ROUTLEDGE STUDIES IN TRANSPORT ANALYSIS

The Management of Maritime Regulations

Hristos Karahalios

ROUTLEDGE

The Management of Maritime Regulations

Hristos Karahalios

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2015
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
Karahalios, Hristos.
The management of maritime regulations / Hristos Karahalios.
pages cm
1. Shipping–Management. 2. Maritime law. I. Title.
HE571.K37 2015
387.5068'1–dc23 2015000965

ISBN: 978-1-138-80713-6 (hbk)
ISBN: 978-1-315-75127-6 (ebk)

Typeset in Times New Roman
by Wearset Ltd, Boldon, Tyne and Wear

Printed and bound in Great Britain by
TJ International Ltd, Padstow, Cornwall

The Management of Maritime Regulations

Ship management is a worldwide activity. Modern ships are sophisticated designed structures equipped with several automatic devices. It is estimated that 90 per cent of commodities transported worldwide are carried by ships. Therefore there is great interest from many private and public organizations that those ships are operating, manned, designed and maintained within international acceptable standards. The obligation of stakeholders to comply with maritime regulations is included in most statutory and commercial agreements and therefore inadequate implementation of maritime regulations exposes stakeholders to commercial risks.

This book explores how the application of mathematical decision-making tools could be used to manage maritime regulations. Performance management tools are proposed which would allow stakeholders to monitor the regulatory performance of their organization in order to reduce or eliminate those commercial risks. The process of introducing an implementation process for maritime regulations worldwide is described within this text. An emphasis is put on the role of main stakeholders in the regulatory process and reasons that increase the willingness of stakeholders to participate in the implementation of regulations.

This book will be of interest to scholars and students interested in the management of the shipping industry as well as ship owners and managers who are charged with implementing maritime regulations.

Hristos Karahalios is Maritime Consultant in the fields of ship management and quality control, Piraeus, Greece.

Routledge studies in transport analysis

1 **Maritime Logistics Value in Knowledge Management**
Eon-Seong Lee and Dong-Wook Song

2 **The Management of Maritime Regulations**
Hristos Karahalios

Acknowledgements

This book is based on research that was carried out over the past nine years and is something that I would never have achieved if some people did not support and guide me through this process. I now have the opportunity to express my sincere gratitude to all of them.

The first person I would like to thank is Professor Jin Wang, a person who accepted me as a research student based more on my willingness to carry out research rather than my typical academic skills. In all my research efforts he always provided me with quick and useful feedback.

Special thanks are due to Captain Vincent Williams for encouraging me. With his excellent knowledge of the shipping industry, he provided me with valuable feedback and comments in order to take my research to a higher level. Additionally, I would like to thank Dr Zaili Yang (Reader in Maritime Transport) for his interest in my research; he was always available when I needed his advice. Additional thanks should also be given to Associate Professor Metin Celik. Furthermore, I would like to personally thank Ms Anna Tsioukla for her proofreading and editorial contributions.

Finally, I would like to express my gratitude to my family, friends and all those people who have supported me daily to achieve this goal.

Contents

Figures

Tables

1 Introduction

1.1 Historical review

The maritime industry is believed to be the oldest international industry in the world (King 2001). The introduction of new technologies such as satellite navigation systems (Beukers 2000) improved safety at sea in terms of navigation. Ships sail all over the world, transferring 90 per cent of the world's commodities relatively cheaply and safely between countries. Such trade contributes to an increase in wealth for countries and their citizens. However, seafarers and their ships are still exposed to many dangers such as storms and piracy.

For centuries, the dangers of shipping were so widely accepted by people that there was not a significant attempt by many administrators to develop a regulatory regime that would improve safety at sea and trade. There were limited examples of nations that imposed regulations, but such rules were restricted to ships flying that nation's flags. Early in the twentieth century, the situation changed when the world's nations realized that it would be to their benefit if they could agree to a common regulatory framework that would enhance the standards of safety at sea. The common regulatory regime became reality when, in 1948, the United Nations adopted the convention that established the International Maritime Organization (IMO) (originally IMCO) (Smith 1999). To some degree the regulations imposed by the IMO established a common and acceptable foundation, and as a result safety at sea was improved significantly within just a few decades. As a consequence of safer ships, there was a corresponding increase in the efficiency of sea trade.

The IMO has produced numerous codes, conventions and resolutions, which are referred as 'Maritime Regulations'. The most known is the International Convention for the Safety of Life at Sea 1974 (SOLAS), which is generally considered as one of the most important of all international conventions concerning maritime safety at sea. Similarly, the International Convention for the Prevention of Pollution from Ships 1973/1978 (MARPOL) was adopted to cover prevention of pollution of the marine environment by ships; the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (STCW) sets minimum requirements for training, certification and watchkeeping for seafarers in international standards.

The SOLAS Convention, in its successive forms, is generally regarded as the most important of all international treaties concerning the safety of merchant ships. It is composed of 12 chapters, all listed in Table 1.1. The sequence of the chapters shows the prioritization of concerns of the maritime community with respect to safety for each type of ship. Construction of technically reliable ships is the first concern described in Chapter II-1. Firefighting is described in Chapter II-2 as the next major threat. When a ship loses its stability or fire is spread, the crew should have the means to abandon the ship or rescue other seamen. Consequently, Chapter III refers to the lifesaving equipment required on board a ship. Emergency radio communication and navigation equipment are described in Chapters IV and V, respectively.

A ship, in order to be seaworthy, should also be able to carry goods without any risk to its safety. With respect to this issue, Chapter VI of SOLAS refers to principles of safe carriage of cargoes. However, the global need for carrying more specialized cargoes contributed to the addition of Chapter VII for carriage of dangerous goods. Despite those requirements, the tragic losses of several bulk carriers led to the adoption of Chapter XII, for additional safety measures. When technological innovations brought nuclear science to ships, Chapter VIII was written to include safety issues. In a similar way, Chapter X includes safety measures for high-speed craft.

The latest trend in SOLAS development is to regulate management systems. This trend appears in Chapter IX, which highlights significant issues to management of the safe operation of ships. In a similar way, Chapter XI-1 lists special measures to enhance maritime safety and Chapter XI-2 contains special measures to enhance maritime security. Those three chapters are an expected regulatory development since a technically reliable ship with insufficient management could still be unsafe.

The MARPOL Convention is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. It is a combination of two treaties adopted in 1973 and 1978,

Table 1.1 SOLAS 74 Chapters

Chapter I – General Provisions
Chapter II-1 – Construction – subdivision and stability, machinery and electrical installations
Chapter II-2 – Fire protection, fire detection and fire extinction
Chapter III – Life-saving appliances and arrangements
Chapter IV – Radio-communications
Chapter V – Safety of navigation
Chapter VI – Carriage of cargoes
Chapter VII – Carriage of dangerous goods
Chapter VIII – Nuclear ships
Chapter IX – Management for the safe operation of ships
Chapter X – Safety measures for high-speed craft
Chapter XI-1 – Special measures to enhance maritime safety
Chapter XI-2 – Special measures to enhance maritime security
Chapter XII – Additional safety measures for bulk carriers

respectively, and updated by amendments through the years. The Convention includes regulations aimed at preventing and minimizing pollution from ships – both accidental pollution and that from routine operations – and currently includes six technical annexes that appear here in Table 1.2. The development of MARPOL reveals the understanding of the maritime community regarding the harm that is causing to the environment. The establishment of oil as a primary fuel in industries and the larger ships carrying huge quantities of oil was the reason to draft Annex I with respect to prevention of pollution by oil as either a cargo or fuel. The transportation of hazardous liquids for industrial purposes generated an additional concern about ships' ability to control pollution by noxious liquid substances, which resulted in Annex II. The introduction of containers and the growth of door-to-door trade created the risk of losing a container from a ship at sea, causing pollution. Consequently, Annex III was prepared to address the issue of harmful substances in packaged form.

Apart from cargoes and bunkers, ships pollute due to routine operations. The incredible size and number of ships sailing around the world means there is a the need to regulate these issues as well. One of these forms of pollution is the dispersion of sewage, which is regulated with Annex IV. Another form of pollution is created with the disposal of garbage, especial when it contains plastic and recyclable material. Therefore, Annex V concerns preventing this form of pollution from ships, with particular interest in specialized areas. Finally, there are ports that suffer air pollution because they serve numerous ships. This health concern has led to the introduction of Annex VI, regulating air pollution from ships.

The STCW Convention chapters, which are shown in Table 1.3, aim to standardize training standards at a state level. Starting from the deck department, a seaman should follow certain training courses in combination with sea service in order to be promoted to the rank of master mariner, as described in Chapter II. Similar requirements are detailed in Chapter III for the engine department. The establishment of communications between a ship and shore, and with other ships, for a distress situation requires skilful radio users. Chapter IV specifies the appropriate training for radio personnel.

Apart from requirements for certain ranks, the STCW puts emphasis on training. Chapter V covers the need for special training requirements for personnel on certain types of ships, with particular focus on oil tankers and passenger ro-ro

Table 1.2 MARPOL 73/78 Contents

1973 Convention
1978 Conference
Annex I: Prevention of pollution by oil
Annex II: Control of pollution by noxious liquid substances
Annex III: Prevention of pollution by harmful substances in packaged form
Annex IV: Prevention of pollution by sewage from ships
Annex V: Prevention of pollution by garbage from ships
Annex VI: Prevention of Air Pollution from Ships

Table 1.3 STCW 95 Chapters

Chapter I: General provisions
Chapter II: Master and deck department
Chapter III: Engine department
Chapter IV: Radiocommunication and radio personnel
Chapter V: Special training requirements for personnel on certain types of ships
Chapter VI: Emergency, occupational safety, medical care and survival functions
Chapter VII: Alternative certification
Chapter VIII: Watchkeeping

ships. In case of an emergency, some crew members will be appointed with specific duties such as firefighting, medical care and operation of rescue boats. Chapter V addresses these issues and specifies certification and minimum acceptable training standards. Chapter VII, titled 'Alternative Certification', gives the ability for officers to gain a single certificate of competency combining deck, engineering and radio competencies. Of course, such certification requires a specific education and training path. Specific emphasis in STCW is given in Chapter VIII with respect to watchkeeping. A main concern in this chapter is to avoid human fatigue of personnel who have watchkeeping duties. The recent Manila amendments to the STCW Convention are evidence that maritime regulations are constantly developing to cover new training needs for seamen. In the amended STCW references are made to resource management, leadership, teamwork and managerial skills.

MLC 2006 has been designed to become a global instrument. Its contents are shown in Table 1.4. It is deemed as the 'fourth pillar' after the SOLAS, MARPOL and STCW Conventions of the international regulatory regime for quality shipping. From this convention, which is an amendment of existing ILO requirements, two groups could be separated. The first is existing requirements and the second comprises new requirements.

In the first group there are regulations such as minimum age (Reg 1.1), medical certification (Reg. 1.2), qualifications of seafarers (Reg. 1.3), seafarer employment agreements (Reg. 2.1) and hours of work or rest (Reg. 2.3). These regulations should already be in place to ensure a healthy environment for seamen. In addition, these regulations emphasise seamen's rights under contract, such as payment.

The second group is innovative for the shipping industry. The signatory state now has the obligation to develop the skills of seamen (Reg. 2.8). Emphasis therefore is given to the quality of the human element on board ships. Occupational safety and health incidents should now be processed through statistics (Regs 4.3.5, 4.3.6, 4.3.8). Such a requirement generates the demand for employees ashore that can understand and carry out studies using statistics. Crew complaints (Reg. 5.1.5) are also creating grounds for transparency. Therefore, since the voice of the crew could reach headquarters of a ship's management company, the liability of top managers is increased. Eventually, the right of detentions (Reg. 5.2) will place a significant burden on ship management companies for compliance.

Although the main regulatory framework is given from the above convention, the IMO is producing several codes which, if they accepted by a state, make them mandatory ships flying that state's flag. In Table 1.5 there is a list of approved codes of practice in the UK. The areas covered are very broad, covering cargo handling, construction, equipment and management. Those codes are in addition to conventions and are usually followed by circulars. It is not within the scope of this book to describe those codes, but to give emphasis to the plethora of maritime regulation that currently exists in the shipping industry.

Table 1.4 MLC 2006 titles and regulations

Title 1 Minimum requirements for seafarers to work on a ship
- Regulation 1.1 – Minimum age
- Regulation 1.2 – Medical certificate
- Regulation 1.3 – Training and qualifications
- Regulation 1.4 – Recruitment and placement

Title 2 Conditions of employment
- Regulation 2.1 – Seafarers' employment agreements
- Regulation 2.2 – Wages
- Regulation 2.3 – Hours of work and hours of rest
- Regulation 2.4 – Entitlement to leave
- Regulation 2.5 – Repatriation
- Regulation 2.6 – Seafarer compensation for the ship's loss or foundering
- Regulation 2.7 – Manning levels
- Regulation 2.8 – Career and skill development and opportunities for seafarers' employment

Title 3 Accommodation, recreational facilities, food and catering
- Regulation 3.1 – Accommodation and recreational facilities
- Regulation 3.2 – Food and catering

Title 4 Health protection, medical care, welfare and social security protection
- Regulation 4.1 – Medical care on board ship and ashore
- Regulation 4.2 – Shipowners' liability
- Regulation 4.3 – Health and safety protection and accident prevention
- Regulation 4.4 – Access to shore-based welfare facilities
- Regulation 4.5 – Social security

Title 5 Compliance and enforcement
- Regulation 5.1 – Flag state responsibilities
- Regulation 5.1.1 – General principles
- Regulation 5.1.2 – Authorization of recognized organizations
- Regulation 5.1.3 – Maritime labour certificate and declaration of maritime labour compliance
- Regulation 5.1.4 – Inspection and enforcement
- Regulation 5.1.5 – On-board complaint procedures
- Regulation 5.1.6 – Marine casualties
- Regulation 5.2 – Port state responsibilities
- Regulation 5.2.1 – Inspections in port
- Regulation 5.2.2 – Onshore seafarer complaint-handling procedures
- Regulation 5.3 – Labour-supplying responsibilities