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Selected problems in the transport of food from Poland to the Middle East

Wybrane problemy w transporcie żywności z Polski na Bliski Wschód

Abstract. The article discusses the main factors that affect the management of shipping covered by the ATP Convention to the Middle East, including the way of planning the route taking into account the specificity of cargo with low natural, technical and economic transport susceptibility, illustrated on a case study of food transport. Problems and their consequences in such transportation, which the carrier faces, can in particular cases, lead to bankruptcy. This market may soon become an alternative to the changing European transport market.

Key words: road transport, supply chain, logistics, ATP, management

Synopsis. W artykule omówiono główne czynniki jakie mają wpływ na zarządzanie przewozem ładunków objętych konwencją ATP do krajów Bliskiego Wschodu, w tym sposób planowania trasy przejazdu z uwzględnieniem specyfiki ładunków o niskiej podatności transportowej naturalnej, technicznej i ekonomicznej, na przykładzie studium przypadku transportu żywności. Problemy i ich skutki w takim transporcie, które napotyka przewoźnik mogą w szczególnych przypadkach prowadzić nawet do upadłości. Rynek ten może niedługo stać się alternatywą dla zmieniającego się rynku przewozów europejskich.

Słowa kluczowe: transport drogowy, łańcuch dostaw, logistyka, ATP, zarządzanie

Introduction

Road transport is one of the most dynamically developing branches of the economy in the world. Polish entrepreneurs from the TSL industry have used Poland's accession to the structures of the European Union and the opportunities associated with it like no other. Transportation of low-susceptibility cargo, requiring proper planning of the transport route, selection of crews, minimizing loading and transporting time, maintaining constant temperature of the cargo [Jadczak 2019], are quite modestly analyzed in the literature

[Wronka 2010, Rudzińska et al. 2011, Rybińska and Galińska 2014]. A similar situation occurs with the analysis of the risk of transport services in the new markets where Polish carriers appear.

The consequence of transport management in the absence of proper information is planning far from the actual conditions in which the transport takes place. Defects that occur during transport may qualify the load for disposal [Ustawa z dnia 15 listopada 1984...]. The costs of cargo loss and utilization are often borne by the carrier, which often exceeds its financial capabilities and leads to bankruptcy [Cyganik 2014]. From the data published by the insurance company Euler Hermes, the insolvency of Polish road carriers in 2017 increased by 43% compared to the previous year. The 2018 bankruptcy reports show an increase in such insolvent enterprises in the TSL sector. The debt of 27,800 Polish carriers is over PLN 925 million, in 2017 the debt amounted to PLN 664 million.

This article attempts to examine the impact of the specificity of transport management in the EU on the implementation of road transport to the Middle East, and thus on the possibilities of functioning of Polish transport companies on that market.

The situation of the road transport industry in terms of Polish carriers

Poland has a strategic position in the European transport network between the east and the west of Europe, which results in growing demand for transport services. According to data published by the Chief Inspector of Road Transport¹ in 2018, 35,997 business entities that owned 234,639 vehicles dealt with international road transport in Poland. Most of them are small enterprises that on average had 3–5 vehicles.

Table 1 Business entities involved in international road transport in Poland

Tabela 1 Podmioty gospodarcze zajmujące się drogowym transportem międzynarodowym w Polsce

a – 2017 b – 2018	transport of goods		transport of people		Increase / decrease	
					transport of goods	transport of people
Licenses	a	34 633	a	3 245	increase 3.9%	increase 2.4%
	b	35 997	b	3 326		
Increase	a	217 984	a	12 598	increase 7.6%	increase 3.6%
	b	234 637	b	13 057		

Source: own development of data based on GITD data.

The year 2018 was another year in which road transport developed. An increase in road carriers was recorded both in goods and passengers. The number of entrepreneurs performing road transport of goods increased by 3.9% compared to 2017, the number of owned vehicles over 3.5 t permissible total weight increased by 7.6%. Despite the large fragmentation of Polish transport companies, they have a modern fleet of vehicles, ap-

¹ Transport carried out on the basis of a national permit or the EU license with vehicles over 3.5 t GVW.

prox. 77% have vehicles with Euro 5 and Euro 6 emission standards. These data confirm that Poland has one of the most modern truck fleets in Europe. The average cost of buying a road tractor with a semitrailer is around 600,000. PLN depending on the equipment. Polish carriers have mastered the road transport market from year to year, increasing their share since the time Poland joined the European Union. According to data published by Eurostat, transport performance in 2017 in tonne-kilometers accounted for 20.5% of total transport throughout the European Union. In international transport in 2018, the share of Polish carriers accounted for 35.4%. We are the leader on the road transport market, followed by countries such as the Netherlands, Germany and Spain. In 2018, Polish carriers generated PLN 120 billion in so-called Gross value added (the value of all products and services produced by all domestic entities less costs associated with their production), which accounted for 6% GDP. It is 0.5% more than in 2014.

The average employment under the employment contract in the entire transport sector in 2018 was 622,900 people and was by 4.1% higher compared to 2017.

The biggest threats in the further development of road transport include:

- lack of new qualified professional drivers,
- increase in minimum wage rates, i.e. an increase in employee maintenance costs,
- tightening of regulations and sanctions for not complying with them,
- new EU regulations, issues related to posted workers,
- no agreement between the EU and the United Kingdom,
- increase in fuel prices and road tolls,
- meeting emission standards,
- new smart tachographs.

At the end of 2018, Polish carriers missed about 100,000. drivers. The downward trend in driver education began as early as the 1990s – liquidation of vocational schools, changes regarding Driver Education entities admission to the market that took place in 2000, resignation from practical training in categories C, C + E in trade schools, discrepancies between the curriculum and market needs, large costs of training, lack of teaching staff. Contemporary vocational education is mainly based on retrained teachers in post-graduate studies. During two or three semesters, a humanist receives the right to teach vocational subjects. System solutions in Polish education effectively block the inflow of new staff. The Polish vocational education system in the field of the TSL industry has stopped in the previous era and there is no indication that anything will change in the near future. The main barrier on the path to acquire new staff is the pay system, no credit for years of teaching experience in the profession. An employee after 20–30 years of work in the TSL industry going to work in a state educational institution can count on a net salary of PLN 1750–2200 per month depending on seniority pay. On-line trainings try to save the difficult market situation [Madej et al. 2015].

Polish entrepreneurs are being increasingly forced to reach for foreigners. Employing an employee from a country not belonging to the European Union to the EFTA countries in road transport as a driver carries risks and costs. No knowledge of the Polish language, the need for additional training in the field of transport law, ensuring adequate social conditions. Despite these difficulties, carriers are increasingly deciding to employ foreigners. According to the data published by GITD, the number of foreigners employed as drivers is increasing every year. Table 2 shows the number of valid driver cards on December 31.

2017 and December 31. 2018. The table does not include cards issued during the analyzed years. This number significantly exceeds the number of cards in circulation at the end of the analyzed periods.

Table 2 Number of valid driver cards

Tabela 2 Liczba ważnych kart kierowcy

2017	Quantity	2018	Quantity	Increase (%)
Russia	317	Russia	505	159.3
Belarus	9 436	Belrus	16 521	155.8
Kazakhstan	26	Kazakhstan	92	353.8
Moldova	808	Moldova	1 186	146.8
Ukraine	35 115	Ukraine	48 624	138.5
Other	436	Other	932	213.8
Total	46 138	Total	67 891	147.1

Source: own development of data based on GITD data.

The number of driver cards issued in 2018 was 72,390, but at the end of the year only 67,7891 drivers remained in Polish enterprises. The Polish driver card authorizes to practice in the EU. Earnings of drivers in the countries of the old Union are much higher than in Poland, which is why over the past year 4499 drivers left our country and started working behind our western border.

In recent years, the transport strategy has been oriented towards risk management. Hazard identification and change management are important here [Kobryń 2016]

Road transport of food to the Middle East

There are two areas of international transport of goods. No permits are required within the European Union [Neider 2015] – a Community license is sufficient. In the case of transporting goods outside the European Union, the so-called foreign permit, issued by the minister of transport of the country to whose territory the goods are to be imported or exported or transported through. The number of these permits is negotiated annually between the Polish Government and the governments of individual countries. Road transport is the foundation of the modern global economy. Its proper course and security conditions guarantee not only the efficient functioning of companies and institutions but also affect each of us. Despite the development of other modes of transport, road transport is the only one that can perform the full door-to-door service. The expansion directions of our road transport significantly exceed the borders of the European Union. Balkan and Middle Eastern countries such as Turkey, Iraq, Iran, Armenia, Georgia have become a new destination for Polish carriers. Attractive freight rates and ease of obtaining return loads are an incentive. Polish carriers [Ustawa z dnia 6 września 2001..., RPE i Rozporządzenie Parlamentu... nr 1071/2009] with modern equipment, trained and experienced drivers can compete on this market with carriers from the Balkan countries, Turkey and Ukraine. The Polish economy also has a lot to offer to contractors from these countries.



Figure. 1. EKMT/CEMT permit model
Rysunek 1. Model zezwolenia EMKT/CEMT
Source: [Madej et al. 2019].

According to GITD data, 952 EKMT² permits have been distributed for road transport outside the European Community, which means that 26.45% of Polish carriers have the ability to transport goods outside the EU.

A case study of road transport from Katowice (Poland) to Zakho (Iraq)

The implementation of long-distance transport requires from the carrier not only additional permits, reliable vehicles, but also adequate financial resources [Banaszyk and Gołemska 2017]. Planning transports on such long routes requires from the entrepreneur to carefully select drivers, have knowledge of local regulations and local customs [Bukowski and Sobczak 2017].

The object of research in this work was road transport on the route Katowice (Poland)–Zakho (Iraq), which actually took place in 2019, however, due to the protection of personal data, the details could not be provided in this article.

Transport time. When determining the time of such transport, the European Community Regulation no. 561 applicable in the EU and EFTA countries should be taken into consideration. Transport time is crucial for unprocessed loads with a short shelf life. Driving time means only the duration of driving activity recorded by a digital or analogue tachograph in accordance with Regulation (EEC) No 3821/85, or manually registered in accordance with Article 16 clause 2 of Regulation (EEC) No 3821/85 [RPE i RWE nr 165/2014], which states that “While the equipment is unserviceable or operating defectively, drivers shall mark on the record sheet or sheets, or on a temporary sheet to be attached to the record sheet, all information for the various periods of time which is not recorded correctly by the equipment”. To interpret individual requirements regarding the driver’s working time standards correctly, the regulations of RWE 561 must be respected. The regulation allows the driving time to be extended to 10 hours twice a week. According to the regulation, a week means the period from 00:00 on Monday to 24:00 on Sunday. The weekly maximum driving time is 56 hours (4 days × 9 hours + 2 days × 10 hours = 56 hours), a two-week driving time is 90 hours. This means that within two consecutive weeks, the sum of driving hours may not exceed 90. The condition of using the maximum weekly driving time is driving in the previous week for 34 hours and the following week for 34 hours. It often happens that the misunderstanding of the week definition used by drivers is treated in this case as the “driver’s work week” calculated from the end of one weekly rest period to the start of the next weekly rest period, which does not necessarily have to start on Monday. Another limitation is the legal regulations regarding night work. If the driver drives a vehicle or performs other work between 00:00 and 4:00 a.m., he can work a maximum of 10 hours on this day.

² International carriage of goods between certain countries is carried out on the basis of the authorization of the European Conference of Ministers of Transport (EKMT). The permit is a document that allows you to take an unlimited number of courses between EKMT member countries, whose course is documented in a properly completed subscription.

The transport time also depends on the route chosen [Jadczyk 2019]. The goal is to find the optimal solution with the restrictions adopted [Kobryń 2013].

The question to be answered is whether to delegate a single or double crew to carry out the transport? Tables 3 and 4 present an example travel time schedule under the following assumptions:

- distance 3551 kilometers,
- one-man crew (Table 3),
- two-man crew (Table 4),
- average speed of the team 58 km/h,
- daily driving time 9 hours,
- weekly rest reduced to 24 hours,
- no extended driving time of 10 hours,
- average continuous driving time of 4 hours, 18 minutes,
- maximum weekly and bi-weekly driving time – average time of breaks during one day of driving a vehicle and one hour for a double crew, included.

According to data analysis in Tables 3 and 4, a shorter crew time will be provided by a crew of two. One-man crew is a subject to restrictions resulting from legal regulations.

Technical travel time assuming 58 km/h on this route is 61 hours 13 minutes, assuming an increase or decrease in average speed within ± 5 km/h, travel time can be reduced or increased by 4 hours 52 minutes, which practically has no effect on time of the entire transport process. When planning transport, the return to the country should be considered, the total time is 122 hours 26 minutes. The one-man crew will return after 17 days [Rozporządzenie Parlamentu... nr 561/2006], assuming that unloading and loading will take place on the same day, in the case of a two-man crew return will take place after 9 days, assuming a weekly rest period shortened by 24 hours.

Transport conditions. The ATP Convention clearly defines the conditions that must be met in transport of food. For this type of transport, the cold chain should be kept in line with the recommended temperatures [Trafiałek and Bilska 2016].

The main principle in monitoring the food cold chain is to constantly monitor the product “from loading to consumption”. Considering the complexity of the global food logistics chain, this is not always easy. Both refrigerated containers and vehicle bodies “refrigerated” are equipped with a temperature monitoring system. The temperature is registered continuously, it is also possible to print the temperature course from any duration of the transport process. You can then immediately respond to irregularities and temperature changes, which significantly reduces losses. You can also verify the conditions in which the transport took place.

Polish sanitary regulations regarding the production processes of animal and vegetable products intended for human consumption are strict. [Rybińska and Galńska 2014] The importer’s country requirements are in most cases known and published by the Chief Veterinary Inspectorate.

Considering the variability of the law also in the importer’s country, it is recommended to monitor the required documents on an ongoing basis, the length of the shelf life, transport conditions, and phytosanitary clearance conditions. In the absence of agreements between the Polish side and the importer’s country, such data should be obtained from our

Table 3. Single crew

Tabela 3 Załoga jednoosobowa

Start Day / hour	Finish Day / hour	Activity	Time	Kilometers traveled
Mon. 7:00	Mon. 8:00	loading	1 h	–
Mon. 8:00	Mon. 12:18	driving	4 h 18 min.	249 km
Mon. 12:18	Mon. 13:03	break	45 min	–
Mon. 13:03	Mon. 17:21	driving	4 h 18 min	249 km
Mon. 17:21	Tue. 04:21	daily rest	11 h	–
Tue. 4:21	Tue. 8:39	driving	4 h 18 min	249 km
Tue. 8:39	Tue. 9:24	break	45 min	–
Tue. 9:24	Tue. 13:42	driving	4 h min	249 km
Tue. 13:42	Wed. 00:42	daily rest	11 h	–
Wed. 00:42	Wed. 5:00	driving	4 h 18 min	249 km
Wed. 5:00	Wed. 5:45	break	45 min	–
Wed. 5:45	Wed. 10:03	driving	4 h 18 min	249 km
Wed. 10:03	Wed. 21:03	daily rest	11 h	–
Wed. 21:03	Wed. 23:58	driving	2 h 55 min	140 km
Wed. 23:58	Thu. 3:21	other work (customs clearance)	3 h 23 min	–
Thu. 3:21	Thu. 5:24	Driving	2h 03 min	113 km
Thu. 5:24	Thu. 6:09	Break	45 min	–
Thu. 6:09	Thu. 7:03	Driving	54 min	52 km
Thu. 7:03	Thu. 18:03	daily rest	11 h	–
Thu. 18:03	Thu. 22:21	Driving	4 h 18 min	249 km
Thu. 22:21	Thu. 23:06	Break	45 min	–
Thu. 23:06	Fri. 3:41	Driving	4 h 18 min	249 km
Fri. 3:41	Fri. 14:41	daily rest	11 h	–
Fri. 14:41	Fri. 19:29	Driving	4 h 18 min	249 km
Fri. 19:26	Fri. 20:11	break	45 min.	–
Fri. 20:11	Sat. 00:28	driving	4 h 18 min	249 km
Sat. 00:28	Sat. 11:28	daily rest	11 h	–
Sat. 11:28	Sat. 15:46	driving	4 h 18 min	249 km
Sat. 15:46	Sat. 16:31	break	45 min	–
Sat. 16:31	Sat. 20:49	driving	4 h 18 min	249 km
Sat. 20:49	Sun. 20:49	weekly rest	24 h	–
Sun. 20:49	Mon. 1:07	driving	4 h 18 min	249 km
Mon. 1:07	Mon. 1:52	break	45 min	–
Mon. 1:52	Mon. 6:10	driving	4 h 18 min	249 km
Mon. 6:10	Mon. 17:10	daily rest	11 h	–
Mon. 17:10	Mon. 21:10	other work, (customs clearance)	4 h	–
Mon. 21:10	Mon. 22:03	driving	1 h 04 min	62 km

*The difference in travel time results from rounding to full minutes.

Source: own development of data based on [Rozporządzenie Parlamentu... nr 561/2006, Rozporządzenie Mi-
nistra... 2010].

Table 4. Two-man crew

Tabela 4 Załoga dwuosobowa

Start Day / hour	Finish Day / hour	Activity	Time	Kilometers traveled
Mon. 7:00	Mon. 8:00	loading	h	–
Mon. I D 8:00	Mon. 12:18	driving	4 h 18 min	249 km
Mon. II D 8:00	Mon. 12:18	disposition	4 h 18 min	–
Mon. I D 12:18	Mon. 16:36	disposition	4 h 18 min	–
Mon. II D 12:18	Mon. 16:36	driving	4 h 18 min	249 km
Mon. I+II D 16:36	Mon. 17:36	break	1 h	–
Mon. I D 17:36	Mon. 21:54	driving	4 h 18 min	249 km
Mon. II D 17:36	Mon. 21:54	disposition	4 h 18 min	–
Mon. I D 21:54	Mon. 01:54	disposition	4 h 18 min	–
Mon. II D 21:54	Tue. 1:54	driving	4 h 18 min	249 km
Tue. I + II D 1:54	Tue. 10:54	daily rest	9 h	–
Tue. I D 10:54	Tue. 15:12	driving	4 h 18 min	249 km
Tue. II D 10:54	Tue. 15:12	disposition	4 h 18 min	–
Tue. I D 15:12	Tue. 19:30	disposition	4 h 18 min	–
Tue. II D 15:12	Tue. 19:30	driving	4 h 18 min	249 km
Tue. I+II D 19:30	Tue. 20:30	break	1 h	–
Tue. I D 20:30	Tue. 22:55	driving	2 h 25 min	140 km
Tue. I D 22:55	Wed. 3:18	other work (customs clearance)	3 h 23 min	–
Wed. II D 20:30	Wed. 3:18	disposition	5 h 58 min	–
Wed. II D 3:18	Wed. 7:36	driving	4 h 18 min	249 km
Wed. I D 3:18	Wed. 7:36	disposition	4 h 18 min	–
Wed. I D 7:36	Wed. 8:54	driving	1 h 18 min	75 km
Wed. I + II D 8:54	Wed. 17:54	daily rest	9 h	–
Wed. I D 17:54	Wed. 22:12	driving	4 h 18 min	249 km
Wed. II D 17:54	Wed. 22:12	disposition	4 h 18 min	–
Wed. II D 22:12	Thu. 2:30	driving	4 h 18 min	249 km
Thu. I D 22:12	Thu. 2:30	disposition	4 h 18 min	–
Thu. I+II D 2:30	Thu. 3:30	break	1 h	–
Thu. II D 3:30	Thu. 7:48	disposition	4 h 18 min	–
Thu. I D 3:30	Thu. 7:48	driving	4 h 18 min	249 km
Thu. II D 7:48	Thu. 12:06	driving	4 h 18 min	249 km
Thu. I+II D 12:06	Thu. 21:06	daily rest	9 h	–
Thu. I D 21:06	Thu. 1:24	driving	4 h 18 min	249 km
Thu. II D 21:06	Fri. 1:24	disposition	4 h 18 min	–
Fri. II D 1:24	Fri. 5:42	driving	4 h 18 min	249 km
Fri. I D 1:24	Fri. 5:42	disposition	4 h 18 min	–
Fri. I D 5:42	Fri. 6:20	driving	38 min	37 km
Fri. I D 6:20	Fri. 10:20	other work, (customs clearance)	4 h	–
Fri. II D 5:42	Fri. 10:20	disposition	4 h 38 min	–
Fri. II D 10:20	Fri. 11:24	driving	1 h 04 min	62 km

*The difference in travel time results from rounding to full minutes.

Source: own development of data based on [Rozporządzenie Parlamentu... nr 561/2006, Rozporządzenie Mi-
nistra... 2010].

contractor. The Chief Veterinary Officer³, if the required documents are not specified, and the document template is missing, recommends taking the following steps:

1. Obtaining (by the entity concerned) the model of a sanitary certificate applicable to the importation of a given product onto the market of a third country (e.g. from a contractor).
2. Obtaining its certified translation into Polish (having the value of an official translation).
3. Preparing a statement that the model certificate is accepted by the competent authority of the country of destination or that it was obtained through the trade partner of the importing country as an official requirement.
4. Preparing a statement regarding legal and financial liability for possible consequences of rejection of a shipment by the authorities of the importing country.

The above documents should be presented to the district veterinarian, who on their basis, can verify compliance with the requirements contained in the certificate and, in the case of positive verification, issue a sanitary certificate officially certifying the compliance of the batch of goods sent to the given third country with the requirements [Rozporządzenie Komisji... nr 589/2008].

One of the basic mistakes that importers and exporters of food make is the lack of information about the shelf life of a given product. Basic data [Rozporządzenie Komisji... nr 589/2008], – the date of production and expiry date is provided in the veterinary certificate issued by the district veterinarian [Trafiałek and Bilaska 2016]. There is no specific date in this certificate when the product may cross the borders of the importing country at the latest.

Each food product has two expiry dates:

- The first date is specified by the district veterinarian when issuing a product certificate of origin, it is the best before date.
- The second date, when the product can cross the border of the importing country at the latest, how many days of shelf life must it have. This deadline is set by the importing country and confirmed by the agreement between the countries.

These are the most important factors, however, the problem is so complex that this article does not exhaust the full spectrum of managing such transport.

Summary

The analyzed selected factors affecting the management of the transport of loads covered by the ATP Convention to Middle East countries are based on international agreements, but the specificity of a destination country or a transit one can cause significant difficulties. The time and transport conditions should be basic – in this case the specificity of transport management in the EU is the heart of the road transport of food to the Middle East. However, other specific elements, such as refueling and stopping points during transport, armed conflicts, the specificity of the Balkan countries or border check standards, which differ from European standards, must also be taken into account. It is also

³ <https://www.wetgiw.gov.pl/> [access: 06.12.2019].

worth remembering that the problems and their consequences in such transport, which the carrier encounters, may in particular cases lead to bankruptcy. The topic is important because this market may soon become an alternative to Polish transport companies due to the changing European transport market.

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- jak również uchylające rozporządzenie Rady (EWG) nr 3820/85 [Regulation (EU) No 561/2006 of the European Parliament and of the Council of 15 March 2006 on the harmonization of existing social provisions relating to transport and the amendment of Council Regulations (EEC) No 3821/85 and (EC) 2135/98, as well as repealing Council Decision (EEC) No 3820/85].
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