

Analysis and assessment of the conditions for transportation of dangerous goods along the danube as part of a multimodal scheme

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ABSTRACT

Much of the dangerous goods Classes 2 and 3 are transported under the multimodal water and land transport scheme. The report analyzes the transport of dangerous goods Class 2 and 3, taking into account the specifics of transport and storage. Because of the serious risks of transporting large quantities of dangerous goods, they are also transported along the Danube River by vessels to the river ports, from where they are distributed to the gas stations in the country by trucks.

Keywords: dangerous goods, multimodal transport, Danube River, risk assessment.

1 INTRODUCTION

Rivers and canals in Europe are used for international and domestic transport. By connecting the main ports with the hinterland, the main river routes guarantee access of goods transported by water to the interior of the country concerned. The connections between the port terminals create an opportunity for faster movement of goods between the individual ports and accelerate the continental flow, (Zoltan B. 2012, Nikiforov V. 2013). The inland freight market in Europe is an emerging market (European Commission. 2011, Eurostat. 2017). Within Europe, two rivers are most important for the organization of river transport - the Rhine and the Danube (Via Donau. 2013).

The Rhine river, with a length of 1320 km, is most important for freight transportation by river in

the EU (European Commission. 2011).

Passing through Switzerland, Germany, France, Luxembourg, Belgium and the Netherlands, it defines the border between France and Germany. and connects Belgium and Luxembourg through its tributaries. The Danube River, 2850 km long, is the second main axis. The river is divided into three sections: the upper Danube, the middle Danube and the lower Danube. The most complex in terms of navigation is the section of the upper Danube, parts of which cannot be used permanently for transport (EC. 2011, Zoltan B. 2012, Désirée O., 2016).

Shipments through water sections are multimodal or intermodal. The main risks that arise in this area, especially when there is narrow sections, are related to the navigation of the vessel yearly, (Miloslavskaya S. 2001). Therefore, for the ports and navigability of the Danube River in the Bulgarian section, two complementary strategies for the development of inland waterway transport have been prepared, which will allow fuller use of its advantages, (Ministry of Transport, Information Technology and Communications. 2010, Ministry of Transport, Information Technology and Communications. 2017).

Most of the bulk cargo (grain, coal) is transported through the Bulgarian ports located in the lower Danube. tonnes a year (t/year), general about 500,000 t / year and dangerous goods (fuels, chemicals) about 400,000 t / year, (EAMA. Part 1. 2018, EAMA. Part 2. 2018). The amount of RO-RO cargo transported is large, but these are mainly ferry services between the ports on both sides of the river between Romania and Bulgaria. Of all the cargoes, the greatest risks are in the transport of dangerous goods. Therefore, this report will address the dangerous goods passing through Bulgarian river ports.

1.1 INTERNATIONAL LEGAL REGULATIONS FOR TRANSPORTATION ON THE DANUBE.

The normative documents are available on the Internet and on the website of the Ministry of Transport, Information Technology and Communications, and the bases of them are:

- national: Merchant Shipping Code, as amended. and add., no. 93 of 21.11.2017; Ordinance № 16 of 20.06.2006 on treatment and transportation of dangerous and / or polluting goods by sea and dangerous goods on inland waterways, as amended. and add., no. 45 of 6 June 2017, no. 95 of 28.11.2017; Ordinance № 17 of 22.01.2013 on the carriage of goods by inland waterways, suppl., No. 51 of 19.06.2018, which determine the rules and obligations of the parties in the transport of goods on the inland waterways of the country;

- international: Convention on the Regime of Navigation on the Danube (Belgrade Convention), in force since 1949, prepared by the Danube Commission. The purpose of the Convention is to create conditions for free and open navigation for citizens, merchant vessels and goods of all countries on the Danube, on the basis of equality of port and navigation charges, as well as conditions of merchant shipping, (Danube Commission. 1948); Bratislava Agreements of the Danube Shipping Companies (Direktorenkonferenz der donauschiffahrten Mitglieder der bratislavaer abkommen. 2005). These

agreements are a source of private international law and regulate property relations between the participants in the transport process - carriers (shipping companies), shippers and consignees, etc. persons; Budapest Convention (CMNI), (Danube Commission. 2000). It aims to change the general conditions for the transport of goods on the Danube. In addition, other agreements are in place to reduce pollution and increase safety. Some of them are: Convention on Cooperation for the Protection and Sustainable Development of the Danube River (DRPC), (International Commission for the Protection of the Danube River. 1994); International Code for the Construction and Equipment of Vessels Carrying Liquefied Gas in Bulk; International Code of Safe Practice for Bulk Solid Cargo; International Code for the Construction and Equipment of Vessels Carrying Dangerous Chemicals in Bulk and Others.

2 TRANSPORT OF DANGEROUS GOODS ALONG THE DANUBE

2.1 TYPES OF DANGEROUS GOODS CARGO.

The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (United Nations. 2000), ratified by law by the Republic of Bulgaria and entered into force on 29 February 2008, are definitions for the international transport of dangerous goods by vessel rules on inland waterways. The term "dangerous goods" means substances and products which are prohibited for international transport or permitted for such transport only if the conditions for determination, laid down in the annex, are followed. With regard to the conditions, the procedure for transportation of dangerous goods on inland waterways for the Republic of Bulgaria, Ordinance № 16 on treatment and transportation of dangerous and / or polluting goods by sea and dangerous goods on inland waterways applies, in force of 21.05.2013, (MTITC. 2013).

These cargoes with e-processing in the port, which have permits, according to Ordinance № 9 on the requirements for operational suitability of ports of 2006 (MTITC. 2006).

The ADN agreement applies to the transport of dangerous goods by inland waterways, according to which goods are divided into 9 classes and subclasses. These classes are the following:

Class 1 Explosives, subclasses: 1.1 Explosives and products dangerous for their mass explosion, 1.2 Explosives and products with a non-explosive mass but creating a risk of explosion, 1.3 Explosives and products with a non-explosive mass creating a fire hazard, insignificant danger of explosion, with or without risk of explosion, 1.4 Explosives and products which do not present a significant danger, 1.5 Very insensitive explosives and products;

Class 2 Gases - Compressed, liquefied or dissolved under pressure with subclasses: 2.1 Non-combustible, non-toxic gases, 2.2 Toxic gases, 2.3 Combustible gases, 2.4 Combustible, toxic gases;

Class 3 Highly flammable liquids with subclasses: 3.1 Extremely hazardous flammable liquids, 3.2 Highly hazardous flammable liquids, 3.3 Highly flammable liquids, hazardous at elevated temperatures;

Class 4 Highly flammable substances with subclasses: 4.1 Highly flammable solids, 4.2 Self-igniting solids, 4.3 Substances which emit flammable gases on exposure to water;

Class 5 Oxidising substances and organic peroxides with subclasses: 5.1 Oxidizing substances, 5.2 Organic peroxides;

Class 6 Toxic substances and infectious substances of subclasses: 6.1 Volatile toxic substances, 6.2 Infectious substances;

Class 7 Radioactive substances;

Class 8 Corrosive and acidic substances with subclasses: 8.1 Substances having acidic properties, 8.2 Substances having basic (alkaline) properties, 8.3 Miscellaneous corrosive and acidic substances;

Class 9 Other dangerous substances with subclasses: 9.1 Substances which cannot be classified in their dangerous properties to other classes and 9.2 Substances with a relatively low degree of transport hazard.

2.2 REQUIREMENTS FOR THE TRANSPORT OF DANGEROUS GOODS TO VESSELS, PORT OPERATORS AND CREWS ON BOARD VESSELS

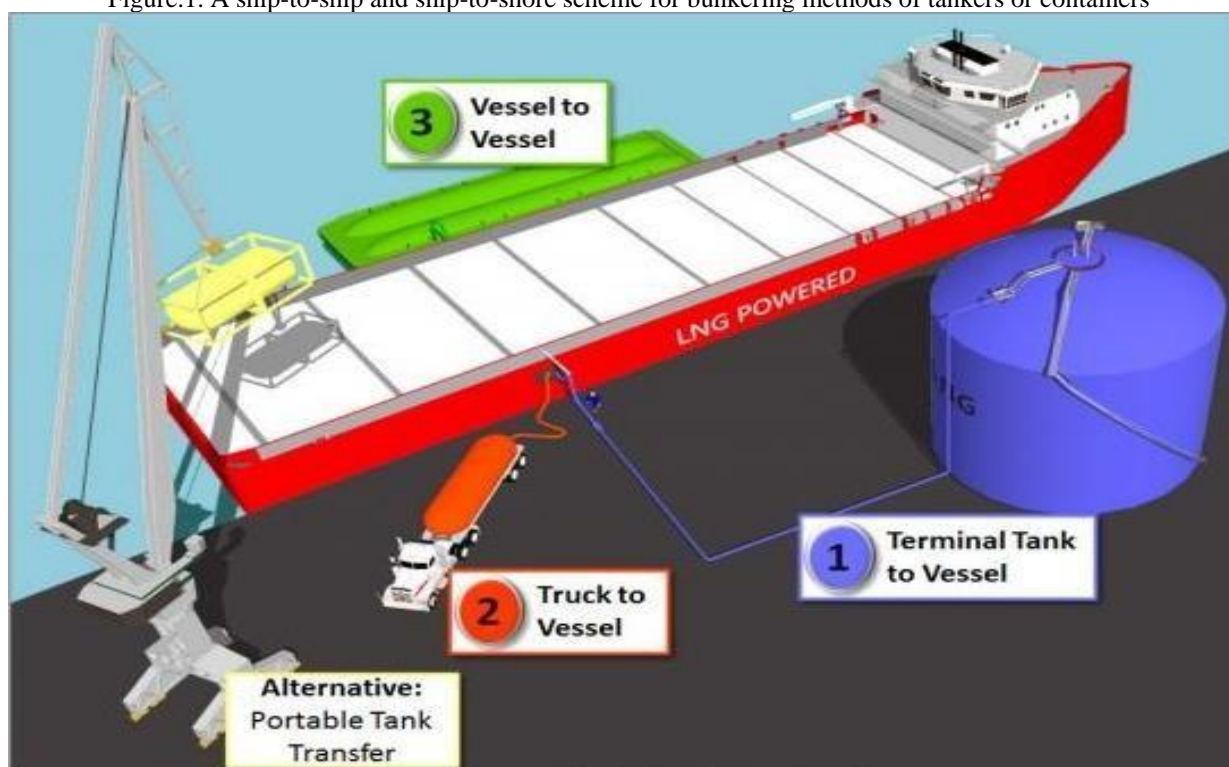
Dangerous and / or polluting goods transported by inland waterways are handled in public transport ports, at ship locations pre-defined by the port operator and meeting the requirements of Ordinance № 9 on the requirements for operational suitability of ports and specialized port facilities. Dangerous goods transported by inland waterways are processed according to a technological map developed by the port operator separately for each class and subclass of dangerous and / or polluting cargo in accordance with the requirements of Ordinance № 9.

The technological map is coordinated by the director of the respective territorial directorate of the Executive Agency "Maritime Administration" and the captain of the port, who officially requests reports from the heads of: the respective regional directorate of the General Directorate "Fire Safety and Protection of the Population" in the Ministry of Interior; the relevant regional health inspectorate (RHI); the relevant regional inspectorate for environment and water (RIEW); the respective regional directorate of the Ministry of Interior - for explosive goods; Nuclear Regulatory Agency - for radioactive materials.

Technological maps for the treatment of dangerous and / or polluting goods shall be developed in compliance with the requirements of Ordinance № 16. They must contain the procedures for extracting and using additional information relevant to the individual UN-identified dangerous goods number of the

relevant class or subclass, in view of its specific features, including: 1. for the compatibility group; 2. for the secondary risks; 3. instructions and special requirements for packaging; 4. instructions for special provision and packaging during transportation in intermediate containers for bulk dangerous goods; 5. instructions for special provision for transport in portable tanks, mobile tanks and containers for bulk dangerous goods; 6. emergency schedules, manuals and procedures in case of fire or spillage; 7. requirements for storage and separation of dangerous goods, divided into categories.

Figure.1. A ship-to-ship and ship-to-shore scheme for bunkering methods of tankers or containers



When the use of a port territory and / or port facilities is required for the performance of the maritime technical port service "ship bunkering with fuel or lubricants", the port operator providing it shall develop technological maps in accordance with the requirements. Any change in the technological map for handling hazardous, polluting or bulk cargo, whether it affects the packaging, the work equipment used (including port machinery, load handling equipment, inventory, etc.), the method of storage, method of transportation or other element of the technology shall be agreed upon and approved in the respective order.

The control for the observance of the technological maps is performed by the Executive Agency "Maritime Administration" during the control by the order of Ordinance № 9. Schemes for loading and unloading activities with dangerous goods can be: ship-to-ship; shore-ship; ship - shore, where the unloading activity can be in a bunker or in a land vehicle (tank car, tank truck). Figure 1 shows a diagram

of the methods of bunkering ship-to-ship and ship-to-shore facilities, tankers or containers.

3 CARGO TURNOVER OF DANGEROUS GOODS ON THE DANUBE RIVER

- *Bulgarian ports on the Danube for handling dangerous goods*

According to the Law on Maritime Areas, Ports and Inland Waterways of the Republic of Bulgaria, a port for public transport is any port in which port services and other ancillary activities are performed for a fee on and off the vessels and land vehicles, which is accessible without restriction for all serviced vessels and cargo. The territory of the ports for public transport includes one or more terminals and may include areas for carrying out activities provided by law, as well as properties for expansion and development of the port. The territory part of the ports for public transport, which service international vessels, must include an area for inspection and control. Port terminals include an operational area, which is equipped in accordance with the purpose of the terminal and the technology of handling the relevant type of cargo. Depending on the processing technology of the respective type of cargo and the purpose of the terminal, it may also include a cargo storage area and parts of the general technical infrastructure of the port. The part of the port for a public transport that is technologically related to the cargo handling and storage process area is located in an area not directly on the shore. Ports (terminals) specialized in the handling of dangerous goods from Class 1 to Class 4 according to the classification of the International Maritime Organization (IMO), respectively according to the classification of the United Nations, must be provided with a valid certificate of compliance with fire safety requirements, issued under the terms and conditions of Ordinance № 81213-882 of 2014 on the procedure for state fire control.

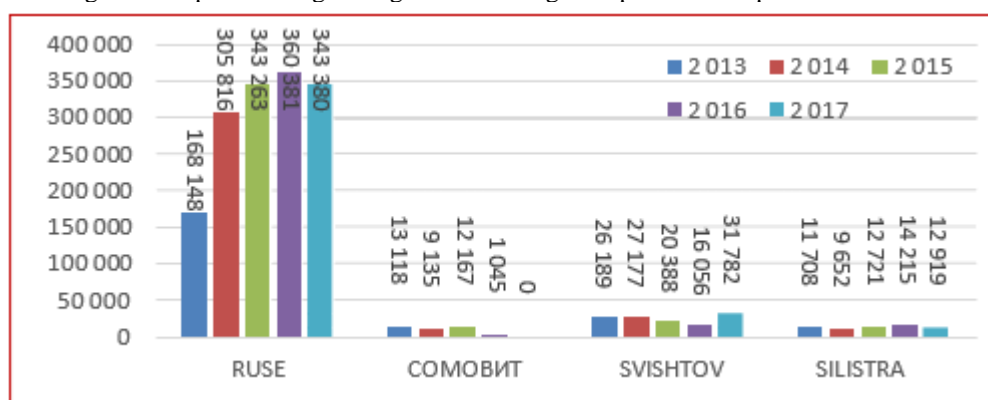
The main Bulgarian ports located on the Danube River, which can accept different types of dangerous goods are:

- Somovit – Silistra area:
 - Port for public transport of regional importance Pristis - Ruse;
 - Port for public transport of regional importance Port Bulmarket - Ruse;
 - Port for public transport of regional importance Ruse - Arbis oil terminal;
 - Port for public transport of national importance "Port terminal Ruse-East - 1 ";
 - Port for public transport of national importance Ruse - Port Terminal Ruse - West;
 - Port for public transport of regional importance Ruse - duty free zone;
 - Port for public transport of regional importance East Point - Silistra;
 - Port for public transport of regional importance Petrol - Somovit;
- In the section Somovit-Vidin:
 - Port for public transport of national importance Lom - Port terminal Lom;

- Port for public transport of regional importance "Duty Free Zone - Vidin";
- Port for public transport of national importance Vidin - Port Terminal "Vidin - North";
- Port for public transport of regional importance "Ecopetroleum – Vidin (Typhoon)".
- ***Freight turnover of dangerous goods in the section Somovit-Silistraa.***

Annually information is collected about the processed dangerous goods in the Bulgarian ports (EAMA. Part 1. 2018, EAMA. Part 2. 2018). which analyzed (Web Of the Danube Commission, 2018). Figure 2 presents the quantities of dangerous goods imported in four of the Bulgarian ports of Somovit, Svishtov, Ruse, Silistra on the Danube River in the section Somovit-Silistra for the period 2013-2017.

Figure.2. Import of dangerous goods in 4 Bulgarian ports for the period 2013-2017



The results show that almost all imports are made through the port of Ruse, where in the last 4 years there has been a steady trend of about 340,000 tons. The remaining ports carry about 13% of the total imports in the area over the years.

Figure. 3 presents the export of dangerous goods in the same 4 Bulgarian ports for the period 2013-2017. The results show that exports are realized only from the port of Ruse, where in the last 4 years there has been a steady trend of about 71,000 tons. When comparing imports and exports, the data show that imports are 5 times higher than exports.

After analyzing the data for forecasting the quantities of cargo for subsequent periods, different methods are used. In (Shterbanin U., 2017) three methods were used: least squares, ARMA and ARIMA. In recent years, the application of the ARIMA method has found its way in similar analyses. For the forecast for import and export of dangerous goods for 2018 the ARIMA method was used, which envisages the quantities of dangerous goods processed in the Somovit-Silistra section during this year import and export to increase. For the import for 2018 using ARIMA method (1,1,1) 393 168 t of cargo is forecasted (Fig. 4) and for export using the ARIMA method (1,1,1) 71 349 t, (Fig. 5).

Figure.3. Export of dangerous goods in 4 Bulgarian ports for period 2013-2017

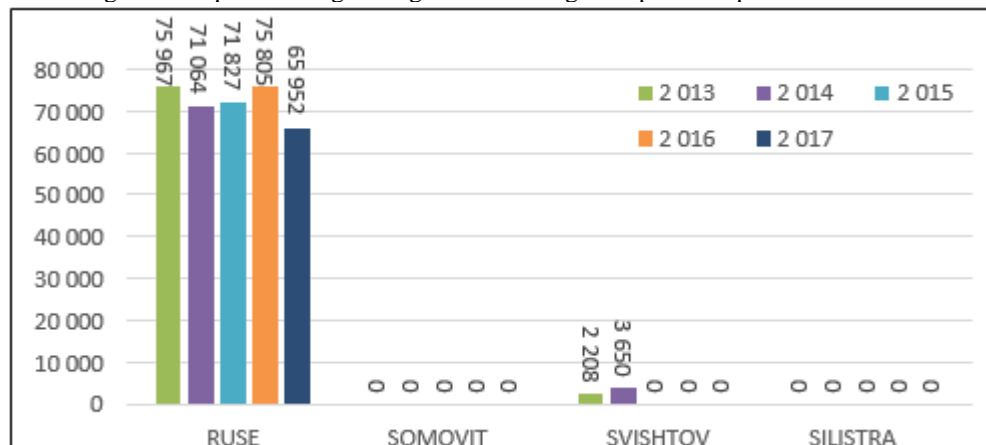


Figure. 4. Forecast import 2018r.

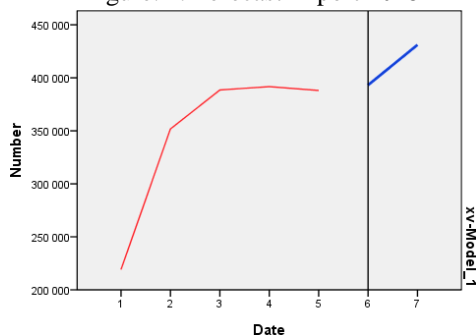
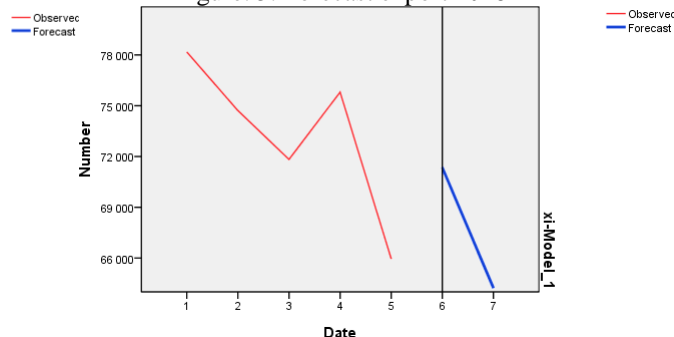


Figure. 5. Forecast export 2018r.



4 ASSESMENT OF THE CONDITIONS AND OBLIGATIONS OF THE PARTICIPANTS IN THE TRANSPORT OF DANGEROUS GOODS ON THE DANUBE

4.1 OBLIGATIONS OF THE MAIN PARTICIPANTS RELATED TO THE TRANSPORT OF DANGEROUS GOODS.

➤ Consignor

The shipper of dangerous goods is obliged to deliver for transport only consignments that meet the requirements of ADN, (United nation. 2000). In the context of section 1.4.1 he is obliged to:

(a) ensure that dangerous goods are classified and authorized for carriage in accordance with ADN;
 (b) provide to the carrier the necessary information and data in traceable form and, if necessary, the required transportation accompanying documents (permits, approvals, notices, certificates, etc.), taking into account in particular the requirements of 5.4 and the tables contained in Part 3;

c) use the approved packaging - bulky packaging, medium bulk containers (IBCs) and tanks (tankers, interchangeable tanks, battery vehicles, MEGCs, portable tanks, tank containers, tank wagons and battery wagons), which are approved and suitable for the shipping and also bearing the labels necessary. Assigned are only those vessels, tankers which are approved and fit for the carriage of the goods concerned;

(d) comply with the requirements regarding the method of shipping and shipping restrictions;

(e) ensure that even empty, uncleaned, non-degassed tanks (road tankers, interchangeable tanks, battery vehicles, MEGCs, portable tanks, tank-containers, tank-wagons and battery-wagons), or empty uncleaned vehicles and bulk containers are appropriately provided with an information plate, markings and labels in accordance with Chapter 5.3, and that empty uncleaned tanks are closed shut, unsuitable to use.

➤ **Carrier**

In the context of section 1.4.1, the carrier is obligated to:

(a) ensure dangerous goods to be transported are admitted for carriage in accordance with ADN;

(b) ensure that all information required in the ADN relating to dangerous goods to be carried is provided by the consignor before carriage, that the required documentation is on board the vessel or, if instead of the documentation written on paper, uses the method of electronic data processing (EDI) or electronic data interchange (EDP), during the transport this data will be at his/her disposal in a form equivalent to the documentation written on paper;

(c) to make sure visually that the vessel and cargo is free from visible defects, leaks or cracks, that it is properly equipped etc.;

(d) ensure the availability of a second means of evacuation from the vessel in the event of an emergency, if the shore installation is not equipped with a second means of evacuation.

➤ **Consignee**

The consignee is obliged not to delay, unless there is a compelling reason, the acceptance of the cargo and to make sure before, during and after unloading that the requirements of ADN are met. In the context of section 1.4.1, he is obliged to take the required measures for cleaning and decontamination of the vessel.

➤ **Loader**

In the context of 1.4.1, the loader performs the following duties:

(a) he is obliged to hand over dangerous goods to the carrier only if they have been accepted for carriage in accordance with ADN;

(b) For transport of packaged dangerous goods or empty uncleaned packaging, the loader is obliged to check whether the packaging has been damaged. He must not hand over a consignment with damaged packaging (in particular non-airtight packaging from which there is a leak) or until the damage is remedied; this obligation also applies to empty uncleaned packaging;

(c) he must comply with the special requirements related to the loading and handling of goods;

(d) after loading dangerous goods into a container, he must comply with the requirements for affixing information boards, marking and affixing orange signs in accordance with Chapter 5.3;

(f) when loading packages, he must comply with the prohibitions on mixed loading, taking into

account the dangerous goods already loaded on the ship, in the vehicle, on the wagon or in the large container, as well as the requirements for the separation of food, other non-hazardous goods for use or animal feed.

(f) ensure that the shore installation is equipped with one or two means of evacuation from the ship in the event of an emergency;

The operator, agent or master of a ship carrying dangerous and / or polluting cargo, which has set sail from a Bulgarian port, submits information in accordance with the requirements of the Ordinance on traffic, reporting and traffic management systems and shipping information services in Bulgaria. search and rescue area adopted by the Council of Ministers № 200 of 2005.

The master of a ship is obligated to load dangerous and / or polluting goods after receiving a declaration from the consignor stating:

- the technical designation of the goods;
- UN classification numbers, if any;
- the cargo class according to the classification of the International Maritime Organization (IMO);
- the quantity of the goods;
- the identification numbers of the tanks or containers - when the goods are transported in such;
- data on the persons from whom information about the cargo can be obtained; The treatment of dangerous and / or polluting goods starts after:
- presentation of a cargo plan approved in advance by the Maritime Administration Executive Agency
- submission of the Manifesto for Dangerous Goods IMO FAL Form 7, according to FAL
- fulfillment of all requirements of the Executive Agency "Maritime Administration" in connection with the treatment of the specific dangerous and / or polluting cargo.

Personnel, carrying out loading and unloading operations on bulk dangerous goods (petroleum products, chemicals, gaseous substances carried in bulk, etc.) must be trained in all aspects of the safe loading and unloading of oil tankers, chemical tankers and gas carriers.

Personnel involved in loading and unloading operations must be provided with the necessary personal protective equipment in accordance with the requirements of Ordinance № 3 on the minimum requirements for safety and health protection of workers when using personal protective equipment at work.

It is prohibited to handle dangerous and / or polluting goods with damaged packaging and markings in the absence of a danger sign and / or a class mark under the International Dangerous Goods Code

(IMDG Code) and in the absence of or inconsistencies in the cargo documents. The master of a ship which will visit a Bulgarian port on the Danube and transport dangerous goods is obligated to send to the master of the port information on the quantity, the type and location on board the ship of dangerous goods.

The transport of dangerous goods by inland waterways is carried out in accordance with the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), signed in Geneva, Swiss Confederation, on 26 May 2000, ratified by law. SG, issue 9 of 2006), and the Rules to it, applicable from 1 January 2017.

In case of danger to national security, safety of navigation or the environment, the Executive Director of the Executive Agency "Maritime Administration" prohibits or gives mandatory instructions for the transport and handling of dangerous goods.

In accordance with the requirements of ADN, each undertaking carrying out processing (including packaging or filling) and / or transport of dangerous goods by inland waterways uses one or more safety consultants in carrying out its activities. The safety consultant performs duties in accordance with the requirements of ADN, assisting in the prevention and avoidance of risks and dangers in the handling and transportation of dangerous goods by inland waterways.

5 EXISTING PROBLEMS IN THE TRANSPORT OF GOODS ON THE DANUBE AND WAYS TO SOLVE THEM

During the summer months of the year, the level on the Danube River decreases significantly and due to low water levels, shipping becomes more difficult and the volume of trade on the river shrinks dramatically. This reduces the profits not only of private carriers but also of the state, as river ports operate at reduced capacity. The uncertainty of water transport in the Bulgarian-Romanian section, where the river has no locks and is free-flowing, leads to an outflow of goods, as customers are looking for more reliable ways to transport their goods, (EAMA. Report 2008-2013. 2014, EAMA.Report 2013-2017. 2018). This is confirmed by the data on imports and exports in the 4 Bulgarian river ports.

Unlike seaports, where the factor of low water levels does not exist, the work of rivers is directly related to river level. Shippers can suffer heavy losses if the ship has to wait near a critical section and it is logical to look for an alternative route to avoid this.

The trend in transport on the river is beginning to change as customers begin to look for more expensive but safer ways to transport goods. For example, the availability of transportation of metal from Ukraine through the river, which years ago was a major burden for shipping companies and to the Bulgarian port as well, posed as a serious factor in generating their profits. Today due to this uncertainty of the availability, alternative methods were developed for of hazardous cargo. The connection to the Bulgarian seaports Varna and Burgas is used and from there the cargo reaches the customers by land.

A problem also arises when several convoys, loaded with 15-20 thousand tons of grain, fall into the shallow waters near the island of Belene, and if the stay is prolonged, the cargo can remain in the critical area for a long time, the quality will diminish and demurrage will be assigned. Due to the dynamic trading market of grain, the uncertainty of the river use poses as another factor affecting profits.

Some carriers undertake "limbing", ie. overloading the goods on other vessels with less draft, but it is well known that such operation will cost them more. For this reason, the transport of grain is also looking for an alternative land routes and the main factor of expensive transport poses as safer.

The amount of coal processed in Bulgarian river ports has also decreased (EAMA. Report 2008-2013. 2014, EAMA. Report 2013-2017. 2018). In 2008 750-800 thousand tons of coal were processed in Ruse, in 2009 the total volume of this commodity has halved and dropped to 380 thousand tons. The trend continues in the coming years, when it reached its lowest only 300-350 thousand tons were processed.

During the winter months, due to freezing of the river and ice drift, port and shipping terminals stop. This results in downtime, demurrage and damage to port infrastructure caused by ice floes that depreciate bridges and facilities.

Solving these problems and reducing the risk of transporting the Danube can be achieved by building a gateway in the Bulgarian-Romanian section, which according to port operators will restore the trust of customers and partners on the Danube. The location of this hydrotechnical management is considered to be the most suitable in the section between Silistra and Tutrakan. Funds for the construction of the gateway can be included in the Danube Strategy or OP "Transport" for the next programming period 2021-2027. the depths for navigation, as well as the construction of stone riots, where possible, such as the area of the island of Belene, to provide a depth of 2.50 m, as required by the Danube Commission for normal navigation on the river.

6 CONCLUSION

From the analysis made for the transportation of hazardous goods in the section Somovit-Silistra, including 4 Bulgarian ports Somovit, Svishtov, Ruse and Silistra for the period 2013-2017 is concluded that almost all imports take place through the port of Ruse, where there is a steady trend of about 340,000 tons. The remaining ports carry about 13% of the total imports in the area over the years. Regarding the export of dangerous goods for the same period and areas, the results show that the whole export is realized only from the port of Ruse, where there is a steady trend of about 71,000 tons. When comparing imports and exports, the data show that imports are 5 times higher than exports. This may be due to the use of another transport scheme that does not include a multimodal inland waterway transport scheme, as well as / or the lack of sufficient production of dangerous goods in the country to be exported to the international market.

With the forecast for import and export of dangerous goods for 2018. in the Somovit-Silistra section, when using a multimodal transport scheme involving inland waterway transport with the ARIMA method, it is planned an increase in the quantities of dangerous goods processed during import and export. For imports under ARIMA (1,1,1) 393 168 t are forecasted, and for exports under ARIMA (1,1,1) 71 349 t.

The main reasons for the reduction of the services provided with the inland water transport on the Danube River in the Bulgarian-Romanian section are related to the lack of guaranteed navigability on the river during all seasons of the year. The main problems are the low level of the river below 2.50 m in summer and the ice drift and water freezing during winter. Solving these problems lies on the consideration of construction of gateways, locks and stone providing riots on the shores of the river. With regard to the persons involved in the organization and performance of shipping (consigner, loader, carrier and consignee), the risks will decrease due to more regulations, requirements and responsibility, which ensures safer and abundant performance of the transport service.

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