster, the regulatory bodies impose more stringent construction and equipment requirements and prescribe modifications to shipboard operational practices. This leads to a belief that incidents are caused chiefly by technical factors, and it is the technical causes that need rectification.

These accidents, incidents and near misses need to be analysed and the causes leading to the accidents must be identified. Most of the major maritime organisations have realised the need for this, and some studies have been commissioned into the aspects of the causes of maritime accidents.

1.4 Human Element in Maritime Losses

There is a need to understand the human element in maritime accidents or incidents. What is an accident, and how does it occur? An accident is a chance combination of causes that produce an undesired, unfortunate result. Often the human element in

maritime accidents is termed as 'Human Error'.

Quinn and Scott (1982), questioned the use of the term 'Human Error' as being misleading. They state that it may well come into use as a general attempt to treat the human being as a component of a system, in which case, 'human error' is then a 'component failure'. (TIHR, 1988, I/4).

There is the implication that the sole cause of accidents is the failure of the human 'component', instead of this being considered as one of the contributory factors. It would be more appropriate to refer to the mistakes that human beings make, which is part of the cause of an accident, as the 'human factor', or 'human related causes', or 'human element', than as 'human error'.

The immediate cause or the factor that triggers an accident may be human related. The conventional method of achieving safety goals is to limit investigations to this level and apply corrective feedback to the system. This method of identifying the immediate cause of an accident and eliminating each lapse may be termed as the reactive method.

In order to identify the actual causes of maritime accidents it is necessary to trace the causes to their origins. Organisational lapses are often found to be at the root of the causes of maritime accidents. The shore management of a shipping company plays a significant part in this. Deficiencies in the shore management system, a lack of a health, safety and operating policy may in some cases be the source of the problem. In some cases, the shore management may have good existing policies, however, which are not adequately implemented. This could be another contributory factor. The shore management not monitoring, or inadequately monitoring, the quality of personnel posted on board, shipboard safety, operations and health, can also be a cause.

Poor planned maintenance, improper work-force utilisation and lack of training can compound the chances of an accident.

A shipping company, in the long run, seeks to achieve a profit from its operations. This must be kept in proper perspective. The popular expression 'penny wise and pound foolish' is definitely not one to be applied to the operation of a well managed shipping company. This fact comes to light, however, often only with hind sight. The authority to release funds required for the safe operation of ships and its personnel is normally vested with the personnel manning the shipping company from ashore. These personnel must be made fully aware of the consequences of withholding the funds. Personnel using equipment that has a bad ergonomic design for example, can be subjected to personal injuries, which will cost the company in terms of medical care and insurance.

Ferry (1988, 201-202) has quoted a case where the management of a company had turned down requests for a new cart to transport heavy loads. The cost of a new cart would have been \$400. Using the old cart, three workers developed back injuries and sprains, resulting from the improper ergonomics of the old cart. Each of the back injuries or sprains cost the company \$ 24000. The old cart also needed extra men to operate it, and the cost of these extra men amounted to \$ 6000 per annum.

It is necessary for both, the seafarer, and the shore personnel to work as a team. The seafarer operates the ships of a shipping company. The personnel ashore, however, operate the shipping company itself. Rensvik (1996) states:

One of the major challenges in the near future is to integrate the resources and competence onboard, in the shipowner's office and in the supporting industries to improve the operation and maintenance

of the ship, and meet demands for safe operation and pollution prevention. (IMLA 9, Kobe, 16-20 Sept. 1996).

1.5 Shift in Legal Liability

Whenever there is a casualty, whether in the shipping industry or elsewhere, an investigation follows in order to find the cause of the casualty, and to allocate 'blame'. In the shipping industry, it is very often found that a lapse or negligence on the part of a mariner was a contributory cause of the mishap. Investigations in the past have been stopping here. Since the investigation showed that a member of the ship's staff was negligent, the insurance cover was available, and everyone was happy.

This is now no longer so. As evidenced in the Institute Time Clauses Hulls, the exercise of '*...due diligence by the assured, owners, managers or superintendents or any of their onshore management*' is now required since November 1995 (clause 6.2.5, Institute Time Clauses Hulls, 1.11.95).

In more recent times, investigators have not been stopping at the error that was committed onboard. They are going deeper into the accident or mishap, in order to identify the root causes. In the case of the *Herald of Free Enterprise*, the management has been held liable.

Traditionally, when a pilot boarded a vessel, the Master of the vessel was still responsible for the safe navigation of his ship. The pilot was present only to offer 'advice'. In the case of the *Sea Empress* that ran aground off Milford Haven, the pilot, harbour master and port authority have been held liable. A group called the 'Friends of the Earth' was considering prosecuting the Ministry of Transport as well.

This shift in liability or blame from the ship to the shore makes it all the more necessary to have well-informed and properly trained personnel managing the shipping company's offices.

1.6 Objectives of this study

The human element in maritime casualties extends to the shipboard and shore organisation and their efficient management. As stated by the Tavistock Institute of Human Relations, and quoted in paragraph 1.1 above, there are numerous international organisations that recognise this fact. The ISM Code among others has directed the onus for safety management onto the shore management. While it is acknowledged that the seafarer needs proper training, the fact is that there are so many regulations directed towards the seafarer, that he cannot serve on board a vessel without having been properly certificated and trained.

This study therefore examines the need for the training of the shore personnel who have all this time been left aside from mandatory training requirements. It investigates the training that is presently being carried out for personnel in shipping companies ashore, in India, and in the rest of the world. A few case studies are examined to highlight the human element aspect in casualties. Regulations such as the ISM Code, STCW Convention and the ISO 9000 series are examined and the aspects of training in these regulations are highlighted. The ISM Code specifically states that all personnel concerned with safety and pollution prevention must be appropriately trained.

This dissertation investigates some of the studies that have been carried out for the requirement for training of shore personnel employed in shipping companies. It also

suggests the type of training that a shore employee in a shipping company needs to undertake, at the time of recruitment, at the time of transfer, and at the time of promotion to higher responsibilities, and periodical refresher training.

The author is employed at the Maritime Training Institute (MTI) of the Shipping Corporation of India Ltd. (SCI). SCI is currently a conventionally managed company that owns, operates and manages a diversified fleet of over 145 ships (oil tankers, chemical tankers, gas tankers, passenger vessels, dry bulk carriers, container vessels, dry cargo vessels, offshore supply vessels, etc.).

The management of the Shipping Corporation of India Limited is already committed to training. It started a training department in 1973, and in 1987, it set up its own training institute, the Maritime Training Institute, in Mumbai.

The author expects that this dissertation will serve as a primer to personnel directly involved in development and implementation of training programmes necessary for the shore based officers and staff in the Indian shipping industry.

1.7 Methodology

The author contacted several shipping companies in India, and collected data regarding training being imparted to shore personnel in Indian shipping companies.

Shipping companies in Europe and Asia were also contacted for similar information regarding training that is imparted to shore personnel in European and Asian shipping companies.

A questionnaire was designed and sent by fax and e-mail to the various companies. A list of the companies contacted is given in appendix one. It was observed that the number of replies being received was insufficient. The questionnaire was therefore shortened and sent out again to the companies. The shortened questionnaire is given at appendix two.

In chapter two, the replies to the questionnaire have been summarised and the training being conducted in shipping companies in India, and in the rest of the world, at present has been analysed and compared. Earlier studies regarding training needs have been overviewed. Regulatory requirements for training have been examined. The need for an enhancement in the current patterns of training of shore personnel has been evidenced.

Having conducted a survey of the employers, i.e. the shipping companies in India and in the rest of the world, the author also sought the opinions of the employees. Two more questionnaires were sent out, and these are given at appendices three and four.

The questionnaire in appendix three was circulated to employees in Indian shipping companies, by the author, during the month of July 1998. The questionnaire in appendix four was distributed to students of the World Maritime University as this sample of students represents employees in the shipping industries of 73 countries.

In chapter five, the author has given the details of these two surveys of employees in the shipping industry.

Chapter 2

Organised Training

In order to establish a need for training of shore personnel, the present training being carried out has first to be examined. This chapter deals with the present status of training in India and in the rest of the world.

2.1 Training In India

This section of the chapter is related to the training being conducted in the Indian Maritime Industry. Training for seafarers and for shore personnel have been looked at in the sections below.

2.1.1 Training of seafarers - Brief history

Organised training of seafarers in India has had a long history, and dates back to the nineteen twenties. Both officers and ratings have been trained before they proceed to sea. A brief history of the training is given in the following sub-sections.

2.1.1.1 Training for shipboard officers

The formal training of marine personnel in India commenced with the commissioning of the Training Ship (T.S.) 'Dufferin' in 1927. The T.S. Dufferin

was converted to floating training institute for pre-sea nautical and engineering cadets. It was stationed in Bombay port, and provided quality training to numerous seafarers in the course of its active life. The T.S. Dufferin had trained 2116 nautical pre-sea cadets from 1927, till the time it was scrapped in 1972. In addition, 313 pre-sea engineering cadets trained on the T.S. Dufferin from 1927 till 1949.

In 1949, pre-sea engineering cadets training was shifted to the Directorate of Marine Engineering Training (DMET) at Calcutta. A branch of the DMET was also opened in Bombay. From its inception in 1949, to date, the DMET has trained over 4000 pre-sea engineering cadets, in two streams. One is the four-year marine engineering degree course, and the other is the one-year graduate engineer course.

Meanwhile, after the T.S. Dufferin was scrapped, it was replaced by another unpropelled training ship, the T.S. Rajendra, where on board training of pre-sea nautical cadets commenced in 1972. The T.S. Rajendra, like the T.S. Dufferin, its predecessor, was also stationed offshore in Bombay harbour. From 1972 till 1992, the T.S. Rajendra had trained 2501 pre-sea nautical cadets.

The T.S. Rajendra was also scrapped, and has now been replaced by a shore based academy called the T.S. Chanakya, which is situated off the city of New Bombay. The T.S. Chanakya has two streams, the three-year degree course for pre-sea nautical cadets, and a three-month pre-sea course. The degree course culminates with a certificate of Bachelor of Science (Nautical Studies).

2.1.1.2 Training for shipboard ratings

The formal training of pre-sea marine ratings was given a high priority by the Government of India. Three pre-sea training institutes were opened in 1950 for this

purpose. The T.S. Bhadra was located in Calcutta, in the state of West Bengal. The T.S. Mekhala was located in Vishakapatnam, in the state of Andhra Pradesh. The T.S. Naulakhi was located in Naulakhi, in the state of Gujarat. However, due to a huge surplus of trained ratings, and all three institutes were closed down in 1983.

The training of pre-sea ratings continued at the T.S. Rahaman, a private institute located at Sheva, near the Jawaharlal Nehru Port, across the harbour from Mumbai. The T.S. Rahaman trains pre-sea deck and catering ratings, and is expected to commence training of pre-sea engineer ratings shortly.

The National Seafarers' Union of India has set up its own training institute in Goa, on the west coast of India, and commenced training ratings for STCW courses.

2.1.2 Training of shore personnel

Training of shore personnel is being conducted by some of the Indian shipping companies. In order to collect data on the training being imparted, the author conducted a survey of several shipping companies in Bombay (Mumbai). Contact was established by telephone, fax and e-mail. A list of the companies that were contacted for the survey is appended in the appendix one. The results of the survey are given in the following sub-sections.

2.1.2.1 The Shipping Corporation of India Limited, Mumbai.

The Public Sector shipping company 'The Shipping Corporation of India Limited'(SCI) is the premier shipping company in India. The company owns and

operates a diversified fleet of about 145 vessels of over five million dead-weight tonnes.

The company has always considered human resources its most valuable asset and considered that training of personnel is a necessary investment. In order to meet the training needs of its fleet and shore personnel, numbering over 12000, the company set up a training department in 1973. This training department developed and conducted a few short courses in various colleges and institutes in Mumbai. In order to meet the different future training needs, the Shipping Corporation of India set up its own modern training institute, 'The Maritime Training Institute' in Mumbai in 1987. No other shipping company in the world has set up a training facility on this scale.

The Maritime Training Institute (MTI) is a branch of the World Maritime University, and a Trainmar centre for UNCTAD. The MTI conducts IMO seminars and regional model courses for participants from South Asia, South East Asia and the Pacific area. The MTI also conducts various STCW courses for the seafarers serving with SCI. These STCW courses are also open to seafarers in general.

One of the purposes of the MTI, which relates to the topic of this dissertation, is the training of shore based personnel. The MTI conducts training courses for its shore based employees and a few tailor-made courses for the industry.

In December 1997, the Shipping Corporation of India Limited had 1044 officers and 712 staff members on its roster. The company has a well laid out programme for training. Yet, the company has not yet managed to train all its shore based employees for job specific training. The figures under the column SCI trainees do not correctly reflect the total number of employees trained. The reason for this is the process of selection for training.

MTI has so far conducted training courses for shore based personnel as shown in table 2.1 below:

*Table 2.1
Training conducted at the Shipping Corporation of India's
Maritime Training Institute in Mumbai.*

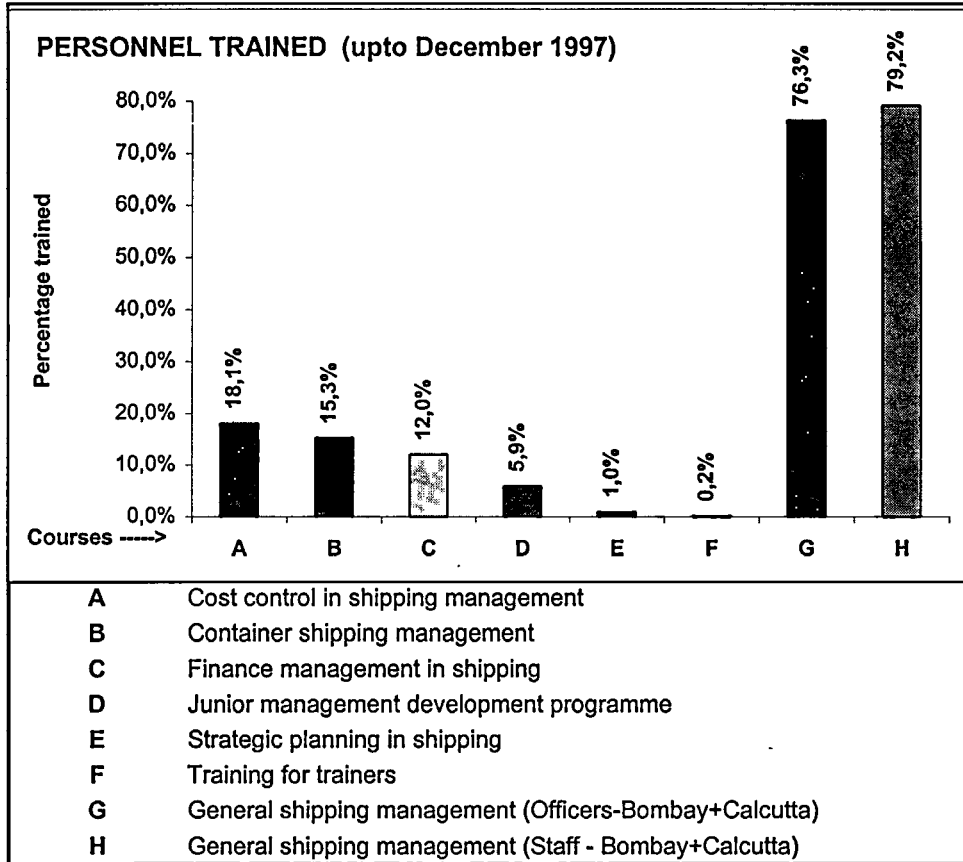
Course Name	Number of Courses conducted	From	To	SCI trainees	Non-SCI trainees	Total
Cost control in shipping management	25	1986	1997	318	14	332
Container shipping management	18	1986	1997	268	4	272
Finance management in shipping	16	1989	1997	211	23	234
Junior management development programme	7	1992	1997	104	0	104
Strategic planning in shipping	1	1989	1989	17	2	19
Training for trainers	3	Jul-96	Dec-97	3	51	54
Training for workshop instructors	3	Jul-97	Dec-97	0	45	45
General shipping management (Officers - Mumbai)	37	Apr-81	Jun-97	700	0	700
General shipping management (Officers-Calcutta)	4	Aug-85	Aug-87	97	0	97
General shipping management (Staff - Mumbai)	22	Nov-83	Dec-97	400	0	400
General shipping management (Staff - Calcutta)	7	Oct-85	Aug-89	164	0	164

(Source: A. Gopalakrishnan, MTI, Mumbai).

MTI also conducts 2 courses per year on 'Risk Management and Marine Insurance', and one course per year on 'Practical Aspects of Chartering Management', with 16 participants each course. Table 2.1. is shown as a graph in figure 2.1 below, with the percentage of SCI employees trained in different courses. Personnel from other shipping companies that have been trained are not included in the graph below.

Figure 2.1

Percentage (of the total) employees trained in SCI



The procedure for selecting trainees to attend a course is that MTI prepares a schedule of courses two to three months in advance. This schedule is circulated to all the departments of the SCI, and also to others, including the Indian National Shipowners' Association (INSA) for onwards transmission to its members. This circulated schedule gives the details of the course, and the maximum number of participants permitted. The various departments of SCI then 'nominate' a person, or persons, to attend the course. Care is taken to ensure that a person does not attend the same course twice. However, the nominees sent for courses are always familiar faces, who would have probably attended all available courses.

New recruits undergo a two week course in 'General Shipping Management'. They then work for short periods in various departments, under-studying senior employees. They thus are provided with some 'on the job' training. Subsequently, they are posted to a particular department. The training of new recruits in SCI is therefore an on-going process.

The company has always had a policy of transferring personnel inter-departmentally. There is no structured training programme for employees transferred. There is no structured training for personnel prior to promotion. There is also no structured arrangement for refresher training for employees. Employees do however attend seminars and workshops on a fairly regular basis, as and when these are available.

The company encourages its employees to attend courses and re-imburses costs within certain limits. Additional advance increments are given to employees who complete certain courses. The company sends two employees each year to the World Maritime University in Malmo, Sweden for the Master of Science Degree Courses in Maritime Education and Training and Shipping Management.

2.1.2.2 Great Eastern Shipping Company, Mumbai.

Jagtap (1998) of the company's human resource development department has provided the information given below: The company employs 385 personnel in shore posts. There is no facility or plans for in-house training for shore personnel in the company, for reasons such as shortage of space.

However, the company recruits its new personnel from the Indian Institute of Management, at Ahmedabad, one of the leading management training institutes in India. The company does send its personnel for technical training and behavioural

training in and out of Mumbai. Senior managers and above are sent in batches of two or three to external agencies for training.

Table 2.2 below shows the wide variety of training courses that some of the shore based personnel have attended during the period from April 1997 to December 1997.

Table 2.2

Training conducted by the Great Eastern Shipping Company, Mumbai.

Name of the Course	Number of Persons
Hull inspection course	1
Forum seminar	2
Legal aspects of transfer, promotions etc.	1
Internal auditors course, maritime ISM course	3
Training for trainers	1
Programme on workplace productivity and quality	1
Landmark advanced course	1
Becoming world class	3
Effective communication for improving performance	1
Effective negotiation skills	1
Practical aspects of chartering management	1
Oracle B : New features	4
Hull insurance	1
Seminar on HR strategies	1
Yoga programme on stress management	15
P & I Insurance correspondence course	1
ISM code	2
First aid course	4
Global finance	1
Finance for non-finance executives	1
Project management plus	3
Self expression and leadership	1
Shipping management course	2
Strategic purchase management	1
Communication skills	2
Secretarial grid seminar	3
The unified modelling language	3

(Source: Mr. Jagtap, GESCO, Mumbai.)

2.1.2.3 Tolani Shipping, Mumbai.

Fifty personnel are employed in Mumbai. The company does not have any facility or plans for in-house training for shore personnel in the company. However, the company does send some of its personnel to attend some seminars, as and when any relevant seminars are conducted. There is no structured training programme for any level of employee (Rao, 1998).

2.1.2.4 Varun Shipping, Mumbai.

According to information obtained from Berry (1998) of Varun Shipping, the company employs a little over 100 personnel in shore posts. There is no facility or plans for in-house training in the company. However, the company sends its Deputy General Managers and General Managers for training to the Indian Institute of Management (IIM), at Ahmedabad. The IIM is one of the leading management training institutes in India. There is no structured training programme for any level of employee.

2.1.2.5 Larsen & Toubro Shipping, Mumbai.

The company 'Larsen and Toubro' is an engineering company and 'Larsen and Toubro Shipping' is one of the departments of the company. The company has a large number of employees of which only a few are employed in the shipping department. It appears that the shipping wing of Larsen and Toubro would shortly be closing down. However, according to Srivastava (1998) there has never been any structured training programme for the personnel working in the shipping wing. The

shipping wing employees have undergone managerial and behavioural training “as and when required”, together with the rest of the Larsen and Toubro personnel.

2.1.2.6 Selandia Marine Services Private Limited, Mumbai.

The company operates forty-six vessels and employs sixteen staff in Mumbai. It is an ISO 9002 company and has regular company training for new recruits. Refresher training is also provided. Personnel are not transferred and hence no special training is required for this aspect of development. Personnel are trained prior to promotion for the next post.

2.1.2.7 Orinoco Marine Consultancy India.

The company operates fourteen vessels and employs sixteen personnel in Mumbai. They have a distance learning programme for new recruits. No refresher training is provided. Personnel are not transferred inter-departmentally hence the requirement for training does not arise. Training prior to promotion is ‘on the job’.

2.1.2.8 Anglo-Eastern Ship Management Limited, Mumbai.

The company manages 51 vessels for Anglo-Eastern Ship Management Limited, Hong Kong. It employs 27 personnel in shore posts in Mumbai. The company has its own in-house training department in Mumbai and trains its employees at this facility. It provides training for new recruits. It also provides refresher training for its personnel (Nair, 1998).

2.2 Training in the rest of the world.

Having examined the training being conducted by shipping companies in India, and in order to compare the training in India with the training being conducted in shipping companies outside India, a questionnaire was prepared to send to shipping companies in Europe and Asia. The questionnaire is placed in appendix two.

A list of the companies that were contacted for the survey is appended in the appendix one. Replies were received from seven companies, and these replies, in the order that they were received, are summarised in the sub-sections below. The seven companies that have replied own or operate between 24 and 170 vessels therefore provide a good cross section of the training being carried out in the rest of the world.

2.2.1 Germany: RF Reedereigemeinschaft Forschungsschiffahrt GmbH.

The company, contacted on e-mail, was kind enough to respond quickly. Regarding training of shore based personnel, Giessel (1998) has made available the following:

The company has seven research vessels and employs 21 persons ashore. It does not have any structured training programme for new recruits. It does not normally transfer personnel interdepartmentally and therefore does not have the need to have a training programme for such employees.

Normally training is 'on the job'. In case of any need for additional schooling or training, personnel attend seminars as individually convenient. The company is certified according to DIN ISO 9002, and has appointed training-commissioners for their seafaring and shore based personnel. These training commissioners co-ordinate the individual training.

2.2.2 Sweden: Cool Carriers - Stockholm

Hellberg (1998) has provided the information given below:

The company owns 18 vessels and operates another 75. It has a shore staff of 67 persons. The new recruits in the company undergo an individual plan depending on the job. They are trained in company history, rules and regulations as an employee, and trained regarding the organisation. They visit different departments, learn to know the customers and the shipping industry and also 'learn from their daily work' (understood to mean 'on the job').

Other employees (besides new recruits) meet their superior once a year, to discuss their own need of development. The employees are encouraged to discuss their aims, aspirations and goals with their superior. These could be in the form of wanting to attend seminars, wanting a job rotation, or wanting to visit other companies. The company organises courses in legal matters, chartering, economics and EDP.

The personnel are not often transferred interdepartmentally, and the company has therefore not commented on training for transferees. The company does not have a structured training programme for personnel prior to promotion. However, to quote the words of their e-mail reply, in the context of training prior to promotion, Hellberg (1998) writes 'not today, hopefully tomorrow at least for new managers in leadership'.

The company therefore appears to acknowledge the need for training, as the tone of their reply suggests that, even though they do not have all forms of training in place 'today' they hope to 'tomorrow'.

2.2.3 Norway: Lief Hoegh & Co. ASA

Regarding training of shore based personnel, the personnel manager of the company has made available the following information:

The company owns 40 ships and partly owns another 60. There are 130 personnel employed ashore. There is no training programme for new recruits. The company transfers its personnel inter-departmentally. There is no training programme for personnel transferred and no training programme for personnel prior to promotion.

2.2.4 Denmark: Scandlines A/S, Copenhagen.

The company owns 25 ships. In March 1998, the company had 698 personnel employed ashore. The company does not have a training programme for new recruits. The company transfers its personnel inter-departmentally. There is no training programme for personnel transferred. There is no training programme for personnel prior to promotion (Sorensen, 1998).

2.2.5 Denmark: A. P. Moller (Maersk) Copenhagen

The company was contacted by fax and sent a letter by way of reply, requesting that they be contacted on the telephone. Accordingly, telephone contact was established, and the information obtained from Andersen (1998) on the telephone is given below:

Information regarding the number of vessels owned or operated was considered confidential. The number of employees ashore is also confidential. The company conducts training programmes for new recruits at Maersk International Training Limited. It recruits personnel from 41 countries world-wide. It provides training in

'practical and theory', using local lecturers and lecturers from other universities. Refresher training is conducted by sending employees to attend courses at London Business School, Harvard University, and Stanford University among others. Personnel are transferred inter-departmentally every two to three years and are trained prior to transfer. Personnel are also trained prior to promotion.

2.2.6 Singapore: B & H Equimar Private Limited.

The company owns 24 vessels and employs 16 persons in Singapore. New recruits are trained '...on the spot under experienced persons', taken to mean supervised 'on the job' training. Refresher training, and training prior to promotion are carried out (Bajaj, 1998).

2.2.7 Barber International.

The Mumbai office of the company has provided the following information:

The company operates 170 vessels and employs 400 personnel ashore. There is no training programme for new recruits. No refresher training is provided. Personnel are transferred inter-departmentally but they are not trained. No training programme is in place for personnel prior to promotion.

2.3 Summary: Comparison of training being carried out in India and in the rest of the world.

The data above has been tabulated in table 2.3 below for purposes of comparison:

Table 2.3

A comparison of the training of shore based personnel being carried out in India with the training being carried out in the rest of the world.

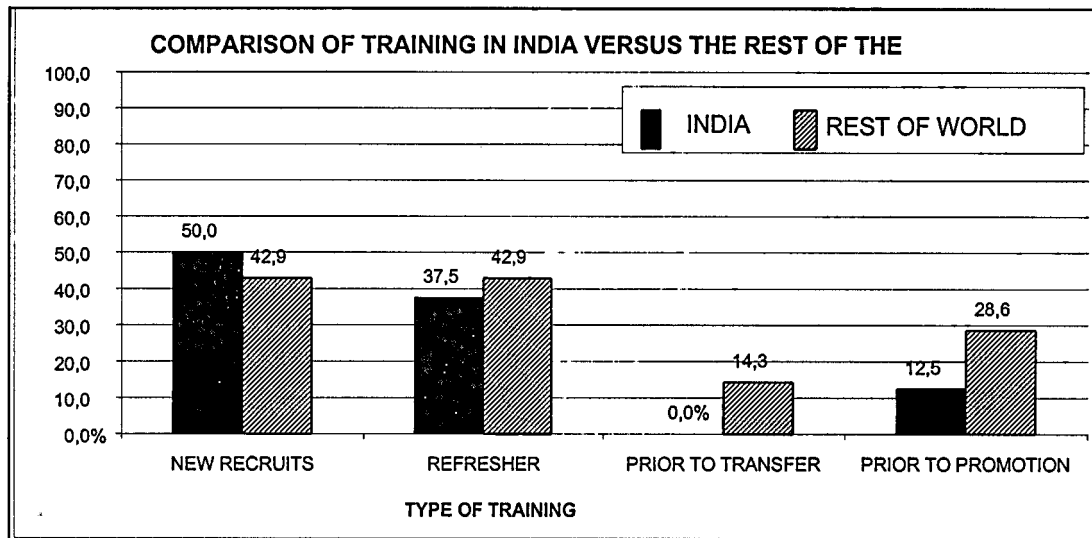
Company Name	A	B	C	D
The Shipping Corporation of India Limited	yes	no	no	no
Great Eastern Shipping.	no	yes	no	no
Tolani Shipping, Mumbai.	no	no	no	no
Varun Shipping.	no	no	no	no
Larsen and Toubro Shipping.	no	no	no	no
Selandia Marine Services Private Limited.	yes	yes	N/A.	yes
Orinoco Marine Consultancy.	yes	no	N/A.	no
Anglo-Eastern Ship Management Limited.	yes	yes	N/A.	no
No of Indian companies providing training	4	3	0	1
Percentage of Indian companies carrying out structured training-based on 8 replies.	50	37.5	0	12.5
Germany: RF Reedereigemeinschaft Forschungsschiffahrt GmbH - Bremen.	no	N/A.	no	no
Sweden: Cool Carriers - Stockholm	yes	yes	N/A	no
Norway: Lief Hoegh & Co. ASA.	no	no	no	no
Denmark: Scandlines ASA - Copenhagen.	no	no	no	no
Denmark: A. P. Moller (Maersk)- Copenhagen.	yes	yes	yes	yes
Singapore: B & H Equimar Private Limited.	yes	yes	N/A	yes
Barber International.	no	no	no	no
No. of companies (rest of the world) providing training	3	3	1	2
Percentage of companies in the rest of the world carrying out structured training - based on 7 replies.	42.8	42.8	14.2	28.4
Key to the types of training :				
A: Structured new recruit training		B: Structured refresher training		
C: Structured training prior to transfer		D: Structured training prior to promotion		

In respect of training for new recruits, Indian companies are carrying out more training than companies in the rest of the world. However, later on in the career of the shore employee, when refresher training is required, the companies in rest of the

world have more organised training than the Indian shipping companies. Figure 2.2 illustrates this:

Fig. 2.2

Comparison of the training being carried out in Indian shipping companies versus the training being carried out in shipping companies in the rest of the world.



Overall, structured training is more organised in the rest of the world (Europe and Singapore), than in India. A majority of the companies in India and the rest of the world, do not train personnel prior to transfers and prior to promotion. In view of the requirement that personnel are trained before assuming new responsibilities, this needs rectification.

In the overall analysis, structured training is not being planned and carried out for shore based employees. If the the performance of shore based employees is to improve, all companies should plan and organise their manpower so that each employee is trained at the time of recruitment, prior to transfer to new responsibilities, and prior to promotion. At intermediate intervals, refresher training

to keep the employee up to date with current practices, rules and regulations, should also be provided.

The author has also conducted surveys of *employees* in the shipping industry in order to examine their views on training needs. These surveys form a part of a subsequent chapter five which deals with training needs analysis.

Chapter 3

Studies of incidents and accidents involving the human element.

In chapter two, a survey of the training that is currently being imparted has been undertaken. However, accidents and pollution are still occurring. The purpose of this chapter is to study the causes of incidents, accidents and casualties. Some of the studies carried out regarding the involvement of the human element in shipping and other casualties have been examined. A few case studies of inquiries conducted after a casualty have also been overviewed.

‘Every accident, no matter how minor, is a failure of organisation.’

Attributed to Professor Kenneth R. Andrews, Harvard Graduate School of Business Administration, 1953 (Ferry, 1988, v).

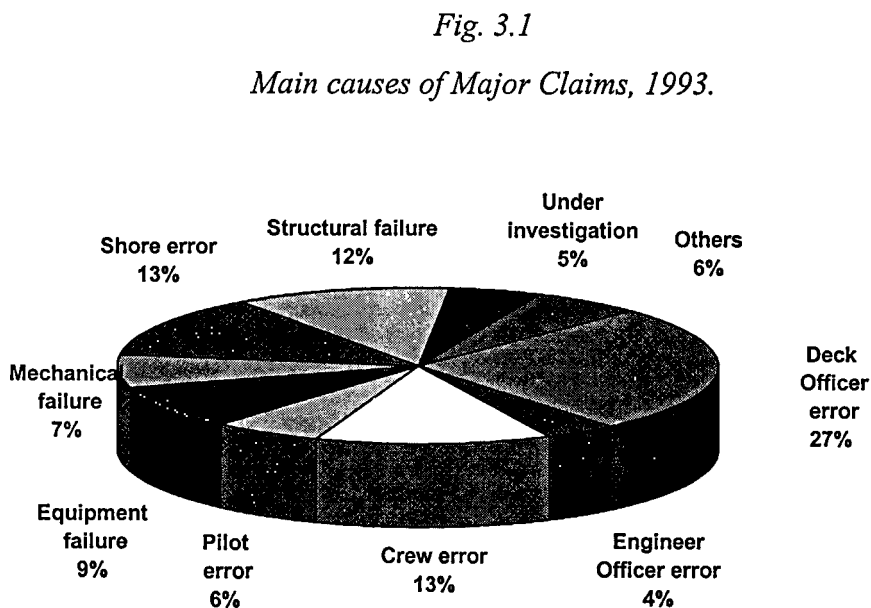
3.1 The UK P & I Club ‘Analysis of Major Claims 1993’.

The United Kingdom Mutual Steam Ship Assurance Association (Bermuda) Limited, carried out an analysis of major claims in 1993. (UK P & I Club, 1993a). The report identified that ‘...three out of every five claims are directly related to an error on the part of one or more individuals engaged in the operation of the Members’ ships’. In the above mentioned analysis, it is stated that ‘there is evidence that well-informed

and properly trained personnel can be over confident, careless or even reckless in responding to commercial pressures' (UK P & I Club, 1993a, 12).

The main causes of major claims (i.e. claims exceeding US \$ 100,000) have been identified by the UK P & I Club as 63 % relating to human error, 13 % of which are attributed to shore errors. The remaining 50 % are attributed to errors on the ship, and are broken down into 27 % deck officer error, 4 % engineer officer error, 13 % crew error, and 6% pilot error. Other causes of claims have been related to equipment failure, mechanical failure, structural failure and 'others'.

Figure 3.1 below illustrates the break-up of the main causes of major claims.



(Source: UK P&I Club)

A further analysis of the report shows that about 48% of personal injury claims' causes are due to human error.

Seventy-nine per cent of property damage claims resulted from human error, 10 % being due to shore error. Of the balance, deck officer error was attributed to 28%, engineer officer error 2%, crew error 5%, pilot error 34%. The rest were due to equipment failure 3%, mechanical failure 9%, structural failure 1%.

In the analysis on cases of pollution, 59 % resulted from human error. Of these, deck officer error accounted for 23%, engineer officer error 2%, crew error 15%, pilot error 6%, shore error 13%. The rest were due to equipment failure 11%, mechanical failure 6%, structural failure 11%. A few cases were under investigation.

The report has analysed 304 cases of tanker claims. Twenty-five 25 resulted from shore person error. Four hundred and seven bulker claims analysed showed 60 resulting from shore person error. Fifty two percent of reefer ship claims resulted from human error, of which shore person error accounted for 12 %, deck officer error 20%, engineer officer error 5%, crew error 11%, pilot error 3%. The rest were due to structural failure 6%, mechanical failure 10%, equipment failure 15% plus others under investigation.

From the above study, it is apparent, though errors by the ships' personnel and the pilots taken together are statistically larger, shore personnel errors account for a substantial part of the human error component in the claims. A deeper analysis of the errors attributed to the ship may also well result in the final percentage attributable to shore error being higher.

3.2 NTSB Surveys

Ferry (1988, 59) has reported on several cases in his book 'Modern Accident Investigation and Analysis'. Investigations were carried out by the National

Transportation Safety Board (NTSB) into 110,000 accidents over a period of 25 years. The NTSB arrived at conclusions that showed that, with different human response or anticipation, most of these mishaps could have been prevented.

One NTSB report in 1986, involved a Panamanian registered car ferry, the *L.A. Regina*, which ran aground. The report found that the Master may have been drowsy as a result of medication that he had been taking, and, therefore, committed an error. (Ferry, 1988,62).

It may be questioned here whether a Master who required medication should have been in command of a car ferry, or whether he should have been on board at all. Was the shore management aware of the possible consequences? In the context of the requirement that a shipping company must ensure that its vessels are properly manned would such a lapse be considered to be error on the part of the Master or would it be considered as a lapse on the part of the company?

3.3 Tavistock Institute of Human Relations (TIHR) research

The Marine Division of the UK Department of Trade, (now the UK Marine Directorate of the Department of Transport) commissioned a study into the Human Element in Shipping Casualties. The study was carried out by the Tavistock Institute of Human Relations. This section examines the study conducted by TIHR.

The TIHR studied 12 collision cases and found that the human element played an important part in the causes of some of the collisions. There was very little information available in the casualty reports relating to organisational or managerial issues. However, in discussions with seafarers and the maritime community it was observed that it is often claimed that the crew are operating under extreme

commercial pressure. Acknowledging that this is an area that is difficult to investigate, the report states that ‘...a Master might be ill advised to report openly that he set out to sea in response to commercial pressures before his ship was fully ready to sail from the safety viewpoint’. (TIHR, 1988, V/9).

Twenty cases of fires and explosions were investigated by the TIHR. Deficiencies in management were encountered in several forms. In one case of arson, the report puts forth a more complex managerial problem, one regarding the vetting of crews by the management. The crew member involved had been creating trouble for some time, and the Master was criticised for not taking action earlier.

On top of his other onerous duties, the Master is expected to be a sensitive personnel manager without, in most cases, having had any specific training in the art. The lack of such training seems particularly unfortunate given the assertion by seafarers that “we know nothing about the crews we sign on; no personal or job references are required”. Given the nature of the seafaring task, this seems to be a glaring deficiency. Crews are required to operate in a dangerous, isolated environment, cut off for much of the time from social support structures: hence there is a case to make the vetting of crews a management responsibility.

(TIHR, 1988, VI/6)

The TIHR studied sixteen cases of grounding. The analysis suggests that ‘human responsibility’ for groundings may be at least as high as for collisions. Seven cases of ‘contacts’, involving one vessel only, as opposed to collisions, where two vessels were involved were also studied. The main implications for the involvement of the human element ‘appeared to be how a combination of difficult technical and physical

circumstances and a sequence of human decisions can aggravate an otherwise straightforward situation.’ (TIHR, 1988, VIII/2).

In the conclusions on training and safety, the TIHR has observed a need for better personnel management training for seafarers.

In the conclusions on company policy, the opinion is that the shipping company has a critical role to play in preventing casualties and ensuring safety. TIHR also maintains that vetting and selection of crews should be a managerial or organisational responsibility and should be done more carefully.

The research also addresses the problem of social differences between personnel. A report by Reason in 1987 suggested that, at Chernobyl, the social differences between technicians and external experimenters may have been a significant factor in creating the disaster. (TIHR, 1988, VII/3). Could there perhaps be a lesson to learn here, from the point of view that India is a vast country with personnel having sometimes large social differences?

3.4. Inquiries into Management Ethics

Dr. Robert E. Allinson has studied four different cases of global disasters. In his book, ‘Global Disasters - Inquiries into Management Ethics’ (1993, 41) he has stated that ‘...the unwillingness to assume responsibility for taking action or ensuring the existence of free-flowing information is the source of most, if not all, global disasters.’ He maintains that the senior most person in an organisation is not the one who should be solely vested with responsibility. Quoting the expression ‘the buck stops here’ which originated with Harry Truman, Allinson says that it began as an honourable expression, but has been subjected to considerable abuse. With such a

structure, every organisation with multiple levels of authority can have the responsibility passed upwards to the next higher level. This signifies an attitude of non-responsibility. (Allinson, 1993, 39-40). Personnel at every level must be trained to accept their responsibility.

In studying the case of the *Herald of Free Enterprise*, Dr. Allinson has quoted the Justice Sheen report (paragraph 14.1) as stating that 'from top to bottom the body corporate was infected with the disease of sloppiness'. (Allinson, 1993, 190). In his study he has discovered that the Masters of many of the P&O European Ferries had requested for bow and stern door indicator lights on the bridge. These requests came from Capt. Blowers of the *Pride*, Capt. Kirby of the *Herald of Free Enterprise*, and several times from Capt. de Ste Croix. However, all the requests from the Masters were not acted upon. Some of the remarks made by the shore management and quoted by Allinson (1993, 203-205) are interesting enough to be repeated here.

The deputy chief superintendent Mr. Alcindor has been reported to have written 'do they need an indicator to tell them whether the deck storekeeper is awake or sober? My goodness'.

The senior electrical officer has written to Capt. de Ste Croix to 'please submit the request to the Marine department on the usual application form. If it receives their blessing I will proceed with the specification. It can be done, but will require a few deck and bulkhead penetrations'.

Mr. R.W. King, senior electrical officer has written to Mr. Alcindor that 'I cannot see the purpose or the need for the stern door to be monitored on the bridge'.

Mr. Alcindor, deputy chief superintendent has written to Capt. de Ste Croix ‘... the project is unnecessary...if the bow and stern doors are left open, the person responsible for closing them should be disciplined’.

The Sheen report quoted by Dr. Allinson states that ‘...the shore management took very little notice of what they were told by their Masters. The Masters met only intermittently...the real complaint, which appears to be fully justified, was that the marine department did not listen to the complaints or suggestions of wishes of their Masters’. (Allinson, 1993, 206).

The malaise of accidents or incidents arising from lapses in management is not restricted solely to the maritime industry. Allinson (1993, 211-259) has also written on the Air New Zealand DC10 airliner crash on Mount Erebus, Antarctica on 28 November 1979. Shore personnel changed the flight plan after the pilots had been briefed, and the pilots were not informed of the change. The changed flight plan took the aircraft directly over Mount Erebus instead of twenty-seven miles west of it as the pilots had been informed in their briefing. Two hundred and fifty-seven people died in the crash.

Reporting on the space shuttle *Challenger* disaster, Allinson (1993, 105-151) has identified lapses on the part of the management. The technical reason for the mishap was attributed to a faulty ‘o-ring’. The fact that the ‘o-ring’ was faulty and showed signs of thermal distress at temperatures below 61°F on each of the previous launches was known well in advance. Yet *Challenger* was launched at 36°F. Allinson maintains that there was no strong reason for launching the space shuttle unless there was strong political or commercial pressure applied.

In respect of the Kings Cross underground fire, Allinson (1993, 164-187) has identified numerous lapses. The presence of wooden flammable material, lack of fire

training for the staff, absence of an evacuation plan, poor communication equipment, lack of supervision, laxity of staff, absence of a direct telephone line in the station manager's office, failure to stop trains from stopping at Kings Cross, lack of a safety priority policy are all attributed to be causes contributing to the disaster. The rule book in force at that time required the staff to deal with any outbreak of fire and to only call the London fire brigade when the fire was beyond their control. This was in spite of the London fire brigade having urged, two years earlier, that they be called immediately on suggestion of a fire underground. The London underground had a policy for 'operational maximisation'. Could this have been a form of commercial pressure and the reason for not stopping the trains?

3.5 Shift in Legal Liability

In the shipping industry, it is very often found that a lapse or negligence on the part of a mariner was a contributory cause of the mishap. Investigations in the past have been stopping here. Since ship's staff negligence was covered by insurance, everyone was happy. Recently, however, investigators have not been stopping at the error that was committed onboard. They are going deeper into the accident or mishap, in order to identify the root causes.

Moulin (1997) says that three tanker accidents were candidly evaluated - *Sea Empress*, *Diamond Grace*, and *Nissos Amorgos*. Analysis of these accidents show that failures of other parts of the system are almost always a factor, and sometimes the prime factor.

In the case of the grounding of the *Sea Empress*, Lloyds List (1997) while quoting from an official report, says that pilot error was the immediate cause of the grounding. However, the pilots' error was due partly as a result of the inadequate

training and experience in the handling of large tankers. The report contained 24 recommendations, 11 directed to Milford Haven, chiefly concerning the training and management of pilotage services. 'The Environment Agency has commenced criminal prosecutions following the grounding of the *Sea Empress*. Summonses have been served on Milford Haven Port Authority and Captain Mark Clive Andrews, harbour master...' (Lloyds List, 1997, July 18). A group called the 'Friends of the Earth' was considering prosecuting the Ministry of Transport as well.

As mentioned earlier in this chapter, in the case of the *Herald of Free Enterprise*, Justice Sheen has held the management liable.

Cahill (1983) has examined the case of the collision between the American vessel *Transhawaii* and the Colombian vessel *Republica de Colombia* on 14 November 1972. The court ruled that the condition of the steering gear of the *Republica de Colombia* precipitated the collision. It was found that a similar failure had occurred a month earlier. Fuses were replaced by a shore service man. The fault could not be determined. The vessel was sailed out without any real effort to identify the root cause of the failure. The court stated that '...the service man and the owner's representative seemed content to let the matter rest'. The court ruled that this lack of diligence rendered the *Republica de Colombia* unseaworthy and she was unable to limit her liability in respect of the claims for the cargo.

The shift in liability is also evidenced in the Institute Time Clauses Hulls where the exercise of 'due diligence by the assured, owners, managers or *superintendents or any of their onshore management*' is now required from November 1995 (clause 6.2.5, Institute Time Clauses Hulls, 1.11.95). This shift in liability or blame from the ship to the shore makes it all the more necessary to have well-informed and properly trained personnel managing the shipping company's offices.

3.6 Economic Considerations

In 1956, an Italian passenger vessel *Andrea Doria* collided with a Swedish passenger vessel *Stockholm* off Nantucket light vessel. Cahill (1983) says that the collision was at least in part a result of the attitude that economic considerations take priority over safety. The *Stockholm* ignored the 1948 SOLAS recommendations regarding separation of east and westbound tracks as this would add over two hours to her steaming time.

The *Andrea Doria*, towards the end of her voyage would normally be required to put sea water into some of her tanks to maintain a suitable metacentric height (GM). This would entail a requirement of slop barges in New York to pump out the oily water, which would cost money, and so was not done. This would not have been a problem if the hull was intact. Flooding of two compartments after the collision, with the reduced GM, caused the vessel to progressively flood and subsequently sink. The lesser GM caused her to list more than the 20° that her design allowed.

Both the passenger vessels were on tight schedules and maintained high speeds even in fog in order to keep to their schedule. Here again, commercial pressure shows up with the attendant loss of life and loss of a vessel. Perhaps well informed and trained shore staff would not have put pressure on the Masters, as they too would be aware of the consequences.

3.7 Commercial cases

The extent of knowledge that one gains from a marine accident or incident appears to be directly proportional as to whether or not OIL was involved in the mishap. The

role that the media plays in this aspect of 'knowledge' is well known. By contrast, if a company makes a commercial 'loss' it can almost be guaranteed that no one will ever discover it. These 'losses' may not really be losses but a reduction of profits, and, as long as the vessel makes an overall profit, the amount of profit made is often not too deeply questioned. These hidden 'casualties' will never show up in the statistics books, or on the company's balance sheets. Yet all of them are avoidable if the personnel who can control them are adequately trained.

Simple knowledge like the difference between dead-weight and displacement, the components of dead-weight, tides and tidal windows, how to look up distance tables, load density, the difference between holds and hatches, etc. can save money.

Some of the ways that the company's money could be lost are given below:

1. A container oriented cargo vessel on a route from India to Australia, via Colombo and Singapore was diverted to Kaoshiung and Keelung to pick up nine containers and one yacht for Australia. There was no cargo to be discharged in Taiwan. The voyage to Taiwan was performed during the typhoon period. Excess voyage time and costs far exceeded the total freight earned on the additional cargo. Knowledge of the distance tables, voyage economics, and meteorology for example would have avoided such a decision.

2. A 40,000 tonne dead-weight bulk carrier was 'fixed' to load 40000 tonnes 5% more or less, owners option (MOLOO). Even with 40000 minus five per cent the vessel could not sail from the load port as her summer draft exceeded the channel draft. Further, dead-weight has other components besides cargo. The bunkers, fresh water, stores and constant together with un-pumpable ballast totalled more than 5% of 40000 tonnes. Knowledge of dead-weight, summer draft, and port restrictions would have been of assistance.

3. Two bulk carriers, 'X' and 'Y', having loaded coal from the same port in Australia, headed to a port in India. Both gave 14/ 7/ 4/ 3/ 2/ 1 days' notices to the charterers and their head office. Both arrived and anchored off the discharge port, X having arrived four days before Y. After a wait of another two days, X was ordered in, and proceeded alongside. Before commencing discharge, X received orders from the charterers (later backed by her head office) not to discharge but to sail out and proceed to another port. The vessel could only do so after 24 hours due to tide. All pilotage, tug, berth, and other dues had been paid in vain. Meanwhile, Y was waiting outside with the same cargo, from the same loadport, for the same charterer, and the same consignee, the difference being only in tens of tonnes! After X sailed, Y was taken in to discharge. The vessel X proceeded to the alternate discharge port and had to wait a day to berth due to tide. (If Y had been sent to the alternate port, both would have saved one day each). Proper attention to the ETA notices would have helped, and a decision to send the Y to the alternate port would also have saved the day. Proper training of the personnel involved could have inculcated a sense of values that would have prevented such an occurrence.

4. A vessel had about 100 to 150 containers for Sydney (total 200 to 300 moves in and out, to be handled by ship's gear). The cost of discharging and loading the Sydney containers by gantry at Melbourne and railing to/from Sydney was cheaper than the vessel calling at Sydney. Knowledge of port tariffs for both ports and railing costs would have helped.

5. A vessel had 2000 cubic metres space vacant on the tween deck. The vessel was diverted to load 1200 cubic metres of steel coils. The vessels tween deck collapsed, the centre girder was distorted, and the vessel had to undergo heavy repairs. Knowledge of stowage factor and load density would have helped here.

6. A vessel that had been chartered out was rejected by the charterers as she had been declared as having five hatches. Attempts at rectification would also not have worked as the rectification was aimed at amending the 'five' hatches to 'four' hatches. The vessel in fact had four holds and seven hatches (holds 2, 3 and 4 having twin hatches). A knowledge of the difference between holds and hatches would have avoided the dispute and consequent loss that such a dispute could result in.

3.8 Summary

'We are constantly hearing that some 80% of ship accidents are related to 'the human factor', quite often blamed on the ship's crew! In fact, some 80% of this 'human related factor' is matters which can only be controlled by the management...' (Sagen, 1992)

All the above studies show that though errors by the ships' personnel cannot be denied, there is definitely a deep rooted link to an error or an erroneous instruction issued by a person or persons ashore that started the process.

Reason, (1988) speaks about 'resident pathogens' or latent errors. These latent errors need to be identified and cleansed from the system if there is to be any reduction in the number of casualties.

Lapses in ship design, improper manning, improper instructions, lack of instructions, and other hidden or latent causes of casualties and disasters have to be addressed. The only method to do this is to educate the work force in the identification of these latent errors and thereby educate them to avoid and eliminate future errors.

Chapter 4

Regulatory requirements, guidelines, and other factors impacting on ship management

4.1 Introduction

It is now widely recognised that safe, pollution-free, efficient ship operations require good management not only on board but also ashore. The Tavistock Institute of Human Relations, (1988, II/2) has stated that organisations such as the International Labour Organisation (ILO), the International Maritime Organisation (IMO), the International Shipping Federation (ISF), the International Federation of Shipmasters' Associations (IFSMA), the sea faring Unions, the International Maritime Pilots' Association (IMPA), the Nautical Institute, and the Royal Institute of Navigation, and their branches, have all increasingly begun to focus their attention on the general areas of human factors, as well as on specific aspects such as alcohol and drugs, stress, fatigue, boredom, motivation, vigilance, discipline and management.

Recognising this, at the 15th session of the IMO Assembly, in November 1987, the United Kingdom proposed the necessity to develop international standards for safety management in shipping.

IMO Resolution A.596(15) gives recognition to the fact that the great majority of

maritime accidents can be attributed to human related causes and that safety of ships will be increased by improving operating practices. Resolution A.596(15) requested the MSC and MEPC to urgently develop guidelines concerning shipboard and shore-based management procedures for safe operation of passenger and Ro-Ro ferries.

In 1989 the *Exxon Valdez* ran aground in Prince William Sound, Alaska, spilling 270,000 barrels of Prudhoe Bay Crude Oil into an ecologically sensitive environment. Immediately, accusative fingers were pointed at the failure of the safety management systems, on board and ashore. This gave an impetus to the development of safety management guidelines by IMO.

Resolution A.647(16), 'IMO Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention' was adopted on 19 October 1989. These guidelines were recommendatory in nature, and encouraged shipping companies to put safety and environment protection measures high on their list of priorities, commercial considerations being secondary.

Resolution A.647(16) required the MSC and MEPC to review these guidelines periodically, and to consider the need for amendments with the experience gained. Recommendations for amendments were made by MSC at its fifty-ninth session and by the MEPC at its thirty-first session, and these were incorporated into the guidelines. At its 17th session, the IMO Assembly adopted Resolution A.680(17), the revised 'IMO Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention', on 6 November 1991. These revised guidelines are also to be reviewed periodically by the MSC and MEPC.

The revised guidelines were used by the Joint MSC/MEPC working group as a basis for development of the 'International Management Code for the Safe Operation of Ships and for Pollution Prevention'(ISM Code). The ISM Code was annexed to

Resolution A.741(18), and adopted by the IMO Assembly on 17 November 1993. The ISM code is examined in section 4.3 below.

The requirement for quality standards worldwide resulted in the adoption of the ISO 9002 standard. Section 4.4 deals with ISO 9002.

Revision of STCW 78 in 1995 resulted in an amended STCW 78, referred to here as STCW 95. Responsibilities of the shore management have also been included in these regulations that are looked at in section 4.5 below.

However, the shipping industry has not been idle in preparing itself for the onset of quality management. Even before the ISM Code, STCW 95, and ISO 9002, there were earlier initiatives by shipping companies to improve on quality. These initiatives are overviewed in section 4.2 below.

4.2 The Shipping Industry

In 1988, a group of ship management companies, known as the Group of Five, started on a comprehensive quality code for shipping. This code was completed on 19th December 1990. The objectives of the code were commitment to safety and pollution prevention. The code came to be known as the 'Code of Ship Management Standards of the International Ship Managers' Association' (ISMA Code). The International Ship Managers' Association (ISMA) was established on 30 April 1991, with the main condition for membership being compliance with the ISMA Code.

The Norwegian Shipowners' Association, in March 1990, published the 'Guidelines on Quality Management for Ship Operation'. The objective was to develop and implement a management system with regard to safety, pollution prevention and

efficiency. The guidelines were intended for the use of companies operating ships carrying oil, chemicals or passengers. These guidelines were developed in line with the IMO Resolution A.647(16).

In 1993, the HELMEPA, together with various associations representing Greek Shipowners and seafarers published the 'Voluntary Guidelines on Management for Safe Ship Operation and the Prevention of Pollution'. These guidelines were based on IMO Resolution A.680(17).

Leading classification societies developed safety and quality management classification services in the early 1990s. The International Association of Classification Societies (IACS) plays a substantive role in the maintenance of quality standards today.

These initiatives of the shipowners, ship managers, and classification societies to develop safety management standards served as a catalyst to the development of the ISM Code by the IMO.

4.3 The ISM Code

The section examines the requirements of the International Management Code for the Safe Operation of Ships and for Pollution Prevention, in further detail.

4.3.1 Introduction

The International Management Code for the Safe Operation of Ships and for Pollution Prevention (The ISM Code), adopted by the IMO by resolution 741(18) was made mandatory by the contracting governments to SOLAS 74 on 25.5.1994.

The ISM Code provides a framework on which a shipping company must base the safety management system for its vessels. The requirements of the ISM Code are examined and interpreted in order to establish the need for training of the shore based personnel managing a shipping company.

A new Chapter IX - Management for the safe operations of ships, was added to SOLAS 74. This chapter defines terms that are relevant to the ISM. It covers the application of regulations, and the obligation to establish and maintain a safety management system. It also covers certification, verification and control to be established by the Flag State.

Under the procedure for tacit approval, the amendment to SOLAS is deemed to have been accepted on 1 January 1998, and has entered into force on 1 July 1998 for passenger vessels, passenger high speed craft, oil tankers, chemicals tankers, bulk carriers, and cargo high speed craft of 500 gross tons and over. Other cargo vessels and mobile offshore drilling units (MODU) of 500 gross tons and over will have to comply with the ISM Code on or before 1 July 2002.

4.3.2 Requirements of the Code

Earlier, the regulations of SOLAS 74 covered the design and construction of ships, the equipment of ships, and the qualification and experience of the crew. Now, with the ISM code, the management of ships is also covered under SOLAS 74. As per Chapter IX of SOLAS 74, shipping companies must have in place a safety management system that will be subject to certification and review by the flag state or the representatives of the flag state. As Intertanko (1996) puts it '...incorporating the ISM Code into chapter IX of SOLAS brings the operation a a ship's safety

management system squarely within the ambit of port state control’.

For the first time, chapter IX of SOLAS 74 defines the term or the entity ‘company’ as the owner or the organisation, or persons such as the manager, or the bareboat charterer who has assumed responsibility for the operation of the ship from the owner, and, who, on assuming such responsibility, has agreed to take over all the duties and responsibilities imposed by the International Management Code for the Safe Operation of Ships and for Pollution Prevention (The ISM Code).

SOLAS Chapter IX requires the company to comply with the requirements of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (The ISM Code), and this is a formal recognition of the management’s responsibility for the safe operation of ships and pollution prevention.

The Administration will issue a document of compliance (DOC) to every company that complies with the ISM Code. In order to operate ships, the company must compulsorily have been issued with the document of compliance. There must be a DOC for different types of vessels that the company operates. Every ship of the company will be issued a safety management certificate (SMC) by the administration or an appropriate recognised organisation, provided the ship operates its management in accordance with the approved safety management system. Additionally, Port State Control (PSC) will also check if a ship is in possession of a safety management certificate, and is complying with the requirements of the ISM Code..

4.3.3 Structure of the ISM Code.

The International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code) has thirteen elements. These thirteen elements are

given in table 4.1 below:

*Table 4.1
The elements of the ISM Code.*

Section	Name
-	Preamble.
1	General.
2	Safety and environment protection policy.
3	Company's responsibility and authority.
4.	Designated person.
5.	Master's responsibility and authority.
6.	Resources and personnel.
7.	Development of plans for shipboard operations.
8.	Emergency preparedness.
9.	Reports and analysis of nonconformities, accidents, hazardous occurrences.
10.	Maintenance of ships' equipment.
11.	Documentation.
12.	Company verification, review, and evaluation.
13.	Certification, verification and control.

4.3.4 Analysis of the ISM Code

In the preamble, the ISM Code explicitly establishes that 'the cornerstone of good safety management is commitment from the top'. Thus the commitment of the top management is now a mandatory requirement.

Studies have attributed around 80% of accidents in ship operations to human factors. Further, about 80% of these human related factors are the result of the failure of the

shore element or management of the company (Sagen, 1992). The success of any safety management system is the establishment of a safety culture within the organisation. A good safety culture must give high priority to safety, even to the extent of leaving aside commercial considerations when absolutely necessary. Together with a safety culture, comes training. Personnel, both on board, and ashore, need to be provided with training relevant to their individual roles in the company.

The ISM Code gives outlines of general principles and objectives that the company must adopt in order to establish and maintain a safety environment. There are no requirements constraining the legitimate shipping operations of a company. The company is free to create its own safety management system within the guidelines of the code.

The ISM Code requires that the company should specify its safety management objectives, and these should provide for safe practices in ship operations and a safe working environment. Safeguards are to be established against all identified risks. Management skills of personnel ashore and on board are to be continuously improved. This again implies that the personnel ashore and on board are to be continuously trained. Such improvement in skills must also take into account preparations for emergencies relating to safety and environment protection. (ISM Code, 1994, 1.2.2).

The ISM Code requires that the 'company' should be clearly defined, and formally reported to the Flag State. There should be a designated person ashore responsible for the operation of the ship. The company must state, in writing, the organisation of the personnel ashore who are responsible for work concerning safety and pollution prevention. Such personnel must be provided with sufficient resources to enable them to carry out their defined organisational functions relating to safety and pollution prevention. All these requirements point to the fact that it is recognised

that shore based decisions can adversely affect the safety and pollution prevention standards on board the vessels of the company.

The designated person will act as an intermediary between the ship and the shore management. He/she will ensure that necessary and adequate resources and shore support are provided to the ship. He/she should be independent of the responsibility of implementing the SMS, in order to allow him/her the freedom to carry out verification and monitoring of the SMS. He/she will be responsible to detect non-conformities and to start the process required to rectify the non-conformities. A large company with many vessels would need more than one, and perhaps many, designated persons. The designated persons should be provided with sufficient human resources in order to satisfactorily carry out their functions.

When the SMS of a company is laid out, it must be ensured that the responsibility and authority of the Master is not undermined. The Master has the discretion to decide matters relating to safety and pollution prevention. To this effect the SMS must have a clear statement emphasising the Master's authority. Besides the responsibility of implementing the SMS on board, the Master must also motivate the crew. There are no guidelines as to how this motivation should be done. The Master is responsible to issue clear instructions, verify specified arrangements, and review the onboard SMS to detect non-conformities. These responsibilities must be clearly defined by the company.

The human resources in ship operations are focused upon in paragraph 6 of the ISM Code. This concentrates on personnel and training. It is the company's responsibility to ensure that the ship is manned with properly certificated, medically fit, and experienced personnel. These personnel must be made familiar with their duties for a particular ship before performing such duties. The Master must be made thoroughly familiar with the ships SMS before he is posted on board. The other

members of the ship's staff must be made familiar with their duties relating to the ship's SMS. The company must provide training to personnel in all aspects of the SMS. The company must also provide training to enable an understanding of relevant rules, regulations, codes and guidelines.

All personnel are to be adequately trained in the ship-shore 'working language'. This is of paramount importance for proper communications. The safety management system documentation should also be in a language that is clearly understood by the personnel.

The company must set down written instructions, practices, and procedures for special ship operations and critical ship operations, defining the duty and responsibility of each person who is to perform such an operation.

Preparing for emergencies involves training of the ship's personnel and the shore personnel who would be involved in the emergency response plan. It should be ensured that all possible emergencies are covered in the plan. These include the drills that were earlier mandatory under SOLAS 74, such as the fire drill, the abandon ship drill, etc.. The company's emergency response plan must define the relationship between shore and ship personnel in an emergency. A routine must be set up to conduct training and drills for emergencies. While shipboard drills must be realistic, shore based drills must be as realistic as is possible, even though carried out from an office table.

All non-conformities to the safety management system are required to be reported by the Master or through the Master to the designated person ashore, who must then route it to the concerned department. Accidents and hazardous situations are to be reported. The company must investigate and analyse these reports in order to obtain a feedback on the safety management system.

The company must establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant statutory rules and regulations. Any additional requirements that may be established by the company are also to be complied with (ISM Code, 10.1).

This effectively means that a planned maintenance system must be in place in order to ensure that routine maintenance is undertaken so as to avoid failure of equipment. This would reduce the 'technical failure' that is said to be the cause of a large number of maritime accidents.

In addition to ship's personnel carrying out planned maintenance, the company must ensure that qualified shore personnel inspect the ship and her equipment on a regular basis. This could be done by following a ship-specific checklist. Prompt action would be necessary in order to rectify defects, if any.

The company must establish and maintain procedures to control all documents and data that are relevant to the safety management system (ISM Code, 11). All documents are to be numbered and indexed. A person ashore should check document validity for the shore documents. The Master should check document validity for the ship's documents. The designated person ashore should oversee the document control.

The company is required to carry out internal safety audits (ISM Code, 12). The audit personnel are to be independent of the area that is being audited. The personnel carrying out the audit are to be adequately trained. There should be prompt remedial action in order to rectify defects. If there are any non-conformities reported by the audit team, these should be rectified within a specific time frame.

If remedial action is not taken within a specific time frame, the non-conformity should automatically be reported to a higher level of management. This procedure of reporting must be laid down by the company.

Administrations have the authority to monitor the safety management system of a company and its ships. (ISM Code, 13). Port state and flag state controls will now also check the safety management system documentation and compliance.

The company's organisation structure and the relationship between departments must be laid down in writing. There should be an overall job description for all personnel concerned or associated with the safety management system. A more detailed description may be separately provided.

To summarise, the ISM Code, as regards training requires that all personnel connected with the safety management system should undergo proper training.

In order to keep personnel familiar with new or changing rules and regulations, there should be 'up-dating' or refresher training. All newly appointed personnel are to be trained. All personnel assigned with new duties are to be trained. A record of the training of each person is to be maintained by the personnel department.

4.4 ISO 9000 series

4.4.1 Introduction

We have seen that the ISM Code provides a framework on which a shipping company must base the safety management system for its vessels. The ISO 9000

series address the quality standards of the company. The requirements of the ISO 9000 series are examined and interpreted in order to establish the need for training of the shore based personnel.

A principle factor in the performance of an organisation is the quality of its products or services. There is a world-wide trend towards more stringent customer specifications with regard to quality. Accompanying this trend has been a growing realisation that continual improvements in quality are often necessary to achieve and retain good economic performance.

(ISO 9000, introduction.)

The ISO 9000 series are standards. ISO 9000 and ISO 9004 are guidance documents, each comprising a set of parts covering various topics. The frequently used word 'should' emphasises the guidance or advisory nature of these two documents.

By contrast, ISO 9001, ISO 9002, and ISO 9003 are standards that can be contractually enforced. These documents use the word 'shall'. ISO 9000 and ISO 9004 offer guidance. ISO 9001 to 9003 issue instructions (Fox, 1994, 108-109).

ISO 9001 to 9003 need to be specific as they were designed to be used by independent assessors to determine whether a company's quality system is adequate and can be recommended for registration. The ISO 9001-9003 series can be invoked by customers in their contracts or orders to ensure that goods or services meet the criteria laid down (Fox, 1994, 110).

National Standards bodies have adopted the final text of the ISO 9000 series in their national standards. For example in 1987, standards that were equivalent to ISO 9001:1987 were the British Standard BS 5750:part 1:1987, Australian Standard AS

3901, European Norm EN2901:1987, German Standard DIN ISO 9001, the USA Standard ANSI/ASQC Q91, etc.

The European Union now has a common standard EN ISO 9002:1994. This standard corresponds to ISO 9002 in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

4.4.2 Applicability of the ISO 9000 series

ISO 9001, ISO 9002, and ISO 9003 are standards that can be contractually enforced. These documents use the word 'shall', and issue instructions. These three standards relate to different aspects of quality.

- ISO 9001 deals with design and development,
- ISO 9002 deals with products and services,
- ISO 9003 deals with inspection and testing.

Shipping is an industry that offers transport as its service. In ISO 9002 (3.1) 'product' is defined as a 'result of activities or processes'. A product may include a service, hardware, processed materials, software or a combination thereof.

ISO 8402 gives a definition for services as insurance, banking, transport, etc. The ISO 9002 standards specify the quality system requirements as to a supplier's capability to supply a conforming product to an established design. ISO 9002 is therefore the most relevant standard applicable to the shipping industry.

4.4.3 Structure of ISO 9002.

The elements of ISO 9002 are given in the table below:

Table 4.2
The elements of ISO 9002.

Section	Contents.
4.1	Management responsibility.
4.2	Quality system.
4.3	Contract review.
4.4	Design control (Included in ISO 9002 in order to align with ISO 9001).
4.5	Document and data control.
4.6	Purchasing.
4.7	Customer supplied product.
4.8	Product identification and traceability
4.9	Process control.
4.10	Inspection and testing.
4.11	Control of inspection, measuring and test equipment.
4.12	Inspection and test status.
4.13	Control of non-conforming product.
4.14	Corrective and preventive action.
4.15	Handling, storage, packaging, preservation and delivery.
4.16	Control of quality records.
4.17	Internal quality audits.
4.18	Training
4.19	Servicing
4.20	Statistical techniques.

4.4.4 Analysis of the ISO 9002 standard

ISO 9002 requires commitment of senior management, its involvement and acceptance of responsibility for achieving and maintaining quality (ISO 9002, 4.1). The management is required to define its safety policy. It is required to be committed to the safety policy. It must ensure that the policy is understood, implemented, and maintained at all levels of the organisation. The responsibility, authority, and inter-relation of personnel are to be defined and documented. The management is required to identify resources and to provide adequate resources including the assignment of trained personnel (Fox, 1994, 114).

ISO 9002, (4.2) requires that ‘...the range and detail of procedures that form part of the quality system shall be dependent upon the complexity of the work, the methods used and the skills and training needed by personnel involved in carrying out the activity’. There is a note (7) in this section that states that the ‘documented procedures may make reference to work instructions that define how an activity is performed’.

Section 4.6 of ISO 9002 requires sub-contractors to be evaluated. In the shipping industry, the services of a large number of sub-contractors are regularly utilised. Each of these will require to be evaluated. This will demand that the evaluating personnel be trained to carry out the evaluation.

The company is required to establish and maintain documented procedures to identify training needs (Section 4.18). All personnel performing activities affecting quality are to be provided with training. Personnel performing specific assigned tasks are to be qualified on the basis of appropriate education, training, and/or experience as required. Appropriate records of training are to be maintained.

4.5 The STCW Convention

The STCW 78 convention, as amended in 1995, and here referred to as STCW 95, in regulation I/1, defines 'Company' in identical terms as does the ISM Code. 'Company' is not only the owner, but any organisation or person, manager, or bareboat charterer who has assumed responsibility for the operation of the ship from the owner. Such organisation or person will, on assuming such responsibility, have agreed to take over all the duties and responsibilities imposed on the company by the STCW 95 regulations.

Regulation I/6 deals with training and assessment. It requires that training and assessment is to be administered, supervised, and monitored. Instructors, supervisors and assessors responsible for training are to be appropriately qualified in accordance with A I/6.

Regulation I/8 deals with the quality standards of agencies or entities involved in training. Continuous monitoring of these agencies is required through a quality standards system. Periodic evaluation is to be undertaken and communicated to the Secretary General of the IMO.

Regulation I/9 requires that personnel posted on board ships are to be medically fit. The company has therefore to ensure that its seafarers comply with this requirement.

In the 1995 amendments to the STCW 78 convention, regulation I/14 has laid down the responsibilities of companies in respect of seafarers serving on board their ships.

The company must now ensure that each seafarer holds a certificate appropriate to the provisions of the convention. It must also ensure that its ships are manned in

accordance with the appropriate safe manning requirements of the Administration.

The company is required to maintain documentation and data in respect of all seafarers employed on its ships. This shall include data and documentation relating to experience, training, medical fitness and competency assigned duties.

Each seafarer is to be familiarised with their specific duties and with ship arrangements, installations, equipment, procedures and ship characteristics that are relevant to their routine duties and their emergency duties.

It is the company's responsibility to ensure that the ships complement can effectively co-ordinate their activities in an emergency situation, and in the performance of functions relating to safety and pollution prevention.

In order to comply with this requirement, the shore personnel responsible would need to know at least the relevant portions of the regulations. This would necessitate training of the shore personnel.

4.6 Summary

Quality and training go hand in hand. The ISM code, The STCW Convention, and ISO 9002 all focus on quality. The requirements for training and for the close monitoring of training records is also focused upon in all three regulations. Training as specified in the regulations is today confined to 'personnel responsible for duties relating to safety and to pollution prevention'. Where regulations state that there should be trained personnel in certain key posts, there is normally a scramble for training of these personnel. The evidence of this was clearly visible around the world as shipping companies world-wide rushed to meet the ISM deadline.

The author has mentioned in chapter three that commercial 'losses' will never show up on the books, and training for commercial profit will also not normally be a written down requirement.

It is time that shipping companies realised that they should not wait till regulations enforce training. This normally results in a rush for training, and, as the popular saying goes 'haste makes waste'. Planning is of essence and a properly laid out plan for the training of company personnel would go a long way in reducing casualties and more so in reducing hidden commercial 'losses'.

Chapter 5

Training needs analysis

5.1 Introduction

In the maritime industry there are two distinct work areas. One of these is on board ship. The other is ashore, managing the ship. Shore management includes all levels of supervision including administration and support activities, personnel, logistics and maintenance. The avenue of entry into the shore management may be either through the seafaring route, i.e. a seafarer who reaches a senior rank on board and then moves ashore, or through the direct recruitment route, i.e. an individual who joins the shipping industry ashore and develops a career within it. In the case of the latter individual, actual sea service is not a prerequisite.

These two streams of entry clearly indicate that, initially, both individuals would have widely different backgrounds in training. As each individual rises in the organisation, their roles and duties come closer together. For this reason, their training must later on be of a common type in order to attain development of higher managerial skills and understanding.

The ISM code and the STCW convention, together with ISO 9000 series, all lay stress on quality management and focus on the need for training. Studies have been conducted into the needs for training of personnel. Some of these studies relate to

the training needs of industries in general. Others focus on the training needs for the shipping industry. A few deal with training needs of shore based personnel in shipping companies. Some of the studies are examined in this chapter. The author has also conducted two surveys to examine the training needs as perceived by shipping industry employees in India and in the rest of the world.

5.2 Role of management training and development in the shipping industry.

Springett (1997), in his chapter titled 'Management training and development in the shipping industry'(Nautical Institute, 1997, 229-234), has gone into the training requirements of shore based personnel in the shipping industry. In this section, the author examines Springett's views on the subject.

Springett has considered the role of training with a number of aims in mind, such as:

- defining management development pathways.
- outlining traditional, existing management training.
- profiling managerial skills at various levels within shipping organisations.
- proposing appropriate structures and content for development programmes.
- suggesting most appropriate training methodologies.
- examination of possibilities for management skills assessment.
- offering a framework for evaluation of management development programmes.

As the author has stated in the introduction to this chapter, shipping company personnel are recruited either from senior ranks on board, or by direct recruitment. Springett concurs with the author's view that the development of the individuals recruited from different streams will be different initially, as one comes from a technical seafaring background while the other will have no seafaring background at all. With a view to development of higher management skills, the training of both

streams of individuals should be merged. Springett's opinion is that, till this point is reached, although following different pathways, all individuals must be provided with the essential foundation stones of operational management. This is in agreement with the author's views that training should be an on going process, commencing at the time of recruitment, with regular refresher training being provided. The training must be focused and cost effective, tailored to the operational environment and to the individuals concerned.

In order to achieve real benefit, a shipping company should conduct a training needs analysis (TNA) that must match individual development needs. An effective TNA would firstly need to identify the requirements of the job, and match this with the knowledge and skills of the individual. The TNA can be used to identify technical skills gaps, gaps in commercial knowledge, as well as gaps in managerial skills.

As discussed in chapter four, the shift in focus to demonstration of competence in management is apparent in the recent developments of the ISM code and the STCW convention. Both these instruments stress the need for quality management, and focus on training as well.

Little consideration has been given so far to an individual's ability to administer complex management systems, deal with time, personnel and other resource related pressures. (Springett, 1997, 230)

Building and maintaining effective working relationships has not been included in formal training. A formal foundation in business management is lacking. Springett (1997) maintains that '...the introduction of programmes which provide for the development of generic management skills for shipping personnel must, therefore, be a priority'.

Springett offers the United Kingdom (UK) as a model for an insight as to how managerial skills needed in shipping may be developed in the future. In the UK, the National Vocational Qualification (NVQ) award will be required by shipboard personnel to complete management units related to quality standards and effective working relationships at level 3. At level 4, these will progress to units based on Management Charter Initiatives (MCI) standards for the management of services, resources, teams and information. At level 5, the scope will be broadened to resource allocation, performance and project evaluation, and a higher monitoring function. For those entering the industry ashore, a similar foundation in managerial skills can be achieved through further or higher education in advanced business studies, general NVQ, and business studies at certificate, diploma or degree level. These will give the individual the knowledge, skills, and ability to be effective at whatever level of junior or middle management they achieve in shipping. Later, says Springett, there will be a need for more focused, specialist training in accounting, finances, operations, procurement, etc., supported by common generic managerial skills training. This view concurs with the author's views on the subject and is supported by the IIMA study dealt with in the sub-section following. The MARSK report, dealt with in a later sub-section, also identifies managerial techniques and supervisory techniques as topics for which training should be provided.

A combination of full time, part time or distance learning modes of training are available. Degrees in ship operations, post graduate degrees in management studies (shipping), and masters level programmes in finance, and other topics, with shipping and transport as a focus are available. Besides the UK, in other parts of the world too, training programmes offering a wide variety of shipping related topics are available and the shipping industry must make full use of these programmes in order to develop their managers for future business challenges.

Pressures of work, stress, and hectic life-styles, often do not permit a shipping

industry manager to seek the training he/she needs. In the Indian context, specially in the city of Mumbai, the time required for an employee to commute to and from his/her place of work varies from one and a half to two hours each way. An employee seeking to develop himself/herself would therefore be hard pressed for time to attend a training course outside office hours. The company must therefore take the initiative and provide the training.

Springett defines three levels of management in any organisation - operational, tactical and strategic. These could be related to the junior, middle and senior level management referred to by the Indian Institute of Management (IIMA) that has been examined in the next sub-section. Springett has broken up the training requirements of the different management levels. These are given below:

At the level of operational management training should include:

- basic administrative procedures,
- self and time management,
- communications,
- inter-personal relationships and teamwork, and
- cost control.

At the tactical level, the individual's training should include:

- the development of management,
- administrative management,
- external environmental forces fuelling the need for organisational change,
- accounting and budgetary control,
- management systems to control and monitor product/services in terms of quality, quantity, time cost and people.

At the strategic level, Springett considers that the topics to be included should be:

- external relationships,
- market competition,
- internal environment analysis,
- long term aims,
- corporate planning,
- leadership aspects,
- support of tactical managers,
- corporate decision making, and
- strategic finance.

The lack of time to attend a formal management qualification course will result in a managerial skills gap. This gap must be bridged by short, highly focused, training courses that are time and cost effective and will impart to the individual the managerial skills that will give his/her organisation a critical competitive advantage.

Most importantly each course should be attended before managers move upwards in the organisation, so that they are fully prepared for their new or expanded role. (Springett, 1997, 232)

Springett maintains that ‘ideally, a young, newly appointed person ashore and all junior and middle level officers afloat, should attend a management development course before promotion...’ The process of attending a course before further promotions should continue right to the top, a view supported by the author.

In Springett’s opinion, the aspect of assessment of managerial skills is most difficult, since, in the work place, there is no right or wrong answer, but only a ‘best fit’ in the situation at that time. However, formal assessment of an individual’s appreciation of underlying theories is possible. If formal assessment is considered appropriate, to allow accreditation, an examination may be necessary.

An examination could be of two parts, objective and subjective. Candidates could be required to demonstrate and show evidence of their management competence relative to present and future roles. A requirement to show competence, in Springett's view, ties in with the author's opinion, that personnel employed ashore should be trained and competent - the title of this dissertation.

The needs for training, and the requirement to train in order to improve safety and increase commercial competitiveness, brings up the question of 'how much will it all cost?' Short term costs of training are more easily quantified than the long term benefits, and this is summarised in tables 5.1 and 5.2.

Table 5.1
Costs of Training.

COSTS OF TRAINING	
Direct cost of development	The actual cost of the training programme
Indirect cost	Travel
	Accommodation
	Subsistence
	Administration
	Training needs analysis
	Appraisal
Cost of workplace replacement	Training benefit evaluation
	Salary and other costs
	Learning curve and close supervision requirement for replacement
Opportunity cost of total cost of management development	Cost of inefficiency of replacement.
	Lost earning capacity of management development budget.

(Source: Springett, 1997, 233-234)

Springett has also categorised the benefits of training under headings such as: voyages per year, average load factors, daily ship operating costs, total fixed and

variable costs, and net profit or return on capital. Table 5.2 illustrates this:

Table 5.2
Benefits of Training

BENEFITS OF TRAINING	
Avoidance of costs due to accidents caused by human error	Uninsured loss and third party liability
	Loss of productivity
Loss mitigation through action	Crisis or emergency management
	Public relations and media management
Maintenance and repair efficiencies	Reduced stock inventory
	Reduced contractor usage
Benefits to corporate morale	Decrease employee turnover and recruitment costs
	Decrease in absenteeism through illness
	Less resistance to change
	Improved safety record
Benefits from reduction in disputes	Fewer customer complaints
	Fewer cargo damage actions
Reduced consumables costs	Fuel and lubricating oils
	Victuals and potable water
	Fuel quality matters and waste management
Improved vessel utilisation	Load factors and broken stowage
	Optimising voyage draught, trim and stability condition
	Voyage and charter management
	Navigation management, schedules and charter compliance
	Reduced port down time
Increased operational efficiencies	Higher individual/team output, better working relationships
	Decreased overtime and fuel consumption
Decreased insurance premiums	Hull and machinery
	P & I and extra-ordinary or catastrophe calls
Improved customer relations	Higher perceived quality of service
	Better value chain management and customer loyalty
	More effective barriers to entry
Improved administration costs	Transfer of administration down the line
	Improved management of information
Improved finances	Effective ship investment appraisal
	Reduction in cost of capital and leverage control
	Improved dividends, share value and cash flow
	Better position with respect to contract negotiation
	Improved return on capital employed
	Better business growth potential

(Source: Springett, 1997, 233-234)

The tables above clearly indicate that the long term benefits of training are many, and will, eventually, offset the costs. It is true that the costs and benefits of training cannot be directly related to each other on a balance sheet. The passage of time will show the increase in safety and profits of a company that makes training its priority.

5.3 Indian Institute of Management, Ahmedabad Study.

The Vasant J. Sheth Memorial Foundation in India, is a non-profit organisation and was created in 1993 to promote a better understanding of shipping, ship-building, ship-management, navigation, marine-engineering, nautical education, naval history & archaeology and coastal cultures. The Foundation was started a year after the death of Mr. Vasant J. Sheth. In his honour, the Vasant J. Sheth Memorial Foundation, supported by the Great Eastern Shipping Company Limited continues to promote his extraordinary work. (<http://www.greatship.com/mf.html>.)

The Indian Institute of Management, Ahmedabad (IIMA) was approached by the Vasant J. Sheth Memorial Foundation to explore different ideas in the field of shipping education. (Indian Shipping, Vol. 46-No. 6, 25). During discussions spanning two months, it was finally decided that a proposal would be made by the IIMA to develop management training programmes for the shipping sector. The programmes were to have an international focus and would be targeted at middle to senior level shore based managers. This section of chapter 5 examines the findings of Professors Raghuram, Rao, and Sinha of the IIMA.

The training needs assessment by the IIMA began in September 1993. Shipping companies, regulatory and policy making divisions of the government, training and research institutions, financing, insurance, legal, ports, and other support

organisations were covered.

At the time of the IIMA study, in India, training for the shipping industry had been addressed to the needs of nautical and engineering officers, and to seamen on board ships. The focus had been on entry level and certification. There was no major effort at providing management oriented training to the executives of the shipping industry, specially those that are shore based. The one exception was the training provided by the Maritime Training Institute (MTI) of the public sector Shipping Corporation of India Limited (SCI). The MTI training initially catered largely to the SCI's in-house executives. The IIMA concluded that the most important reason for the lack of management training in Indian private sector shipping companies was that managerial decisions were made by the top management or the owners.

In the context of liberalisation of the Indian economy and the Indian shipping industry, shipping companies would have to gear themselves up to face global competition, calling for a professional approach to decision making with proper management systems.

The IIMA analysed programmes being offered by the following institutes:

- Institute of Chartered Ship Brokers,
- Bombay Institute of Advanced Maritime Studies,
- Maritime Training Institute of the Shipping Corporation of India,
- Narottam Morarjee Institute of Shipping
- World Maritime University,
- Cambridge Academy of Transport,
- Lal Bahadur Shastri College of Advanced Maritime Studies and Research,
- Glasgow College of Nautical Studies,
- Department of Maritime Studies, University of Wales, and
- Galbraith's Shipping Course.

The writers found that some of the courses that were listed for shore officers were intended to introduce the participants to the facts and terminology of shipping. These courses would be suitable as orientation courses for a ship's officer who had recently taken up a shore job or for a new shore officer with no background in shipping. Since the IIMA was targeting their programme at middle and senior management it was felt that there was no need for orientation training at the higher level.

The study showed that, due to the emergence of the ISO 9000 requirement, it was necessary to include training in quality assurance, a view that is supported by Springett (1997). The research also found that the case study method was absent in Indian programmes. Since formulating a question or structuring the problem itself were considered to be important aspects of decision making, the case study method could be used and could aim at imparting problem formulating skills to the participants.

The IIMA's programme objectives were to improve decision making capacity through structured thinking and analytical skills, and to provide managers from various shipping companies and related organisations with the opportunity to interact with each other. Information related topics were more suited for junior and entry level managers. Decision oriented topics were considered to be more important as managers rose to higher positions of responsibility. Springett (1997) has also included decision making as a topic considered necessary in training strategic level management.

With respect to the participants for the programme, the writer's opinion was that, besides shore managers, ship based senior executives and port based executives should also be included. The programme would also target itself at executives from shipping related organisations like banks, government, shipping agents, registries,

classification societies, shipyards, etc..

The duration of the programme was set at one week, bearing in mind the constraints of time for senior executives. The number of participants were to be between 20 and 35. The one week programme would use up to 10 case studies. Group presentation to facilitate interactive learning, and laboratory sessions for certain skill based sessions would be organised.

In deciding the topics to be covered by the course the IIMA looked at a three-dimensional framework based on decision making areas, the external environment, and functional skills. These are tabulated below:

*Table 5.3
Topics to be included in the IIMA programme.*

Decision Areas	External Environment	Functional skills
Ship acquisition	International and maritime trade.	Marketing
Financing	Maritime law and insurance	Accounting
Chartering	Industrial aspects	Finance
Ship disposal	Information technology	Computers and information systems
Maintenance	Shipbuilding and shipping technology	Operations management and quantitative methods
Staffing		Human resources management
Insurance		Communication skills
Bunkering		Corporate strategy
Materials management		
Customer service		
Risk management.		

(Source: Indian Shipping, Vol. 46-No. 6, pp 28-29)

On the basis of the above topics, a six day course of 24 sessions was decided upon. In order to include the sharing of experiences, guest faculty were included in the programme. In January 1994, a one day workshop was held. Top level managers in the shipping industry attended the workshop, the purpose of which was to obtain feedback on the training programme design. The feedback was incorporated in the course before finalising the same.

The shipping management course detailed above is presently being conducted at the Indian Institute of Management, Ahmedabad, and is being attended by executives from some, but not all, shipping companies.

5.4 The MARSK Project - “The Competitiveness of the UK Marine Industries”

The MARSK report is based on studies conducted in the United Kingdom in order to improve the competitiveness of the UK marine industries.

The following marine industries were studied:

1. UK ports industry.
2. The UK oil and gas industry.
3. The boat building and marine equipment industry.
4. Marine aggregate industry.
5. Ship owning and seafarers.
6. The ship building and ship repair industry.
7. Food from the sea.
8. Recreation and watersports.

This report is part of work package 2 phase 1 of the MARSK project and examines the maritime industries in the United Kingdom. In particular it looks at opportunities and threats facing these industries as well as their potential employment and training requirements in the future...

(MARSK report, Introduction)

The MARSK report (referred to as 'the report' in this section) relating to the needs for training are examined in this section. The report obtained information from many sources including company and trade association annual reports, surveys and studies undertaken by training organisations and consulting companies, articles in Lloyds list, a wide range of trade and academic journals, government statistical sources, as well as reports from Parliament and the Commission for the European Community.

The report states that training and skills needs in the UK ports industry was based on a report by British Ports Industry Training (BPIT). The BPIT carried out a survey, the aims of the which were:

- To obtain information about the Ports Industry.
- Identify training assistance that the industry requires.
- Provide the BPIT with information needed to provide these training requirements.

Organisations were asked to consider 20 areas of training requirements and assign a score for the degree of importance they attached to each topic. Responses were graded as follows:

High 3

Medium 2

Low 1

None 0

Table 5.4 below shows the topics in ranked order of importance:

Table 5.4

The BPIT analysis of twenty areas for training requirements.

Ranking	Topic	Factor
1	Customer satisfaction	2.02
2	Environmental legislation	2.01
3	Employee motivation	1.77
4	Introduction of new technology	1.74
5	Managerial techniques	1.70
6	Supervisory techniques	1.66
7	European legislation	1.65
8	Introduction of computers	1.64
9	Multi-skilling and flexibility	1.51
10	Government policies	1.43
11	Appraisals	1.34
12	Organisational change	1.30
13	Expansion into new markets	1.30
14	BS 5750/ISO 9000	1.26
15	NVQ/SVQ Assessment	1.26
16	Marine personnel shortages(ports)	1.24
17	Train the trainers	1.14
18	Finance for non-financial personnel	1.09
19	Marine personnel shortages(all)	0.99
20	Investors in people	0.96

(Source: MARSK report, p 10)

While the study tabulated above relates to the UK, the table shows that customer satisfaction, environmental legislation, and employee motivation, are highest on the list of priorities. Following closely are topics that would be necessary in updating or refresher training such as introduction of new technology. Topics such as managerial techniques, supervisory techniques, are also high up on the list.

The BPIT identified other areas for training in the ports' industry, and these included:

- Health and Safety Training to meet European standards.
- Middle management development courses.

- Computer training for managers and supervisors.
- Team orientation outside a previous union environment.
- Training to keep pace with changes in legislation.
- On-site training of supervisors/foremen in small classes at short notice.

Most of the areas identified above are also emphasised by Springett (1997) and the IIMA (1994) as being required for shore personnel in shipping companies.

The BPIT study says that ‘...on-the-job training is the most popular method of training in the industry at all levels except management’. (MARSK report, p 11.) It is of relevance to note that the study discovered that ‘...many employers were concerned about statutory training requirements reflecting recent changes in UK and European law’. This is typical of the training needs as visualised by companies that look more closely at the balance sheet than at long term training requirements. It requires an ISM Code or other regulations such as UK and European law, that lay down a compulsory need for training that spark comments such as the one above where ‘statutory’ training is the main concern.

National Vocational Qualifications are already being used in the UK ports industry such as: business administration, engineering, management, finance & accountancy, customer services, training & development, warehousing, plant operations, health & safety management, supervisory management, civil engineering, engineering maintenance, personnel, security, and information technology.

In the offshore oil and gas industry, much of the work is sub-contracted by the oil companies. Therefore an accurate overall view of the training and skills needs was difficult to obtain. However, the industry still needs to attract high calibre recruits. Employees who are more highly qualified with a wider range of skills than required in the past will be required in all grades from craft workers to senior executives.

Engineering and science based expertise was considered to be critical to offshore operations. Specialist knowledge was not ranked high as an attribute that companies looked for. Staff with a wide range of skills rather than narrow specialisation were seen as the requirement. Skills in the area of information technology (IT) and training in IT were seen as likely to be a priority for new recruits as well as those already in the industry. The report also outlines other skills of particular value to the industry, such as: financial and business, environmental issues, expertise in human relationships, and communication skills. A further outcome is that ‘...in-service training to enhance the professional skills of those already in the industry will be of more immediate benefit as the industry becomes more focused on commercial performance’. (MARSK report, 17)

In respect of the boat building and marine equipment industry, the report notes that the diverse, fragmented nature of the industry makes accurate assessment of training requirements very difficult. Therefore, for the purposes of the report, an interview with the Sales and Marketing Manager of Bowman Yachts in Southampton was conducted. In this industry too, it was pointed out that there is a lack of management training for managers in the company.

The report has also analysed the shipping industry. The impacts of the changes in the UK shipping industry have been felt in several areas.

1. Reduction in the number of British seafarers.
2. Skills shortages in marine and marine related industries ashore.
3. Loss of orders for UK shipyards.

The decline in numbers of UK seafarers has implications for maritime related shore industries. Sea time qualified marine personnel are working ashore in numerous areas such as: the Department of Transport, Lloyd’s Register (and other classification societies), firms of solicitors, port and harbour authorities, ship

operators, ship repairers, marine equipment suppliers, towage and dredging companies, ship finance houses (plus numerous banks), marine insurance companies, ship broking firms, firms of consultants and surveyors, maritime training establishments, oil brokers and traders, bunker brokers, P & I brokers, pilots and technical personnel in P & I claims offices. A report by Polytechnic South West estimated that of 84000 people employed in marine related industries (in the UK) some 10000 required direct seafaring experience. A further 10-20000 required practical shipping company experience. A study published by the University of Wales identified some 17000 jobs which employers would prefer to fill with ex seafarers. For 70% of these posts seafaring was considered essential.

Within the ports' industry the UKHMA (United Kingdom Harbour Masters' Association) has suggested a training programme for trainees without seafaring experience that would provide them with appropriate practical experience. Nautical colleges could establish courses for training suitably qualified people entering the ports' industry. A Cardiff study found that the UK merchant navy is still the most cost effective training ground for many shore based jobs.

Skills and Training Requirements in the shipbuilding and ship repair industry were also analysed. A project undertaken in conjunction with Newcastle University involved 'undertaking an audit in the UK industry of skills, education, and training provision and requirement'. Participating yards are being asked to think ahead to their needs in the 21st century. The objective is to achieve an increase of 25% in numbers of yard employees in formal training 12 months after the end of the project.

Ship repair is labour intensive and labour accounts for 60% of costs. Quality and productivity are, therefore, significantly dependent on human skills. In UK yards the average age of staff is between 40-45 and is increasing year by year. There is very

little concerted action to renew the ageing workforce. In the short term the age of the workforce will increase with significant retirements taking skills out of the industry.

The image of the industry as an attractive career opportunity has decreased as it has in shipbuilding. There is currently a very low level of intake of apprentices and qualified young people. There is little investment in training of new workers. In general, UK yards are slower than comparable yards in western Europe. The cause for this can be attributed mainly to poorer facilities and equipment, but also to lower labour productivity and poor organisation of work.

The UK is not well placed to exploit the fast ferry market because of lack of suitable facilities and skills in aluminium technology. Ship repair in the UK has made a recovery in recent years and the shortage of skilled workers is having an impact on the ability of some companies to tender for contracts.

Training needs in the fishing industry and the recreation and watersports' industry have also been analysed in the MARSK report. Details are not examined here, but the author wishes to highlight that training needs are being analysed in all areas, and the emphasis on training clearly shows that it is one area that must be high on the agenda of any company's plans.

5.5 Training needs as perceived by shipping industry employees

In chapter two, the author has analysed the result of a questionnaire directed at shipping companies in India and the rest of the world. The results of the survey were summarised in chapter two, and the training being carried out in India was compared with the training being carried out in the rest of the world.

In order to analyse the opinions of employees in the shipping industry, two more questionnaires were designed. One was to seek the opinion of shipping company employees in India, while the other was for the opinion of shipping industry employees in the rest of the world. These questionnaires are appended as appendices three and four.

The replies to both the questionnaires have been analysed separately so as to be able to seek two separate views. The results received have been tabulated. A few respondents have not answered some questions as these were felt to be 'not applicable' to them. Others have offered 'no comment' to some questions. This is also reflected in the tabulation along with the Yes and No answers. The results are summarised graphically.

5.5.1 Response from shipping company employees in India

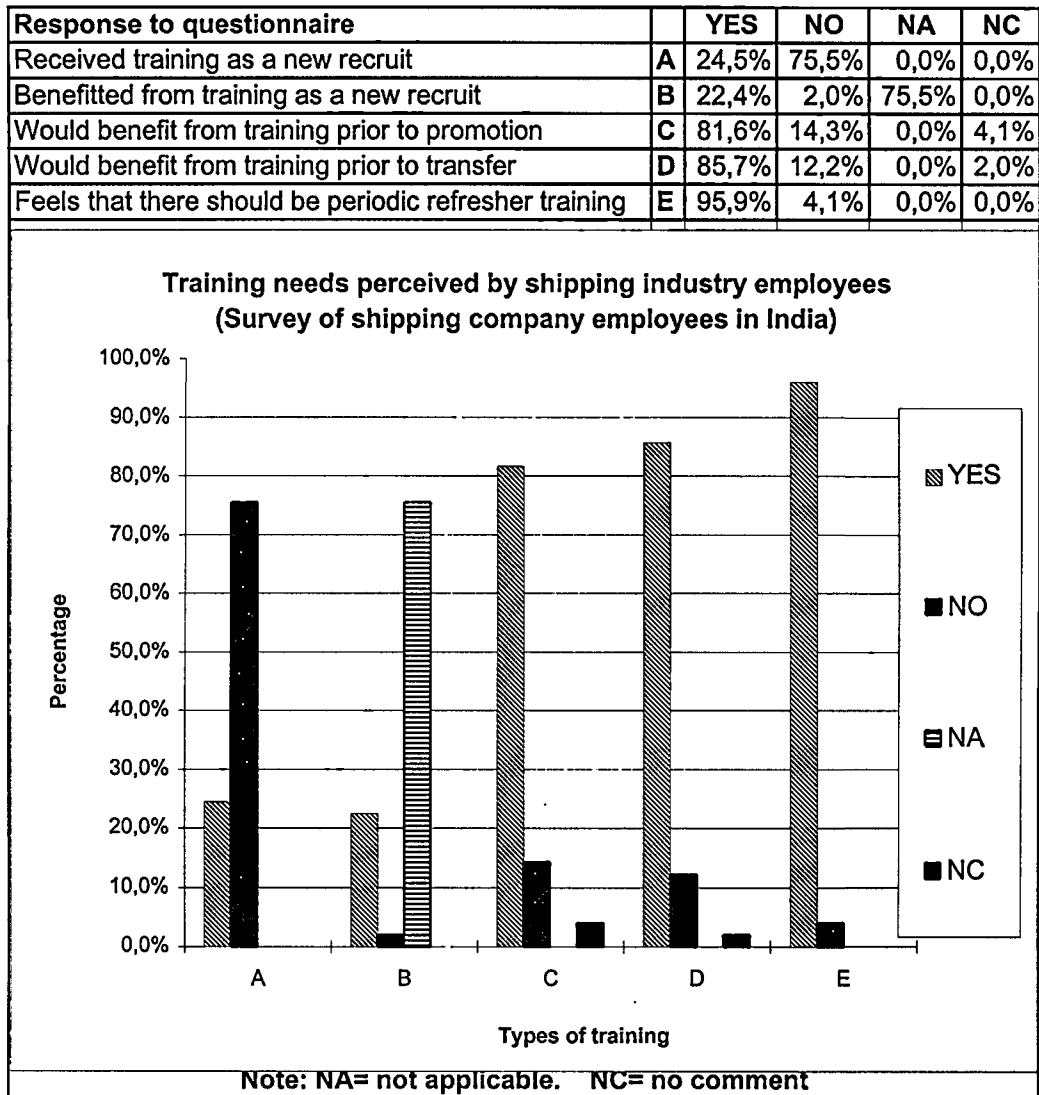
The questionnaire at appendix three was sent to one hundred employees in Indian shipping companies. Replies were received from 49 employees ranging from 26 to 58 years of age.

The respondents ranged from deputy general managers to peons, with all ranks between being represented. There were 43 male respondents (87.8 %) and 6 female (12.2 %), having qualifications ranging from school level certificates to post graduate degrees. Eight of the respondents were ex master mariners and six were ex chief engineers.

Figure 5.1 below graphically represents the results of the survey.

Figure 5.1

Training needs as perceived by shipping company employees in India.



Of the respondents, 24.5 % had received training at the time of joining, the balance 75.5 % having received no training for the job. All but one of those trained felt that they benefited from the training.

In respect of receiving training prior to promotion, 81.6 % are of the opinion that they would benefit from such training. Only 14.3 % feel that they would not benefit. The rest have not commented or feel that it is not applicable to them.

With regard to training prior to transfer to a new job in the same organisation, 85.7% would benefit, 12.3 % feel that they would not benefit.

An overwhelming 95.9 % feel that periodic refresher training should be carried out, while 4.1 % are of the opinion that refresher training is not required.

5.5.2 Response from the rest of the world (represented by WMU students)

The questionnaire at appendix four was sent to all the students of the World Maritime University classes of 1998 and 1999.

This target population of WMU students was chosen since they represent employees from the maritime industry from 73 countries all over the world. Shipping companies, shipping agencies, ports and harbours, maritime administrations, and other facets of the maritime industry are all represented in this sample population of WMU students.

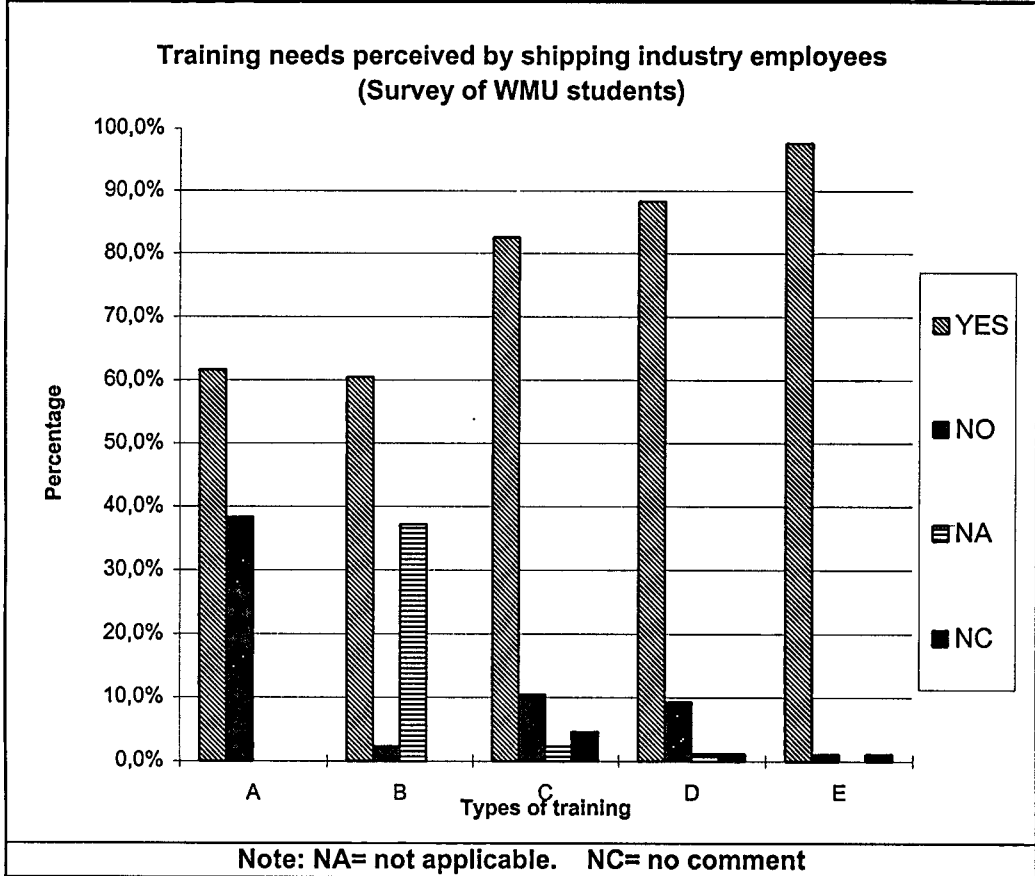
The questionnaire was delivered to 200 students, ranging from 23 to 50 years of age, the average age being 34.1 years. Both sexes are represented, 11.9 % being female and 88.1 % being male. Replies were received from 86 students.

The replies are graphically shown in figure 5.2:

Figure 5.2

Training needs as perceived by shipping industry employees in the rest of the world.

Response to questionnaire		YES	NO	NA	NC
Received training as a new recruit	A	61,6%	38,4%	0,0%	0,0%
Benefitted from training as a new recruit	B	60,5%	2,3%	37,2%	0,0%
Would benefit from training prior to promotion	C	82,6%	10,5%	2,3%	4,7%
Would benefit from training prior to transfer	D	88,4%	9,3%	1,2%	1,2%
Feels that there should be periodic refresher training	E	97,7%	1,2%	0,0%	1,2%



It will be observed that 61.6 % of the respondents received training when they first joined the shipping industry as a new recruit, with 60.5 % benefiting from the training received.

In respect of receiving training prior to promotion, 82.6 % are of the opinion that they would benefit from such training. Only 10.5 % feel that they would not benefit. The rest have not commented or feel that it is not applicable to them.

With regard to training prior to transfer to a new job in the same organisation, 88.4% would benefit, 9.3 % feel that they would not benefit.

An overwhelming 97.7 % feel that there should be periodic refresher training.

5.5.3 Survey results

The results of both surveys above serve to support the author's views that training should be carried out for all employees in shipping companies. This training should be at the time of joining, prior promotion, and prior transfer, with periodic refresher training to keep the employee abreast of developments in the shipping industry.

5.6 Summary

Long term benefits of training will eventually offset short term costs. Costs and benefits of training cannot be directly related to each other on a balance sheet. The passage of time will show the increase in safety and profits of a company that makes training its priority.

All individuals must have a foundation of general management skills and knowledge, which can be developed before advancement, in order to ensure that the individual has the appropriate management competencies required for the new operational, tactical or strategic role. Short, medium and long term goals of the development

programmes should be measured against the business goals of the organisation. The goals should be measured against the individual's aspirations as determined and defined during the training needs analysis and appraisal consultations.

It is relevant to note that Springett speaks of '...evidence of their management *competence*...', which is the topic of the author's dissertation, i.e. *training and competence* of shore based personnel. The UK NVQ system also deals with *competence* of personnel.

The IIMA research shows that it is essential for the individual to have a foundation of general management skills and knowledge. At the junior or entry level, information based training is necessary. At the middle and senior management level, decision making skills being more important, training should focus on this area.

Customer satisfaction, environmental legislation, and employee motivation, are highest on the list of priorities for training, followed by the introduction of new technology, managerial techniques, and supervisory techniques.

Companies that look more closely at the balance sheet than at long term training requirements will require an ISM Code or other regulations such as UK and European law, that lay down a compulsory 'statutory' need for training before training becomes a priority.

A large majority of employees in the shipping industry also share the author's views on training as evidenced by the results of both the surveys above. This training should be at the time of joining, prior promotion, and prior transfer, with periodic refresher training to keep the employee abreast of developments in the shipping industry.

Chapter 6

Conclusions and Recommendations

Training should not only be for the enhancement of job performance, but to heighten awareness and to mould attitudes of corporate committment. (Marsh, 1991)

6.1 Conclusions

A shipping company should provide a safe, high quality, environmentally friendly service to its customers. In order to achieve high standards, a company must achieve a zero defect status. This requires an analysis of the root causes of accidents, incidents, injury to personnel, etc., and elimination of the causes. Numerous studies state that about 80% of accidents are caused by human error. An obvious conclusion drawn from this is that the human error aspect needs to be tackled if the stated primary cause of accidents is to be eliminated or reduced. This can only be done by means of adequate training.

The human element in maritime casualties extends to the shipboard and shore organisation and their efficient management. Training of seafarers in India and the rest of the world is covered by mandatory requirements, and is being carried out. However, shore personnel have been left out from mandatory training requirements.

Reliable and efficient ship-shore communication systems have made it possible to contact a ship at sea today almost instantaneously. These communication links have virtually transferred control of the ship into the hands of shore personnel. Major decisions are made ashore by the owner or the ship operator and conveyed to the master for compliance. Sometimes commercial considerations may take precedence over safety aspects in the decision-making process ashore. The Master may find it very difficult not to abide by an unsafe decision taken ashore.

Though errors by personnel on board ships cannot be denied, there is a deep rooted link to an error or erroneous instruction by a person ashore that started the process. As stated by Moulin (1997), ‘...failures of other parts of the system are almost always a factor, and sometimes the prime factor’. The UK P & I Club study, examined in chapter three, shows that though errors by ships' personnel and pilots taken together are statistically larger, shore personnel errors account for a substantial part of the human error component in the Club's claims. If analysed deeper, this may also point towards shore personnel error.

It is very often found that negligence on the part of a mariner was a contributory cause of the mishap. However, as discussed in chapter three, in the case of the *Herald of Free Enterprise*, the root cause was found to be in the shore management. In the case of the *Sea Empress* shore personnel have been found liable. These cases demonstrate the shift in liability from ship to shore. This shift in liability makes it necessary to have well-informed, properly trained personnel managing the shipping company's offices. Besides *Herald of Free Enterprise* and *Sea Empress*, the author has shown numerous organisational lapses, commercial pressures and other hidden, latent causes of casualties.

Inadequate ship design, improper manning, improper instructions, lack of instructions, and other hidden or latent causes of casualties and disasters have to be

addressed. The only way to do this is to educate the work force to identify these latent errors and thereby educate them to avoid and eliminate the errors.

Analysis is normally done if there is loss of life, damage to property or the environment. If a company makes a commercial 'loss' it will not be easily discovered, and therefore will not be analysed. The 'losses' may not really be losses but a reduction of profits. These hidden 'casualties' will never show up in the statistics books, or the balance sheets. The author has shown various ways in which a company's profits may be eroded by commercial decisions based on lack of knowledge or scanty knowledge. The erosion of profit or 'latent loss' is avoidable if the personnel in control are adequately trained. However, unlike training for safety and pollution prevention, training for commercial profit will probably never become a mandatory requirement and it is for the company to analyse the benefit it will gain from training.

It is now widely recognised that safe, pollution-free, efficient ship operations require good management not only on board but also ashore. A need was seen for some sort of regulatory control on the shipowner or ship-operator in matters concerning safety at sea and environmental protection. This resulted in the ISM Code, the STCW Convention and the requirements for shipping companies to meet quality standards. The ISM code and the STCW convention, together with ISO 9000 series, all stress quality management and require mandatory training. There is also a requirement for close monitoring of training records.

At this time, the mandatory training is for personnel associated with safety and pollution prevention duties. It will not be long before training becomes mandatory for all personnel associated with any duties that require them to communicate with a ship and give instructions to the Master.

Whenever regulations state that there should be trained personnel in certain key posts, there is a scramble for training of these personnel. The evidence of this was clearly visible around the world as shipping companies world-wide rushed to meet the ISM deadline and began training their shore personnel en masse in order to comply with the ISM Code requirements. This increased pressure enforced by regulations was the driving force in companies rushing to impart training. Waiting till training becomes mandatory is not a good policy.

It is time that shipping companies realised that they should not wait till regulations enforce training. This normally results in a rush for training, and, as the popular saying goes 'haste makes waste'. Planning is of essence and a properly laid out plan for the training of company personnel would go a long way in reducing casualties and more so in reducing hidden commercial 'losses'. Shipping companies must begin training all shore personnel in a phased manner.

In studying the training being carried out in shipping companies in India, the author has observed that there is a woeful lack of training for shore-based personnel in shipping companies, with respect to training before a transfer, training prior to promotion and refresher training. This is probably primarily due to the fact that most companies view training as a colossal waste of time and money. While this study initially set out to identify shortcomings in training in Indian shipping companies, in comparing the scene in India with that in the rest of the world, the author has identified gaps in training not only in India, but also in the rest of the world.

As shown in chapter two, Indian companies are carrying out more training for new recruits than companies in the rest of the world. However, refresher training is more organised in the rest of the world than in India. Overall, structured training is more organised in the rest of the world (Europe and Singapore), than in India.

A majority of the companies, both, in India and the rest of the world, lack training for their personnel prior to transfer and prior to promotion. A person promoted or transferred is normally assigned new responsibilities. As discussed in chapter four, there is now a requirement that personnel are trained before assuming new responsibilities. Therefore the lack of training prior to promotion and prior to transfer needs to be rectified.

The author has examined some of the studies that have been carried out for the requirement for training of shore personnel employed in shipping companies. These studies are discussed in chapter five, and recommend that training be imparted at various levels - at the time of recruitment, at the time of being assigned new responsibilities (prior to promotion and prior to transfer), and periodical refresher training. Most of the areas for training identified in the MARSK project report are also emphasised by Springett (1997) and the IIMA (1994) as being required for shore personnel in shipping companies and these include customer satisfaction, environmental legislation, employee motivation, introduction of new technology, managerial techniques, and supervisory techniques.

Almost all shipping companies today recruit their shore based personnel from either a management institute, or from the open market. The new recruit is required to have some qualifications in order to be selected. A few middle level management posts are filled by absorbing seafarers (normally Master Mariners or Chief Engineers), who have a certain amount of sea going experience. In Indian companies, in some cases, watchkeeping officers have also been recruited in junior posts ashore. In all cases, the employee steps into the job and is expected to learn from experience. The quality of the learning process is dependent on the quality of the experience gained while on the job. The future performance of employees will always be governed by what they have learnt in their formative years with the company.

How do employees gain experience? From day one, they work with other employees, sometimes as an under-study, but more often, as a colleague. As and when they encounter any difficulty in performing a particular task, they ask the other employee for advice and assistance in solving their difficulty. The difficulty they encounter may be of different types. They may just simply not know how to perform the task. Alternately, they may know that the task can be done in several different ways, but do not know in which way the company's policy requires them to do it. In either event they need help.

An experienced Master Mariner, or Chief Engineer, absorbed ashore for the first time, is also in the same predicament. The efficient handling of a vessel, or the efficient operation of a vessel's engine is totally different from the efficient handling of a desk job. Here the ex-master or ex-chief engineer could be said to have an advantage over the raw recruit, but this is only a comparative advantage.

The two streams of entry clearly indicate that, initially, both individuals would have widely different backgrounds in training. As each individual rises in the organisation, their roles and duties come closer together. For this reason, their training must later on be of a common type in order to attain development of higher managerial skills and understanding.

Each of the above recruits should have been provided with 'induction' training, wherein he/she would be taught the basics of the job that he/she would be required to do, and the company's policy matters.

It is essential for an individual to have a foundation of general management skills and knowledge which can be developed before advancement, in order to ensure that the individual has the appropriate management competencies required for the new junior, middle and senior roles. At the junior or entry level, information based training is

necessary. At the middle and senior management level, decision making skills become more important, and training should focus on this area.

Short, medium and long term goals of the development programmes should be measured against the business goals of the organisation. The goals should also be measured against the personal aspirations of the individual as determined and defined during the training needs analysis and appraisal consultations.

Persons promoted to a higher post or rank are expected to have enhanced responsibilities. Should they automatically assume the responsibilities, or should they be trained for them? Should they take over automatically from their predecessor? Often, an individual's predecessor neither has the time nor the inclination to teach their successor the ropes. Learning by trial and error is the only avenue open to the successor. This is counter-productive and works against the interests of the Company. The author's opinion is that prior training is a necessity, a view backed by the requirement of the ISM Code which requires a person transferred to new responsibilities to be familiarised with his/her new duties. A promotion is, after all, 'new responsibilities' and more so than a transfer to a new post.

New regulations, new policies, new laws, are always being drafted, so there needs to be 'refresher' training incorporated after specified periods of time in order to update the employee with new knowledge.

Some companies have a policy of transferring personnel interdepartmentally. The ISM Code requires that a person who is given new responsibilities must be familiarised with his or her new duties relating to safety and pollution prevention. This is another area where the transferred personnel should be provided with training before the transfer becomes effective.

In chapter five the author has noted the relevance of the comment by Springett (1997), who speaks of ‘...evidence of their management *competence*...’, which is the topic of the author’s dissertation, i.e. training and *competence* of shore based personnel. The UK NVQ system discussed in chapter five, also deals with *competence* of personnel. The only method to ensure that personnel are competent is to make examinations or assessments of competence compulsory. An examination or assessment of competence should be a pre-requisite for recruitment, for promotion, and for transfer.

Benefits derived from the training cannot be directly measured. They will become visible only after a period of time. The trained manager will be able to react quicker than before, and could therefore reduce the time spent on emergency response. Proper planning for stores’ management could reduce inventory costs. A well-motivated person would reduce employee turnover, and, in the long run, will be a more experienced employee, loyal to the company. Proper training in human relations would mean better interaction with the company’s customers, and also with superiors and sub-ordinates in the work place. Teamwork training would enable the employees to work as a team. A well-run company could, in the long run, reduce the costs of its insurance, such as the P & I insurance, etc.. As mentioned earlier, the savings in costs cannot be quantified in the short term, but will take a few years to materialise. This is what must be perceived by the management of the shipping company before it can decide to set up training as a policy matter.

Long term benefits of training will eventually offset short term costs. Costs and benefits of training cannot be directly related to each other on a balance sheet. The passage of time will show the increase in safety and profits of a company that makes training its priority.

The author, being from India, has observed that Indian parents pay for their children's education even after the child has passed school and often after college, for post graduate studies. Why is this done? Is it not because of the realisation that the better educated the child is, the better he or she will do in life as a result of the further education provided? Is this not investing in the child's future? A company that sees its employees as its children would have little difficulty in relating to this type of long term investment. Investing in the employees' education and training would provide a better future for the employee and for the company.

In the case of many companies, new recruits use their initial year or years of experience as a stepping stone to jump to another, more lucrative job. The company must create the proper level of motivation necessary to retain its employees. There can be fears that a trained employee will jump jobs. This can be solved by making the employee pay for the training. Or perhaps pay for a part of the training plus a guarantee against the balance if the employee leaves within a certain specified period of time. The author's experience is that this is already being done for seafarer training in many Indian shipping companies. The same principle could be extended to personnel ashore.

Besides imparting knowledge and skills, training is of critical importance to build a proper, fruitful and functional relationship between company and employee, and to co-ordinate and communicate successfully between sea and shore. Proper prior training boosts confidence and enables the employee to perform well from day one.

In chapter five, the author has reported on results of surveys involving employees working in the shipping industry. These surveys clearly show that the employees themselves are of the opinion that proper training will help them to perform their jobs better.

Therefore, a discerning company will introduce training programmes to help their employees achieve their optimum level and thus enjoy job satisfaction along with recognition and reward. The new millennium will usher in a new world which will demand new competencies such as strategies, analysis and competitive techniques which only selective and consistent training can gear up for.

The author has made some recommendations in the sub-section following, but does not intend to recommend the medium of instruction that an individual company should utilise in order to train its employees. However, a company should examine the use of distance learning programmes, computer based training and the use of the Internet as training tools, from the view of costs, effectiveness and flexibility of time that these methods would provide.

The company will need to carry out a series of analyses in order to identify the training needs best suited for itself and its employees. The analyses should identify the job requirements and compare these with an analysis of an individuals' knowledge, skills, attitudes and aptitudes. The result of the comparison should be used to identify the training needs, and assist in designing the course curriculum. The opinion of employees should also be sought to identify their training needs.

The courses would need to be designed so as to include subject matter that would improve the knowledge and skills of the employees. The content of courses should also include training to mould attitudes and aptitudes of the individual. This would ensure that the employee is suitable for the new job in the case of a transfer or in the case of a new recruit. Leadership and human relations management should be incorporated in the syllabus of the course so as to ensure that the individual is suitable for the higher post in the case of promotion.

In designing courses and curriculum for management training certain opinions may be of assistance. IMLA maintains that a fragmented approach of training syllabi from many short courses at different times cannot provide a coherent education and understanding of how the parts of a system are inter-related (IMLA 10). Berg (1996), maintains that a Norwegian Research Programme 'Information Technology in Ship Operation' encountered two minor problems identified with computer based training (CBT). One was the lack of familiarity and experience with computer operation. The second was a suspicion of the motives behind the training programme. Further, a twelve month test period with CBT on the Red Band tankers showed that written pre and post test questionnaires made personnel sceptical about the purpose of training. However pre and post tests built into the CBT modules were seen as part of the training activity.

A glance at the Lloyd's Shipping Manager 'Guide to World-wide Maritime Training'(Lloyds, 1995, 1996, 1997) will show that a number of CBT modules are being developed by maritime training suppliers.

The results of this study show it is time to plan and impart training to all shore based employees if a company wishes to keep ahead in the stiff competition that exists in international shipping.

Companies that look more closely at the balance sheet than at long term training requirements will require an ISM Code or other regulations such as UK and European law, that lay down a compulsory 'statutory' need for training before training becomes a priority.

6.2 Recommendations

It is recommended that shipping companies place emphasis on the training of shore based personnel by:

1. Carrying out an analysis of the job required to be performed by a new recruit.
2. Ensuring that all personnel recruited into shore posts undergo a training course based at least on IMO model course 6.03 (Aspects of ship administration for company office staff), also incorporating any specific training required as a result of the analysis of the job required to be performed by a new recruit.
3. Developing courses for refresher training and commencing periodical training within minimum/maximum time intervals as refresher training programmes.
4. Analysing the job requirements for each senior rank in the organisation.
5. Carrying out an analysis of the knowledge, skills, understanding, attitudes and aptitudes of the individual employees.
6. Identifying gaps between job requirements for each senior rank and individual levels of knowledge, skills, understanding, attitudes and aptitudes.
7. Developing a curriculum for training courses to be imparted to individuals before they are promoted to a senior rank.
8. Analysing the job requirements of different departments within the company.
9. Comparing the analysis of the job requirements of the different departments and identifying the gaps between the job requirements and the individual's knowledge, skills, understanding, attitudes and aptitudes.
10. Developing a curriculum for training courses to be imparted to individuals before they are transferred inter-departmentally.
11. Analysing and matching job requirements with individual aspirations and selecting trainees accordingly.
12. Ensuring that personnel connected with the decision making process, that requires them to communicate their decisions to ship's personnel, are suitable and capable of carrying out their duties to the satisfaction of the company.

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Lief Hoegh & Co. ASA, Box 2596, 0203 Oslo, Norway. Fax. no. +47-22-869945.

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APPENDIX 1

LIST OF SHIPPING COMPANIES CONTACTED

Serial numbers 1 to 15 replied

Companies listed in order of replies received

1. The Shipping Corporation of India Limited, Mumbai, India. (Mr. A. Gopalakrishnan, Dean (Management Studies), MTI, Mumbai).
2. Great Eastern Shipping Company, Mumbai, India. (Mr. Jagtap, HRD department)
3. Tolani Shipping Company, Mumbai, India. (Mr. U. N. Rao,).
4. Varun Shipping Company, Mumbai, India. (Capt. Berry).
5. Larsen and Toubro, Mumbai, India. (Mr. Srivastava, Joint General Manager, HRD).
6. Selandia Marine Services, Mumbai, India. (By hand delivery).
7. Orinoco Marine Consultancy, Mumbai, India (By hand delivery).
8. Anglo-Eastern Ship Managemnt Ltd., Liason office, Mumbai, India. (Mr. J. K. M. Nair, General Manager (Training)). Fax: 91-22-3631007.
9. RF Reedereigemeinschaft Forschungsschiffahrt GmbH, Germany. (Mr. Arnim Kaiser and Dr. Dieter Strohm. Reply from: iv. J. Giessel). E-mail: rf@bremen.rf-gmbh.de
10. Cool Carriers, Stockholm, Sweden. (Svante Hellberg (Eija Seppa)). E-mail: reefer@cool.se
11. Lief Hoegh & Co. ASA, Box 2596, 0203 Oslo, Norway. (The Personnel Manager, Fax. no. +47-22-869945)
12. Scandlines A/S, Solveg 40, 1349 Copenhagen K, Denmark. (Mr. E. Osleigaard. Reply received from Helle Sorensen, Fuldmaetig, Fax. no. +45-33-935170).

13. A. P. Moller, Esplanaden 50, 1098 Kobenhavn K. Denmark. (Capt. Oscar Rosendahl, Personnel Manager by Fax.: +45-33-633479, and Bo Lindberg Andersen, on telephone: 45 33 63 34 61).
14. B & H Equimar Singapore Pvt. Ltd., Singapore 079120. (Capt.P.Bajaj (Portcaptain), E-mail:bhspore @ mbox2singnet.com.sg).
15. Barber International (IOSM Mumbai (Barber International, Mumbai) Fax: 91228346977).

Serial numbers 16 to 41 replies not received

Companies listed alphabetically by country and name of company

Denmark:

16. Armada Shipping A/s, Armada House, 3480 Fredersburg, Denmark. /Mr. H. Madsen). Fax: +45-42284566.
17. AS Norden, Amalieg 49, 1256 Copenhagen K, Denmark. (The Personnel Manager). Fax: +45-33156199.
18. Gefion Shipping ApS, Denmark. (Mr. C. Birch). E-mail: 100711.1770@compuserve.com.
19. Lauritzen A/s, Box 2147, 1291 Copenhagen, Denmark. (Mr. K. Thuesen). Fax: +45-33118513.
20. Rederiet Knud I Larsen AS, Denmark. (Mr. F. S. Larsen) E-mail: phe@kil.dk
21. Wind Shipping ApS, Denmark. E-mail: windship@centrun.dk

Finland:

22. Neste Cy, Box 29, 02151 ESBO, Finland (The Personnel Manager). Fax: +358-450555.

Germany:

23. Stuwe & Co., Schiffahrts GmbH, Germany. (Mr. Erich W Stuwe). E-mail: stuwgm@bts.net

India:

24. Chowgule Shipping, Mumbai, India. (Mr. Ketharkodi, DGM, Personnel and Administration).
25. Essar Sisco, Mumbai, India (Mr. De Sa, General Manager).

Lithuania:

26. Lithuanian Shipping Company, Lithuania. (Mr. A Stankus). E-mail: www.lisco.lt and ml5@hq.lisco.lt

Netherlands:

27. Wagenborg Shipping BV, Netherlands. (Mr. A. Veldman). E-mail: wagenborg@pi.net
28. Wijnne & Barends Cargadoors-En Agentuurkantoren BV, Netherlands. (Mr. D.R. Makkinje). E-mail: barends@noord.bart.nl

Norway:

29. Hagland Shipping AS, Norway. (Mr. Arne W. Aanensen). E-mail: rhagland@online.no
30. Shipping Co. A/S, Box 4145, 5023, Norway (Mr. Stig Ottesen). Fax: +47-55313316.
31. Stolt-Neilsen Shipping A/s, Box 550, 5501 Haugesund, Norway. (The Personnel Manager). Fax: +47-4-727575.
32. United European Car Carriers AS, Norway. (Mr. Nils-Henrik Jaeger) E-mail: uecc.email@uecc.com

Singapore:

33. Gemstar Shipping and Trading Pvt. Ltd, Singapore. (Mr. Hamid Baig). E-mail: gem786@singnet.com.sg

Sweden:

34. ACL Sweden AB, Sydatlanten, Skandiahammen, 403 36 Gotenburg, Sweden. (Mr. Ulf Granander) Fax: 031 645506.
35. FH Shipping Services, Sweden. E-mail: shipping@algonet.se.
36. Hastings Agebncy AB, Nordenskioldsgatan 17, PO Box 458, S-201 24, Malmö, Sweden. E-mail: info@hastings.se.
37. Stenna AB, Masthuggetsskagen, S405 19, Gothenburg, Sweden. Fax: 46-31-120651.
38. Tor Line AB, Box 8888, 402 72 Gothenburg, Sweden.. (Ms. Agneta Eriksson). Fax: 031-543925.
39. Wallenius Lines AB, Box 17086, 104 62 Gothenburg, Sweden. (Ms. Åsa Lundberg). Fax: 031-6406854. E-mail:postmaster@wallenius.se

UK:

40. Briggs Marine Environmental Services Ltd. UK. (Mr. R. Middleton). E-mail: 101735.2110@compuserve.com.
41. North Atlantic (Holdings) Ltd. UK. (Mr. Harper). E-mail: 100753.3415@compuserve.com.

APPENDIX 2

QUESTIONNAIRE SENT TO SHIPPING COMPANIES

Date: 16.3.98

Dear Sir,

I am a student at the World Maritime University in Malmö, Sweden. My research deals with the training of shore based personnel in shipping companies. I have prepared a brief questionnaire, which I am sending to you. I would greatly appreciate it if you could arrange to have the questionnaire filled in, and returned to me. All information gathered is solely for the purpose of the dissertation.

--

QUESTIONNAIRE:

- 1.) Company name:
- 2.) Number of ships owned / operated:
- 3.) Number of personnel employed ashore:
- 4.a) Do you have a structured training programme for new recruits?
- 4.b) If yes, what type of training do they undergo?
- 5.a) Do you conduct any structured training programme for your employees by way of refresher training at any intervals of time?
- 5.b) If yes, what type of training do they undergo?
- 6.a) Are your personnel transferred interdepartmentally ?
- 6.b) If yes, do you have a structured training programme for transferees ?
- 6.c) If yes, what type of training do they undergo?
- 7.a) Do you have a structured training programme for personnel prior promotions?
- 7.b) If yes, what type of training do they undergo?

Thanking you in anticipation of an early reply,

Yours faithfully,

Keith Joseph Miranda, MET(N) 98

World maritime University, P.O.Box 500, S 201 24 Malmö, Sweden

E-mail:- s98124@wmu3.wmu.se

Fax: +46-40-12 84 42

ANNEX 3

QUESTIONNAIRE CIRCULATED TO EMPLOYEES IN SHIPPING COMPANIES IN INDIA

Dear Sir/Madame

July 18, 1998.

I am compiling information regarding training of personnel (working ashore in the shipping industry) for my dissertation at the World Maritime University.

As all of you are working for shipping companies, shipping agencies, maritime administrations, and other shipping related industries, I would be grateful if you could spend a few minutes of your time in answering the following questionnaire.

In the event that you are an ex-seafarer who is now working ashore, please answer with respect to your SHORE appointment.

Thanking you,
Yours faithfully,
Capt. K. J. Miranda

QUESTIONNAIRE (Answer YES or NO)

Present Rank _____ Department _____ Age _____ Sex Male/Female

1. Which department were you posted in when you first joined the company's shore office? (Tick one)
 - a. Chartering
 - b. Marketing
 - c. Finance
 - d. Personnel
 - e. Technical operations
 - f. Commercial operations
 - g. Training
 - h. Others(please specify)_____

2. What was your qualification at the time of joining the company's shore office?
 - a. S.S.C.
 - b. H.S.C.
 - c. Graduate
 - d. Post Graduate
 - e. M.B.A.
 - f. Master Mariner
 - g. Chief Engineer
 - h. Others(please specify)_____

3. Did you receive specific training for the job that you would be required to perform? YES/NO

4. If you received specific training for the job, did this training help you to perform your job better? YES/NO
5. Before you are promoted to a higher rank in the same organisation, would prior training be of any benefit to you in performing your new job better? YES/NO
6. In the event that you are transferred to a new department/job within the same organisation would you consider prior training of benefit in carrying out the new responsibilities? YES/NO
7. In your opinion, would periodic refresher training for employees be of benefit to the shipping industry as a whole? YES/NO

ANNEX 4

QUESTIONNAIRE CIRCULATED TO STUDENTS OF THE WORLD MARITIME UNIVERSITY

Dear Students

June 30, 1998.

I am compiling information regarding training of personnel (working ashore in the shipping industry) for my dissertation.

As all of you are working for shipping companies, shipping agencies, maritime administrations, and other shipping related industries, I would be grateful if you could spend a few minutes of your time in answering the following questionnaire. (Only 5 Yes/No answers and one optional comments).

In the event that you are an ex-seafarer who is now working ashore, please answer with respect to your SHORE appointment.

Your student number that has been requested is only for the purpose of keeping track of the replies, and will not be used for any other purpose.

Kindly send the reply to: S98124@wmu3.wmu.se

Thanking you in anticipation of an early response
Keith Miranda

QUESTIONNAIRE (Answer YES or NO)
STUDENT NUMBER _____

1. When you first joined the shipping industry as a new recruit, did you receive specific training from your employer (or arranged by your employer) for the job that you would be required to perform? YES/NO
2. If yes, did the training help you in performing your job better? YES/NO
3. Before you are promoted to a higher rank within the same organisation, would prior training be of any benefit to you in performing your new job better? YES/NO
4. In the event that you are transferred to a new department/job within the same organisation would you consider prior training of benefit in carrying out the new responsibilities? YES/NO

5. Do you feel that periodical refresher training for employees would help the shipping industry as a whole? YES/NO

6. Any comments (optional) _____

PLEASE E-MAIL YOUR REPLY TO S98124@wmu3.wmu.se TODAY - THANKS
(The "REPLY" facility of the e-mail would be of assistance -Click on "REPLY".
Place a tick against "include original message in your reply" and click on "OK"
Answer the questionnaire by deleting the YES or the NO as the case may be, enter
your comments if any, and click on "SEND")