



Impact of complacency on the effectiveness of port commercial operations

Bielić Toni^{1*}, Zec Damir²

¹Faculty of Maritime Studies Split, University of Split, Split, Croatia

²Faculty of Maritime Studies Rijeka, University of Rijeka, Rijeka, Croatia

Abstract

This paper deals with the phenomenon of Complacency which is one of the causes of human error detected in the domain of ship accidents. The term Complacency is present as an influential social and psychological factor which has similar cause in shipping and port commercial operations. The causes of ship accidents from the aspect of Complacency are defined as Management Complacency, Leadership Complacency and Self-Induced Complacency. All of these causes are reflected as causes of accidents in ports at the management and operational level. The main domain in which Complacency is present as influential element is decision-making process as well as in ship and port commercial operations.

Keywords: Ship accidents; Decision-making process; Port operations.

1. Introduction

Commercial and economic demands between different areas and continents are mostly satisfied by maritime transport. (Economic and Social Committee of the European Communities, 1986; Ross, 1998) This gives rise to mutual connections and conditionality of technological and organisational components between ships as transporting vehicles on one hand, and ports as start and finish in the maritime transport on the other. Besides, it is important to keep in mind that ports should be considered as one of the most vital aspects of a national transport infrastructure. For most trading nations they are the main transport link with their trading partners and thus a focal point for motorways and railway systems. At the same time they are major economic multiplier for the nation's prosperity as well as commercial infrastructure in the form of banks, agencies and industrial activity. Ports should also be considered as one of the most important aspects of maritime transport because they are the location where most maritime accidents happen usually in shallow water, where ships converge. Accidents in the vicinity of ports and terminals often cause disastrous ecological consequences (e.g.

* Corresponding author: Toni Bielic (toni.bielic@pfst.hr)

Exxon Valdez, United States. Congress. Senate. National Ocean Policy Study. and United States. Congress. Senate. Committee on Commerce Science and Transportation. Subcommittee on Merchant Marine, 1989) and numerous human victims (e.g. *Herald of Free Enterprise*). Besides, this is the place where most costs are incurred because much of the extra cost and delay occurs in ports (International Labour Office and International Maritime Organization, 2004).

2. Managing safety at sea – Present status and tendencies

Safety at sea in the conditions of modern maritime transport assumes an increasingly significant place in the process of transport by sea. Standards of maritime safety, among other things, are considered and adopted by the International Maritime Organisation – IMO as a specialized institution of the United Nations. (International Maritime Organization, 1990) The standards related to maritime safety, successfulness of navigation as well as prevention and supervision of oil pollution from ships are proposed by 158 IMO member countries. Furthermore, IMO makes efforts to establish collaboration among Governments as for all kinds of technical matters related to maritime affairs in international commerce. IMO consists of the Assembly, Council, Secretary and five Committees: Maritime Safety Committee, Marine Environment Protection Committee, Legal Committee, Technical Cooperation Committee and Facilitation Committee. Maritime Safety Committee – MSC – is competent for the area of maritime safety. Among other issues in this domain it deals with maritime accidents, i.e. any subject having direct influence on the safety of navigation. The work of the IMO consists of reaching decisions some of which, the most important ones, are compiled into international conventions. Such conventions are mandatory for all the IMO member countries. In the future IMO is not expected to issue new conventions but to apply the enacted documents and to

To date international conventions which are important for the safety at sea are:

- Convention on the Safety of Life at Sea – SOLAS, 1974;
- Convention on the International Regulations for Preventing Collisions at Sea, COLREGS 1972;
- International Convention on the Prevention of Pollution from Ships – MARPOL 1978;
- International Convention on Load Lines, LOADLINE 1966;
- International Convention on Tonnage Measurement of Ships, TONNAGE 1969;
- International Convention on Maritime Search and Rescue, SAR 1978.

The above mentioned Conventions contribute to the safety at sea as well as to environment protection. What is characteristic and common to all the Conventions is the reason for their compilation and adoption. Namely, each Convention is based on a previous maritime accident whose causes were found out and whose consequences were significant to the extent of initiating the formulation and adoption of regulations and decisions, i.e. conventions. For instance, SOLAS Convention was issued at the 1914 session instigated by the British Government on the occasion of sinking of Titanic in 1912. Then, on the occasion of sinking of RO-RO passenger ship *Herald of Free Enterprise* in 1987 Chapter II – I, regulations 23-2 and 42-1 of SOLAS Convention were supplemented in 1988. Next, there came MARPOL Convention that was preceded

by the grounding of the tanker Torrey Canyon in 1967. Generally speaking, the significance of an accident as for making regulations that in future should act preventively is not characteristic of IMO only but can also be applied to single countries which on the occasion of accidents in their territorial waters enacted internal laws on future prevention. Such an example are the USA which after the grounding of the tanker Exxon Valdez in Alaska in 1989 brought in 1990 the Oil Pollution Act – OPA. What is more, this Act imposed more rigorous standards on the building of tankers than MARPOL Convention.

However, such an approach to preventing further accidents with similar or identical causes has not proved efficient. In that sense, a need was felt for further insight into causes of maritime accidents on the basis of which shared basic cause–effect relationships would be found out. (Reason 1999) Results of investigations have focused on unsatisfactory efficiency of shipping companies with regard to the safety of work on board and environment protection during exploitation of ships. An accent was put on the effect of incorrectly defined or even non-existent working procedures in ordinary circumstances and emergencies. The result was issuing of International Safety Management Code – ISM that along with the introduction of ISO Standards on board and in the companies was supposed to eliminate the spotted incompatibilities. The Code was reinforced in the International Convention on Standards of Training, Certification and Watch-keeping – STCW in 1995 which has obliged all the member countries, shipping companies and seamen training institutions. As it became evident from later accidents, neither the ISM Code nor the introduction of ISO Standards were not enough to remove the possibility of the occurrence of accidents. This can be proved by the collision of ships Norwegian Dream and Ever Decent in 1999. Both ships complied with all the regulations of the SOLAS Convention and ISM Code but still they collided in conditions of good visibility and calm sea. (International Maritime Organization. 2004)

It was this accident that emphasized the formerly noticed but not enough accentuated and investigated elements of human error. Namely, it was to be admitted that auditors of effectiveness of the ISM Code and ISO Standards implementation except for efficient examination of ship procedures could not cover the area of personal experience or influence communication, organisation, sociological and psychological relations within and between different cultural groups on board. It has been noticed that each of the above mentioned areas could initially set in motion a chain of errors made by crewmembers that finally brings to an accident. In that sense, we are dealing with human error due to fatigue and tiredness, inappropriate communication, unsuitable equipment handling technology as well as other kinds of influences among which the most significant are influences of the shipping company to ship organisation and influence of ship management style.

3. Complacency – Basic concept and operational influences

A recent approach to the analysis of maritime accidents accentuates some basic prerequisites for the occurrence of human error in the form of spotted lack of free communication and cooperation not only within ship organisation but also in its relation to external factors, especially shipping companies. It is the inappropriate communication along with deficient cooperation both on board and in the relation of

ship to external factors that represents one of the basic causes of reaching improper decisions and taking inefficient actions. (Maxwell 1976; Curtis 1991; Fukuda 1992; Emmott 2003)

The genesis of inappropriate communication and poor cooperation follows both from the model of ship organisation and management style as well as from special and complementary socio-psychological influences. Such influences are witnessed on board and have direct influence on the quality of management.(Fahlgen 2000)

After the analysis of causes and consequences of maritime accidents three areas were recognized in the domain of decision making and putting into practice that can have essential influence on safety and management style. They are:

- The negative influence of the shipping company (Management) expressed through the dominant communication company – ship in which process the crew meet the interests of the company against their own beliefs and attitudes which are eventually lost, become passive or transform into submissive attitudes – Management Complacency. As a socio-psychological phenomenon Management Complacency occurs in conditions of inappropriate communication between ship's crew and Management – shipping company. As for information exchange this form of communication emphasizing the dominating role of Management corresponds to a bad relationship between parent and child. In such relationships the crew feels criticized, controlled, insignificant, not given a hearing by the Management and with constant feeling of possible repression. This view is supported by the examples of not reducing the ship's speed in order to maintain the ETA which were incompatible with weather and traffic conditions and in certain cases with technical conditions (e.g. Titanic, Estonia, Herald of Free Enterprise, Norwegian Dream) but which came out of the urge to please the Company, i.e. out of the influence of Management Complacency through the Master's and Officers' submissiveness.
- The negative influence of leadership expressed through domination in which case the crew meets the requirements of the authority suppressing personal attitudes and beliefs – Leadership Complacency. In that sense, the Master with his behaviour formed eventually into attitude can unconsciously create an atmosphere in which the crew feels tense and uncomfortable. His relation to the crew can be dominant, intolerant and repressive while the crew feels criticized and unimportant. In such a climate the crew no longer support the Master by their knowledge and experience; what is more, their knowledge and experience are suppressed in circumstances arisen from the Master's wrong decisions or omissions. Relations built in this manner can extend so far that a crewmember, for instance, follows the Master's mistaken action with pleasure without undertaking anything at all. This can be traced in the analysis of maritime accidents in the majority of which the respective crew acted exclusively according to the Master's decisions even on the occasions which pointed to the danger and the urge of taking action or measures contrary to those taken by the Master(ROTHBLUM 2000). The tankers Torrey Canyon, Amoco Cadiz and Erica are clear examples of the effect of Leadership Complacency. Another proof of what has been discussed above is disorganisation in case of the Master's failure at the commanding and organisational levels (e.g. Oceanos) when the panic-stricken crew started abandoning ship due to the lack of information and direct commands leaving the passengers to their destiny.

- The negative influence of the acquired feeling of superiority and personal significance to the change of personal, previously positive attitudes – Self-Induced Complacency. For example, a Chief Officer who satisfies all the requirements to become the ship's Master is not promoted even after many years of impeccable career while his colleagues with the same qualifications have already been filling such a post for some time. In that sense, there are two possible ways of reaction. A mature and realistic Chief Officer will carry on doing his best and applying his knowledge and experience in a professional way. A less mature and less realistic Chief Officer will start behaving contrary to what would be expected from his knowledge and skills and will not maximize his efforts as regards the safety of navigation. Such a reaction is a form of protest against the non-appreciation of his skills, knowledge and experience. Adopting such a dangerous form of behaviour he unconsciously satisfies his vanity and compensates his unrealised ambition in a wrong way. Such a form of behaviour is qualified as Self-Induced Complacency. In the analysis of maritime accidents it is possible to apply the notion of Self-Induced Complacency to the Second Officer of Admiral Akhimov that collided with Pyotr Vasev. At the time of the accident the Officer has already been filling the post for 25 years so that it is hard to believe that he was not familiar with collision regulations.

From the above mentioned a conclusion can be reached that Complacency can lead to accidents with serious consequences. This phenomenon has been explained by Wiener from the University of Miami as follows: "Complacency can strike any person in any occupation, where a person feels his skill, knowledge and his experience are called into question by superiors. And the result will most likely be changed attitudes caused by gradually hampered creativity."

In that sense, shipping and ports are brought under common denominator related to the risks of occurrence of accidents caused among other things by human error arising partly from wrong attitudes and bad work habits due to the influence of Complacency. This is even more true as most port workers have previous experience on board ships which they spontaneously transferred to administrative and operative work in the port. It follows that safety in port regarding acquired attitudes and work habits shown through decision making and acting of those who work in ports is in many ways similar to safety on board.

4. Complacency as influential element on port organisation and principal functions

Ports, like most other commercial activities, are constantly changing. Cargo-handling technology and changes in labour requirements and culture have also evolved. In accordance with those requirements a significantly smaller but better trained workforce was needed. During all this changing, ports are constantly trying to maximise cargo throughput or minimise its cost that means maximising the profit. This is a very well known concept of shipping companies whose goals are to maximize the turnover of ships with minimum cost and maximum benefit. That is the magic circle in which, from the aspect of ports, many groups and interests are involved and port management and administration tend to become too large and complex. In these circumstances port management operates under great many tight constraints. All the external constraining

groups like shippers, ship owners, trade unions, environmentalists, local area authorities and national government will be putting pressure on the port management to satisfy their needs (see figure 1).

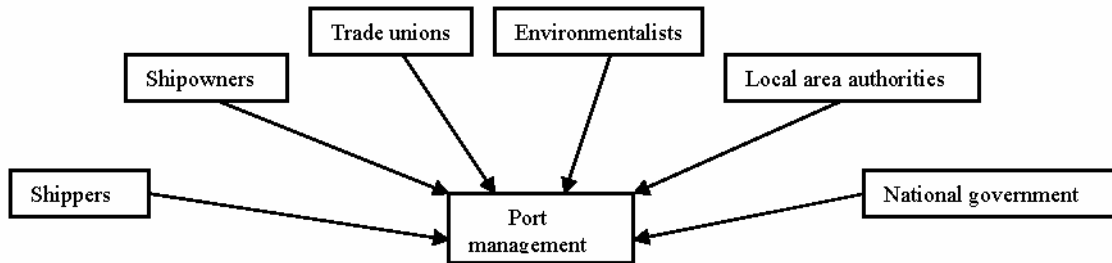


Figure 1: Constraining influences on port management.

Constraining influences on port management are connected mainly to far-reaching political decisions, either at national or at regional level. In circumstances as those mentioned above scenario for complacency is very wide. For example, in 1998 the results of an international survey covering 1000 reports from ships and terminals were published. The reports covered 222 terminals in 46 different countries. Most of the problems reported by ships and terminals were related to the breakdown of communication and mutual understanding. Some 30% of ship reports considered the terminal interface unsatisfactory and frequently there was no terminal representative on site with authority to accept responsibility or make decisions. A common complaint from ships was «loading was too fast and we had to leave with our ballast on board». This shows that operational level at those terminals which is responsible for tactical decisions was related to everyday operations and that connected to port functions such as shipping companies, stevedoring companies and freight – forwarders was unorganised and sloppy. (Applied Systems Institute., United States. Office of Port and Intermodal Development. et al. 1981; International Labour Office. and International Maritime Organization. 2004) Constraining influences on management level together with poor tactical decisions on operational level affect support level that is associated with tasks carried out by different government agencies or private enterprises.

Analysing this report (Patric 1999) it is very easy to notice that breakdown of communication and mutual understanding along with absence of terminal representative and authority show presence of leadership complacency. Furthermore, the consequences of such a behaviour are visible from an analysis of oil spill accidents between 1974 and 1990. The report indicates that over 70% of those accidents occurred in port during loading and discharging operations, and further 12% were from ships in port that were engaged in bunkering operations. This means that positive initiative of workers on operational level was low because in many cases they only did what their superior or management expected of them to do. Positive initiative means that they could do something against the spillage in time, but they did not because they followed the orders based on routine or inadequate procedures. The absence of initiative is another evidence of the presence of complacency based mainly on leadership. Bad communication between ship's mates and terminal operator, as quoted in Lloyd's List in August 1998

for a large container ship loading in the Far East, indicated that around 10% of changes in the stowage plan were necessary, mostly in the latter stages of loading. Such last-minute changes can cause serious problems for ship's stability, and especially Chief Mate, because container ships are very sensitive to any changes in top weight. So, that is again a case of misunderstanding between ship and terminal management because of the lack of communication and tendencies of the terminal to «fill up» the ship with cargo at any cost. This shows the presence of Management Complacency because the attitude of efficient loading, which means profit, was not followed by safety.

However, there are other factors that have to be considered to understand the tensions between management, operational and support levels in ports, or between ship's officers and terminal operators that commonly lead to some kind of complacency. Mainly, that depends on port organisation that can be hierarchical or matrix. (United Nations Conference on Trade and Development. Secretariat. and United Nations Conference on Trade and Development. 1985) Hierarchical or functional organization is usually present in ports under direct government control. It means that national government or regional authorities more often than not assumed a role of supreme authority to port authorities. The ports in which private sector participates in the ownership usually have matrix organizational structure. In this matter centralized decision-making is characteristic of ports under direct government control. Otherwise, shared decision-making is present in ports in which private sector dominates. From this point of view it is easy to conclude that complacency in any form can occur much more often in ports with centralised government control and typical hierarchical structure, which mean centralized decision-making, than in ports with private sectors. This conclusion can in a way be supported by a statement of the Editor of Port Development International in 1992 who wrote: «For too long the inefficiencies and excesses of the dockers have been mirrored by top-heavy administrations - over-manned, under-talented and equally obdurate to change». In general, the trend worldwide, in Europe, China, Africa, Asia, etc., is to decentralise direct government control and to place the port on a more commercial footing. This is indicated by a survey conducted by F.R. Harris in the late 1980s in which around 80% of ports replied that private sector participation was increasing. For example, in 1983 ABP (Associated British ports) consisting of 19 UK ports was privatised with most employees owning at least 1000 shares. Since then, labour productivity has increased by 40%. But it would be exaggerated to conclude that complacency depends on the type of port ownership only.

From the aspect of complacency, a port is not a coherent entity like a ship but a loose collection of trading activities within a fairly arbitrary boundary. This makes it more difficult to theorise about how and when complacency will cause an accident. For example, a subject included in the support level such as Vessel Traffic Service – VTS can operate as active and passive VTS. Active VTS operates in such a way that within a defined area the VTS traffic controller regulates the conduct of vessels in accordance with port or regional legislation. With passive VTS the person in charge has only the role of traffic advisor informing the vessels in the area of current traffic movements and of any unusual circumstances. Most ports have a traffic control centre operated by experienced and qualified mariners who are able to observe the movement of all vessels within the port by enhanced radar and video presentation. All these facts are supported by the IMO Resolution A 857- Guidelines for Vessel Traffic Service adopted in November 1977. In this resolution the IMO defines VTS as «traffic monitoring service which is implemented by a competent authority, designed to improve safety and

efficiency of vessel traffic and to protect the environment». This competent authority could be a «governmental maritime organisation, single port authority, pilot organisation or any combination of these». All these measures are not enough from the aspect of complacency. Complacency strikes from the inside and can avoid all these measures. It means that complacency will occur as human error from the weakness of the system – man in charge of VTS. As it has been written before, mariners can move from ship to other duties, such as VTS controller, but they retain mariner communication habits and way of thinking. The real question that is important for safety within a VTS area is which kind of organizational experience the controller has from previous ship service. If he served under shipping company that has reflected management complacency for many years, it means that this person still has the routine of compliance. So, how compliance resulting from complacency can cause an accident within a VTS area is clearly visible from the case of the tanker Exxon Valdez in 1989. In this case the VTS controlling Prince William Strait on the Alaska Marine Terminal tacitly accepted the information from the Master of Exxon Valdez that he intended to sail outside the separation scheme because of the presence of ice. In these circumstances VTS could not follow the ship movement on the radar screen. The VTS did not protest against the action of the Master of Exxon Valdez. It was clear evidence that VTS in this area suffered from management complacency because all the staff tacitly supported compliance to Exxon company that owned the tanker Exxon Valdez.

Complacency can be recognized from other entities as common cause of errors in ports. An example is the grounding of the tanker Sea Empress on February 22, 1996. The UK Environmental Agency commenced criminal prosecutions against Milford Haven Port Authority and Milford Haven Harbour Master. The Milford Haven Port Authority was accused because it failed to regulate navigation within the harbour properly and failed to provide proper pilot service. The Harbour Master was also accused because he failed to take safety precautions and measures to regulate shipping at the entrance to and within the port. The Marine Accident Investigation Report found that the immediate cause was pilot error caused by inadequate training and experience. The real question is: “Are accidents necessary to find out a person’s inexperience and poor training?” Somebody had known before that this person is not experienced enough and that he needed more training. So, that is the problem of leadership complacency in the organization of Port Authority and self-induced complacency from the aspect of Harbour Master. The result of these forms of complacency is that in January 1999 the port of Milford Haven was fined 4 million pounds sterling arising out of these charges.

If we compare accident like this one with some accidents on board ship it is possible to conclude that compatibility of interests among entities within port environment is much lower than among on board departments. Maritime accidents as an outcome of human error bear negative consequences to all participants (company and its shareholders, master, crew and environment) while misconduct of one of the entities operating within port limitations may be significant advantage to its competitor or even other entities; of course, some actions can bear negative consequences to all entities.

5. Possible measures to prevent negative impacts of complacency in port operations

As it has been mentioned earlier in this paper the problem of complacency in general is problem of improper communication. Traditional hierarchical relationship with emphasised subordination and centralized decision-making is fundamental condition for affirmation of any kind of complacency. Therefore, no mariner should be employed in port if he suffers from complacency from the very beginning. The measures against this phenomena are content of the team work and principles of matrix organization. Shared decision-making based on trust and mutual understanding lead any port entity to a common goal and that is efficiency. That means optimum use of resources within an acceptable context of safety that is reasonable starting point for efficiency. So, the starting point would be team building inside any port entity and between entities. The way from the beginning of team building to mature team is not short and needs three to four years. During this period commercial efficiency of the port will grow slowly but with fewer accidents. Any team needs this time to reach optimum work capability.

6. Conclusion

Complacency is conceptually communication phenomenon which can evolve in any organization where the relationship among employees are based on domination of superiors and hierarchical organization. Thus, complacency starts as an unconscious reaction to bad communication or unpleasant environment. Behaviour is then changed and finally the person's attitude is completely changed. When the process is finished, the person falls into a state where he or she unconsciously no longer uses available knowledge and resources. From the aspect of port as a complex and dynamic organization, complacency can cause serious problems and financial loss. The main problem with complacency is that it starts unconsciously and the complacent employee, for example a VTS controller, port pilot, harbour master etc., does not realize possible dangerous circumstances and how to correct them.

References

- Applied Systems Institute, United States, Office of Port and Intermodal Development (1981) *Usage pricing for public marine terminal facilities : executive summary*, Washington, D.C.
- Brussels Economic and Social Committee of the European Communities (1986) *EEC maritime transport policy : progress towards a common transport policy*.
- Curtis, A. T. (1991) "The role of complacency in airline accidents: Thesis M.S.- Massachusetts Institute of Technology Sloan School of Management
- Emmott, B. (2003) *20/21 vision : twentieth-century lessons for the twenty-first century*, Farrar, Straus and Giroux, New York.
- Fahlgren, G. K. (2000) *Resource Management and Human Factors*, Sigtuna Nya Tidning, Sweden.
- Fukuda, S. (1992) Complacency and large-scale accidents: Thesis M.S. – Massachusetts Institute of Technology Sloan School of Management.
- International Labour Office and International Maritime Organization (2004) *Security in ports*,. International Labour Office, Geneva, London.
- International Maritime Organization (1990) *Index of IMO resolutions*, London.

- International Maritime Organization (2004) *SOLAS: consolidated text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: articles, annexes and certificates*, London.
- Maxwell, J. B. J. M. (1976) *Challenges to complacency*, C. D. Howe Research Institute, Montreal.
- Patric, M. A. (1999) *Port Management and Operation*, Lloyd's Practical Shipping Guides, London.
- Reason, J. (1999) *Human Error*, Cambridge University, Cambridge.
- Ross, J. F. L. (1998) *Linking Europe: transport policies and politics in the European Union*, Praeger Westport, Conn.
- Rothblum (2000) "Human Error an Marine Safety", *Maritime Human Factor Conference*, Linthicum.
- United Nations Conference on Trade and Development Secretariat (1985) *Port development, A handbook for planners in developing countries*, New York.
- United States. Congress. Senate (1989). Exxon oil spill: hearings before the National Ocean Policy Study, U.S. G.P.O, Washington.