

EXAMINATION AND COMPARISON OF ROAD TRANSPORT ORGANIZATION AND SAFETY IN POLAND, UKRAINE AND BULGARIA

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Abstract: *The article examines the current situation of road transport organization in Poland, Ukraine and Bulgaria. From geostrategic point of view each of these countries is located on very important transit routes. The state of roads in each of the countries plays a huge role for the overall development of the transportation in Eurasia. Comparing the characteristics and safety of road conditions gives the opportunity to make general recommendations for improvement. Each country must show a joint effort with the others to improve parameters of the integrated transport system.*

1. INTRODUCTION

The current article aims to examine the organization of road transport in Poland, Ukraine and Bulgaria. The purpose of the article is to show the different level of road transport infrastructure development, to mark its features and after that, to explain the need of improvement. Along with that will be compared the safety levels in each country.

The world road transport organization- International Road Transport Union (IRU), is the organization which upholds the interests of bus, coach, taxi and truck operators to ensure economic growth and prosperity via the sustainable mobility of people and goods by road worldwide. IRU is structured in three levels: decision-making bodies, led by the General Assembly, advisory bodies such as the Commissions, and the Secretariat. [1,2]

- The General Assembly is the highest IRU authority. Meeting twice a year, it brings together active member associations from IRU's two transport councils, along with associate members.

- Advisory bodies - IRU's advisory bodies bring together experts from member associations and work in broad areas or specific issues. They include Commissions and Working Parties. The Secretariat- supervises IRU's strategic objectives and manages operations on a daily basis. Led by a Secretary General, it is based in Geneva, with offices in Beijing, Brussels, Istanbul, Moscow and New York.

2. ROAD TRANSPORT ORGANIZATIONS IN POLAND, UKRAINE AND BULGARIA

What is the road transport organization in each of the countries involved in the article?

For Poland - Polish association of international road carriers (ZMPD)- a longstanding trade and ideas hub. Poland continues to play a crucial role in European and Eurasian road transport. ZMPD has been a member of IRU since 1958 and is an important voice in road transport internationally. ZMPDs work over many years with IRU, with the TIR system, with neighboring countries, and with the EU and the United Nations, has given Poland – and Polish trucks as they cross the continent – an excellent professional reputation. [3]

For Ukraine - Association of International Road Carriers of Ukraine (ASMAP UA). A memorandum of intent (MoI) endorsing IRU Academy training as a key tool to implement a universal quality benchmarking system, was signed by IRU Academy and its national member, ASMAP UA, the Ministry of Infrastructure of Ukraine and the International Transport Forum (ITF). Ukraine is the latest country to initiate implementation of the quality standard – ECMT Quality Charter – adopted by ITF transport Ministers in May 2015. The MoI was signed at the meeting of the ITF Group on Road Transport in Ukraine.[4]

For Bulgaria- Association of Bulgarian Enterprises of International Road Transport and the Roads (AEBTRI) - Service and Training Centre is accredited by IRU Academy in programmes for CPC Manager (certified with professional competences) – domestic and international passengers and cargo transports. AEBTRI also provides training for CPC drivers, initial and periodical ADR training for safety advisers and drivers.

AEBTRI is a non-profit organization whose members include companies and establishments which are directly or indirectly concerned with road transport of passengers and goods. The Association is involved in representing and supporting its members, securing their interests at national and international levels.[5]

3. STRUCTURE AND IMPROVEMENT OF THE ROADS

It is necessary to mention that from a geostrategic point of view each of the three countries is located on very important transit routes such as:

- Poland- North-South and East-West strategic transit location provides an important opportunity for development for the country as a whole.
- Ukraine's advantageous geographical position makes it a main hub for transit of goods and passengers between Europe, Asia and the Middle East. A number of international transport corridors, reaching a total length of over 5 thousand km, pass through Ukraine.
- Bulgaria's favorable geological location provides excellent conditions for bridging Western and Central Europe with the Near East, Western and Central Asia, as well as the North and the South of Europe. In fig. 1 are shown Pan-European corridors [6]:



Figure 1. Pan-European corridors [6]

All of the countries have two types of highways: motorways and expressways. Expressways are different from motorways mainly in that motorways have emergency lanes and the maximum allowed speed limit is 140 km/h, while expressways do not have such ones and the speed limit is 120 km/h.

The total length of motorways and expressways in each of the countries is:

- Poland– 419636,4 km of public roads, of which 128713,3 km are unsurfaced and highway density is 81,3 km per 100 sq. km.
- Ukraine-172400 km, out of which 164100 km - have hard surface or 95,19% and the highway density is 28,1 km per 100 sq. km.
- Bulgaria- 19276 km (highway density 17,6 km per

100 sq. km). The Bulgarian roads with pavement make up 98.4% of all roads in the country, with 92.5% of them having an asphalt surface.

The present condition of road infrastructure is one of the greatest barriers to the growth of the economy for each of these countries. The existing highway network does little to guarantee the quality of service for both passengers and freight carriers.

The state of roads in each country plays a huge role for the overall development of logistics in Eurasia. Comparing the indicators of road conditions, you can see that Poland occupies the most stable position with the lowest indicator of bad roads and the highest indicator of good roads. Ukraine in turn shows lower than Bulgarian percentage of bad roads but also a smaller percentage of good roads. The Estimation of the technical situation of

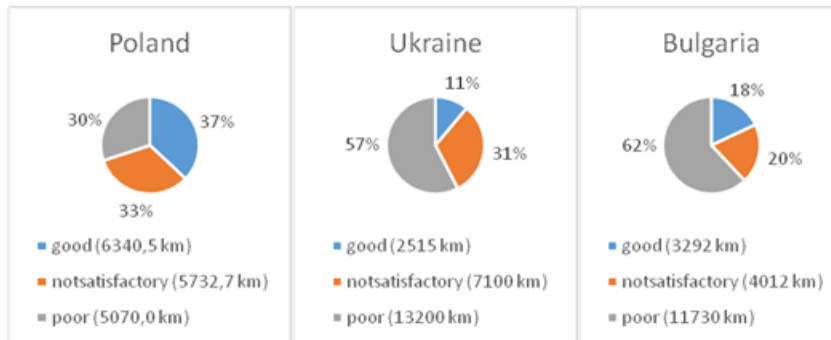


Figure 2. Estimation of the technical situation of highway pavements

highway pavements is shown on figure 2.

The improvements needed to the non-motorway highway network includes a range of different repair works: reinforcements, smoothness and other improvements. In addition to this undesirable situation, both the

quantitative and qualitative situations that exist in the economy of these countries inhibits growth in both passenger travel and freight transport. As a consequence of this situation, these countries are not attractive for freight transit movements. The shortage of motorways, the substandard and deteriorating condition of road surfaces, the shortage of grade separated road junctions, the failure to design roads for heavy truck movements, the absence of by-passes around city centers and the small number of bridges causes foreign exporters to avoid them.

According to [10,11,12] there is a project called “Transport Policy of the Country for 2000–2015. Years for Ecodevelopment”. The project is for the integration of the Polish highway transport network with the European network. It was concluded that Poland should spare less than 10% of its gross domestic product a year to achieve the aim of the integration within the next 10 years.

In Poland, the construction of road infrastructure can be divided in motorway construction, express roads construction and accelerated roads construction. The aim is to include links to the next European corridors:

- I - Helsinki – Tallinn – Riga – Warsaw.
- II - Berlin – Warsaw – Minsk – Moscow – Nizny Nowgorod.
- III - Berlin – Drezno – Wroclaw – Krakow – Przemysl – Lviv – Kiev.
- IV - Gdansk – Warsaw – Katowice – Zilina. [10,11,12]

It was also decided to build links to the following motorways:

- A1 – Gdansk – Torun – Czestochowa.
- A2 – Swiecko – Poznan – Warsaw – Terespol (on the border with Belarus).
- A4 – Zgorzelec – Wroclaw – Gliwice – Katowice – Krakow.

The total length of domestic roads in Ukraine remained unchanged over the last 15 years at 169 600 km, with 30% classified as roads of state importance. Such roads have a higher standard rate of expenditure for road maintenance of \$2700/km vs. \$1200/km for regional roads, largely because of intensive freight transport. It is expected that the amount of traffic and the quality of rendered services will increase during the next three years and large-scale infrastructure projects, including reconstruction of a number of roads. The main

direction of the industry is development, provided by the development concept, approved by the Ministry of Infrastructure of Ukraine.[13][14][15]

The international transport corridors that pass through Ukraine include:

- Pan-European Transport Corridor III, with the route Berlin – Wrocław – Lviv – Kyiv and a length of 1640 km, of which 694 km are railways and 611 km are highways across Ukraine.

- Pan-European Transport Corridor V, which connects Trieste and Lviv via Ljubljana, Budapest and Uzhhorod with a total length of 1595 km, from which 266 km of highways and 338,7 km of railways that pass through Ukraine.

- Pan European Transport Corridor IX, with a total length of 3400 km and a route passing through Helsinki – St. Petersburg – Vitebsk – Kyiv – Odessa – Plovdiv – Bucharest – Alexandroupolis. In Ukraine, Pan European Transport Corridor IX consists of 1496 km of railways and 996 km of highways.

- Gdansk – Odessa International Transport Corridor, with a length of 1816 km and passing through Poland and Ukraine. In Ukraine, this international transport corridor consists of 918 km of railways and 1208 km of highways.[13,14,15,16]

The five transport corridors that pass through the territory of Bulgaria are:

Trans-European Transport Corridor IV [6]

- Dresden / Nürnberg – Prague – Vienne/Bratislava – Budapest – Arad – Bucharest – Constanta / Craiova – Sofia – Thessaloniki/Plovdiv – Istanbul

Trans-European Transport Corridor VII

- The Danube River

Trans-European Transport Corridor VIII

Durres - Elbasan - Skopje - Sofia - Plovdiv - Burgas - Varna.

Trans-European transport corridor IX

- Helsinki – Saint Petersburg – Moscow/Pskov – Kiev – Ljubasevka – Chisinau – Bucharest – Dimitrovgrad – Alexandroupolis

Trans-European Transport Corridor X

- Salzburg – Ljubljana – Zagreb – Belgrade – Nis – Skopje – Veles – Thessaloniki

- Branch A: Graz – Maribor – Zagreb

- Branch B: Budapest – Novi Sad - Belgrade

- Branch C: Nis - Sofia (Dimitrovgrad – Istanbul through corridor IV)

- Branch D: Veles – Prilep – Bitolja – Florina – Via Ignatia – Igoumenitza [8]

Also each country has a different documents and projects connected with the requirements to the road transport sector. One such project is [17] where the main idea is to mark and review the skills and knowledge needed to be a successful European road transport manager.

On the basis of the given information for each of the countries, it should be said that the European member countries must show a joint effort to improve the following parameters of the European transport system [17]:

- Development of the Trans-European transport system (TEN-T);

- Diversion/redeployment of cargo from the land (motor) transport to the rail, sea, and river transports;

- Development of modern transport with the goal of reducing the number of private vehicles used and consequently reducing the carbon oxide emissions.

- Increase of the amount of private investment in the public transport sector.

4. SAFETY

Traffic fatalities today represent the eight leading cause of death around the world and the second leading cause of death for young adults between the ages of 25 and 39 according to the World Health Organization (WHO) [18,19]

On fig. 3 is shown comparison between fatalities of all countries in the European countries and Ukraine.

Between 20 and 50 million people suffer non-fatal injuries in traffic accidents every year. In the European context, Poland stands out as a country which has been particularly

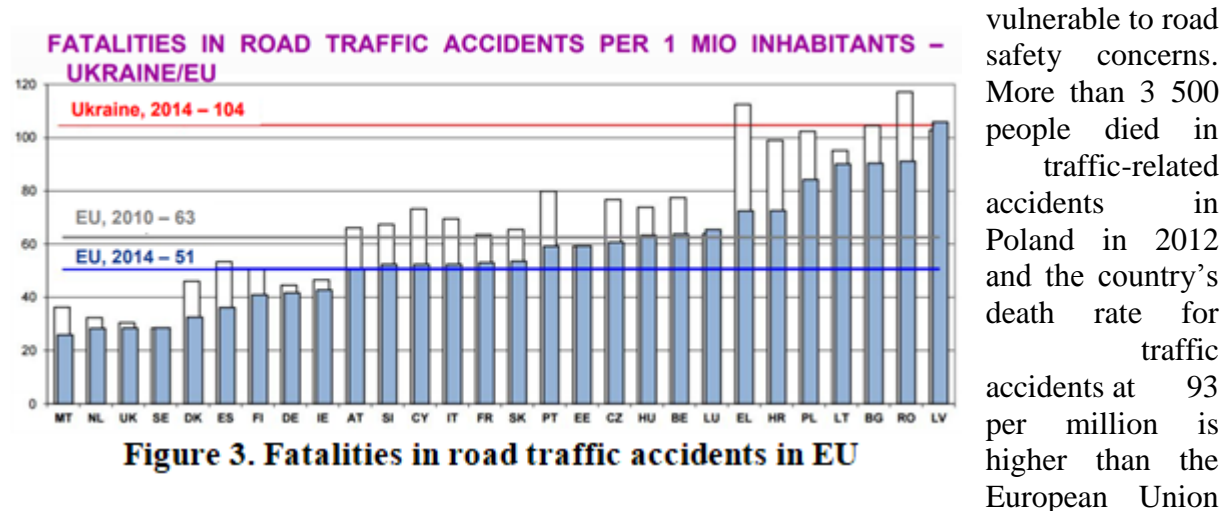


Figure 3. Fatalities in road traffic accidents in EU

vulnerable to road safety concerns. More than 3 500 people died in traffic-related accidents in Poland in 2012 and the country's death rate for traffic accidents at 93 per million is higher than the European Union

(EU) average of 55, making Poland one of the worst performing road safety countries in the EU. Although Poland was able to reduce the number of road deaths between 2001 and 2011, there is a need for taking actions.

In contrast to many Eastern European countries, Ukraine has experienced high motorization, and the number keeps growing. There is a decline in traffic crashes and resulting injuries. To continue this positive trend, Ukraine has identified key risk factors to address, such as speed and drunk-driving.[13,14,15].

According to [20] in 2016 on Bulgarian roads are registered 7 404 serious road transport accidents resulting in the death of 708 people and 9374 injured people . There is an increase compared to 2015 with 2,5% for the accidents on the road and 4.5%, respectively for the casualties.[20] The greatest number of accidents is due to improper driver actions -7166, with 35.9% of them are because of inappropriate speed or speeding.

In 2016 the greatest number of accidents in Bulgaria are the ones with pedestrians– 23,8%, and after that collision between vehicles – 35,5%.Traffic jams, road transport accidents, air pollution and the noise are the most important problems to be overcome in Bulgaria [21,22]. Bulgaria is still among the EU countries with highest road accident fatality rate. During the past 2 or 3 years there is a certain decrease in the number of accidents, which is connected with the higher fines for violations such as speeding, drunk driving, and incorrect overtaking.

A report [23] on Road Safety Management offers a detailed description of the organization of road safety responsibilities in the countries and provides a capacity review of road safety management and recommendations on key strategic actions. This will help to guide the future road safety management and promote road safety efficiency.

5. CONCLUSION

Each of the countries whose infrastructure and safety were reviewed in this report has great potential and resources for development. Without a modern and fully developed motorway system which mirrors the ones in the established countries of the EU, each of the

countries will have a few opportunities for the effective functioning and revitalization of its road infrastructure and safety. Only by working together to improve the condition of road transport organization they will succeed.

REFERENCES

- [1] Official website of World Road Transport Organization - <https://www.iru.org/>
- [2] International Road Transport Union – https://en.wikipedia.org/wiki/International_Road_Transport_Union
- [3] Internet site of International Road Carriers Association <http://www.erscharter.eu/en/content/international-road-carriers-association-zmpd>
- [4] Internet site of IRU- <https://www.iru.org/who-we-are/members/members-directory/asmap-ua>
- [5] Internet site of AEBTRI- https://www.aebtri.com/Default_en.aspx
- [6] Internet link with information for Pan European Corridors- https://en.wikipedia.org/wiki/Pan-European_corridors
- [7] Internet link with information for highways in Poland: https://en.wikipedia.org/wiki/Highways_in_Poland
- [8] Internet link with information for highways in Ukraine https://en.wikipedia.org/wiki/Roads_in_Ukraine
- [9] Internet site for Bulgarian plans for road infrastructure- <http://www.worldhighways.com/sections/eurofile/features/bulgaria-plans-for-operating-road-infrastructure/>
- [10] Andruszkiewicz, W. (1997) Why building of Transeuropean Motorway North–South (TEM/A-1) has its beginning in Rusocino located on the South from Pruszcz Gdanski instead in Port of Gdansk? *Spedycja i Transport*, Nr 3/97.
- [11] Kapsa, E., Michael Roe. Development of highway network in Poland and the future development of polish ferry shipping. *European Transport\ Transporti Europei* n. 29 (2005): 59-70- https://www.openstarts.units.it/bitstream/10077/5866/1/Kapsa_Roe_ET_29.pdf
- [12] Klimek, H. Motorways in Poland – opportunities for success or threats for marine ports, (in) *Competition of marine transport. Economy of marine transport. Scientific Exercises of University of Gdansk.* 1999
- [13] Internet site with information for the road transport organization in Ukraine <http://ukravtodor.gov.ua/>
- [14] Internet site - <https://mtu.gov.ua/en/>
- [15] State Statistics Service of Ukraine - <https://ukrstat.org/en>
- [16] Ukrainian Road Network: <http://dlca.logcluster.org/display/public/DLCA/2.3+Ukraine+Road+Network;jsessionid=62A6303204256CD1781FCC631B9185B9>
- [17] Todorova M., A. Dzhaleva-Chonkova, Karagyozov K., KNOW-IN Project Outcomes in Support of Training Road Transport Managers, *ELSEVIER, Transportation Research Procedia*, Volume 14, 2016, Pages 1492–1499, ISSN: 2352-1465 (16)30114-4 DOI: 10.1016/j.trpro.2016.05.113
- [18] World Health Organization: http://www.who.int/violence_injury_prevention/road_traffic/en/
- [19] Summary on Road Safety - WHO http://www.who.int/violence_injury_prevention/road_safety_status/2015/Executive_summary_GSRRS2015.pdf?ua=1
- [20] National Statistical Institute in Bulgaria- Road Traffic Accidents in the Republic of Bulgaria 2016 <http://www.nsi.bg/en/content/15390/%D0%BF%D1%83%D0%B1%D0%BB%D0%B8>

%D0%BA%D0%B0%D1%86%D0%B8%D1%8F/road-traffic-accidents-republic-bulgaria-2016

[21] Georgiev, N. The present state of urban traffic in Bulgarian biggest cities - is it a transport crisis?, The Twelfth International Scientific Conference Crises Situations Solution in Specific Environment. Zilina, Slovakia. 20 and 21 June , 2007.

[22]Raykov, R., N. Georgiev, I. Stoyanov, T. Berov. Technical Exploitation and safety in Transport. Todor Kableshkov University of Transport. Sofia. 2005.

[23] Road Safety Management Capacity Review Guidelines
<http://www.worldbank.org/en/topic/transport/publication/road-safety-management-capacity-review-guidelines>

ИЗСЛЕДВАНЕ И СРАВНЕНИЕ НА ОРГАНИЗАЦИЯТА И БЕЗОПАСНОСТТА НА АВТОМОБИЛНИЯ ТРАНСПОРТ В ПОЛША, УКРАИНА И БЪЛГАРИЯ

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Ключови думи: организация на автомобилния транспорт, безопасност, Полша, Украйна, България

Резюме: Статията разглежда текущото състояние на организацията на автомобилния транспорт в Полша, Украйна и България. От геостратегическа гледна точка всяка от тези страни се намира на много важни транзитни коридори. Състоянието на пътищата във всяка от страните играе огромна роля за цялостното развитие на транспорта в Евразия. Сравняването на характеристиките и безопасността на пътните условия дава възможност да се направят общи препоръки за подобрене. Всяка страна трябва да покаже съвместно усилие с останалите, за да подобри характеристиките на интегрираната транспортна система.