TransBaltic

Towards an integrated transport system in the Baltic Sea Region

Report Summary

"The analysis of the potential and legitimacy of building a multimodal, logistic centre (dry port) of public character in the Warmia-Masuria Voivodeship together with determining a potential area for its location."

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WARMIA MAZURY

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Background and Aim of Research

In accordance with the principles of the European Commission, at least one multimodal centre on TEN-T ought to be located in each region on the NUTS 2 level (Voivodeship), which would facilitate the flow of cargo in the whole state transportation system, as well as stimulate further development of intermodal transport.

With reference to the above mentioned recommendations, the analysis also concerned the Warmia-Masuria Voivodeship, expressed in this study. The aim of the analysis was to either confirm or deny justifiability of the multimodal logistic centre (dry port) location within the Warmia-Masuria Voivodeship.

The term 'dry port' refers to a complex based on a direct link between a sea port and an intermodal terminal located at the hinterland of the port, which would be governed by similar rules of usage to those of a sea port. Owing to the above definition, the following features of a dry port can be enumerated:

- intermodal terminal (road-rail) should be located within a dry port;
- location at the hinterland of a sea port;
- rail link with a sea port;
- It should offer the same range of services which are usually available in a sea port (i.e., container servicing, freight forwarding, customs, etc.).

The subject expertise is an element of the transnational cooperation project "TransBaltic – Towards an Integrated Transport System in the Baltic Sea Region" funded by the European Regional Development Fund as a part of the Baltic Sea Region Programme 2007-2013 (BSR 2007-2013).

As part of the research both expert analysis and evaluation examinations were conducted in order to determine a recommended location. The first stage of the analysis was concerned with the determination of a dry port's catchment area, that is a region where business entities could be interested in using the dry port. Then, an analysis of the economic and business potential within the catchment areas was carried out. Further parts of the expertise were concerned with: a study of the Transport-Freight Forwarding-Logistic market within the region; the condition and level of infrastructure development as well as cargo streams within the voivodeship. As part of the research summary, a multi-criteria analysis has been carried out, which included five suggested locations for a dry port: Elbląg, Olsztyn, Braniewo, Ełk, and Gołdap. The report ends with conclusions and recommendations for various groups of clients.

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2. Results

On the basis of the conducted analysis, the Warmia-Masuria Voivodeship region, and supplementary the Podlaskie Voivodeship region, were acknowledged as the catchment area of the dry port in this region. These areas were determined according to isochrones of travel time of a commercial train between particular locations and the Gdansk sea port (as the nearest one to all).

Macro- and Mezo-economic Analysis of the Economy of Warmia-Masuria Voivodeship together with its Catchment Areas

The issues which were discussed as part of the Macro- and Mezo-Economic analysis of the region were mainly those connected with the production activity as well as with the international trading of goods, with a special emphasis laid on the goods transported by sea since a dry port is meant to facilitate service of such a direction).

The main economic centres of the Warmia-Masuria Voivodeship are the cities of Olsztyn and Elbląg, located in the western, more industrialized area of the region.
Amongst the dominating economic branches in the Warmia-Masuria Voivodeship, which potentially could show interest in applying a dry port, industrial processing (especially furniture production and the biggest in the country tyre production), timber and food sector.[1]
A number of large companies are operating within the above mentioned business lines, which potentially could be the main source of business activity within a dry port, provided that they would express their interest in using such a facility. It is worth mentioning, therefore, the Michelin tyres manufacturer and the producers of furniture (i.e. *Swedwood* which produces furniture for the international company IKEA).

Altogether, the highest export rate in the Voivodeship belongs to furniture and other household products (especially duvet covers, mattresses, lamps, lighting equipment). The total value of exportation at the end of the year 2010 amounted to 8.13 billion PLN. The value of imported goods amounted to more than 5.24 billion PLN.[2]

Rubber goods (especially tyres) and furniture are amongst the main export goods. Smaller export volume was noted with regards to plastic goods as well as mechanical devices and machines.

[1] On the basis of data regarding the number of enterprises in given divisions of the PKD (Polish Classification of Business Activity) published by the Local Data Bank, www.stat.gov.pl/bdl
[2] Based on the data provided by the Revenue and Customs, Warsaw

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Similarly to industry concentration, also exportation and importation are concentrated in the western part of the voivodeship - especially in the vicinity of Olsztyn centres (together with the adjacent Olsztyński district[3]) and Elbląg. A considerable part in exportation volume is played by the Ostródzki and Iławski districts respectively.

In the context of the destination of the cargo flow, it is worth mentioning that the majority of goods are exported to Germany, France, and Italy. Pneumatic tyres, furniture designed for sitting, meat and edible offal, as well as woodworks are goods mostly exported to Germany whereas pneumatic tyres, yachts, furniture designed for sitting and fabrics are mostly exported to France, and tyres, furniture, fabrics, and yachts – to Italy. However, it is unprofitable to use sea transportation for the above mentioned destinations. The majority of goods transported by sea come from Elbląg and Olsztyn, and from the Iławski and Olecki districts respectively.

Goods transported by sea are mainly headed to Denmark and Germany – in both cases oil cakes are the main exports. In terms of the cost of exportation in PLN – the highest rate is that of goods transported to the United States of America (furniture, vegetables, plastics) and Sweden (tyres and furniture). Whilst container transportation is dominant in the direction of the USA, goods headed to Sweden are mainly transported using the RO-RO (Roll On- Roll Off) connection, which can have a great influence on the functioning of a future dry port. In terms of the value of goods exported by sea – furniture, tyres, as well as machines and mechanical devices are dominant.

The value of imported goods amounted to approximately 5.24 billion PLN. Most goods were imported to the city of Olsztyn (nearly 55% of all imported goods) and to the Ełcki district, to the city of Elbląg, and Olsztyński and Ostródzki districts, respectively.

The majority of goods are imported from Germany, France and the Netherlands. Goods imported from the Netherlands mostly include leather, pigs (livestock), nonwoven fabrics, cut flowers, tubers, bulbs, and rhizomes. From Germany – paper, uncoated textiles, animal fat and oils, synthetic fabrics, boards, foils, plastic sheets, car parts and accessories. From France – foods and synthetic rubber. Again, it is worth mentioning that these are mostly the directions serviced by the road transportation.

Usually the goods are imported to the Voivodeship by road and rail transportation – less often by sea. However, in terms of the value of the goods imported, transport by sea comes in second – 829 281 406. The majority of goods are imported by sea to the city of Olsztyn (total value for the year 2010 – 597 228 637 PLN) and to the Ełcki district (67 328 379 PLN) to the cities of Elbląg and Mrągowo respectively. Rubber, cast iron, steel, and synthetic continuous fibres are amongst the most frequently imported goods.

[3] A district (powiat) is a second level of local government administration in Poland. Some agglomerations are granted the rights of powiat and become municipal districts.

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Export and Import in the Podlaskie Voivodeship

The statistical value of exportation in the Podlaskie Voivodeship for the year 2010 amounted to 4.44 billion PLN. The most frequently exported goods were dairy products as well as machines and mechanical devices. The recipients of the exported goods were based mainly in Germany, Russia and Belarus[4], which means that the majority of goods are not transported by sea.

In terms of the PLN value of exported goods, the municipal district of Białystok proved to be the leader with exporting goods of the total value of 1.3 billion PLN. An important part in exportation was played by the Grajewski (0.6 billion PLN) and Białostocki districts (0.45 billion PLN) respectively.

The total value of goods imported to the Podlaskie Voivodeship in the year 2010 amounted to 4.5 billon PLN, amongst them most frequently imported goods included fuels, mineral oils, as well as machines and mechanical devices, mostly from Germany and Russia.[5]

In terms of the value of imported goods, the municipal district of Białystok proved to be the leader. Goods imported into this district in the year 2010 amounted to the total value of 2.2 billion PLN. The second place was taken by the Bielski (0.85 billion PLN), Białostocki (0.37 billion PLN) and Sokólski (0.17 billion PLN) districts respectively.

Analysis of the Transport-Freight Forwarding-Logistic Market

The Warmia-Masuria Voivodeship has a very poor transport and logistic infrastructure. This refers to both the linear and nodal infrastructure. It is a result of, amongst others, its geographical and political situation. Although the voivodeship borders with the Baltic Sea, however, due to its structure, there are not many possibilities of using it for cargo transportation. The northern border of the voivodeship comprises the outside Polish and European Union borders as well, what also does not favor lively trade. This, in turn, results in a low number of cargo transports which thus results in the infrastructure being under-funded in favor of the regions located along the main transit routes.

The road infrastructure of the Warmia-Masuria Voivodeship is the weakest developed in Poland. Within its borders are approximately 22.6 knob kilometres of roads, whilst only 56% of them are solid. In the year 2010 only 57.7 km of roads within the Voivodeship were expressways, amongst them no motorways.

[4] Based on the data provided by the Revenue and Customs, Warsaw
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Road sections of the TEN-T network transport corridors run through the Voivodeship. Namely, a part of Corridor I (Corridor I a to be precise) – the section from Grzechotki, via Elbląg to Gdansk – and also a part of Corridor VI (Gdansk-Elbląg-Mława-Warsaw).

The development of complimentary connections is forecast for the TEN-T network inspection from 2011, what in the case of Warmia-Masuria Voivodeship includes also state road no. 16 from Ełk through Olsztyn, Ostróda and Iława, in the direction of Bydgoszcz. This road will surely improve the transportation accessibility of the entire voivodeship as well as the accessibility of Olsztyn itself from eastern parts of the voivodeship.

Within the Warmia-Masuria Voivodeship run sections of the AGTC network marked with the numbers CE-65 and CE-75. The sections of this network do not connect the opposite ends of the voivodeship (as is the case with most regions of Poland), but they merely run through its eastern and western ends. Owing to this, they do not constitute a strong framework for rail transportation which could be the basis for investments in nodal infrastructure.

In comparison to the AGC/AGTC network, the TEN-T also includes a section of the rail route Gdansk-Tczew-Elbląg-Braniewo (Corridor 1a) with a total length of 141 km as well as the complimentary connection on the Iława-Olsztyn-Korsze-Ełk route. It is not, however, certain whether there would be a future demand for cargo transportation on this route, especially towards the sea port, thus, what provides a good basis for the location of a dry port.

From the point of view of the functionality of a dry port – sea transportation of units such as containers, swap bodies, truck trailers or whole trucks, is most important. Sea ports in Gdynia and Gdansk play the key part for both exporters and importers form the Warmia-Masuria Voivodeship. Container transportation is arranged through a number of terminals located in the sea ports of Gdansk, Gdynia, and Szczecin.

In the Warmia-Masuria Voivodeship, haulage of cargo by rail amounted to 779 k. tons in the year 2005, which was only 0.6% of the total cargo quantity on the doemstic scale. In terms of delivered shipments, their quantity amounted to 2509 thousand tons respectively, that is 2% of the total cargo on the domestic scale. The majority of shipped cargo carriage was carried out within the inter-voivodeship relations, whereas delivered cargo was mainly foreign . This data points to the main direction of cargo flow[6].

It is also worth noting the number of trains cleared at border crossings with the Kaliningrad Oblast. Until the year 2008 there was a steady growth. Lower results for the years 2009 and 2010 result mainly from the economic crisis and thus the weakened trade exchange. In the year 2010, most of trains were cleared in Braniewo (2564 drafts of cars), whereas in Skandawa it was only 769 drafts of cars.

The weight of cargo carried by road transportation in the Warmia-Masuria Voivodeship is several dozen times greater than the weight of cargo carried by rail. It is evident that most of

[6] Transportation - effects of activity in 2010, Central Statistical Office

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carriage by road include inter-voivodeship relations – 76.8% of shipped cargos and 83% of delivered cargos. This proportion is considerably higher than the average of whole Poland.

In terms of the possible location of the dry port, inter-voivodeship (including delivery to sea ports in the Pomeranian Voivodeship) and international carriage are more important. In the Warmia-Masuria Voivodeship these carriages constitute only 23.1% (both inter-voivodeship and international) of all shipments and only 17% of delivered cargo.

As it results from the analysis of the volume of trucks, which are crossing the Polish-Russian border, the vast majority of them are foreign vehicles, passing mostly in the direction from Poland (or e.g. Germany) to Russia (or other countries). On the basis of this observation it can be stated that the majority of trucks carry transit cargo, possibly on the entire route. A part of these carriages can be delivery to or from the sea port.

What is interesting is the fact that most of the trucks until the year 2009 were cleared at the border crossing in Bezledy, what could suggest that they came from the direction of Warsaw. Currently, more and more trucks are being cleared in Gronowo and Grzechotki (18507 and 20291 trucks in the first half of the year 2011 respectively).

Taking into account the volume of the trucks[7] on roads it can be noticed that most of the cargos passing through Warmia-Masuria Voivodeship are cargos shipped between the Tri-City and Warsaw (or the State's eastern border), and also cargos shipped between Lithuania and Warsaw or the western and southern borders of Poland.

Such an arrangement proves also a relatively low demand for the transportation of cargo to sea ports from the Warmia-Masuria Voivodeship, but this also shows relatively pretty high potential of the voivodeship in the case of transit service between voivodeships and neighboring countries.

In the context of the analysis of dry port location reasonable, the intermodal transportation market should also be taken into account. In Poland this branch of transportation demonstrates a small but constant growth. In the coming years an increase of the intermodal transportation by a few percentage points per year is forecast. According to these forecasts, the increase in the cargo transported by intermodal transportation until the year 2020 is to reach between ca. 36% and 50%, whereas the same forecast until the year 2030 predicts between 106% and 136%[8] depending on the scenario assumed. These forecasts suggest that development in the direction of the intermodal transportation is a promising one.

[7] With an exclusion of light commercial vehicles, due to the fact that such vehicles are mostly used in regional transportation and cargo they carry does not fall into the category of cargo in the context of a dry port.
[8] Development Strategy Until 2020 with a Perspective Insight until 2030, Ministry of Infrastructure.

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In the year 2010 over 225 thousand containers were carried by rail (389.7 thousand TEU), 7 trucks, 28 truck trailers (plus two empty ones), as well as 5011 loaded and 2208 empty swap bodies[9].

The vast majority of containers of this kind are carried by international communication (88% with regard to the carried TEU for carriage with loads and 74% of empty TEU). Within international communication 20% of all TEU (with load) was shipped abroad, approximately 30% was delivered from abroad, with the remaining 50% consisting of transit cargo. In case of trucks carried by the inter transportation, nearly 100% consisted of swap bodies, 94% of which was imported (import).

A re-loading terminal is located within the Warmia-Masuria Voivodeship, in Braniewo. Close to the voivodeship, there is a terminal operating in Mława. New terminals are also planned in Zajączkowo Tczewskie (PCC Intermodal plans regarding the construction of a dry port) as well as in Suwałki or Ełk (PKP Cargo plans regarding, among others, the development of Rail Baltica).

Currently routes of intermodal train lines pass through the voivodeship, most of them being transit lines. Apart from this, they are of irregular character. To illustrate, PCC Intermodal is offering intermodal connections from the sea ports of Gdansk and Gdynia to the terminals in Sławków, Kutno, and Brzeg Dolny with the frequency of 5-6 times a week. All of the trains pass through the Warmia-Masuria Voivodeship. The company is planning a connection to Grodno which will again pass by the Voivodeship.

More connections running through the Warmia-Masuria Voivodeship are offered by PKP Cargo Group – the leader in rail transportation. Offered connections include inter-terminal trains (Interterminal) on the route Braniewo-Kobylnica, Gliwice-Braniewo, Braniewo-Mława, as well as Paneuropean VI trains (Zwadroń-Skandawa), Kaliningrad Wind (Warsaw-Skandawa), Lithuanian Wind (Warsaw-Trakiszki), which actually passes by most of the voivodeship). All the mentioned trains are shipped according to certain needs[10].

The plans of rail operators seem to be contradictory to the plans of the European Commission, focused on the construction of intermodal road-rail terminals in Braniewo and Ełk. The construction of the dry port in Zajączkowo Tczewskie was announced by the PCC Intermodal which has already taken the first steps towards this purpose relying in the purchase of land for the purpose of constructing their logistic centre. This terminal is expected to be accomplished by 2015.

The vision of development of the PKP Cargo Group, which forecasts the building on an intermodal terminal in Suwałki or Ełk in the more distant future, is also worth mentioning.

[9] Transportation. Effects of activity in 2010. Central Statistical Office.
[10] Ref.: PKP Cargo and PCC Intermodal websites

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Case study

Six case studies, which helped to identify good practices concerning construction of the dry port within the Warmia-Masuria Voivodeship, have been conducted in the report,. Five cases, were studied in the countries of Europe - Spain, Sweden, Belgium, Germany, and Italy where a network of dry ports is more extensive than in Poland. The final case study concerned container terminal located in Mława.

In Sweden the dry port in Falköping, which operates within the Skaraborg Logistic Centre, comprising the net of rail connections with the sea port in Gothenburg, was chosen as a dry port. It facilitates the transportation of timber, one of more important raw materials within the region of **Falköping**.

Dry port Muizen in Belgium was selected as an example of a dry port which has road and rail connections with such sea ports as Antwerp, Rotterdam, Zeebrugge, and Dunkerque.

Puerto Seco, a Spanish dry port, is located in the vicinity of Madrid. It is a multi-modal centre which has direct rail connections with the four major sea ports of Spain: **Algeciras, Barcelona, Bilbao, and Valencia**. It is the largest logistic centre in Southern Europe.

Bologna Freight Village in Italy has a total area of about 2,000,000 m^2. Bologna Freight Village has a direct connection with the motorway connecting Bologna with Padua. The railway network within the centre is 20 km long.

Dusiport - Germany is the biggest dry port centre in the world. It links three modes of transportation - road, rail, and river). It is located by the Rhine river and also serves sea vessels.

The container terminal in Mława has a direct railway connection with the sea port in Gdynia. This enables the transportation of TV components, imported from South Korea; LG Electronics from the seaport in Gdynia to the factory in Mława; and TVs from a factory to the sea port in Gdynia. The total area of the terminal is 25 000 m²

Multi-Criteria Analysis (MCA)

In order to carry out a Comparative Analysis of five preliminary locations of a dry port, an MCA was used which enabled the aggregation of various features of a location, giving it a numerical value. The following five groups of criteria were assumed for the comparative evaluation of the location of a dry port on the level of districts located in the Warmia-Masuria Voivodeship:

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- Terrain
- Logistical and Communicational
- Economic and Business
- Ecological
- Technical and Legal
- Local Government Units' (LGU) opinion

Table 1. Partial Terrain Criteria for the Analysed Districts

Technical Condition of the Rail Tracks on the Given Location Section – Gdansk Sea Port
Distance to the Nearest Railway Station Situated in the TEN-T Network Corridor
Distance to the Gdansk Sea Port by Rail Transportation
Distance to the Nearest Motorway Junction

Source: Own Study

Table 2. Partial Logistic and Communicational Criteria for the Analysed Districts

Distance from the Nearest Commercial Rail Border Crossing
Exploitation Work on the State Road Network in the Year 2010, Tangent to the Location
Exploitation Work on the Rail Segments Tangent to the Location
Proximity of the Logistic Centres, Sea and Inland Ports as well as Intermodal Re-Loading Terminals

Source: Own Study

Table 3. Partial Economic and Business Criteria for the Analysed Districts

Value of Export from a Given District
Value of Import from a Given District
Businesses Registered in a Given District
Unemployment Rate

Source: Own Study

Table 4. Partial Ecological Criteria for the Analysed Districts

Proximity of the NATURE 2000 Areas
Forested Area of the District

Source: Own Study

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The following chart presents collective evaluations of particular criteria which allowed to choose the most beneficial location for a possible dry port.

Table 5. Summary of the Multi-Criteria Analysis

DISTRICT	TERRAIN	COMM. &LOGIST.	ECON. & BUS.	ECO.	TECH.& LEGAL	LGU OPINION	AVERAGE
Braniewo	6.7	7.25	2.3	3.8	7	8	**5.41**
Elbląg	10	8.55	6.2	6	10	8	**8.15**
Ełk	3.25	4.35	4.95	5	7	8	**4.91**
Gołdap	2	1.1	4.05	2.8	4	8	**2.79**
Olsztyn	7	7.85	10	7.2	6	8	**7.61**
Weight for the Group of Criteria	***21,43%***	***21,43%***	***21,43%***	***7,14%***	***21,43%***	***7,14%***	***100%***
DISTRICT	**TERRAIN**	**COMM. &LOGIST.**	**ECON. & BUS.**	**ECO.**	**TECH.& LEGAL**	**LGU OPINION**	**CRIT. SUMM**
Braniewo	1.44	1.55	0.49	0.27	1.50	0.57	5.82
Elbląg	**2.14**	**1.83**	**1.33**	**0.43**	**2.14**	**0.57**	**8.45**
Ełk	0.70	0.93	1.06	0.36	1.50	0.57	5.12
Gołdap	0.43	0.24	0.87	0.20	0.86	0.57	3.16
Olsztyn	1.50	1.68	2.14	0.51	1.29	0.57	7.70

Source: Own Study

As the above MCA reveals the most suitable locations for a dry port in Warmia-Masuria Voivodeship are Elbląg and Olsztyn.

Research results

Quantitative Research

Table 6. Weak and strong points of the location of the dry port in the Warmia-Masuria Voivodeship:

Strong points	
New jobs	32.00%
Improvement in the functionality of the Voivodeship, increase in the potential	15%
Local Economic Growth	10.00%
Improvement in Business Funding	8.00%
Improvement of infrastructure	21.00%

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Possibility of the improvement of customs	8.00%
Creation of an additional economic area	4.00%

Source: based on the CATI research

Table 7. Weak points

Fear of the weakening of smaller enterprises	48.00%
I don't know	21.00%
Road destruction	12.00%
Fear about bad location	11.00%
Increase in traffic volume	8.00%

Source: based on the CATI research

Table 8. Strong points of the location of the dry port in the Warmia-Masuria Voivodeship:

Improvement of the rail and road infrastructure	3.50%
Lack of competition from other centres	7%
Lower logistic costs	7%
Improvement in accessibility of sea ports	9%
Good influence on the natural environment	9%
Regional development	9%
Cheap work force	10.50%
Improvement in the quality of logistics services	12%
New jobs	21%

Source: based on the PAPI research

Table 9. Weak points:

Other	2%
Traffic impediments	2%
Higher price of delivery chain	4%
Lack of demand	4%
Lack of potential of the region	5%
A small number of businesses using the centre	7%
I cannot see any weaknesses	7%
Distance from sea ports	9%
High cost of the investment	10%
Destruction of the environment	20%
Lack of rail and road infrastructures	30%

Source: based on the PAPI research

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Interpretation: the fact that nearly 1/3 of the CATI research respondents (1/4 in case of PAPI respondents) connect an increase in the employment opportunities with the building of a new logistic centre, deserves attention. A significant percentage of the respondents also mention improvement of infrastructure and general increase in the economic potential of the region. Approximately half of the respondents, when asked about the weaknesses of a new logistic centre, pointed to the weakening of small enterprises. It has to be emphasized, however, that the above question posed a problem for the respondents (in the CATI research). The respondents noticed significant pauses in utterance what proves difficulties with identifying weak sides of the project. It is also supported by a significant percentage of "I don't know" responses. In the case of the PAPI research, the respondents believed that the main weakness of the new centre is mostly the lack of road and rail infrastructure, as well as a possible destruction of the natural environment.

Table 10. According to your opinion, what would be the most suitable location for the new dry port/logistic centre in the Warmia-Masuria Voivodeship[11]?

Olsztyn	48%
Elbląg	19%
Vicinity of Olsztyn	12%
Within the economic zone	10%
Vicinity of the national road no. 7	8%
Vicinity of 'bypasses'	2%
other	1%

Interpretation: On the contrary to the MCA, the respondents, taking into account their own needs, decided that the most suitable location for the new logistic centre is Olsztyn. Other locations did not vary in such a significant way and the percentage of the answers was shared evenly between them.

The research also included In-Depth Interviews on the basis of which it was possible to formulate the following conclusions:

1. There is a lack of information regarding the plans of constructing a dry port in the Warmia-Masuria region;
2. A dry port could have a positive influence on the regional and job market development. Another benefit would come from the systematization of the cargo flow within the region;
3. The condition of success of a dry port is the existence of good road and rail links which would include the TENT-T Network route as well as good technical parameters. The demand for the services offered within a dry port is one of the most important elements which will decide about the investment's success. Such a demand is currently forecast as relatively low;

[11] Based on the CATI research.

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4. A dry port should be an economically profitable enterprise. It is necessary to gain a private investor;
5. Interest as small as possible, on the part of the carriers; poor condition of the infrastructure; difficulties connected with the ownership and buying of land for the construction of the logistic centre; environmental considerations; and possible protests from members of the public were listed amongst the obstacles for the location of a dry port;
6. It was believed amongst the businesses from the TSL industry that private ownership would be a better form of ownership of a dry port. The respondents of the qualitative research spoke in favor of the public-private ownership, although, some believed that private ownership would be more effective. They all were in unison in terms of rejecting public ownership;
7. Customs, transportation, freight forwarding, and a container depot should all function as part of a dry port. It is worth emphasizing that there was a common belief that the centre should offer complex services, meaning that the complex should operate on a relatively large scale.

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Conclusions and Recommendations

Conclusions

Location	
	The MCA determined Elbląg as the best location for the new dry port. As a result of the MCA it has to be assumed that two most suitable locations for the dry port in Warmia-Masuria Voivodeship are Elbląg and Olsztyn.
Reasonableness	
	The main cargo streams, which could be directed to the dry port, would flow from and to the Warmia-Masuria Voivodeship, and partially to the Podlaskie Voivodeship. The above mentioned Voivodeships have a relatively small exportation and importation potential. A solution can be provided by connecting the dry port with a larger enterprise in the voivodeship, which would be interested in using it. Analyses show that such an enterprise could generate a sufficient number of cargo streams to ensure the profitability of a dry port. It would be necessary to obtain clear declarations from the side of the interested entities with regards to the number of transports which would be shipped from the dry port. A competitive and surely more convenient location for the dry port (in relation to the sea ports of Gdansk and Gdynia) is the area owned by the PCC Intermodal logistic operator located in Zajączkowo Tczewskie. As it results from the Macro- and Mezo economic analysis, as well as from the TSL analysis that the main part of the cargo streams running through the Warmia-Masuria Voivodeship are transit cargos in international relations (Kaliningrad Oblast-Germany and the South of Europe as well as Lithuania-Germany or the South of Europe).
Summary	
	Examples of existing and planned terminals show that the minimal number of tracks is two. There is no possibility to evaluate the number of TEU as the potential of the region is relatively low. However, in the case of a dry port, location of an infrastructure for operating such containers which are used in sea transportation has to be additionally assumed, together with an appropriate level of security.

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Recommendations

Local Government
Consultation with all the interested entities should serve as the basis for action. Inclusion of a dry port or an intermodal terminal in local zoning. Allocation of land with access to a railroad, as well as good road links with other regions of the Warmia-Masuria Voivodeship. It is necessary to connect a dry port with the functional structure of the city/district within which the complex will be constructed. Support of the development of industrial parks and trade clusters which in the future could serve as the basis for the introduction of common enterprise in the context of a dry port construction.

Sea Port Managers
It emerges from the research that they are not interested in the construction of a dry port. Due to the specificity of both kinds of complexes, as well as to the development possibilities of the Tri-City ports, it can be assumed that a dry port will represent competition for the sea ports. For a dry port to fully realize its potential it is necessary to be functionally linked with a sea port.

Rail Infrastructure Managers
Managers of rail infrastructure should take action aimed at the development of rail infrastructure as well as at the decrease in access fees.

Road Infrastructure Managers
Managers of road infrastructure should develop a plan for modernization of road infrastructure towards possible dry port location area.

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Self-Regulatory Organizations

Potential mediation between the Local Government Administration in order to determine the level of interest in the enterprise on the part of the private entities. A more important role should be played by the representatives of enterprises as it is them who would be using the terminal directly.

Support of the development of industrial parks and trade clusters which in the future could serve as the basis for the introduction of common enterprise in the context of a dry port construction.

Governmental Administration

A unified, coherent concept of intermodal transport development should be drawn up. An example of the lack of effectiveness in this scope is the competitiveness of the locations of a dry port in Zajączkowo Tczewskie and Warmia-Masuria Voivodeship. However, from the point of view of the loading capacity, the location in Zajączkowo Tczewskie seems to be a lot more profitable.

Inclusion in the spatial planning of a network of intermodal terminals (amongst them: a dry port) also in connection with the plans of private investors regarding construction of such complexes.

Participants of the TSL market

Road carriers are not interested in the development of a dry port as it facilitates intermodal transport, the majority of which is largely in competition with road carriers.

A large amount of interest from the rail carriers can be noted. However, everything depends on the potential of the region.

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Financial and Legal Recommendations

Research showed that a private owner should manage a dry port. Due to the functional reasons an operator can be connected, i.e., with rail or road transportation.

Due to the character of the investment a public-private partnership is possible. A potential public-private partnership can be based on the public entity giving the land for construction of a dry port, provided that suitable land will be in their ownership.

The first stage should consist of gaining a private investor who would, based on the estimation of the potential of a given location, decide to take on the investment.

Funding should come from public means. The possibility of co-funding from an outside, non-refundable source, should also be considered, including EU funding.

Functional and Spatial Recommendations

A dry port should be located in the vicinity of a rail track which would enable a direct connection with a sea port.
Location of a dry port should aim to improve the spatial order of both district and region.
Location should take into account preservation of the natural richness of regions included in the Nature 2000 programme.
The choice of location should ensure a segregation of arduous factors (increased truck traffic) in order to avoid spatial, environmental, and social conflicts.
It is necessary to take into account a number of available containers within a dry port. It has to be considered that the containers which are used in the importation of goods are usually not the same as those used in exportation (different ship owners operate within different destinations of importation and exportation). It is necessary to convince the ship owners to cooperate and encourage them to leave a certain number of containers within the dry port.

A suitable level of security has to be provided, similar to that of the security within sea ports (operating on the basis of an ISPS Code).

Functional areas of a dry port necessary to be developed:

- Veterinary Inspectorate
- Sanitary Inspectorate
- Inspectorate of Commercial Quality of Agricultural Food Products
- Inspectorate of Plant Heat and Seed Inspection
- Customs
- container depot
- container wash and renovation facilities
- electrical wiring for refrigerated containers*
- connecting and disconnecting of carriages (train forming).

* The usage of refrigerated containers in a dry port can prove to be minimal due to the fact that rail carriers do not have a suitable number of carriages with electrical wiring to connect a refrigerated container.

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A dry port, in order for to fulfill its basic functions, should provide an attractive access to a sea port with regard to the time, cost, and distance. Most of the industry is located in the western part of the voivodeship, therefore, it has to be emphasized that the further east the location of such a complex is, the lower the number of cargo serviced.
Whilst comparing the main functions of the planned terminal in Zajączkowo Tczewskie with a possible location of such a terminal within the Warmia-Masuria Voivodeship, it has to be emphasized that their basic functions are fundamentally different. The function of a dry port in Zajączkowo Tczewskie will be mostly connected with relieving the sea ports and road infrastructure of the increasing number of incoming and departing containers. In this context the main asset of such a location is its vicinity to the sea port as well as its location on the main line railway which, within a further few kilometres, ramifies into all directions within Poland. A potential dry port in the Warmia-Masuria Voivodeship does not have such an advantage. Its main asset could lie in the connection with industry as well as in the vicinity of the customers requiring transportation services. Currently, however, it is impossible to deem this aspect as an advantage due to low exportation potential of the region.

Recommendations: Promotion, Information, Consultations

The research has shown the lack of consciousness amongst the respondents of the planned location of a dry port within the Warmia-Masuria Voivodeship. The entity interested in construction of such a complex should focus on providing information and the promotion of such an enterprise.

An informational campaign and consultations between the interested parties (potential shippers and recipients of goods, TSL businesses, ship owners, rail carriers, local government units) should be carried out.

Discussions with ship owners regarding the possibility of organizing a container depot within the dry port.

Organization of promotional and informational business meetings for the entities which could be interested in the usage of a dry port.

Publications in the trade press on the benefits resulting from the usage of a dry port.

An informational campaign is also necessary in the stage of functioning of a dry port (provided that it is going to be constructed) as in order to make good use of it, the shippers should address their cargo to reach a dry port, not a sea port. Without this knowledge on the part of the entities participating in trade, a dry port can only serve as a re-loading facility, which results in additional adjustments made to the cargo unit, and this is not functional.

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General Recommendations

In the operational context, financial and organizational success of a dry port will rely on the following factors:

- A regular intermodal connection between a sea port and a dry port should be available. Such a connection would be initiated provided that a suitable regular weekly demand would exist, (one that would secure a full load of a train with every course). A delay in departure of a container from a sea port, resulting from waiting for the train to be fully loaded, would make this route unprofitable.
- The success of a dry port will also depend on the will of the ship owners who would like to store empty containers on the site (container depot function). This will depend on the demand for the service as well as on the comparison between the cost of storing empty containers at a sea port and a dry port.

Suggested Actions

Consultations between the parties interested and:

- In case of interest on the part of the enterprise – further development of the project.
- In case of a lack of interest – it will be difficult to find an investor who would like to construct a complex such as a dry port. An investment funded by public means is not recommended due to the low profitability of the project.

In such circumstances it is recommended to:

- Carry out further analysis of the location concept for the multimodal platform (instead of a typical dry port) in a different part of the voivodeship, depending on the interest on the part of a private investor from rail industry.
- Consider the location of a container depot instead of a dry port, depending on the interest on the part of ship owners.

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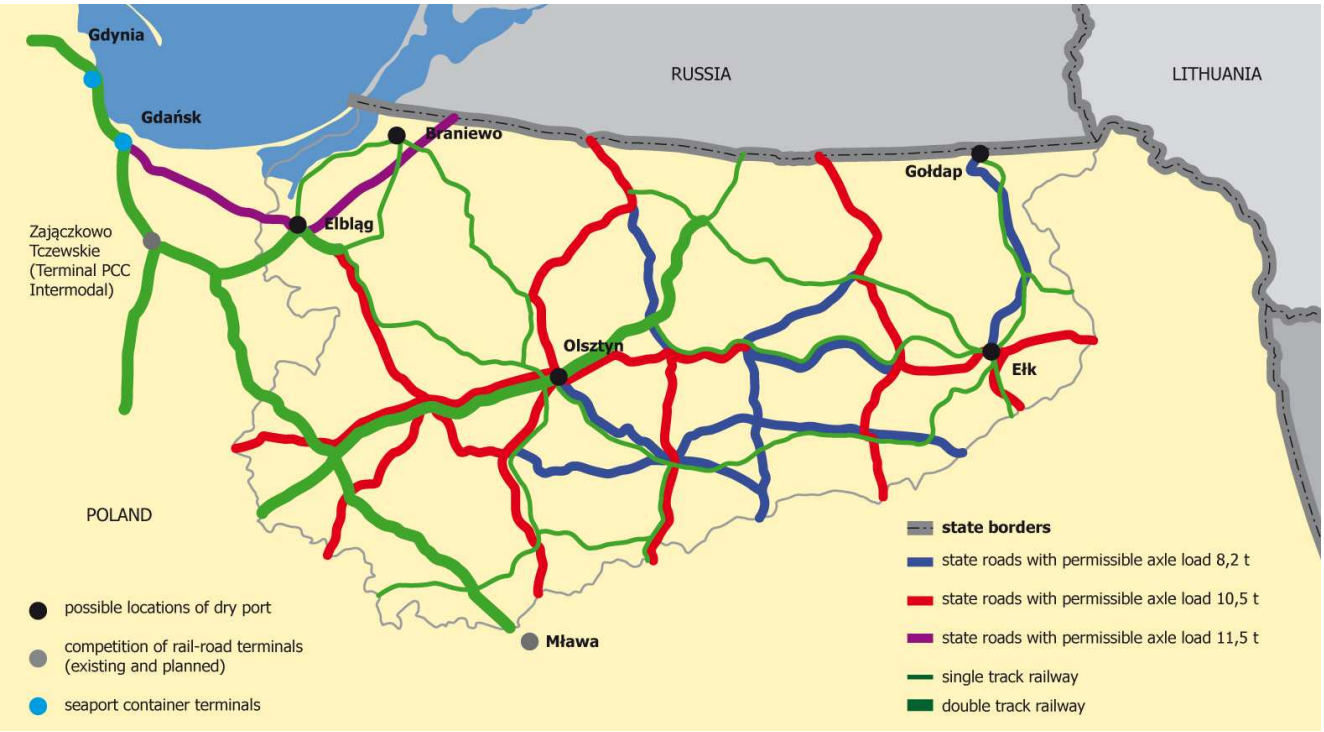
Picture 1. Map of North-East Poland with road and rail connections in Warmia and Masuria Voivodeship and location of intermodal terminals, including the possible locations of a dry port.



Source: Own elaboration.

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