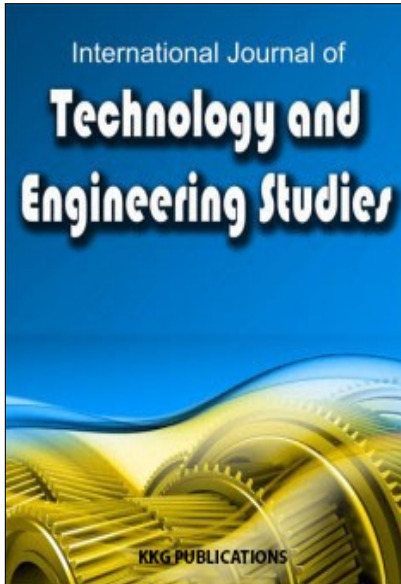
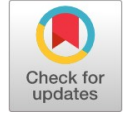


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# POLISH RAIL TRANSPORT INFRASTRUCTURE ON THE EXAMPLE OF THE REGION OF CZESTOCHOWA

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## Keywords:

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**Abstract.** The objective of this study is to diagnose the condition of the rail transport infrastructure in the region of Czestochowa. Data is gathered through secondary sources and through a personal interview (focused) of representatives of the authorities responsible for managing infrastructural facilities and developing plans for their further development. General arrangements for the regularities related to the state and prospects of development of this infrastructure can also be regarded as representative of the other areas of Poland. Infrastructure in Poland seems not to be right to operate rail transport efficiently. Its existing state can be assessed as positive but unfortunately not perfect. This is evidenced by the results of studies conducted in the Czestochowa region. The findings will be helpful in infrastructural development in the future.

## INTRODUCTION

The paper is to diagnose the status and development prospects of rail transport infrastructure in Poland. The author realizes the aim by generalizing conclusions drawn from the analysis of this infrastructure in the region of Czestochowa. Considerations reflect the state of this infrastructure in the day of 12.30.2015. The author focuses on both the linear infrastructure (roads as well as natural and artificial runs on which the means of transport are moving), as well as point infrastructure (spatially separated objects for stationary handling of cargo and the means of transport) [1]. Later wonders whether the development prospects of outlined infrastructure are promising from the point of view of region's growing demand for it in the future. First part of the paper is an approximation of the conceptual framework of rail transport infrastructure as well as short presentation of the region of Czestochowa.

## Linear and Point Rail Transport Infrastructure in the Region

The term "infrastructure" is generally explained as basic, physical equipment necessary for the functioning of the society or a state [2]. Without doubt this general statement, in many cases, has been an inspiration and starting point for formulating a more detailed definition of the infrastructure created for the needs of different areas of knowledge, including transport [3]. Transport infrastructure can be defined in many ways [4], [15],

e.g.: basic facilities and institutions necessary for the proper functioning of transport. These are man-made, permanently located objects of public use to facilitate movement of people and cargo.

This way understood infrastructure includes infrastructure of external transportation for spatial movement of raw materials and products manufactured within broadly defined market. In turn this infrastructure is divided into infrastructure of various branches of transport. Each transportation branch consists of linear infrastructure (natural and artificial roads for moving vehicles, and often materials and products directly), as well as point infrastructure that includes the facilities along the roads of all transport branches, which are necessary to realize transport tasks [5], [6].

Linear infrastructure in rail transport is made of "the railways (figure 1), with a separate strip of a land together with engineering structures lying there, as well as with devices for traffic control and data transmission (communication)" [6]. The latter ensure the provision of information on train movement and other data related to the processing of passengers and goods. Engineering structures, occurring in the lane of railway are bridges, viaducts, tunnels, platforms, walkways, ground passes, underpasses, buildings (e.g. near the guarded railroad crossings), etc. In turn, the railway Traffic Control Devices (SRK) are designed to ensure the safety and efficiency of a traffic.

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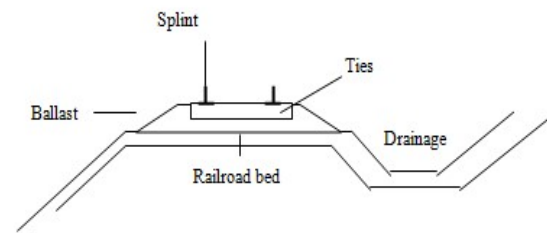


Fig. 1. Profile of rail road

On the other hand, point infrastructure of rail transport consists of spatially separated operating points, whose job is to stationary handle passengers and cargo, and lead to the punctual and safe movement of trains. The principal of these points are train stations (both passengers and cargo).

All the mentioned infrastructural elements are present in the region of Czestochowa. It is identified with the Czestochowa County (along with the city of Czestochowa).

Czestochowa County in its present form is the result of so far chronologically the last administrative division of the country made in 1999 [7]. It is currently the largest in the Silesian province and one of the largest in the country. Its area is

1519 km<sup>2</sup> (which is almost 12.4% of the Silesian province). The average area of the commune in the district is equal to 95 km<sup>2</sup>. The largest in terms of this criterion is Klomnice municipality - 148 km<sup>2</sup> and 20 km<sup>2</sup> has the smallest one. The population is almost 135 thousand people (6th place among the districts of the province of Silesia). A relatively small number of inhabitants in relation to the surface of the county results in population density of 89 persons per km<sup>2</sup> (the smallest value of all Silesian counties). The headquarter of the county is located in Czestochowa. The city is located in southern Poland, at the Warta River, at the northern edge of the Silesian province (fig. 2).



Fig. 2. The location of Czestochowa on a scale of Silesian region of Poland

Area of Czestochowa city is about 160 km<sup>2</sup> and the population is approaching 250000. This means that Czestochowa is the second largest city in the province of Silesia, as well as one of the 15 largest cities in the country (13 in terms of population and 12 from the point of view of the surface). It is an important industrial center. "At the moment it is an important center of iron and machine industry, textile as well as paper" [8]. Among more than 26,000 registered economic units operating in the city, there are also involved in the manufacturing of flat glass, chemicals, auto parts, as well as dealing with food processing [9]. Czestochowa is also a cultural center (e.g. theater, concert hall, numerous museums and galleries exist there), scientific (several universities which educate close to 30,000 students), educational and touristic [10].

## RESULTS

Basis for the conclusion development in this chapter was an analysis of secondary sources on the issue (query library, factual and cartographic studies) as well as a personal interview (focused) with representatives of the authorities responsible for managing infrastructural facilities as well as being able to develop plans for their further development.

The only two stations with active depots throughout Czestochowa region are located within the capital city of the region. They are: Czestochowa-Glowna (main station) and Czestochowa-Stradom. In neighborhood locations, Gnaszyn and Mirow, there are also stations but not equipped with the depot. The fourth of the city's stations is Czestochowa-Towarowa, not providing, however, support for passenger traf-

fic (this function is located in the stop close to the station). In addition to the mentioned county stations are located in the following towns: Blachownia, Rudniki, Cykarzew, Klomnice, Widzow, Turow, Julianka and Koniecpol. Complementary to the point infrastructure of railway transport in the county are stops located in: Korwinow, Koniecpol- Magdasz, Luslowice, Kusieta Nowe, Staropole Czestochowskie, Jackow, Rzeczyca, Stary Cykarzew, Mykanow. Majority of these stations and stops are located on the standard, electrified, two-band railroad:

no. 1, running from the Lodz region through Czstochowa and further south in the Basin Sosnowiec.

no. 61 runs horizontally (direction: east-west) along the

entire county.

Only station Cykarzew and stops Cykarzew Stary as well as Mykanow are on the electrified single track no. 146, acting as a branch of the line no. 1, connecting it to the line 131. Infrastructure in this form seems to be developmental in the long term. It is true that the findings of NIK<sup>2</sup> carried out in recent years show that the current state of this infrastructure is highly unsatisfactory. The auditors focused on the assessment of the technical condition of railway station facilities, railroads and general safety in the field of railway traffic. The summary results of the revision are included in table no. 1.

TABLE 1

QUALITY ASSESSMENT OF THE EXISTING RAIL INFRASTRUCTURE BY THE SUPREME CHAMBER OF CONTROL

Evaluated Area	Rate	Substantiation
Railstations	Negative	Railway station buildings do not meet technical, functional and aesthetic requirements posed to such objects. Restoration work carried out there does not have progressive character. They are rather geared towards maintaining the current state of infrastructure and its value. Equally bad is the condition of linear infrastructure, located within the stations.
Linear Infrastructure	Unsatisfactory	The technical condition of the railway does not meet the needs of the market of transport services. What is more downside scope of the repair works and the backlog in the execution of replacement works promote further systematic degradation of the line.
Safety of Traffic Leading	Negative	There are significant irregularities made by bodies responsible for ensuring the safety of railway traffic. They mainly concern the supervision of the modernization of the railway infrastructure and delays in the implementation of EU directives which are in connection with the railway infrastructure.

At the same time, however, station Czestochowa-Glowna remains one of the most important in the country. According to the classification of rail stations it belongs to the category A which means that it serves more than two million passengers per year [11]. It is also the modest / best prepared to handle trains in Poland (3rd place in the ranking of the best railway stations in Poland) [12]. There are no indications that its role in the near future would be reduced. Oppositely it is expected that in the longer term will be modernized to better perform tasks related to the operation of railway traffic. This is related to the planned development of high speed rail network in Poland.

The researchers emphasize that this kind of railways will become a source of reducing the workload of carriage of other transportation means, they are attractive from the point of view of the cost, time, security as well as punctuality of cargo shipment [13]. In Poland it is planned, in the near time horizon,

to complete a network of such roads. High-speed lines will run, inter alia through, located in the county line no. 1, where is also located the main Czestochowa station.

## CONCLUSION AND RECOMMENDATIONS

The presence of adequate rail transport infrastructure in the region largely determines the effectiveness of companies operating there. Its presence and proper condition are nevertheless necessary for the proper implementation of the transport processes (it e.g. allows the realization of combined transport), which in turn determines the harmonious functioning of the supply chains. For these reasons, infrastructural matters play an important role in the political agenda of many countries [14]. In this context, it is difficult to accept the fact that regional infrastructure in Poland seems not to be right to operate rail transport efficiently. This is evidenced by the results of studies conducted

in Czestochowa region. The existing state of infrastructure there can be assessed as positive but unfortunately not perfect. Comforting in this situation seems to be the prospects of the infrastructure development in the future. Made by the relevant institutional plans allows to speculate on its rapid development

in the near future.

#### **Declaration of Conflicting Interests**

No conflicts of interest.

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— This article does not have any appendix. —