SAFETY OF RAILWAY TRAFFIC AT THE POLISH STATE RAILWAYS PLK S.A. NETWORK BY THE SUPREME AUDIT OFFICE (THE "NIK") REPORT

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ABSTRACT

The subject of the paper is the condition of railway traffic safety in Poland. Selected problems of railway traffic safety based on Information about control results by Poland The Supreme Audit Office (the NIK). The NIK document about the results of the control was confirmed on the 6. November 2013 at the www.nik.gov.pl. Selected fragments of NIK report were analyzed in this paper. The cases which are discussed: condition of railway traffic safety in Poland as against to the others countries of European Union, the aim of control, the concerns and institutions inspected and opinion range, important control results.

Key words: Railway traffic safety, Polish State Railways PKP PLK SA.

STRESZCZENIE

Tematem referatu jest stan bezpieczeństwa ruchu kolejowego w Polsce. Przedstawiono wybrane problemy bezpieczeństwa ruchu kolejowego na podstawie informacji o wynikach kontroli przeprowadzonej przez Najwyższą Izbę Kontroli (NIK) Rzeczpospolitej Polskiej (PL). Przedstawiono wybrane fragmenty Dokumentu NIK. Są to między innymi: stan bezpieczeństwa ruchu kolejowego w Polsce na tle innych krajów Europy, cel kontroli, firmy i instytucje poddane kontroli oraz zakres oceny, ważniejsze wyniki kontroli. Omówienie rezultatów kontroli dotyczy między innymi implementacji dyrektyw Unii Europejskiej, działalności Polskich Kolei Państwowych w zakresie bezpieczeństwa ruchu kolejowego, działalności przewoźników w zakresie bezpieczeństwa ruchu kolejowego.

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Słowa kluczowe: Bezpieczeństwo ruchu kolejowego, Najwyższa Izba Kontroli, PKP PLK SA.

1 GENERAL NOTES. STATE OF RAILWAY SAFETY IN POLAND COMPARED TO OTHER EUROPEAN COUNTRIES

Paper shows the selected traffic safety problems in Poland, on the basis of the information about the results of the report carried out by The Supreme Audit Office (the NIK) [1]. Safety in railway transport is determined by three main groups of factors: technical, legal and human resources. Technical factors relate to railway infrastructure (condition: road, rail traffic control systems, power supply systems and rolling stock). Legal determinants are associated with the implementation of national laws, the European, the internal instructions and procedures whose absolute adherence to minimize the risk to the railway accident. Human factors are qualifications, the competence and professional experience of railway personnel.

In a report [1] concluded that in terms of safety in rail transport Poland takes up one of the last places in Europe. According to figures published by the European Railway Agency (ERA) shows that 20% of the number of deaths on the railways in the European Union dies on the rail network in Poland. It should be noted that the Polish population represents only one 13th of the population of the EU population. To ensure the safety of railway traffic (BRK) are obliged in accordance with the the provisions of the law on rail transport [4]: managers of the railway infrastructure (the most important is the company PKP PLK S.A.), railway.

The provisions of the Act [4] also impose appropriate obligations in ensuring BRK on government administration bodies, which include: the proper minister of transport, The President Of The Office Of Rail Transport (UTK)

2 PURPOSE AND SCOPE OF THE AUDIT, THE ORGANIZATION AND CONTROLLED ENTITIES (INSTITUTIONS) [1]

The objective of the audit was to assess the performance of the tasks by the below listed entities, responsible for the safety of rail traffic, government authorities and the railway undertakings [1]:

- Ministry of transport, construction and maritime economy (nowadays Ministry of Infrastructure and Development),
- The Office Of Rail Transport (UTK),
- Pkp Polish Railway Lines SA,
- Pkp Intercity S.a.,
- Pkp Cargo SA,
- Przewozy Regionalne SP. z o.o. in Warsaw, Poland.

The scope of the control represented as follows: supervision by the President of the UTK on the safety of rail traffic, status of implementation by the railway companies of the safety management system (SMS-Safety Management System), including certificates and security authorization, the status of the implementation of the EU directives concerning the safety of railway traffic, supervision by the Minister

of transport on the implementation of statutory tasks by the President of the UTK, including tasks for implementing interoperability of the railway systems.

Control was conducted in terms of the legality, reliability, economy and expediency, in accordance with the Act on the NIK [5]. Inspection arrangements are implemented in during the 11.07.2012 - 4.03.2013, the Research covered the period 2011-2012. The audit was undertaken at the initiative of the NIK and had an ad hoc character.

Traffic safety problems were not subject to control from the start time PKP restructuring since the late 1990s. Selection of railway units controlled according to the criteria of weight has been associated with factors affecting BRK.

To this were inspected: the railway infrastructure manager, IE. PKP PLK SA in view of the responsibility for the State of technical tracks and accompanying objects and due to run on railways and transport work, traffic intensity carriers, due to the work carried out in the passenger traffic and freight traffic.

3 LEGAL CONDITIONS

The process of creating a system of supervision over the safety of rail transport in Poland is a constant, which modify the results from emerging following the rules of EU law and problems arising from daily practice. List of legal acts (the Act on rail transport, the Regulation of the Minister, EU directives, instructions, and others), relating to the controlled activities set out in annex 5.7 to NIK Report [1]. While a detailed analysis of the legal situation with regard to BRK includes an annex 5.8 to NIK Report.

In the annex the detailed package of EU directives concerning rail transport, adopted in 2001 by the European Parliament and the Council of Europe [1]. These provisions set out a solution regarding the functioning of the system of railways in the EU. EU member countries were required to implement this package within March 2003.

The basic document defining the requirements of European law in the field of the safety of rail traffic is a directive of the European Parliament and of the Council of the EU on the security of the community's railways [3]. The requirements of that directive have been put into the law on rail transport and implemented on 11.09.2006. The task of the Office of Rail Transport, the resulting implementation is the issue of authorization, security and safety certificates. The railway infrastructure in Poland manages the 9 institutions. With reference to 31.12.2012 (Source: UTK), the company PKP PLK SA manages 93.2% of the total length of the railway network in Poland. Among the other managers is PKP Line Hutniczo-Sulphureum (PKP LHS) participation of 1,91%.

4 THE RESULTS OF THE CONTROL
4.1 THE SAFETY LEVEL OF RAIL TRAFFIC [1]

The main traffic safety assessment determinants are railway accidents, the results of the analysis of their causes and consequences and risks. The number of railway accidents is a derivative of, among others: the size of the services performed, the intensity of rail traffic, the condition of the used network of railway lines, the condition of railway vehicles. Taking into account the work of the operational network, PKP PLK SA, among the 20 EU countries (with the largest length of railway lines) reported the highest number of significant accidents in total, and the highest number of victims of these accidents.

The overall level of security rail is a measure of the accidents factors m_w and m_{cw} . The meter m_w measures the severity of the number of accidents per 1 million kilometers. This indicator in some EU countries reported a value:

- in in the period 2006-2010:
  - 2,3 in Poland,
  - 3,9 in Romania
  - 0,3 in Germany;
- in 2011:
  - 2,1 in Poland,
  - 2,5 in Romania,
  - 0,3 in Germany.

Accidents on the number of accidents involving people which are not the passages and outside railway crossing (in relation to the operational work) is:

- in the period 2006-2010:
  - 1,8 Poland event,
  - 2,6 in Romania
  - 0,2 in Germany;
- in 2011:
  - 1.6 in Poland,
  - 1.8 in Romania,
  - 0.2 in Germany.

Since 2006, Poland ranks first place among the 20 EU countries, in terms of the number of major accidents, expressed by the EU Commission as measure of accident victims FWSI, in relation to the operational work. A measure of the FWSI classifies killed as the weight of 1,0, badly injured as the weight of 0,1. According to the indicator, for each FWSI per 1 million kilometers have been recorded in the period 2006-2010: in Poland about 2,5 accident victims, in Romania, 1,6, in German 0,2.

Rated by NIK [1] low levels of road safety in Poland is effect of multiple reasons. The most important are: low technical quality of infrastructure: decking, switches, control devices movement (SRK), the unsatisfactory technical condition of the rolling stock (wagons, traction vehicles), the shortcomings in the qualification of the staff to be responsible for the safety of traffic, inadequate supervision of infrastructure managers and transport companies on the implementation of the internal regulations, resulting from the safety management system (SMS) and non-compliance with the procedures in force in this respect. Above reasons have resulted in numerous

accidents and events, where the number of over the years 2006-2012 developed as follows (source: IBR PKP PLK SA):

- the total number of accidents on the network PKP PLK SA: 888 in 2006, 684 in 2012,
- the number of accidents for the company PKP PLK SA: 108 in 2006, 99 in 2012.

4.2 ACTIVITIES OF THE PROPER MINISTER OF TRANSPORT IN THE RANGE OF THE THE SAFETY OF RAILWAY TRAFFIC [1]

The Supreme Audit Office found a delay in the implementation of the provisions of the EU directives, (in connection with BRK), to the provisions of national law. Specific drawback was the lack of implement Commission directive of the EU. 1.03.2011 concerning railway interoperability [2]. These delays create a threat for BRK.

From the findings of the review, it appears that the supervision of the proper Minister of transport and the activities of the President of the UTK was not sufficient. The Minister did not take actions which are addressing to be transmitted by the President of the UTK documents on "evaluation of the functioning of the market for rail transport and traffic safety".

4.3 THE ACTIVITIES OF THE PRESIDENT OF THE RAIL TRAFFIC SAFETY (UTK) [1]

It was found among other things, the wrong personnel policy at UTK, which led to the weakening of the institutional performance of the Office. Employment has proved to be inadequate to the scope and quantity of tasks. President of the UTK, releasing Basic for BRK certificates, authorisations or safety certificates, de facto, only under the terms of the formal documentation submitted by the railway operators. The president did not try to control involving the checking of the integrity and reliability of the information contained in this documentation. President of the UTK, supervising activities of PKP PLK S.A., did not take effective action to eliminate the long-term (in two cases even over a 10 years) application of the replacement signals (SZ) in the conduct of train movement.

4.4 THE COMPANY PKP PLK S.A. IN THE RANGE OF THE SAFETY OF RAILWAY TRAFFIC (UTK) [1]

It was found unsatisfactory technical condition of a substantial part of the railway infrastructure as a result of the shortage of own funds of the company PKP PLK SA (as Governor) for investment and current maintenance of the infrastructure and the delays in the implementation of the investment, financed with EU funds. The irregularities mainly affect the condition of the tracks, junctions and traffic control devices (SRK), which is a direct threat to the traffic.

In 2012 in a good condition was 43% tracks, 65.6% turnouts, 33.3% of auto-liner lock, 34.7% of the traffic safety equipment on rail crossings-road and 8.2% lock devices.

In annex 5.4 to report [1] NIK gives an assessment of the condition of the railway infrastructure, which was made on the basis of the criteria in force at the company PKP PLK SA:

- good : is only required maintenance, no speed limits,
- sufficient: essential elements of the exchange surface up to 30%, the introduction of speed limit driving,
- poor: need to exchange complex, a large number of speed limits drive,
- bad: speed v = 0 km/h

The following is a change in the condition of the railway infrastructure, managed by PKP PLK SA over the years 2010-2012:

good:	2010 → 36%,	2011 → 40%,	2012 → 43%
sufficient:	2010 → 35%,	2011 → 32%,	2012 → 30%,
poor:	2010 → 29%,	2011 → 28%,	2012 → 23%,
bad:	2010 → no data,	2011 → no data	2012 → 4%.

The most common irregularities, dropping condition of pavement were: wear and tear of the surface and the time of their operation, exceeding of qualification.

4.5 ACTIVITY OF FREIGHTERS IN THE RANGE THE SAFETY OF RAILWAY TRAFFIC [1]

The results of the checks indicate unsatisfactory technical condition of the rolling stock, which have air carriers and inappropriate supervision of the work of the drivers. One of the main causes of accidents due to the fault of the rail carriers was the unsatisfactory state of the stock. In annex 5.5 to NIK report [1] provides detailed information about the condition of the rolling stock in operation (data at the end of 2011).

In the case of vehicles for railway passenger traffic:

- the average age of locomotives 29.3 years, including in the PKP-26.2 years,
- the average age of cars 28.8 years, electrical traction unit 27.4 years.

These vehicles do not provide the expected comfort travel.

In the field of railway vehicles for freight traffic, it has been found to significantly slow the process of exchange of rolling stock, with the consequence is the lack of process dynamics expansion of transport offers. The average age of locomotives was 32.3 years, rolling stock 27,1 years. All controlled carriers found inadequate implementation of the implementation of a safety management system (SMS) on the rail, which has helped (the fault of freighters) of railway accidents and incidents.

4.6 IMPLEMENTATION OF INTEROPERABILITY ON THE POLISH RAILWAYS [1]

In the EU, is the European rail traffic management system (ERTMS). The European Commission drew up a directive 2011/18/EU on the interoperability of the rail system within the community.

On any of the Polish railway line or corridor, including the priority for the EU the hallway E20 (Berlin-Warsaw-Moscow) have not been interoperability according to the requirements of the directive. There was also a "national plan for the implementation of the European rail traffic management system in Poland" (NPW-ERTMS), adopted by resolution of the Council of Ministers of 6.03.2007 r. Under the programme of the NPW of the ERTMS should be implemented European train control system (ETCS) and digital communication system GSM-R.

Implementation of the ERTMS system on Polish railways is of paramount importance to enhance the level of BRK, because these are the latest generation of equipment, control systems, forming a safe drive train.

5 CONCLUSIONS

The Supreme Audit Office applys 3-stage scale of assessments, for controlled units: positive, positive in spite of the shortcomings and negative. NIK assessed negatively the activities of the institutions responsible for ensuring the effective functioning of the system of traffic safety in Poland. The evaluation was justified by the importance and extent of the shortcomings, in the activities of the entities audited under BRK and effects for society and the economy arise from disasters and railway accidents. List of evaluations of units is shown in annex 5.3 to NIK Report [1].

NIK report inform about the action taken after the completion of the inspection. The conclusions was submitted to controlled institutions.

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