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TRANSPORT ASPECTS OF SUSTAINABLE DEVELOPMENT OF THE PORT OF GDAŃSK

Abstract

Due to the pro-ecological character of sea transport, shipping lines connecting the Port of Gdańsk with its fore-field always appear as elements facilitating sustainable development of the seaport, seen as an integration of the spatial and transport order with the economical, ecological and social order [1]. Sustainable development of the Port of Gdańsk is also facilitated by its specific location in the Baltic Sea basin. It results from the fact that Gdańsk, as all the other large Baltic ports, is serviced from the fore-field side mainly by ferry and ro/ro lines and by shipping connections within the multimodal transport system (container services and feeder services), and in the future also by short sea shipping lines.

Considering transport accessibility of a port from the hinterland, the essence of sustainable development is related to two factors: (1) location of the port in relation to the national and Central-European transport network, and (2) accessibility of the port to infrastructural connections of various modes of hinterland transport. The influence of both factors must be also related to the present state of the transport network, connecting the Port of Gdańsk with the hinterland, and to the future state, which will be achieved in result of expected changes in the transport system connecting the port and hinterland.

Accessibility from fore-field

The good accessibility of the Port of Gdańsk from the sea for all ships entering the Baltic Sea of up to 150,000 t capacity, and the favourable approach from the sea, both to the North Harbour and to the Inner Harbour, facilitate sustainable development of the port. As far as access from the sea is concerned, no other Polish port can compete with Gdańsk, and except Ventspils, also no other port along the southern coast of the Baltic. The accessibility of the Port of Gdańsk from the sea is one of the main competitive assets of the port.

In the transport policy of the European Union, ports and sea transports are seen as integral elements of the European transport network. It is stressed that multimodal transport systems should be developed, especially within the short sea shipping – ports – hinterland land transport (road, rail, inland navigation) system. This is also the prospective direction of development of shipping connections of the Port of Gdańsk with the fore-field, especially with respect to liner services.

With respect to shipping connections with the fore-field, the problem of sustainable development of the port is first of all related to:

- activation of ferry and ro/ro shipping;
- development of the multimodal transport system;
- development of short sea shipping.

Servicing of the Port of Gdańsk by all the above forms of sea transport first of all concerns the development of shipping relations with other Baltic ports and with the North European ports of the North Sea.

At present, after many years of neglect and reduction of liner services from the Port of Gdańsk, gradually container and ro/ro connections are being rebuilt (Table). In spite of that container, ro/ro and ferry transports from Gdańsk service only a small part of cargo passing through the port. To a large extent this is due to the structure of the cargo, in which general cargo, including containerised, ro/ro and ferry cargo, forms only 10% of the total throughput of the port.

Regular transport connections from the Port of Gdańsk

Destination	Type of Cargo	Frequency	Carrier
India Bombay, Chennai, Calcutta	general cargo containers	every 4 weeks	Shipping Corporation of India
Baltic and North Sea Hamburg, Rotterdam, Thamesport Bremerhaven, Hamburg, Gdańsk St. Petersburg, Kotka, Mantyluoto, Gdańsk, Hamburg	containers	each Friday	OOCL Orient Overseas Con- tainer Line
Sweden Nynashamn	passenger/truck ferry, general car- go and containers	3 times per week, in June, July and August - daily	PŻB, Polska Żegluga Bałtycka (Polish Baltic Shipping Co.)
Germany, Sweden Malmo, Hamburg, Malmo, Gdańsk	containers	each Monday	Inter Marine Container Line (IMCL)
Denmark, Germany Aarhus, Bremerhaven, Hamburg	containers	each Monday and Thursday	IMCL
Pakistan Hamburg, Antwerp, Damman, Karachi	general cargo and containers	depending on sufficient cargo mass	Pakistan National Shipping Corporation
Egypt Hamburg, Antwerp, Damman, Karachi	general cargo and containers	every 2 months	The Egyptian Navigation Co.
Turkey Bremen, Istanbul, Ismir, Mersin	general cargo and containers	depending on suf- ficient cargo mass	Turkish Cargo Lines
Caribbean Region Buenavntura, Matanzas, Barran- quilla, Puerto Cabello and other ports of the region	general cargo and containers	every 6 weeks	R.K.E. Biedermann Cargo
United Kingdom Great Yarmouth	paper	every 6 weeks	RMS Duisburg
Arabian and Red Sea ports Jeddah, Port Sulan, Qaboos, Dubai, Abu Dhabi, Doha, Bahrain, Dam- mam, Kuwait, Akaba, Hodeidah, Bandar, Abbas, UMM Qasr, Jebel Ali, Shuaiba, Sharjah	general cargo and containers	every 4 weeks	United Arab Shipping Co.

Source: <http://www.portdamnsk.pl/Polaczenia.htm>

Changes in the geographical structure of Polish foreign trade and transit, the expected development of container potential of the port and progress in multimodal sea/land transport techniques will basically influence the fore-field of the Port of Gdańsk, especially with respect to containerised cargo. It is expected that for this cargo, the Scandinavian and North Sea ports (UK, Ireland) will be the main fore-field ports for Gdańsk. In spite of strong competition of land transport routes, it is highly probable that a significant part of cargo, hitherto transported by land, will be transferred to the sea routes [2]. This means that the fore-field of the Port of Gdańsk, covering the West European ports, will become significantly more active. Growth of activity should be facilitated by the building of motorway A1 and by modernisation and development of other transport routes in the VI TINA corridor.

According to predictions of the geographical structure of general cargo flow through Polish ports up to 2010, the participation of the Baltic Sea relations will increase to ca. 30%, and a high 50% participation of the West European relations will be maintained, which will be serviced from the Port of Gdańsk mainly by feeder tonnage. Lately much effort is made by the Port of Gdańsk to activate this type of services. On the other hand, attempts of the port to achieve base port status for transit cargo from Eastern Europe, requires starting permanent liner services (ferry or ro/ro) with Lithuanian, Latvian, Estonian and Russian ports. Here the Port of Gdańsk will face strong competition of other ports, in that of Gdynia, and of land connections (e.g. Via Baltica).

The general cargo far fore-field of Gdańsk could include Mediterranean and possibly African ports. Prospective liner services could include containerised and conventional general cargo connections with the Far East and the Indian Ocean regions.

An important component of shipping connections from the Port of Gdańsk are ferry connections with the Baltic Sea (mainly Scandinavian) ports. The potential ferry connections' fore-field includes three basic segments:

- ferry ports of Central and Eastern Sweden including two regions – the Stockholm agglomeration and the Kalmar/Karlskrone region;
- Finnish ferry ports (Helsinki, Turku);
- ferry ports of Lithuania, Latvia and Estonia, and Baltic ferry ports of Russia.

The Swedish segment, and especially ferry connections with the Stockholm agglomeration ports, is potentially the largest market for passenger and cargo ferry services. The two other segments have smaller chances of development. Predictions indicate only limited passenger and cargo transports on these directions. On the Finnish direction, mainly development of ro/ro and ro/pax connections is expected. Initiation of new ferry connections with Lithuania, Latvia and Estonia basically should be seen as forming an advantageous alternative sea route to the weakly developed land infrastructure (road and rail), connecting Poland with these countries, especially with respect to passenger traffic.

Taking into account changes in techniques of sea transport, and assuming that the Port of Gdańsk will have the required handling and storage potential for ro/ro and ferry transports, the port could compete for the following shipping connections:

- Gdańsk – Stockholm agglomeration (ferries);
- Gdańsk – Finnish ports (ro/ro and ro/pax);
- Gdańsk – Lithuanian, Latvian and Estonian ports (mainly ro/ro, possibly ferries);
- Gdańsk – Danish ports (ro/ro);
- Gdańsk – North Sea ports (feeder services);
- Gdańsk – UK and Irish ports (ro/ro);
- Gdańsk – Mediterranean ports (mainly ro/ro).

Increasing the number of liner ship arrivals, especially on ro/ro and ferry container connections with the Baltic and North Sea ports, should be seen as the basic requirement for the activation of general cargo and container services of the Port of Gdańsk. If this will not be achieved, then the importance of Gdańsk on the European and Baltic liner services' market may become smaller.

With respect to bulk cargo, the whole fore-field of the Port of Gdańsk is global in character. Its geographical structure depends on the location of producers of raw materials and of markets for Polish exports and transit. The global range of Gdańsk fore-field and its advantageous competitive position result from the large depths at the North Harbour, which allow servicing large vessels, and also the competitive conditions for servicing various types of liquid and loose bulk cargo, and for servicing sea ships in specialised terminals in the port. The new investments of the port in bulk cargo services will ensure further development of connections with the fore-field.

Accessibility from the hinterland

The advantages of the transport position of the Port of Gdańsk in the national and international transport network result mainly from:

- the direct accessibility of the port by rail, road, inland, pipeline and air transports;
- the focal position of the port in the land/sea European Transport Corridor No. VI running from north to south of Europe; this concerns both the present state of the transport network in this corridor and the planned development projects [4];
- the central position of the port on the southern coast of the Baltic Sea with respect to the Baltic and West European fore-field and to the whole potential national and international hinterland, which includes Central and East European countries.

The Port of Gdańsk is accessible from the hinterland by all main kinds of transport, ensuring connection with the national and international network. The basic connections are with the rail and road network, which are supplemented by: (1) inland water connections in the outlet and delta of the Vistula River; (2) pipeline transport system running between the oil terminals in the north Harbour and the PERN tank base near the port and the East-West pipeline running through Polish territory (former Friendship Pipeline); (3) location of the regional airport at Gdańsk-Rębiechowo.

All the basic linear elements of the road and rail infrastructure in the Gdańsk region run out from the Gdańsk agglomeration. In Gdańsk, acting as a multibranch transport centre, are also located main point elements of the basic transport infrastructure of the region – the airport, pipeline transport centre and inland water transport centre.

Rail connections of the port with the hinterland are included into the European AGC and AGTC agreements. They include the C-E65 corridor (Port of Gdańsk – Katowice). This line is one of the most important Polish railway lines of international significance. According to the document "Transport Policy", adopted by the Board of Ministers in January 1995, the Gdańsk trunk-way is one of the priority routes in the plan of infrastructural investments in the Polish railway system. It is planned to modernise 247 km of C-E65 in order to adapt it to combined transports in the relation Port of Gdańsk – Central and Southern Europe.

The Gdańsk port and industrial complex is a node for seven national roads:

- No.1 (E75) – the state border (ferry terminal at Brzeźno) – Gdańsk – Toruń – Łódź – Cieszyn – state border;
- No. 6 (E28) – Szczecin – Koszalin – Wejherowo – Gdynia – Gdańsk – Łęgowo;

- No. 7 (E77) – Gdańsk – Elbląg – Warszawa – Kraków – Chyżne – state border;
- No. 218 – Gdańsk – Chwaszczyno – Wejherowo;
- No. 219 – Gdańsk – Kartuzy – Sierakowice;
- No. 221 – Gdańsk – Przywidz – Kościerzyna;
- No. 222 – Gdańsk – Starogard Gdański – Skórcz.

From the point of view of connections with the national and international hinterland, national roads No. 1, 6 and 7, especially road No. 1, are of basic importance.

The airport at Rębiechowo, operating since 1974, can serve 40,000 planes and about 500,000 passengers annually. It is one of the 12 national and 9 international Polish airports, and serviced 2.9% passengers in international traffic.

Utilisation of the inland water routes of the Gdańsk region, i.e. the Lower Vistula, and water route system formed by Szkarpa River, Elbląg River, Jagielloński Channel, Nogat River, Brda River and the Bydgoszcz Channel, is very limited. Activation of these connections in relations with Germany, and also Elbląg and Kaliningrad, requires costly modernisation.

In the coming decade, the European and national transport system will undergo significant transformation. This concerns especially Central and Eastern Europe, in that Poland, and will be concentrated mainly on road and rail transport. In rail transport the change will be in quality (higher speeds, better safety, new techniques). In road transport the change will be both in quality and network. It may be therefore stated that the functioning of the Port of Gdańsk will be accompanied by a complementary development and modernisation of transport connections of the port with the national and international transport network. This network is related with the TINA programme, which forms the framework for the development of the Trans-European Transport Network (TEN) in countries applying for EU membership. The TINA programme includes both the road and the rail network. Some of the connections are especially important for the port in Gdańsk, i.e.:

TEN roads (Fig. 1):

- motorway A1 (Gdańsk – Łódź – Katowice) with branches:
- roads Grudziądz – Poznań, Toruń – Warszawa, Łódź – Wrocław;

TEN railway lines (Fig. 2):

- railway line Gdynia/Gdańsk – Warszawa – Katowice – Zebrzydowice (with the Warszawa – Dorohusk branch)
- railway line Gdynia/Gdańsk – Bydgoszcz – Katowice (with branches: Inowrocław – Poznań, Zduńska Wola – Wrocław and Zduńska Wola – Dzikowice (Radom))
- railway line Gdynia/Gdańsk – Elbląg – Braniewo (Kaliningrad).

The process of preparation for accession of Poland to EU includes the development of six national strategies [5] forming together the National Development Plan, which in turn forms the negotiation platform for the Community Support Framework – the document which contains assumptions for financing priorities resulting from the six national strategies. For the Port of Gdańsk, it is especially important that the development and modernisation of infrastructure improving regional competitiveness is one of the four priorities of the National Regional Development Strategy (NRDS). The document of the Ministry of Economy [6] contains the following statement:

“Development and modernisation of infrastructure strengthening regional competitiveness. This priority of the NRDS should strengthen the competitiveness of voivodships in accordance with their endogenic development potential and prospects for functioning of egzogenic sectors of activity. This segment of regional development policy shall concern all



Fig. 1. The Port of Gdańsk in the TINA programme road network



Fig. 2. The Port of Gdańsk in the TINA programme railway network

voivodships. However, for each of them, or for distinguished groups of voivodships, a differentiated repertory of instruments will be used. Within this priority, the following strategic objectives will be realised: development and modernisation of transport/logistics networks, development and modernisation of telecommunications and informatics networks, development and modernisation of the environment protection infrastructure. In the transport/logistics field, the aim is to improve the technical standard of the national road network and to ensure access of all voivodships to activity centres in Poland and abroad. All capitals of voivodships should be connected by quick road, rail and partly air routes. In effect of massive investment into the transport network, Polish regions will become connected with the basic trans-European networks."

The significance of the transport position of the Port of Gdańsk increases even more when the Baltic conceptions are considered. The Baltic Sea region is the subject of intensive planning efforts, co-ordinated by VASAB 2010. One of the important spatial development programmes concerns the south-east Baltic zone of development, lying along the TEM/TER axis. This zone (Fig. 3) includes Pomerania in Poland and Kronoberg, Jonköping, Kalmar, and Blekinge in Sweden. The zone branches into Kaliningrad and Klaipėda.

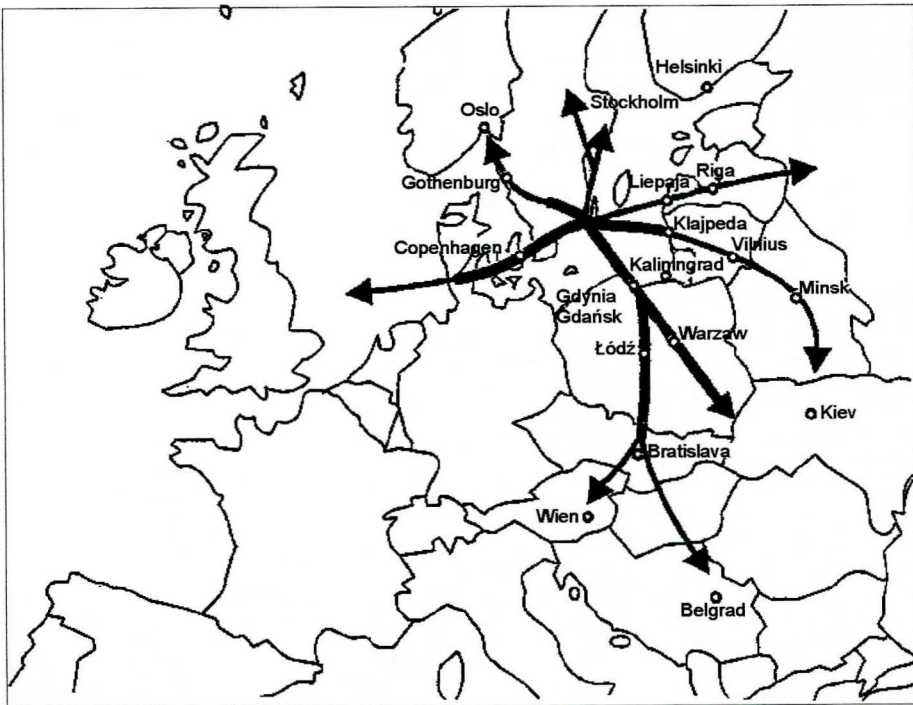


Fig. 3. The Port of Gdańsk in the system of Baltic transport connections

The development of the TEM/TER system (motorway A1 and railway line) will be an important factor, significantly influencing spatial development and functioning of environment, which will have far reaching and differentiated effects. This important element of development, together with the existing and planned infrastructure (railway lines, roads, gas trunk lines, pipelines, energy lines, telecommunication cables), natural resources and urban network, form an advantageous factor, facilitating development of various economical activities in the Port of Gdańsk.

The TEM/TER zone will be a qualitatively new element in the spatial structure of Northern Poland. In connection with other TEM/TER elements, it will form a new, often completely different, situation for the functioning of elements of transport and technical infrastructure, urban units and systems, production plants, agricultural and other units. It will also have significant effect on the development of large areas influenced by TEM/TER. The Port of Gdańsk has a good chance to play a central role in transport logistics of the whole TEM/TER zone.

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