Transport

Central Location and Monocentric Network Structure

Hungary is one of the hubs of international transport in the eastern half of Europe, linking the macroregions of the continent, whilst at the same time providing connections between the peripheries of the Carpathian Basin. Hungary is one among the European countries with a highly monocentric transport network. The Budapest-centered railway network was built in the 19th century, in the era of the Austro-Hungarian Monarchy with the aim of developing Budapest into a fitting counterpart for Vienna. The transversal railway lines built prior to World War I were cut off by the redrawn borders of the Treaty of Trianon, making the remaining transport network completely monocentric. This feature was further enhanced by the construction of a network of main roads similarly centered on Budapest. Attempts to ease the effects of this unfavourable spatial structure (plans for transversal lines to establish direct connections between eastern and western parts of the country) have failed, and no significant changes have occurred for decades. Thus 85–90% of the east–west long distance, i.e. international traffic, still flows across the agglomeration of the capital. The monocentric structure of the transport network is further accentuated by the EU's trans-European corridors, alongside with the newly built highways which form part of the corridors.

The Sub-Structure and Transport Policy

Modal split has advanced rapidly since the change of regime and especially since the country's accession to the EU. Although international transport policy concepts have stressed the increasing importance of environmentally friendly railway and waterway transport, and of the reduction of road traffic, projects aimed at network improvements have focused on road (and partly airport) construction, neglecting the development of railway and waterway transport.

The rapid increase in road transport can be traced back to the changes in freight transport, and to the boom in the spatial mobility of the population. Following the decline of branches of the economy that relied on transport, the total weight of transported bulk commodities has decreased considerably, whilst road transport capacity for smaller loads almost tripled from the 1990s to 2007. Overcrowding and traffic jams on the roads have become rather frequent phenomena, contributed to by the growing number of trucks and vans of forwarding companies, serving as the rivals of rail transport.

Transport Networks and Vehicle Supply

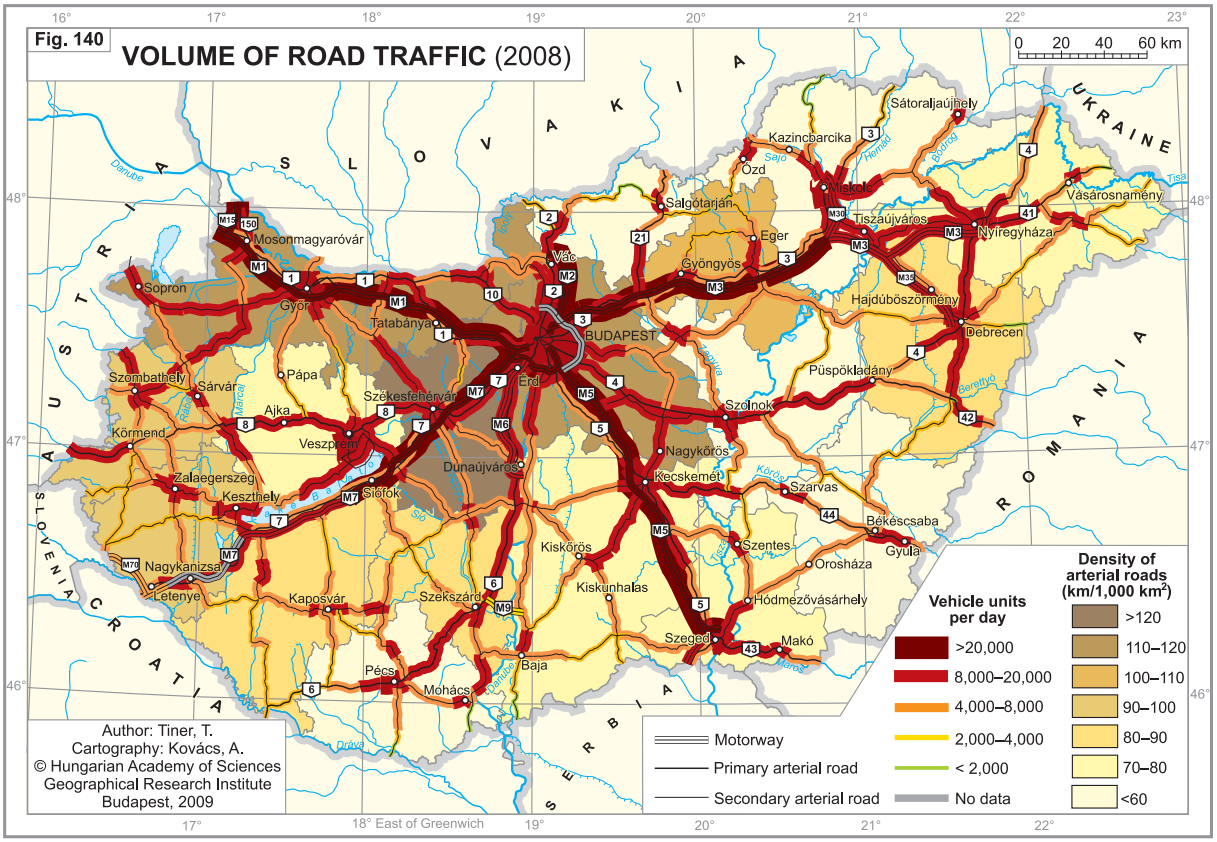
The length of the complete ***road network*** of Hungary (163.4 thousand km) exceeds 19.5 times that of the railway network. However, only 31.2 thousand km of this is part of the

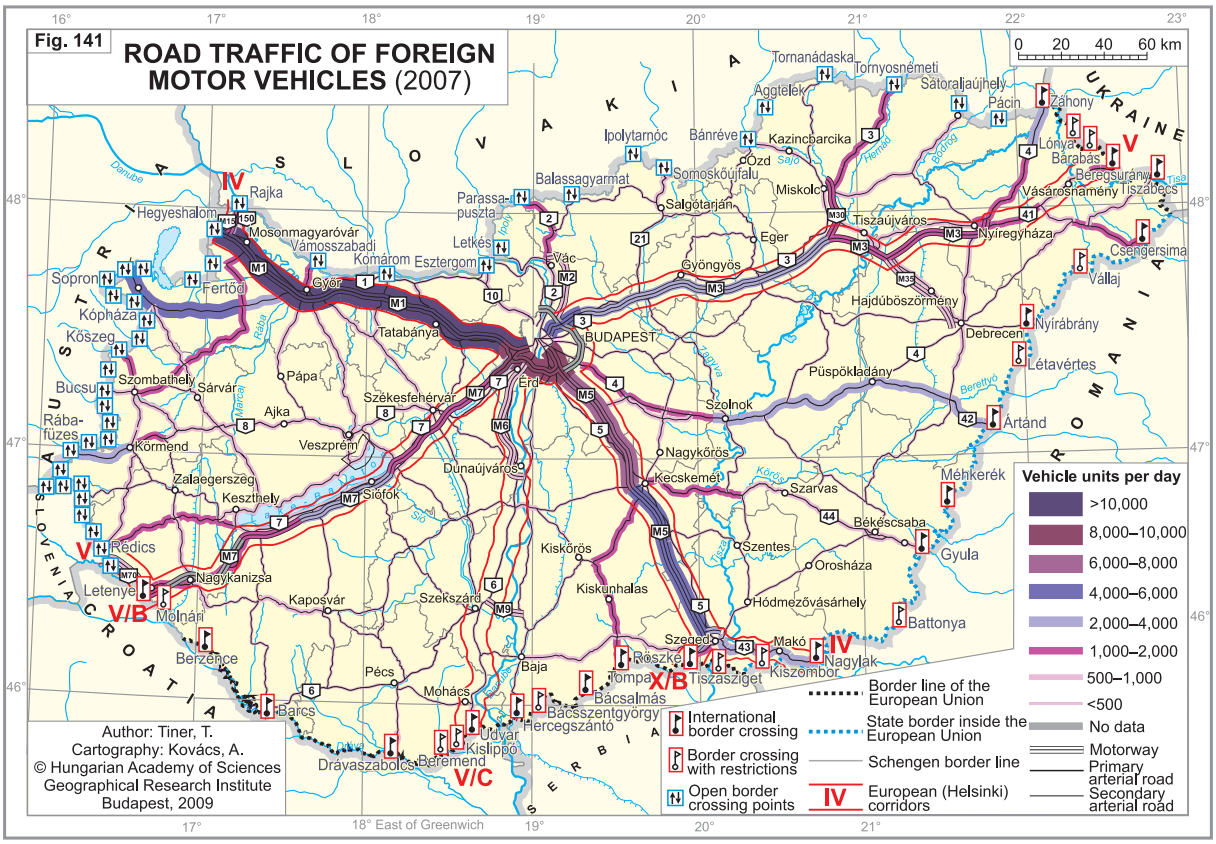
national public road network, which is hierarchically subdivided. The total extension of the country's motorways and primary arterial roads amounts to 1,100 km, being one of the longest among the former socialist countries (second only to Croatia). In road density (335 km/1,000 km^2) Hungary is overtaken only by Croatia and Slovenia. With the exception of the M0 which is an orbital relief road circumventing the capital, the highway network has a radial pattern. The M1 connects the country with Austria (and western Europe), M2 and M15 with West and Central Slovakia, M3 with Ukraine, M5 with Serbia and Romania, and the M7 with Croatia. Further, the M70 feeds into Slovenia and the M6 (after its full completion) will provide link towards Croatia and Bosnia-Herzegovina. The M30 provides access to eastern Slovakia from the direction of Miskolc, while the M35 to Romania from Debrecen. These main roads carry 60–65% of national road transport and about 80–85% of international traffic (*figures 140 and 141*).

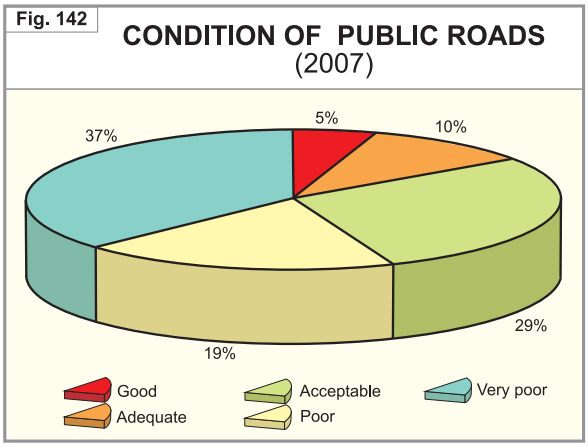
In Hungary, the proportion of arterial roads and motorways is 25.8%, which correlates to the European average. Their density on the country's peripheries is significantly lower, whilst in the wider area of the capital it is higher, which is also visible in the various densities of county roads (*Figure 140*). Main roads and motorways form international road corridors (Helsinki corridors). Several radial arterial roads starting from Budapest and some cross-directional main roads are parts of the transcontinental public road network (E-roads).

In many places, the situation of country roads as main thoroughfares (total length of 1,500 km) has became critical, both from the viewpoint of traffic and from environmental protection. The development of bypasses is progressing rather slowly, compared to their pressing need. One fifth of side roads are access roads leading to settlements (mainly to small villages), while the remaining four fifths are connecting roads between settlements. The ratio of access roads in certain counties (e.g. Nógrád and Baranya) is 35–40%.

98.6% of the public road network is paved, 95% of which is asphalt-covered. The condition of the surface can be rather poor, and sections in a very bad shape are frequent occurrences (*Figure 142*). Improving main roads so that they comply with the EU-norm for 11.5 ton axle weight vehicles seems to be an insoluble task, even following several years of deadline



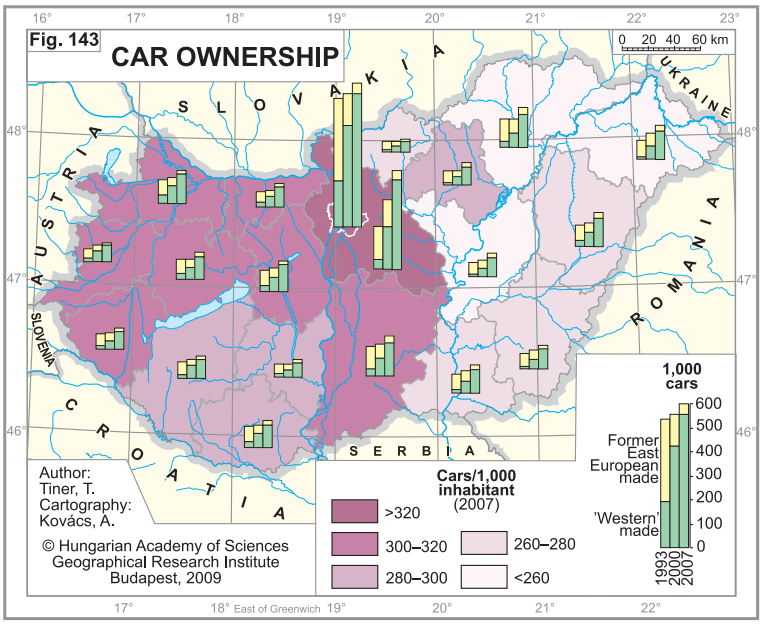




extentions provided by the EU. Only 34% of local public roads (with a length of 105.2 thousand km, more than triple that of the national network) owned by the local governments, are paved.

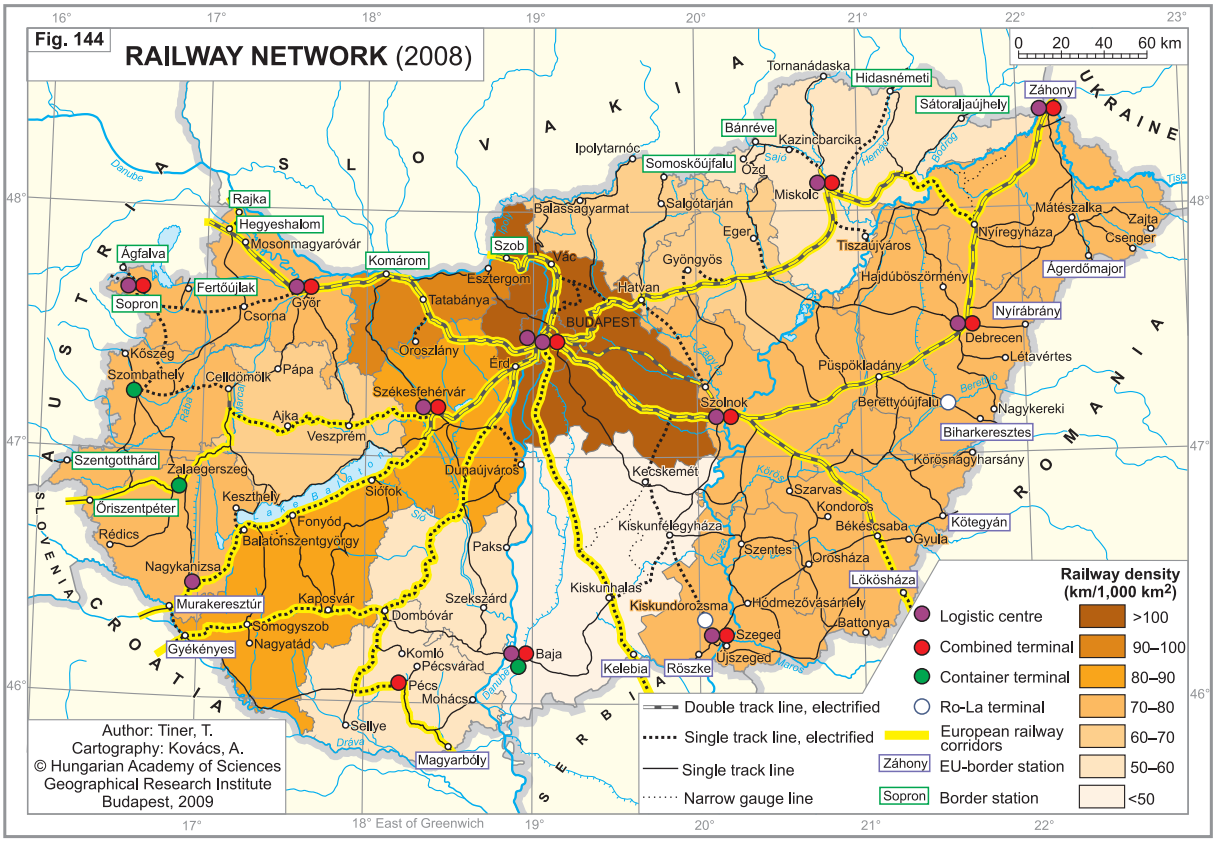
Although large scale motorisation in Hungary started in the 1960s (mainly reliant on imported vehicles), only the abolition of restrictions on buying cars, along with increasing purchasing power has led to the widespread popularity of private transport. The former dominance of cars made in the Eastern Bloc has vanished since the regime change, due to the arrival of domestic vehicle production plants and the liberalisation of import. The sudden satisfaction of formerly repressed demand has led to the virtual doubling of the number of registered cars since the 1990s. On the basis of the specific indicator of passenger car ownership (301 cars per 1,000 inhabitants), Hungary is the fourth highest in Eastern Europe. The degree of ownership effectively reflects the regional disparities in incomes of the population, so significant spatial differences can be observed. The maximum difference between the counties is 1.5 times, while among the towns there is a 3.7-fold, and among the villages there is a 13-fold variation. In the 1970s and 80s, mining settlements and heavy industrial towns had the highest figures. In 1993, the majority of private cars on the Hungarian roads were made in the Eastern Bloc, whilst today, Western and Asian passenger cars are the most widespread. The proportion of Western made cars is a characteristic feature of Budapest, whereas a relatively high proportion of cars of Eastern Bloc origin is typical of the Alföld. (*Figure 143*)

The ***railway network*** of Hungary (*Figure 144*) was 10,290 km long at the end of the 1950s. Later the total length of the network was short-



ened by 1,500 km, first by closing short railway lines (which were reduced to branch lines in function after Trianon truncated them with the new borders), then in the 1970s by closing dozens of lines connecting main railway lines, and by ceasing the use of narrow gauge services. This can be viewed in the context of other former-socialist countries where there were no significant reductions in railway lines, except for Yugoslavia and Romania. Since the 1980s, only a few lines have been closed, but passenger transport has ceased over another few hundred kilometres. According to future plans, the network of branch lines that carry low passenger volumes and of selected main lines will be shortened by 2,500–3,000 km. Today the Hungarian railway network is one of the densest in the eastern half of Europe (82 km per 1,000 km²). It reaches its maximum density in the wider agglomeration zone of Budapest and in the eastern part of North Transdanubia, and drops to its least along the peripheries (southern part of the Danube–Tisza Interfluve, eastern portions of South Transdanubia and North Hungary).

26.1% of the country's 7,635 km of standard gauge railway line is double tracked (2007), and 35.5% of it is electrified. In this respect Hungary is lagging far behind several 'eastern' European states (such as Russia, Bulgaria, and Poland). The main lines of the railway network

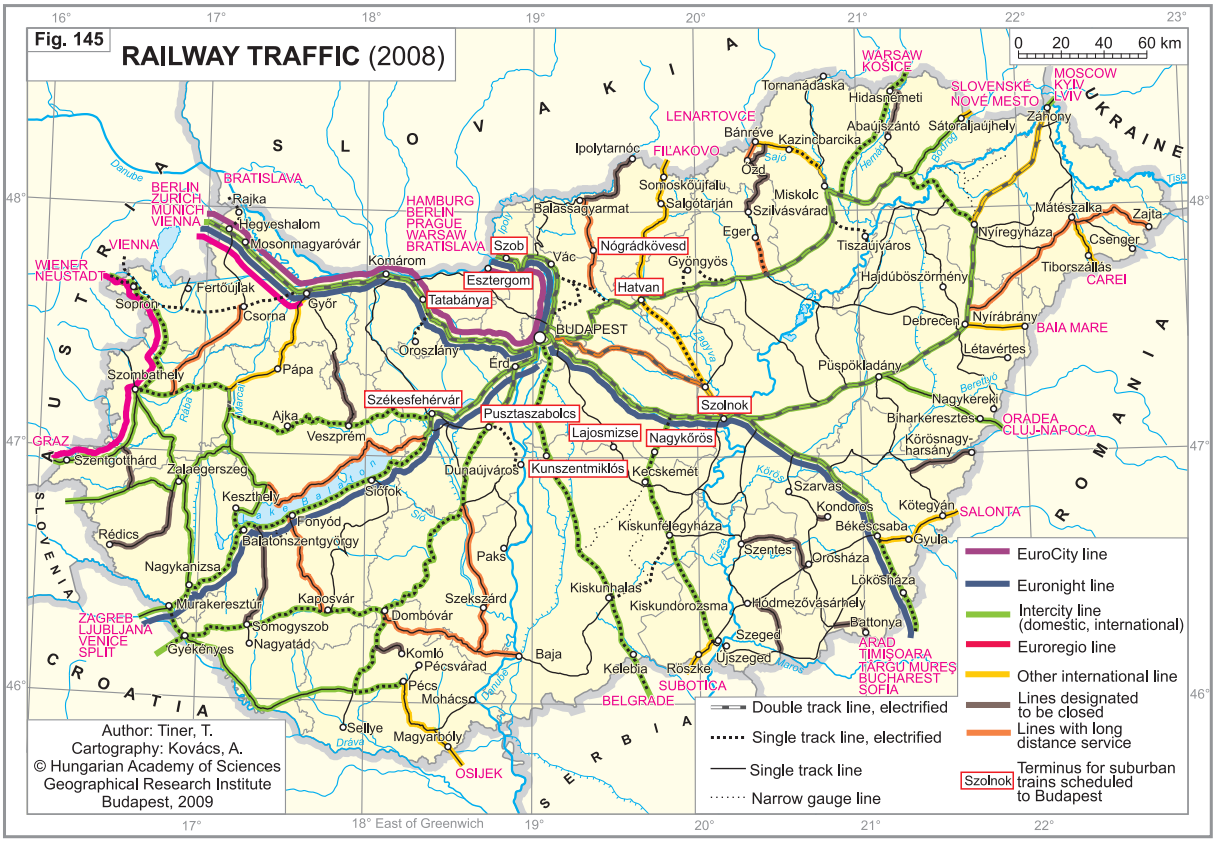


are constituents of the European corridors; the majority of logistic centres, combined and container terminals, and RoLa terminals are located alongside them. Rebuilding the international main lines so that they are suitable for speeds of 120–160 km/h and the installation of modern signalling systems are under way with EU assistance. However, on 60–70% of the branch lines, passenger trains can only travel at 20–35 km/h because of the obsolete technology.

Since 1993, most of the network has been operated by the state-owned service provider, Magyar Államvasutak Zrt. (MÁV, Hungarian State Railways Co.). Railway infrastructure is maintained by the state-owned MÁV Pályavasút [MÁV Railway Infrastructure Services Co.] and is used by MÁV START Vasúti Személyszállító Zrt. (MÁV START Railway Passenger Transport Co.) engaged in the carriage of passengers, and the Austrian owned MÁV Cargo, exchange for fees. GYSEV, the well-established Hungarian-Austrian company has its own separate standard-gauge railway in West Transdanubia.

Only a small proportion of the railway fleet is Hungarian made; following the decline of the – once famous – domestic locomotive and rolling stock industry, MÁV now mainly operates foreign made locomotives and rolling stock. The fleet is rather elderly and because of the modest activity in the procurement of replacements, it is growing ever older. The majority of modern passenger coaches travel on international and national main lines (IC, EC, EN and Euroregio services) or serve as commuter trains in the Budapest agglomeration (powered railcars) (*Figure 145*). The fact that the railway fleet does not meet either the needs of traffic or environmental requirements, is a serious problem. There are large numbers of inefficient diesel locomotives and unused rolling stock, and the availability of railcars for low volume branch lines is meagre.

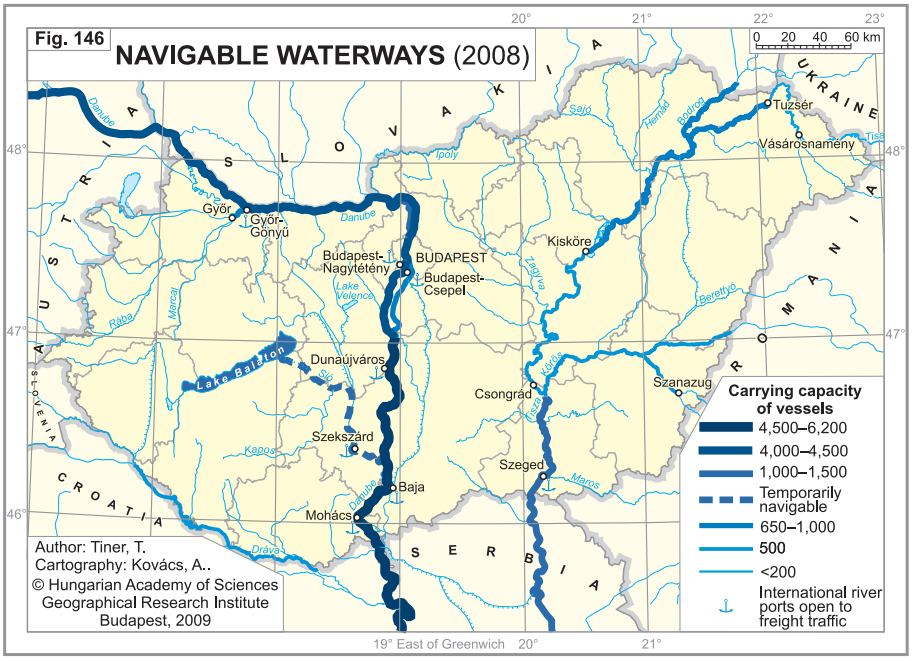
The length of II–IV B category ***waterways***, with year-round navigability is 1,373 km, and temporarily navigable waterways add an extra 249 km. This network slightly exceeds the European average. The condition of inland waterways is below par and poses an obstacle for EU shipping (the transit of 1,350–1,500 ton vessels). With respect to nature conservation and environmental protection issues, Hungary has abandoned the idea of constructing further dams, and dredging provides a satisfactory tool for deepening riverbeds. Even at the beginning of the 20th century, the Tisza and Dráva rivers experienced

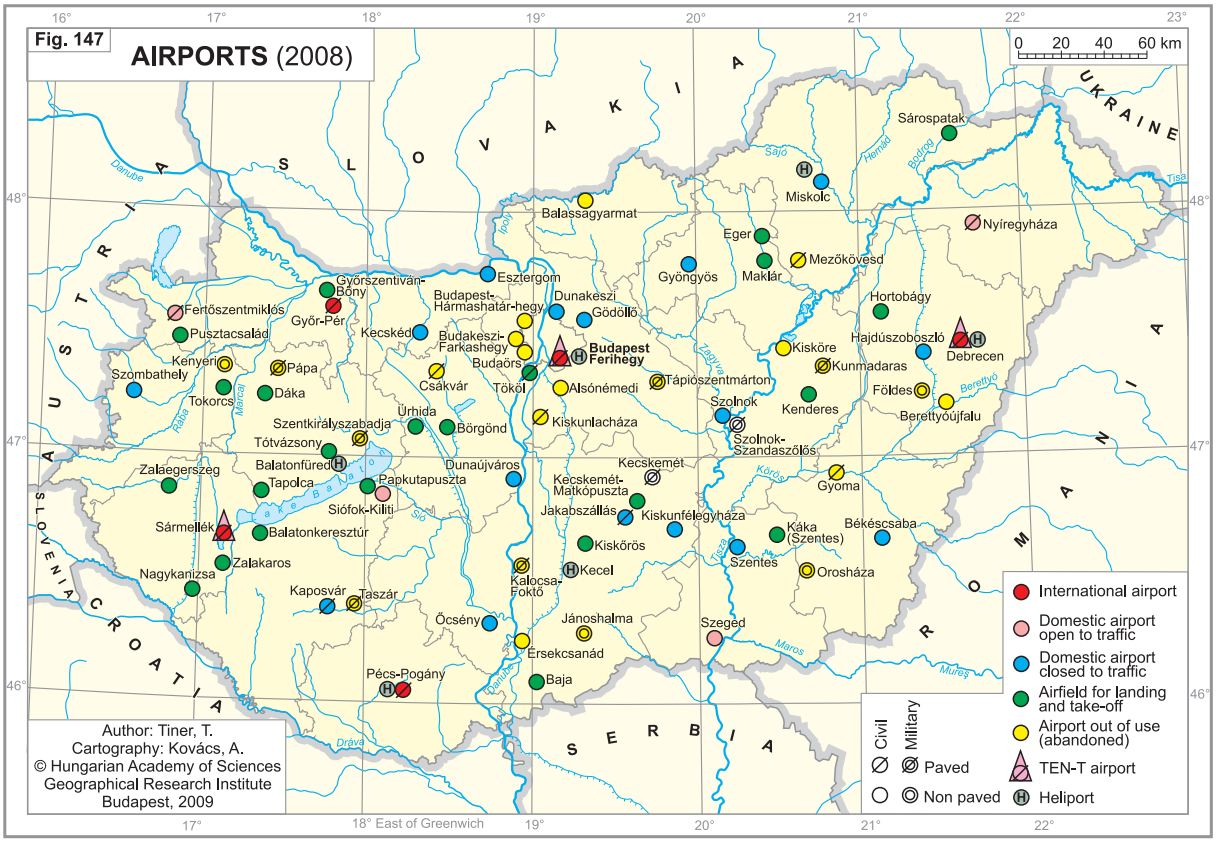


dynamic traffic levels of small vessels; today the Danube is the only river to be regarded as an international waterway (Helsinki corridor VII) suitable for the transit of economic size vessels. With favourable water levels it is navigable by both river and sea vessels (*Figure 146*).

Today, Hungary's merchant fleet has only a fraction of the vessels it used to possess in the 1950. There is a great lack of modern, self-propelled barges that are suitable for reaching the Rhine through the Danube-Main canal. Most of the fleet in operation is outdated.

Turning to ***air transport***, with regards to the ground infrastructure of civilian airports, Budapest Ferihegy stands out, with its three passenger terminals. The civilian airports of Sármellék (Balaton Airport) in Transdanubia and that of Debrecen in the Tiszántúl region, were founded by converting former military airfields, in order to make them suitable for civil aviation. Because of the shortness of their concrete runways, Pécs and Győr airports





are suitable only for operating low volume passenger flights. The operators of the larger airports are foreign (German, Irish and British) companies. Most of the airfields in the country are grass-covered, thus can only be used for lightweight civil aircraft and agricultural crop-spraying purposes. Only a handful of the former military airports were involved in civilian air traffic, so there are only three TEN-T airports from which scheduled flights can depart (*Figure 147*). Hungarian civil passenger aviation is represented by the Russian-owned national flag-carrier, MALÉV. Elderly Soviet-made airliners have been replaced with aircraft manufactured by Boeing and Bombardier.

Traffic

Since the 1980s, the most serious decline has been taken place in the volume of ***rail freight***. There was a slightly smaller decline in ***passenger traffic*** carried by the railways, due to the decrease in the number of commuters which was partly compensated by an increase in leisure and shopping travellers (*tables 36 through 38*). Within the framework of the decreasing domestic part of freight tonnage carried by railways, the share of international freight transport has shown a tendency to grow (87.3% in 2007), as did the average length of journeys (188 km, while for road transport it was 147 km and for water transport it was 263 km). ***Water-based transport*** is modest and stagnating. Of its freight-ton km, transit makes up 65% of volumes, Hungarian exports account for 25%, imports for 9%, and domestic transport is only 1%.

Since the change of regime, the changes in spatial diversification and direction have had dual-effects: in a larger scale it now concentrates on international corridors (because of the increasingly road-oriented national and transit traffic), and also focuses on the connections with western Europe.

Road traffic can be summarised by distinct flows along a north-west–south-east axis,

Table 36. ***Volume of freight traffic (1980–2008)***

Year	10,000 tons	Index (1980 = 100%)	Freight ton kms, million	Index (1980 = 100%)
1980	381,651	100.0	41,870	100.0
1990	230,112	60.3	42,072	100.5
1994	112,303	29.4	15,249	36.4
2000	215,946	56.5	26,398	63.0
2008	343,954	90.1	53,522	127.8

Source: Hungarian Central Statistical Office (www.ksh.hu)

Table 37. ***Volume of passenger traffic (1980–2008)***

Year	Interurban passenger transport				Urban passenger transport			
	Number, million	Index (1980 = 100%)	Passenger kms, million	Index (1980 = 100%)	Number, million	Index (1980 = 100%)	Passenger kms, million	Index (1980 = 100%)
1980	1,001.1	100.0	28,419.6	100.0	2,893.1	100.0	13,733.1	100.0
1990	765.5	76.5	23,783.5	83.7	3,143.8	108.7	12,573.5	91.6
1994	647.5	64.7	19,429.0	68.4	2,653.6	93.2	10,410.9	78.3
2000	735.1	73.5	25,393.0	89.4	2,468.6	85.3	9,757.0	71.0
2008	691.1	69.0	25,989.0	91.4	2,123.8	73.4	8,587.0	62.5

Source: Hungarian Central Statistical Office (www.ksh.hu)

Table 38. ***Modal split in freight traffic by transport type (1990–2008)***

Type of transport	By weight of transported goods				By freight ton kms			
	1990	1994	2000	2008	1990	1994	2000	2008
Railway	43.4	43.0	23.2	15.0	40.9	50.5	30.6	18.4
Road	45.3	36.4	65.9	75.1	11.9	17.3	50.5	66.8
Waterway	1.6	1.5	1.1	2.6	35.9	5.2	3.4	4.2
Air	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1
Pipeline	9.7	19.1	9.8	7.3	11.3	26.9	15.2	10.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Hungarian Central Statistical Office (www.ksh.hu)

as well along a north-east–south-west corridor, with a fairly high proportion being transit traffic. In addition, there are flows from the north-eastern part of the country and in Transdanubia, in a north–south direction.

Due to the continuous decline in the railways, ***passenger transport*** is now focused on two types of service: the daily commuter services operating in the Budapest agglomeration zone (with a radius of 50–70 km from the city centre) and the scheduled IC (Intercity) train services. Due to the latter type of service, the average distances travelled have increased since 1990, yet international volumes have declined to one quarter as a result of cheaper bus fares, low-cost airlines and the increase in passenger car traffic.

Of the high quality railway services, EC (Eurocity) connects Budapest only with cities in the western part of Europe, EN (Euronight) travels to the West Balkans, Italy and Romania, while international ICs go to and from Austria, Slovakia, Ukraine, Romania, and Serbia. Euroregio trains only serve Austria, while the destinations of inland IC trains which depart from Budapest are Hungarian county seats (*Figure 145*).

The corridor from West Europe to Budapest, via Vienna in Austria, is the most intensely used by all means of transport. In ***international air traffic***, most planes fly through these corridors as well – departing in the direction of Vienna – towards West Europe. From Budapest, flights depart to 75 destinations, out of which connections are the most frequent with London, Paris, Frankfurt and Rome, partly served by low-cost carriers (*Figure 148*). The number of flights to other parts of the world are limited, although of note is the direct connection between Budapest and New York, Fort Lauderdale and Beijing.