RESEARCH INSTITUTE OF J. SELYE UNIVERSITY

# ONE TOWN - TWO COUNTRIES
# KOMÁROM - KOMÁRNO

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**Research Institute of J. Selye University**
**Komárom**
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# INTRODUCTION

The independence and interdependence of Komárom and Komárno, a formerly single town presently divided into two and belonging to different countries; their unique geographic position their relationship with their surroundings, as well as the conditions of their present and future development pose a challenge to scientific researchers. To complete this research activity, both at the level of settlements and at the level of the microregions is of great importance. Primary aims of the complex regional research carried out in the divided towns include contributing to the mutual exploitation of the advantages deriving from their location, comparing their development strategies, and providing a solid scientific basis for local governments to decide about the towns' long term strategies.

The book undertakes the task of providing an overall picture of the divided towns and their immediate surroundings (17 settlements altogether in Slovakia and Hungary). Its chapters describe the demographic changes after the change of regime; the social, economic and settlement conditions of town development in history. The authors analyze the towns' present economic and environmental conditions, as well as the changes in the fields of education, tourism and cultural life. They also aim to reveal mutual potentials in the fields of nature, economy, tourism and human resources that might enable the implementation of a coordinated long term plan in settlement development.

# 1. DEMOGRAPHIC STRUCTURE OF THE REGION

## 1.1. Population, age structure, education, religion

The area researched covers 9 Hungarian and 10 Slovakian settlements. Among them two Hungarian and two Slovakian towns (Komárom and Bábolna, and Komárno and Hurbanovo) can be found. The southern part of the 378 km$^2$ area is located in Komárom-Esztergom County, Hungary, and overlaps the statistical unit of Komárom microregion. The northern part of the area belongs to Komárno District and is 18% bigger than the Hungarian one.

According to the latest census in Hungary and in Slovakia (2001) the total population of the area was 99.6 thousand, 53% of which live on the Slovakian side of the border where the average population is 5804 people/settlement. The average population in the Hungarian settlements is 20% lower (4627 people/settlement). The Slovakian area is located alongside the border, so there are inhabitants belonging both to Slovakian and Hungarian nationalities (63% are Hungarian nationality).

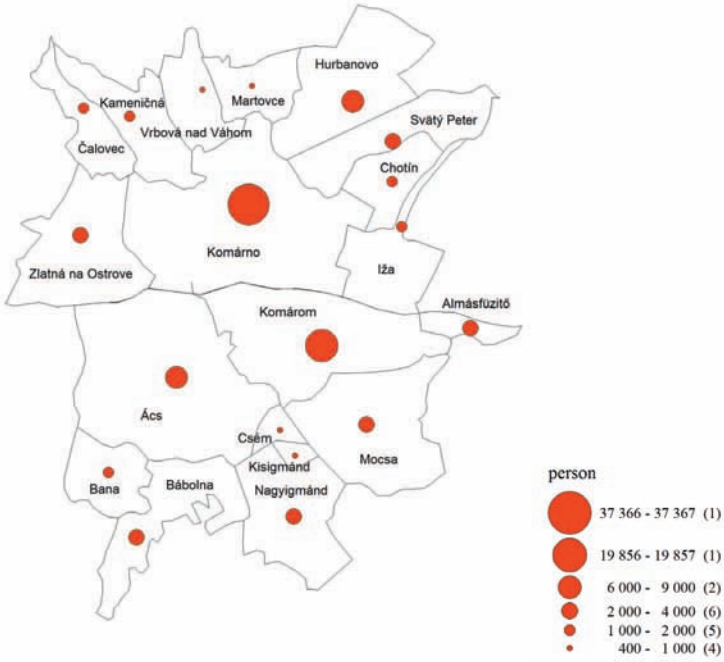
The rate of town dwellers is 69.5% which derives from a higher Slovakian (78.4%) and a lower Hungarian (57%) average. The number of inhabitants in Komárno (37.4 thousand) is almost twice as big as the number of inhabitants in Komárom (19.9 thousand), so the figures of the Slovakian town strongly distorted the data referring to the settlement sizes in the northern part of the area. The differences in the sizes of the settlements are significantly larger in Komárom microregion than those in the Komárno area. The population in the majority of the villages (in 9 out of 15) varies between 1,000 and 3,000 *(Figure 1)*.

The rate of Romanies (Gypsies) in the total population in the area is lower than 1.2%. About 2/3 of them live on the Hungarian side of the border (Komárom, Mocsa), in Slovakia only two settlements, Komárno and Hurbanovo have significant Romani communities (150-220 people). Actually, the number of Romanies is much higher than the census results show, since most of them claim themselves Slovakian and Hungarian, rejecting their Romani origin.

Between 1990 and 2001 the population increased with more than 900 people, 61% of which took place on the Hungarian side. The reasons of these imbalances are the differences in the area's population-dynamics. While in only 3 settlements was there a decrease in the population in the Komárom microregion, five out of the ten

Slovakian settlements lost some of their inhabitants during the decade examined *(Figure 2)*.

*Figure 1: Settlements and their population in the examined area, 2001*




In the region Komárno's population stagnated, while Komárom experienced a 1.3% increase. In the Slovakian area most of the settlements with increasing population are located either in the west or in the north-west of Komárno, alongside the roads leading out of the town. The increase in the population in the settlements located in the south-west of the Hungarian region can mainly be led back to the favorable road connections (the favorable accessibility of Motorway M1).

The average density of population in the area is 119 people/km$^2$ (2001), which has remained basically unchanged since the 1990s. The average density of Komárom microregion is 17% lower than that of the Slovakian area; however, the indicators of Hungarian settlements with larger population generally exceed the Slovakian data. This is caused by the high density of Komárno's population (360 people/ km$^2$), which improved the average of the Slovakian indicator *(Figure 3)*.

*Figure 2: Changes in the population, 1990–2001, %*

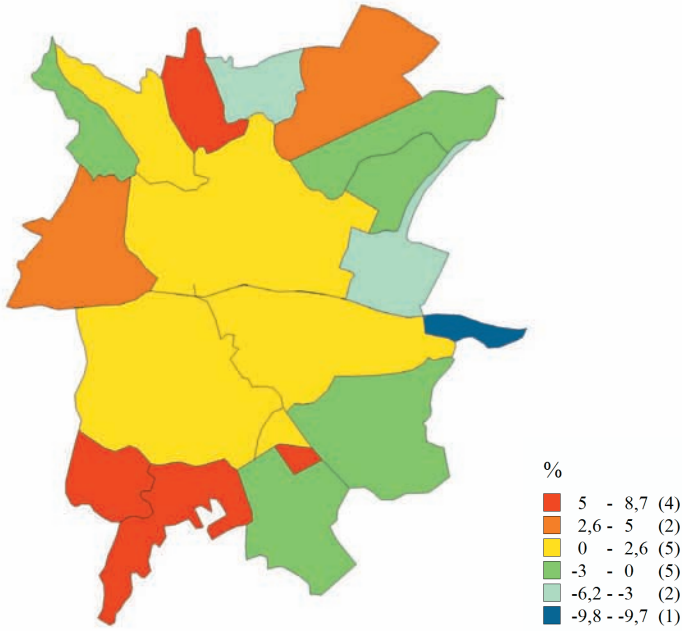
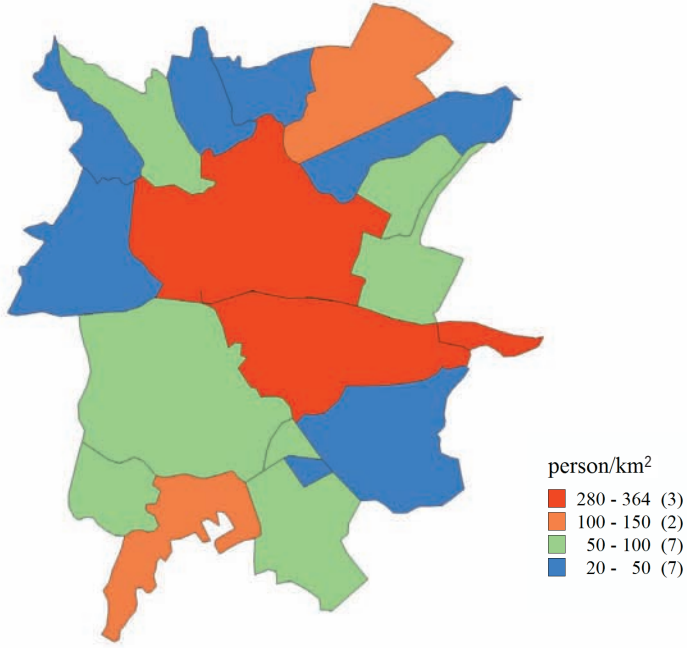


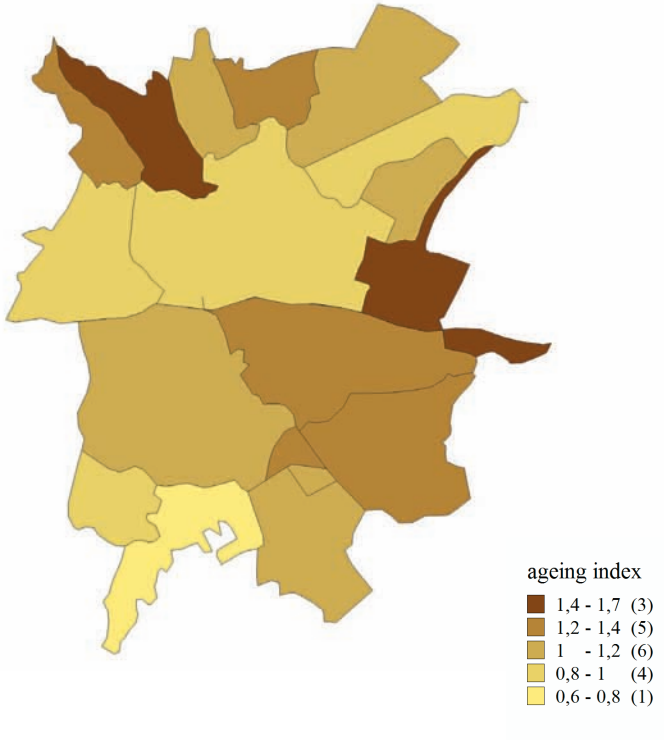

*Figure 3: Density of population in the area, 2001, people/km²*



The demographic characteristics in the beginning of the 1990s used to be rather positive. The rate of the young generation, aged 0–17 (23.7%), exceeded the rate of the elder, aged 60+, which was 14.1%. This number worsened a bit by the year of 2001; however, the process of ageing still did not start yet. The rate of the younger generation was higher (25.8%) in the northern part than in the southern (24.7%), while the demographic structure in both areas was dominated by the economically active age groups (57-59%).

According to the results of the *index of ageing* calculated on the quotient of the old age groups (60 years and over) and the youngest generation (children aged 0–17) only 8 out of the 19 settlements of the region show the signs of ageing in their population, however, the average values of the indexes referring to the region's settlements do not reach 2.00. In 5 settlements (three in Slovakia – including Komárno – and two in Hungary) the population is getting younger. These include Bábolna on the Hungarian side, whose population is getting younger at the highest speed in the area *(Figure 4)*.

*Figure 4: Index of ageing of the population in the settlements, 2001*



A most important condition of development is the education level of the population. At the end of the 20th century almost the whole population completed their elementary school studies, and the rate of those who did not finish elementary school was only 1–2%. In our modern society the rate of people participating in and completing secondary and tertiary education is increasing. The main reason of this can be found in higher demand for highly qualified workers, which also guarantees more favorable employment conditions and higher wages.

In 2001, in the Komárom microregion 30% of the age group 18 and older possessed secondary school diplomas, while in Komárno and its neighborhood 27% had the same education. The towns in the region show outstanding results in this field (in Bábolna and Komárom this number exceeds 35%, in Komárno it is 32%).

On the Slovakian side the relatively low number of people starting secondary education can be explained by the fact that the Hungarian minority living in Slovakia have less favorable schooling conditions than the Slovakian average, the effects of which can be detected in Komárno and the neighboring settlements as well.

In the Komárom microregion in 2001 the 9.4% of the population aged 25 and older possessed higher education attainment, on the Slovakian side this number was 8.6%. The divided towns show the same difference: the value of the same index is 13% in Komárom and 10.8% in Komárno. Being a regional agricultural center, Bábolna in the Hungarian area shows an exceptionally good result with a large number of people possessing diplomas. The same index for the villages of the Hungarian microregion is remarkably higher than in the case of Slovakian settlements, which also can be explained by the unfavorable trends in the higher education of the Hungarian ethnic minority in Slovakia *(Figure 5)*.

Religion plays a significant role in local communities to increase their ability to retain people. After the change of regime religion resurrected both in Hungary and Slovakia, which is reflected in the answers given to the questions connected to religion in the census questionnaire in 2001. In the research area 55% of the population is Roman Catholic, 18% belongs to the Calvinist (Reformed) Church and the rate of atheists is almost 16%. The remaining 2% is divided among Lutherans and other churches.

The rate of Roman Catholics in Komárno and its neighborhood is higher than the average (58%), while in the Komárom microregion it hardly exceeds 50%. However, the rate of people

*Figure 5: Rate of people aged 25 and older possessing college or university diploma, 2001, %*

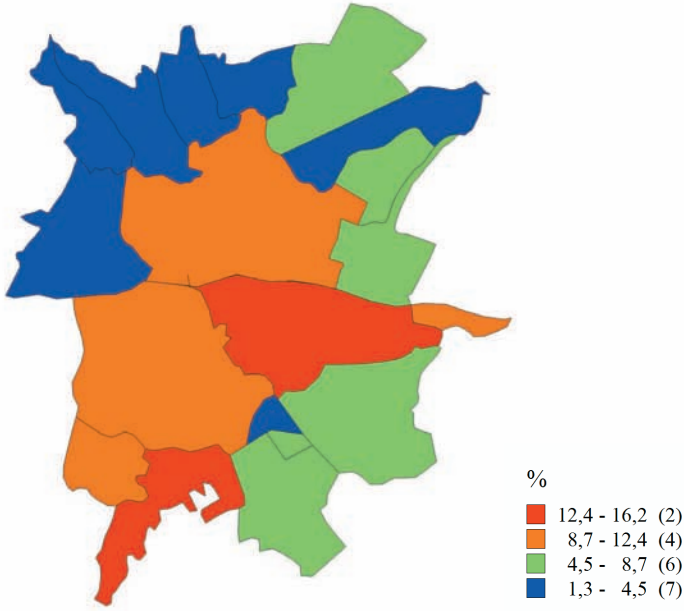
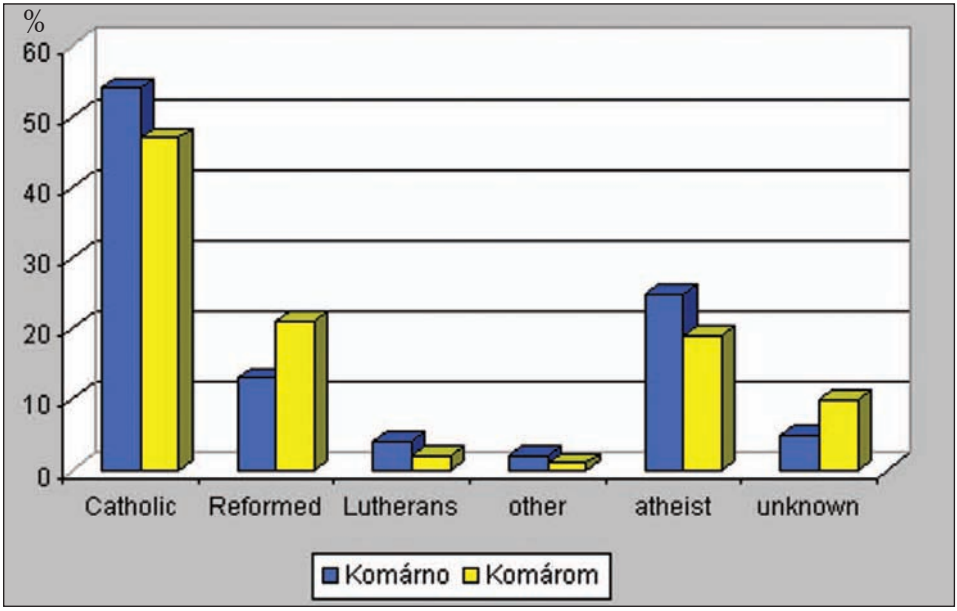



*Figure 6: Denominational distribution of the inhabitants of the divided towns, % Churches: Roman Catholic, Reformed Church, Lutherans, other, atheist, unknown*



belonging to the Reformed Church is 23%, in contrast to the 14% in Slovakia. People not belonging to any of the churches is 18% in the northern part of the surveyed area and 14% in the south, even though religious traditions are rooted more deeply in the Hungarian minority communities in Slovakia than in Hungary. The reason for this is that the rate of undenominational people is significantly increasing in the directions of bigger towns and cities. Their rate in the villages is remarkably lower. The denominational distribution of the inhabitants of the divided towns reflects that of the area as well *(Figure 6)*.

**1.2. Marital status**

Valuable demographic information can be obtained in the research area concerning the population's *marital status*. This research included only people older than 15 years, suitable for founding a family (82.9 thousand people altogether). More than half (54.5%) of the population – comprised of 53% women, 47% men – are married, while another 25.3% are single men and women, yet to found a family. The remaining almost 20% includes widows and widowers (10.2%) and divorcees (8.6%).

The distribution of men and women in the above categories shows a considerable difference in sexes, almost 30% of men are single, but only 21.5% of women are unmarried. The number of unmarried men exceeds the number of single women by 23.4%, so the chances for men to build a relationship are less favorable than for women. One of the reasons for this difference is the slight surplus (5–8%) of men in the region which has been existing for decades, which is higher among the younger generations. In the northern part of the region the surplus of men is 15.6%, but in the Komárom microregion it is 35.9%. Indexes referring to the divided towns are more favorable: in Komárom the rate of male surplus is 28%, in Komárno the same index is only 4%. Forming the above rates two factors have a major role: one is the urge to make a living appearing at a stronger degree than before, which postponed the time of founding a family with 4–8 years. The other factor is the period of 4–6 years spent at educational institutions.

Significant differences can be observed among *widows* and *widowers*. The number of widows (7.2%) living in the area exceeds 5.6 times the number of widowers, which can be explained by the higher rate of death among men. The indicators of the Komárom microregion are 2–3% worse than those of the northern areas.

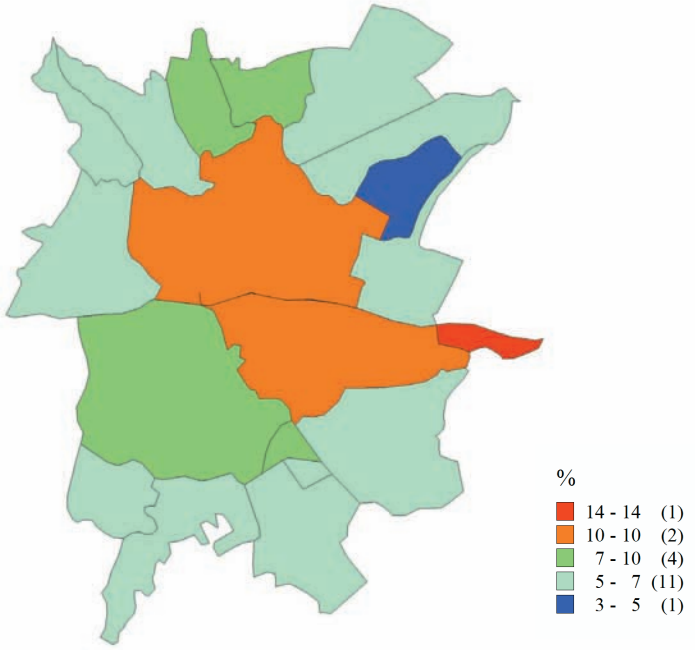
In the region the number of *divorced* women exceeds the number of divorcees among men with 38.9%. The value of this indicator in the northern region is 44.5%; in the Komárom microregion the rate is more favorable than that (31.2%). The rate of divorcees is significantly higher (9.5%) in the total female population than in the male population (7.1%). This indicates that after their divorce the majority of women stay at their place of living (often with their minor children) and the ex-husband moves, often seeking the possibility of a new start, rather far.

The rate of single men in the divided towns – which comprise 61% of the total population aged 15 and over in the research area – exceeds that of single women with 9.4% in Komárom, and 4.2% in Komárno. This suggests that the willingness to marry among the younger generation is slightly bigger in the latter town than in Hurbanovo and in the neighboring villages.

Regarding the rate of widows and widowers the differences in case of Komárom are bigger (13.7%) than in its northern neighbor (10%), while in both towns the number of widows is five times as big as the number of widowers. Based on the specific data, if we compare the number of the widowed among the two genders, the settlements show significantly high values: the number of widows is multiple of the number of widowers, due to the large rate of death in the male part of the population.

Regarding the rate of *divorcees* among the settlements, Almásfüzitő, a settlement alongside the Danube, possesses a rather unfavorable position in the Komárom microregion with the rate of 13.7%. Komárom is also below the average (8.6%) in the microregion with its 10%, indicating that the resolution of family conflicts is more often a divorce in the town than in the villages. Komárno's rate of 10.3% is less favorable than the divorce rate in the neighboring settlements, since in the villages the local community still sets an example and disapproves divorces. Although the rate of the divorced in both parts of the divided towns is around 10%, the number of divorced women exceeds the number of divorced men by 40% in Komárom. The same rate in Komárno is 63%, so in case of a conflicted marriage more women are likely to file for a divorce. As the specific data show, in 75% of the settlements the number of female divorcees is much higher than that of the male *(Figure 7)*.

*Figure 7: Rate of divorcees according to settlements, %*




Thus in the region the best examples for the spread of individualism in modern small-town lifestyle are Komárom and Komárno. The resolution of marital conflicts will probably continue to be a divorce in the 2000s as well.

# 2. PAST INTO PRESENT – DEVELOPMENT HISTORY AND MORPHOLOGY OF KOMÁROM

## 2.1. What nature gave to Komárom

Komárom was a vital military and commercial center in Pannonia province of the first, modern state in the Carpathian Basin in the Roman Empire, situated alongside *"magna via"*, the route, following the river Danube. On the right side of the Danube in the Roman Age Brigetio (on the area of today's Szőny) was founded here. Later, in the years of the foundation of the Hungarian State the settlement situated in the safe corner protected by the rivers Danube and Váh played an important role as a county seat. The town was a third-line settlement in the Middle Ages, overtaken by towns such as Sopron, Trnava (Nagyszombat), Nitra (Nyitra) and Győr in the hierarchy of settlements. During and after the Ottoman conquest in the 16th century, it gained back some of its military significance, it became an important bastion in the line of fortresses protecting Vienna. It retained its position after the Turkish troops were chased out of the country: in 1715 it is the fifth most populated, most developed settlement performing town functions.

A more than a half-century long decline came next, followed by the golden age: in the 18th century Komárom became a more important center in the newly forming grain trade, its citizens becoming wealthier and wealthier. The town stood out from the line of settlements. However, the prosperous years were short: from the 1830s the steamboats loaded with grain passed the town's limits without stopping. The centers of grain trade were shifted to Győr, Moson, Bratislava (Pozsony) and later Pest. The town had a more and more modest place among the settlements in the Carpathian Basin and according to the census in 1870 it was only on the 61st place.

The Danube and its left side water, river Váh (Vág-Duna) gave the most to Komárom: served as a water route, as a transport hub, and the two peninsulas protected the land, providing an excellent place to build a fortress.

Due to the prosperous grain transport on waterways, Komárom had its great age at the end of the 18th and in the first 3–4 decades of the 19th century. These times grain was transported on horse-driven barges from the Great Plane to Vienna and Austria, and even to Bavaria via Komárom, where a series of additional services were based on this trade. (Even in the 1840s about 300 tug-boats operated in the

town, where wooden barges were made from the logs drifted on river Váh.) However, the appearance of steamships set back grain trade in Komárom and the final push to its abolition was the newly built railway line between Győr and Vienna. From the mid-1850s Győr became the center of grain trade in the Carpathian Basin, then from the 1960 Pest took this role over and it still holds it today.

The land route following the river did not play such a significant role, since the main road that served as a link between Western and Eastern Europe and the Balkans ran on the right side of the river, passing by Komárom (just like the railways). Contemporary analysts saw the reason for the town's decline and the lack of industry during the age of Dualism in the fact that the main railway routes did not go through the town. Significant industry appeared only when the bridge was built in 1892.

The rivers had two more positive factors to give to the town: firstly they provided energy before steam engines were discovered (on the Danube mills grounded the grain), secondly fishing was also significant. At the same time floods often damaged the town.

Trade and barter are vital to the life of a town and Komárom was not a suitable location for them. It is not situated at any of the meeting points of the different geographic regions where large fair and market centers were formed. This way it could only remain a small regional marketplace.

**2.2. History of the divided towns**

Komárom is one of the oldest towns in the Carpathian Basin. Even the Romans founded a town in Pannonia exploiting the excellent geographic conditions here. After the foundation of the Hungarian state, it became the seat of one of the counties. At the confluence of the Danube and the Váh, at the junction of the northern and the western and the eastern and southern waterways and land routes a port and a Chamber Salt Office were established. The main artery of shipping on the Danube was the river Váh right until the middle of the 17th century. The most important functions of the town in the Middle Ages were administration and defense.

During the Ottoman occupation it was one of the most important fortresses. Since then its military role became the most significant in the town's life until the end of the 20th century. German mercenaries defended the fortress of key importance for the Empire; the hussars lived in the town. Until the middle of the 18th century building and

maintaining the fleet of ships on the Danube resulted in flourishing industry. The majority of the Hungarian warships were made here by using the wood drifted on the river Váh. The fortress which was built in the protection of the Danube and the river Váh was easy to defend and was strengthened multiple times. It suffered several sieges, but it was never conquered.

After the Turkish times the basic function of the town changed, its national role strengthened. Its military role reduced temporarily and was taken over by ship-building; however, commercial ships were made instead of war vessels. Komárom successfully joined the increasingly important grain trade. Grain trade was initially arranged by Serbian traders who loaded their barges with grain from Banat Region and stored their goods in Komárom before forwarding it to Vienna. This was the time when the town significantly improved its position in the hierarchy of the Hungarian towns (it held the 7th place in 1715), and it was granted royal privileges in 1745. From the mid-18th century the development of the town was held up by natural catastrophes (earthquakes, floods). The question of moving the town to the right side of the Danube was raised many times.

These misfortunes only drew back the course of development of the town, but did not break it. At the beginning of the 19th century, the town had 400 grain merchants and shipping gave birth to new industries. Besides shipwrights, a new layer of society was formed by cart-owners and members of lower nobility dealing with tugging. Komárom became the craft center of its wider neighborhood. The town's riverbank location triggered fishermen to form a guild. Millers used the river's hydro energy and the trespassing of grain trade. The wood drifted on the river often ended up in the workshop of the local joiners whose products were transported by ship to several places all over the world. The town's boom reached its highest point at the turn of the 18th and 19th centuries, during the Napoleonic wars. Providing food to the army required a large supply of grain, Komárom's trade continued to prosper. In addition, the strategic significance of the town also increased. A larger army could be stationed in its huge, defendable fortress.

The second third of the 19th century brought decline. The end of the Napoleonic wars brought along an economic and commercial crisis, deepened by the increasing role of Győr whose position was upgraded when steamships appeared and traffic on the river Váh decreased. In 1828 Komárom was only the 13th in the rank of the towns. The spread of steam shipping gradually decreased the local economy and ship

carpenters also lost their jobs. Higher military interests also had their negative effects on the town's life. When building the fortresses the town and the army had conflicting interests, often whole streets were abolished and houses were pulled down.

The town is an honored place in the Revolution and War of Independence in 1848-49: the defenders of the town led by General György Klapka were the last to surrender. During the years of the war the town had to survive other difficulties: after the natural catastrophes (fires, floods) they had to suffer a long siege as well.

The decades following the War of Independence are devoted to decline caused by the changes in trade. Grain transport in the country was shifted from the Danube to the new railway lines, causing Győr then Pest-Buda to get into a central position.

Győr also started to decline two or three decades later, still, it became a hub in the newly forming railway network. In contrast to this, because of its location, railways did not pass through Komárom. Due to the lack of railways and a bridge across the Danube, businessmen did not settle in the town, and parallel with the decline in its importance in commerce, some of the traders and craftsmen decided to leave the town. In addition, as its military functions widened (the system of fortifications was completed between 1850 and 1870), in many places there were destructions and prohibitions to build. With the new railway line between Vienna–Bruck–Győr–Új-Szőny it could join the traffic to the west in 1856, and when in 1860 this line was lengthened to reach Székesfehérvár, Budapest could also be reached in a sideway. Its further development was based on a high-traffic station. By the turn of the century today's Hungarian Komárom became the industrial outskirt of the historical part of the town.

The signs of the new boom could only be detected in the 1890s. In 1896 railways arrived to the northern part of the town (today's Komárno) which carried passengers to Bratislava (Pozsony) via Dunajská Streda (Dunaszerdahely). The rather important railway bridge was opened in 1909; the main road to Nové Zámky (Érsekújvár) was completed in 1910. Due to the better traffic possibilities, industries also settled in the town. On the right side sawmills, joiners' and textile factories were opened. The shipyard started its operation on Alžbetínsky ostrov (Elizabeth Island) in 1898, the cartridge factory, foundry and the service station also opened their gates.

In 1910 Komárom's industry was dominated by textile industry (with 600 workers); while the shipyard and the cartridge factory

employed about 200 people each. Apart from this, in the independent administrative unit of Szőny the refinery also gave work to nearly 300 people. Komárom's industry mainly settled down on the Danube' bank and in its southern outskirt, Új-Szőny. Real integration between Új-Szőny and Komárom started in 1892 when the new Erzsébet Bridge was built and the two settlements were administratively merged in 1896. Right before World War I already 3,500–4,000 people lived on the right side of the Danube.

Komárom gradually slipped in the hierarchy of the towns in the second part of the 19th century, by 1910 it was the 39th. It was a county seat with limited set of functions, not a regional center at all, and it even lacked a secondary grammar school. Its attraction zone covered an area with 40,000 dwellers, which is about half-one third of the gravity zone of Győr. A special flavor was added by its military garrison function, one of the strongest fortresses in the Austro-Hungarian Monarchy, hosting the 7th biggest troop in the country.

The majority of the inhabitants were Hungarian, according to the census the rate of people with Hungarian as their mother tongue was 80–90%. The rate of German and Slovak nationalities was 4–8%. The larger immigration of the Slovaks took place at the turn of the 19th and 20th century, their assimilation was relatively fast. The religious distribution of the town was stable: most people were Roman Catholic (63% in 1910), the Reformed Church slowly lost its importance (1910: 22%) and the rate of the Jews was around 10%.

The end of World War I brought a significant change in the town's life. The Trianon Treaty assigned the border of Hungary and Czechoslovakia alongside the Danube, dividing Komárom into two parts: the historical one with its sights, cultural, administrative and church institutions belonged to Czechoslovakia, while the emerging industrial outskirt and the railway station became Hungarian territory.

In the new state the role of Komárom shrank further. It lost its southern part, losing its function as a county seat (it was incorporated into Bratislava County). It was degraded to a district center, losing its rights as a town. National economic development avoided Komárno; the town was bankrupt during the depression and was taken under direct state control.

The town's industry also altered: companies were taken over by the state or powerful Czech businessmen (the shipyard first belonged to the state then it became the property of Škoda Company), the cartridge factory was closed down. However, the importance of the

port increased: after Bratislava (Pozsony) it became the second largest port on the Danube employing 1,000 people. The largest company in the town was the tobacco factory with its female workers, while factories employed 250–300 people. Unemployment became permanent in the town to which the loss of the southern industrial outskirt greatly contributed.

The nationality structure of the new town changed significantly. The rate and number of Hungarians permanently decreased, while the number of German nationalities first decreased then increased and the number of Slovaks and Czechs multiplied *(Table 1)*.

*Table 1: Changes in the distribution of nationalities in Komárno, 1910–1949*

| Year | Hungarian | | Slovakian, Czecho-slovakian | | German | | Other (mother tongue)/ nationality | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | number | % | number | % | number | % | number | % | |
| 1910* | 19924 | 89,2 | 768 | 3,4 | 1248 | 5,6 | 397 | 1,8 | 22337 |
| 1921** | 13584 | 80,5 | 2411 | 14,3 | 729 | 4,3 | 145 | 0,9 | 16869 |
| 1930** | 12645 | 63,6 | 5335 | 26,8 | 1024 | 5,1 | 888 | 4,5 | 19892 |
| 1938* | 16755 | 96,0 | 339 | 1,9 | 232 | 1,3 | 132 | 0,8 | 17458 |
| 1941* | 29665 | 96,3 | 395 | 1,3 | 473 | 1,5 | 273 | 0,9 | 30806 |

*Source: Kovács, É. 2003. The data in 1910 and 1941 show the total numbers of Komárom and Komárno*

*Hungarian census (mother tongue), ** Czechoslovakian census (nationality)

After World War I some of the Hungarians had difficulties in getting new citizenship, others were forced to leave the town (e.g. civil servants were expelled). Parallel to this, Czech civil servants and their families were moved in, but this, - because of their limited number - did not influence the data concerning nationality.

In spite of the changes between the two world wars Komárno preserved its Hungarian national character, Hungarian signs did not disappear from the town's public places, and Hungarian culture kept on living. Hungarian remained the language of the local public life and politics, the town's local government conducted their meetings in Hungarian.

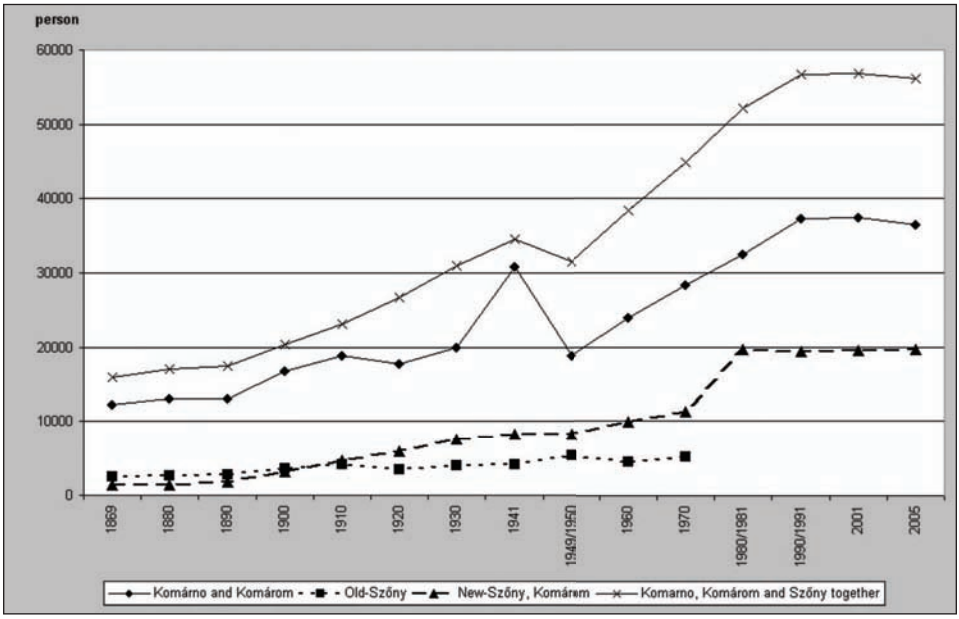
During this period on the right bank of the Danube Komárom-Újváros was formed. After the end of World War I, the society in the rapidly increasing settlement showed a rather diverse picture. Next to the original inhabitants immigrants (civil servants, railway workers) arrived partly from the northern part of the town, partly from other disconnected areas who were temporarily accommodated in barracks. In 1920 people who were born here were already in minority. Increasing the "refugee camp"-characteristic of the settlement, administrative work took place at temporary locations.

After the administrative changes in 1923 Komárom County was merged with Esztergom County, so Komárom-Újváros lost its temporary function as a county seat. The settlement was made a district center (1930). The state supported the development of the town by granting soft loans, its infrastructure was built rapidly.

Electricity was installed in 1920, by 1927 water pipes and the sewage system was built (drinking water still came from the northern part of the town!). In 1929 the town hall, in 1930 the police headquarters and in 1935 the building of the district court were completed. The nationality structure of the town was homogenous; the rate of Hungarians in 1937 was 97%. Its religious composition was also different from that of its neighbor: 75% of the inhabitants were Catholic, 18% belonged to the Reformed Church and the rate of the Jewish people decreased to 2.5%. Connections between the two parts of the divided town became vivid; locals could pass the border with a special ID card without any difficulty *(Figure 8)*.

Based on the first Vienna Decision (November 1938) the southern part of Czechoslovakia was re-annexed to Hungary: the path to connecting the divided towns was given. Following the unequal development processes of the two parts, a dynamically growing southern small town and the stagnating-declining Komárno were unified (July 15, 1939). The town became a county seat again, the offices from the southern part of the town moved back to the north. The history of the town was shadowed by World War II. In 1944 the tragedy of the Jews reached Komárom as well: about 2,000 Jewish people and the mayor who protested for them were taken to concentration camps. The war caused extensive damages in both towns. The withdrawing German army exploded the bridges over the Danube and Váh, so the connection between the two towns was physically destroyed. At the closure of World War II. (Peace Treaties of Paris, 1946) the historical town was annexed to Czechoslovakia again, the roads of the divided towns went into separate directions.

*Figure 8: Changes in the population of the divided towns, 1869-2005*




## 2.3. Settlement morphology of Komárom. Outline of the development of the settlement body and its present state

### 2.3.1. Building the settlement

At the beginning the layout of the town stretching out on the left side of the Danube was greatly influenced by geomorphologic factors, the delta of the Danube and the Váh, the location of the areas which were covered by water during parts of the year. The Romans built the legionary camp of Brigetio and their town on the right side of the Danube opposite the Váh mouth, building only a smaller fortress on the other side. During the Hungarian Conquest an earthwork was erected at the mouth of the Danube and Váh. Since then this area along with the Old Fortress and the New Fortress became important landmarks in the settlement's structure.

Like other Hungarian fortresses, the fortress in Komárom became really strong after the Tartar conquests. In the 16th and 17th century the Old Fortress was fortified according to the plans of an Italian military engineer (Ferrabosco) and the New Fortress was built. The main bastions at the bridgehead were formed on the left side of the Váh-Danube and on the right side of the Danube. The first plans and

data (plans, engravings, descriptions) about the mounds and Fortress walls reach back to this time. The former walls of the town – before the erection of the New Fortress – were represented on a map from 1639 at about the western part of today's English Garden (Angolpark), in line with the Inner Boulevard.

When the New Fortress was built (1663–1673) houses were destroyed on a large area and the inhabitants were given building sites in the western parts of the town. Then the second town wall was built on the west. The population of the town was enlarged by the refugees from the conquered areas, who formed separated districts according to their nationality and origin.

In the second half of the 18th century the town wall was farther from the Old and the New Fortress: during the War of Independence led by Count Rákóczi it had to be built farther in the west (near the eastern part of the present cemetery) to give place to the expanding town. From the former streets not much remained: only the radial streets starting from the Fortress and the ones that crossed them and situated closer to the fortress could survive. Considering the numerous fires, earthquakes and floods (1763, 1783), it is not surprising.

Until the 18th century on the right side of the Danube, Szőny was the most important settlement. In the 15th century it even possessed the rank of a market-town, but during the Ottoman conquest it was depopulated for a long time. The new settlement formulating around the port, the predecessor of today's South-Komárom separated from Szőny in 1777 under the name of Új-Szőny. To characterize the early development processes we have to note that at the beginning of the 18 the century a mail coach station and a vicarage were built here.

During the Napoleonic wars the emperor renewed the Old and the New Fortress, and the bridgehead fortresses. Because the settlement extended over its original walls, to protect it an earthline with six bastions was erected (Linea Palatinale [Nádor-vonal]). However, this was only a temporary solution. From the 1830s to the War of Independence in 1848–49 a stone chain of fortification was erected. After the War another three bastions were completed. In the meantime there were significant buildings and constructions in the Old and the New Fortresses. Other parts were pulled down in the eastern part of the town, bringing the main square closer to the outskirts. In the 1820s Erzsébet (Elizabeth) Island which was previously used for orchards and fields was parceled out.

Although in the first half of the 19th century several multistorey houses were built, about 700 of them were destroyed by the great fire of

1848. This is the reason why we cannot find any buildings erected before 1850 in the whole town. Similar destructions were caused by the icy floods and the repetitious seizes of the war of Independence of which the last one ended only after the capitulation at Világos (Şiria, Romania). The biggest part of the town was in ruins, Új-Szőny was almost completely destroyed.

Despite the decline of the town after 1849, the construction of the system of fortifications continued. The bridgehead forts on the Danube and the Váh and Fort Csillag were reconstructed between 1850 and 1870. Fort Monostor, which is huge in size but never actually experienced a gunshot, was built between 1850 and 1871. After completing Linea Palatinale, in the mid-1860s a more modest line was built alongside the Váh (Váh Line). Finally, as the last element of the system of fortifications Fort Igmánd was built between 1871 and 1877.

In the second part of the 19th century development slowed down. Several sites of the destroyed houses were used as gardens. Due to the constructions of the system of fortifications, the garrison-character of the town became stronger. The newly opened railway lines in 1856 did not bring an upswing to Komárom, but Új-Szőny started to develop because of them. Similarly to the national tendencies, development sped up after the Compromise of 1867; the inner town received its historical character that time. After the incorporation of Új-Szőny into Komárom (1896) industry developed more in the southern part of the town, e.g. some factories (war factory) next to the fortresses on the bank of Váh. This area is a cause of some serious settlement morphologic tensions, especially because the system of fortresses is applying to be a World Heritage.

After World War I Komárom expanded to the north and to the west (to the direction of the railway lines and Linea Palatinale). In the town housing estates for civil servants and for workers were built, in the bastions of Linea Palatinale temporary lodgings were created. The enormous number of Hungarian refugees caused housing shortage; there were no public institutions and administrative units in the town. They were only established by the end of the 1920s.

In World War II, Komárno suffered serious damages, it was bombed multiple times, its bridges were exploded by the retreating German army. For many years to come, construction meant cleaning the ruins and rebuilding. The beginning of the 1950s saw a large volume of building and construction, mainly in the form of new housing estates. By the end of the decade districts in the outskirts started to disappear, the historical center started to shrink. The former farmer district was

replaced by housing estates, at the site of the housing estate along the Váh-Danube wood traders, fishermen and ship carpenters used to live. The biggest housing estate of the town was built at the place of the former Curia-District in the 1970s. The military function of the Old and New Fortress was maintained: for decades the Soviet then the Slovakian army used it. Finally, in 2003 it went into the possession of the town. Many housing estates were erected alongside the fortress walls, which served as accommodation for the army officers.

Modern buildings first appeared in Komárom at the end of the 1960s and they were concentrated mainly alongside the main road. Previously the town had a rather modest architectural heritage. Housing estates were also built in the streets opening from the main road and near the town center. Most of the fortresses were used as depots in Komárom too, some of them served as homes in the 1950s.

### 2.3.2 Morphologic outline and problems of Komárom

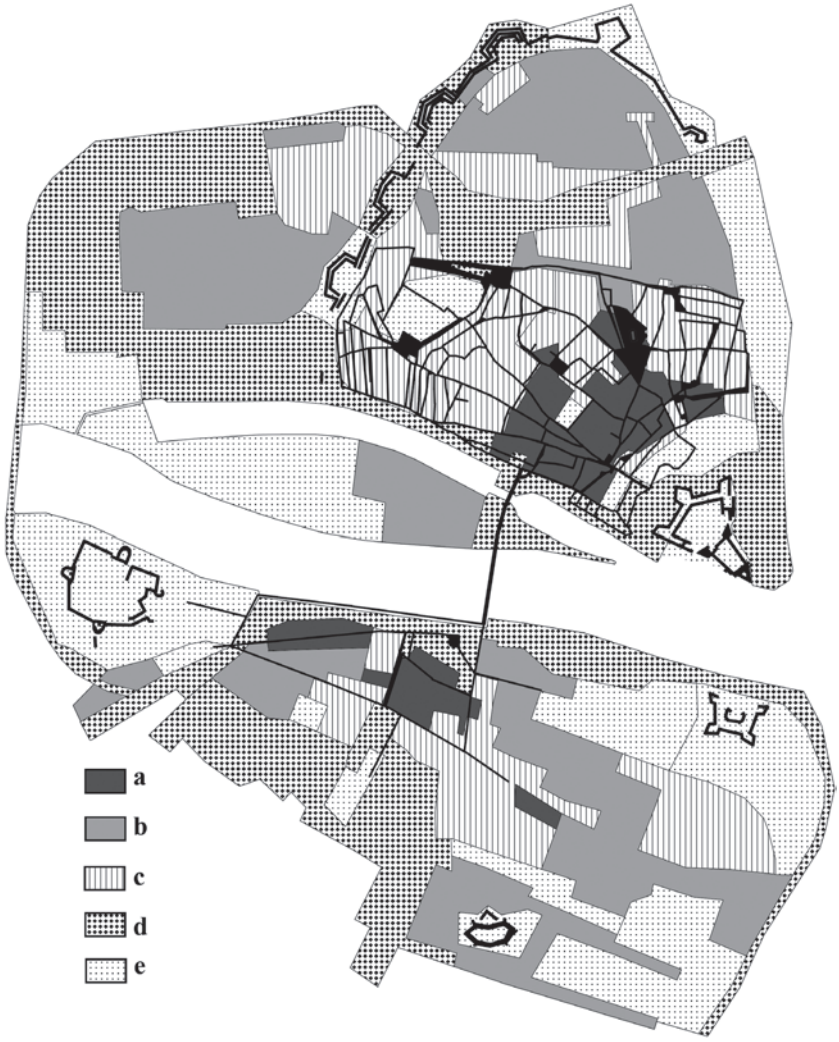
Based on special historical characteristics in building it in, five morphologic categories can be distinguished in the northern and in the southern part of the town *(Figure 9)*.

The first morphologic category is the historical town with unbroken (or hardly broken) rows, which can be characterized with old stock of buildings and forms. To the next category belong the traditionally built-in districts. Here the size of the sites is the old one, several blocks of houses with flat roofs can be found. Housing estates belong to the third category. The fourth type has economic functions (industrial, commercial, storage and railway functions) and the green areas in the fifth category are devoted to recreation (public parks, sports fields, waters).

The fortress system still plays a key role in the morphologic picture of the divided towns. Its elements are complete, only parts of Linea Palatinale and Váh-line are missing. Only Fort Monostor and Bastion IV of Linea Palatinale perform suitable, cultural, public institutional functions. The surroundings of the two lines of fortresses in Komárno are rather neglected and unkempt. In the bastions industrial-commercial depots operate, along the walls there are gardens and garages. The town expanded beyond the bastions of Linea Palatinale without utilizing them properly, thus they live on as inclusions in the body of the town. The relationship between the Old and the New Fortress and the town is also problematic: they are isolated from the residential area. The three forts of Komárom (Fort Monostor, Fort

Igmánd and Fort Csillag) hardly disturb the townscape "burdened" with housing estates. The immediate surroundings of them are generally green areas in rather bad state.

*Figure 9: Morphologic outline of Komárno-Komárom, 2007*




*Categories: a. historical town; b. traditionally built-in parts; c. housing estates; d. industrial, commercial, storage and railway areas; e. green areas (parks, sports fields, cemetery)*

The relationship between the divided towns and the Danube poses other problems. From touristic-marketing points of view the best way to visit the forts is using ferries on the Danube. Forts should play a significant part in the towns' image, but today only Fort Monostor fulfills this function. Neither part of the divided towns has good visual relationship with the Danube. Along the southern bank a road and the railway lines run, on the northern bank a port and industrial railways block the view.

Komárno's landscape is strongly dominated by Alžbetínsky ostrov (Elizabeth Island), which is modified only by the buildings erected near the border crossing. The buildings of the shipyard, the cranes in the port and a housing estate with the chimney of the power station in the background give a port-like image to the town. These all prove that previously architectural aspects were completely neglected. There are hardly any parts in Komárom that could boast about architectural heritage.

Obviously, the architectural facade of Komárno's historical parts is not unified at all. Only the first parts of the streets starting from the center are built in unbroken rows. With a clear cut they continue in housing estates. Even the main street coming from the bridge destroys the townscape with its big-city image. In the inner town Europe Place added a special flavor to the town's image. Each of its buildings represents a European country's architecture and many of them perform commercial functions as well.

Visitors can see hardly any historical parts in Komárom (Szt. István Square, Igmándi Street near the Danube). However, the block of flats erected here spoils the picture. Ó-Szőny's village-like center can also be considered historical and is locally protected. So Komárom has no real center, public institutions are scattered around the town. Because of the small size of the town, building a center was not a priority even at the construction of the housing estates.

Even the garden-city areas are not closed; they alternate with housing estates. The northern and the southern parts of the divided towns show different images. Even the villa-like buildings from the time between the two world wars are different, just like the typical detached houses of the socialist era. It can be considered positive that blocks made from pre-fabricated elements do not appear in the garden city areas. In Komárno flat-roofed detached and terrace houses add a special flavor to the garden-areas.

The green area of the Alžbetínsky ostrov (Elizabeth Island) disappeared long time ago, but it is still being damaged. In the socialist era the island used to be dominated by gardens, but today it performs some unsuitable functions as well. Nowadays private constructors discovered the area, but to limit it is the interest of the town. The Hungarian counterpart of the island is the Western outskirts of Komárom (Koppánymonostor), where the signs of suburbanization can be detected inside the town limits.

# 3. TODAY'S ECONOMY OF THE TOWN

## 3.1. Industry in Komárom and Komárno

The favorable location of the divided towns had a positive effect on its industrial development. The most dynamic period in the 19th and 20th century took place when the role of routes was upgraded. At the beginning of the 21st century Komárom's industry – which originally settled down there to take advantage of the river – started to develop dynamically with the help of the new logistic factors (motorway M1). Most of the factories were established on the riverbank, but today the closeness of the Danube is not a determining factor any more.

### 3.1.1. Industrial development until the end of World War II

Even in the Middle Ages historical Komárom had significant industry and guilds. The town was a major center of grain and wood trade on the Danube, with an important port and high traffic. Commerce and crafts developed parallelly. Development was set back by earthquakes and fires in the 18th century. After these catastrophes Komárom was rebuilt.

The town had its heydays in the 19th century, its functions changed. Between 1808 and 1877 the military constructions gave the town a garrison character, trade functions were replaced by military ones. Two big brick factories satisfied the demand for building material. In the second part of the century railway constructions made Új-Szőny an important railway hub. Based on the railway traffic, in the southern part industrial areas were established. Komárom became an important center of light industry.

The first significant industrial unit of the town (with 130 woodworkers) opened its gates in 1880. It was followed by numerous new factories. Another leading branch was textile industry (1901: silk spinning works opened with 350 workers, 1904: linen spinning works opened with 300 workers). Development in food industry was marked by the establishment of the steam mill in 1905, then the opening of the aperient water bottling factory in 1913. Shipbuilding started at the beginning of the 20th century in the northern part of the town. In 1905 production started in the cartridge factory, where 4–5 thousand people worked during World War I. Watermills operated on the Danube.

Because of the industrial revolution in the first two decades of the 20th century, the southern part of the town experienced a rapid

growth. The population of South-Komárom reached 6,000 by 1920, which accounted for 25% of the population of Komárom. In 1910 only 105 of the total population lived on the right side of the river.

The town was divided into two after World War I and the Czechoslovakian state decided to close down the cartridge factory, causing rocketing unemployment. Even the newly opened port and tobacco factory could not create enough workplaces. Komárom's economy also slowed down, during the years of the great depression several factories (woodworks, silk works, joinery, spinning works) went bankrupt. Between the two world wars only two larger factories (the foundry in 1923 and the slaughterhouse in 1937) were built. In Szőny the constructions of the new refinery started in 1942 and by 1944 several additional units were also completed.

During the air raids of World War II the refinery, the silk spinning works and the slaughterhouse suffered serious damages, machinery from the linen spinning works and the refinery was moved to the west. Production started again slowly after the war.

### 3.1.2. Decades of socialist industrialization

Industry started to develop in the socialist era, in both towns new plants and factories were built. In Szőny and Komárno heavy industry was developing rapidly, while development in light industry was diversified on both sides of the Danube. Until the mid-1970s the majority of wage-earners worked in industry.

The shipyard in Komárno started to develop greatly after World War II. Its capacity was enlarged after 1948, and the plant with its 5,000 workers became the most important industrial unit in the town. By the 1960s Komárno became a center in heavy industry. Agrostroj, which employed 400 people, was a distinguished plant in machine industry (agricultural machines). Priemko (metal-, wood-, leather- and textile industry) also gave work to 500 employees. Female workers found employment at the tobacco factory and at Kožená Galantéria cooperation (leather industry). Since the 1950s the factories belonging to the building and construction industry provided work for thousands of people. In the 1980s the economic structure of the town changed. The sign of these changes was expansion in light industry (shoe production). However, the tobacco factory was closed down, as well as the gas works which had operated since the beginning of the century.

Komárom preserved its light- and food-industrial character; its mill-, bakery, and meat industry were closely connected to the town's

larger plants. In 1970 half of the people worked in industry and in 1980 one-third of them worked in light industry. The linen spinning works remained the most important factory of the town even after 1948. By the end of the 1980s, free capacity in female workers dried out, so under the Hungarian–Czechoslovakian agreement on workforce-cooperation, workers (100–150 women) were brought from Komárno. On the other hand, the shortage in workers at the shipyard was filled by Hungarian commuters. Besides their main activities, agricultural plants in Komárom also produced parts for agricultural machine-, wood-, and rubber industry as additional activity. New plants established after 1950 included a cooperative in iron industry, a foundry and a plant producing ferro-concrete elements. Townspeople also worked for the factories in the neighboring settlements (aluminous earth factory in Almásfüzitő, sugar factory in Ács).

In 1977 Szőny was administratively attached to Komárom, making the refinery the most important plant of the town. The biggest employer at the time of the census in 1980 was chemical industry, about one-third of the industrial workers found employment there. By the beginning of the 1980s the plant with its relatively small capacity lost its importance and finally in 1984 production was ceased. In 1983 a brewery became part of the town's economy (Komárom County Brewery).

### 3.1.3. The new structure of industry after the change of regime

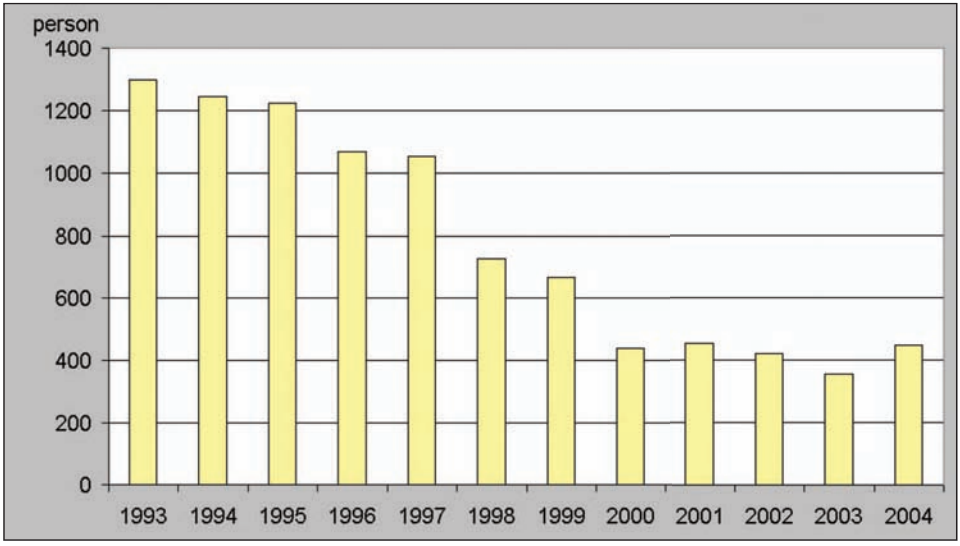
After the political-economic changes of the regime the situation of the main employer of the town weakened. The foundry was closed down, MOL (Hungarian Oil and Gas Company) reorganized its activities, there were serious cut downs in agriculture as well. By the mid-1990 the number of unemployed exceeded 1,000; the rate of unemployment was 18% *(Figure 10)*.

Unemployment in Komárno was even higher and more permanent (the number of jobless people was around 5,000); new workplaces were hardly ever created. At the turn of the millennium first a slower, then after the country's EU accession (2004) a more rapid improvement could be experienced, that caused the rate of unemployment to reduce under 5%.

The number of people working in industry started to increase after the end of the 1990s. The town became more attractive for workers, and the number of commuters to the neighboring towns (Győr, Tatabánya) also increased. The number of people working in industry

has been rising since the beginning of the new millennium in Komárno and more and more people find employment at the newly settled companies in Komárom. By 2006 in both towns industry is the major employer.

*Figure 10: Number of unemployed in Komárom, 1993-2004*




Company structures in both towns have changed, the number of small and medium size enterprises has grown, plants have been privatized. Foreign capital also appeared at larger companies. In Komárom the brewery and the mills, while in Komárno the shoe factory and the shipyard became foreign property. Larger foreign working capital was involved in the Industrial Park in Komárom, and after the turn of the millennium it started to dominate the two towns' economy. (Smaller companies remained in national ownership.) The size of companies also changed. Larger ones were divided into smaller units, some of their activities were outsourced, and several SMEs appeared.

In the 1990s large companies centralized in food and light industry (Komárom Agricultural Inc., Hungaro-Len, Amstel Brewery, Hungaromill). MOL Inc. in Komárom employed more than 600 people becoming the largest tax-payer in the town. After the change of regime in Komárno only two industrial companies operated: the shoe factory and the shipyard.

*The structure of branches in industry*

Parallel with the changes in company structures, the different branches of industry also changed. Food companies based on the operation of big agricultural companies mainly concentrate on processing locally produced goods. Among the branches mills, bakeries, brewery (until 2004) and meat industry are worth mentioning. Before the change of regime several light industrial companies operated in the town. Now their ownership have changed: they started to operate as private companies in the future. Printing and packing industry remained remarkable sectors in light industry.

At the turn of the millennium the industrial structure of the town experienced fundamental changes. By the appearance of Nokia, the Finnish multinational company, electronics became the main profile of industry. Three out of the ten largest companies (Nokia, Foxconn, Mirae) deal with electronics, another three companies (Perlos, Savcor, Sunarrow) are closely connected to it, as suppliers. Car parts production also appeared as a new branch of industry (Kayser Automotive).

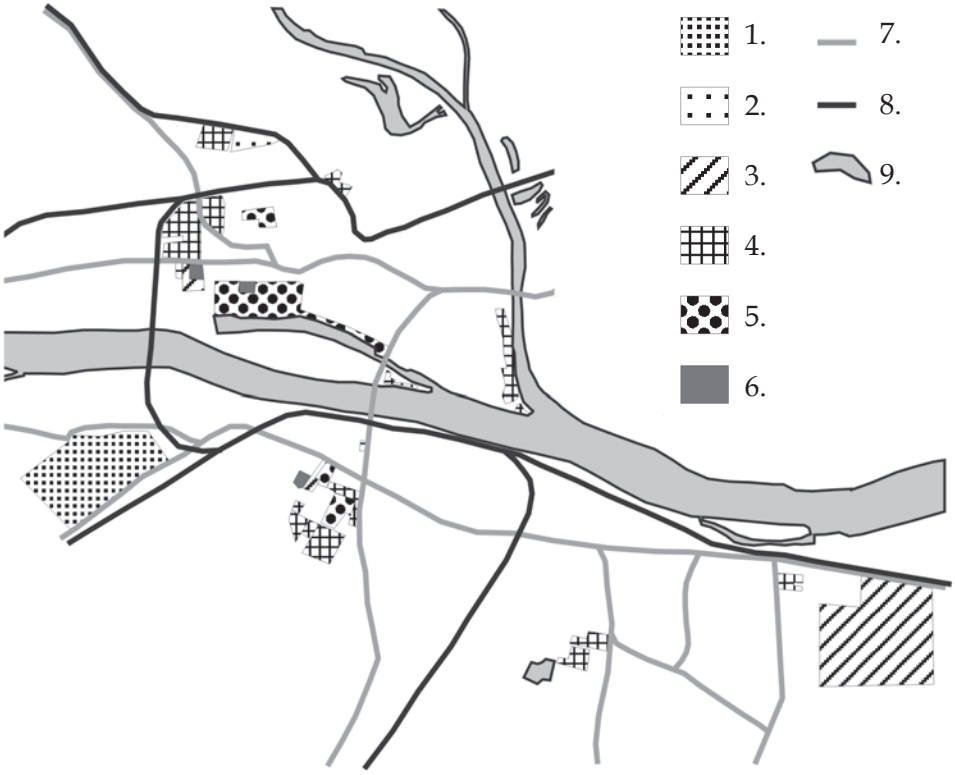
For many years shipbuilding used to play the major role in Komárom's industry. However, today it was taken over by light industry: the town is one of the most important centers in leather- and shoe industry. The biggest among the town's companies is the Swiss-owned Rieker Shoes, with dynamically increasing production and profits. The printing house in Komárno (Komárňanské tlačiarne spol. s.r.o.) is the fourth largest company in Slovakia. The local companies operating in textile and furniture industry provide work for about 200 people.

The shipyard in Komárno (Slovenské lodenice Komárno, a.s.) is the second biggest company in the town. It also experienced fundamental changes after the change of regime. Some parts were privatized, but it kept its core activities. In the 1990s, production was gradually reduced and it became minimal by the turn of the millennium. The company lost its markets, got into a debt trap and it had to be reorganized. SLKB, the new shipyard, was established in 2001 with 900 employees. The newly privatized company in which Austrian capital was also invested started to grow dynamically. The shipyard which builds 8-10 ships every year became profitable by 2003. In 2005 it was the 5th biggest company in Slovakia.

***The structure of the industrial zone, the changes in the area***

After the change of regime land utilization completely changed. Large brown fields were formed on both banks of the Danube. While the degree of utilizing the sites of formerly large companies decreased, in the outskirts new industrial zones were created *(Figure 11)*.

*Figure 11: Changes in Komárom's industrial zones after the change of regime*




*Categories: 1. built-in green field industrial area; 2. unused green field industrial area; 3. underutilized brown field industrial area; 4. industrial area used by SMEs; 5. industrial area used by big companies; 6. former industrial area with altered function; 7. important road; 8. railway line; 9. water surface*

The most underutilized brown field area belongs to the Szőny site of MOL (Hungarian Oil and Gas Company). At the end of the 1980s a brewery was established here, but after closing it down, the site was not used any longer. Part of the area is used by MOL for storing gasoline. Industry disappeared from many previous sites. In Szőny

the former plant of Bábolnai Állami Gazdaság (Bábolna State Farm) disappeared, in Komárom the foundry ceased its production. Their sites are not used any more. The spread of commercial functions is often connected to the altered function of brown field areas (e.g. Tesco). The former army barracks are located on a brown field area. They have belonged to the town since 1995 and their recultivation has already started. New functions have also been assigned to them. Today they are a home of 20 small enterprises of different profiles (service, printing industry, and logistics).

Industry did not occupy new areas in Komárno after the change of regime; the former industrial areas are used by new enterprises. At the site of the former cartridge factory, in the industrial park in Chadovce (Gadóc), and at the former sites of building and construction companies service and industrial functions are mixed. At the site of the old shipyard today windows and doors are produced, while in Chadovce at the site of the former agricultural machine factory steel structures are made.

A good example of altered functions is that a part of J. Selye University operates in the former administrative building of the shipyard. The new shopping centers were partly established on a brown field area (Hypernova, Kaufland, NAY-Elektrodom). Other areas are used temporarily. The biggest unutilized area used to belong to Hydrostav.

In Komárno new companies had to settle down to the place of the old ones, since there are no free industrial areas with built up infrastructure. These areas are planned to be built next to the roads leading out of the town but nothing has happened so far. The only bigger (8.5 hectares) area which might be attractive for investors is located in the north of the town, in the west of Chadovce Industrial Park. On the new country planning blueprints 7 industrial zones are assigned where small and medium size enterprises can settle down, but this is burdened with unfavorable tax conditions. In addition to it, the industrial park in Komárom channeled away all the free capacity in labor force. This also hinders new investments. The industrial park in Komárom was established next to the main road as a green field investment, providing solid foundation for further development.

### 3.1.4. The success of the Industrial Park in Komárom

Komárom's local government started to develop an industrial park in the mid-1990s. For this, they bought the former Soviet drill ground. The first investor in the area, which covers nearly 88 hectares,

the Finnish Nokia appeared in 1999, bringing one of Hungary's biggest investments to Komárom. This generated new investments in the area and a new cluster of mobile phone makers started to form. The multinational company is in contact with more than a dozen of firms settled down in the industrial park.

Most of these companies are traditionally Finnish, but there are suppliers from the USA and from the Far-East as well. Because of their high demand in quality, they hardly ever work with Hungarian suppliers. (There are only two companies like that in the industrial park.)

The growing capacity of Nokia resulted in a dynamic development in Komárom and its region. Between 2000 and 2006 the number of people working in the industrial park became tenfold, in 2006 mobile phone production and its additional industries provided work for 15,000 people at 16 different companies. The result of the companies in 2005 exceeded 850 billion HUF. Workers from Komárno also find employment here. 4,600 people from the Komárno District work in the industrial park, so the rate of unemployment which was 22% in 2003 could reduce to 5.5% by the end of 2005 *(Table 2)*.

*Table 2: Data from Komárom Industrial Park*

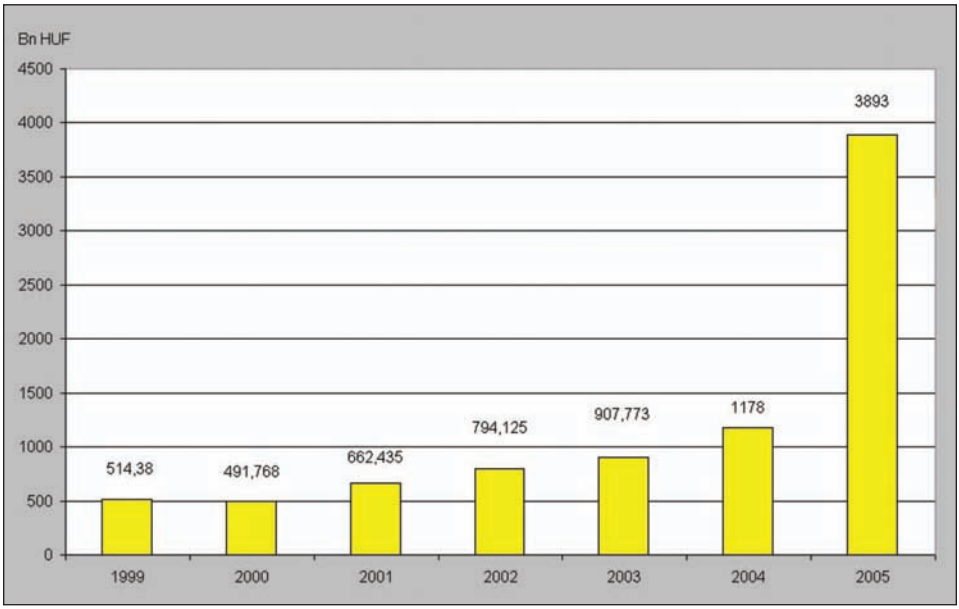
| **Index** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** |
|---|---|---|---|---|---|---|---|---|
| Number of employees | 290 | 1560 | 1900 | 2170 | 4830 | 6400 | 10000 | 15000 |
| Number of companies | 9 | 10 | 10 | 13 | 13 | 14 | 14 | 16 |
| Built-in area (ha) | 16 | 35 | 35 | 43 | 48 | 62 | 70 | .. |
| Revenue of companies (billion HUF) | – | .. | .. | 403 | 415 | 760 | 858 | .. |
| Investments of companies (billion HUF) | 25 | 1,1 | .. | 0,9 | 12 | 39 | 11 | .. |
| Investments of the local government (billion HUF) | 0,11 | 0,2 | – | – | – | – | 0,2 | 0,3 |

*Source: Komáromi Ipari Park [Komárom Industrial Park], 1999–2006.*

*.. no data*

The companies located in the industrial park brought dynamic development to the town. Firstly by creating a large number of workplaces thus increasing the families' income, secondly they multiplied the local government's revenues *(Figure 12)*.

*Figure 12: Local tax revenues in Komárom*




Companies in the industrial park seriously affect the employees in the town as well as in the region. Job security and solid income provide favorable living conditions. Higher average wages mean higher living standards for the families. Workers from Slovakia can also earn wages that are significantly higher than the average wages in their home country.

## 3.2. Agricultural features of the region

### 3.2.1. Natural conditions of agriculture

To great extent natural elements define the characteristics and qualities of the area examined, its suitability for agricultural production. Among them configurations of the soil, soil components, climate, hydrography, and flora are the most important. The divided towns and its surroundings belong to the eastern part of Kisalföld. (Small Hungarian Plain). The area is a slightly jointed plain, banked up by the Danube. Its height above sea level is 110–120 m. The area is the catchment basin of the river, rather suitable for agricultural production with its flat character.

Soil around the two towns is favorable for cultivation; the quality of the soil is above average near the Danube. Roughly 75% of the soil is chernozhem with extremely good fertility. Near the Danube the soil has a meadow-character.

The climate of the region is moderately warm and dry (1950–2000 of sunny hours yearly on average). This is suitable for producing industrial crops which demand more than medium quantity of sunlight (grain, maize). The average precipitation is about 570–590 mm (330–340 mm in summer), so intensive branches of the industry could spread here, where irrigation plays a key role. The Komárno region has the mildest winter in Slovakia with the longest vegetation period. This climate is suitable for producing different horticultural plants (grapes, apples, peaches).

The area possesses good hydro geographic features. Firstly the Danube – crossing the region in its axis – offers possibilities for irrigation with its excellent flood-plain soil. Secondly, since the area slopes towards the Danube, the land around South-Komárom is cut up by several smaller water-courses. The drifts on the Slovakian side run into a North-West – South-East direction, the biggest one of them is the river Váh, flowing into the Danube. The riverbed is embanked. The majority of the smaller water-courses in the area are artificial channels. The average depth of underground water is 2–4m, which can get significantly higher at the times of floods. Underground waters contain calcium and magnesium, suitable for fodder-plants (lucerne, shamrock).

### 3.2.2. Landuse and productivity

Landuse is mainly based on cultivating the fields, which cover 74–80% of the land both in Slovakia and Hungary. The rate of forests is rather low in the region (2–4%), which is unfavorable for forestry and games. The extension of grazing lands and meadows is also relatively small (4–5%), however, their rate is increasing because of the growing size of wastelands. Meadows and fields in flood areas in Hungary appear in patches, while on the Slovakian side they follow the banks of Váh and Nitra. The rate of vineyards is disproportionate. In Komárom microregion it does not reach 3%. But in the Komárno district it exceeds 10%. The rate of orchards and gardens is under 1% in both regions.

The most typical plants of cultivation are wheat (30–45% of the cultivated area), with 2.8–4 tons/hectare of average yield: 25–30% of fields are used for growing maize (average yield: 3–7 tons/hectare), 5–10% are

devoted to barley (2.5–3.5 tons/hectare). Foodplants cover 7–9% of the cultivated land.

Intensive animal breeding was established on growing foodplants. Among them pig-farming is dominant. In the 1980s cattle-breeding used to be significant as well, but by the turn of the millennium it shrank substantially and today it is insignificant. Breeding sheep and horses is general, but not too significant either. The only exception is Bábolna, where racehorse breeding is internationally well-known.

The Slovakian part of the area is covered by wheat- and maize fields, with well-developed viniculture, small range of cattle-breeding and slightly more significant (medium-size) pig-breeding.

Farms with greenhouses for vegetables and fruits, cellars of vineyards and stalls for intensive animal husbandry have been becoming more and more common near Komárno since the end of the 1990s. In many cases they are heated by thermal water. A great help to farmers in Slovakia is that since 2004 agricultural subsidy is distributed on the basis of the size of the area, so farmers get their money according to the size of the cultivated area. The region is successfully meeting the criteria of intensive, environmental friendly agricultural production.

### 3.2.3. Structure of ownership and employment in agriculture

After the change of regime privatization of state farms and co-operative farms started both in Hungary and Slovakia. Despite the changes the main part of the cultivated area remained in the hands of farms with separate legal entity. In Hungary as a result of legally regulated compensation, land was divided into smaller farms that can be bought or leased by the cooperation (former co-operative farms). In Hungary expropriated lands have been given back to their owners since 1991. The same process in Slovakia stared in 1995.

Before the change of regime the biggest part of farmlands in Hungary used to belong to state farms and co-operative farms, in Slovakia they only belonged to the latter ones. The successors of these agricultural cooperations signed a leasing contract with those new owners who could not, or did not want to cultivate their farms. Thus after 2000, the land cultivated by these companies reached 95% in Komárom microregion and 80% in the Komárom district.

Because of the capital intensive investments, the rate of agricultural workers in Komárom microregion was 10% in 2003, in the Komárno district the same number was 10%. Due to the harder conditions in agriculture, the number of private farms reduced by 50% in Komárom microregion between 1995 and 2001.

The harmful effects of the dramatic changes in the region's private farms can be felt on the level of settlements. The cruel laws of selection in the market economy are dominant; the rate of people working in agriculture has dramatically declined. Thus smaller farms and private entrepreneurs are exposed to high risks. In the long run, problems of making both ends meet can only be solved by diversification, i.e. combining agricultural work with other types of wage earning (e.g. village tourism, telework).

### 3.2.4. The most important agricultural companies of the region

On the Hungarian side of the region the most outstanding economic entities in the agricultural sector are the successors of the former internationally famous Bábolna State Farm (later Bábolna Inc.). The remainders of the old socialist model farm (in the form of a limited liability company or an incorporation) meet the new demands of national and international markets. They have been reorganized, gained remarkable foreign capital and know-how or property investment, and now they offer new ranges of agricultural products and services.

The area's large lands with their high quality soil contributed to the companies' cultivation and animal breeding activities. Accordingly, they have a high proportion in the region's farmland.

In Komárom there are two major farming companies, Komáromi Mezőgazdasági és Szolgáltató Rt. (Komárom Agricultural and Service Inc.), and the also Komárom-based SOLUM Mezőgazdasági, Ipari és Kereskedelmi Rt. (SOLUM Agricultural, Industrial and Commercial Inc.) In the agricultural sector of the region besides the two "big ones", several smaller companies operate with their own special profile. Among the smaller companies those became successful that offer a special range of product which can meet the demands both at national and international markets. Their goods are sought-after products even in the European Union. Apart form them, there are numerous firms working in the filed of agricultural marketing in Komárom.

The largest agricultural company in the Slovakian area is AGREF Ltd., which was founded in 1991. The company specializes in cultivation, animal husbandry, producing and selling fodder. Agroservis, also based in Komárno, has been dealing with selling and maintaining agricultural machines since 1993.

To summarize it, we can state that agricultural activities have preserved their previously remarkable role in the region; however, it has been modernized and has been adjusted to the demands of the new

market economy. It was also completed with some commercial functions. Besides the fundamental agricultural activities additional functions such as food and fodder industry became increasingly important. The companies – regardless their size – are more and more adjusting to the EU requirements. However, signs of establishing forms and profiles which would mean a living for private farmers and producers in the long run cannot be detected. The different forms of bio-farming did not become common, even though environment-friendly methods whitch use less artificial fertilizers are bound to spread in both countries.

### 3.3. Spatial processes in retail trade

After the change of regime retail trade has gone through fundamental structural changes. In Komárom and its gravity zone the number of retail shops became six times bigger between 1990 and 2001. Accordingly, employment structures have also modified greatly and people's incomes have also increased. During the same period the network of shops in towns (Komárom, Bábolna) grew 7.8 times bigger and the number of retail units and villages became 3.8 times bigger. The increase was most significant in the case of Komárom's retail shops. In 1990 there were 54 shops in Komárom, and this number grew to 472 by the second half of the 1990s. The large proportion of clothes shops (36%) and the dynamic increase of food stores (23%) characterize the town's shop mix. The two types altogether amount 40% of the total number of shops. In 1990 in Komárom only one department store (Department Store 'Duna') and three clothes shops existed, nowadays about 100 clothes shops and several department stores can be found there. The number of food stores has also multiplied (1990: 25 stores, 2001: 62 stores).

The reason for the rapid increase in the number of shops is the vivid enterprising activity. Many of the jobless found the way out of unemployment in opening a shop. Retail activity in Komárom is concentrated in the inner part of the town; most of the shops are clustered in the town center *(Figure 13)*.

30% of the total number of shops is concentrated in the relatively small (0.5 $km^2$) inner town, but department stores and hypermarkets of large selling area also operate here (Duna Áruház, Millennium Center, Tesco). In the inner part of the town shops are located along Igmándi Street and in the streets of the pedestrian area opening from Igmándi Street. Here clothes shops and shoe shops play a dominant role. Their existence is greatly supported by that fact that the shops in Komárno offer only a modest range of products. Shopping tourism attracted many currency exchange units and bank branches.

Compared to the population, the number of restaurants, cafes and pubs is relatively low, which can be explained by the lower prices of restaurants in Komárno, so the inhabitants of Komárom rather go there.

*Figure 13: Types of retail shops in Komárom, 2006*

Komárno and its gravity zone had 458 retail shops in 2006, 87% of which were located in Komárno. The 9 settlements belonging to the gravity zone of the town have a rather small network of shops. Most of them (11–11) can be found in Hurbanovo and Svätý Peter.

Shops in the other seven settlements in the attraction zone can only provide basic supply. The shop network of Komárno is less developed than that of Komárom, especially if we consider the fact that the number of inhabitants is twice as much as in Komárom. Each element of the retail-shop mix can be described as commercially undersupplied; the only exceptions are bookstores, newsagents, and stationary stores.

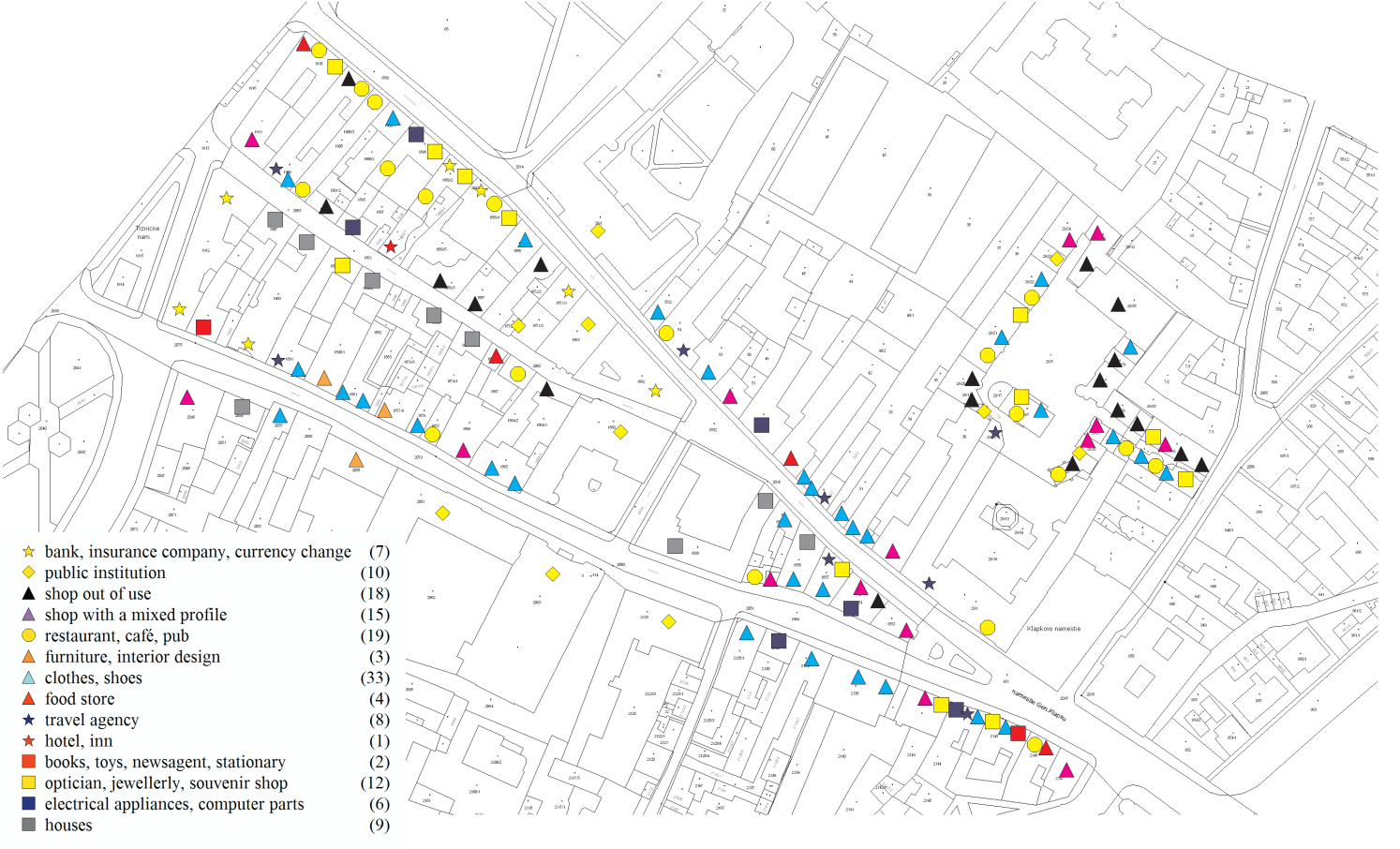
The traditional network of shops in Komárno is clustered mainly in the historical city center. The new (or refurbished), large-size malls (Komárno Shopping Center, Hypernova, Hajós Shopping Center) are scattered around the town or located in the outskirts *(Figure 14)*.

In the traditional retail zone of the town 147 retail units are located. They are mostly concentrated in Župná (Vármegye) Street and Palatínova (Nádor) Street, where traffic has been banned from. There are 33 clothes and shoe shops, which cannot be considered too many compared to the town's population (38,000 inhabitants). The ownership of these shops changes very rapidly, because of the unsuitable or narrow range of commodities they can offer. In the inner town 19 restaurants can be found. In the town 83 restaurants operate altogether, which is closely connected to the fact that they rely not only on locals, but guests from Hungary as well.

As a summary, we can say that the structure of shops in Komárom (compared to its size) is much more developed *(Figure 15)*, while the number of retail shops in both towns is almost the same. If we compare the retail-shop mix of the towns, it is clearly visible that the quality of shops in almost every category is higher in Komárom. The only exception is restaurants, whose existence is based on guests coming from Hungary.

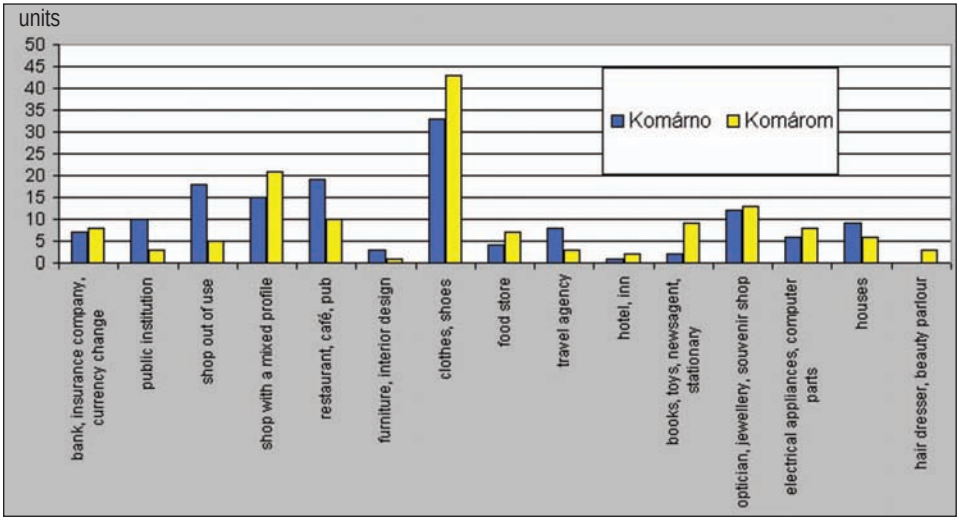
Shopping in both towns can be separated according to two poles: the traditional inner town (Komárno) and the newly formed inner part of the town (Komárom), and the newly opened hypermarkets. The opening of the three hypermarkets in the research area closely followed each other (Kaufland – 2002, Hypernova – 2003, Tesco – 2005) and their size is nearly the same (Kaufland – 4,430 $m^2$, Hypernova – 5,000 $m^2$, Tesco – 5,000 $m^2$). The number of parking places are 218 (Kaufland), 277 (Hypernova) and 500 (Tesco).

*Figure 14: Types of retail shops in Komárno, 2005*




- bank, insurance company, currency change (7)
- public institution (10)
- shop out of use (18)
- shop with a mixed profile (15)
- restaurant, café, pub (19)
- furniture, interior design (3)
- clothes, shoes (33)
- food store (4)
- travel agency (8)
- hotel, inn (1)
- books, toys, newsagent, stationary (2)
- optician, jewellerly, souvenir shop (12)
- electrical appliances, computer parts (6)
- houses (9)

*Figure 15: Shop-mix of Komárom and Komárno*




As the findings of the questionnaire on shopping habits show that 34% of Tesco's buyers are foreigners (mainly Slovakians), while in the case of Hypernova and Kaufland the rate of foreign customers is only 8–10%. The reason for the high rate of Slovakian buyers in the clientele of Tesco is that a large number of Slovakian employees work for Nokia in Komárom and they do their big weekend shopping in Tesco. This way they do not have to exchange their wages. Among Tesco's customers we can find many skilled workers (mainly working in the industrial park). The key to Tesco's success besides the wide range of products are the opening hours (0–24) and its excellent accessibility.

The age structure of the customers reflects the age structure of the towns. The only exception can be detected in Komárno, because when university education started in the town, students appeared among the customers of Hypernova *(Figure 16)*.

Shoppers mainly do their shopping for food in hypermarkets, even though non-food products are also sold there *(Figure 17)*. Some of the customers arrive without specific buying purposes (28% in Tesco) which can be explained by the presence of other services (Libri bookstore, food court).

*Figure 16: Age structure of consumers in the hypermarkets*

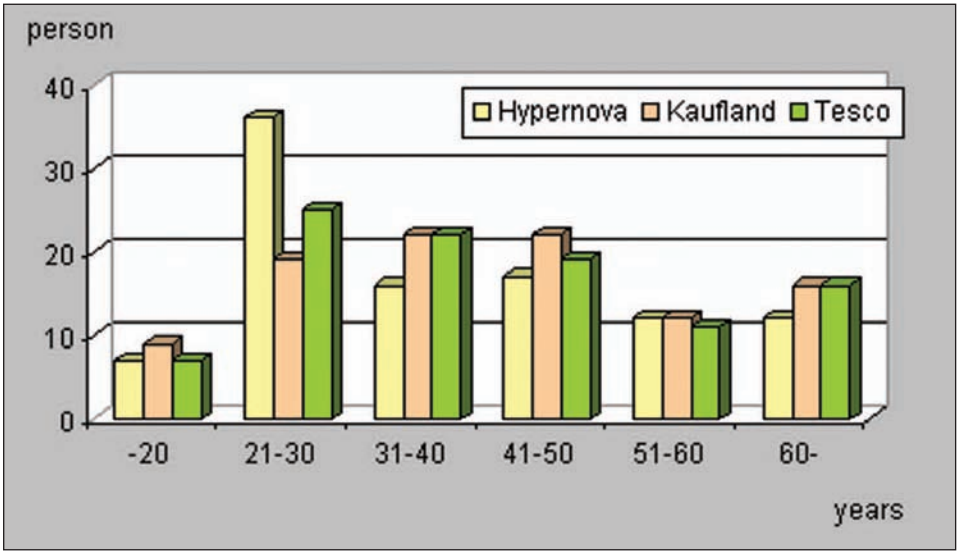
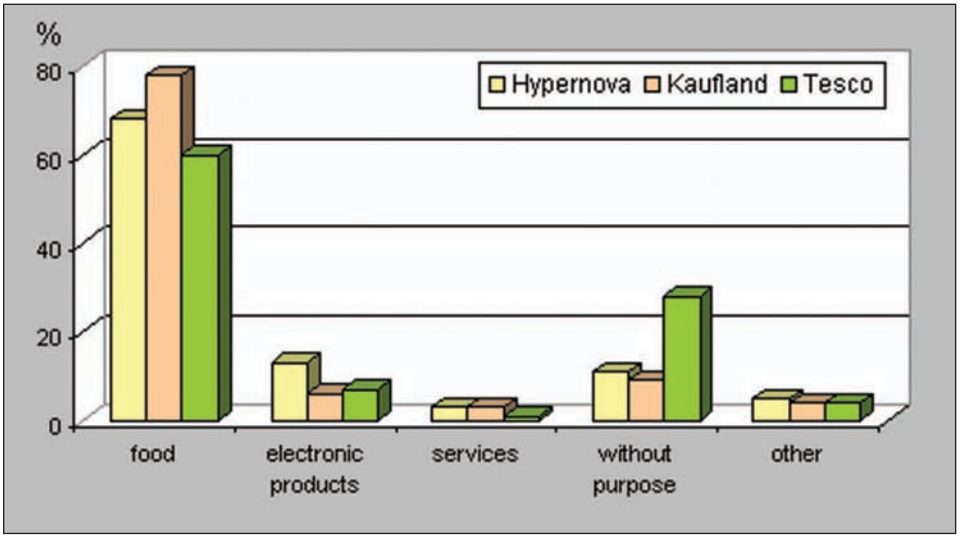
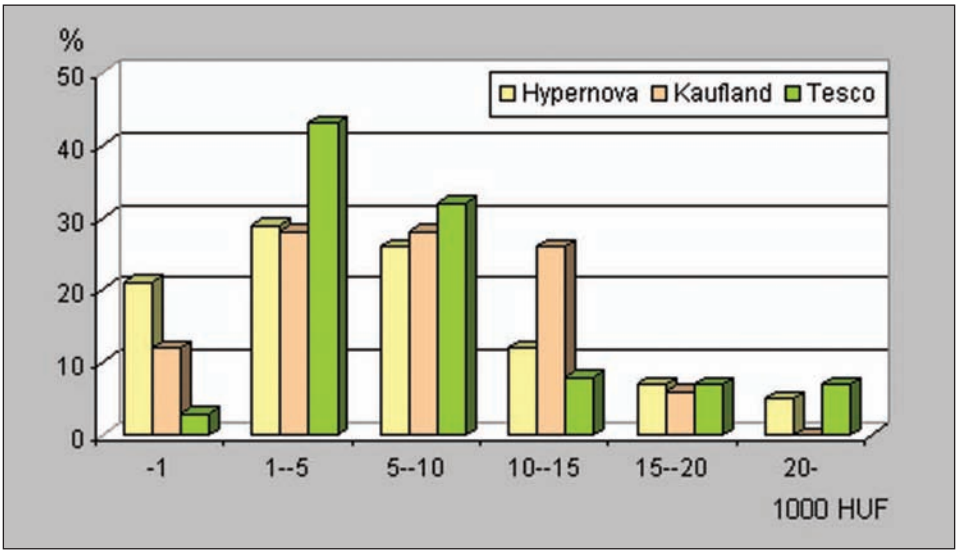



*Figure 17: Purpose of buying in the hypermarkets surveyed*




Most of the shoppers spend 1,000–5,000 or 5,000–10,000 HUF at a time *(Figure 18)*. 43% of the customers in Tesco belong to this group, while 32% of the buyers in Kaufland and 26–29% in Hypernova do the same. The larger number of smaller amounts (21%) spent at shopping can be explained by the relatively high proportion of students in Hypernova's clientele.

*Figure 18: Amounts spent at shopping in the hypermarkets surveyed*

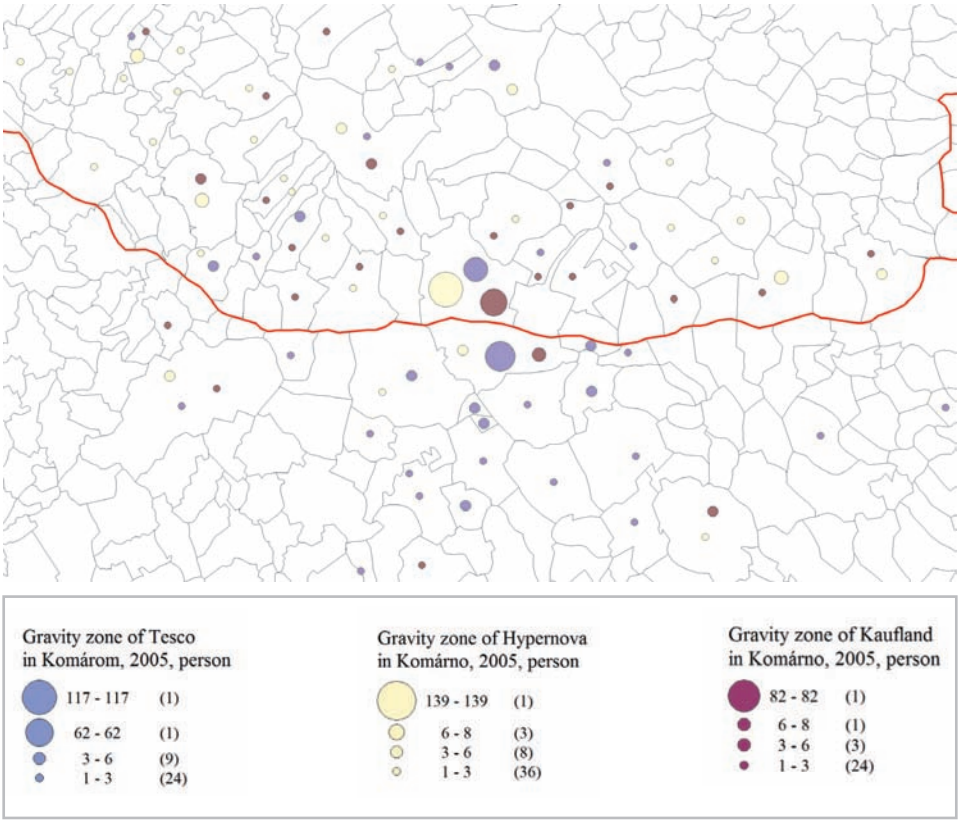



About the frequency of shopping we can say that the majority of people do their shopping in the hypermarkets weekly. Hypermarkets partly adjusted to customers demands (long opening hours, comfortable shopping). Among the hypermarkets only Tesco is open non-stop, which fully satisfies the demands of shoppers. This is reflected in its high turnover. Hypernova is open from 7 a.m. to 9 p.m., and Kaufland from 8 a.m. to 8 p.m. In case of Tesco night shopping is popular with more comfortable circumstances than shopping during the day. The effect of the three hypermarkets on each other was researched by special questions. (What other shopping centers do you visit apart from Tesco, Hypernova and Kaufland?)

As data of the 250-people survey reveal, 62% of Hypernova like doing their shopping in other hypermarkets, the same rate in case of Kaufland is 53%. Tesco has the most loyal clientele, only 44% of them visit other hypermarkets. Based on the customers' place of dwelling, the gravity zone of the hypermarkets can be drawn *(Figure 19)*.

Among the regular shoppers of Hypernova and Kaufland there are few Hungarian people. The catchment area of Hypernova includes Komárno and other 43 settlements in South Slovakia. The majority of Kaufland's customers is mainly from Komárno and come from other 25 Slovakian settlements. This gravity zone is smaller than that of Hypernova. Tesco's gravity zone is the biggest; it covers Hungarian settlements in a 30–40 km radius and also attracts buyers from the towns and villages in Žitný ostrov (Csallóköz).

*Figure 19: Gravity zones of Hypernova, Kaufland and Tesco*




### 3.4. Development of elements in settlement infrastructure

The quality of dwelling stock, the development of social infrastructure greatly defines the living quality and conditions of the inhabitants in the examined settlements.

The dwelling stock of the area (4 towns and 15 settlements) includes 35,700 dwellings, 56% of which are located in the northern part of the region. The average number of inhabitants per dwelling was 2.8 persons. In the settlements of Komárom microregion 15,700 thousand homes could be found, half of which concentrated in Komárom. In the town the average number of people per dwelling was 2.6. The average density of the Slovakian area is 10.3% higher than that of Komárom microregion. The main characteristic of the dwelling stock is that it is concentrated in the towns. However, while 68% of the flats and houses are in Komárno, their rate in Komárom is only 48%.

The stock in the southern part of the area between 1990 and 2000 increased with 570 units. 60% of the increase took place in Komárom (350 new flats were built in the town). The period between 2000 and 2005 experienced a rapid expansion in dwellings, but differentiation among them also grew stronger. 95% of the new dwellings built in the last 5 years in the microregion were completed in Komárom, which means that this town possessed the most favorable conditions. Great contribution to this were the taxes paid to the local government by the multinational company settled down in the industrial park (Nokia), as well as the favorable conditions in enterprise, employment and incomes.

The dynamics of the building of dwellings in the long run can be observed in the distribution of houses according to the year when they were built. In 2001, 12.4% of the dwellings in the surveyed area were built before 1945, other 38.5% after World War II 25% of the blocks were built during the hey days of housing estates (in the 1970s). Due to economic difficulties, in the 1980s the amount of state social investment decreased, so the number of flats built during these years decreased by 28%. The 1990s were the years of modest (5-6%) growth in dwelling stock on both sides of the border.

The direction of economic development can be caught if we examine the location of settlements with newly built houses. The settlements with more than 10% of old buildings are located in the east and in the north of Komárno. In contrast to this, the same rate in Komárno and in the settlements in the west of it is only between 4-9%. The stock of dwellings built before 1945 has a greater proportion in Komárom microregion (both in towns and villages) than in the northern areas.

In the first part of the 1990s growing inflation and unemployment caused a decrease in the real values of incomes. This had an adverse effect on home-building schemes. The withdrawal of the state from the market also acted as a brake on building and construction. Decreasing demand for newly built flats in the countryside also had the same negative impact in both countries.

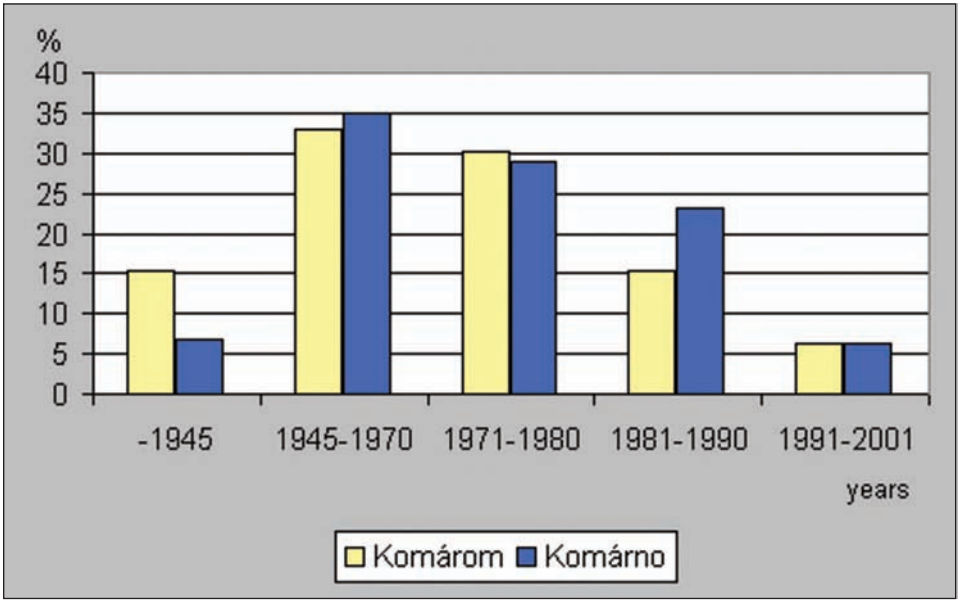
The rate of houses built before 1945 was 16.5% in the southern areas in 2000. Signs of economic crisis could be detected here earlier than in Czechoslovakia. The number of newly built dwellings fell back more in Hungary than in its northern neighbor. These changes influenced greatly the spatial distribution of dwellings.

Nevertheless, Komárno remained the most dynamically developing settlement of the region since the 1970s. The town carried out its home-building scheme at a greater pace compared to the number of its inhabitants until the 1990s. The 9 housing estates encircling the town's

historical center were built then. In the next few decades their state of repair continuously worsened. 76.7% of dwellings built in the region were erected between 1971 and 1980, and this rate grew to 78.2% between 1981 and 1990.

These inequalities can be much better observed in the distribution of stocks according to the year they were built *(Figure 20)*.

*Figure 20: Distribution of dwelling stocks according to the year they were built (Komárom, Komárno, %)*



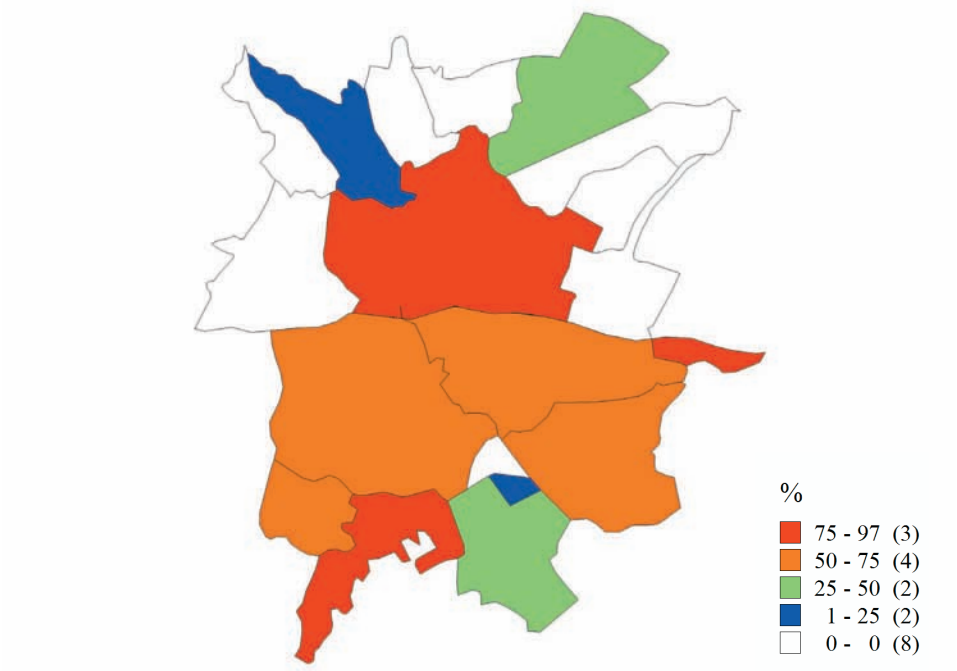

To describe the settlements' piped water system, we can say that 95% of the dwelling stocks were supplied with piped water in 2001. The differences among the settlements are not remarkable. This means that there is no settlement in the area in which 80% of the households would not be supplied with piped water, but there are 3 settlements where this number reaches 90%.

Sewage management is a crucial question in environmental protection and it belongs to basic infrastructure in Europe. That is why the rate of dwellings supplied with public sewage and the ratio of dwellings supplied with sewage and households served with piped water are rather important indicators in defining the rate of development of a settlement.

In 2001, 61% of the flats were connected to the public sewage system. Because building the sewage system started relatively late, the inequalities between the two parts of the examined area there are even bigger. In Komárom microregion hardly more than half of the flats were connected to the system in 2001, 60% of which concentrated in Komárom.

In the north, differences are even more remarkable. In Komárom 92% of the dwellings were connected to the sewage system, the same indicator in Hurbanovo was 39%. Not to mention the villages around Komárno, among which not even a single one possessed a public sewage system *(Figure 21)*.

*Figure 21: Ratio of dwellings linked to public sewers*




The average value of the ratio of dwellings supplied with sewage and households served with piped water in the area was 34% in 2001, so more than one-third of the dwellings supplied with piped water were not connected to the public sewage system. Developments in public sewers in the Slovakian area mainly took place in Komárno. This can explain the big differences between the ratio of dwellings supplied with sewage and households connected to public water conduit network in the two towns (Komárno 5.5%, Komárom 33.4%).

The volume of building out public sewers continued to grow between 2001 and 2005. These investments were financed from local government resources. As a result of these investments, the average degree of sewage supply is 75%. In the majority of the settlements in Komárom microregion the sewage system is connected to a sewage purification plant. This can be considered an important achievement in the protection of the environment. In the north in Komárno and Hurbanovo we can find a sewage purification plant. The one in Komárno was reconstructed from financial resources won at a PHARE application.

To the above indicator the rate of dwellings with a bathroom can be closely connected. This value was growing parallel with the increase in living standards since the 1960s. Most of the houses built after 1945 were already equipped with a bathroom or a shower. In 2001, 94% of the households had a bathroom or a shower, which means almost complete degree of supply.

Piped gas can also be considered an amenity to improve living conditions. In 2001 piped gas was available to the public in 73%. Households mainly used it for heating and getting hot water. However, the number of households using gas are rather are highly different at regional level (in the north and in the south), and especially at the level of settlements.

The average referring to Komárom microregion (51%) falls behind the region's average because the majority of households in Komárom and Almásfüzitő received their heating energy from district heating. In the northern part the average is well above the regional average (89%), so Komárno and its neighboring settlements were better served than the southern region even at the turn of the millennium.

In the longer turn, the southern parts will be catching up in piped gas service, which enables economic development in the settlements and also contributes to the modernization of the infrastructure bettering people's living conditions.

To measure people's income conditions, the increase in the number of cars (and their number per 1,000 people) can be considered. Residents of the examined area possessed 18,000 motorcars in 2001, which means a 181 cars/1,000 people ratio. 54% of the carpark is concentrated to the Hungarian side of the border. Since 60% of the population of the examined area live in the northern part, the averages for Komárom microregion are far better (232 cars/1,000 inhabitants) than the same figures for Komárno and its surroundings (171 cars/1,000 inhabitants).

The two towns (Komárom and Komárno) have unequal proportions in the distribution of cars. Two-thirds of motorcars in the northern region are concentrated in Komárno, while Komárom has only half of the motorcar-park of the microregion. Inequalities in inproportionate distribution of services between east and south can be seen in inequalities in parts of incomes spent on purchasing vehicles.

Finally we can state that considering the most important infrastructural indicators, there are remarkable differences between the two parts of the region and between the two central towns. The Slovakian part has advantages in the fields of sewer dwelling stocks and their piped gas supply. Population density, sewage system, and specific indicators of motorcar-supply show more favorable figures in Komárom microregion. The number of dwellings supplied with piped water, bathroom or shower is roughly the same in both parts, just like the proportion of houses built in 1990 - 2001, in the total number of dwellings.

Comparing the indicators in the two towns we can say that Komárno is better placed in terms of the age of the houses, and their supply with piped gas and sewage system. Population density and specific indicators of motorcar-supply are more favorable in Komárom. Both parts of the divided towns have the same conditions in water pipelines, and the dwelling stock experienced the same modest increase in both towns between 1990 and 2001.

The previously outlined anomalies draw our attention to the areas which need development in the near future both at the level of the closely connected northern and southern parts, both at the level of settlements.

### 3.5. Transport-geographic conditions of the two towns

#### 3.5.1 Traffic position of the two towns

The transport-geographic position of each town is of different importance within their own country's transport network. On the other hand, since both of them are border crossing points their role in international road traffic is in fact of the same weight. Three types of busy transport routes (road, railway, water) go past or cross the pair of towns, which are linked together on the territory of the two towns by the road and railway bridges over the Danube.

The difference between the transport-network potential of the two towns can also be observed at Central European level, which is also reflected by their different position within the Pan-European transport network. While both towns lie on the Danube, known as the Pan-European Corridor VII, the town of Komárom is also positioned on the axis of the Hungarian part of Pan-European Corridor IV. Komárom's favorable position in transport networks proves to be largely advantageous for Komárno as well.

*Komárom*'s position in relation to road and rail transport links is particularly advantageous. The town is an important station on the electrified double track railway between Budapest and Vienna. The motorway M1 between Vienna and Budapest is also only nine kilometers away from the town to the south. The town is linked to the motorway by main road No 13. These main roads are the transport links between Komárom and the nearest county seats (Tatabánya, Győr) and other towns in the county. Komárom is an important railway hub on the northern periphery of Northern Transdanubia. Express and passenger trains go to four directions from the station. Concerning international and domestic express train traffic, Komárom is only a transit station; thus, directly it can be reached only from Hungary. Budapest and four county seats in Transdanubia can be reached by rail from Komárom without change. This proves the town's advantageous railway traffic position.

The two towns lying on the two banks of the Danube, which is a waterway of overriding importance, provide good opportunities for the gradual development of international and domestic river shipping provided that there are proper economic and traffic conditions for growth.

*Komárno*'s road network position is not as advantageous as the one of Komárom, since there is no Slovak motorway in the region. As a result, Bratislava and Vienna can be reached from Komárno via Hungary in a 20 minutes shorter time than as if traveling on main road No 63. Arterial roads run to Komárno from three directions. Main road No I/63. is parallel with the Danube and leads to Bratislava, the eastern part of the same road links Komárno with Štúrovo (Párkány). Main road No I/64 runs in northern direction from the town towards Nové Zámky (Érsekújvár) and the town of Nitra.

With regards to railway transport, Komárno is in a partial traffic shadow position, since out of the three railway tracks going through the town only one is electrified, the one running towards north (Nové Zámky).

### 3.5.2. Public transport links

The extent of the passenger *railway transport links* of the two towns can be compared on the basis of the following factors: how many pairs of scheduled trains run between the capital and other major towns of each country on workdays, what their frequency is, and how long it takes to reach the individual destinations.

The most important railway transport links are the ones leading to the *capital* of each country. In this respect there are significant differences between the two towns.

While Komárno is joined with Bratislava, which is 100 kilometers away, only by 11 pairs of trains a day, there are as many as 17 ones that connect Komárom and Budapest, which is 94 kilometers away. Komárom is in better position regarding traveling time as well, since on average it only takes 95 minutes to go from Komárom to Budapest. In comparison, it takes more than 130 minutes to go from Komárno to Bratislava. (This is 40% more than the average traveling time from Komárom to Budapest.) The difference that can be observed between how easily the two capitals can be reached is due to Komárom's arterial railway position and Komárno's partial traffic shadow position.

Out of those *towns* that are relatively close to Komárno, one regional seat (the town of Nitra) and two district towns can be reached directly, and that with 11–12 pairs of trains every day. Komárom is in better position in this respect, too: there are 26–28 pairs of trains each day that join it with two county seats (Tatabánya 30 kilometers, Győr 37 kilometers).

Concerning international railway transport links, Komárno is in a traffic shadow position, since international express-train trunk lines are far from the town. In comparison, Komárom is in an increasingly advantageous position. Though international fast and express trains do not stop in Komárom, the town is in direct railway connection with Vienna. The Austrian capital can be reached from Komárom by Euro-regional trains running between Vienna and Tatabánya.

The *bus-service links* of the two towns are also extensive, though different from that of passenger-train services. A significantly higher number of Slovak towns can be reached from Komárno by bus than Hungarian ones from Komárom. This means that Komárno's peripheral railway-network position is compensated by the larger number of its bus-network links. On the other hand, long-distance bus services serve only as an addition to Komárom's dominant railway network role; thus, their role in Komárom is of much lesser importance than in Komárno.

The most important buses are the daily ones going to each country's capital. There are noteworthy differences between the two towns in this respect and that with opposite volume compared to their role in railway passenger traffic. While there are 14 pairs of buses between Komárno and Bratislava (101 kilometers away) every day, there are only 3 pairs of buses running between Komárom and Budapest (86 kilometers away). The average traveling time from Komárno to the Slovak capital is 105 minutes; whereas, it takes more than two hours to reach Budapest from Komárom. The frequency of buses running between the county seat and Komárom and between the regional seat and Komárno is nearly the same: there are 12 buses from Komárom to Tatabánya and 10 buses from Komárno to Nitra every day. Out of the two towns only Komárno has long-distance bus services, there are two buses running from Komárno to Vienna (Schwechat Airport) via Bratislava every week.

With a view to public transport links between the two towns it is also important to mention that there is international bus service between them as well. The service is provided by the SAD (Slovak Lines Bus-Service Company). The buses run four times a day between the bus stations of the two towns, which are 5 kilometers from each other. However, due to the low frequency of buses, their slowness and lengthy waiting at the border crossing point, this service does not contribute to the improvement of public transport links between the two towns.

The Danube as an international waterway has played a major role in the economic life of the two towns for centuries. This role lost its importance after 1920, and since different strategies of port development took place on both sides of the river the significance of the ports have changed. After Czechoslovakia got hold of its own reach of Danube, the development of the Komárno port was commenced. When Czechoslovakia split up and Slovakia became independent the importance of the port increased even more, though shipbuilding, which was also an important sector after the change of regime, got into a crisis due to a low number of orders. The volume of transshipment traffic in the port of Komárno is between 230,000 and 340,000 tons a year. This is about 30% of the one in the Bratislava port.

After 1920 a port development of small scale took place on the Hungarian side of the Danube, too. The port of Komárom was developed as well as the capacity of the oil refinery port in Szőny was increased. Since Komárom is not a port of regular Danube riverboat cruises, the passenger port of the town is used only on occasional basis. On the other hand, the traffic of the oil refinery port in Szőny is regular, with a transshipment of 30–50 thousand tons of mineral oil a year.

### 3.5.3. Traffic on the Danube bridges connecting Komárom and Komárno

The railway bridge is primarily used for international freight transport. The majority of international railway passenger traffic between Slovakia and Hungary does not go through Komárno (it goes through Szob/Štúrovo and Rajka/Rusovce), thus the two towns have only a marginal role in international railway passenger traffic.

However, there is a seasonal railway passenger service between the stations of the two towns, which uses the railway bridge over the Danube and comprises of a single railway carriage.

The narrow (two-lane) road bridge over the Danube has a key role in the functioning of physical contacts between the two towns, and the volume of traffic on it has increased significantly since the 1990s. The gradual increase of traffic is mainly caused by the constantly growing number trucks and vans crossing the bridge (with 54.6 thousand trucks and vans crossing it in 1995, 70.4 thousand in 2000 and 92.3 thousand in 2004.)

### 3.5.4. Results of the questionnaire survey

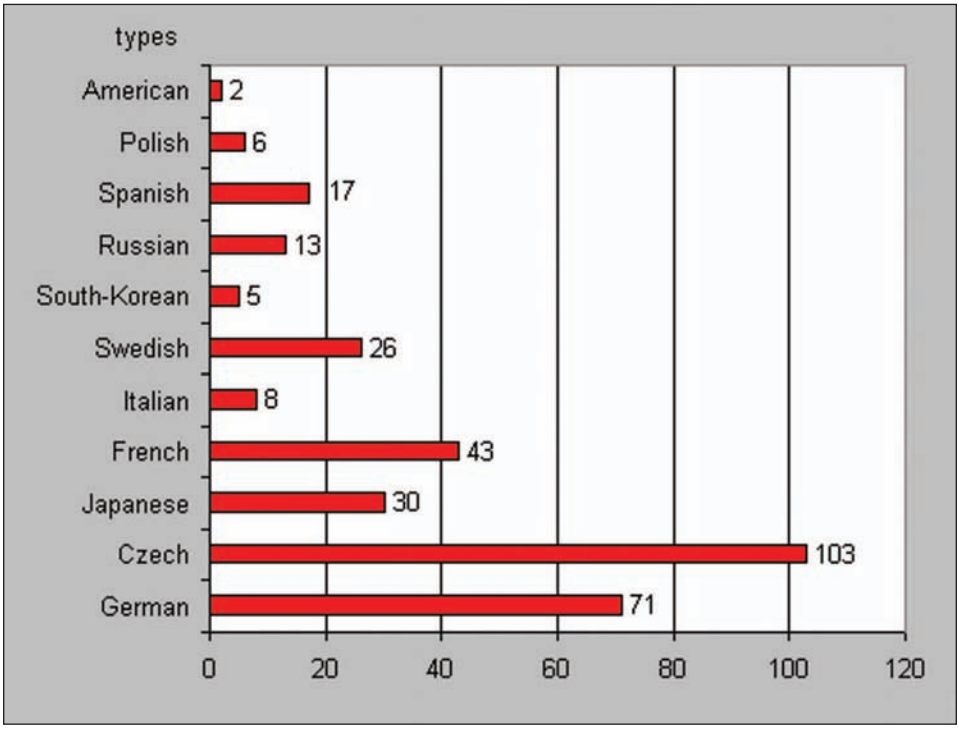
In order to find out about the peculiarities of traffic links between the two towns a questionnaire survey was carried out. It was conducted in the spring of 2005 among 1,500 car passengers and 200 foot-passengers (pedestrians). Those handing out the questionnaires also made records about the number of cars crossing the bridge, their direction, the type of the vehicles, their makes and nationalities as well as in case of the Slovak vehicles they recorded which towns the vehicles were from, since it is indicated on Slovak license plates. The questions for foot-passengers were about their sex, age, residence, occupation and the purpose of their crossing the bridge. The three-hour long surveys carried out on weekdays (on Monday and Wednesday) registered as many as 1,503 vehicles in both directions, which amount corresponds to 501 vehicles an hour expressed in specific value. There was not a significant difference between the numbers of vehicles moving to each direction (52% of them headed for Slovakia, 48% to Hungary).

Nearly three quarters of all vehicles crossing the bridge were passenger cars; 10–13% was trucks and vans. The proportion of cyclist in the volume of vehicular traffic was surprisingly high, which on one hand is due to the length of the bridge (about 900 meters), on the other hand to the lack of public transport between the two towns.

75% of the cars crossing the border were made in the Czech Republic, in Germany or in France; however, their distribution was

different in both directions. The distribution of cars heading for Slovakia was the following: 30.3% Czech, 28.7% German and 15.1% French. The distribution of vehicles heading for Hungary showed the following results: 31.1% were Czech, 30.5% were French and 21.6% of all were German made vehicles *(Figure 22)*.

*Figure 22: Proportion of cars going from Komárom to Komárno on the basis of their makes*




With regards to the border-crossing vehicles' nationality *(country of registration)*, 90% of all crossing the bridge in Komárom were vehicles from the two neighboring countries. The number of Slovak vehicles crossing the border at the time of the survey was 3.5 times higher than the one of Hungarian ones. This indicates that those belonging to the Hungarian national minority in Slovakia visit Komárom in significant numbers.

The motivation factor to travel to Hungary for those residing in Komárno is working, visiting relatives, going to the thermal spa and going to hypermarkets e.g. to do the shopping in Tesco. 80% of those

traveling by vehicles registered in Slovakia were from Komárno or from the District of Komárno. The next most frequent license plates were the ones with the initial letters of 'NZ' (District of Nové Zámky), though their proportion did not even reach 7%. The proportion of vehicles with BA (Bratislava) and NR (Nitra) license plates was 3.7%.

***Peculiarities of vehicular traffic at weekends***

The survey conducted on Saturday registered similar vehicular traffic to that registered on weekdays. 70% of all vehicles crossing the border were passenger cars (67% heading for Slovakia, 75% heading for Hungary), and only 5–7% of them were trucks and vans. This is mainly caused by less busy traffic on bank holidays as well as by the limitation of international freight transportation at weekends. On the other hand there were more cyclists registered on the bridge (19–23%) at weekends than on weekdays.

Of all vehicles heading for Slovakia 45% were made in Germany, 20% in the Czech Republic and 12% in Japan, which indicates that a significant proportion of the passengers were Hungarian citizens going to Komárno and its surroundings. Of all vehicles going to Hungary more than 50% were made in the Czech Republic, 13% in Germany and 11% in France, which shows that the passengers were Slovaks and members of the Hungarian minority going on trips. The proportion of Hungarian and Slovak vehicles at weekends was higher than their proportion on weekdays, compared to vehicles from other countries. However, the number of Hungarians living in Slovakia going to Komárom exceeded the number of those heading for Komárno at weekends, too.

85% of all vehicles going to Hungary were from the District of Komárno, and less than 5% was the proportion of those from the District of Nové Zámky. Consequently, the cross-border traffic between Komárno and Komárom is busier at weekends than on weekdays.

***Foot-passenger traffic***

The survey of foot-passengers (pedestrians) crossing the bridge revealed that 1,000 people cross the bridge in a day, there are 32,000 of them in a month and 380,000 in a year. This would call for the establishment of public transport links between the two towns in the form of regular bus services. The survey also found out the following:

1. More than two thirds of the foot-passengers were going to Hungary, while only 28% were heading for Slovakia.

2. The percentage of women among those going to Hungary was more than 55%, while the corresponding indicator among those going to the opposite direction amounted only to 51%.
3. While the majority of foot-passengers crossing the bridge towards Komárom were young people (18.5% were under the age of 20, 31% were between 21 and 30), the elderly outnumbered others among those going to Komárno (62% were over the age of 60).
4. 29% of people going to Hungary were skilled laborers, 20% were pensioners, 18% were students and 10% of them were unemployed. Nearly a third of those walking to Komárno were pensioners and the percentage of unemployed reached only 4%.
5. The mobility of Slovaks crossing the bridge on foot is much higher than the one of Hungarians. Nearly 70% of them arrive in Komárom to work, to do the shopping or to do a variety of things (often to do casual jobs). On the other hand, 78% of the people go to Komárno to do the shopping, to visit tourist attractions or they arrive with other aims (visiting relatives). The economic motivation factor is not as high among them as among the residents of Komárno.

The increasing number of foot-passengers and cyclist between the two towns calls for the establishment of public transport through the old bridge over the Danube. The opening of the Tesco hypermarket near the southern bridgehead plays a major role in the increase of traffic as well, since it also attracts customers who cross the bridge on foot or by bicycle. The above demands could be fulfilled by a regular microbus service between the two towns, and that with a considerable saving of traveling time.

### 3.5.5. Plans to build a new road bridge over the Danube

The ever-growing international vehicular road traffic going through the towns makes the building of a new road bridge over the Danube in the territory of the two towns increasingly urgent. A new bridge would contribute to the expansion of communications between the two towns as well as to the widening of their gravity zones. It would also strengthen their economic potential. There have been several propositions made for the position and technical parameters of a modern, high-capacity road bridge. By 2005 different variations of plans had also been elaborated, which previous to launching the works can serve as fundamental documents in future decision-making during the authorization processes and as documents that will be used when decisions will be made about the implementation process.

According to the plans the bridge rising 20 meters above the Danube will be 590 meters long and 15 meters wide. It will have two traffic lanes in each direction, a bicycle lane and a sidewalk for foot-passengers. At present, the traffic that goes through the western part of both towns, which are built-up areas, causes large noise, vibration and air pollution in the town centers. Building a road network leading to the new bridge would solve this problem; thus, the environmental conditions of the centers would improve considerably. The main road development tasks related to the building of a bridge are included in the updated version of Slovakia's settlement development plan.

Komárno's new land management plan also includes a proposal for the position of the new Danube bridge. There are two possible positions listed in it: the first one is in eastern direction from the confluence of the Danube and Váh rivers, the other one suggests a position towards west from the existing railway bridge. The latter version is supported by the fact, that if the bridge was built on the western periphery of the towns, it could be joined with the perspective line of the road bypassing Komárno from the north. A western bridge could also handle the majority of transit traffic between Bratislava and Budapest. This way the negative consequences resulting from busy traffic in the center of Komárno could be decreased considerably. Hungary also prefers the implementation of the latter version, since the western position is supported in Komárom's currently valid land management plan and also in the town's perspective traffic development documents.

The construction of a new bridge would have a positive influence on the economic development of the two towns for the following reasons: a) it would ease the traffic volume of the existing Danube bridge, which cannot fully comply with the demands of motor freight traffic any more; b) by diverting international transit traffic it would decrease the concentration of harmful environmental effects resulting from busy traffic in the centers; c) it would reduce the risk of road accidents; d) it would serve as a basis for the widening of social relations between border areas and for the enhancement of their economic potential; e) it would be an alternative option for the inhabitants to travel to the neighboring divided towns and that with shorter traveling time.

As a matter of fact, a new Danube bridge would be a major economic motivation factor for Slovak, Hungarian and other foreign businesses involved in industrial production, trade and services when choosing a place for their new establishments.

### 3.6. Tourism in the area of Komárno and Komárom

#### 3.6.1. Tourism attraction factors of the area

The tourism attraction factors of the Komárom and Komárno region can be put into four categories: natural values, cultural and historical sights, events attracting tourism and attraction factors of active tourism. Most settlements in the region have some degree of tourism attraction power. *(Figure 23)*

*Figure 23: Number of tourist attractions in the area of Komárom and Komárno, 2006*

Naturally, most attraction factors can be found in the divided towns. The major attractions in the area are the cultural and historical sights and events closely related to them. The major attractions (system of fortifications, spas) are a magnet for a large number of visitors on their own; however, the attraction factors of minor importance can be sold only as parts of thematic programs.

*Natural factors*

The most important natural attraction factor of the area is thermal water and consequently the hot springs. Komárno and Komárom have traditionally been spa towns for a long time: there had been public baths in both towns even before thermal water was found in the area. In Komárom thermal water was found in 1965 in the depth of 1,265 meters, and the thermal water layer in Komárno was reached in 1967 in the depth of 1,224 meters. Shortly after having been found both springs were officially declared to have healing powers. The temperature of the water in the spas built above these thermal springs is the following: 37 °C and 42 °C in Komárno (there are two springs), and 59 °C in Komárom. The rivers of the area are also important attraction factors. The confluence of the rivers Váh and Danube, their backwaters and islands provide good opportunities for different water sports. There are lakes or open air pools in a number of settlements as well. Other recreation opportunities are in the twenty-hectare Arboretum in Bábolna and in the forest of Ács. Several protected natural values (values subject to nature conservation) can be found on the Slovak side, too. These are e.g. the islands of the Danube, natural lakes and the Lohot Marsh. Most of them are nature reservations.

*Cultural and historical monuments*

Komárom and its surroundings were inhabited even in prehistoric ages, which is proved by the fact that finds from the Bronze and Iron Ages were found in this territory. The most important ancient finds were uncovered on the territory of the present-day Szőny, where there was a Roman settlement named Brigetio and near the Slovak village of Iža, where there was a Roman military camp. The most important historical monuments of the two towns are the fortifications that were built continuously from the 13th century. (The ones in Komárno are the Old Fortress, the New Fortress and the Linea Palatinale. The ones in Komárom are the Fort Monostor, Fort Csillag and Fort Igmánd). These together create one of the biggest and most preserved systems of fortifications in Central Europe. The two towns have made efforts to make the system of fortifications recorded as part of the World Heritage by UNESCO.

There are a number of buildings (churches, palaces, museums) and statues in the Komárno town center as well as the so called Europe Place, which attract tourists. The latter one, built in 2000, is group of

buildings with each house built in a different architectural style of a country, symbolizing the ethnic diversity of the region.

Besides the forts another attraction of Komárom is the Klapka György Museum, where a part of the finds uncovered during the excavations of Brigetio are on display. The other part of the finds is on display in Fortress Igmánd. Of all historical monuments in the surroundings of the two towns, the historic observatory in the town of Hurbanovo as well as several castles, ones belonging to the Zichy family, are of significant importance.

The stud farm and coach museum in Bábolna preserves the settlement's rich tradition of horse breeding. The characteristics of traditional rural life are introduced to visitors in the peasant house museums and village museums of the region.

*Programs and events*

The Komárom Days Festival is the symbol of the cultural unity of the two towns. Exhibitions, cultural events, concerts and a traditional fair of local handicrafts take place in the framework of the event every year. The Mediawave music event in Fortress Monostor attracts visitors from the whole country. The Jókai Days Theatre Festival in Komárno has been held for more than 50 years. Other important summer events are the National Days of Bakers (Komárom) and the Cyril and Method Days (Komárno). One of the most important fall events in Komárno is the Harmonia Sacra Danubiana International Church Art and Music Festival.

There are also other programs organized in the settlements of the microregion, but these are not of major importance concerning tourism. As an exception, the Horse Driving Cup in Bábolna and a few vintage festivals in some villages could be mentioned.

*Active tourism*

The conditions for active relaxation (fishing, hunting, cycling, horse riding etc.) in the region could be described as good. While Bábolna and Komárom provide good opportunities for horse riding tours and for learning horse riding, the Danube, the Váh and the lakes attract anglers. The forest in Ács and the oak forests near Bábolna offer good opportunities for hunting.

The inhabitants of the two towns traditionally like riding bicycles, which means of transport can also serve as an alternative

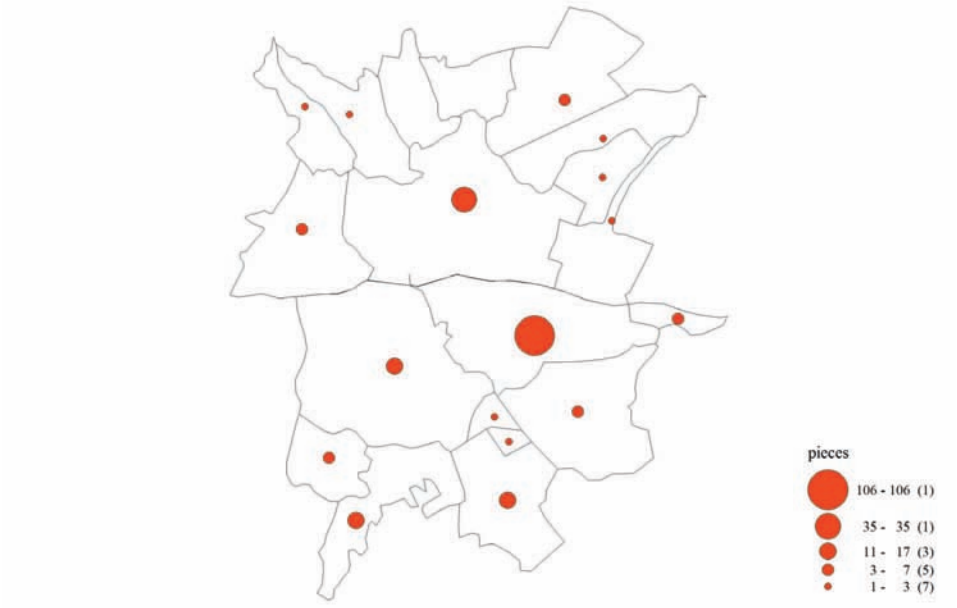
for tourists when visiting the attractions of the region. Foreign visitors coming to the region often bring their bicycles with them. Unfortunately, the region does not have many bicycle routes (there is only a single one between Komárom and Almásfüzitő); nonetheless, the construction of a bicycle route on the Danube bank has been included in Komárom's medium-term development strategy. In the long run, there would also be a need to build bicycle routes between the two towns and the surrounding settlements offering tourist attractions, however.

### 3.6.2. Tourism – facts and figures

The accommodation facilities of the region (hotels, guest-houses, private accommodation) can mostly be found in settlements with busy tourism.

As for the number of restaurants and confectioneries in the region's settlements *(Figure 24)*, their number reflects each settlement's tourism attraction power. Komárno, where population is higher by 20,000, has a considerably lower number of restaurants and confectioneries than Komárom. The reasons for this are the following: the tourist attractions in Komárom can be reached more easily, there is a wider variety of programs and the services are of better quality.

*Figure 24: Number of restaurants and confectioneries in Komárno, Komárom and their surroundings, 2007*



By conducting a questionnaire survey in the region it was found out that the municipalities of both towns and the owners of businesses think in the same way about the state of tourism in the region: they consider the system of fortifications, the historic town center and the fact that the towns are close to rivers as the most important attraction factors.

On the Slovak side the municipalities, except the one of Komárno and the ones of other two settlements lying by a main road, think that their tourism attraction power is of medium or low level. However, the majority regard the development of tourism as an especially important matter. The neglecting of tourism development and the lack of municipal tourism development strategies is a rather common phenomenon. In addition, there is a low number of applications for EU grants to develop tourism. There is also little cooperation in tourism between the settlements situated on the two opposite sides the frontier, though there would be opportunities for the implementation of such projects in the framework of the Euroregion Vagus–Danubius–Ipolia (Ipoly–Vág–Duna Eurorégió /HU/, Euroregión Váh–Dunaj–Ipeľ /SK/). The situation is similar concerning businesses as well. The vast majority does not have a development plan and most of them have not applied for grants form EU development funds.

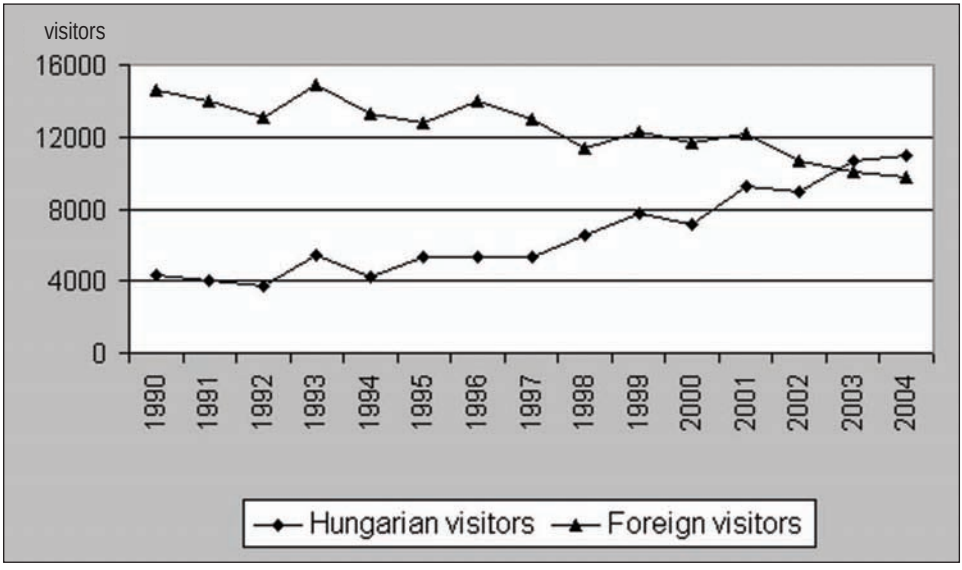
Due to an upturn of international tourism in the second half of the 1990s the tourist accommodation capacity of Komárom, thereby the number of accommodation beds increased rapidly. Later, in the years following the millennium stagnation could be observed again. The tourist accommodation capacities of the microregion are also concentrated in Komárom (out of 2,100 accommodation beds of the microregion 1,500 are in Komárom). The rest can mainly be found in settlements, where considerable tourist activities are pursued (Bábolna, Mocsa, Ács).

The composition of tourists visiting the region has altered a lot recently: the division of foreign and domestic visitors has changed together with the length of their stay. Expectations have also risen: it is not only foreign visitors any more who expect services on European level, domestic tourist also demand quality.

It is the town of Komárom that attracts the highest number of visitors within the microregion. More than 20,000 tourists visit the place every year, and they spend nearly 100,000 tourism nights there. In the past fifteen years the number of foreign (mainly German) visitors has decreased, while the proportion of Hungarian guests has been permanently rising (Figure 25). The decreasing number of foreign tourists is due to the fact that they find other foreign tourist resorts

more attractive. In contrast, Hungarians have preferred domestic resorts recently. In the case of Komárom, this tendency makes up for the lower number of foreign visitors. The development of the town's tourism attraction factors has increased the town's attractivity (opening of Fort Monostor in 1994, development of the spa between 1995 and 2004).

*Figure 25: Number of Hungarian and foreign visitors between 1990 and 2004, persons*



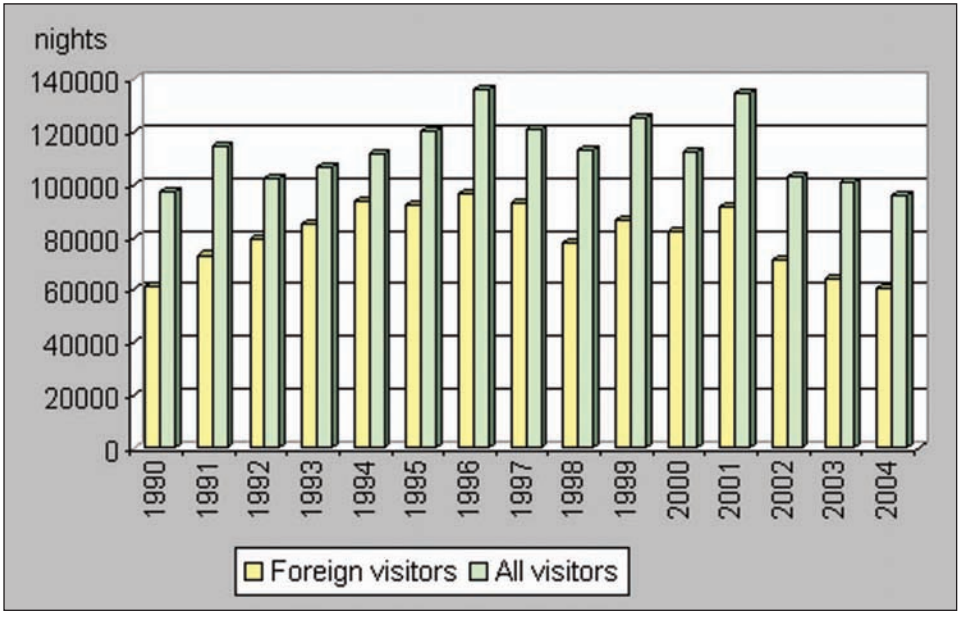

The number of tourism nights spent by foreign tourists in Komárom has fell proportionally with the decreasing number of foreign visitors. In spite of the permanently growing number of domestic visitors the number of all tourism nights is stagnating *(Figure 26)*. This is due to the fact that Hungarian guests spend a considerably shorter time in Komárom, than their foreign counterparts. This is also reflected in the number of tourism nights per capita.

Domestic tourists bring in lower profits than German guests; however, the latter ones do not bring in increased demand for services provided in tourism. Their demand for services is not in proportion with their number and the number of nights spent by them in the town (a few of them go to restaurants; they use bicycles and do their shopping in discount stores).

Owing to the developments, the tourism attraction power of Komárom and its surroundings has increased in large, but this has led only to a minor growth in the number of visitors. A permanent growth can take place only if the two towns take advantage of their frontier

position together. In this respect, the main development tasks and target groups are the following: a) development of tourism infrastructure (building of hotels, port development by the Danube, building of bicycle routes); b) improving the state of tourism attraction factors (further restoration of the system of fortifications and finding new ways of their utilization, such as organizing conferences, further enlargement of the spas etc.); c) improving cooperation between institutions interested in the development of tourism (public administration bodies, third-sector institutions and businesses, such as the municipalities of the two towns, the Comorra Association, Nokia Hungary Ltd. etc.) and that with a sensible way of dividing tasks between them; d) using a wide range of marketing techniques to promote tourism, joint communication activities and the development of their quality (building up of a town image that attracts visitors).

*Figure 26: Number of all tourism nights and of tourism nights spent by foreign visitors, 1990-2004*




In all, it can be stated that the pair of towns has excellent conditions for the development of tourism. Still, there are a large number of long-term tasks to be carried out by the municipalities and the for-profit and non-profit institutions of the region in order to be able to take full advantage of these favorable conditions.

# 4. THE ENVIRONMENTAL STATE AND NATURAL CONDITIONS OF KOMÁROM

In order to be able to describe the natural environment of the town it is essential to study the geological and physical geographical conditions of the area, to describe the present state and tasks of environmental protection as well as to evaluate the environmental state of the two towns. The most important natural factors of all that have to be taken into account are primarily the risks of natural disasters (earthquakes, floods) as well as environmental pollution caused by human activities (water and air pollution) and the creation of proper conditions for efficient protection against them.

## 4.1. The environmental evaluation of geological and physical geographical conditions

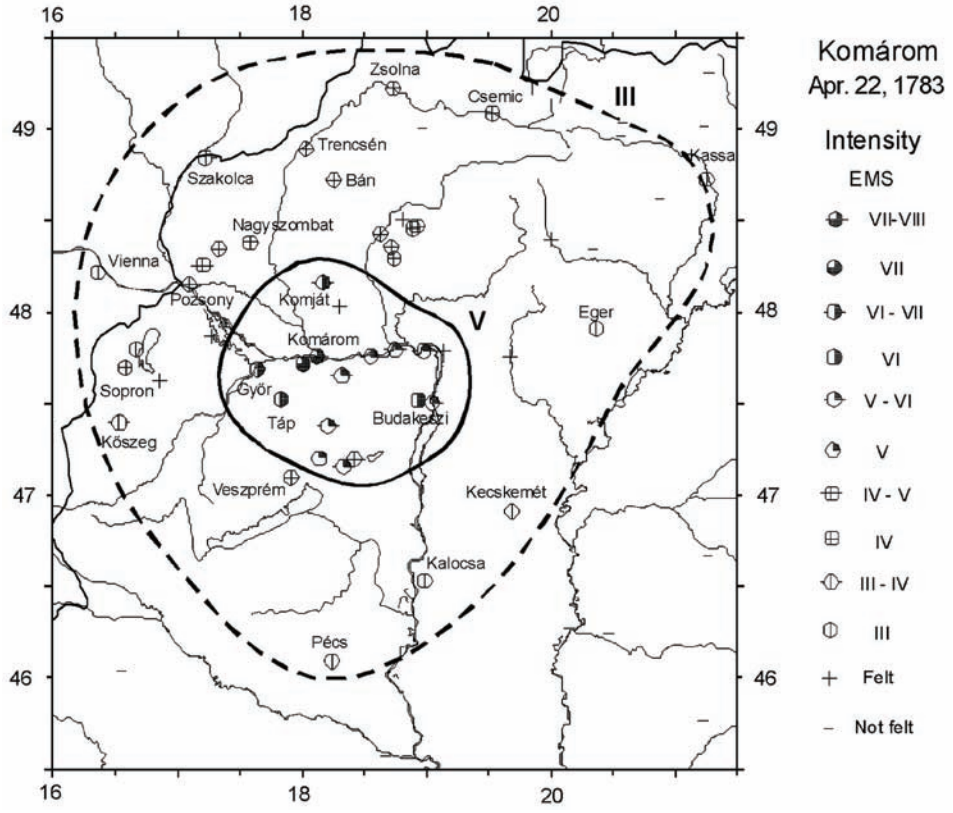
The town divided by the Danube river lies on the Kisalföld (Small Hungarian Plain). The few-meter height differences on the plain and terraced landscape, the level differences in the abandoned and living river and creek beds and the river terraces surrounding Komárom all carry important information about the changes of the surface. Due to diverse deep-structural conditions under the surface, the area between Komárom and Mór is the most earthquake risky region in Slovakia and in Hungary as well. There have been several earthquakes in Komárom throughout history. The biggest damages were caused by the one in 1763 with a magnitude of 9 on the scale and the one in 1783 with a magnitude of 7.5. These two natural disasters ruined hundreds of buildings and caused the death of 63 people *(Figure 27)*.

In 1882 and 1841 there were earthquakes with a magnitude of 6. Another quake hit in 1851 with a magnitude of 7, when the Danube flooded a large part of the town. Though the risk of a ruinous quake is low at present (10% in the next 100 years), if it hit, not only could it cause local damages, but also dangerous substances could get into the Danube from the factories and waste dumps situated on its banks (e.g. from the MOL oil plants in Komárom and Almásfüzitő).

The territory of Komárom was filled up by alluvium from the Danube and its tributary rivers. Therefore, the stratum close to the surface is made up of a thick layer of river deposit (river gravel, gravely sand, sand). The present land surface of the area surrounding the town is a result of settlings and accretions into which the Danube

carved terraces. The surface of higher terraces consists of loess and river sand. The lower areas, flood plains, watercourses and former beds of the Danube are covered with river silt and sandy silt. The pair of towns was built at the confluence of the rivers Danube and Váh, where the majority of houses were built on terraces (Komárno) and on the level of flood-plains (Komárom) protected by embankments.

*Figure 27: Isoseismic map of the earthquake on April 22, 1783*




Komárom and the surrounding area can be threatened by floods twice a year: during the time of snow-floods and during the rainy period early in the summer. During the above periods, due to the flooding of the Danube the water level of the Váh also raises, and the size of the area threatened by floods gets bigger. Westward from Komárno the river terraces provide natural protection against overflow; between Komárom and Dunaalmás there are embankments to protect the areas situated behind them. With the help of the dam built on the Danube towards west in Gabčíkovo (50 kilometers from

Komárom) the passing floods can be regulated to a certain degree; however, during the time of major gains of water (e.g. in the spring of 2006) a lot of settlements situated by the river found themselves in the danger of being flooded.

The soil layers close to the surface of the flood-plains by the Danube are built up of gravely-sandy deposits, which are permeable to water and particularly sensitive to contaminations. The contaminations that get into the layers of gravel with the groundwater are transferred easily under the surface, too. Groundwater flows towards the Danube nearly throughout the whole year. During the time of frequent rainfalls and floods the level of groundwater raises high; consequently, it prevents these areas from being used as agricultural land or sites for building. The two towns and the surrounding settlements are supplied with water from wells with riverside purification. Therefore, these areas can be utilized for agricultural or industrial purposes only in compliance with the water protection legislation in force.

The water in the Danube is contaminated to a relatively low level; thus, its fauna is fairly rich (the Slovak-Hungarian reach of the river is a home to 62 species of fish). On the other hand, the water quality of the tributaries is a lot worse due to the higher degree of their contamination.

### 4.2. Environmental protection

Owing to husbandry pursued in the region for centuries the natural flora and fauna have been pushed back; the habitat of the autochthonous oak forests, bottomland forests and other wetland habitats have shrunk. Except the ones situated close to rivers, protected natural values and habitats are very rare. The Danube and its confluents as well as the flood-plains of its tributaries serve on one hand as ecological corridors; on the other hand, they are homes to a number of rare and endangered animal and plant species.

There are numerous smaller nature reserves and protected landscape values in the region, which can be connected to the present or abandoned river beds, flood-plains and islands of the Danube, Váh and Žitava rivers (Apolsky Ostrov, Bokrosske slanisko, Pohrebiste). The most important protected areas by the Váh are the Vribina, the Malí ostrov, the Lohótsky močiar and the Listové jazero. There are three Natura 2000 areas near the town, which serve as areas for the protection of fauna and flora in the water and on the flood-plains: Dunajské Luhy – 18.845 hectares, Ostrovné Lúky – 8729 hectares, Dolné Považie – 35.907

hectares. The landscape protection areas by the rivers are also popular with anglers and hunters as well as they prove to be well-liked places of relaxation.

The most important nature reserves in Komárno's close surroundings are the forest in Herkály and the Erebe Islands in the Danube. The latter one is a flood plain environment with willow and poplar grove forests, giving home to a rich avifauna. The grove forests in Koppánymonostor, Komárom as well as the Danube flood plain with its islands in Szőny are also protected Natura 2000 areas. There are several parks, alleys and trees in the town that are under local protection.

### 4.3. The state of environment in Komárom

Except pollution caused by traffic, agriculture and the inhabitants, the environmental state of the town can be influenced by the activities of the six largest industrial companies: Géringer Szerviz Kft. (vehicle repairs), Hungaromill Kft. (flouring mill), Komáromi Mezőgazdasági Rt. (meatworks), MOL Rt. (oil refinery), Nokia Komárom Kft. (production of cellular phones) és Solum Mezőgazdasági Rt. (stock farming). Besides pollution caused by agricultural activities (use of insecticides, artificial fertilizers and manure; soil destruction, dust pollution, burning of stubble and reed), the processing industry can also cause pollution. Manufacturing can also take place only with increased caution.

Traffic also causes large noise, vibration and air pollution. Noise levels exceeding the permitted limit can be measured by main road No 1. and by the main railway line. The industrial park also generates busy traffic (300 trucks and vans a day). It also creates adverse conditions that the main roads and the railroad line also go through residential areas in the town center. Therefore, there would be a need for building roads that bypass the center. Furthermore, the railroad should also be moved in southern direction from the town. Komárom has to pay attention to the handling of pollution with transboundary effects. Rules concerning the handling of such are laid down in several international agreements, for example in the Espoo Convention.

Air quality in Komárom is measured at 42 points. The three main components watched are the level of NO2 and SO4, and the amount of settling dust. According to the measurement results the quality of the air in the town has improved considerably since the 1980s (today it can be described as so to say satisfactory). The above improvement could also take place as a result of a program launched against air pollution

in 1994. Air quality also changed for the better for the reason that some industrial plants have been closed down, the existing factories have invested into environmental friendly production, and also owing to the introduction of more effective environmental protection regulations. It is also a positive phenomenon that the new industrial establishments in the town (e.g. Nokia production plant) use more modern and a smaller amount of raw materials as well as they use more environment-friendly technologies. With the construction of the town gas network and the introduction of district heating air pollution also decreased. The amount of pollutant emissions caused by traffic have been also reduced by the growing modernity of passenger cars; however, the increased use of cars nowadays causes that $NO_2$ emissions exceed the permitted limit by the main roads crossing the town and at traffic junctions. In order to improve air quality bypass roads should be built, public transport and bicycle routes should be developed and the heating systems should be modernized as well.

The regular collection, handling, transport, deposition and disposal of communal and dangerous waste in Komárom are well-arranged. Solid waste is taken to a regional waste disposal place 40 kilometers away from Komárom, which was opened in 1998. It will be able to receive waste for a long time. Separated collection was also introduced a few years ago. The town is committed to the development of its waste treatment system and to the construction of new disposal sites and facilities (new places for separated waste collection, wasteyard, waste composter, new waste containers, recultivation of landfills etc.). In order to reach this aim as a member of the Waste Management System of the Duna–Vértes Köze Region it applies for finances from EU grants.

The management and recultivation of old landfill sites is a particularly important task in this particular area, which is especially sensitive to pollution and contamination. The old communal landfill site in Koppánymonostor, not being used any more, was built without any leakage protection system, thus the pollutants mixed with water under the surface can endanger the drinking water resources and the natural values of the nearby protected areas. It is important to isolate this old landfill site from its environment and to prevent the spread of pollutants and contamination. In 2001 similar waste disposal works took place at the oil refinery plant of MOL Rt. in Komárom, when a sludge settling pond was cleaned. More than 52 tons of oily sludge were removed and disposed. In Komárom there is a waste water treatment plant. With its daily capacity of 4,500 cubic meters it can provide waste water treatment for the town in the long run.

## 4.4. Qualitative characteristics of the settlement environment in Komárno

Besides the negative environmental effects of industrial and agricultural activities, environmental burdens arising from the everyday activities of the population are also getting increasingly significant in Komárno nowadays. The biggest environmental challenges that the town has to face these days are the harmful effects of the increasing amount of communal waste, pollution caused by waste water and the more and more widespread use of cars. However, the introduction of stricter legislation, the launching of local initiatives and the spread of environment conscious thinking have all contributed to the fact that good results have been reached also in this field. In all, the town provides favorable conditions and a pleasant living environment for its inhabitants.

Komárno is the second biggest port in Slovakia: the materials transshipped here (oil) represent a potential environmental risk. Except pollution caused by traffic, agriculture and the inhabitants, the environmental state of the town is most influenced by the shipyards (SLKB), the OMV transshipment plant, the shoe factory (Rieker Shoes), the waste water treatment plant, the pollutants that remained from the former gas-works and by the Komárno Printing House. The largest noise in the town is caused by road traffic and by railway and water traffic, but in a smaller scale in the case of the two latter ones. Industrial areas can also be considered as potential noise sources. In addition, the heavy metal content of soils is the biggest problem by the Danube, Váh and Nitra rivers. An efficient forest management program would also positively influence the cleanness of air.

There are nine main sources of air pollution in Komárno: NsP Komárno (waste incinerator plant) and other eight industrial plants (Rieker Obuv, Elektro, Stroje, Stabačž, Slovenské lodenice, Conar, Dunaj Petrol Trade, Contimart). The number of those polluting the air moderately is 103. Roads with busy traffic and dust carried by the wind also contribute to air pollution. Air quality is the worst in the town center, by industrial establishments and by the roads crossing the town.

In 2005 the town produced 13.2 tons of communal waste, out of which 700 tons were collected selectively. Waste is taken to the REKO communal waste dump, the technology of which corresponds to environmental protection regulations. The waste management program of the town includes the building of a waste composting plant, which should be situated far from inhabited areas but it would be easy to reach. Separate waste collection started in 2005 and should be

completely introduced by 2010. The municipality is looking at ways how to convert the selectively collected waste into money.

The penetration rate of the sewerage system in Komárno is only 85%. Purified waste water goes to the river Váh and waste water cleaned at the water purification plant goes to the Danube through a drain. The sewage system of the town is in a bad condition, but repairs and renewal will take place soon, financed from EU grants.

The recultivation of old landfill sites is of significant importance, so that they do not pollute the environment any more. This problem is dealt with in the framework of the waste management program of the town (costs: 30–40 million SKK). The amount of petroleum derivatives in the soil is particularly high in the area of the former gas-works; yet, the recultivation of this area will take place only at later time due to high costs (a project of 940 million SKK). The Soviet troops formerly stationed here also caused extensive pollution in Komárno and its surroundings. In the area of the Old Fortress and the New Fortress they contaminated the groundwater with petroleum derivatives and heavy metals. 18 sites were declared to be heavily polluted after the troops had left. Recently a project was launched to restore the fortresses.

# 5. FUNCTIONS OF EDUCATION AND VOCATIONAL TRAINING IN THE DIVIDED TOWNS AND THEIR SURROUNDINGS

The educational infrastructure of the research area is made up of the kindergartens, primary schools and secondary grammar schools of the region as well as of the J. Selye University in Komárno, which is a university with a Hungarian language of instruction and the single institute of higher education in the region.

## 5.1. Peculiarities of the kindergarten services

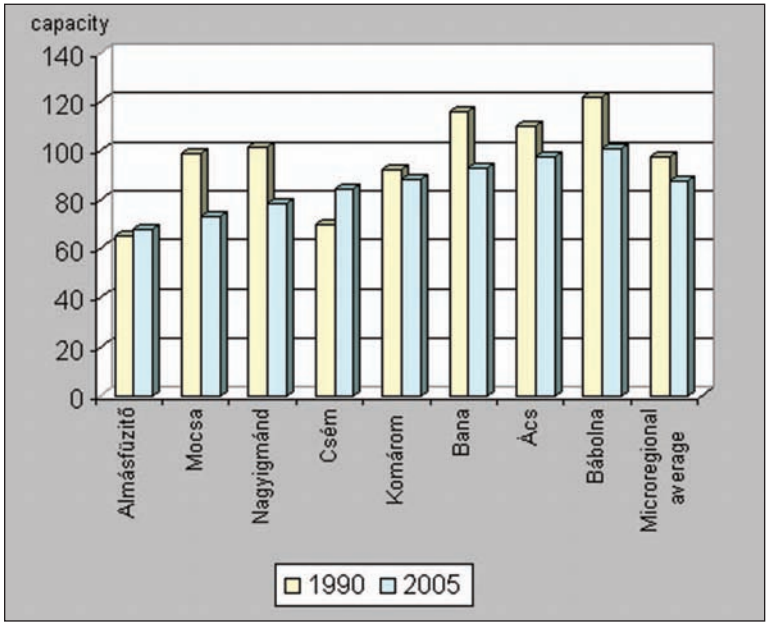
There is a sufficient number of kindergartens in the Komárom microregion: out of the nine settlements eight have such establishments. The majority of kindergartens are situated in Komárom. On the Slovak side there are Hungarian or Hungarian-Slovak joint kindergartens in all settlements except one. In Komárno itself there are eight; nearly the half of them were opened in the 1970s or 1980s. Most pre-school establishments have two to four groups with 18-26 pupils in each.

The municipality of Komárom operates eight kindergartens. The number of enrolled pupils in 2005 was 570. There are no more than 25 children in the kindergarten groups. This means that the conditions for pupils are comfortable. In 2005 the combined capacity of the 19 kindergartens in the Komárom microregion was 1,500 pupils. Nearly half of this capacity was concentrated in Komárom.

The total number of pupils in kindergartens that can be found in Komárno and in the nearby villages was 1,300. 60% of them visited a kindergarten in Komárno. The number of children in kindergarten age has decreased permanently in the whole region since the 1980s. Between 1990 and 2004 their number decreased by 15% in Komárom, and by 30% in the surrounding villages. On the northern periphery of the research area a dramatic fall in the number of Hungarian kindergarteners could be observed (46–63%), while the corresponding figure amounted only to 9% in Komárno.

In the last one and a half decades the demographic processes indicated a fall in the number of three to six-year-olds in the region. Owing to this, excess kindergarten capacity could be observed in the settlements of the region after the turn of the millennium. *(Figure 28)*

*Figure 28: Utilization of kindergarten capacities in the settlements of the Komárom Microregion in 1990 and in 2005, percentage*




In view of the fact that since 2003 the birth rate in larger settlements of the region has increased steadily, it seems sensible not to decrease the present capacity of the kindergartens.

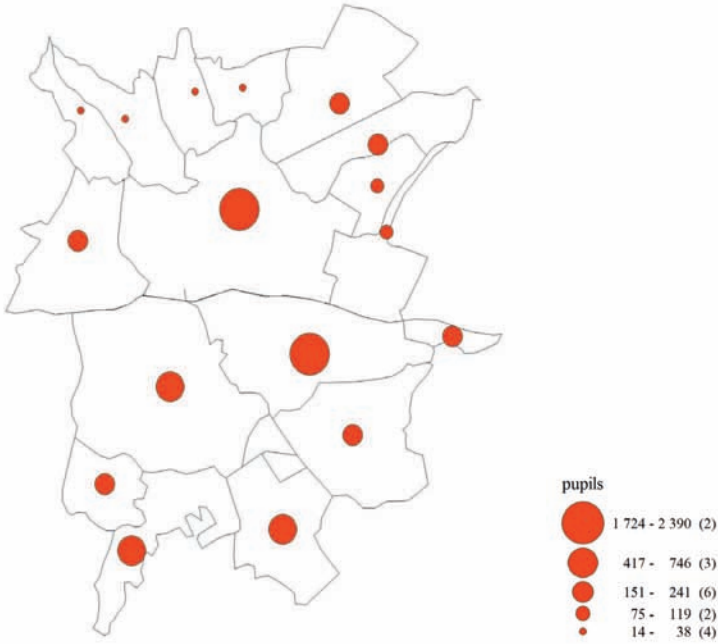
## 5.2. Peculiarities of primary school education in the region

On the Hungarian side of the research area not all settlements have their own primary school. Of the region's nine settlements only seven have such establishments. The municipality operates four primary schools in Komárom and two are run by the Self Government of Komárom-Esztergom County.

In Komárno six primary schools offer education in Hungarian, which are visited by 2,900 students. Of the nine settlements around the town eight have their own primary schools with 600 pupils in total. The Marianum Hungarian Primary and Secondary grammar school is operated by the church. Physical education and art and music education are also part of the school curriculum in Komárno.

The number of students enrolled at primary schools fell from 4,900 to 3,850 between 1990 and 2004 (a twenty-percent decrease in 15 years). The number of pupils in Komárom has fallen by 27%. This indicates a larger decrease in the town than in the nearby villages. *(Figure 29)*

*Figure 29: Number of students enrolled in primary schools of the microregion in 2004*




*(In Slovakia data were collected only from Hungarian schools)*

In 2004 the there were 10.4 students to a teacher in the primary schools of the region. This is a significant drop compared to 12.8 students to a teacher in 1990. Similarly, the average number of students in a class in the microregion fell from 22 to 19 in the same period. The corresponding indicators are similar in Komárom as well.

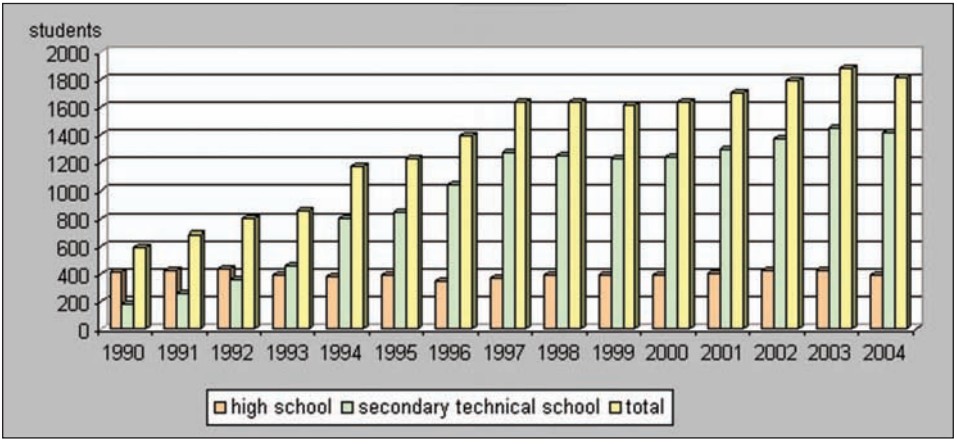
Due to a large minority population of Hungarians in the northern part of the research area (more than 50%) there are more Hungarian primary schools than Slovak ones. Nearly 2,400 students visit Hungarian establishments in Komárno. Almost 20% of them commute from the nearby villages. Due to unfavorable demographic processes the number schoolchildren in Komárno is also decreasing. The technical background of education is gradually improving; there is a growing number of schools that specialize in the education of foreign languages and computing.

### 5.3. Secondary education in the two towns

Secondary education in Komárom takes place in four institutions. Four secondary schools are managed by the local government of the county and two are run by foundations. Secondary vocational schools dominate the network of secondary schools; skilled laborers are trained only in two institutions. Nearly 600 students pursue their studies at schools providing education in the fields of management and economics, where they obtain skills that can be used in practice.

The number of students enrolled in secondary schools rose from 596 to 1,818 between 1990 and 2004, which is a threefold increase. As a result, the proportion of those having obtained secondary qualifications is growing steadily. It can also be observed that the popularity of secondary vocational schools rocketed (the number of students grew eight times higher). *(Figure 30)*

*Figure 30: Changes in the number of secondary-school students in Komárom, 1990-2004*




Since 1990, the quantity of teachers in secondary education has also tripled in Komárom. Owing to this, the number of students to a teacher has not changed in a large scale (2004: 13 students to a teacher). The number of those going to industrial schools halved, however. As a result, there is a lack of skilled laborers in the region. Komárom's focal position in secondary education is proved by the fact that as many as 1,100 students commuted to its secondary schools in 2004.

Komárno has six secondary schools and in the nearby town of Hurbanovo there is a secondary vocational school of architecture and an agricultural trade school. The secondary schools in Komárno had more than 3,000 students in 2005, which is a sixteen-percent growth compared to 1990. 40% of them visited secondary grammar schools and the rest secondary vocational schools. There were 10.5 students to a teacher, compared to a higher corresponding figure in Komárom (13 students to a teacher). This indicates a growth in the efficiency of education in Komárno.

### 5.4. The establishment and development of higher education

In 2004, by the establishment of J. Selye University, Komárno got a higher educational function. It was an important step forward in the development of educational infrastructure in the region. The language of instruction at J. Selye University is Hungarian. Since the proportion of Hungarian minority students taking part in Slovak tertiary education hovered between 3.7 and 4.8 percent for decades, the establishment of the new university contributes not only to a growing level of erudition among Hungarians but also helps them to reach equal opportunities on the labor market. The first academic year started in the fall of 2004. The three faculties (Faculty of Pedagogy, Economics and Theology) had 27 full time teachers and 650 enrolled students. There was also a great demand for in-service tertiary education: in the academic year 2004/2005 more than a half of all undergraduates at the Pedagogical Faculty were in-service students. The Faculty of Economics launched in-service education in 2005 with 290 enrolled students. In the same year the Department of History was also founded at the Faculty of Pedagogy, and a program in pre-school pedagogy was launched at the affiliated department in Lučenec.

The university has established contacts with several Hungarian colleges and universities (Budapest, Győr, Tatabánya, Gödöllő). Lecturers from these institutions also teach in Komárno at the Faculty of Economics and at the Faculty of Pedagogy. In the academic year 2006/2007 the number of undergraduates reached 2,520 persons *(Table 3)*.

*Table 3: Number of students at each faculty in the academic year 2006/2007*

| Training programs | Faculty of Economics | Faculty of Pedagogy | Faculty of Theology | Total |
|---|---|---|---|---|
| Full time students | 518 | 589 | 45 | 1,152 |
| In-service students | 460 | 622 | 34 | 1,116 |
| Total | 978 | 1,211 | 79 | 2,268 |

*Source: J. Selye University, 2006.*

There was a dynamic increase in the number of undergraduates between 2004 and 2006, and the gravity zone of the institution also widened. (Figure 31, 32) The quantity of undergraduates arriving from Hungary can be expected to rise in the medium term, which is also supported by the fact that now students are granted a Master degree.

*Figure 31: Changes in the number of students at each faculty, 2004–2006*

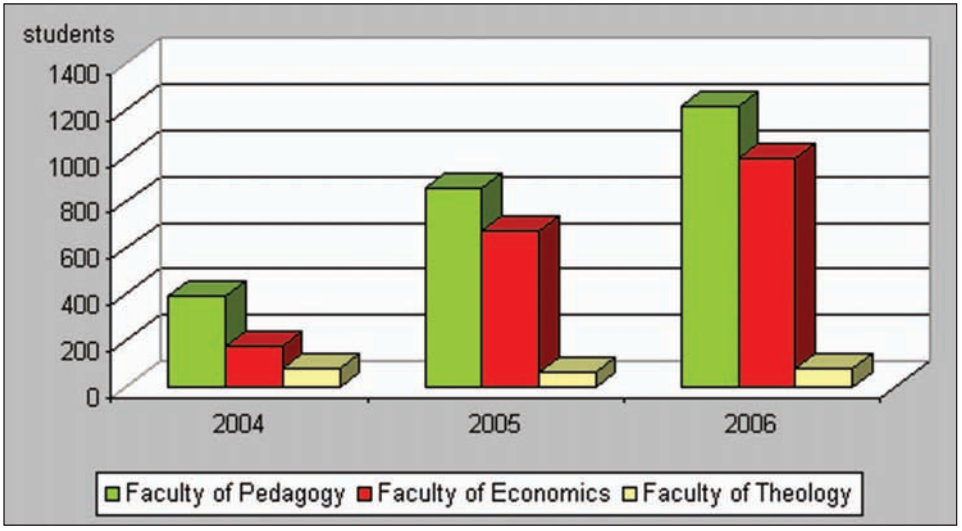
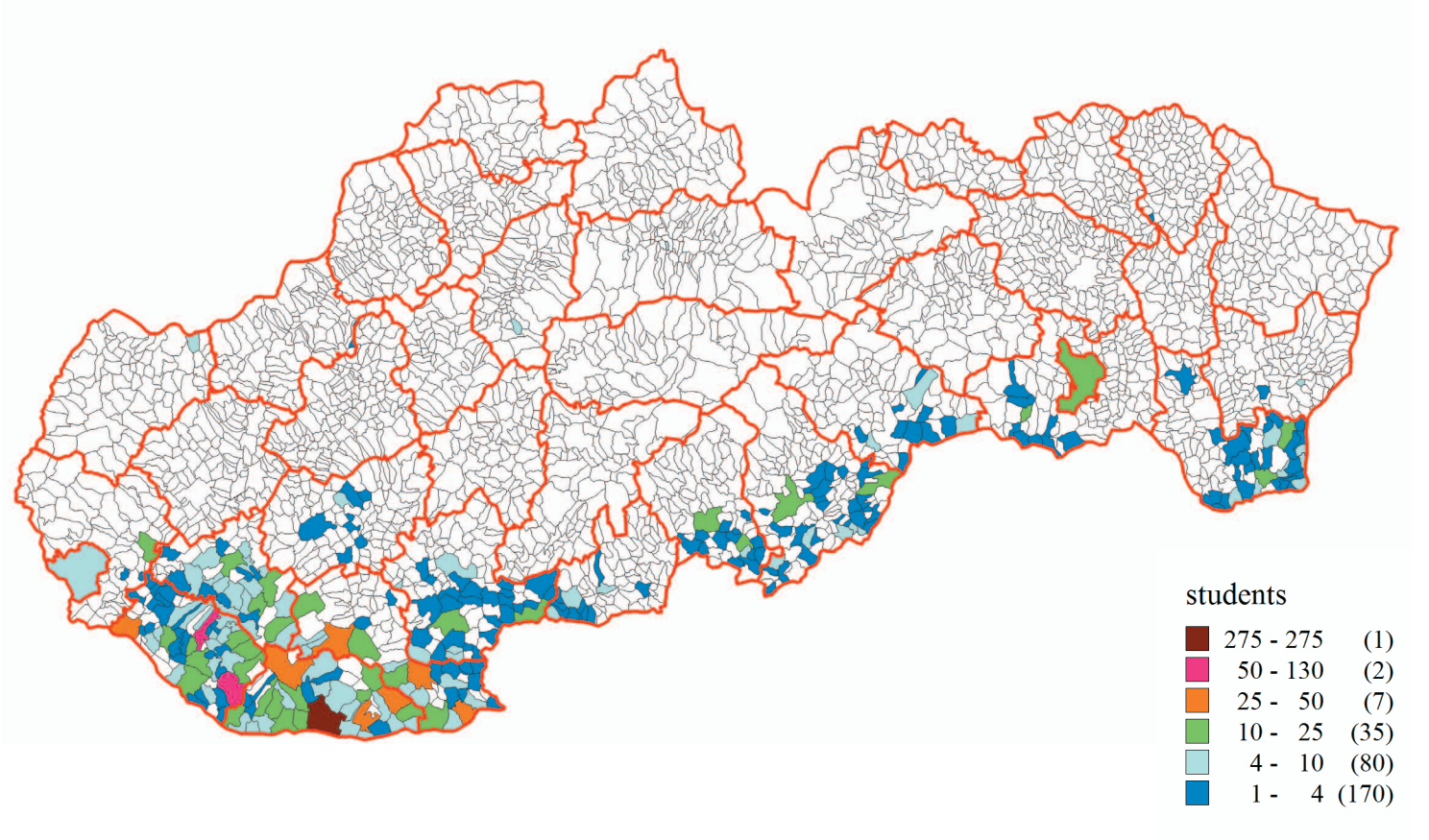


*Figure 32: Gravity zone of J. Selye University, 2006 (persons)*



The long-term development aim of the university is to strengthen higher education in the region. As an example the widening of the scope of study programs could serve: the Faculty of Economics intends to launch study programs in Public Administration and Regional Development and in Commerce and Marketing. As a result of the introduction of new programs the number of students is expected to reach 1,800. The Faculty of Pedagogy is planning to launch new accredited programs in geography, French and Slovak languages as well as in physical education.

In order to include the findings of the latest scientific researches in the curricula, and to coordinate research activities at the university the Research Institute of J. Selye University was established in 2004. In cooperation with other research institutes and businesses it also takes part in different projects, by this supporting the research activities of teachers at the university.

# 6. CULTURE, ENTERTAINMENT AND SPORTS IN THE REGION

## 6.1. Cultural and entertainment opportunities

The distribution of cultural establishments in the two towns is uneven. There are considerably more in Komárno than in Komárom; furthermore, the ones on the Slovak side are more important, since the historic center of the town is situated there. Komárno is the main cultural center of the Hungarian minority in Slovakia. The Jókai Theatre was founded in 1952. It is the only Hungarian theater of the region with a permanent theater company. The present theater hall can seat 350 people and there is also a theater studio. Another cultural institution in the town is the Museum of the Danube Region. It hosts not only permanent and temporary exhibitions but also offers different cultural events for its visitors. The museum is also a home to two exhibitions introducing the lives of the composer, Ferenc Lehár and the novelist Mór Jókai, both born in the historical Komárom.

The museum is in close cooperation with the Klapka György Museum in Komárom, where local history finds from Komárno can be exhibited (since the majority of documents and other exhibits related to the history of the two towns are kept by the Museum of the Danube Region in Komárno). The Klapka Museum, which attracts 6–8 thousand visitors every year, displays the historic and archaeological finds related to the history of the two towns and their surroundings in several places (Roman finds uncovered in Szőny, the history of shipping in Komárom etc.).

There are public libraries in both towns. The Jókai Mór Library in Komárom registers approximately 2,000 readers, while the one in Komárno has about 160,000 volumes and 5,000 permanent readers. This is where a unique collection of 40,000 historic books is kept, several hundreds of which are from the 16th and 17th century. By the establishment of the Library of J. Selye University, Komárno got hold of a very important cultural establishment. With its 200,000 volumes and equipped with a modern computer network not only does it serve university students, it can also be used by the public.

Community centers can be found in both towns. The theatre hall of the center in Komárno can seat 650 people and is the biggest one in the region. It is also much better equipped with other facilities than the Csokonai Community Center in Komárom. The CSEMADOK Cultural Center in Komárno has been one of the most important cultural institutions of the Hungarian minority in Slovakia for several decades.

The above mentioned community centers offer a variety of programs that are performed by guest artists and other theatre groups or by their own artistic groups, theatre groups and ensembles. They also organize festivals and other cultural events. Komárno is a home to an annual Hungarian theatre festival in Slovakia, the Jókai Days, and to the Lehár Festival as well. The most important Slovak cultural events in the town are the Cyril and Method Days, the Matica Days and the Prowazek Days.

The Small Gallery in the Csokonai Community Center of Komárom was established 30 years ago. It hosts six or seven exhibitions of contemporary artists every year. The Petőfi Sándor Community Center in Szőny was built in 1937. Since 1996 it has been run by the Cultural Association of Szőny. The Ady Endre Community Center at the MOLAJ housing estate (Szőny) was established in 1960. It is run by a trade union. There are plans for the building of a new community center in Komárom near Fort Csillag. The new building would also host the new public library and archives.

As a good example of cultural cooperation between the two towns the Komárom Days could serve, which is a series of events organized by the two towns together. The Millennium Sokadalom Folk Art Festival is also organized in cooperation with the town of Tata. The environment in Fort Monostor is an ideal place for the holding of the Famous Komárom Historical and Castle Games. As a good example of public initiatives supporting art the Limes Gallery in Komárno could be mentioned, which has been managed by the Pro Arte Danubií Civil Association since 1999. The scientific and cultural life of the town was further enriched by the Selye Days organized by the university. It offers a variety of entertainment programs. Lectures of renowned Hungarian scientists can be attended at the Selye Summer University organized annually.

Entertainment opportunities in the two towns are rather varied. The number of people going to the local cinemas, which was high in the past, has decreased considerably. What is more, there are no cinemas in any of the towns that would correspond to present-day demands. The Jókai Cinema in Komárom tries to attract cinemagoers with a variety of discounted season tickets; however, there is no demand for films shown a long time after their première.

There are numerous places of entertainment, clubs, cafés and pubs in both towns that provide good opportunities to go out not only for local inhabitants but also for tourists. While the places of entertainment in Komárom are mostly situated by the spa and in the center, in Komárno they are concentrated in Župná (Vármegye)

Street leading to the main square and in the Europe Place. The fact that Komárno has become a university town suggests that a further development of local places of entertainment will take place. The several thousands of students already represent a considerable purchasing power.

### 6.2. Sports and active relaxation

The two towns provide excellent opportunities for doing sports and for active relaxation. There are good conditions on both sides of the Danube for different kinds of sports including water sports. The region also has a rich tradition of cycling.

Water sport lovers have several clubs (yacht club, scuba divers' club, water-polo club, water motor-sport club), and there are indoor pools in both towns. The Comorra Water Polo Cup attracts a large number of visitors every year.

Other popular sports clubs in Komárno are the football club, the basketball club as well as the box and wrestling clubs. The Town Sports Club in Komárom has football and tennis sections; the Komárom Athletic Club offers an opportunity to play handball for men and women. The Komárno–Komárom International Street Running Competition is known nationwide. It has been held since 1974. Cycling competitions and events are also popular in both towns (e.g. Family Bike Tour).

In order to preserve historical tradition the Archer Club in Komárno has been established, and the Komárom Riding Club has been founded for the same reason. The „Erődpróbák (Trials of Strength)" mass sports event is popular as well. Associations and events related to technical sports are also growing in number (Club of Veteran Car Lovers, Veteran Car Section of the Kassák Club, International Bikers' Meeting, Festival of American Cars). The Bowling Center in Komárno, the go-cart track in Komárom as well as a large number of fitness, dance and aerobic clubs also provide different opportunities for doing sports. Furthermore, about 35 sports events take place in the town every year.

### 6.3. Local media

Besides several national electronic and printed media, regional and local media are also present in the divided towns. The local radio broadcasters are the Komárom based Kék-Duna (Blue Danube) Radio and Dunakanyar (Danube Bend) Radio, and the regional Radír (Eraser) Radio with its seat in Tatabánya. All stations can be received in the

region. There are no regional broadcasters in Komárno and its surroundings. The above mentioned radio stations can also be received well on the Slovak side of the region. The availability of Slovak stations on the Hungarian side is limited, however.

The official journal of Komárno is the Komáromi Lapok, which is published biweekly in 15,000 copies and it is free of charge. There are other bilingual regional newspapers, such as the Delta, the Csallóköz and the Dunatáj, just to mention the most important ones. The Komáromi Újság is published in Komárom. It is also free of charge and includes local news and information on cultural events happening in the town. Regional press in the microregion is represented by two other county daily papers (the 24 Óra and the Komárom-Esztergom Megyei Hírlap).

Both towns have their own TV channels, which can be received through cable TV providers. The local TV channel in Komárno broadcasts a one-hour program once a week, half of which is in Hungarian and the other half in Slovak language. The first part of the Monday program on the local TV channel in Komárom is a short version of the program that was put on air earlier in Komárno. The program broadcast in Komárom should be also televised in Komárno; however, due to financial problems and regulations laid down in the Slovak Language Law it cannot be put into practice.

In conclusion, it can be stated that there is vivid cultural and sports life in the two towns with rich traditions, and there is a wide range of numerous events that bring the communities together. The existing institutional infrastructure, the present human resources and the amount of potentially available finances could enable further development, however. With regards to future development, an integrated joint cultural development strategy should be elaborated, which would promote the presentation of cultural values to the population of the region.

## 7. SUMMARY AND DEVELOPMENT PERSPECTIVES

The research that covered the territory of Komárom, Komárno and their surroundings has explored the principal developments of social-economic spatial processes in the researched region belonging to two countries in many respects as well as it evaluated its present state. The obtained research results indicate that after the turn of the millennium there is an increased possibility that the development processes of the formerly unified divided towns, now being divided and belonging to two different East Central European countries, may come closer to each other after having taken different development paths for more than eight decades. This fact gives a spur for the establishment of more intense cooperation in the region. This is also predestined by the emergence of growingly similar economic developments that took place in border areas lying on the western part of the Hungarian–Slovak frontier in the last decade, while their social transformation has been hindered by the consequences of numerous past negative legacies up to this day. The above findings are supported by the results obtained in the different research segments listed below:

From *demographic* point of view the demographic processes of the two towns and the surrounding regions show favorable developments compared to those of other Slovak and Hungarian small towns, since population in the examined area stagnates or shows only a minor decrease even in the long run. The grounds for the long-term stabilization of population are the growing number of employment opportunities and the permanent economic prosperity of the two central towns. It is also a favorable demographic phenomenon that the age composition of population did not get worse even after the turn of the millennium, since young generations outnumbered the elderly even then. In contrast with developments that can be observed in the majority of other borderland microregions, a considerable ageing of the population has not commenced so far. This supports the development of a stable demographic structure in the future. The proportion of economically active age groups in the two towns and their surroundings is higher than the corresponding national proportions in each country; thus, regarding human resources there are good development perspectives even in the short term, which is a positive phenomenon in relation to the future growth of the population's income.

The percentage of those having obtained secondary-school or academic qualifications in the region is rising considerably. This, on one hand, can considerably contribute to the fulfillment of labor demands in those economic sectors, where highly qualified and skilled workforce

is needed. On the other hand, it is a guarantee for better employment opportunities and for reaching higher incomes than the average. The principal features regarding the religion of inhabitants in the region are the following: the majority of the population is Roman Catholic; almost 20% belong to the Reformed (Calvinist) Church. However, the proportion of those not belonging to any denomination is relatively high as well. In this respect, an increased laicization tendency can be expected in the future as a result of strengthening urbanization.

With a view to *settlement morphology* there would be a need for institutional cooperation between the two towns with common aims and that by pursuing joint activities in the fields of settlement planning, settlement development, land management, settlement management and environmental protection. The proper tools for maintaining the above cooperation could be the implementation of joint building projects and joint calls for tenders. As a concrete task the completion of the circular system of fortifications could be mentioned. Two semicircular structures have to be completed on each side of the Danube the following way: In the north the Linea Palatinale and the Váh Line should be developed into a green belt, which can be walked round. In the south the forts being rather isolated from each other should be joined by tourist paths and bicycle routes. Both towns should develop a distinct system of information boards for tourists, which would be placed in the most important and busiest parts of the towns indicating where the system of fortifications and its different parts can be found. Another important task that would result in significant, positive settlement morphological changes is the development of green areas in the town centers including the area of the fortifications, the historical centers as well as the housing estates. Finally, the building up of a joint town image, a so called *town remembrance* can be considered as a major task. The basic grounds for reaching these could be the primary and secondary schools, the interweaving of Slovak and Hungarian history (The idea of a joint history book comes from the European Union) as well as the introduction and teaching of each other's culture and language.

In the field of *economic development* the enhancement of local added value has to be hastened in industrial production. The local integration and embedment of multinational companies must be improved. The supplier activities related to foreign corporations already present in the region must be strengthened; local companies, small and medium-size enterprises can improve their role in the supply chain by supplying components and services. Since large corporations still act as the major economic players in the two towns, the municipalities have to

establish cooperation with them, so that both parties can mutually profit from this collaboration and that in the benefit of the town in all respects.

Another important task in both towns is to support the development of small and medium-size enterprises less related to local large companies, since these SMEs can get an important role in diversifying the spectrum of economic structure, in the fulfilling of local demands, in providing services and in increasing the rate of employment. There is a need to fill up the ever-shrinking pool of labor; particular attention must be paid to the settling of new workforce and to the provision of suitable living conditions for them (new flats, high quality living environment, cultural and entertainment opportunities). In order to facilitate the provision of businesses with new workforce, the demands towards education and training institutions should be mapped; the institutions of secondary and higher education have to cooperate with businesses in the continuous forming and modernization of their study programs. Due to the increased volumes of freight transport the conditions of traffic infrastructure must be improved by all means; roads bypassing the towns must be built as soon as possible, just like a new bridge has to be constructed over the Danube.

When stating the aims of *agricultural development* the following facts have to be considered as starting points: the Hungarian part of the region is a flat region with traditionally developed agriculture, and in Slovakia the best natural conditions for agricultural production are here. The moderately warm and dry climate, the high number of sunny hours and the high quality soil positively influence the cultivation of fodder-plants and animal husbandry, which is based on them. Agriculture preserved its important role on both sides of the frontier; however, it has been modernized and has been adjusted to the demands of the new market economy. It was also completed with some commercial functions. Besides the fundamental agricultural activities additional functions such as food and fodder industry have come to the front, while the companies, regardless their size, are adapting more and more to the strict EU requirements.

Large companies introduced the use of modern agricultural technologies in a relatively short time after their privatization and they started profitable agricultural commercial activities. Foreign investments and the retaining of existing and entering new European markets had a key role in this. The use of environment-friendly cultivation technologies, the recycling of agricultural by-products and the spread of innovative farming methods has also started. The production of high quality products and their efficient sale support the

expansion of a diversified product range. However, the establishment of forms and profiles which would mean a living for private farmers and producers in the long run has not taken place yet.

*Commercial and service functions* in both towns are concentrated in the inner towns: these are the areas that are most frequently visited by tourists and the residents. The competitiveness of local retailers should be improved by a well thought-out retail-shop mix and by the implementation of product, marketing and communication strategies. The volume of shopping tourism in Komárno is rather low; for this reason, satisfying tourists' demands on a high level is an important task to be carried out through the further development of retail chains in the near future. The advantages arising from the fact that the towns lie on a frontier line are not utilized in retail trade and the service sector of the two towns. Though the situation is getting better by an increasing number of hypermarkets, opportunities that lie in the widening of product choice by offering new, special goods (selling of typically Hungarian and Slovak branded products) are not taken full advantage of.

The strengthening of customer-oriented approach is an important task in local retail trade. This means the adjusting of the following according to customers' expectations: customer protection, opening hours, parking services and methods of payment (acceptance of SKK, HUF, EUR and credit cards). Retail shops must be prepared for the adoption of the euro. With a view to the development of the town's retail network the building of a medium-size shopping center near the center of Komárno would be important. It could supply a gravity zone of 130–150 thousand people.

From among all elements of *settlement infrastructure* the living conditions of the examined area's inhabitants are considerably influenced by the quality of dwelling stock, by the expansion rate of local lineal infrastructure as well as by those indicators, which point to differences in living standards between different settlements (e.g. level of motorcar abundance). The degree of the dwelling stock's growth indicates divergent population density compared to changes in the number of inhabitants. This shows that those living in the southern part of the examined region have significantly better dwelling conditions than those in the north. Due to the decrease of family incomes' real value and the increase of unemployment the building of new flats has declined in both parts of the region since the beginning of the 1990s. The construction of new flats was further hindered by the withdrawal of the state from a noteworthy part of the market as well as by the fact that owing to a decrease in population the demand for new flats also dropped off.

The northern part of the region is better placed in terms of sewage system penetration than the southern one. However, it has to be pointed out that sewage system development in the northern part of the region was focused on the town of Komárno, and the indicators reflecting the proportion of dwellings supplied with sewers and piped water in the nearby settlements are a lot worse in the north than in the Komárom microregion where a significant development of the system is being undertaken. One of the ways to measure people's income conditions is to examine the growth in the number of cars, which was lower in the northern part of the research area. Thus the specific values of abundance are higher in the settlements of the Komárom microregion, which indicates a faster growth of incomes in that region.

In relation to *traffic and transport* conditions, it is necessary to point out that the position of each town is of different importance within their own country's transport network. On the other hand, since both of them are border crossing points their role in international road traffic is in fact of the same weight. Three types of busy transport routes (rail, road, water) go past or cross the pair of towns, which are linked together by the bridges over the Danube. The difference between the transport-network potential of the two towns is also indicated by their different position within the Pan-European transport network. Both towns lie on the Danube, which is known as the Pan-European Corridor VII. Besides this, the town of Komárom is also positioned on the Hungarian axis of Pan-European Corridor IV.

Since the two towns are neighboring each other, *Komárom*'s closeness to corridor IV can prove to be advantageous for Komárno as well. Komárom's transport-network position is particularly advantageous. The town is an important station on the electrified double-track railway line between Budapest and Vienna. The motorway M1 running between Vienna and Budapest is also not far from the town. The closest junction on the motorway is linked to the town by a main road. This way the town is linked to the main national road network. The main railway transport links in the case of both towns are the ones leading to the capitals. In this respect Komárno is in a less advantageous position than its southern neighbor in spite of the fact that Bratislava is approximately in the same distance from Komárno as Budapest from Komárom. The reason for the difference is that while Komárom is an important station of the main inland railway network of Hungary, Komárno's railway network position within Slovakia could be described as partially peripheral. In order to obtain research data about the peculiarities of traffic in the two towns a questionnaire survey was carried out. It was found out that the interest of

inhabitants in each town on the other side of the frontier is gradually increasing. While the respondents mostly go to Komárom for economic reasons (working), the majority of those arriving in Komárno go there as tourist, for reasons of entertainment. The future development of the towns driven by common interests will hopefully make the so called *way of use* of both towns more balanced, since at present each one is visited for different reasons.

As for *tourism*, the two towns have exceptionally strong tourism attraction power; however, this potential has not been fully utilized in many respects so far. One of the most important tasks in this respect is the joint development of point-of-sale communication by such means as a unified system of tourist information boards, joint promotional leaflets and the application of a common system for directing tourist between different attractions (across the border, as well). There would be a need for the elaboration of a common tourism development strategy, which should prioritize cooperation and the joint and complementary, not competitive, development of attraction factors.

In the elaboration of strategies, continuous cooperation should be established between all institutions having an interest in tourism. Database marketing, interactive communication, segmentation of the tourism market, joint financing opportunities (PPP) and an integrated regional approach should all have a main role in it. Efforts should be made to eliminate the so called tourism *repulsion factors*, which partially is a long-term task in land management: the wharf in Komárno should be refurbished and opened for the public and tourism. The system of fortifications is to be restored completely, which should be filled with tourist attractions. In all, priority should be granted to the development of market-oriented and visitor-oriented approaches.

With regards to *environmental protection*, it should be promoted through environmental education and by informing the public. These activities could mainly be practiced in educational institutions, in the local media and by the organization of events with a purpose of informing the public. Extensive cooperation in the field of environmental protection should be established with the local environmentalist institutions and local authorities. The systems of separated waste collection have to be developed as well as the inhabitants should be informed regularly. There is a need for new waste collection sites and for the introduction of waste recycling. In order to decrease the harmful effects of air pollution caused by traffic a new Danube bridge and roads bypassing the town should be built. In addition, public transport and bicycle traffic should also be improved. The decontamination of polluted industrial areas should be carried out gradually as well as former communal and

industrial waste landfills will have to be isolated from their environment and recultivated. The waste that was piled up on the territory of the system of fortifications (mainly in the Old Fortress) must be also taken away and the territory has to be decontaminated. With regards to the future utilization of the site, the premises should be used for environment friendly purposes (education, culture, recreation, retail trade).

During the elaboration of short- and medium-term development plans for education the fact has to be taken into consideration that a gradual decrease in the number of kindergarten and primary-school students can be observed in both towns. However, this cannot cause the deterioration of conditions in education and training. Owing to this, the development of infrastructure in kindergartens and primary schools should be paid special attention to. This would contribute to a more efficient use of kindergartens and to a higher competitiveness of the latter ones.

The permanently high number of students in secondary education in the region would call for the harmonization of study programs offered by different vocational schools. Thus, they would not have to compete with each other in attracting students. In order to provide better opportunities for students to gain experience, schools should organize practical trainings in cooperation with each other, in the course of which pupils could be familiarized with the peculiarities of economic life in a border area. When planning to introduce new study programs, secondary schools and the university should bear in mind the demands of the labor market, by this offering their school-leavers and graduates better chances for finding employment and carving the way for their future professional success.

The gradually increasing number of graduate job seekers requires a closer cooperation between institutions of higher education and the business sector. By this, on one hand, the institutions could get hold of financial sources; on the other hand, they could offer better employment opportunities for their graduates through these connections. The settlement of young teaching staff in the town is of great importance for the new university in Komárno; young faculty members should be offered accommodation or accommodation subsidies. As a result, they would be more motivated to settle down in Komárno.

## EPILOGUE

The introduction of Schengen Borders in December 2007 may be a new milestone in giving a further spur to the development of wide-ranging cooperation between the two towns. What is more, both Slovakia and Hungary will hopefully join the Eurozone in a few years' time. The introduction of a common currency will eliminate the last obstacle that has been hindering Komárom and Komárno from building a common future, after having taken different paths for 90 years. However, this is not going to happen in a day or two. In order to build a common future, the residents of the two towns will have to come to realize that they have common interests, third-sector institutions will have to be strengthened, the leaderships of the towns will have to become more open to resident initiatives, and last but not least, the residents of the two towns will have to believe in the existence of a common future and there will be a need for their eagerness. Provided that the above can be put into practice in the next 10-15 years, and if instead of competition there will be outstanding cooperation between the two towns in all walks of life, then "Famous" Komárom/Komárno, as it used to be called, could serve as a good European example of integrated town development.

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