THE MILITARY TRANSPORT CHALLENGES IN LIGHT OF THE NATO ,,FREEDOM OF MOVEMENT'' POLICY ON THE EXAMPLE OF POLAND

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Abstract

The main purpose of this paper is to analyze and evaluate logistics capabilities of Poland as a Host Nation Country (HNS) with special regard to the military transport. Security challenges of a contemporary world require new NATO strategy especially in the area of strategic and tactical deployment. Fast movement of troops and equipment within Central and Eastern Europe during peacetime depends on many factors. Effective transport infrastructure belongs to the one of the most important element. Rising number of military trainings and exercises like Dragoon Ride, Sabre Strike or Atlantic Resolve in countries such as Poland, Hungary, Romania, Bulgaria, Lithuania, Latvia and Estonia shows the real level of NATO armed forces capabilities in such particular areas like military mobility and logistics. Based on the official reports and data collected there is a visible difference between the rail, road, sea and air infrastructure standards and condition in the western and eastern part of Europe. What is more, units coming from U.S. or Canada are not familiar with transport standards and procedures in Eastern Flank countries. Identification of all existing barriers to deployment of troops and heavy equipment require better cooperation between military and civilian agencies.

Experiences of Polish Armed Forces collected, shows many disadvantages of existing logistics system - especially in the area of land transport organization and procedures. The article presents the results of the research on the NATO Freedom of Movement policy implementation in Poland carried out by the author in 2015-2018. It is based on the analysis of post mission reports and statistics and is the effect of observing phenomena occurring mainly in the field of transport and transshipment services.

Keywords: Military mobility, transport, military transport, Freedom of Movement, logistics

1. INTRODUCTION

Military mobility is often defined as the movement of troops and equipment within and across national borders. Ability of forces to quickly move personnel and heavy military equipment over a long distance often determines the success of all mission. Modern military operations, due to their scale, range and tempo, require access to appropriate transport fleet and developed rail, road, air and sea infrastructure. Freedom of movement in the context of contemporary threats resulting Russia's aggressive policy is a major challenge for NATO's armed forces in Europe. It depends not only on the level of training and skills of military personnel and implemented procedures but also on transport infrastructure quality and condition. The availability of an adequate number of proper means of transport, in particular railway platforms and lowloader semi-trailers for carrying heavy military equipment is as important as the technical parameters of roads and the capacity of cargo points.The disparities that occur in this area between NATO member states, especially in relation to Eastern Flank countries, are a significant problem. Lessons learned from past and ongoing deployments carried out on the territory of Poland and the Baltic States help to identify and resolve many problems related to the military logistics system organisation. The rapid and swift movement of military personnel and equipment across the EU is currently hampered by a number of physical, legal and regulatory barriers, such as infrastructure that cannot support the weight of military vehicle or the cumbersome customs and other procedures. As experienced during recent major military exercises, such barriers can lead to delays, disruption, higher costs and increased vulnerability [1].

During the Cold War, ensuring the mobility of troops and equipment was a priority and was constantly reviewed during frequent exercises. Cold War infrastructure included readiness for support, command and control, as well as for destruction, denial, and diversion. It also incorporated multi-layered communication lines, hardened storage for ammunition and fuel, and a central and northern European pipeline to bring fuel to forward operating bases [2]. As NATO moved it borders further east attention to infrastructure and connectivity with e new members did not follow [3].

Cooperation between UE and NATO structures in such impotrant areas like common security and defence lead to the establishment of Permanent Structured Cooperation - PESCO in late 2017. On March 3, 2018, the EU Council of Ministers formally adopted a first set of 17 projects, each of them led by one Member State and carried forward by varying groups of participating and observing countries. Military Mobility lead by Netherlands is one of them. This project will support Member's States commitment to simplify and standarise cross-border military transport procedures [4].

2. NATO MILITARY PRESENCE IN CENTRAL AND EASTERN EUROPE

The current political situation has caused the necessity of rebuilding former military power in Europe, as evidenced by the decisions taken during the last NATO summits (Wales, Warsaw, Brussels). One of the most important security initiatives was creation of the NATO Very High Readiness Joint Task Forces (VHRJTF) which are a part of NATO Responce Forces (NRF) and setting up two new military commands responsible for logistics support and movement. First of them, called Joint Support and Enabling Command (JSEC) located in German city of Ulm, and the second, an Atlantic Command in Norfolk responsible for sea transport security.

Another important decision taken in this field was rotational presence of U.S. Armored Brigade Combat Team (ABCT) and Combat Aviation Brigade (CAB) in Central and Eastern Europe. On June 3, 2014, in Warsaw, President of the United States Barack Obama proposed the European Reassurance Initiative (ERI) as a means to assure NATO Allies and partners of the U.S's commitment to the security and territorial integrity of NATO. ERI funds enable Operation Atlantic Resolve (OAR), which ensures U.S. European Command has ready a persistent rotational presence of American air, land and sea forces in the region as a show of support to Allies and in response to Russia's actions in the Ukraine [5]. Since 2014, american forces have been involved in OAR, participating in many exercises and trainings with allies and partners during nine-month rotation. Typical ABCT rotation consists of approximately 3 500 soldiers, organized in seven battalions: three combined arms, one cavalry (reconnaissance), one artillery, one engineer and one brigade support battalion. Taking into concideration last three rotations of ABCT to Poland it includes 87 M1A2 tanks, 144 M2A3 Bradley Fighting Vehicles, 18 M109A6 Paladin self-propelled artillery, 450 tracked vehicles, 900 wheeled vehicles and 650 trailers. ERI budget at the level of around $ 4 billion per year funds the deployment of forces with equipment to and from Europe, training, fuel, and sustainment costs while deployed.

Poland due tu its geographical location plays an important role in NATO both as a transit country and host nation for NATO commands and military infrastructure, such as: ABCT elements, Combat Aviation Brigade in Powidz, Mission Command Element in Poznań, Missile Defence Facility in Redzikowo, Battlegroup led by United States in Orzysz or NATO Force Integration Unit in Bydgoszcz.

Analyzing the last 3 years there is a visible increase in the number of foreign forces military transports by road. Based on the data collected from Polish National Movement Co-ordination Centre in Warsaw (PLNMCC) the number of Movement Credits issued for foreign columns crossing the Polish borders was: 407 in 2013, 477 in 2014, 854 in 2015, 930 in 2016 and 1225 in 2017. Observing present year the number of road clearences for movement will be bigger.

3. THE ROLE AND IMPACT OF POLISH ROAD INFRASTRUCTURE IN LIGHT ON MILITARY NEEDS

The present condition of Poland's transport infrastructure and organisation results from the earlier participation in the Eastern Block. The dominant role of the USSR and the military strategy of the Warsaw Pact led to the

development of mass rail transport both in the civilian and military sector. The role of road transport was limited to auxiliary functions. The results of such policy are also visible today.

Exsisting road network is improperly distributed and its density is 3-4 times lower than in Western Europe [6]. A significant part of the road surface (nearly 50 %) is not adapted to the UE load requirements 11.5 tons per axle. Polish regulations are consistent with European law in this regard, especially with Directive 96/53 [7]. According to the available data, the total length of public roads at the end of 2017 amounted to 422.3 thousand kilometres, of which hard surface roads accounted for 71 % and unsurfaced roads - 29 %. The total density of hard surface roads amounted to 95.8 km per 100 km² at the end of 2017. The length of motorways remained stable and amounted to 1634 km in 2017. It means that the length of motorways amounted to 5 km per 1000 km² of area of Poland and 4 km per 100 thousand inhabitants. In spite of the significant increase in previous years, this is one of the lowest indicators in European Union countries (in 2015, the average for 28 EU-countries amounted to 17 km and 15 km respectively). The length of expressways (single and dual carriageway) increased by 234 km in comparison with 2016 and amounted to 1768 km at the end of 2017 [8].

Deployment of military units equipped with heavy tanks and artillery especially by road due to their size and weight requires appropriate intrastructure. The main obstacles in ,,nonnormative‘‘ transport by roads are: bridges, overpass, technical condition of the road surface, roundabout without possibility to travel straight ahead, the small values of radius of curves and bends of the roads, the breadth of the roads, objects situated directly by the road or in the communication row, inadequate road standard against the axle load requirements (max. 11.5 t/axle), traction, power or telephone lanes crossing the road above, carried out repairs of roads etc. [9].

The current number of bridge structures in Poland is over 35 000 (detailed classification of bridges is shown in **Table 1**). Based on the official data from the General Directorate for National Roads and Motorways (GDDKiA pol.) arround 300 bridges are built annualy.

Table 1 Number of bridges in Poland by road category - based on [10]

Type of road	Number of bridges
National roads	7 609
Regional roads	3 862
District roads	11 739
Local roads	11 833
Total	35 043

In accordance with NATO road standards (STANAG 2021 - Military load classification of bridges, ferries, rafts and vehicles and STANAG 2010 - Military load classification markings) every member country is responsible for classification and marking of own bridges and roads using standard Military Load Classification (MLC) system for military puproses. According to the definition included in the AAP6 MLC has been defined therein as "a standard system in which a route, bridge or raft is assigned class number representing the load it can carry. Vehicles are also assigned number indicating the minimum class of route, bridge or raft they are authorized to use" [11].

In Poland this task was delegated to the GDDKiA in 1996. According to the present military requirements every new bridge must meet the requirements for MLC 150. For comparison the MLC number for Leopard 2A5 tank is 70.

Big challange for mechanized units is crossing the rivers due to the bearing capacity of bridges especially within lower categories of roads. Diversity of heavy equipment in NATO armies is another obstacle for military planners and logisticians responsible for movement. Taking into consideration tanks only there are several

types and versions in use with different parameters and weight (**Table 2**).Thanks to the cooperation between the Polish Ministry of Defence (MoD) and GDDKiA a special map of pre-designed routes for oversized military vehicles movement planning has been developed. This very useful tool was sent to the all Military Transportation Commands responsible for movement control and planning.

Table 2 Main NATO tanks comparison [own study]

Type of tank	Weight (t)	Length (m)	Width (m)	Height (m)
M1A2 SEP	63	9.77	3.70	2.44
CHALLENGER 2	62.5-74.95	11.55	3.52	2.50
LECLERC AMX-56	54.5-62.0	9.87	3.71	2.46
C-1 ARIETE	54.0	9.52	3.42	2.45
L2A4	55.4	9.67	3.77	2.64
L2A5	55.4	9.67	3.77-4.00	2.64
L2A6	62.4	10.97	3.77	2.64
L2A7+	67.5	10.97	3.77	2.64
M-84D	48.5	9.53	3.72	2.19
PT-91	45.9	10.3	3.72	2.19
T-72	41.0	9.53	3.72	2.19

The Polish Armed Forces with its arround 700 tanks forming eleven battalions (excluding reserve) does not have an apropriate number of lowloader semi-trailers to support own needs. In 2002-2016 Poland has acquired 142 x L2A4 and 105 x L2A5 tanks as well as many logistics support vehicles including 6 x FAUN SLT 50-2 with KASSBOHRER trailers from the stocks of Bundeswehr [12]. Exploitation of different types of tanks such as: Leopard 2A4, Leopard 2A5, PT-91 Twardy and T-72 causes a lot of problems in the area of logistics. What is more own assets fleet of heavy equipment transporters in total number of 65 vehicles from two equipment evacuation battalions mainly (59 x Iveco EuroTrakker MP720E48WT/MP720T50WT and 6 x SLT 50-2 FAUN ELEFANT) is intended for medium size tanks transport only. Due to the limited carrying capacity (max. 60 t.) and their construction, such logistics fleet can not transport many types of NATO heavy tanks such as: Abrams M1A2, CHALLENGER 2 or LECLERC AMX-56.

On the other hand US Army M 1070 8x8 Oshkosh Heavy Equipment Transporter (HET) with M1000 trailer carrying M1A2 tanks exceeds the maximum weight capacity in EU. The use of US HET Systems is restricted in countries like Germany and Poland. To resolve this problem US Army in Europe in many cases is forced to employ civilian contractors. Another solution is outsourcing of british version UK 1070 F HET with seven axles trailer and steering wheel on the right side.

The shortage of sufficient number of logistics road transport fleet require movement of heavy equipment by rail. Such solution is very often recommended during present military deployments. Taking into concideration onward rail transport from the territory of Poland to the Baltic states railway gauge difference is one of the biggest logistics problems. Transition from the standard rail gauge (1,435 mm) popular in Europe to the broad gauge (1,525 mm) dominant in Russia and their former republics require special rail cars and equipment.

4. CONCLUSION

General tendency to reduce military presence in Europe after the end of the Cold War led to the many of today's logistics problems. Rebuilding former military strength and effectiveness in the area of military mobility in Central and Eastern Europe is an expensive and time consuming process.

According to the case study presented despite of all steps taken by both military commands and civilian institutions there is a still room for improvements in the area of transport system optimizing. An example is the fact that the following issues are unresolved:

- Improvement of existing transport fleet including lowloader semi-trailers by purchasing new vehicles with capacity minimum 70 tons;
- Replacing old vehicles in movement control teams by newer types;
- Acquisition of new rail cars for heavy tanks transport with capacity minimum 90 tons;
- Purchasing of new mobile rail ramps;
- Modernization of road infrastructure;
- Digitization of road maps and transport data;
- Development of existing military electronic cargo tracking system ,,SI KONWÓJ'' and better data interchange between transportation structures and military units;
- Further standarization and unification of transport equipment and procedures in NATO;
- Establishing so called ,,Military Schengen Zone'' for improvement of military movement within EU;
- Rationalization of transport fleet management among NATO members.

Constant cooperation with allied forces during real trainings and exercises gives opportunity to evaluate own military structures and capabilities. Concerning planning, coordination and monitoring of military movement across the territory of country it should be emphasized that all activities of Polish National Movement Coordination Centre in the field of logistics support for NATO structures and commands are perceived very positively. Thanks to the close cooperation with allies and lessons learned from international exercises and trainings Poland is reliable partner and Host Nation Support services provider. In spite of the poor quality of transport infrastructure especially in the north-eastern part of country thanks to the proper coordination and cooperation with civilian partners all transport tasks are carried out without disruptions.

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