

The Impact of Shipping Accidents on Marine Environment in Albanian Seas

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Abstract: Shipping accidents are unexpected events that result in financial loss and properties, damages and either loss of people. Several reasons as human errors, technical failures, natural conditions, shipping factors, route conditions and cargo related factors play role in these accidents. Unfortunately, shipping accidents are inevitable cases of maritime field, in contravention of creative and innovative technologies in shipping sector and execution of precautionary safety rules and regulations. Marine accidents adversely affect the human, the marine environment, properties and activities aboard ships and ashore in various forms and degree of extent. The effects of accidents vary from minor injuries to fatalities and from insignificant damage to very severe damage to the environment and property. The cost of accidents, including fatalities and injuries, damage to property and the environment, prevention and mitigating measures, and insurance accounts for a considerable share of transport costs. Main purpose of this paper is to investigate the effects of shipping accidents on marine environment in Albanian Seas. Within this scope firstly, the literature related shipping accidents and marine environment were handled. Then, the statistics of shipping accidents and marine environment in Albanian Seas were analyzed. Finally, future projections were provided in the light of presented matters and current developments.

Key words: Shipping accidents, marine environment, Albanian seas, shipping sector.

1. Introduction

The concept of a maritime accident is the occurrence of an event on a ship or involving any equipment, investment and property exposed to the marine environment resulting in damage to marine property and persons at sea or in the port. It includes accidents at sea or in port, on the seafront or on the boat, etc. Marine accidents are caused by exposure to marine environment hazards, where accidental events are at sea or at port and can be protected by a maritime security policy. It is immaterial whether the ship or the object involved in the accident is floating or stationary at the time and time of the accident.

Risks at sea continue to be a subject of many documents that describe road shipping from carriers engaged in maritime trade. Current policies aimed at developing a common insurance to cover the risks to which the vessels are exposed in particular, the crew that she should be reimbursed in the event of accidents.

Currently, one of the biggest obstacles in the way of progress of the maritime industry on an international level is the lack of methods for determining the levels of risk. The volume of commercial activities and pressure on the market requires orientation towards new methods and techniques of risk management, in other words, the elaboration of a plan of risk management, which has the purpose of preservation and risk control and limits of tolerance in a practically negligible level. It should be considered a coherent management plan to include techniques of identifying potential accidents and analysis of risks, in order to improve security measures and to reduce the loss of human lives and also to enhance the quality of decisions. Efficient management practice requires certain quality standards to be defined, which should be in place progressively, after a careful analysis of the ports and to take into account the perspective of evolution.

The shipping industry is no exception and there are several factors that must be taken into consideration.

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Safety, problem solving, distribution time, distribution of accurate, goods lost, fees, taxes, and insurance are some factors that should be considered when dealing with the shipping industry to minimize as much as possible risks.

Marine accidents adversely affect the human, the marine environment, properties and activities aboard ships and ashore in various forms and degree of extent. The effects of accidents vary from minor injuries to fatalities and from insignificant damage to very severe damage to the environment and property. The cost of accidents, including fatalities and injuries, damage to property and the environment, prevention and mitigating measures, and insurance accounts for a considerable share of transport costs [4].

2. Shipping Accidents

2.1 Shipping Accidents and Marine Environment

The ship is the basic and predominant means of transport for world trade, while the Earth is almost covered by the sea. About 90,000 ships of various dimensions and more than 250 different types, specialized in cargo or passenger trade, or both, serve for humanity.

However, transport is the mechanism of distribution in most of international trade and plays a massive role in the welfare of mankind; billions of tons of raw materials and finished goods are transported to ships between port terminals and various locations around the world [1].

The ship is a world trade tool in a high-risk operating environment. At today's precision and satellite navigation, many ship and dead accidents still occur at sea. Even sophisticated navigation instruments available and enhanced communication technologies have been unable to stop marine accidents.

Every ship accident, wherever it is, is the nightmare of every seaman. It can happen in a closed area, or a strait where traffic is heavy as a result of the movement of ships with different destinations. On the other hand,

a serious ship accident becomes even more critical in water entry cases, thus enabling ship stability to deteriorate in times of weather deterioration or strong currents. In some other accidents, however, the issue becomes more "environmental" due to the oil spill.

The transport accident is a term generally used for any accident resulting in financial loss, either in people's lives or in ownership or in both of them [3].

Reasons for marine accidents are numerous and complex. Increasing the size of ships to increase economic costs in transport is one of the main reasons. The size of the vessels increases correspondingly to the cargo and passenger capacity; therefore when an accident occurs, the risk of life and property becomes immediately higher. Reducing ship maneuvering with the greatest degree, which ultimately is a function of increasing the risk, is another factor contributing to marine accidents.

- There may be some causes for marine accidents. In broad terms these are: natural conditions, technical failures, road conditions, cargo-related factors, human or personal faults, and cargo-related factors. Natural conditions can be natural phenomena such as current, tidal flow, heavy winds, reduced visibility (fog, heavy snow and rain), sea storms, darkness, etc. [5].
- Technical failures are flaws inside the ship, such as corrosion, constructive damage, engine failure or other damage to the ship resulting from poor maintenance and lack of ship services.
- Road conditions may include navigation error such as reliance on inaccurate maritime charts, narrow channel directions with unexpected movement changes allowing very limited maneuverability and exposure to heavy maritime traffic, mooring close to corridors traffic separation, sealed maritime areas, and cruise dangers, such as rocks, reefs, centimes, etc. [6].
- Factors associated with ships can be the weakness of a ship, tied to its large dimensions, so it has less maneuverability.
- Human errors may include, *inter alia*, lack of knowledge and experience, technical inadequacy, bad

eyesight, inappropriate observance of procedures and rules, lack of command of the ship, misinterpretation of radar information, fatigue and lack of vigilance, overload, inadequate rest periods etc.

- Factors related to the load include mainly dangerous goods and heavy loads; e.g., oils, chemicals, nuclear substances, the place(s) in the ship (deck or deck), and the degree of care that such loads need (cereals, hardwoods) all related to the validity of the vessels [2].

Any accident may have more than one cause. However, statistical analysis based on major causal trends explicitly shows that human error, albeit diminishing, continues to be the main cause for all transport accidents, being almost 80 percent. In other words, actions or omissions of human beings play a part in almost any accident, including failures, such as structural or equipment, which may be the immediate cause. Most accidents are attributable to human error; too much for bad weather conditions and some also for major reasons [4].

2.2 Shipping Accidents and Marine Environment Statistics of Albanian Seas

The maritime transport system is vital for Albanian economy. Marine accidents adversely affect the human, the marine environment, and properties and activities aboard ships and ashore in various forms and degree of extent. The effects of accidents vary from minor injuries to fatalities and from insignificant damage to very severe damage to the environment and property. As in many other countries, marine accident data are registered in the designated registries by Albanian Ministry of Transport [4].

Particularly, current maritime regulations have been developed very reactive approaches to the accidents. These regulatory improvements have been imposed to prevent recurrence of specific type of accidents or incidents. In spite of taking criminal action against the accidents, the collision, incidents and accidents are still a major concern of maritime field not only in all

the seas in the world but also in Albanian Seas [5].

As it can be seen from Fig. 1 that ships involved in marine accidents contain loss of human life and various injuries during their marine activity. The small number of accidents and ships involved in them is relatively small. This is explained by the fact that the number of ships with Albanian flag is small, but also by the implementation of the rules of navigation and ship safety. Those few accidents belong to the fishing sector where shipping standards are below the required level.

Issues dealing with traffic pollution in marine protected areas are numerous and they are virtually linked to the nature of the area, with marine traffic, the condition of ports and traffic management mode. Discussions on issues relating to the protection of the marine environment and navigation safety in Albanian area require a constant attention which may include [3]:

- Possibility that ships meet the necessary standards for cruise considering technical improvements, fuel usage of good quality and enforcement of international conventions for the preservation of the marine environment from pollution;
- Proposal of measures for environmental protection in marine protected area, given that this is a particularly sensitive area because pollution is a populated area and tourism;
- Taking unilateral measures possible to regulate the movement of fishing vessels through the bay and ban fishing all its forms;
- Discussion on the application of control in relation to the movement of fishing vessels and the creation of an agency or dispatcher for the cruise control regime for all ships that handle fishing or other activities uncontrolled and without licensed [5].

There were numerous more accidents and collisions that affected marine environment negatively in Albania. There are more numerous accidents and collisions resulting in oil spills occurred in the past in maritime region of Albania where damage marine

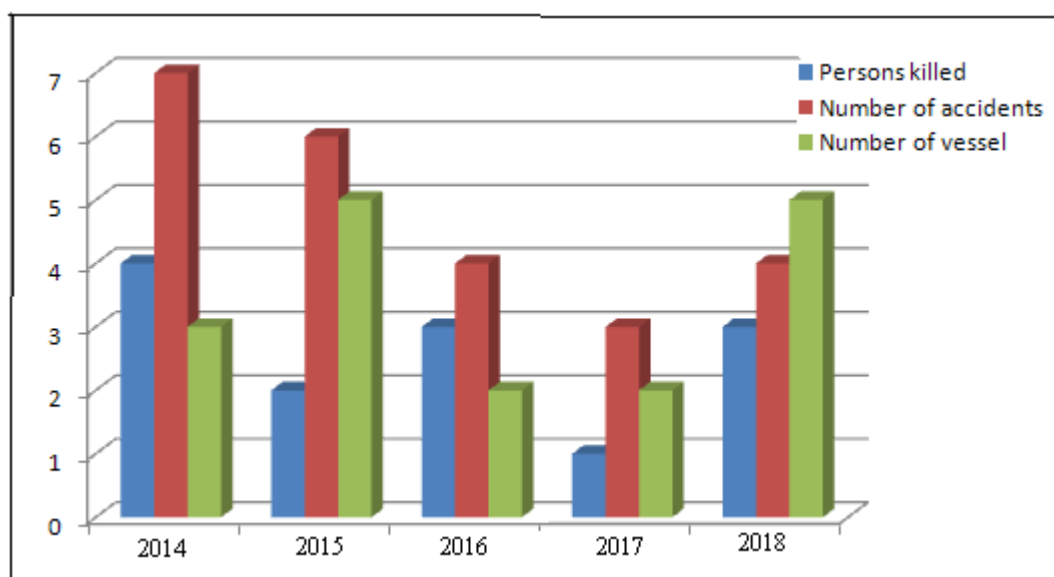


Fig. 1 Statistics for Albanian Ministry of Transport.

environment and human life substantially. These examples were selected in this study only to shed some light on magnitude of collision related marine pollution [4].

2.3 Pollution of Seawater Coming from Ships

The marine environment is marine space along with fauna and flora, water resources, the ultimate surface of the sea and its subsoil, including the coastal line, beaches, ports, lanes and their land territories, lagoons, river estuaries, water line lakes, communicating with the sea. It is an inalienable state property and its administration is governed by state bodies. No one else has the right to authorize the use or use of the marine environment. The marine environment is used and exploited for economic, commercial, scientific, social, sporting, tourist and military activities. This environment may be used by state bodies, legal and natural persons, domestic or foreign, only under the conditions provided by law [2].

Albania is a member of the United Nations Convention on the Law of the Sea 1982, and thus has the obligation to protect and preserve the marine environment against pollution. Pollution in itself implies direct or indirect introduction of substances or energy into the marine environment that damage sea

and coast sources, reduce seawater quality, endanger human health, and hinder marine activities and fisheries. There are lists of activities that are prohibited in maritime affairs, among which we mention:

- disposal of hazardous substances and hazardous poisonous and explosive wastes;
- disposal of hazardous substances and substances;
- pouring hydrocarbons and wastewater;
- disposal of solid materials and materials of any nature and type with the exception of fishing gear and equipment and materials and tools necessary for the construction of ports, jetties and other constructions, according to projects approved by the Ministry of Environment and under the conditions set by it;
- the disposal of waste and any kind of material from ships, platforms, installations and by the coast;
- transportation of hazardous materials and wastes;
- the sinking of ships, cargo and goods of any kind and type;
- the sinking and abandonment of any installation that has served for various activities;
- construction and operation of equipment that emit ionizing radiation;
- burning of materials of any kind;
- access to ports with unclean ballast of sea

vehicles of any kind, type and tonnage;

In the general context of development, the role of ships is very important and positive. Of course no one has the right to deny the giant contribution of these tools to global trade. But, of course, we do not make a mistake to see the minimal impact that ships have on the global environment. Although air pollution from ships does not cause a direct effect, hence the negative effects that can be caused by incidents do not affect people; there are natural damages that are worrying [7].

3. Conclusion

Nowadays, shipping accidents have become more and more environmental and the results of them is crucial for all parties in terms of human lives, marine environment, trading and financial losses. Not only shipping accidents, collisions and oil spills harm the marine environment, but also ship's bilge water, ballast water, and discharging solid waste into the sea cause environmental hazards and create irrevocable marine pollution. Therefore many regulations related to pollution and accidents are constituted to enhance safety of human life, property and preserve the environment by alleviation of accidents, incidents and collisions [3].

Transport accidents are also a threat to the smooth flow of shipping trade and damage to the environment. Ships are exposed to various external hazards such as darkness, different viewing conditions; bad weather and currents, which in one way or another may contribute to transport accidents such as collisions, congestion or collisions. Loss of situation control, not taking the necessary measures until a very late stage, the presence of a third ship, which prevents early action and a timely maneuver, overcoming and completing the final rules.

Almost every new ship built today and many others as existing ships are equipped with sophisticated ship equipment to reduce cruise risks to support and improve life and property safety and maintain the

environment.

Accident is a common phenomenon. It is not divided based on the time and place of the event. If they are on the ground, in the sea or in the air, the consequences are devastating, sometimes pretending to be, causing personal injury and pain, damaging the valuable burdens and the reputation of the organization involved. The conclusion drawn from this study is that some human errors are contributing factors to marine accidents in the waters of Albania.

Naval pollution sources have been created that involved the discharge of used waters, accidental oil discharge from tank vessels and operational discharge.

Also, the negative effects of the introduction of pollutants into the marine environment have been created. Effects seem to harm the marine ecosystem and human health. Precautionary and control measures have been introduced, which include the adherence and implementation of standard operations, as contained in Annexes I to VI of the IMO Conventions.

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