Multi-annual program “By Railway to the 21st Century” as key factor in the development of rail transport in Poland

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Abstract

In the paper the present conditions of rail transport RT in Poland and determinants of RT development, including high-speed rail HSR, have been discussed. The Multi-annual Program (MAP) “By railway to the 21st century” as a multifunctional system of scientific, technical and educational support for the development of RT and integrated regional transportation systems, has been presented. The importance of MAP for Poland and RT sector has been discussed. The Rail Transport Consortium (RTC) established for the implementation of MAP, its objectives and effects of MAP realization in 2020 ÷ 2030+ were described. The international and national aspects of RT development (including HSR) and implementation of the MAP, have been analyzed.

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1. Introduction

Prior experience of EU-15 countries demonstrates that good functioning of national economies is not possible without efficient inter-regional railway transport RLT. European Union is presently the place where national railways are more and more integrated, consistently converted into elements of the Trans-European RLT System.

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Poland’s railways is lagging behind the railway in EU-15, and the distance to make-up is estimated at 30 years. (Anuszczyk et al., 2012).

Rail transport is among the weaknesses of Poland’s economy. This is a strong barrier in development of society and economy on both national and regional level. Ambitious development projects for individual cities and regions, undertaken by local government, are very often competitive but inefficient without strong communication links with other cities and regions of the country. Upgrade or revitalization works on railway lines allow increase in operation speed of trains sufficient for average-class intercity connections. In practice only large metropolitan areas receive preferential treatment. Only the development of High Speed Railway System (HSRS), still absent in Poland, shall allow reaching entirely new level of RLT. One of the gravest errors in Polish rail transport policy is breaching the principle of sustainable development of road and railway transport, due to prolonged domination of interests of flue-car-road sector, having overwhelming effect of adopted transport solutions and policies. Another error, resulting from the above considerations, was abandoning the HSR project.

Form the viewpoint of national development strategy and policy in transport and economy, as well as in foreign policy, HSR cannot be construed as competition to the network of highways and expressways. HSRS is a means of public transit offering the quality not available to other means of land transport. Safety and reliability of HSR, excelling all other means of transport, allow creation of reliable and timely intercity links.

Condition precedent for qualitative change in the current situation of Poland’s RLT is restoration and acceleration of all works on Poland’s HSR, in particular on the so-called “Y Line”, complementing the upgraded CMK line. In combination with suburban railways (SR) this shall improve nationwide integration of the country's area, and in particular labour markets. (Wróbel et al., 2011). Demand for high quality rail transport in Poland is sufficiently high to justify investments. As per governmental projections concerning construction and launching of HSR by the year 2030 the volume of railway transport can increase nearly fivefold. (Raczyński, 2008).

EU plans for establishment of the uniform European Rail Transport Area strongly stimulate also the development of Poland’s HSR. Modern and efficient railway network is indispensable for country’s development and drawing benefits from its location as transit area. Abandoning of construction and implementation of modern rail transport shall cause marginalization of rail transport in Poland and marginalization of Poland in Europe.

2. The status of Poland’s railway transport RLT

2.1. Poland’s RLT and HSR from continental perspective

Formation of highly competitive trans-European RLT system means for carriers from individual Member States the need to improve both the quality and competitiveness of their transport services.

EU respects the principle of continuity in transport policy. Strategic objectives of that policy are territorial, economic and social cohesion, and improvement in global competitiveness of EU, strengthening of internal market, sustainable development of regions, improved mobility of people and goods, wellbeing and security of citizens and environmental protection (climate, reduction in CO2, contamination, etc.). Actions taken have to conform to the assumptions of Europa 2020 strategy, developed following the failure of Lisbon Strategy. The concept of Trans-European Transport Network TEN-T, comprising 9 networks for various types of transport, including the railway mode (both high-speed and conventional railways) is the vital element of this strategy. Among others, the concept of two-tier integrated network was adopted, comprising the core network (on which Community efforts should be focused, in particular cross-border sections, missing links, multimodal links and major bottlenecks), to be established by 2030, and the comprehensive (complementary) network – to be established by 2050. The core network shall ensure connections between major European hubs, while the comprehensive network shall establish communication links of each EU region with the core network. The expression of new TEN-T policy is ca. tree-fold (up to EUR 26 billion) increase in EU expenditure on transport in years 2014-2020, with financing focus on the core network. Its development, implemented by means of 9 established transport corridors, shall stimulate construction and development of the comprehensive network (Adamiec, 2012; Eur. Com., 2005). There are two core network corridors routed through the territory of Poland: Baltic – Adriatic corridor, and North See – Baltic corridor.

Financial preferences of EU for RLT under the TEN-T project are estimated at ca. 25%, among others based on appropriation of TEN-T Funds for 2013, amounting to EUR 280 Mio., out of which EUR 70 Mio. was appropriated.
to RLT. Poland approved such proposal, as all key communication links – road, railway and air links – have been considered the components of TEN-T (Adamiec, 2012). Premises for Poland’s transport policy resulting from the above are clear. Out of 9 projects planned in Poland as per new EU guidelines for years 2014–2020 one refers to ports and 8 to railway lines (including the upgrade of 3 domestic and 6 cross-border railway lines; ERTMS/ETCS for E20/CE20; on-board ETCS for locomotives “Husarz” and their line tests). This means focus on RLT expansion. Due to the need for provision of domestic financing such expansion may be inhibited by financial and execution limitations. Another limitation inhibiting this process is very high difference in engineering level of railway transport in new Member States, especially in Poland, as compared with former EU15 Member States, adding to border limitations and differences in traction power supply. This is shown in Fig. 1.

![Fig. 1. (a) 9 railway corridors of TEN-T; (b) rail traction systems in Europe. Own additional descriptions and supplements. (Bartosik et al. 2014); (b) shows two corridors of the basic TEN-T routed through the territory of Poland: North Sea – Baltic and Baltic – Adriatic and two adjacent corridors: Scandinavian – Mediterranean and Rhine – Danube (route simplified).](image)

In order to compete successfully within European market, Polish Railways have to increase gradually their engineering capacity and economic efficiency of services, both in passenger transport and in freight services, overcoming technical obstacles resulting from differences in railway traction power supply systems (characteristics of such systems are detailed in (Szeląg et al., 2005)).

This makes us analyze thoroughly the principles of the current transport and economic policy, as well as the principles of foreign policy to the extent of RLT, concerning implementation of solutions allowing cooperation with all EU Member States involved in integration of national railways and their conversion into components of Trans European Rail Transport System on the base of equality and partnership.

Global economic hub is gradually moving to Far East and to South-East Asia. The trend is getting stronger and stronger. Euro-Asian trade, at present utilizing marine transport MT, is more than half (50.3%) of all global trade. In the event that some of that trade is taken over by rail freight, the corresponding share of above revenues shall go to individual operators involved in the process. Poland’s geographical location in Europe, extremely beneficial, provides great opportunity to take over the share of transit freight, both in N–S and in W–E direction, as long as we are able to take it. Even three years ago the situation seemed relatively predictable. Developments in Ukraine, with their effect to Poland and the world, significantly reduced this predictability. By optimistic assumptions, that current situation is going to clear and stabilize within 2-3 years, any prior concepts and studies related to establishment to railway link between Europe and Asia shall be unsuspended, updated and implemented. EU trade with Asian countries is going to grow. Condition precedent for RLT competitive advantage over MT is the existence of electrified rail corridors with possibility capacity and speed, alongside N-S and E-W axes. Having in mind current state of RLT, as detailed in Cl. 2.2, Poland is a bottleneck of international rail freight. Our neighbors are fully aware of that. There is a number of detour options available to Euro-Asian (or even Euro-Russian) transit companies. Components of such a system
have been created and developed by EU right from the initial phase of TEN-T development, first as selected priority projects – evolving with evolution of strategic transport concepts, in particular in Germany and Nordic countries, but also in Austria, Hungary, Czech Republic, Slovakia, Lithuania (projects SCANDRIA, EWTIC II, LS RUSA). Poland’s response, and at the same time the illustration of weakness in RLT policy, are three strategic concepts. First and foremost, projects with beneficial effect to Poland’s economy are major projects located in the cross-section of two core TEN-T corridors: North Sea – Baltic and Baltic – Adriatic (Fig. 1.a, b). Specifications of those corridors, omitted here, are included in (Rozporz. Parl. Eur., 2013).

In the N-S axis two projects require special attention: Rail Baltica (RB), Baltic – Adriatic Axis (BAA). In the W-E axis, restoration of Y-Line project, complementing the existing CMK line, has strategic importance, forming the base for future HSR network. Listing of all a.m. projects, with related corridors in Poland, are shown in Fig. 2.

Fig. 2. (a) An overview of major transport projects in Poland and its surroundings; (b) Polish railway system in the TEN-T. Polish projects: RB – Rail Baltica (Rail Baltica, 2011); BAA – Baltic Adriatic Axis (Baltic Adriatic, 2010); Y – Polish HSR (high-speed rail) system, including CMK (Central Rail Line) (Bartosik et al. 2014; PKP PLK, 2011; Raczyński, 2008). Competitive projects: SCANDRIA®: Scandinavian-Adriatic Corridor for Growth and Innovation, including HSR B-B (Berlin – Budapest) (Homann, 2011; Scandria, 2009); EWTIC II: East – West Transport Corridor (see highway) (EWTC, 2012; Zurba, 2011); LS RUSA: The broad gauge railway line Russia – Ukraine – Slovakia – Austria (in Ger.: Breitspur-Anbindung des Twin-City Raumes Wien/Bratislava (Kummer et al., 2009). K I – K VI - complementary network corridors of TEN-T. Other designations in the text.

The RB concept was created in 1994, as interoperative rail corridor project within N–S axis, connecting Baltic States with Poland and the rest of EU rail network. It has key importance to development of rail transport in the Baltic area. The BAA concept appeared in 2006; it matches the objectives of TEN-T policy and meets its criteria, is adapted to the future core network, and is complementary to the RB concept. Construction of so-called Y-Line, connecting Warszawa, Łódź, Wrocław and Poznań, had been approved by government in 2008 (Uchwała, 2008). It had been assumed that the project should be completed by 2020, at the latest. The route of Y-Line, connecting large metropolitan areas of Warszawa, Łódź, Wrocław and Poznań, along with CMK, would form the core of Poland’s HSR network. The project provided new potential for RB and BAA concepts, by providing new possibilities for RB connection via Łódź and Wrocław to Dresden and Praha. Possibility of extending the Y-Line to neighboring countries, allowing integration with European high-speed network. Y-Line was introduced to the updated TEN-T. Following completion of the feasibility study for high-speed Y-Line, the Minister of Transport postponed project implementation until 2020 (Nowak, 2012). This decision was non-substantive and a grave strategic error. In addition it was contrary to resolution by the Government of Poland (Uchwała, 2008).

The principles of continuity and cohesion in EU transport policy (Rozporz. Parl. Eur., 2013) maintain the validity of previous projects and activities, as well as their evolutionary and adaptive potential, due to subsequent development concepts and decisions in TEN-T area. Such principles should also have been observed in domestic transport policy. This is an important aspect of rail transport development in Europe and Asia, and great strategic challenge for the European transport system, which also demands avoiding of any potential conflicts of national and sectoral interests. Poland has to be ready to take that challenge. Otherwise we may lose a lot.
2.2. Characteristics of present day Poland’s RLT

Railway infrastructure is worn out and outdated. Only 47% received good score (that is meets the assumed utility parameters), and 53% received bad score, including: 27% satisfactory (reduced parameters, track sections for replacement), 26% unsatisfactory (significantly reduced parameters – speed and axle loads, pavement for replacement).

After 1991 upgrade works in Poland were never sufficient. During last 25 years the railway infrastructure was reduced by over 25%. Bottlenecks are commonplace. All that is a strong barrier for development of RLT.

Current state of affairs is illustrated by below data, and Fig. 2.a.

A. Rail infrastructure expenditure RLE vs. road infrastructure expenditure RDE (Bartosik et al. 2014):

B. Reduction in infrastructure capacity (data from various sources as of 2013: GUS 19,328 km, PLK 18,533 km):
   - total length of railway network in 2013/1990: 18 533÷19 328/262 28 [km] (70÷74%);
   - planned further liquidations of railway lines: ca. 1÷2 K/19,328 [km] (~5÷10%).
   - density of rail network in 2013/1990: 62/84 [km/1000 km²] (74%).

C. Insufficient upgrade works:
   - in years 1991–2011, average annual data: overhauls/needs ~428/~1,550 [km/y] (28%).

D. Average commercial speed of cargo trains: PL/EU15: ~20/~50 [km/h] (40%).

E. Average cost of transport in PL/EU15: ~5.5~/~2.5 [€/km] (220%).

F. %Share of road freight RD versus railway freight RL [GUS 2014]:
   - in years 2005/2013: • RD 75.9/84.0 [%] (increase by 8.1%); • RL 18.9/12.6 [%] (decrease by 6.3%).

G. Bottlenecks: speed limits for trains due to traffic safety; threat of single-track operation; threat of line closures.

During last 15 years, RDE have been increasing 5 to 6-fold faster than RLE, and that with rail transport being much more energy efficient. The effects include, among others, dramatic reduction in replacement expenditure and overhauls after 1990, resulting in poor technical condition, ageing and aggravation of tail infrastructure and rolling stock, not suitable for present needs. RT traffic safety is compromised. Necessary upgrade and investment projected are cancelled. Quality and quantity of transits drops, resulting in low competitive potential of railways. Utilization of railway infrastructure is in the order of 30 ÷ 40%, average commercial speed of freight trains is a joke, at less than 20 km/h. More and more railway lines is closed. RT share, as compared with RDT, drops (by 7% following 2005). This has also adverse effects to RLT-related R&D, both in social aspects (lack of personnel for RT sector), and in research infrastructure (lack of specialists and research facilities and engineering facilities for new RT technologies, in particular HSR and upgraded RLT), etc. Those are indications of inconsistency of Poland’s transport policy with EU transport policy. There are over 200 business entities operating in the whole RT sector in Poland. Their RT-related operations are supported by ca. 60 entities in R&D and education sector (including 10 research institutes + 1 PAS institute, 14 public technical schools and over 30 non-public high schools). The research population of the whole RT sector is estimated at ca. 330 professors and assisting professors, over 670 doctors and doctors-engineers, ca. 300 masters of science and engineers, and over 200 technicians (mostly in research institutions).

2.3. Poland’s RLT financing policy

In Western Europe the share of investments in railway infrastructure increased, from 20% in 1975 to 30% in 1995, and then to 40% in 2011, as the share of total investments in land modes of transport.

In Russian Federation, whose transport policy is critical to Euro-Asian transit, in the similar period of 1995 to 2011, the share of investments in railway infrastructure increased, respectively, from 37% to over 53%, and the share of investments in road infrastructure in total investments in land transport decreased from 60% in 1995 to ca. 45% in 2011.
In countries of Central and Eastern Europe it was the opposite. The share of investments in road infrastructure increased, from 66% in 1995 to 84% in 2005, and the share of investments in rail infrastructure decreased from 24% in 1995 to 13% in 2011.

In Poland, in years 1995 to 1999, per cent share of investments in rail infrastructure in total investments in land transport were 28 to 61%, and after the year 2000 they decreased a couple of times, reaching ca. 10÷16%. Similarly, per cent shares of railway infrastructure expenditures in total expenditure on maintenance of transport infrastructure were in the order of 40–81%, in years 1995-1999, and after the year 2000 they decreased to ca. 2–8%.

In Poland, the percentage share of railway expenditure in total expenditure on maintenance of transport infrastructure was in the order of 40–81%, in years 1995-1999, and after the year 2000 they decreased to ca. 2–8%.

Comparatively, per cent shares of railway infrastructure expenditures in total expenditure on maintenance of transport infrastructure were in the order of 40–81%, in years 1995-1999, and after the year 2000 they decreased to ca. 2–8%.

In Poland public aid to RLT is very low compared with EU 15. Public funds, per 1 citizen, spent in Poland in 2012 on rail infrastructure were € 3.81, which is ten-fold less than in Spain (€ 38) and over 90 fold less than in Switzerland.

Competitiveness of Polish railways is decreasing. Progressing aggravation of rolling stock and infrastructure is the reason for decreasing share of railways in transport. Suburban rail usage decreased by ca. ⅓. The share of road freight increased from 38% to 60%, whereas the share of rail freight decreased nearly twice from 51% to 27%.

The aforementioned information can be concluded as follows: Presently, Poland continues its transport policy without considering current trends in the East and in the West. Expenditure on railway is dramatically small as compared with expenditure on roads. There is only one conclusion. For years now Poland's transport policy has been dominated by interests in fuel-car-road sector, which led to the breach of equality in financing and development of road and rail transport. Long underfinancing is the root cause of present poor condition of Poland’s railway.

This is contrary to development principles of European Union transport strategy and policy. The White Book of Transport 2011 (Komisja Eur., 2011), being the continuation of prior EU documents related to transport, defines transport objectives for next 10 years, and beyond, resulting in the need to implement general changes in transport. Particular attention is drawn to the need for deep reconstruction of the transport system, promoting independence from petroleum, creating modern infrastructure and multimodal mobility, assisted by smart management and ICT systems. Including in particular:

1. By the year 2030, 30% of road transport of goods for distances exceeding 300 km should be switched to other means of transport, such as railways or inland waterways, and by 2050 that share should be over 50%. Achieving that objective should require suitable infrastructure.

2. Completion of European high-speed rail network by 2050. Three-fold expansion of the existing high-speed rail network by 2030, and maintaining the density of existing network in all Member States. By the year 2050 the majority of passenger traffic should be by rail.

Implementing structural changes necessary to compete effectively with other modes of transport, and to take over the larger share of medium- and long-haul freight, is a challenge. This shall require material investments to increase the capacity of railway network. Strategic interest of Poland in the EU requires that our operations are consistent with EU economic and transport policy, which means revaluation of the priorities in Poland’s transport policy, in the manner ensuring sustainable development of transport systems and proper support of Poland’s rail transport, utilizing public aid.

Rail transport is among the sectors of economy that require active support of the state for its development and operations. Countries that want and are able to do so effectively and in the long term, usually have sustainable and effective transport systems. Modern state should have the policy and systemic mechanisms ensuring sustainable development of transport systems. Market mechanisms are not always sufficient to meet social needs and ensure national interests in this respect. In Poland the extent of State participation in development of RLT is fluctuating. This is due to, i.a. the status of public finances, assumptions of social and economic policies (including transport policy), and EU requirements. Total expenditure on transport in Poland in 2010 are estimated at 4.1% GDP (OECD/ITF, 2013). Little competitive advantage of Polish railways is the major technical and economic barrier for implementation of sustainable development of transport principle. For Polish economy this means negative feedback, with anti-progress effect.
Rail transport is called the “blood circulation system of the economy” for a reason. The consequences of current state of affairs for Poland are grave and far-reaching. Diversification of multimodal transport accessibility to the regions in Poland as compared with average EU (MDTE) is large and increasing. Accessibility for western and north-western regions is in striking contrast with lack thereof in eastern and northern regions of Poland. In the consequence, the integrity of Polish economic and social area is low, and duration of rail journey prevents integration of labour markets between any pair of metropolitan areas. Metropolitan areas do not have any convenient rail links due to inefficiency of operators and infrastructural limitations. The absence of perspectives regarding the development of HSR only makes matters worse.

Clearly outlined rail transport development process, including the HSR Project and complementary projects, affecting the population of 10–15 Mio., received unanimous support of all research and engineering circles, expressed formally in materials of the 14th KTP (Adamiec, 2012). Such a program would have beneficial effect to the majority of Poland’s territory, due to the assumed interoperability of high-speed trains with conventional trains, translating, among others, being into direct or indirect reach of HSR not only for Warszawa, Łódź, Kalisz, Poznań and Wrocław, but also for Kraków, Katowice, Rzeszów, Opole, Jelenia Góra, Zielona Góra, Gorzów Wielkopolski, Szczecin, Gdańsk – Sopot – Gdynia, Olsztyn, Białystok and Lublin, as well as minor towns situated near larger agglomerations (assuming links to HSR hubs and intensifying the development of suburban rail systems).

Construction of HSR line shall not only launch Polish railway into 21st century, but also increase the capacity of conventional rail network, for both passenger and freight operations. This will have particular significance to W–E axis, due to ever increasing volume of EU trade with countries of Eastern Europe and Asia. Rail corridors within N–S axis and W–E axis via the territory of Poland (Fig. 2(b)), should take over possibly large share of passenger and freight traffic, especially that our geographical location favours so. Postponing the construction of Y-Line and the whole HSR network indefinitely poses a threat to Poland’s transport policy, and also economic policy, and might affect further formation of TEN-T, with adverse effects to Poland and its position in EU (Bartosik et al. 2014).

3. Multi-annual program By Railway to the 21st Century

With underdeveloped railway transport RLT, the regress of it intellectual resources – both in education and R&D, necessary for quick restoration of pro-development environment, requires taking special actions. Personnel deficiency in rail transport RT sector is estimated at ca. 1,500 engineers. There are only a few specialists and scant engineering and production facilities for modern HSR technologies. Higher and medium level education facilities for RT sector purposes are insufficient.

Implementation of the national program for development of rail transport RT, especially railway transport RLT, including for HSR, requires timely training of specialists for RLT, including for HSR.

Organized efforts have been undertaken in RT sector, providing support for scientific, engineering and educational needs of RT, in order to establish a country-level system for comprehensive merit support for such an enterprise. National scientific and research bodies and business entities participating now in development of the project Multi-annual Program MAP titled By railway to the 21st century. – Scientific, Engineering and Educational Support System for Development of Rail Transport and Integrated Systems of Regional Transport. Rail Transport Consortium (RTC), called for joint implementation of the MAP, is in the organisation phase.

Rail transport RT, referred to the Multi-annual Program MAP and Rail Transport Consortium RTC, covers a broad range of topics related to infrastructure and rolling stock and urban rail, in interdisciplinary approach, that is considering all engineering and non-engineering (economics, safety, logistics, environmental, etc.) aspects of RT.

RTC groups practically all R&D&E (educational) bodies related in their core business with RT, incl. 12 public high schools, 10 research institutes, 4 academies and federations, as well as PKP Group. A group of business entities, especially plants producing for rail transport, are now in the process of creating a business consortium. The consortium is a structure open to all national and international entities interested in collaboration for development of Poland’s RT. The strategic objective of MAP authors is that it offers comprehensive and interdisciplinary coverage of problematics of modern RT, allowing establishment of the research and education base for restoration and expansion of specialist resources and running modern, engineering and non-engineering research, developing new technologies and implementing new products, as well as mobilizing national and European financial resources for development of RT. Far-reaching effects of the MAP should be visible in years 2022–2030+. The general structure and operating principles of the MAP and RTC are shown in Fig. 3.
MAP shown in Fig. 3(a) has a hierarchical structure, comprising 22 Strategic Topic Groups (STG), managed by coordinators 1C – 22C (leading units). Individual STGs shall be implemented by means of Projects Commissioned (PC) 1PC – nPC, managed by sub-coordinators (Project Management PM) 1PM – nPM. All PCs shall be established based on limited open competitions. PCs shall be implemented by means of Research Projects (RP), established based on the ordinary open competitions, open to all basic organizational units of higher schools or research institutes, collaborating with business entities, as well as other eligible national or international entities.

Declarations of will and possibility to perform coordinating functions (on STG or PC level), can be submitted solely by legal persons. Submission of declaration does not raise any legal or financial obligations. Legal persons are employers (such as authorities, agencies and other government or local government bodies, scientific entities, businesses, as well as associations, NGOs, etc.) operating in RT sector. Participation of foreign legal or physical persons is conditional to their involvement in operations in Poland’s RT sector and working with Polish legal person, who should submit relevant application to that effect.

The strategic objective of RTC for years 2015–2030+ is education of personnel and mobilization of research and financial resources, both national and European, for the purpose of comprehensive, interdisciplinary development of modern rail transport RT, and in particular creating broad potential, on European level, for development of modern research, technologies and implementations of new RT products, as well as non-engineering aspects of RT – from economics, to safety, to ecology, and in addition also comprehensive upgrade of research and education facilities and formation of specialists for RT sector. Far-reaching effects of the MAP should be visible in years 2025–2030+.

Implementation of MAP should involve, in particular: organization and education of scientific and didactic personnel, restoration and (re)construction of specialized research and didactic facilities, material and engineering facilities; development of engineering concepts, interdisciplinary research projects, and advanced RT technologies; upgrade and development of Polish RT system, including HSR, as the component of TEN-T, in order to improve the competitive advantage of RT; development of suburban rail systems, and smart transport systems and intermodal transport systems, integrated with HSR; development of intermodal freight; rationalization of energy consumption in RT, development of energy-saving power supply technologies; reduction in environmental impact of RT; timely formation of specialists for upgraded conventional railways and innovative technologies for RT, including HSR; maximization of contribution by Polish science and industry in RT development program, including HSR; tightening of international cooperation and participation in EU programs referring to RT; safety of transport in the context of global crisis related to petroleum-based fuels.

From the international perspective, the essence of the matter is ensuring economic benefits, in the form of possibly high and sustainable revenues from taking over of international transit operations. Strategic geographic location of Poland, in the center of Europe, allows Poland to play a key role in international rail transport, both in the W-E and N-S axis, and collecting significant economic benefits in the process. This is our big, national interest. To that end, Polish pro-development operations in RLT have to consider complementary or competitive nature of major strategic projects in RLT, including HSR, created in our neighborhood. That is why the HSR is indispensable for Poland’s growth. Launching of HSR shall allow release the capacity of existing lines in TEN-T.
network for freight. Abandoning the HSR project means marginalization of the whole rail transport, resulting in
marginalization of Poland’s position in Europe. Poland can no longer be a European bottleneck.

**Form the national perspective** the essence of the matter is civilizational importance of railway transport RLT,
including HSR. Availability of transport determines sustainable growth of regions and the country, as well as
integration processes, including economic integration processes.

Anticipated effects of MAP implemented by RTC entail:

- **effects to the country**: sustainable growth of regions, improved social and economic cohesion and integration
  of labor markets, expansion of new industry sectors servicing the RT sector, including HSR, reduction of
  unemployment, development of interdisciplinary research for the benefit of the economy, innovative concepts and
  technologies promoting efficient consumption of electric energy, rationalization of energy consumption,
  improvement of national energy security, improvement of transport safety, improvement in environmental
  protection;

- **effects to RT sector**: development of new RT areas in Poland and of international cooperation, integration
  of RT circles around the common objective, participation in European framework programs and utilization of EU
  resources, development of advanced technologies for RT, development of interdisciplinary research for RT,
  coordinated development of energy saving technologies for RT, dissemination of energy storage systems in RT,
  recuperation of electric energy in RT.

Due to above considerations, establishment by the Government of Multi-annual Program titled *By Railway to the
21st Century*, and execution of the Program by relevant scientific, R&D and economic entities, shall be one of the
tools for implementation of the new transport strategy and policy in Poland. In 2016 MAP project shall be submitted
for consulting and approval to relevant Ministers.

4. Final conclusions

The view of Poland’s transport reality (Bartosik et al. 2014) offers premises to the conclusion that Polish railway
transport requires not only a development program, which may prove insufficient, but immediate rescue operations.

**For many years now the major inhibitors of development are instability of Poland’s transport policy,
breaking the continuity of decision-making process, incorrect structure of financing various areas of
transport, and poor engineering condition of rail transport and its research and scientific facilities.**

Consecutive governments avoid strong involvement in railway matters, indefinitely delaying costly or unpopular
decisions that could remedy some of railway issues. Without determination in Parliament and Government actions,
the obsolete rail transport shall decelerate development of the country and expose Poland to ridicule on EU level.
We shall lose revenues and jobs. We will lose the battle for Europe – Asia rail transit. Delaying the HSR project
widens the gap between Polish railways from EU railways by decades, which shall eliminate Poland from effective
use of TEN-T corridors.

We do not lack strategic vision or concept in railway sector. There are various long-term strategic documents
developed regularly, with objectives and tasks of the State in the area of transport system development, including
rail, especially railway, transport. They are, however, consistently disregarded and not implemented, remaining in
the sphere of declarations, and policy and decision-makers are not brought to political responsibility due to
relatively short election cycle, determining discontinuity of transport policy. In practice, without political will to
create systemic components for organized, sustainable and long-term development of transport, such as stable
system for sustainable financing of transport (all the modes); completion of structural transformations in the sector;
pro-development considerations and stimuli for cooperation of science and business, leading to increase
in innovative advantage of rail transport system; efficient managing mechanism providing administrative and
organisational capacity for proper implementation of rail transport investments and utilization of appropriated
financial resources; stable system of objectivization and optimization of decision-making processes and maintaining
the lobbying, to the extent permitted by laws.

Achievement of the above requires a significant breakthrough in thinking the entire political class and society.
**It requires agreement across the political scene not limited by duration of term** and understanding of the fact
that transport has fundamental significance to economies of Europe and Poland. Its development should be
considered as the national priority, determining the pace of our development, without political aspect.
We also need society’s support and understanding of such development strategy, defined as national development program for rail transport (RT), especially railway transport (RLT), including HSR – with maximum contribution of Polish educational, scientific, engineering and industrial circles related to RT.

Without creating strong, uniform transport system, including rail transport system, to replace the existing patchworks of rail links, Europe shall not be capable of rapid development and citizens shall not experience wealth. Poland, being the EU Member State, has to be equal participant in this process, possibly competitive in its own rights. Polish science and industry shall be more and more involved in such national program.

Poland has no other way to develop. Managing of such a critical situation requires political will and wisdom, responsibility, courage, effectiveness in decision-making process and efficient acting on the part of all relevant state bodies, including in particular the Parliament and the Government, for at least a coming decade.

It is worth noting here that financial framework for years 2014–2020 provides for increase in EU financing of railway sector by 85% – up to EUR 10.2 billion. Additional EUR 4.5 billion shall be invested in sustainable urban transit systems (Komisia Eur., 2015). This may assist decision-making processes and quickly reverse negative trends in our passenger transport and freight, provided we can use it – e.g. for establishment of the Multi-annual Program By Railway to the 21st Century.

Undertaking, on a national level, of substantial and organisational works on MAP and RTC, initiated by TS sector, is the expression of support by non-governmental organisations within RT sector to Government actions with regard to the new transport strategy and policy.

References


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