GOODS, SHIPS AND PORTS – INTEGRATED CONCEPTUAL APPROACH FOR THE INTERNATIONAL MARITIME TRANSPORT

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ABSTRACT

Maritime transport is an important factor of economic development of every maritime country. Its basic task is providing shipping services, meaning that they may as well be considered as the product of the shipping economic activity. Regarding the current international shipping crisis, the key to success of every shipping organization, region and maritime country lies in efficiency and safety of its maritime shipping services – on one hand, and on the other hand, is about having an integrated conceptual approach as regards the key elements i.e. goods, ships and ports. It is the aim of this paper to broadly emphasize the particularities of each key element contributing.

Keywords: *maritime transport, goods, ships, ports, transshipment.*

1. INTRODUCTION

The fundamental aim of the maritime transport and trade is to ensure the domestic and international regular and safe circuit of goods, in coordination with economic efficiency and according to the conventions, laws and contract terms in force.

The transport is an element indispensable to life because it offers people the possibility to know, perceive and assimilate, as easy as possible, what human civilization and culture have to offer.

The existence and improvement of means of transportation have allowed contact between various countries and nations, which has determined the economical, political and cultural life of mankind.

The maritime transport contributes to the closeness of geographical areas, development of economic branches and territorial distribution of production and marketing.

The level of development of maritime transport has a direct impact on the social division of labor, which, in its turn, determins the specialization, as well as the increase of the degree of accessibility to natural resources and fruits of human labor.

The basic elements as indispensible to the achievement of the fundamental aim of transport are the following:

- goods - as object of maritime transport;
- ships - as maritime means of goods transportation;
- ports - as flow nodes, transshipment and warehousing of goods.

2. GOODS –SHIPS – PORTS AS KEY ELEMENTS OF MARITIME TRANSPORT

2.1 Goods - as objects of the maritime transport

It is obvious that, in the development of maritime transport by its three basic elements, the goods have an essential role, both for the ports development and evolution of ships.

All three elements are permanently interdependent, however the research performed in the past has indicated that the main element in the economy of maritime transport is, either as raw material, by traffic diversity, quantity and regularity or as manufactured products, the more diverse, complex and demanded they are in international trade, the more economic, scientific and technical progress is advanced.

Advanced technologies had an influence on the ports, which expanded in recent years and modernized in order to allow the profitable handling of goods. At the same time, at the request of owners, the innovative processes have made the transition from the classic freighter to specialized vessels, which incorporate state-of-the-art technologies, subsequent to the changes occured on the freight markets, imposed by the quality and quantity evolution of goods in maritime traffic.

It is worth to mention that the propelling element of maritime transport is the quality-quantity leap of the goods factor, the other two, ships and ports, being the effects which, in their turn, influence the cause, forming the dialectic deterministic chain.

Considering the opinions expressed in the specialized literature, we may claim that the goods influence the development of ships and ports through their physical condition, quantity and regularity on various transport routes; quality, diversity and handling and stacking characteristics; nuisance value; sensitivity; perishability and specific freight by each type of goods.

According to their physical condition and handling and stacking characteristics, the goods subjected to maritime transport can be classified into two large categories:

- bulk cargo (or continuous goods), including homogenous lots of unpacked goods, large enough to cover themselves the transport capacity of a ship or of a cargo hold, which allow a continuous or nearly continuous loading flow;
- general cargo (or discrete goods) which, by its nature, consists of non-homogenous lots of packed goods, smaller in size, which does not allow a continuous flow of loading and requires

special means of packing, loading, stacking, lashing, transshipping and unloading;

The impact of each category of goods on the evolution of ports and ships for the purpose of obtaining benefits can be emphasized by the following two aspects:

- due to the possibilities of continuous handling operations, the bulk carriers (oil tankers, dry bulk carriers, bulk carriers, etc), equipped with modern technology represent the most profitable and widely used segment of the maritime transport;
- general cargo ships which are not equipped with modern handling technologies are less profitable and consequently, their use is not remarkably beneficial. The ideal solution for the cost effectiveness of general cargo transport under the current development circumstances is to perform a continuous loading flow for this category of goods, as well.

The quantity of goods and the regularity of their flow involve the use of ships on certain routes, according to the transport system- by liner or tramps.

Depending on the features of goods (quality, diversity, handling and stacking characteristics, degree of peril, sensitivity and perishability), important easements are determined both in loading and unloading ports and onboard ships, requiring the fitting with specific machineries, as necessary for handling goods in order to maintain their quality and quantity integrity.

The freight is set depending on certain factors, such as: class and tonnage of vessel, distance between ports, season, special expenditures, volume of shipped goods, kind of goods and their nuisance value. Freight value is different depending on the range of shipped goods, which proves the influence of cargo on ships cost effectiveness through the transport price.

2.2. Requirements for ships used in goods transportation

Experience has shown that there is a close connection between the basic elements of maritime transport that is between ships, goods and ports; if one of those components would lag behind, the cost effectiveness of the whole system would be deeply and shortly affected.

Along with the diversification of goods and increased demand for raw materials and manufactured goods transportation, the diversification and specialization of ships as regards their transport capacity, fitting with modern mechanization and automation installations intended to goods handling and transshipment became necessary.

This period is characterized by the expansion and modernization of ports, roads and port basins for the access of large and modern ships, as well as of the operation front by raising quays, equipping ships with high flow installations by building specialized berths, by the modernization of maritime port terminals and management of the port area as judiciously as possible.

Returning to the ships, it is worth mentioning that they are highly complex technical constructions and extremely expensive investments.

Therefore, they must fulfill two categories of essential conditions:

a) Technical-constructive conditions intended to provide the ship's strength to exceptional environment stress within the shipping area consisting with her class and set forth by the class certificate. Compliance with such requirements mainly guarantees the safety of the ship and, implicitly, of the goods onboard, as well as of her personnel, providing her seaworthiness – a personal obligation of the owner and an implicit prerequisite for the ship before each voyage.

Among the technical progresses, the following may be mentioned:

- building of metal hulls for ships driven by steam engines;
- replacement of steam engines with diesel engines;
- passing from hull's rivetting to welding;
- emergence of modern systemsof shaft closing, loading installations and navigation equipments;
- introduction of various automation technologies which allow selfloading of ships and computer assisted navigation;
- computer assisted design, which reduced the quantity of metal used in shipbuilding by 30%, and increase of naval paint quality, which has reduced corrosion and resistance to advancing due to frictions;

b) Technical-economical and cost effectiveness conditions representing the total constructive and operational characteristics, as regards the performance which must ensure the efficiency of each ship, maritime transport organization and generally, of the company, all such leading to profit making.

The above ship-related conditions may be fulfilled by encompassing the following aspects:

- adequate space, appropriate facilities and profficient installations for rapid stacking, preserving and handling of goods, depending on to the type and destination of the ship;
- ensuring the best possible deadweight coefficient;
- consumption and overhead costs as low as possible, both during laying and operation of the ship;
- high speed to ensure an increased number of travellers each year.

Both technical-constructive and technical-economic conditions may be fulfilled by several factors. Naval research and design institutes and shipyards are in charge with the technical design and building of ships, while shipping companies and charterers concerned in rational and proficient exploitation of ships are responsible for organization and management matters.

Currently, the following categories of ships are intended to maritime transport of goods:

- General cargo ships;
- Bulk cargo ships;
- Oil and chemical tankers;
- Container carrier ships;
- RO-RO and vehicle carriers;
- Reefer ships.

2.3. Importance of ports, as flow nodes, transshipment and warehousing of goods

In the opinion of maritime transport experts, the modern maritime commercial port is a specially arranged seashore area where maritime and land transport ways of the continental area serving the port are joined and where there is a continuous and organized two-way trade in goods.

Initially, the ports were defined as simple places where goods were loaded or unloaded. In the course of time, they have evolved from the status of simple interface between maritime and land transport (first generation ports), to the current phase of industrial and commercial clusters where several services are rendered (third generation ports).

Thus, we reach the concept of logistic for value adding, which means that besides the primary loading or unloading functions, the ports add value to the goods. Just in order to respond to this new aspiration, ports are currently designed and developed as close as possible to the place of manufacturing and distribution of goods, within a wide area.

Taking into account the opinions expressed in the specialized literature we can state that ports, regardless of their size, have three important functions: transshipment, storage and industry.

The function of transshipment in very important and refers to the transfer of goods from ships to shore and back, in order to provide optimal conditions for the goods flow, as from the shipper to the consignee.

Improvement of such function depends on the following:

- increase in operation speed and introduction of the continuous flow of goods handling;
- reduction of the laying time, thuis leading to a decrease in the transshipment time;
- modernization of maritime terminals, fitting them with modern handling installations and means of partial and total processing of raw materials;
- efficiency of infrastructure (piers, basins and quays), as well as overstructure works, represented by means of transshipment placed alongside the berthing area, considering that the transshipment takes place in the port basin, on quays or operating berths;
- performing an active cooperation between ship and quay.

The port function of transshipment has two forms of manifestation: transitional storage and warehousing storage.

The transitional storage refers to the situation when stocks are formed in order to decrease the gap between the large capacity of modern ships and the means of land transportation.

The warehousing storage has a strong economical character and here we have several situations:

- balancing warehousing, due to the seasonal supplying in comparison to the permanent consumption flow;
- warehousing as a result of an order, for the purpose of accumulating savings;
- commercial warehousing, representing a measure of precaution against worldwide price fluctuation phenomenon;
- warehousing throughout the processing, for goods requiring maturity before processing.

The industrial function refers to the connections between large ports by inland waterways, in order to cluster heavy industry enterprises in their proximity. On the other hand, there is a tendency for modern ports development by expansion, deepening, new locks, canals and development of waterways inside the continent for ships of various types, in order to avoid large crowded ports.

However, port efficiency should be seen as a set of interrelated issues such as architecture and aquarium construction, the size of ships and cargo traffic, major operating berths, safety operation of vessels and port economic development priorities in the current requirements the seaports.

3. SYSTEMATIC ASPECT OF MARITIME TRANSPORTATION

The era of rapid economic and technical-technological development of modern production requires a well-organized and above all, a safe transport system [9]. The study of traffic as a whole involves the study of individual types and systems, especially of its most important part: maritime transport system.

Maritime transport, therefore, involves transport of passengers and/or goods by sea, which is often called shipping trade (seaborne), which can be passenger and cargo shipping.

Theoretically speaking, cargo shipping is a very broad term assuming various modes of employment of cargo ships, so there are a few types accordingly - tramp, liner and specialized shipping.

Each of these types of cargo shipping operates in accordance with their operational processes and control procedures, which are managed and controlled by quality management of shipping companies, and supervised by the competent state institutions and international organizations for control of maritime navigation.

Maritime transport involves the physical transport of cargoes from an area of supply to an area of demand for certain types of goods, together with all the activities required to support and facilitate such transport.

Maritime transport system includes three essential components important for the movement of goods, and they are as follows:

- fixed infrastructure such as ports or terminals;
- means of transportation such as ships and barges;

- organizational system necessary to ensure that ships and fixed infrastructure are used effectively and efficiently

However, the realization of shipping services involves a number of commercial activities, the existence of appropriate infrastructure, procedures for shipping operations, organizational management systems such as enterprise resource planning or information system which integrates all operations and applications within a shipping company or organization.

The efficiency of shipping services is determined by the ratio of supply and demand on the shipping market, and managerial maritime transport uses market mechanisms in the regulations of supply and demand relationship.

4. CONCLUSIONS

As a first conclusion, modern maritime ports have simultaneosly the following functions: transit gate towards maritime and land ways and maritime terminal, as organizational unit of transit improvement, as well as regional processing of mass-produced goods.

As a second conclusion, can be stated that the maritime transport is a highly complex economic activity of national and international interest, which must be considered and developped in such a way that to administer the needs and to ensure profitability.

The main function of maritime transport is to ensure the link between production and consumption and is characterized by two essential economic features:

- economic profficiency to the sense of complying with defined requirements;
- profitability, as essential prerequisite of a wide economic activity, which involves transport costs and transport-related operations costs.

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