
Possibilities to Use Rail Transport Potential for the Needs of the Army

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Abstract:

Purpose: The aim of the study adopted by the authors is an attempt to estimate the national railway potential from the point of view of military needs.

Design/Methodology/Approach: The conducted research was focused on seeking for the solutions which could improve organisation of rail transport for the army.

Findings: The article presents the condition of Polish railways and the possibility of troop movement by berths, as well as the authors' own (pilot) research carried out in the Movement & Transportation Division - the National Movement Coordination Center, aimed at showing the possibilities of improving and moving the army by rail transport.

Practical Implications: The pragmatic dimension of the conducted research was based primarily on two main research trends, i.e., the possibility of use of other carriers (from outside of PKP Group) for the transport of soldiers and the possibilities for the Armed Forces to obtain their own capabilities for rail transport. Research results can be used by entities coordinating the movement of troops by rail, including the Movement & Transportation Division - the National Movement Coordination Center.

Originality/Value: The issue of possibilities of movement of the troops by rail and improve the movement of the troops by this type of transport remained outside the area of scientific interest. The proposed solutions assume an elimination of infrastructural barriers and shortages in the adequate number of the means of transport to secure the services of the soldiers for the needs of the Polish Armed Forces and of the allied troops staying on or moving through the territory of the country.

Keywords: Rail transport, military transport, transport management, state security.

JEL codes: F52, H56, L92, L98, O18.

Paper type: Research study.

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1. Introduction

Transport is one of the most important factors determining the economic development of the country. A well-developed transport infrastructure strengthens the social, economic and spatial cohesion of the country as well as contributes to strengthening of the competitiveness of the Polish economy. It also affects the defence of the state and the ability of the Armed Forces to perform their tasks.

The market of railway services for the army is specific and is changing all the time. Still in the 1980s of the 20th century, the Polish People's Army intensively used rail transport, moving soldiers, equipment and munitions from the military units to the training grounds located in the country or abroad. Joining of the group of countries actively working for peace in the world by Poland, inter alia through participation of the Polish soldiers in the missions in Iraq and Afghanistan, as well as the relatively stable political and military situation of Europe of the late 20th century, resulted in omission of the needs to invest in the defence infrastructure of the country. The then Polish Army remains an active participant on the railway market and commissions freight transports but uses rail transport to much lesser extent, has sidings requiring maintenance and repairs as well as sells real estates built up with rail infrastructure.

Change in the European security architecture of the 21st century and emergence of real threats resulting from the actions conducted by the Russian Federation in the east of Ukraine have revealed the investment needs of the national defence potential, including those related to rail transport. It is worth remembering that in order to ensure proper functioning of the country both in peacetime and in emergency situations, it is necessary to analyse and assess the general conditions and potential of the individual regions, develop a comprehensive system of requirements and establish the necessary conditions for protection of the living conditions of the population as well as for ensuring of performance of economic processes and of comprehensive state defence. In the field of defence requirements, such tasks appear in the defence preparations of the country. Defensive preparation of the country - in addition to ensuring of the defence capabilities of the armed forces - also includes a specific part of defence preparations involving a complex set of tasks. This approach makes it possible to state that in the current situation, both own and allied (NATO) army movements should be provided with multidirectional, tailored positioning options. An important part of such defensive preparation is preparation of transport network and establishment of rules for continuous flow of transport (Szászi, 2013, pp. 98-107).

In connection with the needs to move own and allied troops through the Polish territory within the international exercises on a larger and larger scale, framework maintenance of the operational and tactical mobility at an appropriate level is expected from the state. At present, about 5 thousand soldiers of the allied forces are based in our country. In 2020, transfer of about 20 thousand American soldiers to Europe, mainly to Poland and the Baltic States, who will take part in the Defender-

Europe 20 training ground exercises, is anticipated. In these exercises, troops from the allied and partner countries will also join the US Army. The main goal of this project is to build strategic readiness, to practice the transfer of large forces from the US to Europe, to the training grounds, as well as to create opportunities for the armies to increase the ability to cooperate with the allies and to build readiness on the tactical level. It is worth emphasising that this will be the largest transfer of the US troops to Europe in the period of 25 years. The Americans will bring the equipment and will also use the weapons stored in Europe. It is estimated that it will be around 6,000 vehicles - including about 1.5 thousand caterpillar-tracked vehicles and 2,500 containers with the military equipment.

About 90 rail and 20 sea transports were planned for the transfer of such a huge quantity of the military equipment. It is worth noting here that in response to such challenges, the Polish Armed Forces in cooperation with PKP purchased 100 heavy equipment railway platforms in 2019. They are already utilised in practice and are used *inter alia* for movements of the US troops based in Poland. It is a huge organisational challenge and a test of the possessed capabilities regarding the possibility to accept and move the soldiers, equipment and armaments to the training grounds. These challenges generate the following questions: what is the condition of the Polish railways and what are the possibilities of movement of the troops by rail as well as how can we improve the movement of the troops by this type of transport? These questions will be used as the main research problems in this study.

2. Rail Infrastructure in Poland

In most countries, railways report declining market share, growing outlay process and growing competition from other modes of transport (Oum *et al.*, 1999, pp. 9-42). The situation in Poland is not different in this respect. However, it is worth noting that the length of the actually operating railway infrastructure in Poland in 2019 was about 17,000 km of railway lines, which gives 5.45 km per 100 km² of the area. Even though such density of the railway infrastructure network is significantly lower than in the neighbouring EU countries such as: Germany (9.2 km/100 km²) or the Czech Republic (10.3 km/100 km²), this ratio is higher than the average for all EU countries amounting to 4.9 km/100 km². In the individual voivodships, this density, measured in line km per 100 km² of the area, is respectively: from 3.89 km/ 100 km² in Podlaskie Voivodship to 17.71 km/100 km² in Silesian Voivodship. Apart from Silesian Voivodeship, voivodships with the greatest railway network density include: Opole, Lower Silesian, Greater Poland and Lesser Poland Voivodeships. The lowest density of the railway network occurs, apart from Podlaskie Voivodeship, also in: Lublin, Mazovian and Warmian-Masurian Voivodeships. Unfortunately, this translates into limited rail access to some regional centres.

At present, liberalisation of the markets of passenger rail transports in Europe focuses not only on market competition but increasingly on the possibility of new operators to access this market (Stead *et al.*, 2019, pp. 100-142). There are currently

103 railway carriers functioning on the rail market in Poland, holding a license for transports of passengers and objects as well as for provision of traction vehicles. Of these, 14 carriers perform transports on other lines than the standard gauge lines. The national carrier performing rail transports is PKP Group, which was established in 2001 as a result of restructuring of the state-owned enterprise Polskie Koleje Państwowe (Polish State Railways). The main purpose of the change was to separate rail transport activity from management of railways and to create independent commercial law entities able to provide services not only on the railway market. Currently, PKP Group consists of PKP S.A., i.e., the parent company, and 10 companies providing services inter alia on the energy, ICT and rail market (“About PKP S.A,” n.d.), including PKP Cargo, which is the leader on the freight rail transport market, and PKP Intercity, which is the main carrier on domestic and international passenger routes.

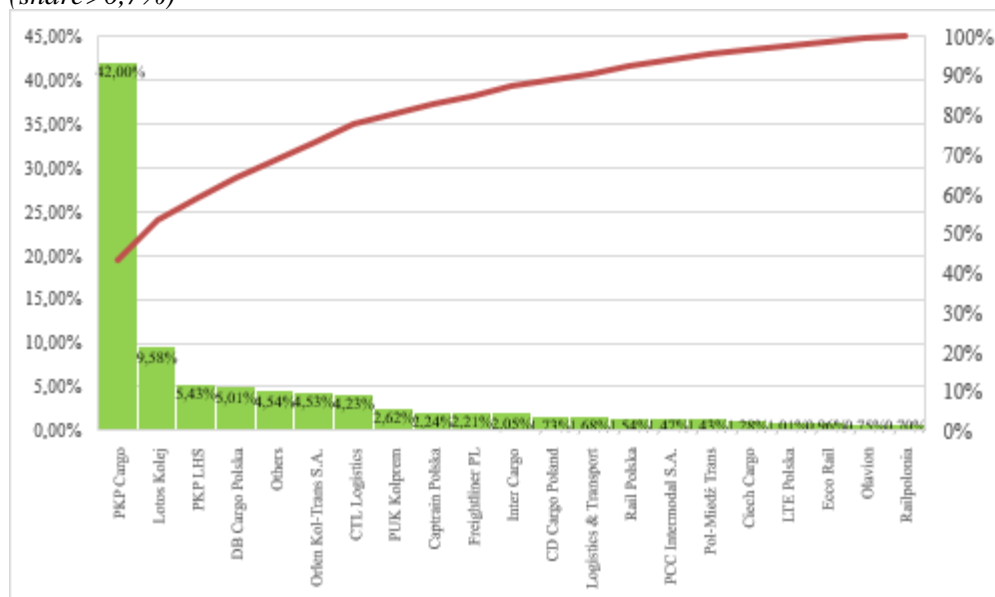
Other significant players on this market are Przewozy Regionalne and Koleje Mazowieckie, belonging to the local governments of the Voivodeships and to the Industrial Development Agency. It is worth emphasising that Przewozy Regionalne Sp. z o.o. is owned in 51% by a state-owned joint stock company, namely Agencja Rozwoju Przemysłu S.A. (Industrial Development Agency), which holds 29% of stocks in Polska Grupa Zbrojeniowa S.A. - being also a company owned by the state. These changes are in line with the European trend, which means that at present, the rail transport industry is vertically separated, because the entity responsible for infrastructure maintenance, i.e. the infrastructure manager, is different from the entity (or entities) responsible for services provision. Both entities may belong to the same group, while the distinction between them is made within separate companies and kept accounting books. Figure 1 was prepared based on the data provided by the Railway Transport Center, showing the share of Polish railway carriers by transport performance.

Since the 1990s of the 20th century, the European Commission, in the priorities of its political programmes, has been introducing such a vertical division of most network industries (e.g. telecommunications, gas, electricity and railway), which in the previous period were organised mainly around a vertically-integrated state monopoly. The purpose of these reforms is to improve the economic performance of these industries by introduction of competition in the field of service provision. It is worth remembering that in this new institutional framework infrastructure is still largely a monopoly, while the new service providers rendering transport services have the opportunity to enter the market (Perennes, 2017, pp. 359-367).

In Poland, licensed infrastructure managers are responsible for management, construction, maintenance and provision of railway infrastructure in Poland. The majority of the railway lines are managed by PKP Polskie Linie Kolejowe, owned by Polskie Koleje Państwowe (Polish State Railways). The length of the railway lines operated in 2017 by all infrastructure managers (including standard gauge and broad gauge lines) was approximately 19.3 thousand km. In 2017, 18,513 km of

active railway lines and 2,129 km of out-of-service lines were under the management of the largest Polish infrastructure manager (PKP PLK S.A.). In total, PKP PLK S.A. managed 20,642 km of the lines.

Figure 1. The share of Polish railway carriers by transport performance in 2019 (share > 0,7%)



Source: Own study based on: <https://utk.gov.pl/pl/raporty-i-analizy/analizy-i-monitoring/statystyka-przewozow-to/16316,Dane-eksploatacyjne-w-2020-rMonthly-Statistics-2020.html>.

The railway network is divided into lines of national significance (about 12,000 km) and lines of local importance. Lines of national significance are defined in the relevant Regulation of the Cabinet (*Rozporządzenie z dnia 17 kwietnia, 2013*), which have national significance for economic, social, defence or ecological reasons. Lines of significance for the international rail transits also run through Poland. These lines are covered by international agreements on AGC lines (Agreement on Main International Railway Lines) and on AGTC lines (Agreement on Important International Combined Transport Lines and Related Installations). In spite of numerous investments carried out in the recent years, the condition of the national railway infrastructure still needs further improvement. In 2011 - 2017, it was possible to increase the percent of the rail network being in good condition from 36% to 55%. The current rail transport infrastructure has the following features (*Strategy, 2018*):

1. low value of maximum axle loads in relation to the needs arising from the ordered transports;

2. low capacity of sections (including those connecting sea ports) or points making it impossible to prepare effective timetables;
3. short maximum permitted length of trains;
4. bad technical condition of engineering facilities;
5. insufficient level of implementation of safe driving control systems allowing the trains to travel at speeds over 160 km/h;
6. insufficient number of multi-level intersections with roads;
7. small number of travels with active protective devices;
8. inadequate shape of a part of the network and the resulting extended geometric runs of many routes;
9. insufficient connections with other branches of land transport (road and inland waterway transport).

The deficiencies in the infrastructure cause irrational extensions of the routes of the trains, which in consequence results in a decrease in competitiveness of the railways on many routes and often in a complete inability to propose an attractive transport offer. The fact that in 1989-2015, 5,000 kilometres of railway lines, which accounted for over 1/5 of the existing network, were closed and liquidated, should be assessed negatively from the economic but also the defence point of view. In total, 107 cities and 245 municipalities lost their rail service due to liquidation of the railway network after 1946. After 1989, development of the national rail network was ceased and the newly-built elements concerned almost exclusively point investments, such as connections to airports or junctions and side tracks, improving the manoeuvrability of the trains.

At present, about 1,600 stations are used in the network of PKP Polskie Linie Kolejowe S.A. There are more than 14,500 intersections with roads and pedestrian crossings on the routes of the used railway lines, of which about 3,000 are guarded by employees. The lines covered by the international agreements are successively modernised in order to achieve the target standards and ensure interoperability of the railway network on the territory of the Republic of Poland in the trans-European high-speed rail system and the trans-European conventional rail system. The lines are modernised from the budget funds and from the European Union funds. In the coming years, it is planned to modernise the following railway lines (“Kolej w Polsce,” n.d.):

1. E20: Rzepin - Poznań - Warsaw - Siedlce - Terespol;
2. E30: Zgorzelec - Wrocław - Katowice - Cracow - Przemyśl;
3. E75: Warsaw - Białystok;
4. E65: Gdynia - Warsaw - Katowice - Zebrzydowice;
5. C-E65 Gdynia - Inowrocław - Zduńska Wola - Tarnowskie Góry - Pszczyna;
6. C-E59: Międzyzylesie - Wrocław - Kostrzyń - Szczecin;
7. Line No. 8: Warsaw - Radom - Kielce - Cracow;
8. Warsaw - Łódź railway line.

It is also worth being aware of the fact that the rolling stock currently used in passenger rail transports is characterised by obsolete construction, low traction parameters, significant degree of wear, high failure rate and unreliability, which entails offering of low-comfort travelling. The average age of passenger wagons and electric locomotives is about 30 years, while of diesel locomotives - about 40 years.

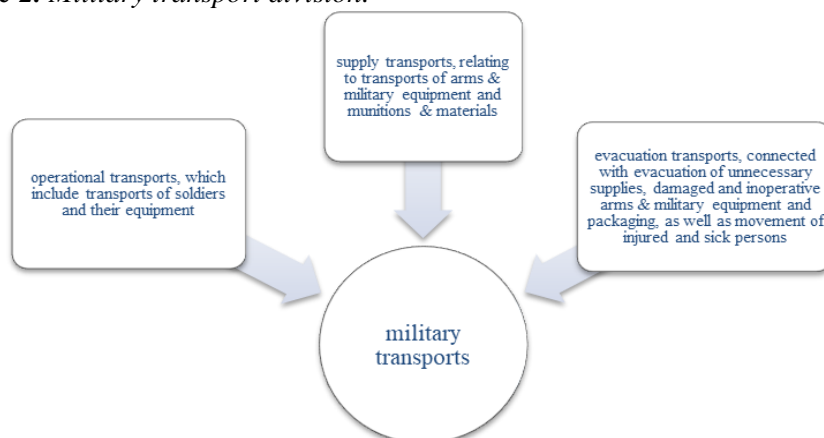
3. Military Rail Transport

The transport tasks performed for the benefit of the Polish Armed Forces are realised with the use of the infrastructure and means of road, rail, air and water transport. Coordination of the transport-related tasks in the Polish Armed Forces is handled by their bodies, which include the Movement & Transportation Division - the National Movement Coordination Centre, which is functionally subordinate to the Chief of the Inspectorate of Armed Forces Support.

The choice of the means of transport planned for performance of military transports is one of the most important strategic decisions. This decision depends primarily on the operational situation, number of the soldiers and quantity of the equipment planned to be transported as well as quantity of the stocks. Geographical location of the destination, distance, transfer time, possibility to use point and line elements of the transport infrastructure and costs are also taken into account. When planning military transport, it should be first of all strived to achieve two functional goals: ensuring of timely performance of the task and minimisation of costs with the acceptable level of outlays (Bursztyński, 2011, pp. 113-138).

Rail transport in the Armed Forces is used depending on operational, training and logistics needs. Depending on their nature and purpose, military transports are divided into: operational transports, supply transports and evacuation transports. Figure 2 shows a detailed specificity of military transport.

Figure 2. Military transport division.



Source: Own study.

The Armed Forces of the Republic of Poland (Polish Armed Forces) use rail transport because it is characterised by the greatest mass transport capacity among all land transport modes. It is used for movement of large numbers of personnel, heavy armaments and military equipment as well as long-distance supply means, primarily as part of operational displacement. It is characterised by mass cargo transport, irregular rhythm depending on operational needs, the need to maintain special precautionary conditions and the need to prepare means of transport for transport of heavy military technology and dangerous cargo.

In peacetime, the army uses rail transport mainly to transport compact military sub-units (military equipment with crews) for training ground exercises and trainings. It is also used upon delivering of supplies, in particular: armament, ammunition, food, propellants and lubricants or other cargoes owned by the army as well as transport of military equipment to repair plants. The annual number of military rail transports launched for the needs of the Polish Armed Forces in domestic traffic is about 120 - 180 trains (3,000 - 4,000 wagons). On the other hand, in international transport, the army uses about 3 - 8 transports (50 - 160 wagons) (Skurkiewicz, 2018). The trains used by the soldiers of own and foreign troops performing allied exercises at Polish training ground training centres may be added thereto. The Polish Armed Forces operate slightly more than 120 sidings with the total track length of about 700 km. The Regional Infrastructure Boards are responsible for the technical condition of the military railway infrastructure as well as for appropriate use of resources and renovations. They outsource renovations to civilian companies on generally accepted terms, e.g. in the course of a tender. The equipment of the army includes covered wagons, two- and four-axle platforms and tank cars, in total about 100 pieces. The rolling stock, old but maintained in very good condition, is primarily used for short-distance transport between warehouses.

Rail transport plays an important role in allied military logistics. Movement of heavy equipment in the form of tanks, infantry fighting vehicles, howitzers or armoured personnel carriers on roads would be more expensive, slower, would pose a potential threat to civilian road users and would contribute to degradation of the road infrastructure. It would also require much more complex coordination of the taken actions and performance of a number of administrative duties. This strengthens the significance of rail transport in the defence area, especially in the era of the need to implement the decisions made at the NATO summits in Newport and Warsaw, where the Member States decided to strengthen the Alliance's eastern flank by the rotating presence of allied forces and intensified training ground exercises on the area of Poland and of its neighbours. It is Polish railway companies that will participate in performance of these difficult transport tasks.

4. Military Cargo Transports by Rail

In terms of range, military rail transports performed throughout the country are divided into (*Zasady przewozu*, 2014, p. 22):

1. central transports - planned for the military units of the Polish Armed Forces and of the allied countries, and the transport route runs between the areas of responsibility of Regional Logistics Bases; the planning body for these transports is the Movement and Transportation Division - the National Movement Coordination Centre;
2. regional transports - planned for transportation on the area of one Regional Logistic Base; the planning bodies for these transports are the competent units of the Regional Logistics Bases for transport and movement of troops.

Transport of troops by rail is carried out in a separate train if the gross weight is 800 tons or more or if the number of axles of the used wagons is at least 60. The maximum mass of the military train depends on the technical and operational conditions of the railway lines on the transport route. In special cases, the train may be smaller. The total mass of the military equipment, cargo and personnel intended for transport is calculated by the planning body - the military unit. The length of the military train should not exceed 600 m (with the locomotive) (Puszkiewicz, 2018, pp. 1097-1105). When determining the number of wagons intended for transport of vehicles, it is necessary to take into account the required minimum distance between the vehicles placed on one platform. It is not less than 100 mm for caterpillar-tracked vehicles and not less than 50 mm for wheeled vehicles. It should also be emphasised that in fact, the army does not have its own rolling stock, so the costs of military transport depend on the applicable carrier rates for rail transport (Nyszk *et al.*, 2015, p. 40). Full-train military operational transports and supplies are launched according to specially developed timetables. Military equipment and supplies are transported by means of military operational transports and military supply transports. In this regard, planning of transport should take into account availability of the entity and transport infrastructure, travel times, loading, unloading and waiting times at home bases, destinations and transfer points, which affect the time of arrival of the unit to the destination (Akgun and Tansel, 2007, pp. 1158-1176).

Pursuant to the Rail Transport Act of 28 March 2003, a railway carrier is an entrepreneur authorised under a license to perform rail transports or to provide traction service or an entity performing transports on a narrow-gauge railway infrastructure (*Ustawa z 28 marca 2003*, 2003). In the country, freight rail transport for the army is the domain of PKP Cargo. The company has the status of an enterprise with special economic and defence significance, yet it has no exclusive right to provide transport services for the army. Importance of this company for freight transports for the army is demonstrated by the fact that in February 2017 PKP Cargo informed the public that since the beginning of January it had performed over 60 military transports for the US Army, of which 40 transports had been performed from Germany and over 20 on the routes to Germany, Romania, Bulgaria and the Baltic States. The US Army used the military equipment unloading/loading service inter alia with the use of heavy cranes with lifting capacity of 100 and 200 tons. PKP Cargo performed also transshipments and deliveries/pickups of containers for the US Army.

5. Transports of Soldiers by Rail - Own Research

Military transports of soldiers are currently performed by carriers belonging to PKP Group. In the field of transports of soldiers, these tasks are carried out by PKP Intercity and PKP Szybka Kolej Miejska w Trójmieście Sp. z o.o. in Gdynia, which operates only in Pomeranian Voivodeship. Performance of transports for the army by these enterprises has legal grounds. One of the key documents in this respect is the Act on Organisation of Tasks for State Defence Performed by Entrepreneurs of 23 August 2001. The legislator specified therein the principles for organisation of tasks for the defence of the state performed by selected entrepreneurs and government administration bodies supervising their performance as well as the rules for their financing (*Ustawa z 23 sierpnia 2001, 2001*).

According to the Act, an entrepreneur with special economic and defence significance is an entrepreneur who performs tasks for the defence of the state in the following five areas: mobilisation of economy, militarisation, operational planning, defence training and the one resulting from the obligations of the host state, assuming that the area of activity of this enterprise is an area larger than one voivodeship, or the subject of business activity of which is inter alia: operation of airports and seaports, distribution, transport, postal services (*Ustawa z 23 sierpnia 2001, 2001*). On the basis of this Act, a list of entrepreneurs with special economic and defence significance was established, adopted by means of the Regulation of the Cabinet on 06 November 2017, which specifies 27 entities (including only two railway carriers) from the field of public administration, for which the body organising and supervising performance of the tasks for the defence of the state is the minister competent for transport.

In 2018, there were in total 17 carriers performing passenger transports by rail under the license issued by the President of Rail Transport Office in Poland. These types of transports are performed by the entities belonging to PKP Group (2 entities) and by private carriers (15 entities). The carrier performing passenger transports on the domestic and international arena is PKP Intercity, which in 2018 in terms of the performed transport work was unquestionably on the top position on the market of passenger transport services with the result of 52.72%, which is due to its dominance in long-distance traffic.

However, from the perspective of the number of the transported passengers, the share in the same year was on the level of 14.87%, thus ranking third on the market. The second carrier that also belongs to this Group is PKP Szybka Kolej Miejska w Trójmieście Sp. z o. o., which performs regional rail passenger transports on the area of agglomeration of Gdańsk. In 2018, this entity had the share in the number of the transported passengers on the level of 13.61% among all carriers in Poland and performed transport work on the level of 4.66% (*Passenger rail, 2019*), which placed it fourth on the market of rail passenger transport services in our country.

Among the other 15 carriers which do not belong to PKP Group, in terms of the number of the transported passengers, Przewozy Regionalne Sp. z o.o. with 26.17% share and transport work on the level of 19.97% in 2018 is first. Koleje Mazowieckie - KM Sp. z o.o. with the result of 19.24% and transport work on the level of 10.00% was the carrier that ranked second in the field of the number of passengers transported last year. The other carriers achieved results below 10% in terms of the number of the transported passengers and less than 2% in transport work.

At present, in accordance with the accepted Border Crossing and Freedom of Movement (BCFOM) procedures, the Armed Forces of the Republic of Poland should maintain the ability to move the forces and resources strategically as well as the security measures for the Reception, Staging and Onward Movement (RSOM) process, freedom of crossing borders and movements through the territory of the Alliance countries (Jałowiec *et al.*, 2019, pp. 120–126). In response to the emerging challenges faced by the Polish Armed Forces, it seems that capabilities in the field of movement of soldiers on the Polish territory should be developed.

The Polish Armed Forces perform transport tasks on a commercial basis, signing a contract on their performance with the rail carrier. This applies both to freight transports and to passenger transports. The entity responsible for planning and coordination of the tasks related to the movement of own and foreign troops through the territory of the Republic of Poland is the Movement & Transportation Division - the National Movement Coordination Centre. It should be emphasised that this entity develops rules and procedures for movement of troops and cargo as well as coordinates acquisition of means of transport for military transport in cooperation with civilian carriers (Jałowiec *et al.*, 2019, pp. 120-126).

In order to implement this project and in response to the research problem raised in the introduction of the study, pilot empirical research was carried out using the diagnostic survey method, expert interview technique. Due to the narrow topic of the research, it was carried out in the internal function of the Movement & Transportation Division - the National Movement Coordination Centre, competent to develop draft legal provisions in the field of securing of the transport needs of the troops and coordinate military transports, including transshipment processes, with comprehensive use *inter alia* of rail transport. The criterion for selection of the experts was their professional experience, thus the research was carried out with five experts professionally related to the topic from 01 August to 31 August 2019. It should be noted that one-time authorisation No. 36/2019 to conduct social research in the Ministry of National Defence issued by the Operational Centre of the Minister of National Defence was obtained for the research. Due to the complexity of the raised topic, the developed research tool consisted of four homogeneous questions which related to the set research problem, namely:

1. *Do you think that rail transport should be used to a greater extent for transport of soldiers (e.g. for trainings and training ground exercises)? Please justify your answer.*
2. *How do you assess previous performance of the tasks related to transport of soldiers by rail carriers?*
3. *Do you think it is justified to involve carriers from outside of PKP Group in performance of transport of soldiers? Please justify your answer.*
4. *What barriers of the use of carriers from outside of PKP Group for performance of transport of soldiers do you see?*

Such wording of the questions allowed to obtain cross-sectional opinions on the possibilities of organisation of railway transports in the army. Attention was paid to correlation of transport needs with intensity of military exercises, their character and distance travelled by the exercising military unit. In 2018, 8,134 soldiers of the Polish Armed Forces and 331 soldiers of the allied troops were transported by rail, while by July 2019 there were respectively 3,438 and 880 such transports. This means an upward trend in case of allied troops through our territory. Generalising the obtained research results, the following conclusions can be made:

- transports of soldiers for training ground exercises are performed as needed by the military units and are usually performed without reservations. Only a few cases were noted in the year when PKP Intercity did not separate passenger wagons (included in trains with equipment) due to their involvement in performance of other transport tasks resulting from the increased demand for passenger transports during summer or winter holidays or in the period of Christmas or Easter. Involvement of carriers from outside of PKP Group in performance of the abovementioned transports would increase the possibilities of use of the rolling stock and accessibility to it;
- one of the most important criteria for selection of a carrier for performance of military transports is the cost of transport, thus the use of entities from outside of PKP Group will be justified provided that the quality of service is adequate and the transport offer is competitive to the one of PKP Intercity. In addition, it is more justified for operational reasons to move the troops over a distance below 200 km with the use of road transport, which is associated with ensuring of greater mobility and availability of own resources. Low speed of operational rail transports is also a drawback, as it is difficult for them to compete with road transport;
- the experience of the recent years indicates specific organisational problems related to the commercial nature of the legal owners of the rolling stock. There is therefore a need to build specific transport capabilities with the use of the acquired military assets. This raises the need to purchase railway platforms for transport of heavy military equipment and specialist wagons for transport of soldiers. It is also important to improve the standard of transport of soldiers;
- the advantage of performance of transport of soldiers by rail is acquisition of new experience in organisational matters, including also the experience connected

with securing of such transport (duties, transport protection). Safety of the transports is also important.

The main barriers that have been articulated by the experts include rolling stock deficiencies in the field of suitable wagons for transport of military equipment and passenger wagons with integral heating and lighting. Currently, standard railway wagons are used for performance of the tasks related to transport of soldiers by PKP railway carriers, which also do not meet the requirements of the Polish Armed Forces in the field of winter heating, water supply and nutrition organisation. In addition, attention was drawn to possible shortages in the adequate number of the means of transport to secure the services of the soldiers for the needs of the Polish Armed Forces. This is due to the fact that currently there are 20 strictly-defined passenger wagons at the disposal of the army, which are used commercially by the carrier, PKP Intercity S.A., to perform the scheduled passenger transports. They are located throughout the country or abroad. Thus, quick compilation of the train being at the disposal of the army is difficult in practice.

5. Acquisition of Own Railway Transport Capacities by the Polish Armed Forces

Due to lack of platform wagons for transport of heavy military equipment weighing over 60 tons in PKP companies and restrictions in protection of passenger wagons, the Polish Armed Forces reported in 2017 the need to acquire 70 platform wagons with the load capacity of up to 70 tons and 6 passenger wagons as well as 2 wagons for guards and convoys. The changes planned at that time were aimed at implementation of the decisions of the NATO summit in Warsaw in the area of ensuring of the ability to transfer high-readiness forces by land transport. The reported needs to obtain the abovementioned new-type wagons were intended to significantly supplement the occurring deficiencies and improve the operational capabilities of the Polish Armed Forces in the field of rail transport. Especially in the aspect of the possibility of a rapid transfer of NATO and EU Combat Groups and VJTF Forces equipped in heavy military equipment, e.g. tanks. Improvement of the standard of transport of soldiers is also significant.

However, the tender announced on 17 November 2017 by PKP Intercity S.A. for purchase of 6 wagons for transport of soldiers and 2 special wagons for the transport of guards and convoys was cancelled on 14 February 2018 due to the fact that no bids had been submitted. Nevertheless, PKP Intercity finally managed to order the delivery of six special second-class non-compartment wagons for transport of soldiers and two special second-class compartment wagons for transport of convoys. On 05 June 2019, PKP Intercity S.A. announced signing of the contract with H. Cegielski - Fabryka Pojazdów Szynowych Sp. z o. o. on production and delivery of batches of special passenger wagons used for transport of people for the needs of the Armed Forces. As it was informed by the company in the Essential Terms of Contract, they have to meet all applicable national requirements for operation of

each of the wagons on the networks of the following countries: Czech Republic, Slovakia, Hungary and Romania. All of them are to be delivered by 01 December 2021, while three non-compartment wagons and one compartment wagon are to be handed over by 01 December 2020. The wagons are to be used for transport of about 500 people with weapons and equipment. Nevertheless, it is worth noting that the bid of H. Cegielski - Fabryka Pojazdów Szynowych exceeds the amount that the contracting authority intended to spend on realisation of the procurement for eight wagons. It is so due to the fact that it clearly results from the information relating to opening of the bids that PKP Intercity indicated the gross amount of PLN 82.533 million. On the other hand, the price included in the bid is over PLN 104.7 million gross. The decision to continue the proceedings means that the difference of PLN 22.2 million will be covered from the funds of the State Treasury.

6. Conclusions

Nowadays, significance and importance of railway as a means of transport, both in passenger transports and in freight transports, has been noticed in Poland. This was reflected in the National Railway Programme. It is a multi-year strategic programme covering investments on railway lines, which includes over 230 railway investment projects worth almost PLN 76 billion. This document implements the strategies adopted by the Cabinet, including the 'National Development Strategy 2020' and the 'Transport Development Strategy until 2020 (with a perspective up to 2030)'. This strategy assumes significant improvement in rail traffic in agglomerations, enhancement of the standard of travelling on regional routes and improvement of the conditions for transport of goods. The attractiveness of railway will be strengthened by a coherent rail network with higher speeds, ensuring shorter travels in all regions, in interregional traffic and competitive freight transports, inter alia connecting Silesia with the ports of the Tri-City, Szczecin and Świnoujście.

This development will undoubtedly improve economic situation of the country, will strengthen the national and European social cohesion of the Poles and will undoubtedly contribute to improvement of competitiveness of the domestic economy.

The fact that more developed rail transport will entail higher level of national defence, also by increasing the level of operational capabilities of the Polish Armed Forces and of the allied troops staying on or moving through the territory of the country, is important as well. Military decision makers also recognise these opportunities. Already today, investments financed from the budget of the Ministry of National Defence, involving revitalisation of railway infrastructure, including sections that were previously out of service, are being implemented. An example of these activities may be reconstruction of the section connecting Jankowa Żagańska with Sanice - places of defensive significance, located at the German border, for which funds in the amount of over PLN 1.7 million were designated. The investment plans also include reconstruction of Ławszowa - Żagań section, which was excluded

from service in 2004, and restoration of freight traffic on the railway line from Złocień to Kalisz Pomorski and Drawno.

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