

DEVELOPMENT PROBLEMS OF THE VILNIUS AND KAUNAS AIRPORTS

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Abstract

In Lithuania, there are four airports, two of which, Vilnius and Kaunas, are in the eastern part of the country. The Vilnius airport is close to the capital, thus it represents the country and serves as a door of the country to the world. Following the latest predictions the capacity limits of its infrastructure will be reached this year already.

The Kaunas airport is within the influence zone of the Vilnius airport with the development of infrastructure being its typical feature. The aim of this work is to study the dynamics of the international airports of Lithuania and to propose the development prospects for the airports linked to Vilnius.

1 Introduction

Lithuania, which is in the eastern part of the European Union, and in terms of the European continent is a central European country, has been paying considerable attention for the integration of its transport system into the transport network of the EU. Important transport corridors are crossing the country: Via Baltica, Via Hanseatica, and also the IXB and IXD, and the railway line of RailBaltica.

In the transport system of Lithuania an important place is taken by air transport. There are four international airports in the country, 11 air companies, and 16 foreign companies have flights to the airports of Lithuania. The development prospects of the airports have been defined in the “Long-term Development Strategy (until 2025) of the Transport System of Lithuania” [7] drawn in 2002, in the preparation

of which different aspects of the development of the transport system were studied [1, 3, 6, 11, 13, 9, 12, 10], and the scheduled modernisation of the infrastructure of the airports was started. In 2005, a strategy on the operation of civil aviation in the liberalised market was approved [4]. All the strategic documents focus on one of the key issues, i.e. tackling of the basic development problems of the international Vilnius and Kaunas airports, upgrading them to meet the Schengen requirements.

The task of this work is to analyse the development dynamics of the Lithuanian international airports and to propose the development prospects for the airports linked to the capital city of Vilnius.

2 Operation dynamics of the Lithuanian international airports

Out of four airports of Lithuania, two are in the eastern part of the country within the area of Vilnius (Vilnius and Kaunas airports), a military airport at Šiauliai, which is open to civil flights, and the fourth is at Palanga, the western part of the country.

Under the changing political and economic order the flows of air transport were shrinking. Prior to the restructuring, the Lithuanian airports only had a right to operate the flights to the countries of the former Soviet Union, the economic ties with which were very close. After the restructuring, the economic priorities of the country changed and following an orientation to the west the transport flows were shifting in the same direction, too, while fixed prices were replaced by market prices, which were forced to adjust to the operation

costs. A boosting economy predetermined a growth of passengers in the Lithuanian airports. Lithuania's joining to the European Union and opening of the markets produced the greatest impact. A cancel of visa regime and lowering of prices facilitates a continuous growth of passengers irrespective of varying levels of equipment of the Lithuanian airports.

A military airport at Šiauliai, northern Lithuania, is also used, albeit infrequently, for civilian passenger and cargo flights. In its vision the airport foresees servicing large cargo aircraft, but until now these efforts have not been successful.

For the airport at Palanga, western Lithuania, a highly seasonal pattern of operation is typical, since this is an airport of the holiday resort, which mostly services the tourists coming to the seaside in summertime. Next to the airport there is a major seaport in Klaipėda surrounded by a flourishing free economic zone. The airport is seven kilometres north from the town of Palanga. The passenger flows at the airport have been constantly growing. It is expected that in 2006 the port will service 104 thou. passengers, which is by 10% more than last year, however cargo flows at the airport are insignificant.

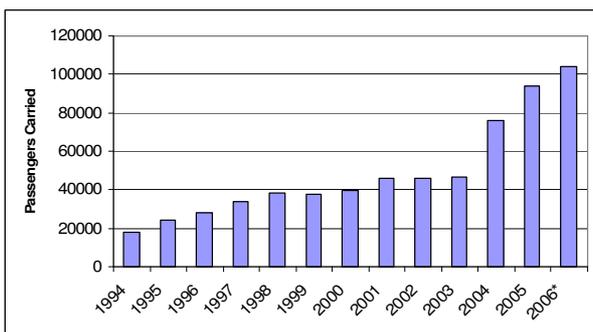


Fig. 1. Passenger dynamics at the Palanga airport.
*Forecast

The parameters representing the operation of the Vilnius and Kaunas airports in the eastern part of the country are represented in figures 2 to 4.

The Kaunas airport was originally intended for air freight, however the expectations did not come true and now the

airport is being redirected to become an airport for low-cost carriers. This explains the formerly low passenger flows and a sudden upsurge at the present time. For the year 2006, the passenger number planned is over 200 thou. At the airport, the Ryanair and Wizzair companies are already in operation, and provisions have been made to draw in a major technical service and maintenance company, and also major freight operators, which would ensure loading of cargoes at the airport, the turnover of which is still below that of the Vilnius airport.

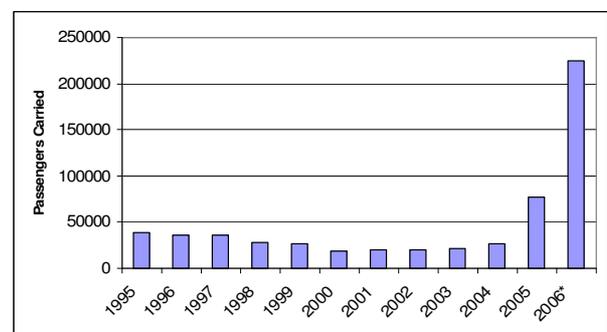


Fig. 2. Passenger dynamics at the Kaunas airport.
*Forecast

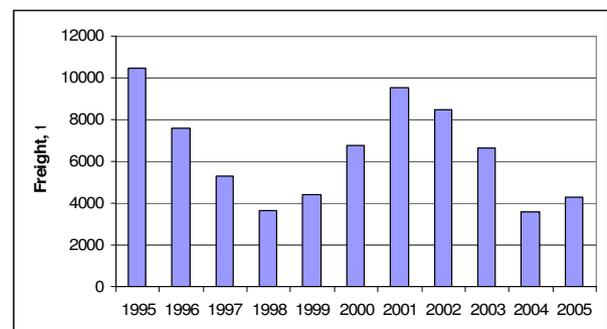


Fig. 3. Freight dynamics at the Kaunas airport.

Unaffected by the economic crises of Lithuania and the neighbouring countries, passenger flows at the Vilnius airport have been constantly growing, notably in recent years, after Lithuania's accession to the European Union, where the market has expanded by nearly 40% per year. It is estimated that this year the maximum capacity of the terminal at 1.5 million passengers will be reached. Air freight has not been growing as fast.

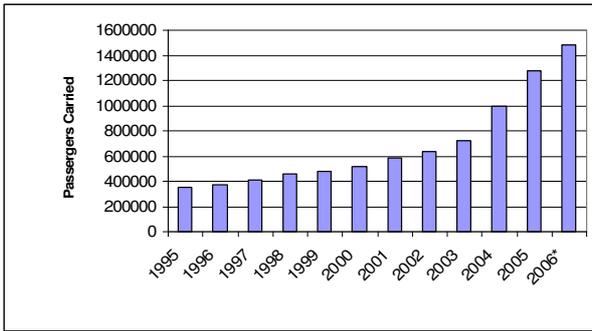


Fig. 4. Passenger dynamics at the Vilnius airport.
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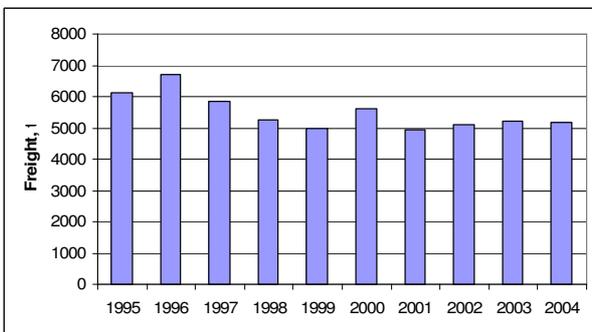


Fig. 5. Freight dynamics at the Vilnius airport.

3 A dichotomy of the Vilnius and Kaunas areas

Vilnius and Kaunas are the cities in the eastern part of the country, separated by 100 kilometres in-between. The counties of these two cities contain the population of 1.5 million (total population of the country is 3.43 million). In the municipalities of the dichotomy currently is produced about 54% of the GDP of the country, 46% of the produce is marketed, and 78% of foreign investment is used [16]. In other words, the Vilnius-Kaunas area is the main economic factor of the country, for which an optimal transport system is needed.

In 2002, the municipal governments of both cities decided to implement an idea of integrated economic development, i.e. a dichotomy. In the “Strategic Plan of Vilnius and Kaunas Dipolis” [16], publicised in 2004, the “Improvement of transport system and

development of the infrastructure” are designated top priorities [16]. The task of the dichotomy is to improve coordination and planning of the emerging and strengthening contacts between the cities, to modernise the transport infrastructure and to perform a targeted distribution of air transport flows.

An economic growth, political events related to the accession to the NATO and the European Union produced a sudden growth in demand for air transport services throughout the country. In the Aviation Strategy [4] an overall estimation of the total passenger number of Lithuania made (according to growth of GDP) implies that within the years 2008-2011, the second million will be achieved, and for the year 2015 the number of passengers is planned at 2.5-3.5 million per year, however the actual figures for 2005 and the forecast for 2006 show a much steeper curve of the passenger growth (see fig. 6).

In 2004 and 2005, the passenger number at the Vilnius airport rose by 40 and 32%, and for the Kaunas airport a growth by nearly 200% is forecasted in 2006. The discussions on the need for the development of infrastructure and estimations about the passenger flows conducted before, currently have been turning into an urgent call for prompt decisions, since both Vilnius and Kaunas airports have actually exhausted their potential.

A growing passenger number and the estimations have stimulated an emergence of new ideas. One of them is focussed on the construction of a new airport. The initiation group has proposed three possible versions for the development of air transport [8]:

1. Construction of a new airport on the territory of Elektrėnai or Kaišiadorys municipalities;
2. Expansion of the Vilnius airport;
3. Expansion of the Kaunas airport.

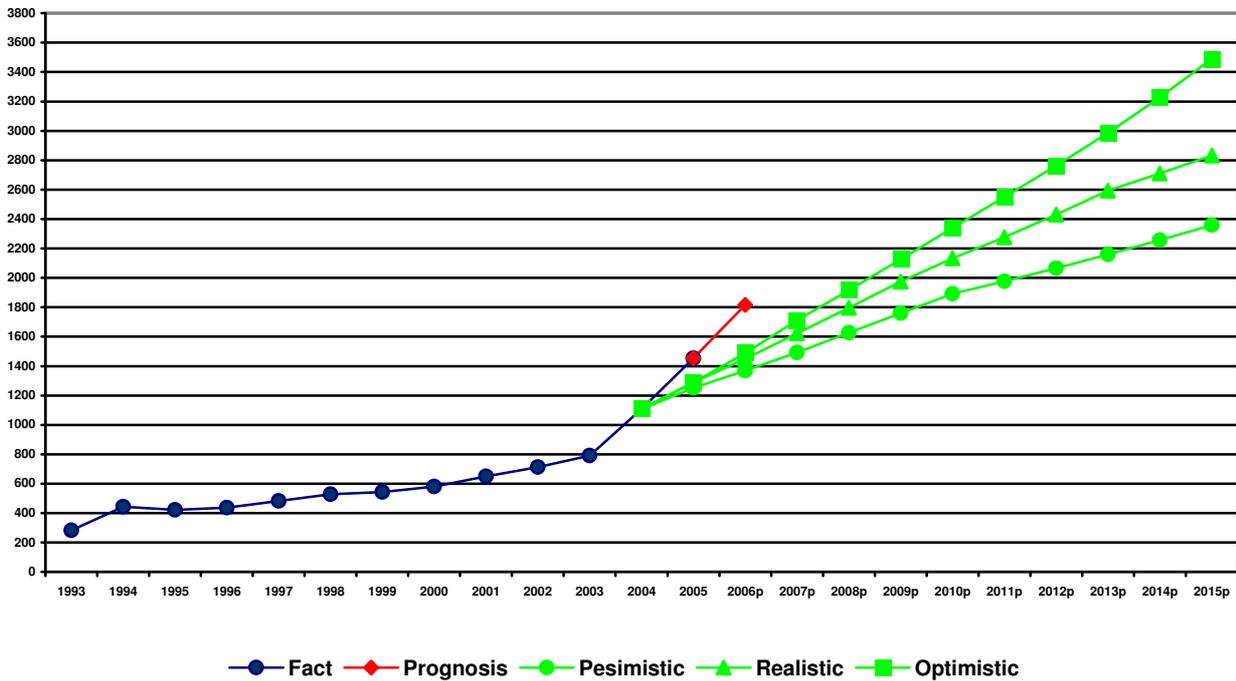


Fig. 6. Prognosis of volume increase of passenger transportation according to GDP [4]

3.1 Construction of a new airport

Construction of a new airport is estimated at the amount of LTL 1000 million, with the length of the runway at 3200 m, and the passenger terminal at 3.5 million [8]. In the aviation strategy [8], the above estimate increased from LTL 1488 million (excluding exterior infrastructure of the airport, under the same terms, using a realistic scenario) to LTL 2190 million (excluding exterior infrastructure of the airport, using an optimistic scenario, five million passengers per year). To date, a specific territory for the construction of a new airport is not yet provided nor investigated.

On the one hand, with a view to the future it is feasible to have a major inter-modal transport unit in the very centre of the dichotomy, which would have unlimited development opportunities, a well-structured access by vehicle or rail protecting the city dwellers from noise.

On the other hand, even disregarding enormous amounts, the most optimistic estimations of the growth of the passenger

number are well under five million passengers in the year 2015, whereas four millions are only realistic under a constant economic growth, ignoring possible national crises and those in the adjacent large countries, potential unrest in the world and instabilities of the EU.

The available infrastructure of the Vilnius and Kaunas airports is not used to the full. The terminals, the construction of which is foreseen in the near future, only limit their potential. The runway capacities of both airports meet the requirements for the forecasted passenger growth over 20 years.

3.2 Expansion of the Vilnius airport

Vilnius is capital of Lithuania. The airport, which is close to the city, is the main gate to the world representing the country. The airport was built more than 50 years ago, in 1954, and the new terminal was incorporated into the old structure and opened in 1993, the total area of which is 7792 sq. m. [17]. The originally projected capacity of the airport was 1.5 million passengers a year or 900 passengers per hour. As a result of an analysis of the airport

performed [4] it was established that the actual capacity in rush hours is lower by half, i.e. at 360-600 passengers per hour, depending on the zone of the airport.

In 2005, the airport served 1 281 872 passengers and no slow down of the growth is foreseen so far. Under the pressure of the growing passenger flows and the requirements for the Schengen countries' airports, which will come into effect in 2007, the airport has started expansion. The first stage includes construction of a new terminal, which would ensure segregation of passenger flows from Schengen and non-Schengen countries.

Three possible versions have been discussed [15]:

- Take no action
- Construction of a terminal in the eastern part of the airport and connecting it to the old terminal
- Construction of a terminal in the northern part of the airport.

An analysis of the versions has shown that the resources saved through taking no action would bring a significant loss in the future, since nearly 40% of the passengers arriving at the Vilnius airport are coming from non-Schengen countries. Failure to segregate the flows would result in a loss of right for the airport to service them.

A decision on the location of a new terminal was made taking into consideration the fact that closeness to the old terminal would be advantageous in avoiding dubbing of different airport services; the territory of the airport would be enlarged and the available resources would be used more efficiently. The projected terminal will cover the area of 9736 sq. m and will be three-storey just as the old terminal. A simulation of the projected terminal [11] has shown that the planned posts of aviation safety are not able to handle the flow fast enough during the morning rush period, and long lines are standing at the passport control. In order to avoid crowding there are proposals to centralize the operation of passport control and to change the dislocation of entrances.

Another detected shortcoming of the terminal is the baggage handling system, which is only able to cater for flights of fewer than 100 passengers. It is also foreseen that the present terminal will be used only for Schengen flights and the new one – for non-Schengen flights; more waiting zones are provided in the non-Schengen section, whereas the proportion of Schengen/non-Schengen passengers is 60/40. There are proposals to introduce a flexible system, which would modify the capacity of the zones to meet the actual needs. An acceptance of the proposed modifications would result in an increased capacity of the old and new terminals to reach over three million passengers per year. Completion of the construction and start of operation is foreseen by November 2007.

Calculations have been made which show that the runway is the part of the infrastructure with the greatest potential. According to the estimations, under ideal conditions it is capable to service 10,800,000 passengers per year, or 255 flights per day, or 1500-2000 passengers per hour. One of the major shortcomings of the Vilnius airport is the direction of runway, owing to which the trajectory of the flights passes over densely populated areas, thus intensification of the traffic would require adoption of measures to put down the noise, the most common of which is restriction of air traffic and application of acoustic measures [3, 13]. In re-directing the runway (construction of a new one) a new infrastructure at the distance of four kilometres from the present runway will be required. At the present moment this prospect is not being considered. Thus on the one hand the airport increases its capacity by erecting a new terminal, and on the other, it is limited by popular dissatisfaction and pressure.

A construction of a new runway would also imply some problems. Due to the changed direction, provision of air navigation services would become impossible under some atmospheric conditions, because the airspace of Lithuania would be insufficient, i.e. on certain routes the aircraft would have to start landing on the territory of Byelorussia (outside the Flight Information Region of Lithuania), or only the western direction would be used.

3.3 Expansion of the Kaunas airport

The Kaunas airport is based at Karmelava, at a distance of 13 kilometres from the city. The current terminal (designed capacity of 200,000 passengers and 20,000 tons freight) was built in 1988, as a temporary structure on the side of the apron, not to block the site for the construction of a permanent terminal [4]. The structure of 2000 sq. m is outdated in moral sense and does not meet the present-day requirements for the airports, it does not ensure separation of Schengen and non-Schengen countries passengers, either, contains too few working places for the registration of passengers, aviation safety and for commercial rent.

In considering the expansion of the airport, two versions have been mentioned: expansion of the northern part, where the terminal is situated, and expansion of the southern side.

An expansion of the southern part would involve a radical restructuring of the operation of the airport. First of all, a major advantage of the version is a nearby free economic zone of Kaunas. Plots of land allotted to the airport will provide unlimited operation and expansion

opportunities for the development of a large cargo conveyance facility. Arrival of passengers and delivery of freight to the terminal would be made possible by road and rail through the branching of the highway A6 and the RailBaltica. In some designs, construction of a new runway is mentioned; however it is hardly feasible, even if the maximum capacity of two million passengers is achieved. With a new runway excluded, the expansion would amount to LTL 430 million [4].

The most likely version is expansion of the current terminal. Construction of a new building at 2000 sq. m and connecting it to the old one is foreseen. This would be the easiest way to segregate the passengers of Schengen and non-Schengen countries and to double the capacity of the airport. Besides, as in the case of the Vilnius airport, the funds intended for new infrastructure and dubbing of airport services would be saved.

3.4 Summary

The best available development versions are presented in the table [8, 4].

Table 1. Development versions of the Lithuanian international airports

| Airport facility | Vilnius airport | | New airport | Kaunas airport |
|-----------------------|-----------------|---|----------------------|--------------------|
| | Before 2012 | After 2013, building of runway and terminal | | |
| Runway | yes | no | no | yes |
| Taxiway | yes | no | no | expand |
| Apron | yes | no | no | expand |
| Aircraft parking | yes | no | no | expand |
| Passenger terminal | expand | no | no | expand |
| Freight terminal | yes | no | no | yes |
| <i>Access:</i> | | | | |
| 1. Rail (station) | no | no | no | no |
| 2. Auto | yes | no | no | yes |
| Auto parking | expand | no | no | expand |
| Flight control centre | yes | no | no | yes |
| Development potential | limited | unlimited | unlimited | unlimited |
| Demand for funds | LTL 100 million | N/A | LTL 800-1488 million | LTL 60-400 million |

Note:

1. "Yes" means that construction of facility is not required; "no" means that construction is required; "expand" means that available capacity of facility is insufficient.
2. For Kaunas airport the versions both for northern and southern parts are considered.

So far, only the construction of the Vilnius airport has been started and the terminal at the Kaunas airport is designed, and the idea of a new airport is postponed for some time, at least. The development and operation of the airports is inseparable from the idea of the dichotomy. The development of the Vilnius and Kaunas airports should be based on the Strategic Research Agenda, developed by the Advisory Council for Aeronautics Research in Europe (SRA) [14], which aims to efficiently service the passengers at the airports; to ensure timely arrival/departure of the aircraft; to improve the security of the airports and the EU borders by modern protection of the airport perimeter and segregation of the passengers of Schengen and non-Schengen countries.

4 Conclusions

1. Passenger flows at the Lithuanian airports have considerably outrun the estimated numbers and a probability for further growths remains.
2. In the eastern part of Lithuania a dichotomy of Vilnius and Kaunas cities is emerging, therefore the prospects for the development of the airports should be related to the development trends of the dichotomy.
3. The Vilnius airport has the best prospects in terms of passenger flows, since the status of the capital makes it particularly attractive; however its expansion is encumbered by territorial limitations.
4. To implement the ideas of the dichotomy, a parallel development of the Vilnius and Kaunas airports would be practicable, since they are located at the opposite ends of the dichotomy (i.e. do not obstruct development of the dichotomy); they are connected by a modern railway and highway, thus fewer investments are required.

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