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The change of the urban network along the middle and lower Danube during transition

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Abstract

The economy and urban development of the riparian regions have been partly determined by the Danube as an inland navigation line (e.g. Dunaújváros, Smederovo, Lom, Calaraşi etc.), or the economy of these towns has been based on the other features of the river (e.g. Komárom/Komarno, Nyergesújfalu, Paks, Orsova, Vidin, Kozloduy etc.). In the aftermaths of the collapse of the communist regimes and the Soviet Union and the blockade of the traffic due to the crisis of ex-Yugoslavia, the role of the Danubian transport line was changed radically (Hardi 2012). Due to these changes and the emergence of the new economy, the function and situation of these towns transformed in the last two decades. Some of them could use the new possibilities, but many of them lost their economic basis and population, becoming a peripheral region or town. Our paper gives a comparative study about the features of the Danube towns, and characterizes the typical development ways of the riparian towns. The present study summarizes the experiences of an academic exchange programme among Romanian, Bulgarian and Hungarian institutions.

Keywords: *the Danube, urban development, town-network, spatial development*

Rezumat. Schimbări în reţeaua urbană de-a lungul sectorului mijlociu şi inferior al Dunării în perioada de tranziţie
Economia şi dezvoltarea oraşelor din regiunile riverane Dunării au fost parţial determinaeă de fluviu, prin funcţia portuară pe care acesta le-a imprimat-o (ex. Dunaújváros, Smederevo, Lom, Călăraşi etc.) sau prin alte caracteristici ale fluviului (ex. Komárom/Komarno, Nyegesúfalu, Paks, Orşova, Vidin, Kozlodui etc.). In urma prăbuşirii Uniunii Sovietice şi a sistemelor politice comuniste din statele riverane Dunării şi după blocada traficului naval ca urmare a crizei din fosta Iugoslavie, rolul axei dunărene de transport s-a schimbat radical (Hardi 2012). Datorită acestor schimbări şi ca urmare a dezvoltării unor noi sectoare economice, funcţia şi importanţa acestor oraşe s-a modificat considerabil în ultimele două decenii. Unele dintre ele şi-au pierdut baza economică şi au devenit oraşe sau regiuni periferice, altele au folosit sau ar putea folosi noile oportunităţi de dezvoltare. Lucrarea noastră oferă un studiu comparativ al oraşelor dunărene şi evidenţiază modalităţile tipice de dezvoltare a oraşelor riverane Dunării. Ea se rezumă la un program de schimb interacademic între România, Bulgaria şi Ungaria.

Cuvinte-cheie: *Dunărea, dezvoltare urbană, reţea de oraşe, dezvoltare spaţială*

Introduction

The Danube and the cities Characteristic city types evolved along the Danube River, their existence and development being linked to the river. Three characteristic types can be separated: 1) bridge cities that are situated on one bank of the river or on both banks, or in the vicinity of the bank; 2) city pairs that are defense formations along the river that was a border for a long time; and 3) cities created by activities related to the river (Fig. 1). These three characteristics can of course be present at the same time in the same city, and can evolve into each other during the course of development.

Bridge cities. The birth of this city type is linked to the crossing facilities on the river (Mendöl 1963). Crossing opportunities were linked at that time of the start of goods transport to certain easily crossable sections of the rivers (fords, ferry), which could only be used temporarily. Consequently, at these favourable locations, special functions were established for the storage of goods, with a consideration to those times when the river cannot be crossed (ice drift, flood, small water level etc.). This means that they were built right on the river bank or, if that was not suitable for settlement, a little bit farther away from that. These points attracted trade routes, so later the permanent bridges were built there. After the construction of the bridge the established centre continued to develop. Typical cities at the upper and middle reaches of the river are the bridge cities that developed to become regional centres or capital cities. They are junctions of the socio-economic development in all cases.

Their specialty is that they usually were established on one bank of the river, then, after the construction of the bridge, they became two-bank cities either by natural growth or following the integration of smaller settlements on the other side. This type involves the capital cities (Vienna, Bratislava, Budapest, and also Belgrade from the 20th century), and also the riverside regional centres like Ulm, Regensburg, Passau, Linz, Győr, Komárom, Esztergom, Baja, Sombor, Vukovar, Novi Sad and Smederevo. Of course the growth of these cities was affected throughout history by several other factors in addition to the bridge city role. The possibility of crossing in itself only designated their exact location.

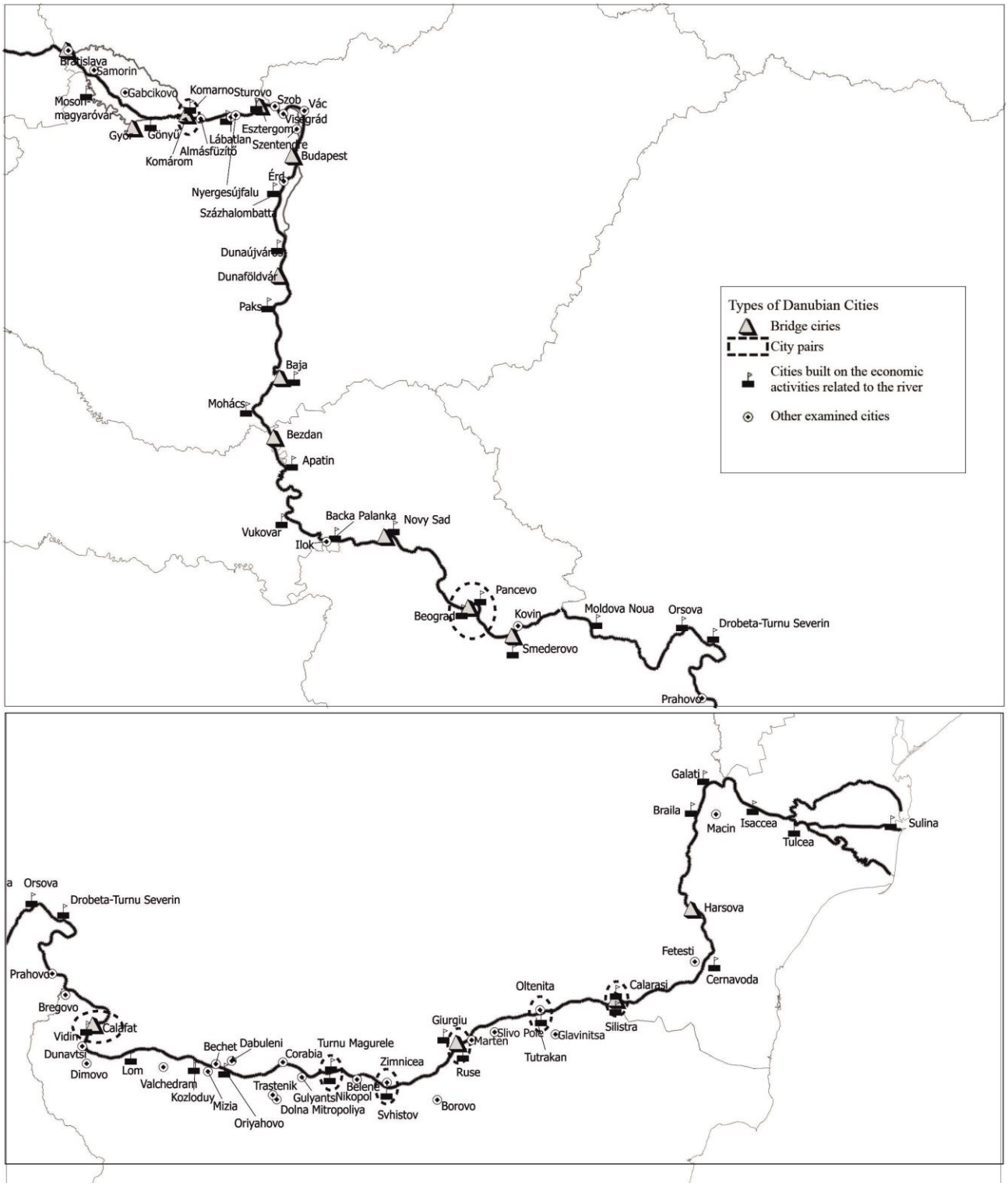

Fig. 1: Danubian city types (Source: Tamás Hardi)

City pairs. On the river sections making borders, the birth of cities opposite to each other on the two banks was typical. These cities were usually border cities and fortresses during their history, and their main function was to control Danubian traffic and the possibility of crossing. Several such city pairs can be found at the lower reaches of the Danube River (Săgeată 2004). Most of the Danubian urban settlements in Bulgaria were founded as fortresses along the higher right (southern) bank of the river. Later, those settlements developed as ports, trading centres and fishing settlements. These towns still develop in a relative isolation from each other, and there exist few socialeconomic relationships between themIndependent of each other, similar economic structures were built out in them (e.g. cellulose

manufacturing). On the basis of the present economic situation of the town, a more intensive cooperation can only be expected in the longer run. The only exception from this is the Giurgiu–Ruse town pair, where the only existing road and railway bridge was constructed in the fifties of the 20th century. The town pair has the chance to become a dynamic common bridge town in the foreground of Bucharest. Another town pair with such potential is Vidin and Calafat, between which the second bridge of the Romanian–Bulgarian Danube section was constructed. The cohesion between these two towns is weaker than in the case of the former pair, but the completion of the large capacity bridge and the related transport corridor may improve the situation. This seems to be a contradiction, on the other hand, to the fact that Vidin is located in one of the poorest regions of Bulgaria (and the whole of the European Union), having suffered a considerable economic decline in the recent years. It is feared that the built corridor will exert the "channel" effect described by Ferenc Erdősi, i.e. traffic will simply rush above them, without having an economic development impact. By the development of water transportation, however, it may become an important logistics centre.Towns built on the economic activities related to the river. This category includes towns serving the management of navigation, which not necessarily and not exclusively entails port functions, but for example traffic junctions determined by geographical endowments. Moldova Veche, Moldova Nouă, Orșova and Turnu Severin at the Lower Danube are such examples. These settlements were traffic points for ships passing through the difficult sections of the river, where they had to wait in case of water levels not suitable for navigation, and these were also the towns where the pilots were obligatory hired for passing through. A similar function was played by Tulcea in the Delta area. An important traffic point on the upper Hungarian reaches is Gönyű, which did not develop into a town because of the vicinity of Győr, but its importance in Danubian navigation far exceeds its size. In Kálmán Tőry's words, it is the "shunting yard" of the Danube River, because the reach upstream from this is hardly navigable, so ships coming from the east with full load were forced to unload or reload to other, smaller vessels. This function strengthened in the 18th century; according to contemporary documents, fishing seemed to be the main occupation at that time. During the 18th, 19th and 20th century, navigation became the main source of living for the settlement (according to the minutes of a church visit in 1748: "There is no major objection to the inhabitants other than the awful swearwords of the Calvinist shipmen"). In the Bačka Region, Bačka Palanka became the centre of cereals transport, despite the fact that it is not located right on the river bank. During the time of industrialisation, several settlements relying on the transport capacity or the industrial water of the Danube River developed; the river typically attracted centres of heavy industry, chemical industry or energy production. We can mention here Linz, Almásfüzitő, Dunaújváros, Paks, Smederevo, Turnu-Severin, Vidin, Lom, Kozloduy, Silistra, Călărași, Cernavoda etc. Untill the end of WW 2 the industry in Bulgaria had manufacture features and the Danubian towns had mainly administrative, cultural and trading centre functions. The industries that were developed by that time were mostly food-processing and textile industries. Ruse was the most industrially developed town with its metal processing, textile, petrochemical industries.

Of course there are transitory or transforming types among these cases as well. An example for this is the Komárom/Komarno town pair that used to have county seat function, on the northern bank of the Danube River (so it was a single-bank town), with a functional foreground on the other bank (Újszőny), and it transformed into a town pair after the drawing of the state border. Also, Novi Sad and Beograd changed from being border cities (city pairs) into two-bank regional centres. There are cities that fit into several categories. Dunaújváros was born as an industrial town capitalizing the fluvial transport of row materials, but now, having a bridge, and a commercial port, it is an important bridge town that is rapidly developing. Industrial and port/traffic functions exist parallel in several towns, too, such as Linz, Smederevo, Lom, Galaţi etc.

These examples clearly show that the urban network developing impact of the Danube River and its impact on spatial development, through the centres, is an existing phenomenon (Gál 2001). These impacts could not only be seen in the past, but these days as well.

The features of the towns of the common Hungarian–Slovak section and of the inner Hungarian section are somewhat different from each other. On the Hungarian Danube section, traditional trading towns evolved, which grew by using the booming demand for cereals in the 19th century. The ports of Mosonmagyaróvár, Győr, Komárom, Budapest, Dunaföldvár, Baja and Mohács all had considerable traffic in the 19th century (Gráfik 2004). Győr and Budapest stood out in this respect. The loads of cereals coming from the Great Hungarian Plain and heading to Vienna had to be reloaded here – because of the breaking of the Danube River into many small branches at the Szigetköz area – to smaller ships, later to railway. Budapest took over the role of being the most important cereals port in the second half of the 19th century. The importance of the cereals ports decreased in the second half of the 19th century

following the building of the railway network; it was especially Győr that lost its significance. The Budapest-centred nature of the Hungarian railway network, on the other hand, made the Hungarian capital city the second most important mill industry centre of the world for a few decades.

The industrialisation of the Danubian areas gained momentum in the last three decades of the 19th century along the upper Hungarian reaches and in Budapest. Győr developed into a significant engineering centre (manufacturing of rail- and later road vehicles, later weapon manufacturing), while the industry of Pozsony (the later Bratislava) and Budapest was developing in more sectors. This founded the birth of the Vienna–Budapest industrial axis that has been an important economic axis of the region since its creation.

Following World War I, the disintegration of the Austria-Hungarian Monarchy and of Hungary had a great negative impact on the economy of these towns, because they lost their markets. In the 1920s, the industrialisation of Győr started again, especially in the field of automotive industry and weapon manufacturing. The port functions of Budapest were appreciated again, as Hungary had lost its only sea port in Fiume (Rijeka). Hungary kept in touch from Budapest with its markets in the East Mediterranean by special river and sea ships travelling on the Danube River of international status (this fleet was in use right until the 1970s), so the Danube River was the only free access of Hungary to the seas. In this period Budapest almost functioned as a sea port.

Industrialization after World War II already concerned Danubian cities that were untouched by the first wave of industrialization. Dunaújváros became a symbol of socialist industrialization, and, similarly, Galati, became a heavy industry centre built on the raw materials transported from the Soviet Union on the Danube River. (It is interesting that the Hungarian leadership first wanted to build this centre at Mohács, a better endowed town, and slightly closer to the raw materials of the Soviet Union, but the worsening of the political relationships of the socialist countries with Yugoslavia in 1948 did not allow an investment of such strategic significance to be made right beside the border.) These were the decades when industrialization took place on the Danube section between Komárom and Esztergom (Lábatlan, Nyergesújfalu), where a new industrial agglomeration emerged on the basis of chemical industry and cement manufacturing. South of Budapest, Százhalombatta became the centre of Hungarian petroleum industry. Southwards, major industrial development along the Danube River in Hungary could only be seen in Paks, the town of the nuclear power plant of Hungary.

The industrialization of the Bulgarian and Romanian Danubian areas began after WW II. The river was used as a transport axis along which water-consuming import-export-depending industries were developed, as well as port services supplying various industries in the hinterland (the interior of the country). Needless to say, the import-export was entirely oriented to COMECON countries. The peak of utilization of the river's transport potential was between 1950 and 1970. From that year on, the river navigation significantly lost its intensity: the short-distance navigation ceased and shortly after that – the passenger lines as well. The main shipment destination was the USSR – an import source for coal, ores, metals, oil and oil products, timber (according to a bilateral agreement for timber logging in the Komi Republic) etc. Pproduction of the food industry and textile (fibre) was mainly exported. Based on imported raw materials, chemical industry, wood-processing and food-processing industries were developed in Ruse, Vidin, Silistra and Lom. The nuclear power plant in Kozloduy and the chemical plants in Vidin (chemical fibres) and Svishtov (chemical fibre) were also located along the river, as well as cellulose and paper-producing plants in Mizia and Silistra (because of huge demand of water of this industry). Along with the enterprises directly connected to the river, machine-building (Vidin, Lom, Ruse, Oryahovo, Marten), metal processing (Ruse, Tutrakan, Silistra etc.), electrocarts (Lom), small vessels building (Tutrakan), textile and apparel industry (Vidin, Lom, Oryahovo, Kozloduy, Ruse, Tutrakan, Silistra) and food-processing (Vidin, Lom, Svishtov, Gulyantsi, Ruse, Slivo Pole, Tutrakan, Silistra) were also developed. The major part of those plants produced for the COMECON countries and also for the domestic market. Most of them were small-scale enterprises and were branches of larger enterprises from the inner regions and therefore with little potential for effective development.

On the Romanian side, the Danube became an axis that attracted different industries: chemistry at Giurgiu, Drobeta-Turnu Severin, Turnu Măgurele, Giurgiu, Brăila and Tulcea; hydro-electrical power stations at Porţile de Fier I and Porţile de Fier II, thermo-electrical power stations at Drobeta-Turnu Severin, Brăila and Galaţi; integrated metallurgical complexes at Galaţi and Călăraşi; nuclear power stations at Cernavodă (Fig. 1). The consequence: ecological problems with cross-border implications caused by northeast and northwest winds, and tenseioning cross-border relationships several times.

The changing role of the Danube during the transition period

Before looking at the change in the situation of the Danubian towns, it is necessary to have an

overview of the transition of the Danubian navigation and trade in the last decades.

Although the density of the ports is evidently higher in the middle reaches of the river, by the weight of their turnover we can say that the spatial focus has been relocated to the section of the river close to the sea. The statistical figures published by Ferenc Erdősi reveal that the role of Budapest, in position one between and after the two world wars, has weakened, both as regards the rank and the volume of transported goods (Table 1). The volume of the goods traffic has decreased everywhere compared to the figures of 1984, except for Galaţi where a slight increase can be seen. Linz has managed to keep its position more or less. Budapest and Bratislava changed their ranks; today it is the capital city of Slovakia that boasts with the most important port of the middle section of the Danube River.

Table 1: Order of the first five or first 10 busiest Danubian ports, 1950, 1955, 1984, 2005

	In 1950 (1000 tonnes)			**In 1955 (1000 tonnes)**	
1	Budapest	2,288	1	Regensburg	2,200
2	Regensburg	1,322	2	Linz	2,000
3	Reni	1,202	3	Belgrade	2,000
4	Linz	1,200	4	Reni	1,800
5	Belgrade	1,075	5	Izmail	1,600

	In 1984 (1000 tonnes)			In 2005 (1000 tonnes)	
1.	Reni	12,275	1.	Galaţi	8,740
2.	Izmail	9,891	2.	Izmail	6,682
3.	Galaţi	8,390	3.	Linz	4,838
4.	Budapest	5,373	4.	Bratislava	2,545
5.	Linz	5,177	5.	Reni	2,242
6.	Bratislava	4,806	6.	Tulcea	2,047
7.	Ruse	4,390	7.	Smederovo	1,993
8.	Giurgiu	3,464	8.	Ruse	1,863
9.	Komarno	3,463	9.	Budapest	1,595

Source: ERDŐSI 2008 p. 123, based on statistics of the Danube Commission

In the 1950s, Budapest was the port city with the biggest turnover on the Danube River (Erdősi 2008), but its role in navigation went on decreasing in the seventies and eighties (Table 2), and finally Budapest port completely lost its former significance in the economy of the country. This decrease was largely the result of the Balkan wars of the 1990s that jeopardized navigation on the Danube River; in fact, NATO bombings in Serbia in 1999 destroyed the bridges in Novi Sad and blocked the navigation channel southwards for a long time. This way, the main direction of the Hungarian shipments were impossible to use.

The nadir of the Danubian navigation was the 1990s. The Yugoslav crisis, the embargo, and then the bombings in Serbia from 1999 blocked and paralyzed the traffic for years, the ruins of the bridges destroyed by bombs and the pontoon bridges established in their stead making navigation towards the Lower Danube impossible or very much problematic.

The opening of the Rhine–Main–Danube Canal also weakened the competitive positions of Hungarian navigation to some extent. Smaller vessels, 500–1,500 tonnes self-navigating ships in family businesses transport on the Danube River, under Western European flags. On the other hand, the volume of shipments has increased, so there is a clearly visible demand for inland navigation in the new millennium.

Table 2: Change of the volume of goods transport on the Danube River, 1950=100%

	1950	1960	1970	1980
Romania	100	209.2	477.2	1453.8
Ukraine	100	295.3	762.1	1,071.3
Bulgaria	100	349.6	1,193.1	1742
Serbia Monten.	100	326.8	909	1459.6
Hungary	100	135.6	260.6	307.5
Slovakia	100	323.3	743.6	624.1
Austria	100	372.5	435	437.4
Germany	100	243.5	300.5	241.3
Total	100	248.8	536	792.5
	1990	**1995**	**2000**	**2005**
Romania	985.2	752.2	676.7	1,129.7
Ukraine	1,227.9	364	251.4	606.8
Bulgaria	789.3	110.8	406.5	630.1
Serbia Monten.	1064		437.9	702.2
Hungary	357.3	86.7	88	146.2
Slovakia	786.4	201.8	142	159.5
Austria	451.5	392.5	517.1	536.5
Germany	214.1			
Total	687.8	232	343.6	510.2

Source: by the authors, based on Donaukommission 2008

Today, there are several ships navigating on the Danube River, that do not belong to the Danubian states. The opening of the Rhine–Main–Danube Canal allowed Western European companies to transport in the international competition, so we do not have a concise picture of the whole stock of ships navigating on the whole of the river. Under the flags of Danubian states (Table 3) there was a Danubian fleet of a total of 3,916 ship units, out of which 427 self-navigating motor vessels, 300 tow-boats, 418 pusher barges, 855 trailed barges and 1,916 pushed barges in 2009. These figures have slightly increased in the recent years, but still lag

significantly below the level of the 1980s, when a total of 4,675 ships navigated on the Danube River under flags of Danubian states. It is interesting that the number of ships decreased compared to the situation three decades ago, but their transport capacity did not. Their carrying capacity was 3.8 million tons in 2009, which is slightly over the figure of 1980 (we have to admit, on the other hand, that the recent figures do not contain the values of the Austrian and German fleet).

Table 3: Fleets of the Danubian states

	1962		1980		2000	
	Number of units (pcs)	Carrying capacity (tonnes)	Number of units (pcs)	Carrying capacity (tonnes)	Number of units (pcs)	Carrying capacity (tonnes)
Romania	353	259,018	1,484	918,591	2097	1,777,939
Ukraine	436	386,440	653	932,314	616	809,134
Bulgaria	100	68,822	316	323,936	303	325,754
Serbia	1,188	430,374	1,244	761,282	681	579,358
Croatia					190	99,616
Hungary	429	206,023	460	299,348	182	196,624
Slovakia	298	124,054	223	218,948	257	347,370
Austria	167	226,046	214	195,790	190	232,403
Germany	171	106,391	81	48,931		

	2005		2009	
	Number of units (pcs)	Carrying capacity (tonnes)	Number of units (pcs)	Carrying capacity (tonnes)
Romania	1,287	1,526,432	1,412	1,613,931
Ukraine	678	987,412	679	959,880
Bulgaria	280	315,703	303	347,678
Serbia	622	539,968	571	503,955
Croatia	188	86,866	203	95,805
Hungary	532		481	
Slovakia	267	305,341	213	237,679
Austria	n.d.	n.d.	n.d.	n.d.
Germany.	n.d.	n.d.	n.d.	n.d.

Source: by the authors, based on Donaukommission 2008 and 2010

The most important change for the towns can be seen in the transformation of the traffic. The most important destination is not the industry of the Danubian towns any longer; it is mainly transit traffic that shows an increase. It means that the role of the Danube River is strengthening again, but mostly as an eastern gateway of the EU and not as an internal economic link.

The changing features of the Danubian towns (1989–2010)

As regards the Danube towns in the Hungarian section, we can see a sort of renewal after the systemic change that has compensated the decline of the former industry. The most successful cities of today's Hungary are situated on the bank of the Danube River, although their present development has little to do with the river or navigation. The structural changes concomitant with the systemic change shocked these towns only temporarily.

Budapest as the capital city of Hungary has had the most significant capital absorption capacity in the new economic system. It experienced the systemic change with a relatively competitive economic structure, anyway, so the capital city can consider itself as the biggest winner of the transformations. A strong suburbanization process started around the capital city, and although Budapest lost some of its population, its environment increased considerably. In the suburban zone, the number of the population in Danubian towns (Vác, Visegrád, Érd) and villages increased, due to their touristic and high prestige residential functions. The traditional economic centres (Győr, Komárom, Esztergom) became the most important Hungarian destinations of foreign direct investments on the basis of automotive industry and electronics (AUDI, Suzuki, Nokia). Győr has reached again its historical position; it has become the second most important industrial city of Hungary, after Budapest. Downstream of Budapest, the centres of energetics sector are still flourishing (Százhalombatta, Paks). Dunaújváros as a typical socialist heavy industry centre has found its place in the new system as well, unlike many of its Hungarian and foreign counterparts. Today there is a large capacity motorway bridge across the Danube at Dunaújváros, as part of a would-be east–west motorway. This is a transport element of basic significance for the Hungarian spatial structure divided by the Danube River, which has improved by far the transport situation of Dunaújváros. The proximity to Budapest and its function as a new transport centre make Dunaújváros one of the most dynamic points of Hungary. South of Dunaújváros, however, right to the border with Serbia the economic possibilities of the Danube towns have worsened. The construction of the new bridge decreased the role of the typical bridge towns (Dunaföldvár, Baja). A significant economic power south of Dunaújváros is represented by the nuclear power plant of Paks, only.

An interesting part of the restructuring process is the fact that former industrial towns on the Danube River (Győr and Dunaújváros) have become higher education centres by now. These cities had no such function before, but now they are among the most important university centres in countryside Hungary.

Following the structural changes that took place after 1989, the economic evolution of settlements in the Romanian sector of the Danube took up a negative course. The causes behind this process are:

- the general decline of the Romanian economy, with direct effects on the depleted volume of goods transited on the Danube and the industrial production capacity of units located in industrial-harbour centres;
- the disintegration of COMECOM resulting in the loss of some important markets, a situation that affected especially the export-oriented industrial branches, mainly metallurgy;

- the dramatic decrease of investments in industry that hindered the development and modernization of this sector, and maintained low labour productivity levels; and
- the intensification of environmental protection that was a pressure element for the polluting industries (chemistry, metallurgy), forcing them to limit production in order to respect acceptable pollution standards.

The slowdown of industrial activity in the area also reduced river traffic, as did the war that broke out in the former Yugoslavia and the embargo that followed it. Thus, both the quantity of goods and the distances covered decreased in the Novi Sad sector of the Danube, where bombarded bridges blocked navigation.

The Danube facilitates the communication between the main economic systems, with border areas becoming dynamic points of convergence of the free economy. The analyzed space, although it greatly transformed during the last decades of the 20th century, is extremely rural, urban areas being fewer and scattered. The share of the active population and its professional structure shows employment to stand between 29% and 76%, but most of the times the percentage is lower than the all-country average value, with the lowest values in the highly rural countryside. Moreover, the low percentage of industrial population in the village areas supports this assertion.

Taking into account the structure of the active population, some functional types of settlements in terms of development and location can be outlined:
- ship-building: Orşova–Turnu Severin, Giurgiu, Oltenița, Galați, Brăila and Tulcea;
- iron and steel industry: Zimnicea, Călărași and Galați;
- chemical industry: Turnu Măgurele, Oltenița and Tulcea;
- agriculture.

With the change of the socio-economic system after 1989, the structural reform of the Bulgarian economy began. All economic shortcomings that were accumulated in previous periods quickly showed up. Therefore, a reassessment of the current specialization and of the scale of production had to be made; new, high-tech, market-oriented, innovative productions had to be launched. Many enterprises were shut down because of their low economic effectiveness. The main reason for that, as mentioned above, was the fact that most of those enterprises were branches of various state-owned enterprises. The activity of those branch-firms was not in accordance with the local potential and the local resources, another problem was the underassessment of the existing infrastructure etc. Therefore, all those small enterprises were supported by state subsidies. Their closure, however, played a negative role in the braking of the connections that used to exist within COMECON (the cooperative production, the so-called socialist division of labour, trade exchange etc.), while the USSR practically closed its market for Bulgarian products. Thus, in the years following 1990, the transport potential of the Danube River is not utilized on a full-scale.

Another negative factor is that the Danube River represents a border and as such forms a relative isolation and hinders the overall development of the Danubian urban settlements in Bulgaria. Their economic degradation during the years of transition has lead to population outflow and population number decrease (Fig. 2).

The economic activeness coefficient (ratio between work force and the population aged 15 + years) in the Danubian districts is higher than the national average: 53.6% as opposed to 52.1%. However, because of population ageing, the coefficient has very low values in some of the towns in the discussed area, such as Dunavtsi (22.3%), Slivo Pole (37.1%), Trasrenik (37.1%), Gulyantsi (38.8%) and Bregovo (39.2%). The relative share of the employed persons in the Danubian towns is 85% – i.e. practically the same as the national average, which is 85.1%. That share is lower in Nikopol, Dolna Mitropoliya, Glavinitsa, Valchedram, Gulyantsi and Lom, which are basically located in areas with less developed industry and are mainly agricultural.

The employment coefficient (ratio between the number of employed and the number of the population aged 15 + years) in the Danubian cities is 45.5%, which is by 1 percentage point higher than the national average – 44.4%. In towns such as Dunavtsi, Gulyantsi and Nikopol, the coefficient has very low values, while in towns with better economic profiles such as Kozloduy, Ruse, Silistra, Vidin, Tutrakan and Marten, the employment coefficient reaches the highest values in the Danubian region.

Case study: oversized industrial development and urban space organization in Galaţi

In 1961, the construction of the biggest iron and steel works started in Romania, in line with the most modern ones in Europe at that time. It was a typical Soviet-type specimen of industrial mammoth, belonging to the second generation of profile works built on empty space like Nowa Huta (Poland), or some of the Ukrainian ones. Just like at Nowa Huta, its technology dates to the 1960s and 1970s, employing 42,7000 people in 2001 and 16,500 in 2008. Similar industrial units were at Košice (Slovakia), Eisenhüttenstadt (the former GDR) and Kremcikovi, west of Sofia (Bulgaria), of much lower capacity than the Galaţi one.

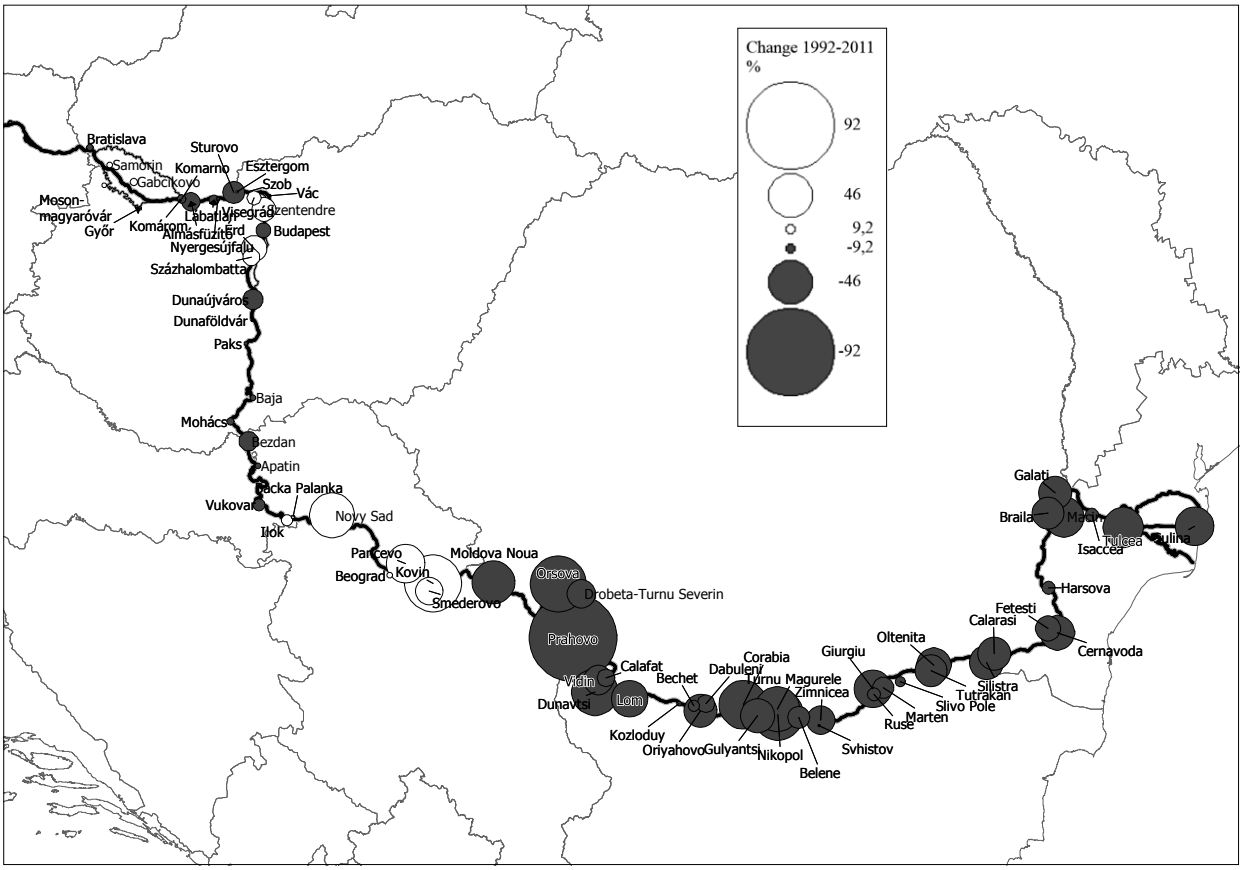

Fig.2. The population change of the Danubian cities during the last two decades

Sources: by the authors, map: by Hardi

As political and economic subordination to Moscow was growing, the Romanian leadership decided to build a big iron and steel works in order to supply the Romanian machine-building industry with raw materials and also have export availabilities. The new investment had to be located in a port town having the infrastructure and conditions to convey huge quantities of raw materials and semi fabs. Furthermore, relations with the COMECOM implied massive long-term imports of iron ore from Krivoy Rog and coke coal from the Donets Basin (Ukraine). So the location had to be as much as possible in a big port town at the maritime Danube. Since the town already had an industrial profile (a big ship-yard and some rolling stock repair shops, as well as other machine building units which required great quantities of plate and other structural shapes), Galaţi was considered an optimal site for this investment; moreover, since it was a regional centre, it was assumed that it could polarise a large geographical area, including the present counties of Galaţi, Brăila, Vrancea and the eastern half of Tulcea.

Thus, the building of the biggest industrial unit in Romania was really a turning point in the history of Galaţi, a town with 107,248 inhabitants in 1961 (12th rank in the urban hierarchy). The steady enlargement of the Works with a 40,000 workforce in 1989-1990, had an overreaching importance for the town's demographic evolution and the dynamics of its housing stock.

As the town's population trebled in a lapse of only 30 years, its built-up perimeter suffered major disturbances, especially the western half of the town (Mazepa, Ţiglina, Aeroport, Dunărea, Siderurgiştilor, Micro 17, Aurel Vlaicu, etc.) where new apartment-block districts were established.

Against the background of an economic slowdown at national scale, the steep demographic decline of large cities like Braşov and Cluj-Napoca made Galaţi mount two seats in the urban hierarchy during 1990-1993 period. The first massive lay-offs took place in 1999 (Government Order 98), redundancies affecting 3,456 workers, the majority of whom were skilled labourers, with little retraining opportunities, e.g.: locksmiths – 22.3% out of all laid-off (769 people); electricians – 10.2%; carbon producers – 7.7%; cutters, welders – 5.8%; crane operators – 5.1%, whereas lay-offs in the administrative and financial-accountancy sectors was

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really insignificant. At the same time, the closing down of some inefficient units (battery 8 of the coke chemical unit) and the imminent prospect of the spare parts and Iron and Steel Repair Plant (UPSRS) to be segregated from the Works production flux made most of the workforce of these two units redundant. As a result, the flow of commuters from the country's rural area was diminished.

In November 2001 the privatisation contract was signed, LNM Holdings BV, a Company of the LNM Anglo-Indian group, the fourth biggest steel producer in the world, buying it. Striving to make the activity efficient and in the wake of EU negotiations on the competition chapter, redundancies went on. In 2004, the Company continued to be the leader among top private companies in Romania, with a turnover of 1.08 billion USD, the production increased from 3.7 million tons of steel in 2001 to 4.6 million in 2004, exporting about 66% of its output. In 2007 the Iron and Steel works in Galaţi produced 4.4 million tons of fluid steel, contributed by 1.33% to the GDP and was the country's major exporter (3.8% of the overall export volume).

The economic-financial recession which began in mid 2008 severely affected Romania's iron and steel sector, part of the installations being disconnected as demand in Europe's markets fell and technological unemployment would hit, by rotation, all its 12,500 employees.

The Iron and Steel works play a major role in the activity of the other industrial units of Galaţi: e.g. the Damen Shipyard and the Massive Plate Rolling Mill depend directly on the Sidex by-products, the Ore Sorting Station being its main supplier. It follows that the industrial evolution of the eastern city zone (port activities and shipyard) is intimately related to the Sidex raw material supply. As of April 1994, the existing infrastructure allowed for the Galaţi Free Zone commercial and warehouse profile, with two platforms totalling 135.98 hectares, to come into being (Fig. 3).

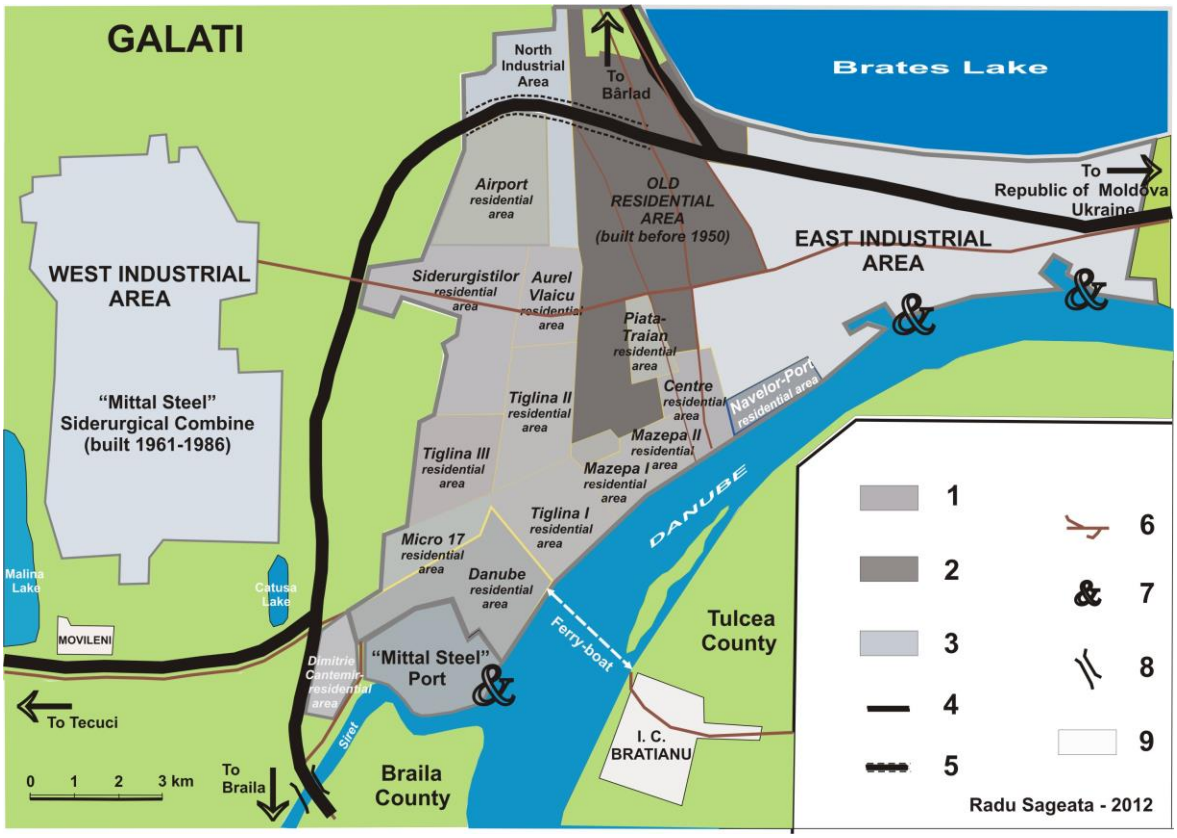

Fig. 3. Galaţi. Iron-and-Steel Works and its impact on the residential area

1. New residential area, 2. Old residential area, 3. Industrial areas, 4. Railway, 5. Railway tunnel, 6. Street network, 7. Harbours, 8. Bridges, 9. Rural settlements. Source: Radu Săgeată

Experiences

The Danube towns have undergone a fundamental transition in the last decades. We could see the birth of a row of industrial towns during the years of socialism, built on the Danube River as a transport corridor. The river had a dominant role in the shipment of raw materials, connecting the economy of the Southeast European and Central European areas to the Soviet (Eastern European) region. These towns had to face a triple problem after the systemic change:

- the structural crisis of heavy industry,
- the general economic decline of the Central European and Southeast European states, and
- the disintegration of the Eastern European space, the Soviet Union.

The situation was only slightly worsened by the fact that the Yugoslav crisis resulted in a physical and political blocking of navigation as well. The combined effect of all these factors was that all the towns, with few exceptions, faced serious difficulties and their economy and population showed a downward tendency.

The change in the number of population is a very good indicator showing that those towns were capable of economic development and thereby keeping or increasing their population; they were

- situated in traditional industrial zones with favourable geographical position (Győr, Komárom, Esztergom, Novi Sad, Smederovo), or
- at high level of the urban hierarchy (capital cities or towns located in the agglomeration of capital cities– Samorin, Gabcikovo, Budapest, Belgrade, Pančevo).

In our opinion, in the future, urban economic development connected to the Danube River will take place in those areas where the transport points suitable for new transit functions can be found. These are primarily the big port towns of the Delta area and their agglomerations (Braila, Galaţi), and also the major reloading points and multimodal ports under development. Those Danube towns where modern economy can be located on water have also a good chance. This is especially possible in the energetics sector, where water is either the energy carrier itself of where the raw materials of energy production are transported on water (e.g. bio-fuels), or where a larger amount of industrial water is necessary for production (traditional power plants). A supplementary activity to all these may be tourism, with different character by Danubian sections and settlement types, and whose main task (in addition to income generation) is in the strengthening of the identity.

Our paper analyzed the Danube-related development of towns at the middle and the lower reaches of the Danube River, and their transformation over the last decades. We can see that this development gained momentum in the second half of the 20th century, but now we can witness a major decline. Many towns have already managed to break out of this decline, but this recovery was only indirectly due to the Danube River. We cannot say that this will not change in the future. Transit shipments, energetics and tourism may rearrange the characteristics of the system of Danubian towns, but this development is in its infancy for the time being. This may be the point where the development policy of the European Union can contribute to the revitalization of these cities.

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Factorial analysis of the territorial disparities on the southern part of the Romanian – Hungarian border

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Abstract

During the socialist era along the Hungarian-Romanian border region there emerged a significant developmental gap which separated a relative more advanced Hungarian side from a backward Romanian one. Using a quantitative methodology, we try to identify territorial disparities of these times on a lower spatial scale – namely on the level of communes – in order to highlight the presumably lagging-behind status of a narrower border strip. According to our hypothesis, this peripheral strip has a disadvantageous status mainly because its increased isolation. The factorial analysis confirmed this fact on the Hungarian side, however it was disproved on the Romanian side because the presence of the large cities and basic infrastructure networks on the proximity of the border. Thus, the paper underlines empirically former conception related to the geographical periphery regions along the border line.

Keywords: *Hungarian-Romanian border region, factorial analysis, social periphery, positional periphery*

Rezumat. Analiza factorială a disparităţilor teritoriale din partea sudică a graniţei româno-maghiare

În perioada socialistă de-a lungul frontierei ungaro-române s-a instalat un clivaj economic evident ce a despărţit o regiune relativ mai dezvoltată pe partea ungară de una mai înapoiată pe partea română. Utilizând o metodologie cvantitativă am încercat săidentificăm disparităţi socio-economice din perioada contemporană pe o scară spaţială inferioară – şi anume la nivel comunal – pentru a scoate în evidenţă un statut presupus de înapoiere a fâşiei de frontieră. Conform ipotezei noastre, acestă fâşie are un statut dezavantajat în urma poziţiei periferice. Analiza factorială a confirmat această ipoteză pe partea ungară a fâşiei transfrontaliere, în timp ce pe partea română nu s-a adeverit datorită prezenţei reţelei de aşezări urbane însemnate şi a infrastructurii lineare de mare importanţă. În consecinţă, studiul sublinieză şi demonstrează din nou validitatea concluziilor anterioare ale studiilor transfrontaliere, conform cărora poziţionarea lor periferică în cele mai multe cazuri le dezavantajează sub forme multiple.

Cuvinte-cheie: *regiunea transfrontalieră româno-ungară, analiză factorială, periferie socială, periferie poziţională*

Introduction

The present study examines the level of complex socio – economic development on the southern part of the Romanian – Hungarian border, trying to determine how the presence and vicinity of the border influences spatial patterns of development, generally. We tried to create dimensions form the indicators which, according to Nemes Nagy József can express the level of "economic health" (Nemes Nagy, 1995). Our study focuses of the neighbouring counties in the southern part of the border region, that is Békés and Csongrád counties in Hungary and Timiş and Arad counties in Romania; we used the indicators determining development in these counties as a starting point. In the recent past the border studies regarding to the Hungarian-Romanian border zone were predominantly one-dimensional descriptions, trying to depict the socio-peripheral status of this kind of regions using separately some relevant variables. In this paper we used a quantitative method for testing the validity of the supposition, that the proximity of the border can influence in a negative way the territorial disparities. In the same time we tested the more conclusive explanatory force of this comprehensive method in pointing out these asymmetries.

Method

Expressing territorial disparities of development by factorial analysis is not a new method in territorial studies. Methods with multiple variables and multiple dimensions as well as data reduction have frequently been used when describing the spatial parameters of the two countries (Romania and Hungary), although the analysis of the border regions has not been so much in the centre of attention.

In the Romanian specialist literature the country and county level analyses were in the centre of attention. Voineagu outlined the territorial division based mainly on the achievements of the small and medium enterprises, but he did not conduct any analysis on the sub-regional administrative level (Voineagu et. al. 2002). According to these analyses, the two Romanian counties of our study fell into the category of those which had an economical growth higher than the average of the country. Kurkó (2010) also conducted county level analyses during the territorial analysis work, and the two studied counties (Timiş and Arad) ranked in top

positions in the different dimensions described (general development, employment, infrastructure, demographic conditions).

In the Hungarian specialist literature the territorial analysis with a single variant used by Süli – Zakar pointed out the underdevelopment of the northern Hungarian regions, among which mainly the peripheral character of the border zone in more aspects (Süli – Zakar, 1992, 1996, Süli-Zakar & Beres, 1993). Pénzes and Molnár (2007, 2008) also discuss the "dead-end"-like development and the limited possibilities of development for the agglomerations between neighboring county centers, mostly with a one-dimension character.

In the case of country analyses, Nemes Nagy József and Faluvégi Albert conducted studies on the micro-region level, which showed the border region of our study as the loser of the economic transition, as falling behind or stagnating micro – regions (Mezőkovácsházai, Szeghalomi, Sarkadi, Mórahalmi). Only the Szeged micro-region appeared to be an exception which, due to the vicinity of the big city, was developing, whereas Makó was catching up. (Faluvégi, 2000). The study conducted by Nemes – Nagy, similarly to that conducted by Faluvégi, outlined the countries NW – SE line of economic division, in the Romanian border region of the Dél-Alföld. This is the so-called BB (Békés – Balassagyarmat) line which more or less overlaps with the SS line (Sarkad – Szécsény) of Beluszky Pál (Nemes Nagy, 1995, 1999).

Our study wants to support these antecedents, which pointed out the disadvantages of being a border line region on the Hungarian side, with a multi-dimensional empirical demonstration. We would like to use this method as well to prove for the Romanian side the hypothesis according to which along the triple border zone, the so called "trium confinium" helps the overlapping of the geographical and social peripheries, while in the Arad and Békés part, the Romanian side is in a more advantageous position than the inner peripheral zones of the hilly and mountainous areas, due to the fact that the cities and the main infrastructural flow axes are positioned here. The same hypothesis was proved in the case of the northern part of the Romanian – Hungarian borderline in our previous studies (Nagy, 2011). In the same time we wanted to confront the factorial analysis with the results of the previous one-dimensional studies as well.

The factorial analysis was carried out separately for the Romanian and the Hungarian counties (with the SPSS software), because, aside from the demographical indicator, the economic variables of the two counties cannot be compared as they were determined using different statistical methods. The methodological background of the two demographical indicators, illiteracy and education, is also very different in the case of the two countries' statistical institutes. Unfortunately, due to this fact we could not analyze the two regions uniformly, but we were able to outline regions with different level of development and also to study if the presence of the border has any influence on the socio-economic development of the sub-regions. The aim is not to have a comparison between counties but to establish the effect of the borderline on territorial structure.

The Socio-Economic Effect of the Border`s Proximity on Romanian side of the Border Strip

A basic condition of the factorial analysis, which was fulfilled in the present study, is to have more study cases than the number of variables (in the case of the Romanian counties we analyzed 18 variables for 176 settlements, and on the Hungarian side we analyzed 25 variables for 135 settlements). The variables are partly the same, mainly the economical ones differ.

The variables taken into consideration on the Romanian side (Table 1) were:
- average infant death rate 2000 – 2007, for 1000 births
- average population increase 2000 – 2007 ‰
- average number of births 2000 – 2007 ‰
- average number of deaths 2000 – 2007 ‰
- average number of immigrants 2000 – 2007 ‰
- average number of emigrants 2000 – 2007 ‰
- average migration difference 2000 – 2007 ‰
- water supply infrastructure %, 2002
- sewage infrastructure %, 2002
- gas infrastructure %, 2002
- 0 – 14 year old, 2010 %
- 15 – 59 year old, 2010 %
- > 60 year old, 2010 %
- relative unemployment %
- income 2009, RON/capita
- profit 2009, RON/capita
- university studies % 2002
- illiterate %, 2002

The variables taken into account on the Hungarian side (Table 5) were:
- average immigration 2000 – 2007 ‰
- average emigration 2000 – 2007 ‰
- average migration difference 2000 - 2007‰
- average birth rate 2000 – 2007 ‰
- average death rate 2000 - 2007‰
- average population increase 2000 – 2007 ‰
- average infant mortality rate 2000 – 2007‰, for 1000 births
- 0 -14 year old, 2007%
- 15 – 59 year old, 2007 %
- > 60 year olds, 2007 %
- relative unemployment %
- rate of taxpayers from entire population %

- gas infrastructure, % of households, 2009
- sewage system, % of households, 2009
- water supply, % of households, 2009
- college, university graduates %, 2003
- illiterate %, 2003
- capital stock 2008 (thousand Ft/ capita)
- result before paying tax 2008, (thousand Ft/capita)
- net income of sales 2008, (thousand Ft/ capita)
- net income of exports 2008, (thousand Ft/ capita)
- total personal income tax 2007/capita
- employed in the primary sector %, 2001
- employed in the secondary sector % 2001
- employed in the tertiary sector % 2001

Both in the study of the Romanian and the Hungarian counties we tried for the analysis of decomposition for the main component, but the great number of variables produced several factors in the end, thus giving us the possibility to analyze development levels from more points of view. We did not manage to come up with such a component that would explain the variations with a suitably high value. Thus it is obvious that there is no such component neither on the Romanian, nor on the Hungarian side that would express development level clearly; development is expressed using certain demographical and economical dimensions, and within these components, the scores make a difference between settlements in a more advantageous situation and settlements in a more disadvantageous one. We determined the intensity relevant for the communalities in three categories, going from higher scores to lower ones. In the same time, in contrast with our expectations the presence of the county capital in the database did not have a biasing effect, did not homogenize the space outside them, that is why we did not take them out form the list.

In the case of the Romanian counties, because of the high commonality of the majority of variables we decided to keep all the studied variables, even those which fit less. The great number of high values in the correlation matrix showed that the factorial analysis was feasible.

As a result we got three factors, the first explained a quarter of the variants, whereas all the three explained three fifths of the variants (Table 2).

The first factor showed a strong positive correlation with the natural population increase, the active and highly qualified population (Table 3) (Fig. 1), thus we considered it as a dimension characterizing human resources, representing stability. In the same time, because it also strongly correlates with the public utilities infrastructure and the income indicator, as well as it has a negative correlation with unemployment, this is the only component where we dared use the term "developed" in relation with the general state of the economy.

The second factor is the dimension presenting good public service infrastructure, ageing, highly qualified population, characteristic for more urbanized territories, which received substantial infrastructure investments in the last years (Fig. 2).

Table 1: The values of the communalities in the Romanian counties

Variables	Initial	Extraction
Average infant mortality for 1000 live births, 2000-2007	1	0,095
Average natural population increase 2000-2007 ‰	1	0,938
Average number of births 2000-2007 ‰	1	0,736
Average number of deaths 2000-2007 ‰	1	0,771
Average number of immigrants 2000-2007 ‰	1	0,886
Average number of emigrants 2000-2007 ‰	1	0,406
Average migrational difference 2000-2007 ‰	1	0,759
Water supply system %, 2002	1	0,742
Sewage system %, 2002	1	0,742
Gas %, 2002	1	0,615
0-14 year olds, 2010 %	1	0,778
15-59 year olds, 2010 %	1	0,685
>60 year olds , 2010 %	1	0,911
Average rate of unemployment %	1	0,084
Income 2009, RON/capita	1	0,482
net profit 2009, RON/capita	1	0,024
Superior education %, 2002	1	0,698
Illiterate %, 2002	1	0,173

Source: own calculation

Table 2: The total variance explained by the components on the Romanian side of the territory

Component	% of the variance explained	Cumulative %
1	27,69543	27,69543
2	18,98235	46,67778
3	11,78388	58,46166

Source: own calculation

The third factor correlates positively mainly with the migrational indicators, but it correlates positively with most of the demographic indicators, thus reflects a balanced demographic background (Fig. 3, Table 3). It does not show strong correlation with the indicators of infrastructure and education and it has a slight positive correlation with the economic indicators, thus in this respect we notice a balanced situation. The Gipsy and the social groups with deviant behavior on the periphery of society can also be present due to their close relation with infant mortality, young population, number of births and emigration; these communities consider these urban or rural settlements as existential "asylums".

The first component is probably the one to best describe the development, highlighting the urban centres, it appears in a wide, coherent area around the county capitals. The western and central parts of the area are in an advantageous situation whereas in the eastern area only the urban centres excel with higher scores.

The high values of the second component appear, as it is expected, in the more developed urban settlements as well as in those rural regions

which are peripheral from the geographical and demographical point of view, but due to infrastructure investments they are in a better situation (in Arad County the upper, mountainous part of the Fehér-Körös river, as well as the Maros gorge). On the opposite side there are the villages with an obvious agrarian character which demographically are growing at a faster pace.

Table 3: The matrix of the components for the Romanian counties

	1. Stable demographic and workforce background with developed public service infrastructure and economy	2. Good public utilities infrastructure, ageing, qualified population, urbanized	3. Balanced situation from the demographical and economical point of view
Average infant mortality for 1000 live births, 2000-2007	-0,178	-0,033	0,249
Average natural population increase 2000-2007 ‰	0,743	-0,612	0,106
Average number of births 2000-2007 ‰	0,290	-0,709	0,387
Average number of deaths 2000-2007 ‰	-0,799	0,345	0,116
Average immigrants 2000-2007 ‰	-0,097	0,286	0,892
Average emigrants 2000-2007 ‰	-0,374	0,292	0,425
Average migrational difference 2000-2007 ‰	-0,002	0,228	0,841
Water supply system %, 2002	0,693	0,507	0,067
Sewage system %, 2002	0,693	0,507	0,067
Gas %, 2002	0,615	0,486	0,017
0-14 year olds, 2010 %	0,244	-0,763	0,369
15-59 year olds, 2010 %	0,817	-0,064	-0,113
>60 year olds, 2010 %	-0,814	0,484	-0,116
Relative unemployment %	-0,195	-0,167	0,134
Income 2009, RON/capita	0,570	0,395	0,033
net profit 2009, RON/capita	-0,064	-0,117	0,077
Superior education %, 2002	0,592	0,590	-0,015
Illiteracy %, 2002	-0,289	-0,292	-0,066

Source: own calculation

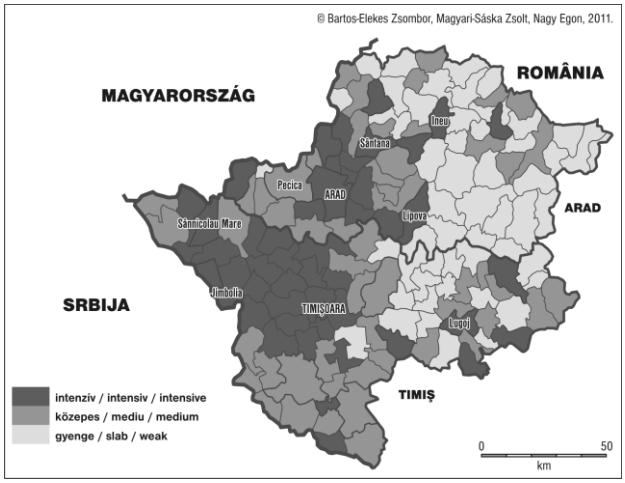

Fig. 1: The repartition of the villages with stable demographic and workforce market background, with developed infrastructure and economy based on the scores in Arad and Timiş counties

Source: own calculation

The third component is more of the descriptor of the balanced situation; it does not necessarily carry a negative connotation as related to development. It correlates strongly with such demographic data whose intensity is not a sign of development, such as infant mortality or the number of births, which can be related to the larger number of the Gipsy population in the plain areas. The city of Arad appears to have a lower intensity due to the reduced number of Gipsy population, lower numbers of births and immigrations. The most developed county centres miss this turn, whereas the small and medium sized towns are well represented, thus it cannot be clearly related to underdevelopment.

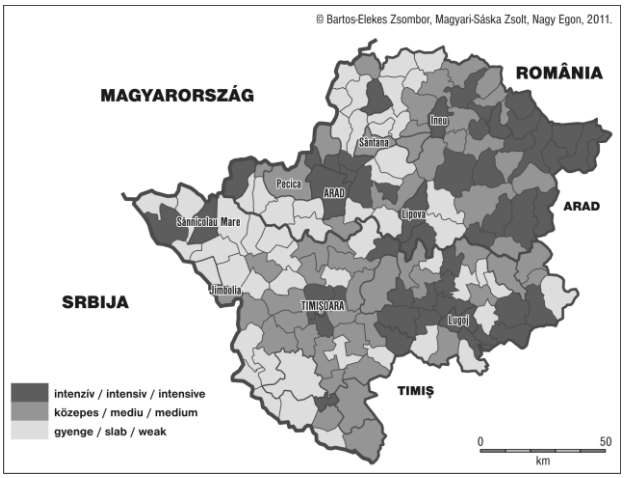

Fig. 2: The repartition of villages with good public service infrastructure, ageing, qualified population, in an urbanization process based on the scores in Arad and Timiş counties

Source: own calculation

According to all these dimensions, on the Romanian side our hypothesis proved to be true, that is the western parts, and among these the border zone areas are generally in a better situation

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in spite of their geographical periphery character and the eastern hilly and mountainous areas represent the social periphery in spite of the fact that in many of these settlements the infrastructure improved. Although in the Bánság/Banat part of Romania the more developed western part is not so clearly outlined as it was in the case of the northern part of the Romanian – Hungarian border, in Szatmár and Bihar counties. In that case the hilly and mountainous areas had a more emphatic peripheral character as it was pointed out in our previous studies.

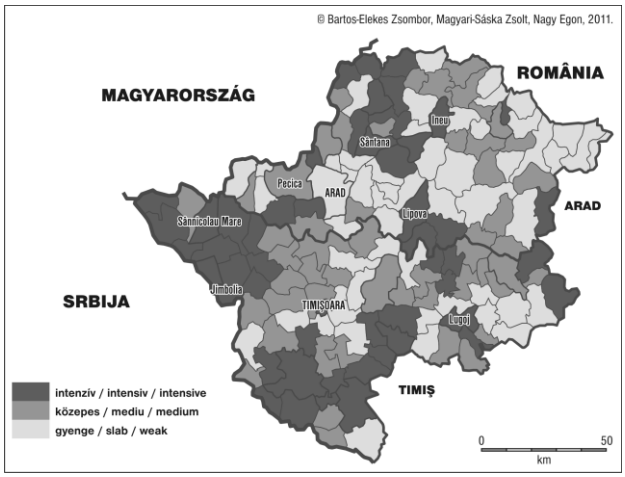

Fig. 3: The repartition of the villages in a balanced situation from the economic and demographic point of view based on the scores in Arad and Timiş counties

Source: own calculation

Territorial Disparities on the Hungarian Borderside

In the case of the Hungarian counties, after testing the factorial analysis several times we had to give up some of our variables; 13 remained out of 25 (Table 4), due to those communalities that did not reach a 0.25 value. The communalities represent the information-content of a variable, which content is not common for other variables (Table 5). If a variable has a low communality it should not be taken into consideration for the factorial analysis. The variables above 0,25 are fitting more for the factorial structure, so they can be preserved (Székely, Barna, 2004). The feasibility of the factorial analysis was also supported by the mostly high values of the correlation matrix (Table 6), as well as by the 0.05 values in the significance test. The same is proved by the KMO test's high value, 0.72.

The factorial analysis finally yielded three dimensions with the keeping of better fitting indicators, among which the first has the strongest explanatory potential, covering nearly two fifths of the variants. The three factors together explain two thirds of the variants. The first factor represents the socio-economic development as it correlates positively with the demographical indicators, in the same time mapping economical dynamics and infrastructural development (Fig. 4).

The second factor emphasizes the disadvantageous demographic situation with an ageing population, decreasing in number and activity as well (Fig. 5).

Table 4: The values of the communalities in the Hungarian counties

Variables	Primary	Substracted
Average migrational difference 2000-2007 ‰	1	0,575
Average natural population increase. 2000-2007‰	1	0,871
15-59 years, 2007 %	1	0,844
Relative unemployment %	1	0,792
Taxpayers ration from total population %	1	0,699
Gas %, 2009	1	0,523
Sewage %, 2009	1	0,515
University, college %, 2003	1	0,822
Tertiary sector %	1	0,696
Gross capital 2008 (thousand Ft/capita)	1	0,600
Total individual income tax 2007/capita	1	0,890
60-x year olds, 2007 %	1	0,794
Secondary sector %	1	0,217

Source: own calculation

Table 5: The ratio of the variants explained by the components

Components	% of the variants	Cumulative %
1	37,84151	37,84151
2	17,52632	55,36783
3	12,6121	67,97993

Source: own calculation

The third factor points to the unstable workforce market situation, which is in a critical state, that is, it carries the possibility of losing balance (Fig. 6). Higher levels of unemployment and emigration are characteristic for these areas, in the same time the larger number of people employed in the tertiary field can represent towns as well as smaller settlements which offer only basic public services, where employees carry out services with low levels of added value in the settlement with a unilateral economic structure.

Table 6: Matrix of the components for the Hungarian counties

	1. Socio – economic development	2. disadvantageous demographic situation	3. critical, unstable workforce market situation
Average migrational difference 2000-2007 ‰		0,594	-0,428
Average natural increase of the population 2000-2007‰	0,425	-0,807	
15-59 year olds 2007 %	0,708	-0,582	
Relative unemployment %	-0,646		0,605
Ratio of the taxpayers in total population %	0,716		-0,428
Gas %, 2009	0,628	0,351	
Sewage %, 2009	0,702		
University, college %, 2003	0,813		
Tertiary sector %	0,337		0,706
Capital stock 2008 (thousand Ft/capita)	0,601		0,389
Individual income tax 2007/capita	0,917		
60-x year olds, 2007 %	-0,561	0,687	

Secondary sector %	0,302	-0,345

Source: own calculation

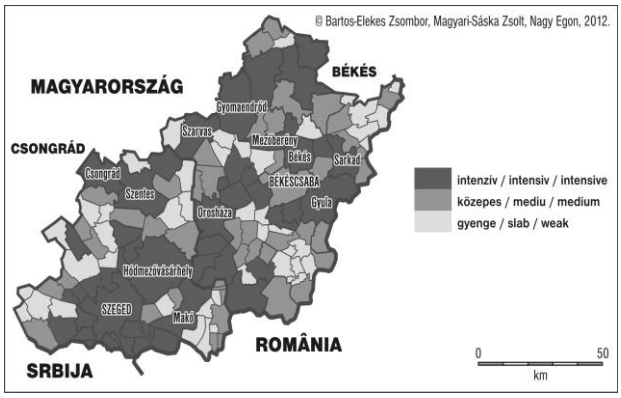

Fig. 4: The repartition of the socio – economic development based on the scores in Békés and Csongrád counties

Source: own calculation

The first component representing general development highlights the towns and it appears as a coherent block in the Szeged agglomeration. This group is highlighted more because of the positive character of the economic indicators and not so much because of the demographic indicators. In the border zone this component is only represented by towns with higher scores (Gyula, Sarkad, Mezőhegyes, Makó, Mórahalom) (Fig. 4).

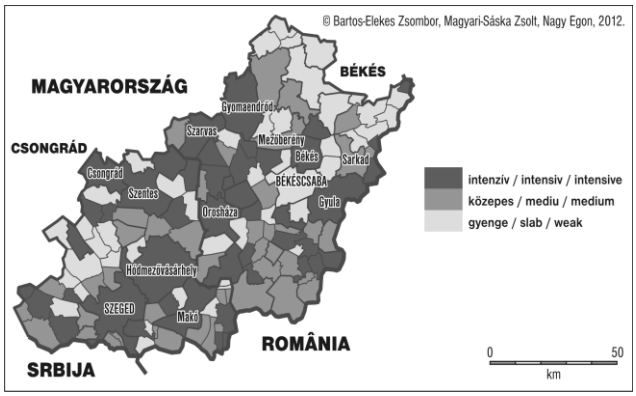

Fig. 5: The repartition of the disadvantageous demographic situation based on the scores in Békés and Csongrád counties. Source: own calculation

Source: own calculation

The second component correlates very negatively with the natural increase of the population, which also highlights the towns, and thus the northern part of Békés and the north-eastern part of Csongrád appear with lower scores due to the larger number of the Gipsy population (Geszt, Vésztő, Baks). In the same time, the ageing of the population also results in the urban population being better represented.

In the case of the third component the high levels of unemployment and the large number of people working in the services field (in some cases in low added value services) play an important role. The latter caused some non-peripheral cities from the economical point of view to appear in this category (Szeged, Hódmezővásárhely) (Fig. 6). In this case, the eastern and south-eastern part of the border zone is outlined, with their small towns and villages form a coherent space with high scores.

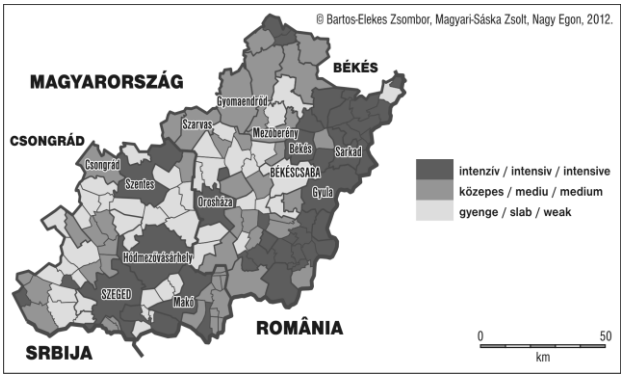

Fig. 6: The repartition of the critical, unstable workforce market situation based on the scores in Békés and Csongrád counties

Source: own calculation

As a consequence of the systematic analysis of social and economic variables regarding the spatial and social cohesion of the two sides of the border, one notices that the Hungarian part is better located especially in terms of the infrastructure of public utilities. However, this is also true for some human resources indicators and some demographic variables. Nevertheless, these differences are not insuperable and do not represent severe barriers for efficient cross-border collaboration.

Both in Romania and Hungary, as in transition economies generally but also in the Third World, the territorial disparities are visible especially at the level of urban-rural separation (between different types of settlements) rather than at regional level, as differences between regions are more difficult to notice.

Regional inequalities become obvious for the first time at once with an economic "boom" according to the "Williamson hypothesis" – 1965, or at the same time with the increase of disparities between social strata, according to "Kuznets hypothesis" - 1955, cited by Nemes Nagy J., 2005, within the process of economic convergence, following the stage of stagnation and depression of the national economy (characteristic for the transition period). At present, Romania passes through this stage of evolution, called "beta-type" convergence, taking into account the speed of the growth and the initial stage of low development. The duality of advanced and backward regions is revealed as the above-mentioned process advances, while the "urban-rural space" dichotomy gradually loses its importance. As a consequence,

the spatial diffusion of development or of the "advanced" nature takes place in the shape of spatial networks which overlap entire regions. This type of evolution characterizes the matured market economies. Thus, this process generates some sort of spatial homogenization within a region, irrespective of the fact that the people live in a town or a village. The defining thing is whether people live in an advanced or backward region. In other words, the nature of developed or underdeveloped state has the effect of lowering the territorial disparities, while the qualitative and quantitative leap from the lower to the upper state of development inevitably leads temporarily to the increase of differences in development.

Conclusion

To sum up, we can conclude that on the Hungarian side the positional periphery character represents in the same time socio-economic periphery only in the case of the eastern part of the border zone, in Békés county. This fact could not be counterbalanced by the spatial vicinity of the former and present county capitals (Gyula and Békéscsaba), which points out the functionally deficient character of the agglomeration in central Békés county. Sarkad, Elek, Battonya and Mezőhegyes are not capable of fulfilling their space organizing role either. This conclusion fits with the results of previous one-dimension analyses, which have shown the East-Hungarian border strip as a space of underdevelopment. In addition, the Hungarian border strip is suffering from the lack of a major transport-infrastructure line, which is parallel with the border and could efficiently contribute to the cohesion of this border-side.

As opposed to this, in the South Szeged, Makó and Mórahalom are more successful in fulfilling their role as activating regional and micro-regional centers, thus the social periphery character is not visible in that border zone. In the same way, the cities on the other side of the border are more successful in activating local energies: Arad and Curtici (especially due to the existing industrial parks and duty-free areas), Chişineu-Criş, Nădlac, Pecica, Sânnicolau Mare and Jimbolia. These towns with the main linear infrastructure networks provide enough local stimuli for a more vivid socio-economic activity even though the proximity of the border.

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The impact and importance of return migration in East Central Europe

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Abstract

Return migration might be a key factor for development in sending regions, especially in East Central Europe. In 2004, the enlargement of the European Union affected a mass labour migration from post-socialist countries towards Western European regions. Among rules of the Union this East-West migration has become more than brain-drain, beside high-skilled migrants, lower skilled ones also leave their country of origin. This paper focused on common characteristics of migrants from East Central European countries. During research I have used results of an online survey among migrants and made interviews with returned Hungarian migrants. Though sending countries make efforts towards re-attracting migrants, without stable macro-factors their return might be uncertain. According to my results, though each country has its own profile, in some cases, especially Hungarian and Polish migrants have common characteristics in terms of motivation of emigration and type of work abroad.

Keywords: *returning migrant, elite migrant, lower skilled migrant, Hungary, motivation, online survey*

Rezumat. Impactul și importanța reîntoarcerii imigranților în Europa Central-Estică

Întoarcerea imigranților ar putea fi un factor-cheie pentru dezvoltare regiunilor, mai ales în Europa Central-estică. În 2004, extinderea Uniunii Europene a determinat o migrație a forței de muncă în masă din țările post-socialiste către regiunile din Europa de Vest. Printre regulile Uniunii această migrație Est-Vest a devenit mai mult decât ”un exod al intelectualilor”, alături de emigranții cu înaltă calificare, au plecat de asemenea din țara lor de origine și cei mai puțin calificați. Această lucrare s-a concentrat pe caracteristicile comune ale imigranților din țările central-estice europene. În timpul cercetării, am folosit rezultatele unui sondaj on-line în rândul imigranților și am realizat interviuri cu imigranții maghiari reîntorși în țară. Deși țările de origine fac eforturi pentru reatragerea imigranților, fără macro-factori stabili, întoarcerea lor ar putea fi incertă. În funcție de rezultatele obținute, deși fiecare țară are propriul profil, în unele cazuri, în special imigranții din Ungaria și Polonia au caracteristici comune în motivarea emigrării și în ceea ce privește tipul de muncă în străinătate.

Cuvinte-cheie: *imigrant reîntors, imigrant elită, imigrant inferior calificat, Ungaria, motivație, sondaj on-line*

Introduction

Migration from East Central Europe within the last decade

Labour migration has significant impact on both sending and host countries in Europe. In terms of the sending countries, the returning migrants might be expected to return with saved financial and social capital, and acquired skills that might be benefitting at the home country (Nyberg-Sorensen et. al., 2003, Klagge et. al., 2007). In terms of the host countries, several researchers claimed that immigration from the post-socialist countries has crucial economic effects in the host country (Blanchflower & Lawton, 2008, Lemos & Portes, 2008). In 2004, joining the European Union brought new chances for post-socialist countries. Labour markets of EU15 had periodically started to open up for migrants from new member states which have intensified the East-West migration within Europe. After the experiences from UK and Ireland, the process has continued, then finally, Austria and Germany has also authorized the free employment status for EU8 (Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia) (Nagy, 2010, Benton & Petrovic, 2013). Expansion of migration flows have permanently increased. As a consequence, the characteristics of emigration from the new member states have changed. Before the enlargement of the European Union, migrants from post-socialist countries had targeted different destination countries, for instance Polish and Hungarians preferred to immigrate to Germany and the USA. After 2004 the situation has changed, other European countries started to become more important, especially United Kingdom receives the largest group of migrants from the post-socialist countries (Benton & Petrovic, 2013, Barcevicius et. al., 2012).

Not only brain-drain is standing beyond this process. In the 1990s rather highly skilled labour migrants were involved in the process (Csanády et. al., 2008). Among the rules of the European Union the free movement is allowed for member states, so because of big differences in wages and living conditions, mass of migrants left their country of origin. It might cause both positive and negative effects on sending and receiving countries, too. Within the geographical context, the problem might be the location of sending regions which is highly concentrated in the East Central European countries. Thirteen out of the top fifteen sending European NUTS 2 regions are located in post-socialist

countries (Lang et. al., 2013). In terms of the main characteristics of emigrants, the young and well educated population from the post-socialist countries has a relatively high share among out-migrants. Table 1 shows dataset of the Hungarian Health Insurance suggesting the number of emigrants who have inactivated their insurance by leaving Hungary. Since the enlargement in 2004, millions of people have moved from East to West which was also supported by the economic and financial crisis started in 2008.

Table 1: Age structure of Hungarian emigrants 2004 - 2012 (OEP KÜLFI System, 2012)

Year	Male and female						
	age						**Total**
	- 19 year	20 - 24 year	25 - 29 year	30 - 34 year	34 - 40 year	40 - year	
2004	64	384	645	259	95	119	**1, 566**
2005	650	1, 645	1, 707	850	540	491	**5, 883**
2006	124	780	1, 224	613	203	289	**3, 233**
2007	170	1, 172	1, 865	967	385	453	**5, 012**
2008	241	1, 531	2, 392	1, 477	689	896	**7, 226**
2009	243	1, 401	2, 178	1, 511	707	1, 074	**7, 114**
2010	238	1, 675	2, 690	1, 664	917	1, 213	**8, 397**
2011	330	2, 180	3, 645	2, 669	1, 693	2, 679	**13, 196**
2012	139	1, 019	1, 983	1, 486	1, 054	1, 709	**7, 390**

Though it raised the number of emigrants, in parallel it intensively affected the number of returning migrants (Hárs, 2010). The data of the Labour Force Survey (LFS) showed increased migration flows back to the country of origin which also means they are all unemployed returning migrants (Smoliner et. al., 2013). Despite the survey and among the job seekers, they are not the total number of returning migrants. It is a relevant phenomenon, but the question is how sending countries or region might be benefiting from it. This paper focuses on common characteristics of East Central European returning migrants and provides a brief review about the Hungarian ones.

Return with improved skills

Return migration has been the subject of research since the 1960s, though different scientific approaches have been existed. In general, as the definition of an OECD study claims, "returning migrants are people returning to their country of citizenship after have been international migrants in another country abroad" (Dumont & Spielvogel, 2008). Several theories identify it at a micro and macro level, whether it seems as a negative or a positive phenomenon. Cassarino has summarized these theories in his study, and suggested that in spite of several, in sense of homogeneous approaches, return migration might be dealt with in several levels (Cassarino, 2004). First, the migrant is crucial, especially for the motivation of returning. Cerase divided the returning migrants into four groups, a person regarded as the member of a group explains the main characteristics of his or her return (Cerase, 1974). The success of the return is also very important in order to utilize the newly acquired skills at home and to have effects in the neighbouring areas. A further key factor might be the newly built networks with foreign economic partners.

The returning migrants gain new skills while being in multi-cultural working conditions abroad. They usually have higher language skills than the ones remaining home because they practice foreign language out of their residence. Human and financial gained capital which is brought home might have both individual and developing effects, such as amounts of money invested in the local economy or in the latest technological know-how. As though, the returning migrants are also more flexible towards problems and have widened horizons by experiencing different circumstances in another country. The latter ones could be useful in the everyday life and jobs. When highlighting the impacts of returning migrants, several papers stated pros and cons of the returning. Unfortunately, there are not only positive sides of the returning. Thus people have lower skills when studying a language, or those who are working for firms employing migrants from the same country, do not acquire and improve their foreign language skills. They are motivated mainly by earning more money than the others. Furthermore, returning back to the home country and the lack of relations might be harmful in job seeking. Those who stayed in contact with previous employers have more chances to get a job after their return, though these migrants are usually highly skilled professionals, such as researchers, engineers or doctors. The survey presents that the

unemployment rates are high among the returning migrants, and the reasons for this fact are different. Today, because of the global crisis, job seekers have less chance than they used to have. Returning migrants might be used to higher salary and living conditions abroad so they have to wait for well-paid jobs. However, as the results will show, more than 80% of the migrants return to their home region. Living in a backward region means less opportunity for having a job so returning to this region might lead to the same situation. Last but not least, on the one hand, the success stories can generate more emigration, and on the other hand, "once living and working abroad might lead to another move in the future", one of my interviewees claimed.

Method

During this research I analyzed an online questionnaire survey and made interviews with returned Hungarian migrants. The survey was promoted among migrants from eight Central European countries via media, institutions and online groups of migrants. On the survey each person who has had at least 6 month period of working experience abroad was allowed to take part. Its promotion started at the beginning of 2012 and lasted eight months. During the research, a snow-ball technique was also used to promote the survey between social networks of the migrants. Moreover, I have made twenty-three interviews with returned Hungarian migrants who had worked two to seven years abroad. The period of time abroad might be a key factor when exploring the return migration (Dustmann & Kirchkamp, 2002). King states this is an optimum absence for the migrant who absorbs enough experience and when returning to the home country he can used the newly acquired skills (Cassarino, 2004). I have divided my interviewees into two groups: the so called elite migrants and lower skilled migrants. The first group is formed of highly skilled persons who were practicing their profession abroad, such as researchers, doctors or ICT workers. The latter one is formed of migrants who are lower educated, and even, people who are well educated, but had lower skilled jobs abroad.

East Central European experiences

According to the results from the online survey the Hungarians and Polish returning migrants are the most similar out of the nations from the region. Although in absolute numbers, the Polish and Romanians, even Bulgarians are more similar to each other in terms of mass migration. They might be motivated in different ways. During the research we have targeted potential and returned migrants. The first group is formed of people who left their country and now work abroad, so they were regarded as potential returning migrants. 71% of the interviewees were potential migrants. The survey is not representative, because country specific datasets do not have enough range. However, the survey might provide a proper analysis to highlight the main characteristics of migrants from East Central Europe.

More than 40% of interviewees come from East Central European countries (N=823). As there was stated, our research proved that the main emigration motives were higher salary, career opportunities and better living conditions in the targeted countries. In terms of salary obtained abroad the study concludes that especially the Polish and the Hungarian migrants work abroad in lower skilled jobs although they have higher education level. Similar to the previous researches, there might be a problem after their return due to the lack of the latest technologies and methods, which would not gain advantage re-integrating them on the labour market at home (Kirdar, 2009, Groizard & Llull, 2007). Referring to the attitude of emigrants, it might be an East Central European characteristic that nearly the half of migrants from this region stay in contact with their home, not only communicating with their relatives or friends, even maintaining a household while being abroad. This phenomenon was discovered to be the strongest among the Hungarian migrants, but it is not public among the Polish migrants. Of course, dealing with profit oriented household keepers, some part of migrants keep in touch in this way with their house, but still the other part has a stable place to go after return. Post-socialist countries have another common factor, exactly the satisfaction after return. Comparing the target and sending them among the East Central European countries, the returning migrants from sending ones found themselves in worse condition in the home country than they used to be abroad. At the end of this list there could be found again the Hungarians and the Polish. It could be because of the different wage levels and the more prestigious consume they used to have in the host countries. Maybe, these results might also reflect the actual macro trends in some cases.

In terms of educational level, according to the survey the primary educated migrants are negligible in the phenomenon of return migration. High skilled migrants such as people with higher education or PhD are the most interested in current migration flows from the post-socialist countries. Additionally, more than half of people have been international migrant who improved the foreign language nearly perfect.

Focusing on return motivations, among East Central Europeans the family is the most important reason in taking the decision to return. The second most important motivation is different between

countries; however, in the case of Hungary and Poland it is less significant. Other well-fare services, such as educational offer, social services, social security or even the culture is more unimportant for migrants. According to Cassarino, the gained social networks are also important in the case of the return migration (Cassarino, 2004). During the online survey we discovered that Hungarians and Polish are less concerned in networking with foreigners than other East Central Europeans (for example Czechs and Slovenians are more interested in it). Building new relations with foreign persons would gain several advantages, for instance for entrepreneurs or in trading, and further, additional potential benefits could be used. In spite of the individual decision, there are some options which help to return.

Although, there are several existing European return initiatives, quite a few migrants knew about them. Sending countries have already taken efforts to re-attract their emigrants to return, there are different programmes at the national and regional level (Lados & Hegedűs, 2012). There are special target group initiatives, such as the Lendület (Momentum) Programme in Hungary to re-attract the researchers. Also initiatives with general target group could be also found, i.e. 'powroty.gov.pl' Programme, which is an online portal providing suggestions and tools to return to Poland. Saphier and Simonovits had concluded that most of the emigrants are willing to return to their home country, but due to the lack of help they do not undertake it (Saphier & Simonovits, 2004). So why are the mass of return migrants experienced? The answer could be, probably because the action radius of these projects might be another macro level situation which is not enough to return to the home country.

Empirical results from Hungary

For a better understanding the empirical research was used. In some cases it strengthened the previous statements, but it might bring different approaches too. During the research there was also used the snow-balls method to find returned Hungarian migrants to be interviewed. Although, most of them were willing to answer entirely the questions, sometimes the process of providing additional potential interviewee was problematic. The returning migrants seemed to be positive in terms of the whole phenomenon. Whereas, according to the empirical research, in the case of former plans, the interviews suggest that each returned migrant had calculated his or her return and they wanted to come back to their home country after a period of time being abroad. It might be concluded that Hungarians would not be permanent emigrants. After accomplishing their expected goals, most of them would return. In motivating the emigration, the empirical research has highlighted the conclusions of the online survey. Both groups of returning migrants regard emigration as a temporary period of time. Elite and lower skilled migrants calculate that this experience would lead to benefits in their life. A possible aim for young migrants could be to have enough money to build or to buy a house when returning to the country of origin or "to save enough amount of money" in order to start their life, as one of my interviewees claimed.

In terms of ways to emigrate, the two groups have different manners. Elite migrants usually go abroad via their employer or via one of the relations their institute or employer has. Their foreign employer influences the migrant and vice versa. In spite of that, lower skilled migrants are more heterogeneous. They prefer to find individually jobs abroad or emigrate with oral assurance of work contract, but it is not in any case definite. Though, in many cases there are abuses of potential jobs, significant part of migrants choose this way. They usually have jobs abroad in catering, manufacturing and construction industry. The job profiles also determine the newly acquired skills and experiences that the returning migrants could bring back to the home country. As the literature claims, the return migration does not have positive impacts alone, it might also have negative side (Cassarino, 2004). Although they expect to improve their language skills, the latter mentioned professionals offer less useful work experience that could bring advantages when returning to the labour market of the home country. Furthermore, lower skilled migrants do not actually possess language skills. It could cause isolation from the host society, without basic communication they are not able to have strong friendships with foreigners. Nevertheless, it does not mean they are absolutely disinterested in it. Usually, they get in contact with foreigners, mainly in their workplace, but their improved social network is superficial, hence it would not be a benefit after their return.

As it was previously mentioned, migrants from post-socialist countries are especially interested in lower skilled jobs. Common interest could be developed easily, mainly because of the poorer language knowledge, so a shallow friendship might be improved in the spare time activities. These kinds of friendships may help to integrate in a new society abroad. Generally, these relationships do not last so long and are less important after the return. The fact shows that working abroad for a firm from the home country of emigrants motivates them less as working for a native firm from the host country. As one of my interviewees stated, "It is a comfortable way, there is less stress to learn the language, and

because most of the supervisors are Hungarians, too, while the salary is higher than at home". Regarding the short term plans it is worth working in such a place, as though, it is not necessary to have proper language skills. In East Central European context, the migrants from this part of Europe might be concerned by this fact. Nowadays, millions of Polish and Romanians (Barcevicius et. al., 2012) and thousands of other nationals from the region live abroad within the European Union. Most of these emigrants have lower skilled jobs in contrast with their education level or professionals would suggest (Martin & Radu, 2012). If these emigrants are regarded as potential returning migrants in the future, their newly acquired skills and foreign work experiences will not have the impact as they were expected. Their foreign relationships, however, might be more important not only for themselves, but even for their employer. Receiving profitable skills from abroad and benefit from them after returning show that there are differences in returning motivations among the two groups.

As the online survey of Re-Turn project has highlighted, one of the most impressive return motivations is the family within the returning migrants of the post-socialist countries. It might be due to the retired parents, to the takeover of the old family house or property, and even the nuclear family could also take this decision. Examples for the latter statement were found in both groups, when breadwinner decided to return because of his/her child. This exigency has bad feelings about the returning and the returning migrants are less satisfied with their actual position which might affect the returning emigration.

Taking the decision to return to the homeland it could be easier for the elite returning migrants. Such as in the process of applying for a job abroad, the elite returning migrants have contacts with their previous employer at home. Usually, there is a continuous communication between migrant and employer or its institution, so as these emigrants were looking forward for career advancement, they are offered for a new job at their previous workplace. On the other side, lower skilled returning migrants return with less important and profitable work experiences or skills which might not provide them advantage when re-entering the labour market. However, their financial capital could be used for several investments within their neighbourhood and set up a new business being entrepreneur, so in an indirect way they could also be successful.

Summarizing the comparison of the two groups of the returning migrants, it might be concluded that in spite of big differences of host and sending countries, emigration motives are taken to achieve a positive change. The foreign job determines the utilization of work experience. The elite returning migrants could receive career advancement and return to their previous workplaces, but lower skilled migrants are less motivated to come back home.

Conclusion

In conclusion, it is observed that the emigration from East Central European countries is a current, massive and permanent phenomenon which has risen in recent years. It might threaten the sending countries which experience the lack of labour force, especially in special sectors – such as nursing – as a result of mass emigration (Ognyanova et. al., 2012). The global crisis has increased the number of emigrants in recent years, but it also affected the increase of returning migrants. While native population of host countries does not apply for a lower skilled job before the crisis, as a result of the recession, foreign workers were refused. The return migration might have several advantages, but it could be experienced in different ways by the elite and lower skilled migrants.

As the online survey claimed, the family is the major return motivation for East Central Europeans, which was more significant for Polish and Hungarian returning migrants. Though the online questionnaire did not provide detailed information about the family motivation, the analysis of interviews claimed that family is usually experienced in parallel with other motivations, and do not appear as an exclusively one. However, the return could be also influenced by the family – i.e. for the sake of nursing old parents or re-uniting the alone family. In this case, the family is mainly regarded as negative, outer fact; hence the assessment of the return is less satisfying as in the case of other motivations. Nevertheless, interviewees also stated that, in a positive way, family might also appear as an improving factor – i.e. the return is made in order to raise children at home and to provide them native culture.

Furthermore, beside the return motivations, the overall effects of improved characters should be also considered. As a consequence of return, acquired human capital could be also profitable. On the one hand, elite migrants usually improve their skills; learn how to use the latest techniques and equipment and how to train the colleagues. Hence, the newly acquired management skills could provide them assurance to re-integrate on the labour market of the home country. On the other hand, lower skilled returning migrants have less chance to get job advancement after their return, because in this case the foreign work experience, which quite often does not fit the qualification, is less adaptable (Barcevicius et. al., 2012). Even though, there are several initiatives supporting the returning migrants

during their return, the uncertainty of the home country and fear of unemployment could jeopardize the mass return. Nonetheless, except individual reasons to return, the pull factors to stay abroad are considered more attractive for the majority of the potential migrants, such as better living-conditions; higher consumer behaviour, stress-free life and the strength of a new and different culture. Those who have been disappointed in their home country are less motivated to return, even if they reached their targets abroad. However, it should be highlighted that in the case of the returning migrants, the disappointment in the home country is also enhancing to circulate and re-emigrate again.

On the whole, the sending countries could clearly benefit from emigration, especially in the case of the return migration; both human and financial capital might be related to development issues.

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Non-realised plans for the enlargement of the Danubian waterway

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Abstract

There is a widespread belief these days that the Danube River is a waterway which is by far underutilised. This is usually attributed to the problems blocking navigation on the river (mostly on the Hungarian section), and to the missing regulations of the navigation routes. We have to add, however, that there are many other factors that set back the development of navigation, including the endowments of our economy that result in limited demand for water transportation. Also, several further economic, geopolitical and geographical endowments contribute to the low level of utilisation. The starting point of our paper is that the Danube River now offers one single long navigation route. The competitiveness of this route is decreased by the fact that no waterway network has been established in the last two hundred years that could have made river transportation more rationally usable. Think of the navigability of the tributaries, the connecting and branch canals, and multimodal ports (connected to railway and road transportation). Because of all these factors, no macro-regional economy was created at the adequate time, built on water transportation. Think of the fact that one single long railway line of motorway, without junctions and connections, cannot be operated economically, either, it will not become a system and its regional development impact will remain limited. Our paper focuses on those experiments that were made to contribute to the network development of the Danube River water system, with exact plans. Many of them were realistic plans in their days, but could not be realised because of the competition of railway, lack of capital or for geopolitical reasons.

Keywords: *the Danube, waterway, fluvial transport, regional development*

Rezumat. Planuri nerealizate pentru extinderea căii navigabile dunărene

În prezent, există o opinie generalizată că Dunărea este o arteră navigabile foarte puţin utilizată. Acest fapt este de obicei atribuit constrângerilor pentru navigaţie de pe fluviu (cu deosebire în partea maghiară), şi lipsei unor lucrări de regularizare a cursului. Totuşi, trebuie menţionat că există şi alţi factori, destul de numeroşi, care stânjenesc dezvoltarea navigaţiei, ca de exemplu starea actuală a economiei noastre care implică o cerere redusă pentru transporturile fluviale. Deasemenea, trebuie amintiţi şi alţi factori economici, geopolitici şi geografici care contribuie la o valorificare redusă a fluviului. Studiul de faţă pleacă de la ideea că în prezent, Dunărea oferă o singură, lungă cale navigabilă. Competitivitatea acestei rute este mult diminuată din cauza faptului că în ultimele două sute de ani nu au fost contruite alte reţele de canale, care să contribuie la intensificarea utilizării rute fluviatile. Ne gândim la psibilitatea de navigare pe afluenţi, canalele de legătură şi a porturilor multimodale (conectate la reţele rutiere şi feroviare). Din cauza tuturor acestor factori, nicio macro-economie nu a fost creată într-un timp real pe baza transporturilor fluviatile. De exemplu, nicio arteră rutieră sau feroviară cu lungime considerabilă, fără joncţiuni şi conexiuni, fie nu este operabilă din punct de vedere economic, fie nu va deveni un sistem, având un impact regional limitat. Lucrarea de faţă analizează acele experimente care au fost făcute pentru dezvoltarea transporturilor fluviale pe Dunăre, cu planuri exacte. Multe dintre ele erau planuri realiste la vremea respectivă, dar nu au putut fi îndeplinite din cauza concurenţei căilor ferate, a lipsei fondurilor sau din raţiuni geopolitice.

Cuvinte-cheie: *Dunăre, cale de navigaţie, transport fluviatil, dezvoltare regională*

Introduction

On the lower and middle reaches of the Danube River, several canal construction plans were made in the last one hundred and fifty years which have not been realised. Some of these plans are still raised again and again, without much of a chance of implementation. As a matter of fact, they are usually demonstrated as large-scale programmes seeking solutions for the improvement of the present spatial structure of the economy, and are meant to improve the utilisation of the economic potential of the Danube River by the means of networking the waterway system (*Hajdú–Hardi* 2012, *Hardi* 2012). Looking at these plans today, many of them seem to be wishful thinking, because even if they could have been realised at the technical level of the given time, the expenses would have been excessive. The practical use of several ideas is incomparable with the costs of their realisation (like the concept of the inland navigation canal from Kolozsvár/Cluj to Graz, with dug canals [*Kaján* 2004])[1]. As we have already mentioned, some of the plans were feasible, in fact, necessary for the creation of the network of waterways, but the competition of the railway investments, and the evolution of the geopolitical conditions did not allow the accumulation of capital and the presence of relatively long time (several decades) for planning and implementation. Also,

[1] The transformation of the waterways is a good opportunity for the brainstorming of politicians, experts and laics as well. The concepts are spectacular, they grab the attention of media and get on the front pages of the newspapers, with promises of fast achievements. If we measured the "implementation rate", the waterway plans would definitely have a very low index. The implementation of the spectacular plans requires a huge amount of capital, professional skills and time. Think of the initiatives like the change of the direction of the large Siberian rivers in the time of Stalin, and the implementation of a reservoir sized 2000x2000 kilometres in the West Siberian Plain (*Hajdú* 1999).

several plans were abandoned by the different political courses and these plans are raised again every now and then, without any concrete ideas of course. It means that plans recently raised are not new ones most of the times, almost each of them have their preliminary versions from the 19th century or early 20th century concepts. We must not consider all of these plans, however, outdated ones, even if they do not seem to be realistic today, as the experiences from the past may be useful if conditions change. A possibility for the survey of the development of this macro-region, all in all, is to look at how the experiments for the supplementation of the system of natural Danubian waterways and the methods of their implementation are related to the development of the spatial structure. Several authors agree that the Danube River had economic development potential in the macro-region (*Gál* 2001). Looking at the temporal change of the intensity of canal constructions (*Hadfield* 1986) we can see that there were several periods when the issue was more intensively dealt with, when the plans were made or revised, usually at the time of great economic booms, but as we have already mentioned, most of the plans that were realistic at their time could not be realised, for lack of time and capital.

- The first such period is the late 18th century and the first half of the 19th century, when the rapidly developing cereals trade, in other places industrialisation created a demand for transportation. The technical level of the time, however, did not allow the establishment of major canal systems, and the small capacity navigation routes could not remain competitive against the steam trains after the 1830s. This period was ended by the spread of railway transportation and the demand for the spatial integration of the national economies. The best example for this is the development of Germany, to which the Austrian processes were quite similar. The German nation state, involving several small spatial units, had to integrate fragmented economic spaces. One of the means for this was "Zollverein", but spatial equalisation required infrastructure as well. Railway, which could be built rapidly and at lower costs, secured the regional levelling out of prices; in addition, railway investments had economic synergy effects (steel and iron industry). To the contrary, canal constructions required earthwork in the first place. Railway investments were given state subsidies, e.g. interest rate guarantees. As a result of all these, railway network was rapidly built out. After 1870, 10 thousand kilometres of railway were built in Germany in each decade (*Berend–Ránki* 1987), as opposed to the problematic and slow construction of canals. Meanwhile, ships grew in size, old canals became obsolete and larger and larger canals should have been built. On the whole, the building of a single nation state, and for industrial development the construction of railway network were more important and proved to be a more rational decision than the development of the network of inland navigation routes.
- The late 19th century and early 20th century is another great period of canal constructions in several macro-regions of Europe. This is the time of the "canal construction fever" (*Kaján* 2004). One of the reasons for this was the fact that railway was no longer able to satisfy the transport demand of the rapidly growing economy in quantitative term; also, its specific cost was high in the case of certain goods (*Hoszpotzky* 1908a). The Central European states, one after the other, had their canal acts worked out in the first decade of the century: the canal acts of Bavaria, Austria and Hungary designed a whole network of waterways, and also defined the related sources of financing. The level of technical development at that time already allowed solutions that made the construction and utilisation of waterways more economical. In Western Europe, the management of the problem coming from elevations was done by the means of so-called aqueducts (the canal is led through a special bridge above a valley or other obstacle), or tunnels were built for the canals. This is the time when most of the presently existing network was constructed. In the central part of Europe it was World War I and the subsequent economic crisis that blocked development which had started in the first decade of the century. Some objects were implemented between the two world wars, like the Mittelland Canal in Germany. It was evidently the strategic necessity that demanded the completion of the expensive investment[2], but most of the investments were postponed.
- In the decades following World War II it was not only Western Europe but also Eastern Europe where the construction of canals gained momentum (e.g. Lenin Canal, the connection of the Volga and Don rivers in the Soviet Union). Most of the Central European plans were based on plans from the early 20th century and/or from before, and the interrupted implementation of these plans were continued, although with less intensity than by the intentions of the governments prior to World War I. Plans became more and more complex, and navigation routes had to be built for ever larger ships. The possibility of hydro-electricity production, the demand of the growing economy for industrial water and the need for irrigation all promised a return of these investments within the foreseeable future, although through several transmissions.

[2] A major problem of inland navigation in Germany was the typical south to north direction of the big rivers. This is why an east-west connecting section had to be constructed.

The date of birth of the Danubian canal plans fits into this general tendency of development. Another, very important fact in connection with the Danube River is that the unfavourable geographical endowments made the access to the seas more important than in Western Europe, where the main reason for the canal constructions was the connection of the industrial regions. This intention is also visible in this region (Austrian canal act), but the primary reason, as we have mentioned, remained to have an access to the sea. Taking Kálmán Tőry's grouping into consideration (*Tőry* 1954), the plans of the Danubian canals can be put into three main categories:

1. Connection of the upper section of the Danube River to rivers in Germany and through them to the North Sea and the Baltic Sea. These include the connection of the Danube River to the Main and Oder rivers, to the Moldova River and the Elbe. Of these, the Danube–Main connection has been realised, although its preliminaries were also related to other grandiose concepts (e.g. connection of the Danube River to the Lake Constance and through that to the Rhine).
2. In the middle and lower reaches, the access to some inner seas of the Mediterranean Sea, the main objective of which was the abbreviation of the waterways turning east in the Balkans and also to avoid the straits in Turkey (Bosporus and Dardanelles), having a shorter access this way to the ports of the Mediterranean. These plans can be called Balkan canal plans and they include the Danubian–Adriatic waterway, the Danube River–Morava–Vardar–Aegean Sea Canal, and also the Danube–Black Sea Canal, the only one that has actually been constructed among the above plans.
3. Construction of the inner waterway network of the basins along the Middle Danube, especially of the Carpathian Basin, utilising the tributaries of the Danube River and artificial waterways.

The Austrian canal act

One of the most comprehensive of these efforts was the so-called canal act of the Austro-Hungarian Monarchy, approved in 1901. This act was openly meant to improve the economic integrity of the whole of the empire by the construction of an infrastructure network that would have created a closer connection among the economies of the respective areas, also, it would have opened the market of the Monarchy to several seas – North Sea, Baltic Sea, Black Sea and, together with the Hungarian concepts to be negotiated later, the Adriatic Sea (Fig. 1–2). Only short sections of the planned canals were implemented: inner lobby interest slowed down, and then World War I finally stopped constructions. The plan on which the act was built included the canalisation of the following river sections and the construction of the following artificial canals (*Tőry* 1954):

- The Danube–Oder Canal would have started from Vienna and crossed the watershed through the canalised Morava River (with 29 dams), and it would have reached the Oder River at Oderberg. The incurred costs were 170 million contemporary Crowns. The canal would have connected the Silesian coal basin to the central regions of the Monarchy and the Czech industrial region, so it could have been a significant contribution to the spatial integration and market relations of these areas. This may have been the most important line of the concept, and it was (and still is) a plan living already before the act and for the longest period after that (until today). The Austrian Imperial Assembly urged already in the 19th century the construction of the new waterway several times, the main aim of which would have been to supply the city of Vienna with cheap Silesian coal. (For this reason the city of Vienna approved of subsidising the construction of the canal with 4 million Crowns) (*Pallas Nagylexikona*).
- The Danube–Moldova Canal, which would have been constructed between Vienna and the Moldova (Vltava) River at Ceské Budejovice, and would have been part of the Danube–Elbe Canal. The high watershed would have required the construction of 53 dams, and the costs were estimated at 150 million Crowns.
- Canalisation of the Moldova River from Ceské Budejovice to the mouth of the Elbe River at Prague, in a length of approximately 179 kilometres, with 34 waterworks, and with an investment worth 112 million Crowns.
- The Oder–Elbe Canal would have been a supplement to the Danubian connection.
- Canalisation of the Elbe River from Melnik to Pardubice and Jaromir.
- The Oder–Vistula Canal.
- Canalisation of the Vistula River.
- Construction of the Vistula–Dniester Canal in a length of 373 kilometres.

It is clear that the concept would have created a strongly Vienna centred network. Had it been implemented, it would evidently have been a very significant contribution to the economy of the Vienna region but it would also have been an important transport route for the Silesian industrial region and also for Galicia. A total of 846.2 million Crowns were planned for the works, from which 250 million were actually available for the major works until 1912 (*Tőry* 1954). The implementation of the plan was first blocked by the inner opposition: the Czech and Polish owners of large estates were afraid of the competition of the Hungarian cereals, and the mine owners and the owners of industrial plants were afraid of competition from Prussia, Germany, Belgium and France.

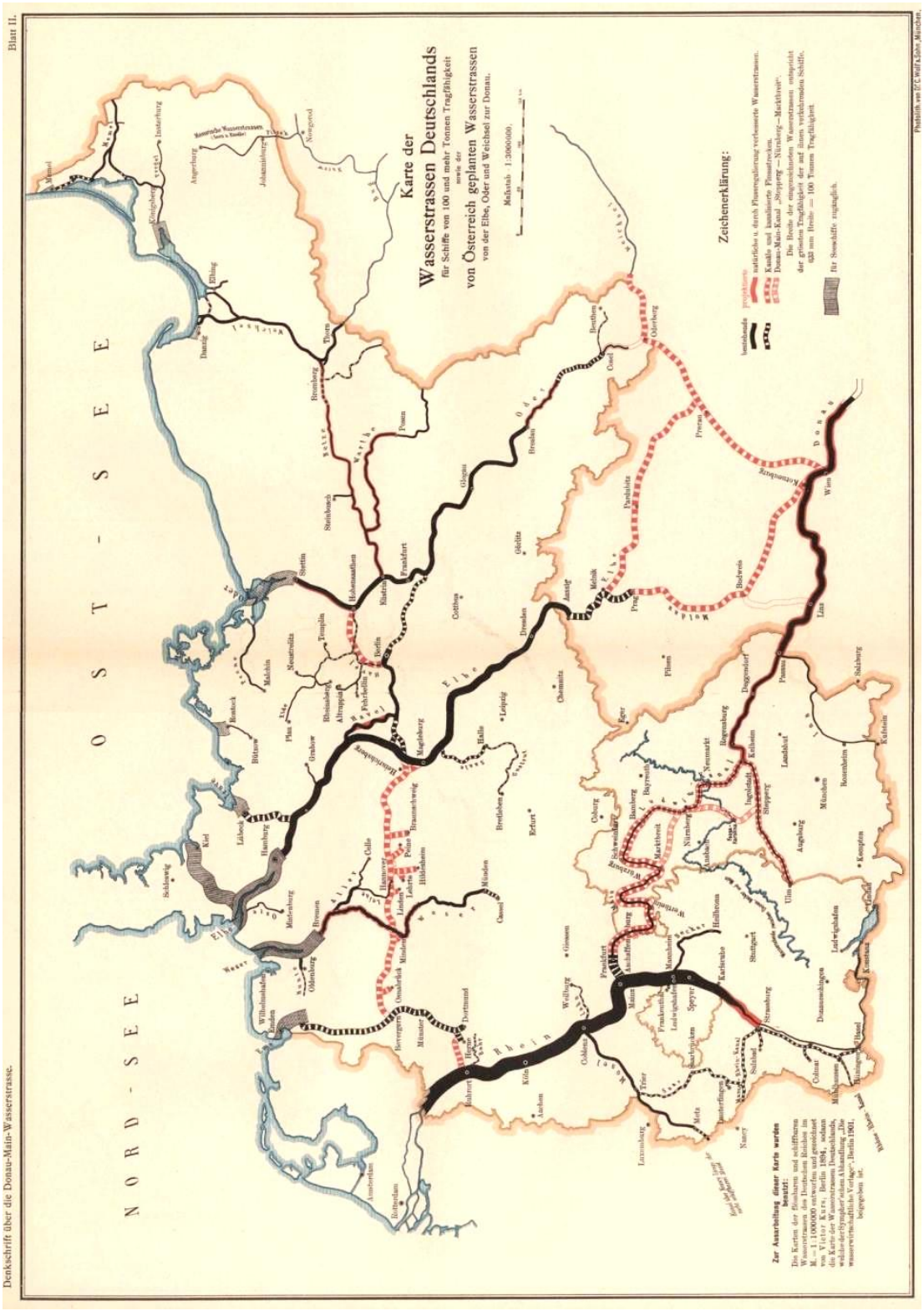

Fig. 1: Concepts outlined for the Danube River in the Austrian (and Bavarian) canal act[3]
Source: http://de.wikipedia.org/w/index.php?title=Datei:Denkschrift_%C3%BCber_die_Donau-Main-Wasserstrasse_1903_Blatt_002.JPG&filetimestamp=20091029174151

[3] The original subject of this map to show the planned waterways in the German Empire. Nevertheless the plans of the Austrian canal-law could be presented on it.

Hungarian concepts in the early 20th century

Within the Monarchy, Hungary too made considerable plans for the supplementation of the waterway network of the country. Several own initiatives were made by several Hungarians. The main objective of the developments was the transportation needs of agriculture and also the irrigation and drainage demand of the arable lands. The end of the 19th century was more favourable for railway constructions. Act No. XIII of 1867 on "loans to be made for the construction of railways and canals"[4] generously supported the intentions of private investors, but most of the resources were finally spent on the construction of railways in this period of time (*Hoszpotzky* 1908a).

As canal constructions became important state initiatives in the very beginning of the 20th century in the whole of the Monarchy, efforts of this kind were also given a special attention by state organs in Hungary at this time. The regulation works of the Iron Gate proved that Hungary was capable of the implementation of such works, and it was just the more effective waterway opened through the Iron Gate that increased the interest in river transportation. The state had to take the responsibly of canal constructions, because the sources of the 19th century developments based on private capital were absorbed by railway constructions (*Hoszpotzky* 1908a). The Ministry of Agriculture established a River Canalisation Department in 1903, while in the Hungarian Ministry of Commerce, a separate branch office responsible for port and navigation canal planning was set up. The comprehensive nature of the work and the momentum are signed by the publication of detailed studies on the task force of the ministry of commerce, led by Alajos Hoszpotzky, on the feasibility of the canal between the Danube and the Tisza Rivers in 1908 (*Hoszpotzky* 1908a); on the regulation works of the Iron Gate (*Hoszpotzky* 1908b); and on the necessary development works of the port of Fiume/Rijeka (*Popp* 1908). The River Canalisation Department worked out as their main task the plans of the Hungarian inland waterways, and published them in details in No. 23 of 1907 of the periodical called Vízügyi Közlemények (Water Management Bulletin), edited by Zsigmond Fekete (this issue of the periodical was fully devoted to these plans). The following sections to be developed were introduced (*Fekete* 1907):

- The navigable canal of Budapest
- The Budapest–Szolnok navigation canal
- The Morava Valley navigation way
- The Sió River and the united Sió–Kapos–Sárvíz water system
- The lower reaches of the Nitra River
- The Rába River between Győr and Sárvár
- The Rábcza and Hanság canals
- The Kolpa River between Károlyváros (Karlovac) and Kulpa-Bród (Brod-na-Kupi)
- The Sajó River from the Tisza River to Bánréve
- The navigation and irrigation canals of the Hortobágy area
- The Hortobágy–Debrecen Canal
- The Munkács–Csap (Mukachevo and Chop) navigation way
- The lower reaches of the Latorcza River and the united Ung–Laborcz Rivers
- The Ung River
- The Laborcz River
- The Berettyó and the lower Sebes-Körös River
- Canalisation of the Sebes-Körös from the mouth of the Berettyó River to Nagyvárad (Oradea)
- The Érvölgy canal navigable to Szatmárnémeti (Satu Mare)
- The navigation of the Kraszna Canal from Nagymajtény (Moftinu Mare) to the Tisza River
- The navigation of the Maros River between Nagyzsám (Jamu Mare) and Marosvásárhely (Târgu Mureș)

The concepts were often manifested in acts: Act No. XLIX of 1908 on "water investments" empowered the minister of agriculture to regulate waters for "water flow, navigation and economics" purposes, on the basis of the principles featured above. A total of 192 million Crowns was allocated for the works of the developments. The main target areas were the rivers in the plans featured above, and Lake Balaton. Five per cent of the resources could be used for the management of other waters. The works defined in the act were started, but the war, and the subsequent territorial losses and economic difficulties only allowed the realisation of a fragment of the original ideas.

This clearly shows that the idea was the creation of a network that concerned almost all major waters of the contemporary Hungary, and the main purpose of the water management works was the marketing of agricultural crops (Fig. 2).

In addition to the purposes of agriculture, however, industry would also have been promoted by the construction of the major canals. Noteworthy that e.g. for the Bata (later Tisza) Shoes Factory located in Martfű an important location factor was waterway in 1914, as the raw materials of the shoes were transported by ships across the Suez Canal. A conscious state policy diverted the investment from the originally planned spot at the Danube River to the bank of the Tisza River. The Danube–Tisza Canal must have been an important promise, because together with the connection promised at the Morava River it would have allowed water

[4] http://www.1000ev.hu/index.php?a=3&param=5314

transportation to the Bata plants located in Zlin and Borovo (*Hegedüs* 1974; quoted by *Nádudvari* 2011).

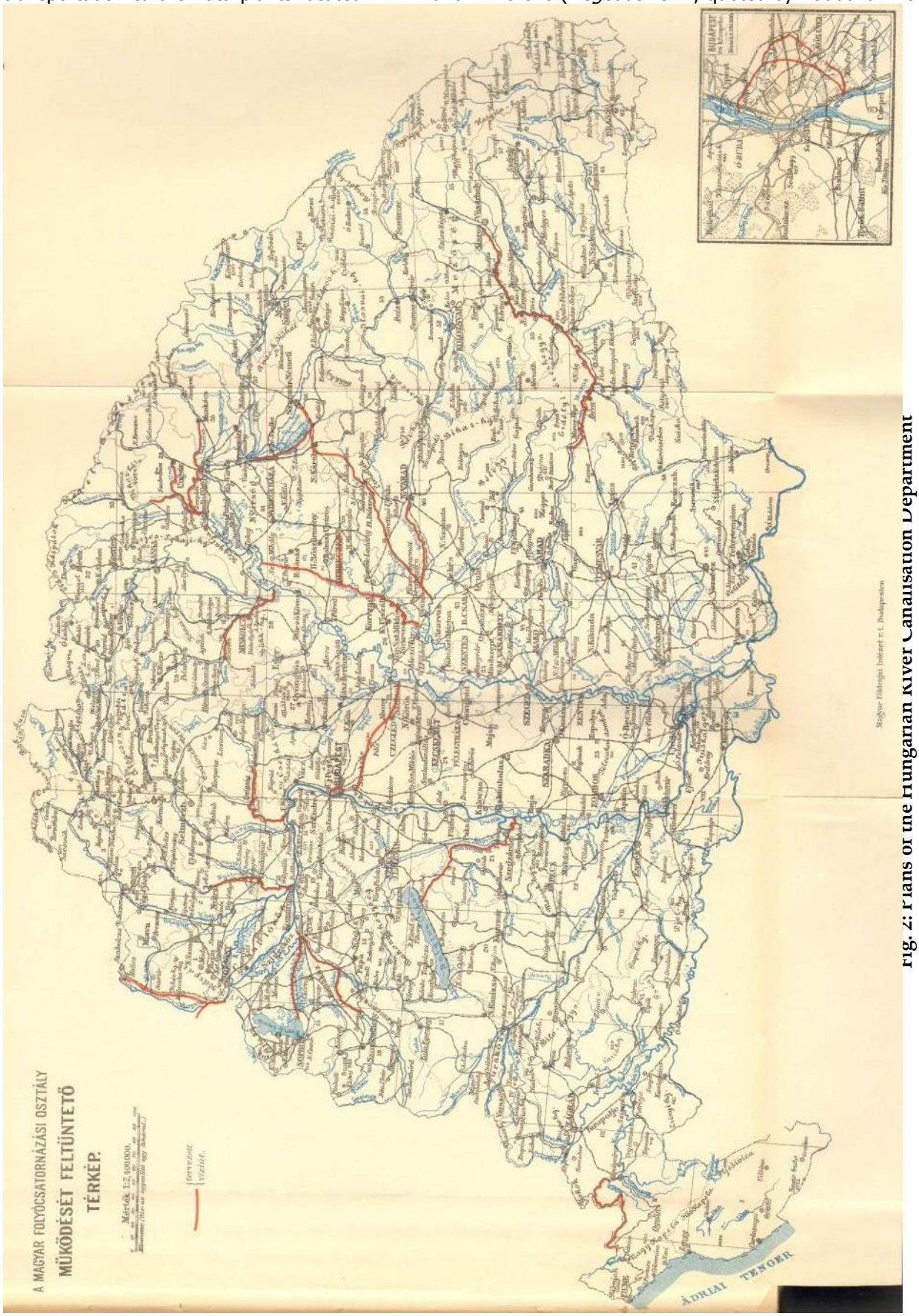

Fig. 2: Plans of the Hungarian River Canalisation Department
Source: Appendix of No. 23 of the Vízügyi Közlemények in 1907

Danube–Adriatic connections

The most important of the network elements called "Balkan" canal plans by Kálmán Tőry is the access to the Adriatic Sea from the middle reaches of the Danube River. The waterway of primary importance in this is the Danube–Sava–Kolpa–Trieste waterway, but plans were also made for a canal linking Pozsony (Bratislava) and Vienna to Trieste.

The access to the Adriatic Sea became an issue of fundamental significance for the inland transportation of the Monarchy. For Austria it was Trieste, for Hungary Fiume (Rijeka) that became important transport development directions. Hungarian cereals had a serious competitive disadvantage against cereals transported from Russia and overseas, as access to the sea was problematic and expensive (*Gráfik* 2004). In order to remedy this, various plans were made via the Sava and Kolpa Rivers with the aim of approaching, maybe reaching Fiume (Rijeka) on water. We have to add that this meant breaking across the Balkans watershed, making the construction and use of the imagined canal very difficult. Despite this, the concept of this plan was among the ideas that seemed realisable to some extent, so much that it was a plan still alive in the successor states after the disintegration of the empire, because of its strategic importance – in fact, it is still a plan alive today.

The Danube–Sava–Kolpa–Trieste waterway consists of five major sections (*Deák* 1998):

- Danube–Sava canal between Vukovar and Samac
- The Sava River from Samac to Sziszek (Sisek)
- The Kolpa River from Sziszek to Károlyváros (Karlovac)
- The Kolpa River from Károlyváros to Kulpabród.

The navigation way of the Sava and Kolpa Rivers was regularly used from the 18th century for the transportation of the cereals produced in the Great Hungarian Plain to the sea ports; it was basically the second most important trade direction in the contemporary Hungary after the northern direction heading to Vienna. Goods were transported from Zimony (now district of Belgrade) to Károlyváros by ships on the Sava and Kolpa Rivers, then by carriages from there to Fiume, on the so-called Louise Road. The Kolpa River is an expensive and uncertain waterway, it was navigable in the spring and autumn, only, and the cereals had to be stored during the seasons in between. The journey thus may have lasted for up to 60–180 days from Becse (Bečej) by the Tisza River to Fiume (*Gráfik* 2004).

In the early 20th century plans and the Act of 1908, we can see again the necessity of the development of navigation, and plans were made for the regulation of the Kolpa River by damming not only up to Károlyváros but further upstream, right up to Kulpabród (*Fekete* 1907). The canalisation of the Kolpa River was actually started, but the works came to a halt because of World War I, and then the whole waterway was in the territory of the Serb–Croat–Slovene state after the war.

The construction and the improvement of this waterway remained an important issue after the foundation of the Yugoslav state, but, understandably, without the Danube–Sava Canal. The necessity of the construction of this canal has been raised again recently, because Croatia, after gaining its sovereignty, became interested again in the connection of the Danubian areas to the seaside. We can add that Croatia is also motivated by its geopolitical location to keep the issue on the agenda: by using this canal it can prevent its ships transporting upstream the Danube River from using Serb territories and services (*Erdősi* 2005). Accordingly, this waterway was integrated into the AGN Agreement (European Agreement on main inland waterways of international importance) as well.

Another interesting issue of the Danube–Adriatic connections is that it was important both for Czechoslovakia born after World War I, and may also be important for the later born Slovakia. However, they are not only interested in the waterway discussed so far, but also in a waterway to Italy across Slovenia, reaching the Sava River at Ljubljana. This idea seems to be hardly realisable; nevertheless the issue was raised between the two world wars as well (*Fichelle* 1921), and has not been forgotten since then. Italy would have been a supporter of this line (*Lipták* 1993). From the main branch, a side-branch would come out near Ljubljana, which, across West Transdanubia and Burgenland, would reach the Danube River between Bratislava and Vienna (*Erdősi* 2007). The explanation for this direction, raised as a vague idea, is that it would contribute to the strengthening of the north–south and east–west logistics centre character of the Vienna–Bratislava city pair.

Among the less rational ideas we find the concept of connecting the Danube River to the Aegean Sea across the Great Morava and the Vardar River valleys. Beyond doubt, this path is a very important direction of our land transportation, as it is an important sea access of Central Europe towards Thessaly, with advanced motorway and railway connections.

The navigation of the Morava River was an important transport route for the young Serb state. The plan of reaching the Aegean Sea through the Vardar River was made in the early 20th century, especially by English and German inspiration and promises for financing. In 1907, an American

company even made a preliminary plan for this route (*Jovanovski* 1993).

The birth of this idea was an unrealistic attempt trying to find a way out of the isolation in World War I, taken over by the bureaucracy of the Monarchy and still alive today (*Kaján* 2004). The navigation route from Central Europe to Thessaly would undoubtedly be shortened by some 1,100 kilometres. In war times, the possibility to avoid the Bosporus and the Dardanelles was just as tempting. The disadvantage of the plan, on the other hand, is that the watershed between the rivers of the two valleys has a very high elevation, which would make the investment extremely costly (*Tőry* 1954). Kaján quotes the professional opinion of Jenő Kvassay, i.e. 140 locks should be constructed on this navigation route to bridge the elevations. This would increase the time of navigation and also the costs, so this would not be competitive against the longer route.

This did not prevent the Yugoslav leadership from warming up to the idea again in the 1960s. In 1961 they had another plan made for this route, which was followed by several further plans and studies until 1973. According to the technical specifications, a Class 4 navigation route of 650 kilometres was planned, crossing the watershed with 63 locks, and saving 20–30% of the costs of navigation compared to the Black Sea route (*Jovanovski* 1993).

Conclusion

As we can see, there was an economic demand for the working out of the navigation route network of the Danube River, together with government intentions and to some extent also the resources. The feasibility of several elements of this network is proved by the raising of the idea of construction again, several times and by several actors. In fact, there are many plans that are still parts in the European development plans and are considered in the concepts for the working out of the European waterway network. We do not know if there ever is a geopolitical and economic situation in the future when the implementation of these plans will be considered seriously, but our analysis is a proof that the lack, the abandoned construction of these navigation ways considerably decreased the possibility of the economic utilisation of the Danube River and the birth of a macro-regional economic structure built on the Danube.

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The new immigration in Sicily: between acceptance and rejection. The case of the city of Vittoria

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Abstract

The aim of this study is to focus on the recent growing flow of foreign immigration into Sicily, in order to highlight how traumatic this development has been for Sicilian society. Although tolerance towards foreign presence is deeply rooted in Sicilian customs and traditions, recently it has been put at risk by the emergence of various ethnic groups, who are settling on Sicilian soil and are impacting upon local institutions, economy and society.
The Sicilian population is the product of a melting pot of races and ethnicities, whose features can be found in the make-up of the Sicilian population. However, since the end of the nineteenth century, Sicilian population dynamics have been stable, with no traces of unabsorbed foreign presences.
So, the plain of the Albanians, founded in 1500, and more recently Mazara del Vallo, which hosts a large group of Tunisians, were just isolated cases. The 70's are the turning point since Sicily from a land of emigration became a land of immigration. Lots of ethnicities use Sicily as a natural corridor where the Mediterranean flows are channelled. To conclude we would like to find out which are the levels of intolerance and acceptance, and if one is more prominent than the other.

Keywords: *immigration, Sicily, tolerance, customs, traditions, Mediterranean flows*

Rezumat. Noile tendințe de imigrare în Sicilia: între acceptare și respingere. Studiu de ca – orașul Vittoria

Această lucrare prezintă fluxurile de imigranți străini în Sicilia, care s-au intensificat în ultimul timp, cu scopul de a sublinia cât de traumatic a fost acest proces pentru societatea siciliană. Deși toleranța față de străini este adânc înrădăcinată în obiceiurile și traițiile sicilienilor, situația pare să se schimbe în ultimul timp ca urmare a apariției mai multor grupuri etnice ce se stabilesc pe pământ sicilian, având un impact considerabil asupra instituțiilor locale, economiei și societății.
Populația siciliană este rezultatul unei mixturi de rase și etnii. Totuși, de la sfârșitul secolului al XIX-lea, populația sicilienă a fost relativ stabilă și omogenă. Comunitatea Albanezilor, fondată în 1500, și mai recenta Mazara del Vallo, care găzduiește un grup numeros de tunisieni, au fost doar cazuri izolate.
Anii 70 reprezintă punctul de cotitură, Sicilia devenind dintr-un spațiu de emigrare unul de imigrare, foarte multe minorități etnice folosind Sicilia drept un coridor natural ce canalizează fluxurile dinspre Mediterana.
În concluzie, dorim să aflăm care este nivelul intoleranței și acceptării, și care este mai pregnant.

Cuvinte-cheie: *imigrare, Sicilia, toleranță, obiceiuri, tradiții, fluxuri mediteraneene*

Introduction

Situated at the core of the Mediterranean Sea, Sicily has been since the ancient times the geophysical link and the crossroads of cultures and trades of people from Africa and the Middle East. By the second half of the nineteenth century, due to bad economic condition after the Italian unification (1861), emigration from Sicily to Europe, America, Asia and Africa intensified. Again, immediately after the Second World War large migration flows re-started not only inside Italy (to the capital, the industrial triangle and the Ligurian coast) but also towards Europe (first France, then Germany and Switzerland). In addition, some Sicilians opted to move to America, particularly to the United States, where large Sicilian communities still live.

Today the situation seems substantially different: the Island is in fact the first reception land for men who have crossed the Mediterranean Sea, braving much peril and hardship in their "coffin ships", to escape war, famine and rife poverty in their homeland. It was at the beginning of the seventies that Sicily changed its net migration. The island, traditionally known as land of emigration, started to face with a large wave of immigrants and not it is experimenting new multicultural coexistence.

This paper aims to document the boot process that changed the sign to the picture of migration in Sicily. Particular attention will be given to a small Sicilian reality as the town of Vittoria. In fact, Vittoria presents a very significant cultural coexistence that is going to be just in line with the European trend.

Discussions

The origins of the phenomenon in Italy and current laws

Nowadays, the matter of immigration is a current topic in Italy, because of the increasing presence of foreigners. This phenomenon is not new; in fact, the first wave of immigrants arrived in the seventies. In particular, after the adoption of a strict immigration policy by the countries of northern Europe, in 1973, Italy was transformed from a country of emigration to a country of immigration. The first immigrants

came mostly from north Africa, and until now they represent the majority of African migrants.

As we know the policy of the stop, derived by the "Anwerbestop" (the prohibition of recruitment) decided by the Federal Republic of Germany in 1973 and later generalized throughout Western Europe, represented the grand entry of the intervention of several States in the scenario of the great movements of population and labor, but also facilitated the spread of illegal immigration. By 1968, Italy welcomed few sporadic units of Tunisians in Sicily, which entered at more intense rhythms by the early seventies.

The Law 39/1990 Legge Martelli was the first law aiming at regulating immigrant workers, who were exploited as irregular workers. It treated the immigration issue by narrowing the flow of immigration, giving a pre-set number of accesses (a quota) and linking them to the job market. A permit of stay (Visa), which lasted two years and was renewable, could be obtained for work, study, medical care or family reunification. Those that got in with regular documents but stayed after the expiration of the permit, or those exceeding the quota, were considered "illegal immigrants". Illegal and irregular immigrants, as well as the ones who did not have the required qualifications, were expelled. Expelled immigrants had 15 days to leave Italy on their own, otherwise they will be deported by police. This law did not create an organic program for the future, but an economic view of immigration, which remains a constant of Italian immigration legislation.The current laws about immigration are the 189/2002 Bossi-Fini Law and the Security Set 94/2009. The Bossi-Fini law tightens the norms against the aiding and abetting of illegal immigrants. Immigrants found in international waters, formerly outside of the patrolling power of Italy, can be sent back to their country or to neighbouring countries. No boat carrying people without visas can dock on Italian coasts. To obtain a work permit – "contract to stay as a dependent employee" – a work-contract and a rental agreement are needed. Forced detention – and no longer the intimation of detention – becomes ordinary rule: all illegal/irregular immigrants found by police on Italian ground without the necessary documentation must be identified and deported to their countries of origin. Migrants can be detained in a Immigrant detention center for up to 60 days. They can only come back to Italy after 10 years. Non-Italian citizens serving a two-year punishment can, instead, be deported. The system of protection for asylum-seekers and refugees (the so-called SPRAR) is introduced.

The requirements that immigrant workers in dependent employment must meet in order to qualify for regularisation are as follows:

- the workers must have been employed by a company for at least three months;
- the employer must commit itself to hiring the worker on an open-ended contract, or on a fixed-term contract lasting at least one year;
- the employer must pay the workers at least EUR 700 per month, plus EUR 100 in expenses, and all within 10 days of the submission of the application for regularization and of the relevant documentation.

However, there are several criticisms of the Bossi-Fini law:

- Forced deportation in international waters contravenes Article 13 of the Universal Declaration of Human Rights of 1948: "Every man is free to leave his land"; it is also against the Geneva Convention of 1951, as many refugees are sent back instead of being offered protection; it involves the risk of shipwreck in the sea, meaning that it is also against human rights.
- Having documents can make it easier for police to send an immigrant to his/her country; this encourages immigrants to "lose" their documents or give false names and nationalities (making police work more difficult and expensive), and to remain in the CIE as long as possible.
- Life conditions in CIE are hard. Indeed, several immigrants organised riots, escaped, or tried to commit suicide.
- No information was given about healthcare policies or regulation in the CIE.
- It is now impossible to regularise the situation of immigrant workers who have received a deportation order but remain in Italy. Many firms employ immigrant workers in this category, and the impossibility of regularising their situation risks leaving many companies with an insufficient number of workers.
- Employers now bear a great social responsibility for defining a welcoming policy for immigrants. Employers, in fact, will have to guarantee a decent life to immigrant employees. In reality, however, employers will have the power to blackmail and exploit illegal immigrants.
- Without the signing of joint agreements with the countries from whose coasts these immigrants embark, forced returns will hardly be effective.
- Push-backs are often violent acts, as the immigrants refuse to be repatriated.
- Despite the fact that 92% of the legal immigrants come with family reunion visas and working visas, the Bossi-Fini law focuses mostly on illegal migration: only 5 out of 38 articles deal with family reunion and work policies. The government has no actual policy regarding the social integration of regular immigrants (religious dialogue, for example).

According to the Security Set 94/2009:

• Illegal immigration becomes a crime, thus all public officers and public workers must report the presence of an illegal immigrant. Illegal immigrants are liable to pay a fine and can now be detained by the authorities for more than six months.

• Each petition made to the public administration, such as requests for money transfers, much be accompanied by one's permanent residency permit, with the exception of applications for health care, school and birth certificates.

• Helping an illegal immigrant come to Italy, or housing undocumented migrants is now prosecutable as a crime (up to 3 years in prison). Italian teachers must report undocumented children. School drop-out rates are increasing as a result.

• Legal immigrants married to an Italian must wait two years in order to get Italian citizenship.

• The law allows for the formation of unarmed citizen patrol groups.

It is worth underlying that the above mentioned laws are generally more concerned to reject immigrants than attract. At the present time not only does immigration remain a subject often misunderstood by public opinion, but it also enters in conflict with the economic and employment crisis in our country.

The question arises: how can Italy be the subject of immigration, even when our emigration is not yet finished? How do we accommodate these strangers, help them to settle in a country where there are still large differences between North and South? And how can the South, affected by atavistic hunger and unemployment, give positive responses to newcomers seeking work and escaping from their hunger?

Therefore it is urgent to find the most suitable legal and administrative solution to changing needs, to make an immediate clarification on the legal status of foreigners, not only in the interests of itself, but also for the protection of the national institutions and the economy (BRUSA C, 1999).

Immigration in Sicily

Traditionally a land of exodus, Sicily, in the second half of the sixties, saw a flow of foreign immigrants, that within a decade reached a considerable amplitude. This flow has been characterized by an ethnic point of view, being formed by migrants of different countries of North Africa, especially Tunisia and Morocco. The first immigrants came mostly from north Africa, and until now they represent the majority of African migrants. This choice is not only due to the closeness of this part of the African continent to Italy, but also for a historical and cultural bond that joins African countries to the Italian peninsula. Arriving by sea, by the ferries which regularly arrive to the ports of Palermo, they officially come for tourism, but in reality they come and look for a job. They also enter Sicily through the island of Malta landing at Syracuse and Catania. They are usually in possession of the only tourist passport and begin to settle mainly in the province of Trapani in western Sicily, where large communities of Tunisians live.Today, the increase in the numbers of people from different ethnic backgrounds and countries is one of the most significant factor of the flux of immigrants to our country. Among the nine Sicilian provinces, the capital has the largest number of foreigners with 28,496 immigrants, of whom 54% are women and almost 19% minors, followed by the provinces of Catania and Messina with 25,908 and 23,550 units respectively. With 2,874 immigrants, the province of Enna has the smallest immigrant population.

We are experiencing a rapid increasing diversity of ethnic groups, cultures and religions. They are non-EU, mostly from Third World countries. Today we host Eritreans, Somalis, Senegalese, Cape Verdean, Sri Lankans, Filipinos (Fig.1). The flow of immigrants consists mainly of men and then of women, children and other family members who belong to a second chain migration of the parental type.

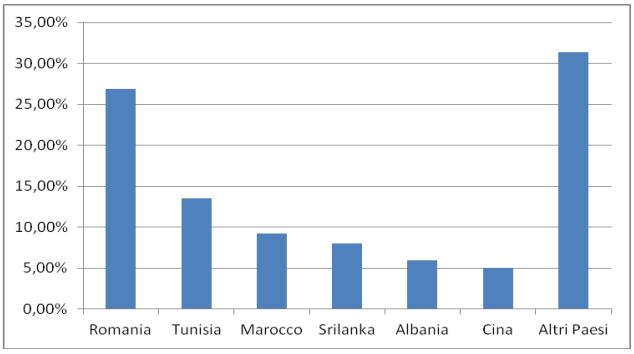

Fig. 1: The most prevalent nationalities/ citizenships in Sicily in 2010, Source: our processing based on ISTAT data

They are concentrated in the major urban areas: the provinces of Palermo, Catania and Messina accommodate more than half of the island's foreign residents. The dynamics of the province of Catania is particularly strong (with a +21% in 2008), while Ragusa is characterized by the fact that it has the highest proportion of foreigners in the total population (5.2%). Looking at the Caritas-Migrantes Statistical Dossier on Immigration 2010, it is also clear that foreigners living in Sicily are young, aged in general between 18 and 39. We also see that, in 2009, their children accounted for 12.4% of the total births, just one percentage point less than the Italian average (13.5%).

In an interview with Monsignor Benedetto Genualdi, director of the Diocesan Caritas in Palermo, we can see how the young age of the immigrant population is also reflected by the

composition of school classes. During the year 2009/2010, foreign students (16,521) represented 1.9% of the entire school population, and 2.5% of the total primary school students, showing an increase of as many as 1600 units.

Initially, the occupations found are those of fishing, for instance Mazara del Vallo offers lots of opportunities in this sector. Other job opportunities are to be found in agriculture, especially in the nearby countryside such as Campobello, Salemi and Marsala. The Moroccans are mainly dedicated to street trading, moving constantly in search of new markets (CARITAS/MIGRANTES, 2010).

The case of Tunisian in Vittoria

The immigration of foreigners in the province of Ragusa, and especially in Vittoria begins to emerge in the late seventies, when the arrival of foreigners across the country reaches very high numbers. It is still difficult and often unsuccessful to obtain official data on the presence of immigrants in Vittoria and Ragusa. The data, information and considerations that we report are often derived from the experience of our contacts with immigrants (only when it has been possible to overcome their distrust and the locals).

Vittoria is mainly an agricultural country. The migration flow that pours into this place undergoes considerable variations during the year due to the nature of the commuter phenomenon and due to the seasonality of agricultural labor. In Vittoria there are two immigration cycles: the first one from September to January and the other one from March to July, with two stops in the months of February and August. In greenhouses labor is intense and requires the presence of daily labor during the whole year, but assumes extreme importance, increasing in number of workers, during the collection period of the subsequent preparation and processing products for sale. During these phases there is a highest number of foreigners (Vittoria and the surrounding municipalities are interested in the processing of fruit and vegetables and flowers in greenhouses).

There was an increase in the number of immigrants in 1986 (both with a residence permit, and the vast majority, in a state of hiding) the year in which the Law No. 943/86 was passed. With the application of this law, the number of inputs should have been reduced, and at the same time it was necessary to regularize all the illegal situations. But something did not work proprly, so that there were several decrees of extension, until 30 September 1988. In the years 1986/1988 the phenomenon of illegal immigrants, waiting for amnesty, greatly increased.

As to the origin, with the exception of the small contingent of Moroccans, some Egyptians, some Senegalese and many Algerians, the most part of foreign immigrants are Tunisians.

From a recent survey conducted by the Provincial Office of Labour, resulting in a sample of 200 cards (out of a total of about 1000), there were 143 Tunisians (71.5%), 42 Moroccans (21%), 7 Senegalese (3.3%). Other nationalities, with fewer representatives were: Algerian, Brazilian, Filipino, Yugoslavian and Egyptian. Always following the same search, and referring only to the Tunisian group, it is noted that the majority are young, aged from 26-30. Almost all Tunisians have chosen Vittoria for residence, while just a small number live in Santa Croce, Comiso and Acate.

The data on the Moroccan group confirms they mostly live in Acate. They run almost all the activities of itinerant trade, moving with their cars loaded with trinkets, banquets and wheelchairs, to the municipalities of the province.

As regards the distribution by sector of employment almost all the Tunisians are employed in agriculture, mostly in Vittoria and in the municipality of Santa Croce and Acate. The territories of these municipalities, which are part of the Iblean plain, are the most exploited for the cultivation of fruit and vegetables in greenhouses.

Other areas of employment are restaurants and pizzerias and restaurants, while the fishing sector is in crisis. There are indeed problems of employment, ongoing struggles and controversies between small and large navy, insufficient port facilities.

The tasks usually carried out by immigrants do not require specific qualifications, they are used as labourers, unskilled workers, labourers, waiters. It is known, however, that many of them have a diploma, some even graduation. The massive integration of immigrants into employment does not seem to have favored a harmonious integration of these into the social and cultural context of Vittoria. For this reason, immigrants maintain strong relations with the motherland and their families with frequent trips back home and sending savings. The integration is hampered by widespread ethnic and religious prejudices, stereotypes and cultural attitudes that put the immigrant communities in marginal social areas.

There are few mixed marriages, as there are few opportunities of meeting up between the two communities. Outside the world of work, immigrants live in total isolation from the host community. The Tunisians have a social club, opened thanks to the efforts of the Tunisian Consulate in Palermo, where they meet and they are able to play. For some time it was closed, because it was not well managed by those who were in charge of. They usually go to the bars in the main square, Piazza del Popolo, but not all the bars allow them to enter. The owners refuse

the newcomers because they consider them to be dirty and quarrelsome. This attitude creates hostility.

It happens that many Sicilians prefer to avoid them and not seeing them, sometimes without even entering, even occasionally, in those bars where the presence of Tunisians is evident.

Other meeting points are the Piazza Manin, located in a central position and close to the center where there is the social life of Vittoriesi. The explanation for choosing this place lies in the fact that here the parish of Sacro Cuore is located, this being the only shelter and sustenance centre for immigrants.

Here, the priest assisted by few young volunteers, prepares hot meals, offered in the morning and evening, and he is also responsible for the collection and distribution of clothes while offering assistance to newcomers.

In this square a large number of them gather very early in the morning (from 5:00 to 6:00) in order to wait for Vittoriesi offering as cheap labor and occasional "black jobs", for the whole day in the farm. Sometimes meals are also included. They gather in the same square, in the late afternoon, when they finish work and have some "free time" to have a chat with their fellow friends, forming many small groups or sitting wherever possible. Sometimes they can be "hundreds" in cafe or game room.

Another place of reunion, especially in the early hours of the morning, is the Market Square of Flowers, a big structure for the marketing of this product, situated on the outskirts of the town along the axis that goes from Vittoria to the sea, in the district Macconi, rich in greenhouses.

Here, too, immigrants gather waiting to be hired for the day. Many of them do not come back in the evening, because landowners use to keep them in their funds. They accommodate in small rooms used for sheltering tools. Sometimes they are offered meals. Of course there is a mutual benefit in this custom. The employer has the possibility to monitor the harvest and shelter from the bad guys, the immigrant perhaps has the chance to feel a bit more secure and independent, away from the town and the problems that it entails.

Another point of reference for the immigrants is the weekly market, where they buy not only food and clothes, but also items aimed at furnishing the houses under construction in their country of origin. They also buy other household goods, which will be brought to Tunisia to resell them in order to maximize the savings.

On Saturday night and Sunday they rest, and it is possible to see them walking in the main street, or still in the square, dressed in a different way, less sloppy, someone even fashionable. Even those who live permanently in the country estates, come to the town, many have a car, but most of them use mopeds, cheaply bought. One can easily understand when there is a special day for them, by observing their actions: they drink a little more, especially beer, laughing and joking with each other using higher tones of voice.

Sometimes they exaggerate, and often "raise the elbow", this is the basis of their fights involving many of them, in these cases they can become violent. Sometimes it is necessary to involve the police, there can be wounded persons, with large cuts done by a knife or caused specially by broken bottles.

In fact, they have created a problem of public policy, from this point of view, for the most part they are stopped by the police for control of documents, state of drunkenness, fights. The Western way of life is certainly tempting and paradoxically the Tunisian independence accelerated the process of Westernization.

This process has affected all the sectors of immigrant life: from political and economic to cultural life, implying an increasing spread of education and a process of secularization.

In particular, this change can be seen in the migrant women, who are more emancipated (the propensity of limiting births) and tend to dismiss their old traditional dress and replace them with modern ones. They also tend to use the patio for new leisure activities.

By the 1980s, Vittoria became a national reference standard, not only because it hosted the highest number of North-African immigrants, but also because of its emerging model of openness within the agricultural framework, proving that if the first obstacles of hostility are overcome, there is a good chance for a small multicultural society.

Conclusion

Immigration to Sicily started in the late 70s and has increased at a giddy speed since then. Immigrants come from Africa, Asia, Middle East, Latin America and also from some eastern European Nations. Several laws have been passed regarding immigration: no. 39/1990, no 40/1998 and the law no. 189/2002.

A lack of serious intercultural project, factious and unfair information, and a growing number of illegal immigrants resulted in a negative perception of foreigner. Indeed, the financial and economic advantages due to the presence of legal immigrants do not justify the irrational xenophobic attitude that has developed in our country.

Nevertheless, this unfauvorable condition, which worsened due to the present economic crisis, has not discouraged immigrants, who in spite of the difficulties have succeeded in carrying out

alternative forms of work. Some immigrant communities are no longer looking for employment but are adopting a business's outlook and setting up self-employment activities (BRUSA C., 2002).

An evident example of this tendency is provided by numerous wholesale and retail shops, restaurants and stands opened by the Chinese. Senegalese also seem to be more interested in self-employment with the creation of phone centers and money transfer. North African run ethnic shops and take away kebabs shops with favourable results.

However, after more than forty years, the process of integration of immigrants still appears to be rather problematic. Furthermore, the process also involves the immigrants' children, who were travelling to Sicily since the early nineties to reunite with their families and to eventually forge a new life path. In this context schools and cultural association play a pivotal role in order to enhance social integration and preserve identities and culture.

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GIS in Healthcare Planning: A Case Study of Varanasi, India

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Abstract

The objective of this paper is to examine the relevance of Geographical information system (GIS) supporting health planners for a district level healthcare planning. For this purpose, an attempt has been made here to calculate the hospital requirement area to know the specific sector that needs to better develop health facilities. The weightage is assigned to the class of thematic layers respectively to produce weighted thematic maps, which have been overlaid and numerically added in order to produce a Hospital requirement index (HRI) and hospital requirement zone (HRZ) map. These maps are very useful to calculate the exact area having good health facilities and also those wherein healthcare facilities need to be improved in Varanasi district. The Hospital requirement index (HRI) values according to the weighting method are found to lie in the range from 11 to 23. After calculation by weighting method using selected indicators, it is found that the areas coming under very high and high requirement class is 46.62% and 7.55%, respectively, whereas 3.39% and 42.63% of the total areas comes under low and moderate requirement classes in Varanasi district. Primary data are also collected from 800 respondents of 16 selected villages (2 villages from each development block) in the rural parts of the district to know about the utilization of healthcare facilities and their results are analysed with the help of statistical SPSS software. It is interesting to note that only 25.38% respondents are satisfied with the available healthcare services of primary health centres (PHCs), while 60% of respondents remain partially satisfied. The remaining 14.62% (117) respondents are not satisfied with the services of PHCs.

Keywords: *GIS, hospital requirement index, hospital requirement zone, weighting method, Varanasi, SPSS, primary data, PHCs*

Rezumat. GIS în planificarea sistemului sanitar. Studiu de caz: Varanasi, India

Această lucrare îşi propune să analizeze relevanţa Sistemelor Informatice Geografice (SIG) pentru planificarea sistemului sanitar la nivelul unui district. În acest scop, s-a încercat calcularea numărului necesar de spitale, pentru a cunoaşte în ce sectoare trebuie deyvoltate unităţi sanitare. Astfel, s-a recurs la layere tematice pentru a produce hărţi tematice ponderate, care au fost suprapuse şi adăugate pentru a obţine indicele necesarului de unităţi sanitare (HRI) şi harta cu zonele în care este nevoie de spitale (HRZ). Aceste hărţi sunt foarte utile pentru a calcula cu precizie ariile din districtul Varanasi care dispun de o bună infrastructură medicală şi cele care necesită îmbunătăţiri. Valorile Indicelui necesarului de unităţi sanitare, conform metodei ponderate, variză între 11 şi 23. Calcularea, prin metoda ponderată, a indicilor aleşi a scos la iveală faptul că ariile care au o nevoie foarte mare şi mare reprezintă 46,62%, şi, respectiv 7,55%, în timp ce doar 3,39% şi 42,63% au nevoie redusă şi moderată în districtul Varanasi. Datele primare sunt deasemenea colectate în urma intervievării a 800 de respondenţi din 16 sate selectate (câte 2 sate din fiecare bloc de dezvoltare) din zona rurală a districtului, care aveau cunoştinţe despre utilizarea unităţilor sanitare. Răspunsurile acestora au fost analizate cu ajutorul software-ului SPSS. Este interesant de menţionat faptul că doar 25,38% dintre respondenţi sunt satisfăcuţi de serviciile sanitare oferite de centrele primare de sănătate (PHC), în timp ce 60% dintre respondenţi sunt doar parţial satisfăcuţi, restul de 14,62% (117 respondenţi) fiind nemulţumiţi de aceste servicii.

Cuvinte-cheie: *SIG, indicele necesarului de unităţi sanitare, zone în care este nevoie de spitale, metoda ponderată, Varanasi, SPSS, date primare, centre primare de sănătate*

Introduction

GIS and related spatial analysis methods provide a set of tools for describing and understanding the changing spatial organization of healthcare for examining its relationship to health outcomes and access, and for exploring how the delivery of healthcare can be improved (Rohan, 2002, Rai et al., 2011). It considers the use of GIS in analyzing healthcare need, access and utilization, planning and evaluating service locations, and also in spatial decision support for healthcare delivery. The adoption of GIS by healthcare researchers and policy-makers will depend on access to integrated spatial data on health services utilization and outcomes related to human service systems (Richards et al., 1999). Healthcare covers broad spectrum ranging from personal health services to health education and information for prevention of diseases, early diagnosis, treatment and rehabilitation (Gatrell, 2002). The relevance of GIS befits the goal of modern public health which has been set by World Health Organization (WHO) as "the attainment by all people of the highest possible level of health".

Health has been declared as a functional right; so the every state has a responsibility to provide good healthcare facilities to the people (Srinivasan, 1984). There are so many problems in delivery of healthcare facilities on account of which people find themselves unable to utilize the facilities up to its satisfactory level. The major problems related with healthcare facilities and their utilization in the study area are: uneven distribution of healthcare facilities, illiteracy, poor socio-economic conditions along with lack of awareness to avail the healthcare facilities

that stand in the way of improvement of health in the area. Utilization pattern of healthcare facilities clearly indicates the awareness and attitude of people towards their health (Prakasam, 1995). Education, economy, male-female ratio and social status are major influencing factors for utilization of healthcare facilities. An educated person is more careful about his health than an illiterate. Females utilize these services less as compared to males (Sinha and Rajeswari, 1993). Besides, successful utilization of health services depends on reliability, motivation and finally on the perception of the people about the services and the need about a particular service (Kumra and Singh, 1994).

In the rural area of the country, the healthcare services are being provided through the network of primary health centres (PHCs) and sub-centres (Datta, 1969). India presents a unique case in terms of sheer size of population characterized by heterogeneity in respects of physical, economic, social and cultural conditions. The population of the country was 391 million in 1951 which rose to 1020.1 million in 2001. About 2.4 percent of the land area, India supports more than 16 percent of the world population. Over 70 percent of India's population lives in villages.

The study aims at calculating hospital requirement index (HRI) and hospital requirement zone (HRZ) though remote sensing data and GIS techniques and utilization of healthcare facilities in Varanasi district to delineate state-of-the-art in healthcare facilities and formulate the coordinated strategies and policies in the health sector of this district.

Study area

The study area is Varanasi district, Uttar Pradesh, India extending between 25°10′ N and 25°37′ N latitude and 82°39′ E and 83°10′ E longitude in eastern Uttar Pradesh, India and spreads over an area of 1454.11 sq. km (Fig.1). Administratively, the study area comprises two tahsils, namely, Pindra and Varanasi Sadar, which are further sub-divided into eight Development Blocks, namely Baragaon, Pindra, Cholapur, Chiraigaon, Harhua, Sevapuri, Araziline and Kashi Vidapeeth, consisting of 1336 villages altogether. More recently, Governor of Uttar Pradesh, at the behest of state government, has issued an ordinance for the new tehsil, namely 'Rajatalab' encompassing 436 revenue villages.

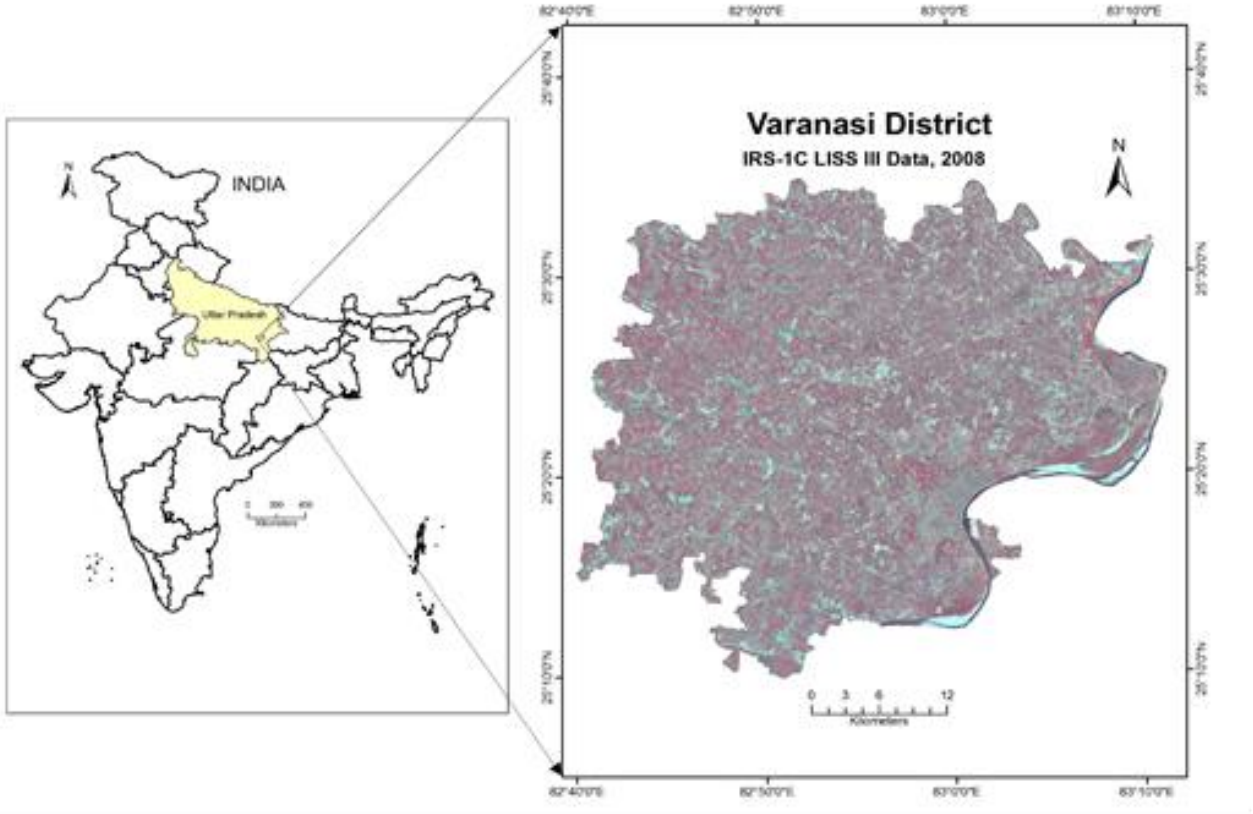

Figure 1: Location of Study Area as Viewed on IRS-1C LISS III Data

In Varanasi district, there is an irregular and uneven distribution of population density of 997 persons per sq. km. It varies from 1266 persons per sq. km. in Kashi Vidyapith to the lowest of 877 persons per km sq. Km in Pindra Development Block.

The analysis of data collected for 8 development blocks reveals inter and intra-regional variations at block level for different social indicators. Here, social indicators include densities of settlement, household and population per km2. The density of settlement is found to be highest in Harahua block (1.2/km2), followed by Sewapuri (1.11/km2), Araziline (1.0/ km2) and Kashi Vidyapith (0.86/ km2). The lowest density of settlement per km2 has been observed in Chiraigaon and Baragaon blocks, just 0.71 and 0.78 respectively.

In terms of densities of households and population, Kashi Vidyapith ranks first incompassing the values 173.0/ km2 and 1266/km2 respectively. In this context the development blocks such as Harhua and Araziline posses higher density of both aspects than Pindra, Cholapur and Baragaon blocks. Minimum density of household (116 household/km2) is found in Sewapuri development block, whereas the lowest population density (906/km2) was calculated for Baragaon development. In Varanasi district, both the household and population densities in most of the blocks are quite high and therefore, there is a need of effective healthcare system in the study area.

Healthcare facilities in the study area are based on mainly modern allopathic of treatment. There are different categories of health centres providing infrastructure and treatment in the district. The PHCs are dotted in the district located at an interval of 10-20 km and the tahsil hospitals are located about 50 km apart.

Presently, the district as a whole possesses 32 PHCs (8 old PHCs and 24 new PHCs) and 304 sub-centres. In addition, as many as 64 referral centres (eight centres in each block) are being made operational for providing mother and child healthcare (Rai et. al., 2011).

Materials & Methodology

A number of GIS layers on specific parameters which are related to the occurrence of malaria, i.e. land use, normalized difference vegetation index (NDVI), distance to water ponds, distance to river, distance to road, distance to hospital, rainfall, temperature, and projected population density of year 2009 have been generated using Ilwis Version 3.4 and Arc GIS Version 9.3 and ERDAS Imagine Version 9.1 software (Rai et. al., 2012).

Statistical software SPSS Version-16 is used to develop the layer maps that assist in the preparation of the malaria susceptibility maps using different statistical methods. Topography map of 1:50,000 scale of study area is used to digitize district and development block boundaries. The coordinates of existing healthcare facilities units are measured during the field surveys using Global Position Systems (GPS) technology. The vector maps like road network, water bodies, PHC's/hospitals locations etc. are developed from the IRS-1C LISS-III remote sensing data, 2008 and Survey of India (SOI) topographical map. Therefore, land use map, NDVI and vector layers of water bodies and other important parameters used in this study are delineated in ERDAS Imagine 9.1 and ARC GIS 9.3 software.

In this study optimum model is used to calculate hospital requirement zone by heuristics (weighting) method (Rai et al., 2012). When we compared multiple linear regressions and Information value method, malaria model developed with information value method is an optimum model, selected for the calculation of hospital requirement index using the above parameters.

The weighted linear combination (WLC) technique is a decision rule for deriving composite maps using GIS. It is one of the most often used decision models in GIS. The method, however, is frequently applied without full understanding of the assumptions underlying this approach. Weightage overlay method is being applied to calculate the healthcare facilities susceptible areas followed by indexing to layers and these are very important input for the generation of hospital susceptible index (HIS) in the study area. This has been done using raster layers assigning relative weightage in accordance to its influence/importance and expert opinion; the weighted layers are overlaid to find out its potential in healthcare facilities. Simply by adding the weightages, hospital susceptible maps have been prepared where a high weight corresponds to high susceptible area. Classes with high, moderate and low are created to highlight the area that fall under high, medium and low susceptible zone in respect of existing healthcare facilities and these information are very important for healthcare facilities management and planning purposes. Overall methodology is summarized in Fig. 2.

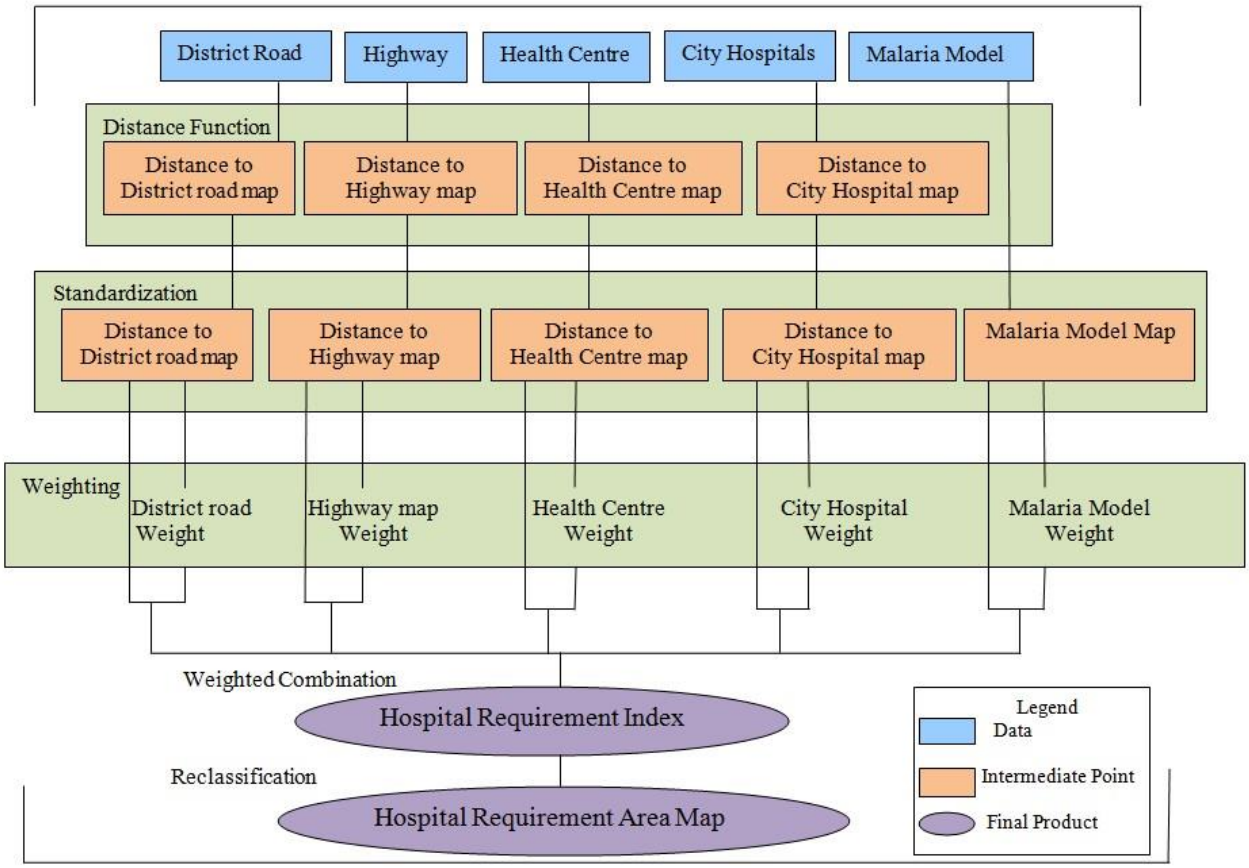

Figure 2: Schematic Representation of Preparation of HRZ map in Weighting Model

The various data layers, i.e. distance to district road map and distance to highway map etc. has been arranged in weighting values (from 1 to 5). Each class within a layer has been given a weighting value; the highest class has 5 values, the medium class 3 values and the lowest class has only 1 value. The weightage is assigned to the classes of each thematic layers respectively to produce weighted thematic maps, which have been overlaid and numerically added according to equation 1 to produce a hospital requirement index (HRI) map and this is very useful to calculate the exact area in the Varanasi district where health facilities is good and where healthcare facilities need to be improved.

$$HRI=Dro+Dh+Dhc+Dch+MSI \quad (1)$$

Where *Dro, Dh, Dhc, Dch, MSI* are distribution-derived weights for Distance to road, Distance to highway, Distance to health centre, Distance to city hospitals and malaria susceptibly index (MSI) model respectively.

Primary data is also collected from 800 respondents of 16 selected villages (2 villages from each development block) in the rural part of Varanasi district to know about the utilization of healthcare facilities and their results are analyzed with the help of SPSS software. Varanasi city is not considered for this purpose because here many private and government hospitals are available where people find quite good healthcare facilities in comparison to people living in the rural area; so, the city area is excluded and only rural area i.e. eight development block are selected for this study.

Result & Discussion

Distance to Road & Highway and Weightage

Distance to district road has been created to assigning the weightage. Weightage is assigned on the basis of road distance from the healthcare facilities located in the rural and city area. Lower weightage (1) is assigned to the roads that lie at a distance of less than 300m from the health facilities, whereas higher weightage (5) is given to roads situated at a distance of more than 3000 m from the healthcare facilities units (Fig. 3 and Fig. 4). In the same manner, higher to lower weights are also assigned to the distance to highway map. Lower weightage (1) is given for class <2000m, but for class >15000 higher weightage (5) is assigned.

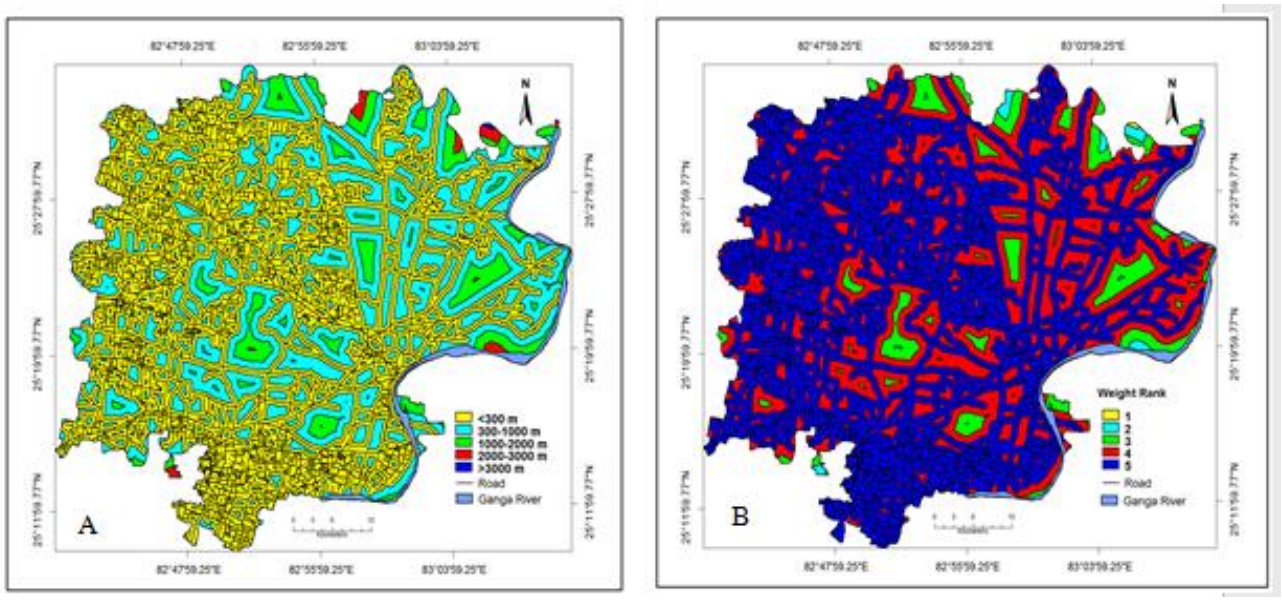

Figure 3: Distance to Road (A) and its Weight Rank (B)

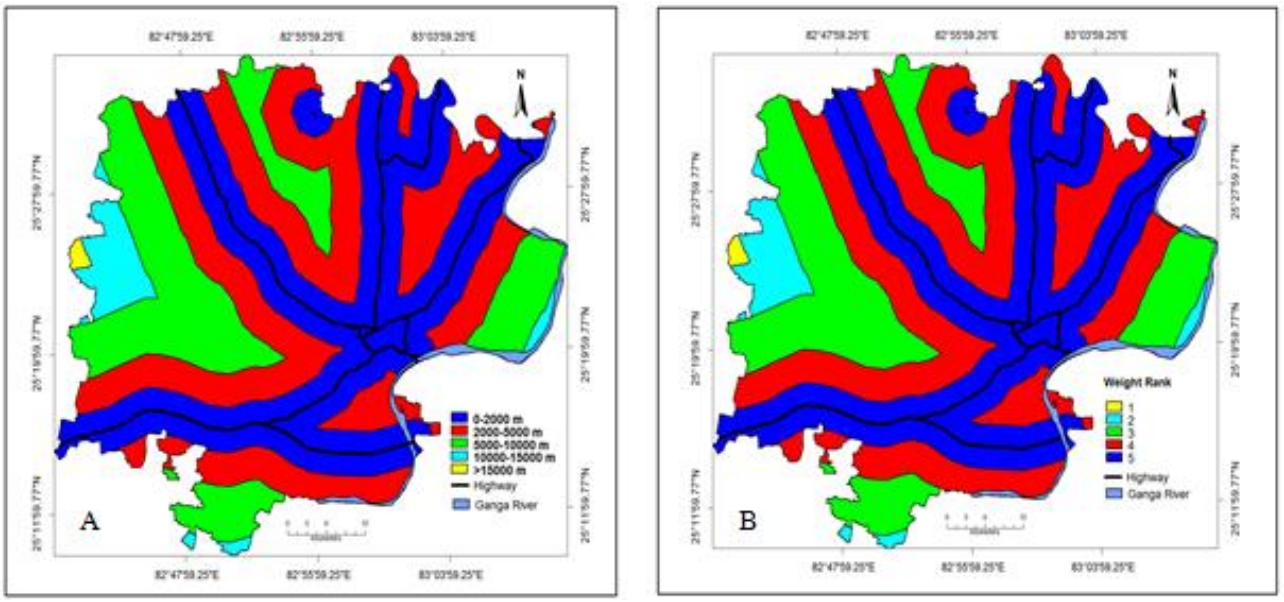

Figure 4: Distance to Highway (A) and its Weight Rank (B)

Distance to Health Centres & City Hospitals and Weightage

Distance to health centres and city hospitals are also calculated and their weightage is given on the basis of distance to the areas which is either far or near from the health centres and city hospitals (Fig. 5 and Fig. 6).

Weight rank 1 is given to the area which comes very near (<1000m) to these rural health centres and where health facilities are quite good and adequate, whereas weightage 5 is given to the area being located very far (>8000m) from the existing health centres. People living in the area could not easily approach these health centres because the distance becomes an important constraint. People living in the north-eastern and south-east part of Varanasi district are very far (>20,000m) from the city hospitals and they are mainly dependent on the rural health centre, where healthcare facilities are not up to their wish. Consequently, this class is assigned higher weight rank (5), whereas weight rank 1 is assigned for those areas which come in <5000m buffer area from the city hospitals (Fig. 5 and Fig. 6).

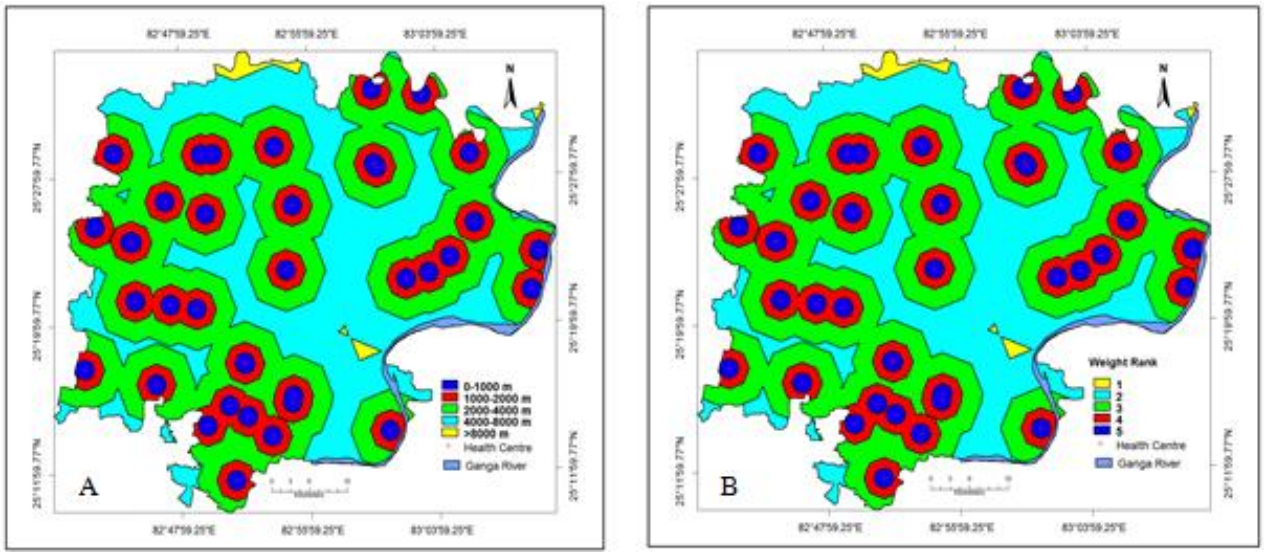

Figure 5: Distance to PHCs/CHCs (A) and its Weight Rank (B)

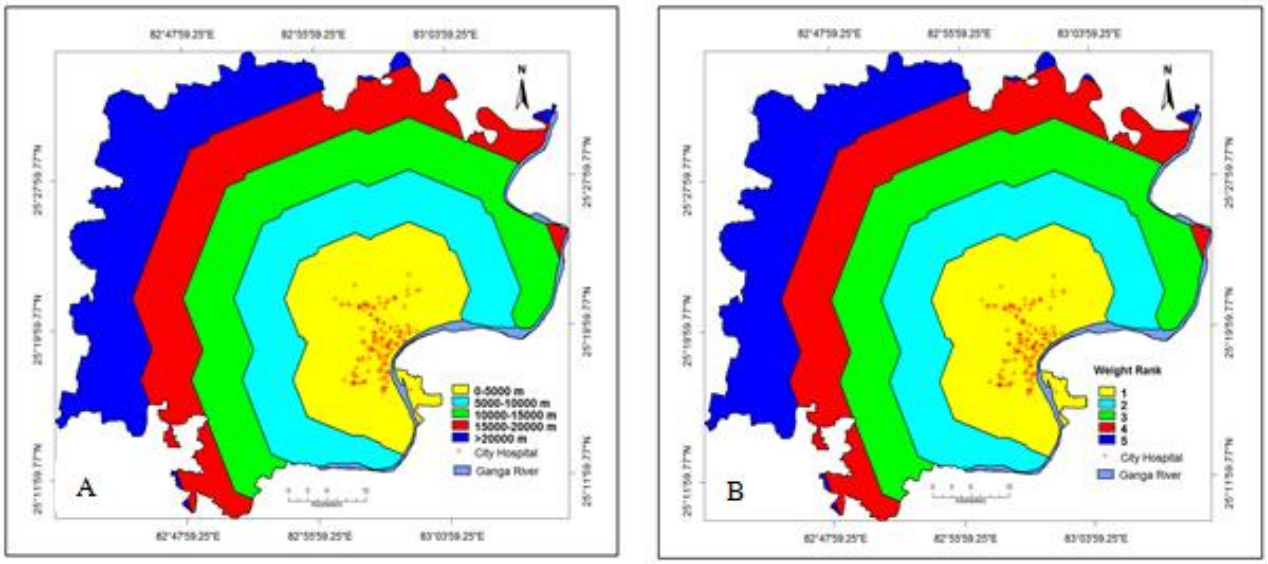

Figure 6: Distance to City Hospital (A) and its Weight Rank (B)

Weightage of Malaria Susceptible Model Map

Malaria susceptible index is calculated and a malaria model map is developed to calculate the malaria susceptible zones by information value method. For this purpose, influential parameters considered in malaria mapping are: Rainfall (Rf), Temperature (Temp), Population density (Pd), Distance to river (Dri), Distance to road (Dro), Distance to health facilities (Dhf), Land use/Land cover (Lu/Lc) and Normalized Difference Vegetation Index (NDVI). These parameters were very helpful to acknowledge their influence on increasing and decreasing area percentage of malaria disease. Distance to health facilities, population densities etc. became one of the important factors for malaria disease mapping. Malaria models calculated through information value itself became important inputs to calculate the hospital requirement index. Weight ranks are also assigned to malaria model, which is based on presence of malaria susceptibility zones in the Varanasi District. Areas which come under higher susceptible malaria zone are assigned higher weight, whereas low weight rank 1 was assigned to very low susceptible malaria zone (Fig. 7).

The hospital requirement index (HSI) values from the weighting method are found to lie in the range from 11 to 23 (Fig. 8).

The cumulative frequency curve of HRI values has been segmented into four classes representing near equal distribution to yield four hospital requirement zones, i.e. low, moderate, high and very high. After calculation by weighting method using all the above selected indicators, it is found

that the areas coming under very high and high requirement classes are 46.62% and 7.55% respectively whereas 3.39% and 42.63% of the total areas come under low and moderate requirement class in Varanasi district (Table 1 & Fig.9).

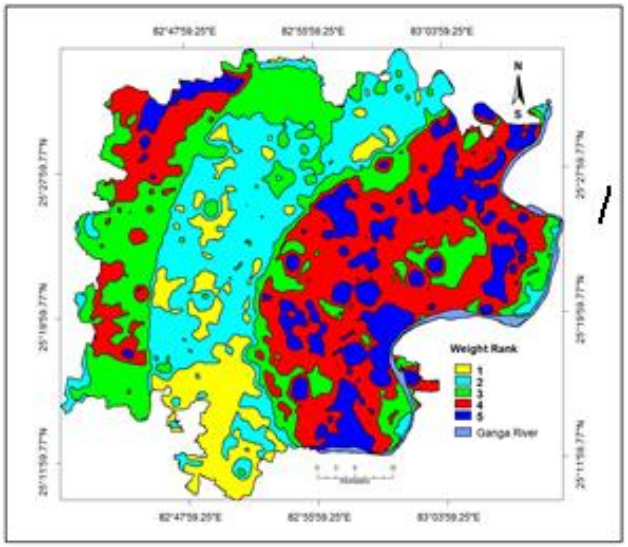

Figure 7: Weight Rank to Malaria Model (MSI model)

Hospital Requirement Index (HRI) and Hospital Requirement Zone (HRZ)

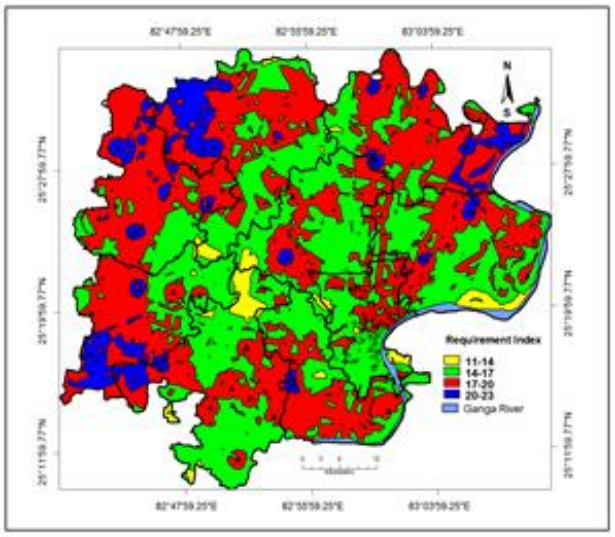

Figure 8: Hospital Requirement Index with InfoVal Method (HRI)

Table 1: Area Statistics of Hospital Requirement Class in Varanasi District

Requirement Class	No. of Pixel	Pixel Percentage	Requirement Area (%)	Area (sq.km)
Low Requirement	20745	2.15	3.39	51.86
Moderate Requirement	260613	26.97	42.63	651.53
High Requirement	283758	29.36	46.42	709.39
Very High Requirement	46154	4.78	7.55	115.38

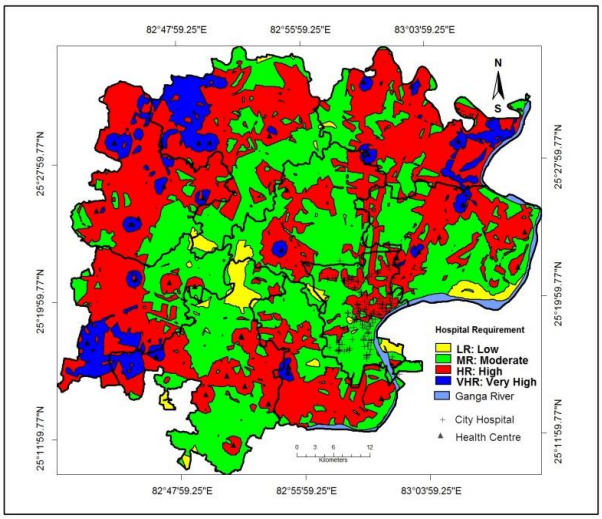

Figure 9: Hospital Requirement Zone (HRZ) in Varanasi District

Inadequate Facilities and Network of Health Centres and Sub-Centres

The programme of establishing primary health centres in each community development block having a population between 60,000 and 80,000 was launched as an integral part of the community development programme in 1952. Each primary health centre consisting of 6 beds was located at the block headquarters and with this 4 sub-centres was attached. The staff include 1 medical officer, 1 sanitary inspector, 4 mid-wives (ANMs) and 2 ancillary personal. The centre was to be supported by district hospitals for referral consultation, laboratory, medical, surgical, nursing and administrative services.

In the rural area, services are provided through a network of integrated health and family welfare delivery system. Healthcare programmes have been restructured and reoriented form time to time for attaining the objective 'Health for all' of the government and also of the National Health Policy. Priority has been accorded to extension, expansion and consolidation of rural health infrastructure, namely sub-centre, primary health centres and community health centres (CHCs). Keeping the aforesaid objectives in view, it was decided to have one primary health centre for every 30,000 population (20,000 population in hilly and tribal areas), a CHC on every 120,000 population (80,000 population in hilly and tribal areas). Untill 1991, these services were extended through a network of 22,229 PHCs, 131,379 sub-centres and 1923 community health centres. As such, the country got a primary health centre (PHC) for about 38,000 people and sub-centre for 6,500 people, showing more pressure than targeted norms. As for the development of PHCs and sub-centres, states like Andhra Pradesh, Bihar, Gujrat, Karnataka, Madhya

Pradesh, Maharastra, Tamilnadu, Uttar Pradesh, Haryana and Andaman and Nicobar Islands need more PHCs and sub-centres so as to fulfill the demand in healthcare sector in the future.

Presently, in the area under study there are 3 CHCs, 32 PHCs and 234 sub-centres. In view of the norms given above, it is important to assess the existing situation of healthcare network. The study area possesses a CHC for about 483,379 population while the norm is much lower than this. In order to fulfill the demand of CHC, nine CHCs have been proposed at Pindra, Gangapur, BariyaSanpur, Jalhupur, Harhua, Sewapuri, Kachnar, Shivdaspur and Sadalpura. The requirements of PHCs in the district are concerned the position is not satisfactory. Only one development block (Baragaon) fulfills the proposed standard norm, while the rest of the development blocks lag behind the standard norm. In the study area, a PHC is found on a population of 45,316. Compared to the suggested norm, there appears to be a shortage of 16 PHCs in the study area. New PHCs have been proposed at Rasulpur, Hiramanpur, Kashipur, Mangari, Pura Raghunath, Raund Khurd, Narainpur, Aigar, Lamhi, Mohaw, Kardhana, Bhikhampur, Benipur, Lohta, Dafi and Kotwar. If one looks for numerical position of sub-centres in Varanasi district, there is one sub-centre on every 6,197 persons. Following this norm, an extra 56 sub-centre will be needed to provide better health facilities in the study area. It may be mentioned that while proposing CHCs and PHCs, care of appropriate location has been taken in view. Wherever it was thought appropriate, existing PHCs and sub-centres have been upgraded into CHCs and PHCs, respectively.

Poor Infrastructure Facilities at Primary Health Centres (PHCs)

Infrastructure refers to the basic support system in the form of property, maintained building and the basic facilities available within the premise for smooth functioning of the healthcare system. Such facilities comprise supply of water, electricity, laboratory facility for testing blood, urine etc., telephone, functional vehicle, delivery room, injection and first-aid etc.

In the study area, the PHCs are treated as the backbone for providing primary healthcare services to the rural masses in the Varanasi district and only 78.1% PHCs of the study area have their own building. About 9.3% and 12.5% PHCs are running in Panchayat Bhawan and rented buildings respectively. For proper development of health facilities in Varanasi district, it is necessary to provide own building to each PHCs and sub-centres.

Regarding the supply of water, it is very apathetic discouraged to mention that only 40.6% PHCs get regular tap water supply. The remaining 59.4% PHCs obtain water form hand pumps. At block level, considerable variation has been observed. Presence of overhead tank is necessary for continuous water supply, but the majority of the PHCs are deprived of this facility. The uninterrupted supply of electricity is a must for smooth and efficient functioning of healthcare facilities at PHCs. In the area under study, 87.5% PHCs have only electric connection, while the remaining PHCs lack even standby facility (generator). Besides, operational telephone and vehicle facility are required at the PHCs to provide efficient and timely delivery care services to the nearby people. But only 9% and 12.5% PHCs of Varanasi district possess telephone and vehicle facility.

The utilization of healthcare facilities has been found poor in almost all parts of India. Many researchers have pointed out the lack of doctor's residence at PHCs and sub-centres. It is one of the major reasons of poor utilization of healthcare services. In the study area, only 40.6% PHCs are endowed with doctor's residence. It is also discussed that a substantial number of PHCs are running without qualified doctor. As many PHCs of the study area don't enjoy the services of doctors.

Besides, the condition of services and equipment's are also not satisfactory. There is found considerable variation in these facilities at development block level. It warrants improvement in the healthcare services. It is a perquisite for ascertaining full utilization of healthcare services in the study area.

Distance Constraint

Distance to healthcare facilities is an important factor for patients, practitioners, and administrators. Some of the most common functions of geographic information systems are its measurement functions. The distance is another restriction in the poor utilization of healthcare services in the study area. Out of the total of 1262 villages of Varanasi district, only 37 PHCs are located in village itself, whereas 132, 243 and 282 villages lie within 1 km, 1-3 km and 3-5 km distance for the respective PHCs. In general, the majority of the villages, i.e. 568, lie quite away from PHCs (Table 2).

Table 2: Distance wise Distribution of Villages with respect to Healthcare Facilities

Development Block	In Village	<1 k	1-3 km	3-5 km	>5 km	Total
Baragaon	7	19	30	28	49	133
Pindra	2	29	35	33	84	183
Cholapur	5	4	10	10	111	140
Chirai Gaon	6	7	20	30	70	133
Harhua	3	38	49	47	32	169
Sewapuri	4	3	17	32	121	177
Araziline	7	28	61	50	63	209
KashiVidhyapith	3	4	21	52	38	118

Total	37	132	243	282	568	1262

To increase the accessibility of these villages, the connecting roads should be cemented or metaled (made pucca). Telephone and vehicles available at PHCs must be kept in operational condition, so that the affected people may avail the benefit of these facilities.

It is observed that about 93.5% of OPD patients are coming for the primary health centres belonging to the village located within a radius of 6 km. Out of this, 61.8% are from 1.6 km. radius. In order to have an idea about the distance wise utilization pattern of healthcare facilities, samples have been obtained for the villages lying within 1 km, 1-3 km, 3-5 km and above 5 km distances. Table 2 clearly portrays that the maximum utilization of healthcare facilities is found within 1 km distance from PHCs. As one goes further, the proportion of respondents decreases. So, efforts should be made to reduce the distance between patient and PHCs/sub-centres through their proper and appropriate location. In addition, ambulance service should be made available to serious and distant villagers. The connectivity of villagers must be increased by linking them through metalled road.

Poor Socio-Economic Condition of the Villagers

The socio-economic condition of the country side people is comparatively poor than their urban counterpart. In the study area, the majority of the population belongs to only two religions, i.e. Hindu and Muslim. If one compares these two religious groups, Muslim lie at the lowest ladders of the socio-economic condition, whereas Hindus are classified as upper castes, back-ward and SC/ST. From the castes point of view, higher utilization of healthcare facilities is found in back-ward castes followed by SC/ST caste and Muslims. Moreover, they are also economically poor population that is more dependent on PHCs for health services while the well-off people can bear high cost for better treatment available at private clinics, nursing homes and hospitals in urban areas. Hence, they minimally benefited from the facilities of PHCs. The result of education wise utilization pattern of healthcare facilities reveals that higher the education, the better the utilization. To estimate the prosperity in different house types, earning was taken into account in the present study. The well off respondents uses vaccination facility more as compared to economically poor ones. It is interesting to note that pucca (cemented) and mixed house owners are more sensitive for health of mother as well as their children and size of family. They have been utilizing facilities of mother-child health (MCH) and family planning more than their Kachha (unmetaled) house owner counterpart. The occupation wise utilization of healthcare services is very remarkable. The people who are in service and those who supervise agriculture along with services visit PHCs/sub-centres only occasionally. All these reminds us to enhance the facilities of healthcare services of PHCs/sub-centres, So, sincere efforts are needed to improve the conditions of the villagers through development of agro-based industries, poultry forming, pig rearing, fish farming etc. In addition, it is required to promote literacy. All facilities should be made available to educate females in the village. It will increase awareness among females to utilize health and family planning facilities provided by PHCs and sub-centres.

Less Availability of Doctors

The healthcare services are provided by PHCs/sub-centres and CHCs under the leadership of qualified doctor. As such, the 24 hours availability of doctors at PHCs becomes crucial for utilization of all types of health services by the villagers. In the study area it is found that 82.56% PHCs have doctors, the remaining depends on compounder or other para-medical staffs. The reasons behind non-availability of doctors at PHCs may be attributed to negligence in posting of doctors at every healthcare institution and, non-availability of residence at these centres. In addition, the non-availability of good schools for their children in rural areas also comes in the way. Many of the doctors do not join their duty due to these constraints. Only 40.6% PHCs of the study area provides doctor's residence. As a result of non availability of residential facilities at PHC itself and good schools, majority of the doctors posted at PHCs reside in cities and visit PHC either for a limited period or on alternate days. The family welfare programme is another very important service rendered by the primary health centres. This programme requires the service of a lady doctor. Even for antenatal checkups, the presence of lady doctor is a must. But the scenario is poor, as lady doctors do not crave to serve the country people because of lack of residential facilities and also security measures.

Lack of Awareness about the Services Available of PHCs/CHCs

In rural areas, the level of awareness is still very poor. A few studies are worth quoting in this contest. The poor awareness about the health services available at PHCs, sub-centres and CHCs is quite respondents for the lower utilization of healthcare facilities provided by primary health centres.

In order to have some idea about the awareness of the existence of various health facilities at PHCs and sub-centres, 800 people were interviewed and

questioned about the existing health facilities available in the area and their utilization. Only 650 respondents were aware of the services of PHCs. In the study area about 78% and 56% respondents are aware of the existence of PHCs and sub-centres respectively. In terms of awareness about various categories of health services of PHCs/sub-centres, the highest awareness has been recorded in favour of vaccination (75.29%), followed by MCH (70%) family planning (62%), treatment (52%) etc. (Table 3).

Table 3: Awareness about Various Categories of Health Services of PHCs/Sub-Centre

Health Services	No. of Respondents	Percentage of Respondents
Vaccination	489	75.29
MCH (Mother Child Health)	456	70.12
Family Planning	405	62.30
Treatment	337	51.92
Disease Control	261	40.12

The above discussion points that the concerted and coordinated efforts are needed to make aware the people of the study area about the healthcare services available at primary health centres. Besides, adequate attention must be paid especially on those people who are either cut off from the media or unable to learn from various means of advertisement regarding health facilities by the state and central government.

Cause of Dissatisfaction

To augment the rate of utilization of healthcare facilities, it is necessary to ascertain the causes of dissatisfaction. A total of eight reasons have been summarized according to the opinion of respondents and the same are presented in Table 4. The values given in the table 4 show the opinion of respondents.

Among the various services of PHCs causes, the absence of a lady doctor at PHCs is a serious concern. It also ranks on the top of dissatisfaction of the people. Maximum numbers of respondents (354) have opined that poor utilization of healthcare services of PHCs is due to the absence of a lady doctor. It is followed by distance (352 respondents), non-availability of doctors (288 respondents), absence of diagnostic (Lab testing) facilities available at PHCs (252 respondents), selective distribution of medicine, rough behavior of staff and demand money.

The caste plays an important role and is also a prime factor in the dissatisfaction of respondents. Upper caste people listed three important reasons for poor utilization of health facilities which include absence of a lady doctor, non- availability of doctor and distance. On the other hand the backward caste people opined that absence of the lady doctor; diagnostic facilities and distance are more responsible for poor state of affairs.

Table 4: Causes of Dissatisfaction with the Healthcare Services of Government Health Centres

Development Block	Non Availability of Doctors	Absence of Lady Doctor	Time limit	Distance	Absence of Diagnostic Facilities	Selective Distribution of Medicine	Rough Behavior of Staff	Demand of Money
Baragon	37	45	31	29	35	19	17	13
Pindra	33	53	37	25	31	15	11	11
Cholapur	37	59	43	33	11	11	13	17
Chiraigaon	41	49	33	37	43	17	19	13
Harhua	35	51	33	49	39	19	17	09
Sewapuri	39	29	31	59	41	21	19	17
Araziline	29	37	29	57	17	23	15	19
Kasi Vidyapith	37	31	33	63	35	17	17	15
Total	288	354	270	352	252	142	128	114

Source: Based on Personal Survey

Contrary to the upper and backward caste respondent's opinion, the view of Scheduled caste/scheduled tribe go in favour of non-availability of doctor, distance and rough behavior of staff posted at PHCs. From these observations it could be concluded that SC/ST people on account of poor economic conditions don't care much about the health of child and mother (MCH), delivery of child at PHCs etc. Secondly, they are down trodden so they have to assimilate rough behavior of staff. These point lacuna are worth noting for policy makers, planners as well as administrators.

Conclusion

The hospital requirement index (HRI) values from the weighting method are found to lie in the range from 11 to 23. The weighting method is based on the expert opinion and the relative importance of various causative parameters has been derived from field knowledge. Each class within a layer has given a weighting value, the highest class has a value of 5, the medium class a value of 3 and the lowest class has a value of1. The cumulative frequency curve of HRI values has been segmented into four classes representing near equal distribution to yield

four hospital requirement zones, viz. low, moderate, high and very high. After calculation by weighting method using all the above selected indicators, it is found that the area come under very high and high requirement class is 46.62% and 7.55% respectively whereas 3.39% and 42.63% of the total areas come under low and moderate requirement classes in Varanasi district. It is interesting to note that only 25.38% respondents are satisfied with the available healthcare services of PHC's while 60% respondents remain partially satisfied. The remaining 14.62% (117) respondents are not satisfied with the services of PHCs. So, to fulfill the objective of healthcare facilities development, a well-coordinated comprehensive step is needed by the state and central governments.

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Urban mobility management: new challenges for a sustainable future

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Abstract

Nowadays urban areas show increasing signs of environmental problems (bad quality of air, traffic congestion, limited land resources etc.) while green areas and open spaces are under continuous threat. Urban activities deeply affect environment and the overall quality of life of the urban population.
So urban mobility is becoming more and more an international problem and efforts regarding sustainable mobility issues are spreading worldwide. Several countries are proposing new standards to actual mobility, leading transport to a new sustainable future.
Sustainable mobility means inducing a modal shift towards more sustainable transport patterns such as walking, cycling or public transport through the instruments of information and promotion campaigns. These measures are able to improve the effectiveness of “hard” urban transport and to develop sustainable behaviour among the citizens. Several international projects dealing with mobility management were promoted in Europe, most of them supported by the European Union. Furthermore, the European Platform on Mobility Management (EPOMM) was officially launched in 1999 as an international partnership aiming to promote and further develop mobility management in the EU.
The main goal of this paper is to identify the different sustainable mobility strategies in the European context, to give an account of the most relevant European mobility projects and to try to demonstrate that best practices in sustainable mobility management could be easily transferred to other scarcely developed realities in many Italian cities.

Keywords: *Sustainability, Transports, City, European Policies, Projects*

Rezumat. Managementul mobilităţii urbane: noi provocări pentru un viitor durabil
Zonele urbane din zilele noastre cunosc probleme de mediu tot mai mari (calitatea proastă a aerului, aglomerarea traficului, resurse de subsol limitate, etc.) în timp ce zonele verzi şi spaţiile deschise sunt în pericol continuu. Activităţile urbane afectează profund mediul şi calitatea generală a vieţii populaţiei urbane.
Astfel mobilitatea urbană devine din ce în ce mai mult o problemă internaţională şi eforturile în ceea ce priveşte domeniul mobilităţii durabile se răspândesc la nivel mondial. Mai multe ţări propun noi standarde pentru mobilitatea reală, ducând transportul către un nou viitor durabil.
Mobilitate durabilă înseamnă a induce un transfer modal către modele de transport mai durabile, cum ar fi mersul pe jos, mersul cu bicicleta sau transportul public prin intermediul instrumentelor de campanii de informare şi de promovare. Aceste măsuri sunt în măsură de a îmbunătăţi eficienţa transportului urban "greu", şi de a dezvolta un comportament sustenabil în rândul cetăţenilor. Mai multe proiecte internaţionale care se ocupă cu gestionarea mobilităţii au fost promovate în Europa, cele mai multe dintre ele susţinute de către Uniunea Europeană. Mai mult decât atât, Platforma Europeană pentru Managementul Mobilităţii (EPOMM) a fost lansată oficial în 1999 ca un parteneriat internaţional cu scopul de a promova şi de a dezvolta în continuare gestionarea mobilităţii în UE.
Scopul principal al acestei lucrări este de a identifica diferite strategii sustenabile de mobilitate în contextul european, pentru a prezenta proiectele europene cele mai relevante de mobilitate şi pentru a încerca să demonstreze că cele mai bune practici în gestionarea durabilă a mobilităţii ar putea fi transferate cu uşurinţă la alte realităţi abia dezvoltate în multe oraşe italiene.

Cuvinte-cheie: *durabilitate, transporturi,oraş, politici europene, proiecte*

Introduction

This paper examines mobility in urban life and some issues connected to innovation in the transport systems.

In the last few years mobility has become one of the most crucial themes of economic and social development of nations.

For this reason there is a growing interest towards mobility management in the urban contexts and many European cities are experimenting new interesting sustainable solutions that could be taken as examples of how to cope with urban transport problems.

The purpose of transportation is to bring people and goods to places where they are needed, and to concentrate the greatest variety of goods and people within a limited area, in order to widen the possibility of choice without making it necessary to travel.

This is how the urban theorist Lewis Mumford (1963) defined the purpose of transportation.

Transports are essential means for the economic competitiveness and for commercial and cultural trades. They contribute to bring citizens closer to each other and answer to the fundamental need of mobility. Nowadays transport activities are a crucial part of the life of the city. On the other hand, the development of mobility causes atmospheric pollution, traffic accidents and generally involves a certain environmental impact that cannot be undervalued anymore. Indeed, currently, the growth trends of mobility and the increasing transportation demand cannot be satisfied only by a physical expansion of the transport networks.

In this century transports have increased rapidly thanks to fuel consumption, because petrol has been considered as a cheap and inexhaustible source for years. But now, as the Brundtland Report

underlined, we are obliged to find an alternative to petrol and to environmental pollution, meeting the needs of our present generation and without compromising future generations. So we must plan a transformation of our urban areas and make them sustainable cities (Brebbia, 2011).

Recently, this topic has provoked practical and theoretical questions. On the practical level the availability of limited resources, in combination with the will of a raising environmental and urban quality, imposes a governance with a cohesive planning process to administrators. The topics of efficient and effective planning, optimal management of services, public open spaces, technological infrastructures used for energy saving and reduction of pollution, have to be developed according to this process.

This is the reason why the theme of sustainable mobility is at the heart of the European transport policy (De Castro, 2010).

According to theoretical approaches the radical structural changes that happened in the hinterland of big cities during the last twenty years played an important role.

During the previous phase of suburbanization the demographic pressure determined an expansion of urban centres with new multifunctional areas located around a nucleus (the so-called compact city) and characterized by high settlement density (Van den Berg et al., 1982).

The current phase of expansion, which occurred without significant demographic pressures, causes the 'dilution' of urban space in a form of mono-functional areas, located randomly in the territory (Leonori et Testa, 2013).

The result of these changes has been an abnormal growth of private mobility and use of space with serious effects in terms of congestion and air pollution.

What is sustainable mobility?

Sustainable mobility means transport systems and planning that are in line with concerns of sustainability; so its main goal is to accommodate the right to mobility and the need to reduce the negative effects of environmental pollution.

In the main European urban contexts, traffic and pollution are responsible of the main health problems (lung diseases, heart diseases, carcinogenic effects and others) and environmental damages (acid rain, haze, climate change etc.); so a change in the way urban areas are managed is urgently required.

The limit value of 40 µg/m3 was exceeded in the annual concentration of. PM10, (*particulate matter*)[1] in 2009. Long-term exposure to PM10 could have chronic effects on our health, such as impaired development of lung functions and risks of acute effects, such as asthma attacks and respiratory symptoms.

The White Paper *Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system*[2] affirms that average mobility per person in Europe has increased by 7% between 2000 and 2008 (passenger–kilometre per inhabitant). So it is necessary to convey users to other new sustainable attitudes, discouraging the use of private vehicles and fostering collective and "ecologically compatible" mobility measures.

The first step in the process of education to urban sustainability is constituted by awareness raising on the theme among citizens and particularly among professionals working in the mobility field. It is fundamental to influence travel behaviour and to stimulate demand for more sustainable transport options. People who want to live and work in communities with high quality of life should be educated to sustainability with the aim to be ready to drive significantly less and rely more on alternative modes (walking, cycling and public transit) so to reduce traffic crashes and air pollution emissions, increasing physical fitness and mental health (De Castro, 2010).

Mobility practices

Recent changes of life style, car flexibility and inconvenient public traffic have contributed to a huge increase of private car use. So there must be an alternative to the use of cars, such as the use of bicycles, public transport and walking with their benefits: freedom of movement, reduction of road congestion and no need for a parking space. In addition to new sustainable transport modes the provision of new routes (walking paths and lanes) or the renovation of the existing ones is needed in the urban contexts. It could make walking more comfortable and help people living in car-free or car-reduced areas.

The following are the main sustainable transport modes.

Car Sharing

Car-sharing is a kind of car rental. People can rent a car for a period of time in car hire stations inside their city centres; this system is linked to internet-based reservations. Car-sharing is mainly suited to residential areas although it can also be used for businesses that need cars during the day. Through car sharing people are not obliged to use

[1] Particulate matter concentrations refer to fine suspended particulates less than 10 microns in diameter (PM10) that are capable of penetrating deep into the respiratory tract and causing significant health damage

[2] [COM (2011) 144 final]

their own cars and gain the benefits of private cars without the costs and responsibilities of ownership.

Bike sharing

Bike-sharing was implemented for the first time in Amsterdam, but this system spread only in recent years all over Europe.

If we want to define bike sharing we could say that it is like a bicycle rental system. You can take a bicycle in one point and give it back so that it can be rented by another user.

Bike sharing programmes have expanded rapidly throughout Europe because cities are in search of new ways to meet mobility demand and reduce environmental impacts. Today bike sharing is quite popular among European citizens, especially young users. They provide a fast, easy and energy efficient transport and they are very useful also as a transport mode for tourism.

Car Pooling and Van Pooling

Car pooling consists in commuting a vehicle. Usually commuters are employees of the same company that share expenses using the same vehicle. Van pooling is similar to car pooling; it refers to the use of a shared van, belonging to one of the commuters or to the company in which commuters work (OECD, 2007).

Other sustainable measures to limit the presence of private vehicles in the urban context are: Tele-work development, traffic restrictions and pedestrian mobility promotion. Tele-work may reduce the home-work trips and possibly even avoid them, every time the employee can work at home.

Pedestrian mobility is an important part of sustainable transportation construction. More and more administrations and scholars are working on encouraging walking through the enhancement of pedestrian environment.

An example of promotion of pedestrian mobility at local level is the Italian project PEDIBUS, implemented in the city of Gorizia. Developed in the framework of Agenda 21, PEDIBUS project consisted in promoting home-to-school walking routes for children and parents with the aim to encourage "eco-friendly" behaviours.

Obviously, a more efficient transport system and multiple economic, social and environmental advantages are the result of the most suitable strategies in the field of mobility management. In fact mobility management is implemented in many European countries and around the world because it has been proved that it is able to produce the most pragmatic solutions to transport problems.

Mobility management means enhancing efficient transport measures like walking, cycling and public transports with the aim to achieve the best transportation planning objectives in the urban contexts, considering benefits and costs (Litman, 2012). So public administrations, when experimenting mobility strategies, have to consider the three dimension of mobility management:

- **Environmental dimension**: because it regards the opportunity for citizens to take advantage from alternative means and live their transport experiences.
- **Social dimension**: because sustainable mobility is able to offer regular services, accessible tariffs and equal accessibility to transport options to the population.
- **Economic dimension**: because an efficient urban mobility plan will involve economic efficiency and advantages for both transport companies and consumers (Brebbia, 2011).

Europe for Mobility

The conference promoted by United Nations in Tokyo in 1987 traced a route for all European countries about sustainable development.

Soon after this event, in Europe, the question of sustainable mobility has become a crucial topic and for this reason, especially during the last ten years, European Community started incessantly to issue several norms in aid of sustainable mobility. Therefore, the action plan of the European Union provides twenty effective actions in order to help national, regional and local administrations to achieve their goals for an urban sustainable mobility. These actions follow the Green Paper on urban mobility adopted in 2007. The national and local authorities are free to use this action plan as a support together with the tools it offers. The twenty actions of this plan can be grouped in the following macro-themes:

- **Improved information**: In order to make the transfers easier, the Commission works with the authorities and transportation stakeholders to improve the information systems of transport networks.
- **Passengers rights**: The Commission is working to achieve an agreement with all involved stakeholders about passengers rights of urban transports.
- **Better planning**: An integral planning can give better solutions to the challenges that cities face in the field of mobility. In order to facilitate the adoption of sustainable mobility plans, the Commission is making information materials and promotion activities.
- **Ecological transports**: The Commission is working to support research projects on ecological transports (e.g. ultra-low emission vehicles) and also promoting a confrontation between stakeholders of the healthcare sector about urban mobility.
- **Sharing experiences**: In order to help public administrators to share their experiences, the Commission has instituted a database with a large gamma of solutions already adopted. This database

includes also a body of UE laws and important financial and educational tools that are useful for the urban mobility. The Commission is also studying the modes to improve the sharing of statistical data, to facilitate the exchange of information about road pricing and to encourage the international dialogue about urban mobility with European neighbor states and other international partners.

- **Funding sources**: This is a crucial topic. The European Commission works hard to make these financial sources more accessible, with an eye to the future ones. The information and education campaigns, such as the European Mobility Week, play an important role for the creation of a new culture of urban mobility. For this reason, the Commission keeps on financing the organizations promoting these campaigns.

As already stated, a variety of initiatives are being set up by the European Union in the field of sustainability and environmental protection. In some cases, they are particularly aimed at improving the quality of mobility and transports of the main European cities.

Among the European programmes there are: *Life+, Intelligent Energy Europe (EIE), CIVITAS Initiative and INTERREG IV C*. INTERREG is financed by European Regional Development Fund.

LIFE+ provides funding of "operational activities of NGOs that are primarily active in protecting and enhancing the environment at European level and involved in the development and implementation of Community policy and legislation" (Annex 1 of the Regulation No. 614, 2007). Every year calls for proposals are published on the web site of the DG Environment of the EU. Beneficiaries could be organizations that wish to apply for funding under this programme, non-profit organizations and independent environmental non-governmental organizations. They must be active at European level.

Intelligent Energy Europe is a programme that refers to renewable energy sources and diversification of energy supply.

The areas of intervention of the programme are:

- SAVE that regards rational use of energy and demand management;
- ALTENER that concerns renewable energy sources and innovation;
- STEER that underlines the importance of energy in the field of transports (Varotto, 2010).

CIVITAS is a European initiative started in 2002 that basically helps cities across the European continent to implement and test innovative an integrated strategies on energy, transport and environmental objectives. Its fundamental aim is to support cities to introduce ambitious transport measures and policies towards sustainable urban mobility. In order to obtain this important goal, the initiative tends to encourage both innovative technology and policy-based strategies. Thanks to *CIVITAS*, in the last ten years the European Commission has promoted more than ten projects in which a great number of European cities participated; this number is growing more and more. Almost sixty European cities have been co-funded by the European Commission to implement innovative measures in clean urban transport.

These so-called demonstration cities are part of the larger *CIVITAS* forum network, which comprises almost two hundred cities committed to implementing and integrating sustainable urban mobility measures. This, in turn, represents a great percentage of European citizens scattered in all European countries. By signing a non-binding voluntary agreement known as the *CIVITAS Declaration*, cities and their citizens benefit from the accumulated know-how, experience and lessons learned of every participant.

INTERREG IVC promotes interregional co-operation and the transfer of experiences and knowledge among regions in the EU.

The following thematic areas are the most suitable to be chosen for an *INTERREG* project: natural and technological risks (including climate change); water management; waste management; biodiversity and preservation of natural heritage (including air quality); energy and sustainable transports; cultural heritage and landscape. It follows the previous *INTERREG III C* programme, activated from 2002 to 2006 (*INTERREG* IV C, website).

With the aim to support Mobility management initiatives all over Europe and to ensure the exchange of best practices and successful experiences among countries, the European Platform on Mobility Management (EPOMM) has been recently created. Every participant country is represented by its Ministries and by the public administrators who are responsible for Mobility management. EPOMM is a non-profit organization located in Brussels. It provides support in the process of transferring best policies and mobility practices to each member country, organizes training sessions and events and coordinates national networks to foster communication among members.

Examples of European projects. An overview

The careful attention that the European Community has paid about sustainable mobility in the last decades has been converted in the realization of several co-financed projects of cooperation about sustainable mobility. Some of them are shortly focused:

PIMMS project

PIMMS (Partner Initiatives for the Development of Mobility Management Services) is a project financed by the *INTERREG III C* programme. Its

goal is to realize an operative network to exchange best practices in urban mobility through the use a of a Mobility Management database, the creation of local supporting groups whose activities are focused on mobility, the exchange of information among the partners and the sharing of results.

MMOVE project

Another project recently financed by the European Commission through the *INTERREG* Programme is called *MMOVE* (Mobility Management over Europe). This project is made up of several partners from seven European nations: Sweden, Italy, Spain, Germany, Greece, Romania and Bulgaria. The main goal of this project is to improve the effectiveness of sustainable mobility policies implemented by local authorities in small and medium sized towns in Europe and to improve awareness of the importance of supporting these policies within regional development frameworks amongst policy makers. To make it possible, this project provides several actions about cooperation, sharing and exchange of information among the partners involved in it. As it is shown in the table (Fig.1), best practices about collective and public transport, communication among various transport companies, control measures for parking and traffic have been tested by MMOVE partners. The final result of this project should be that the cities would acquire a deeper knowledge concerning mobility policies, best adopted practices and above all, a better ability to influence the political actors to a developing route according to the modern sustainable measures.

Partner	selected Best Practice
Municipality of Reggio Emilia	Tram network extension - Ulm
Brighton & Hove City Council	Bicibus - Reggio Emilia
Girona City Council	More Flexi motorists - Mölndal
City of Mölndal	JourneyOn Campaign - Brighton and Hove
Municipality of Varberg	Bus quality partnership - Brighton and Hove
Volos Development Company	Home to work for employees of the historical centre of the city - Pesaro
	Municipal Department of Mobility and Public Streets - Girona
Municipality of Razlog	Modes of flexible public transport - Ulm and Quality bus partnership - Brighton & Hove
	Creating homogenous net of cycle tracks - Senigallia and Cycle week - Varberg
	Bollards - Kavala and City centre traffic calming plan - Volos
City of Ulm	Electric experience - Reggio emilia
Municipality of Kavala	Flexible Transport Modes - Ulm
Brasov Metropolitan Agency for Sustainable Development	Electrical experience - Reggio Emilia
	Creation of a homogeneous net of cycle tracks - Senigallia
	Low level sidewalks - Ulm
	Bus friendly curb stone and efficient driving -Brighton & Hove
SVIM-Sviluppo Marche	Quality bus partnership - Brighton & Hove, Flexible transport mode - Ulm, Bus 12 card - Girona
	Bici Bus - Reggio Emilia and Cycling for Health - Varberg
	New Mobility Management Plan - Razlog and City center traffic calming plan - Volos

Fig. 1 MMOVE Best Practices (Source: MMove website)

FLIPPER project

The *FLIPPER* project (Flexible Transport Services and ICT platform for Eco-Mobility in urban and rural European areas) is also a European territorial Cooperation project funded under the *INTERREG* Programme. This project aims at the transfer of experience, knowledge and good practices about Flexible Transport Services (FTS) among different European Regions with a careful attention to increase the social inclusion of disadvantages citizens groups and areas, reducing energy consumptions and environmental impacts thus encouraging sustainable social and economic growth.

The project has been developed through a series of activities of coordination, communication, sharing and management. A key operational phase was the exchange of experiences dedicated to the identification and analysis of good practices which was dedicated to the knowledge transfer among the different *FLIPPER* European areas with the organization and realization of training courses, technical visits, thematic workshops targeted to local authorities, transport operators, practitioners of the different EU areas (Fig. 2).

ECOSTARS project

The financial help provided by the European Community is not only reserved for terrain mobility projects. *ECOSTARS* project is an example of European cooperation projects about maritime transports. This projects point at developing a recognition and evaluation system of fleets in order to facilitate goods and passengers transports respecting environment with eco-sustainable and efficient modes. *ECOSTARS* is financed by *IEE* (Intelligence Energy Europe) programme and operates today with a three-year scheme in eight different zones

belonging to six European nations: Edinburgh (United Kingdom), Rotterdam (Holland), Ostrava (Czech Republic), Cantabria and Basque Country (Spain), South-East of Sweden, Parma and Emilia Romagna Region (Italy). The project provides an important support for all operators in every sector (public and private sector, industrial transport, commercial goods transports, public local transports etc.) and for fleets with different dimensions (international, national and local fleets). There are several benefits for operators subscribing to the project: a considerable fuel saving with a consequent decrease of maritime pollution, an important public merit at a European level as social responsible operators thanks to a Certification system about quality levels of operation management and environmental impact of fleets involved.

		Initiation Partners Attended						
Host City	Topics Covered	Bratislava	Klaipéda	Maribor	Lamaca	Gdansk	Sofia	Timişoara
Graz	Parking policy, public transport organisation and policy, bicycle training and tram extension	✓					✓	
Frankfurt	Integrating approaches to public transport organisation and public transport policy	✓	✓	✓			✓	
London	Public engagement and training			✓				
Stockholm	School travel plans, Mobility Management and clean vehicles	✓	✓		✓		✓	
Almada	Policy and integration		✓			✓		
Treviso	Bicycle management				✓	✓		
Serres	Public engagement and training				✓			
Graz	Accessibility in public areas for disabled people – barrier free measures			✓				
London	Congestion charge, travel planning, shared space and carbon trading schemes						✓	

Fig. 2 Topics covered by PIMMS (Source: Flipper website)

MUSA project

This is an Italian cooperation project among different regions: Puglia, Sicilia, Calabria and Campania. *MUSA* has been launched by the local administrations thanks to European funds of *"Governance e Azioni di sistema"*, National Operative Program (PON). This project intends to favour and involve public administrations in planning effective and innovative policies to manage urban mobility. The aim is to create stable relations and best practices sharing among administrations in order to obtain a concrete improvement in urban environment and to improve as well citizens quality of life. As a part of this important goal, the project points at providing the suitable tools to local authorities of the cited regions, to enforce their ability to govern and face problems about urban mobility with a greater sustainable vision. This intervention model includes several actions: enforcement of specific competences in local administrations, active participation of citizens through dialogue tools, best practices sharing with virtuous national and international realities, promotion of territorial activities, creation of a real and stable network of actors in charge of sustainable mobility plans.

CIVITAS Archimedes

This project, part of *CIVITAS* initiative, has been recently financed and aims at introducing innovative strategies for transport system regarding an energetic point of view. Therefore, these strategies have implied an important impact on energy policies, but also on environmental sustainability. This project has been accomplished in six different cities: Monza, Aalborg, Brighton & Hove, San Sebastián, Iaşi, Ústí nad Labem. The choice of these cities has not been random, all of them are characterized by a small-medium dimension and lack of resources, for this reason they present a high transports volume with bigger neighbouring cities. Thanks to eighty three different actions, it has been possible to make this transport network safer, more efficient and convenient from the energetic point of view. This improvement has also caused, as a positive effect, a decrease of CO2 emissions.

CIVITAS Mimosa

Cities involved in this project are: Bologna (Italy), Funchal (Portugal), Gdansk (Poland), Tallin (Estonia), Utrecht (Netherlands). Mimosa offers to its participants the opportunity to face together new sustainable approaches for urban transports thanks to the support of a scientific team. Cities participating to Mimosa are quite different regarding a physical, climatic and cultural point of view, but all of them share the same view to solve problems in urban transports. The project is constituted by sixty nine activities. The most important ones are addressed to promotion of vehicles with fuel consumption reduction, public parks management, promotion of public transport system and use of vehicles with a sustainable point of view such as car sharing. The main goal is then to guarantee mobility to all citizens preserving the environment and economy in the cities involved.

CIVITAS Renaissance

Renaissance project, also financed by *CIVITAS* Initiative, is carried out by five European cities: Perugia (Italy), Bath (United Kingdom), Gorna Orygavutsa (Bulgaria), Szczecinek (Poland), and Skopje (Macedonia). Their common characteristic is the significant seasonal tourism because of their famous and prestigious historic centres. All of them have to face the typical criticality transports systems are subjected to, when huge tourist flows occur. Therefore, this project aims at developing a measure system to make these historic centres safer and cleaner. In order to make it, forty five actions have been carried out in each city. These new and important solutions can then facilitate mobility in these historic centres but also the economic growth protecting, at the same time, the cultural goods and the safety of citizens and tourists.

Conclusion

The above mentioned projects show us that a sustainable future for transports in Europe is achievable if innovative policies are complemented by actions to reduce transport intensity.

The crucial step is to make people accept that change is necessary. Indeed the involvement of all actors at local and interregional level and the leading role of the European Union is fundamental to activate a combination of actions at both levels.

It is widely recognized that the European Union has stimulated its members to take part in the process of building a sustainable mobility model for the urban contexts through sensitization campaigns and substantial economic allocations: in fact successful European projects and mobility practices are often realized thanks to EU contributions. In addition to the European Union efforts, greater public involvement in transport planning should be ensured by recourse to participatory instruments and prescriptive and economic interventions at the local and national level.

In Italy, the "Ronchi Decree" of March 27th, 1998, has promoted a series of programmes to support municipalities and institutions, co-financing projects for the establishment of the figure of the mobility manager and promoting policies on mobility management (Messina, 2009). Several advantages for the local public transport and encouraging results have been reported; but only some virtuous administrations stand out in our national context, as the data from the Annual Euromobility (*Italian Mobility Manager Association*) Report on sustainable mobility in 50 Italian cities confirm (Bertuccio, 2012).

The 50 cities considered by the report are all regional capitals, the capitals of the two autonomous provinces and cities with a population exceeding 100,000. A huge number of indicators were used to make up the ranking of the most "mobility-friendly" cities in 2012. The results clearly show that there has been an increase in the use of alternative measures of mobility such as bike-sharing and car sharing, but less use of LPG and methane gas vehicles.

The most "mobility-friendly" city of Italy in 2012 was Turin. The secret of this success was an effective public transportation system, an efficient car-sharing service (2.600 users), an equally valuable service of bike sharing (14.400 users), cars with low environmental impact and a very good level of safety on the roads.

At the top of the list we find the Northern cities, while at the bottom there are cities from the South of Italy (Catanzaro and Reggio Calabria) (Fig.3). So the undeveloped Italian urban areas and their administrators should participate in mobility management events and projects and learn from the virtuous ones trying to experiment the same practices that have already been embraced in other Italian cities.

1°	Torino	11°	Genova	21°	Napoli	31°	Ravenna	41°	Foggia
2°	Brescia	12°	Vicenza	22°	R. Emilia	32°	Salerno	42°	Siracusa
3°	Parma	13°	Firenze	23°	Palermo	33°	Livorno	43°	Taranto
4°	Milano	14°	Udine	24°	Perugia	34°	Trento	44°	Sassari
5°	Bologna	15°	Trieste	25°	Ferrara	35°	Monza	45°	Latina
6°	Bergamo	16°	Bolzano	26°	Roma	36°	Aosta	46°	Potenza
7°	Venezia	17°	Piacenza	27°	Verona	37°	Terni	47°	Campobasso
8°	Prato	18°	Padova	28°	Rimini	38°	Cagliari	48°	R. Calabria
9°	Modena	19°	Forlì	29°	Pescara	39°	Messina	49°	Catanzaro
10°	Ancona	20°	Novara	30°	Bari	40°	Catania	50°	L'Aquila

Fig. 3 Euromobility Report on sustainable mobility in 50 Italian cities (Source: Euromobility)

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Urban territorial dynamics and socio-economic changes in Craiova city

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Abstract

The city as a form of spatial organization had different typologies along the time which have been shown in various models of urban organization. The complex functions of the city which are based on the analysis of its functional areas imprints a specific model and a specificity of the local potential that can be capitalized in various ways.
The economic and social phenomena that occur in the city such as industrialization, tertiarization, deindustrialization and functional reorganization of spaces, population dynamics, the share of its involvement in different economic sectors, influence very clearly the physiognomy of the city.
The urban dynamics reveals that the city is constantly facing a number of problems and has a close connectivity with the rural and urban areas nearby.
This study aims to make a diagnosis analysis of Craiova urban space revealing the urban dynamics and systemic analysis and also the socio-economic aspects presented through the quantitative processing of statistical data (between 1965 and 2012) on population dynamics, its employment by sector of economy and the functional profile of the city.
The determination of the urban organizational model and the morpho-functional zoning of Craiova will reveal the spatial characteristics which are reflected in the social and economic activities undertaken in the city.

Keywords: *urban territorial dynamics, economic aspects, social aspects, Craiova, functional area, spatial organization*

Rezumat. Dinamica teritorial-urbană şi schimbările socio-economice în municipiul Craiova

Oraşul ca formă de organizare spaţială a cunoscut diferite tipologii de-a lungul timpului ce au fost redate în diferitele modele de organizare urbană. Funcţiile complexe ale oraşului care au la bază analiza zonelor sale funcţionale imprimă un anumit model şi o specificitate a potenţialului local ce poate fi valorificat în diferite modalităţi.
Fenomenele de natură economică şi socială care au loc la nivelul oraşului precum industrializarea, terţiarizarea, dezindustrializarea şi reconversia funcţională a unor spaţii, dar şi dinamica populaţiei, ponderea angrenării sale în diferite sectoare de activitate economică, lasă amprente clare asupra fizionomiei oraşului.
Dinamica urbană relevă faptul că oraşul se confruntă în permanenţă cu o serie de probleme şi se află în strânsă conectivitate cu spaţiile rurale şi urbane din apropiere.
Studiul de faţă are ca principal obiectiv realizarea unei analize de tip diagnoză a spaţiului urban al municipiului Craiova vizând dinamica urbană şi analiza sistemică cât şi aspectele socio-economice prezentate prin prelucrarea cantitativă a datelor statistice despre dinamica populaţiei, angrenarea acesteia pe sectoare de activitate cât şi profilul funcţional al oraşului în perioada 1965-2012.
Determinarea modelului de organizare urbană şi zonarea morfo-funcţională a oraşului Craiova vor releva caracteristici spaţiale care se vor reflecta şi în activităţile sociale şi economice întreprinse în municipiu.

Cuvinte-cheie: *dinamică teritorial-urbană, aspecte economice, aspecte sociale, Craiova, zonă funcţională, organizare spaţială*

Introduction

The city is a place that has a complex functionality which is based on the utility of its areas that imprint a quality of life and a place specificity, but it is also based on the architectural aesthetics which determines a local lifestyle and a potential that can be capitalized.

Given the competition between cities in recent years, any urban space benefits from natural or anthropic advantages (local resources, skilled labour force, presence of universities, attractiveness and quality of life), i.e. the presence of infrastructure and services, the possibility of training, the conservation and construction of new units, which confers it a certain status and influences the urban dynamics.

Thus the city exists between two entities, between those who creates and transforms it- the public actors and those who use it- its residents, and it has to respond to certain needs and adapt continuously.

The forms of urban organization had a various typology along the time depending on the space of development as follows: in America there are mentioned the cities that had developed suddenly and early (Chabot, 1957), and the development of suburbs; in Europe there are noted the emergence of new cities and the development of the working class neighborhoods, residential areas, that were increasing and became a true global phenomenon. The industrialization was considered the major extension period of the urban phenomenon that has attracted the rural population to different urban areas and agglomerations.

The city is the urban settlement, the administrative entity with specific non-agricultural functions that imprint a particular specialization to the urban space (the city has various functions), with a heterogeneous population, which is defined

by segregation and diversity. The urban space helps in the formation of an economic system that is based on production, consumption and trade, the city itself can become a product that can be sold through marketing and branding.

For some authors (Neacșu, 2010, p. 27) it is necessary to understand the city dimensions of representation which are formed of the intrinsic reality (geographical aspect), the functionality of the city (the system) and the perception of it (the image).

In terms of urban dynamics, of the system functionality, the city is perceived like a system, so "the city is a thermodynamic and informational, semi-open system towards the other systems, located at various distances, existing many exchange relations of mass, energy and information between them" (Ianoş, 1987, p.28).

Thus the urban dynamics shows that the city is a community that faces a complex typology of issues such as: social segregation, pollution, technical and urban facilities, being in a closed relation with the superior cities and rural settlements located in its proximity.

The economic activities influence the urban space imprinting a certain profile of economic development that is closely correlated with the historical periods and social phenomena.

The industry will attract people from rural proximity to the urban space and will cause spatial physiognomic transformations such as the development of industrial sites within cities and the working class neighbourhoods in their vicinity. The post-industrial economy was based on the services sector that has become the dominant activity in many countries and has diverted the increasingly fewer investments in factories, to other sectors.

Thus the cities have redeveloped and regenerated their economies, the landscapes and images had to face the deindustrialization phase (Hall, 1998, p. 81), pointing out the new phenomena in the urban areas such as the reconversion of industrial spaces into tertiary spaces of trade.

Data and methods

The main objective of the paper is to make a diagnosis study of the urban space in terms of the urban dynamics/systemic analysis and of the social and economic aspects of the city that occurred during 1965-2012.

The paper has two parts, one part will deal with the urban dynamics and the second one will present the economic and social issues observed in Craiova, the methodology being as follows:

- The historical maps and materials about Craiova were analyzed in order to determine its territorial evolution over time and GUP (General Urban Plan) (2003) was processed to determine the functional areas of the city.
- The socio-economic statistical data about Craiova (1960-2012), obtained from Dolj Regional Department of Statistics were processed quantitatively to observe the social and economical trends of the city.

The data were subsequently processed in relevant graphic materials (nomogram, diagrams, etc.) and cartographic materials.

Study area

Craiova city represents the polarizing centre of Oltenia South-West Development Region, located in a geographic area at the contact between two major relief units – Getic Piedmont and Oltenia Plain, representing a favourable natural and socio-economic space for shaping a 1st rank urban settlement with multiple functions (fig. 1).

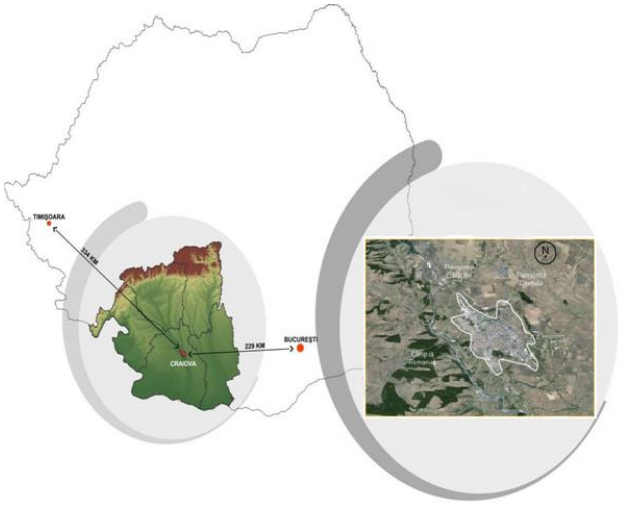

Figure 1: The geographical location of Craiova city at the national, regional and county level

It is located at latitude 44°19'30" north and longitude 23° 50'45" east and has an area of 32 km2, with a maximum extension on the north-south direction (9.0-9.4 km) and a minimum one on the east-west direction (4.8 - 5.2 km) (IUDP-Integrated Urban Development Plan, 2010).

The morphogenesis of the territory where Craiova's neighbourhoods are located is related to the Jiu River, the city being situated at an altitude ranging between 70-75 m (the floodplain level) and 140-150 m (the 5th terrace level of Jiu). It was formed in a corridor of the Jiu river which is flanked on the west by the Bălăciţa Piedmont (a subdivision of the Getic Piedmont) and on the east by the hills belonging to the Olteţ Piedmont (IUDP, 2010).

Located in Wallachia, the old historic province between the Danube River, Olt and Meridional Carpathians, at the intersection of the hills of the Getic Piedmont and large plains of Oltenia, Craiova

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had a favourable geographical position because of the confluence of mountain roads and plains and of an intense movement for transhumance or exchanges of products, and because of the contact between the Danube and the capital city.

The capitalization of the space through various agricultural, industrial and tertiary activities is reflected in the functional profile of the city.

In the law 351/2001 on the National Territory Development Plan - Section IV – The Network of localities, Craiova is considered a county seat, a first rank city (together with eight other large urban centers), taking into account the number of inhabitants (314, 920) on 1 January 1999.

Thus within the settlement system of Oltenia, Craiova city has an important role because it is a major ”consumer” of goods and workforce, which determines direct consequences on the space such as the maintenance of the active workforce and its increase over time, the increase of the built areas and of the buildings density and the structuring of the urban space. Thus the city is regarded "as a consumption, trading and production system" (Douglas, 1981 as cited in Levine, 1987).

Results and discussions

Urban territorial dynamics

Craiova is currently considered in terms of functional hierarchy a "nodal center" or "growth pole" - which is represented by large cities with a sphere of influence ranging from 60 to 100 km; thus the studied city is an old centre characterized by trade, administrative (county seat), industrial, cultural and political functions with a strong influence in its suburban area.

Craiova represents currently an urban territorial system with a specific content, structure and spatial organization, being influenced along the time by the demographic, social and economic factors, since "the territorial reality is more complex and it is in a permanent spatial and qualitative restructuring process" (Ianoş, 2000, p.21).

For a better understanding of the present phenomena of Craiova urban dynamics, it is necessary to know the historical development of this urban space which will help to outline other urban aspects of the city.

Several books on the history of Craiova were analyzed (Firu, 1963, Georgescu et. al, 1977, Cetăţeanu et al., 1979, Deaconu, 1981, Pospai, 1982) which present the periods of the city development and their characteristics and also cartographic materials were analyzed: Tabula Peutingeriana (Pospai, 1982), the city plan of 1780 (Buce-Răduţ, 2008), the Austrian map of 1790, the city plan of 1854, the map of 18-19th centuries (Deaconu, 1981), the city plan of 1888 (Deaconu, 1981), the city plan of 1925 (Deaconu, 1981). Each period will influence the territory of the city and the historical events will emphasize its importance in the regional context.

The town dates from ancient times, the first attestation of this name was on July 1, 1475. Craiova appears as a city in 1582.

The historical periods mark its territory and influence the urban dynamics as follows (fig. 2):

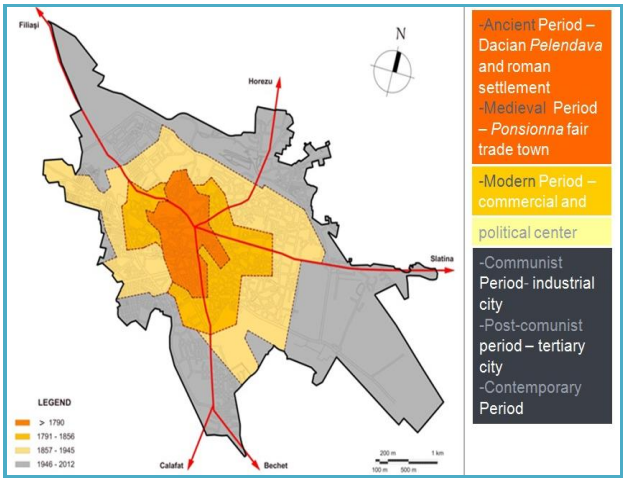

Figure 2: Temporal sequences in the urban space organization of Craiova city

- The ancient period corresponds to the Dacian settlement called Pelendava and then to the roman settlement.
- In the medieval period the settlement is called Ponsionna and it is a fair town (until 1790).
- During the modern period (1790- 1945) it becomes a commercial and political centre.
- After 1945 the city becomes an industrial centre during the communist period and then it evolves in a tertiary centre during the post-communism period.

In a diagnostic analysis of urban space there are identified the needs, the malfunctions of the city and the territorial- functional zoning is an important step in this analysis.

The urban zoning requires the delimitation of functional areas (mono-functional or poly-functional) within the urban space by dividing the urban territory in relation to certain economic, social aspects and aims to regulate the entire land use within the built-up area.

The urban space organization model is a complex one determined by the historical stages of evolution that occurred along the time, and also by the evolution of post-industrial urban area, obviously influenced by the natural setting, which was favourable for the horizontal expansion of the city. To highlight this zoning, the GUP (General Urban Plan) 2003 of Craiova was processed and the following functional areas were individualized (fig. 3):

- the "central business district" (represents only 5% of the built-up area and it has multiple functions: political, administrative, social, cultural and even financial and trading functions, being at the same time a residential area and nodal point of the main axis of communication within the city);

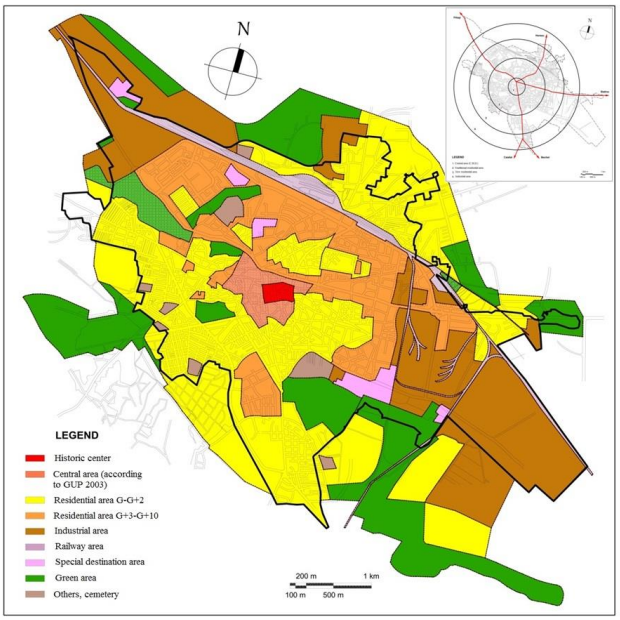

Figure 3: Morpho-functional areas of Craiova and the concentric areas model of its urban structure

-the residential area (occupies a large part of the urban space and includes residential buildings, socio-cultural facilities, various homogeneous commercial spaces; its subunits are the neighborhoods, thus being individualized several residential areas such as the central "hovels" appeared after the degradation of old neighborhoods, neighborhoods of blocks with different heights, the new "hovels" from the periphery and the new residential neighborhoods in the suburban area);

- the industrial area (located in the outskirts of the city, with a length of 22-25 km, forming an industrial belt; the industrial units are grouped in the eastern, northern and north-western and southern platforms and in the peri-urban areas-Işalniţa, Podari and Cârcea);

- the green area (public parks and gardens);

- the railway and warehouses area.

In terms of urban structural models, Craiova has a concentric structure according to the EW Burgess model (Ianoș, 1987), formed of a central core of the city which is extended and completed by new radial-concentric or tentacular expansions.

The dynamism of the urban system of Craiova shows a tentacle expansion in its peri-urban area by including new settlements in the administrative territory of the city.

Craiova urban dynamics highlights several stages of evolution marked by certain distortions produced by the intervention of external factors.

Taking into consideration the city's components (territory, population, economy, etc.) between which synergistic relationships are created, the dynamics of the space aims to find a balance between the development potential and the capitalization capacity, although it is sometimes disrupted by the intervention of external factors that create distortions.

The ratio between the development potential and the capitalization capacity of the city (Ianoş, 2004) has a different evolution on the time scale, recording certain processes in the urban areas that are grouped into the following periods (Fig. 4):

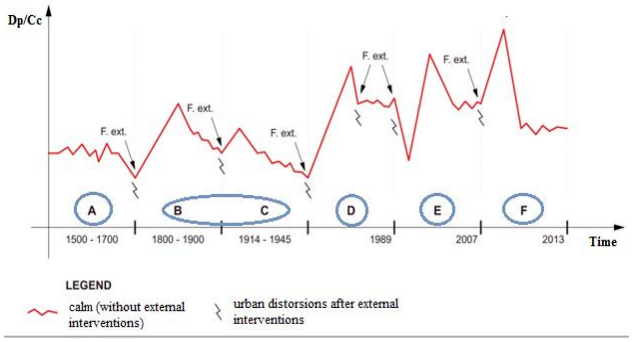

Figure 4: Urban dynamics of Craiova throughout city evolution

A. pre-urban stage (1500-1700), stability of the urban system, random organization with distortions: a low human intervention and dominance of agricultural activity;

B/C. pre-industrial stage (1800-1945), commercial and political centre - distortions: The World Wars will cease the economic life of the town;

D. great communist industrialization (1945-1989) - overlaps the Fordism period- distortions: systematization by establishing industrial areas in the east, north and north-west of the city and also working class neighbourhoods

E. post-industrial stage (1990-2007) – distortions: deindustrialization, tertiarization, and suburbanization through urban sprawl and construction of villa neighbourhoods and ANL dwellings;

F. integrated urban development stage (2007-2013) – distortions: a functional reconversion of industrial spaces to commercial spaces.

Thus in the context of horizontal territorial expansion due to the relief, initially there will be a chaotic development of the city, uncontrolled before the world wars and in the interwar period; during the socialist period there will be implemented the systematization, i.e. a centralized management of the space, building the socialist neighborhoods and industrial sites, which modifies the space

configuration but also determines the arrival of a flow of persons attracted by the new opportunities created in the city.

Socio-economic changes

The dynamics changes of urban space will also influence the socio-economic level. Thus there will be analyzed the demographic characteristics of the city, the development of the urban economy sectors and also the nomogram of the functional profile of the city during 1965-2011, through the quantitative processing of the statistical data.

Craiova becomes over the analyzed period (1965-2011) a pole of attraction for the nearby population, the demographic evolution having an upward trend until the 1990s, when the population migrates to cities, period coinciding with the development of communism. The main moments in the city's population dynamics are shown in Fig. 5, as follows:

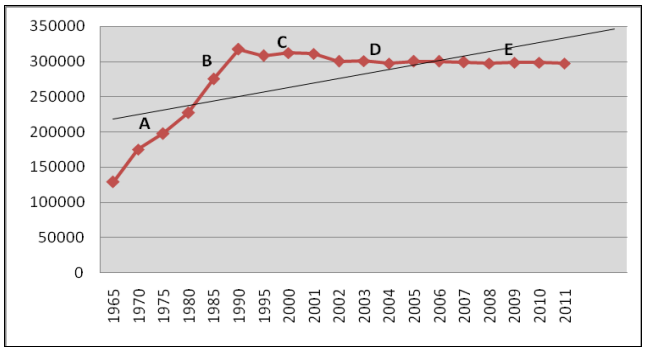

Figure 5: The evolution of the inhabitants' number in Craiova (1065-2011)

A. 1965 - 1985 period: in the mid- 20th century Craiova recorded a population boom once with the economic development of the city in the communist era, when the factories and plants are built in the outskirts of the town;

B. 1985-1990 period: the city recorded the maximum value of the population in 1990 (317, 368 inhabitants), due to the trend of the communist policy that wanted an increasing number of population;

C. 1990-2001 period: it starts the demographic decline due to the worsening living conditions, generated at country level due to the collapse of the socialist economic base, practically it started since the transition to capitalism, to the market economy; amid a low birth rate in this post-socialist period and the industrial restructuring and privatization, the city's population will decline to 311,326 inhabitants in 2001, after a long continuous increase for several centuries;

D. 2001-2005 period: the population will decrease to approx. 300,200 inhabitants in 2005; Craiova is no longer a great pole of attraction for the persons in the rural proximity; this period is marked by a process of tertiarization, but also by de-industrialization, factors that explain this sustained decrease;

E. 2005-2011 period: corresponds to a demographic decline, the number of population is maintained at a value of approx. 300,000 inhabitants, with the lowest value of 297,510 recorded at the 2011 census. The economic transition influenced the population dynamics amid a decreasing birth rate, following the national trend, with a deficit of establishing the domicile in Craiova city due to the movement of domicile from Craiova with values above 5,000. There is an exodus to other cities or abroad in search of jobs since the economic crisis in the 2009-2011 period will strongly affect the labor market of the city.

The decline of the population number is also influenced by the dynamics of domicile movements to and from the city (fig. 6), the situation preceding the 2000s revealing an increase of establishing domicile/residence in the city with a maximum value of 6,642 reached in 1980 and after the 2000s there is a deficit, because there are recorded more resident departures than establishments, with a maximum of departures in 2007 of approx. 5,000.

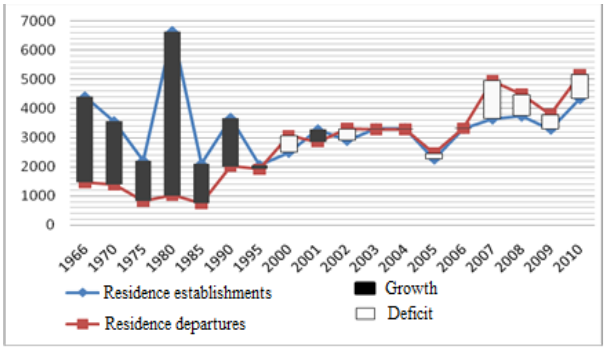

Figure 6: The dynamics of residence/domicile establishments and departures in Craiova (1965-2010)

By the 1990s there is an increase in the residence establishments, after this period a large deficit is recorded.

Amid the demographic changes in the city, the economic analysis, the functions of the urban areas, the active population share involved in various economic sectors (primary sector-agriculture, forestry, and fisheries; secondary sector-industry and construction; tertiary sector-trade, transport, services) was also analyzed.

The number of employees by economic sectors in the 1970-2010 period (Fig. 7) reveals the high percentage of persons involved in the industrial activities until 2003, when the industrial restructuring will lead to de-industrialization processes on some platforms with major changes in the urban landscape, pointing out an emphasized

decline in the share of industrial employees in the total employees number of the city.

In 1988 it recorded maximum values of approx. 61,864 employees and 68,405 employees in 1990, highlighting the city's industrial profile during the socialist period; after the `90 it is recorded a decline affecting above half of the sector, the employees in the industry being of approx. 23,500 in 2010, due to the mechanization in some cases the workforce is not necessary anymore because it is substituted by the machines.

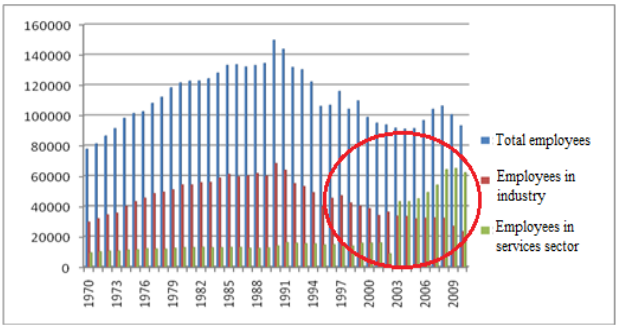

Figure 7: The evolution of employees in the industry and in the services sector in Craiova (1970-2010)

After the year 2000 the employees began to work in the tertiary sector, recording 20,000 employees in the commercial sector, and 6,000 in construction, due to the housing boom in Craiova, by constructing various office buildings or residential complexes, private houses, and with 6,000 people working in the transport sector.

So the industrial sector is dominant until the year 2000, then the services sector becomes dominant.

The functional profile nomogram of the city (Fig. 8) reveals its historic heritage, and the diminishing of some functions (the agricultural one), which were replaced by new ones (the industrial one), which was functional for a long period of time. The commercial function persisted along the time due to the previous trade status of the city. The industrial function, well represented in the communist period, was tried to be maintained during the economic restructuring and transition to the market economy. The services function increased and it is more emphasized after the year 1995.

Thus in the communist period the industrial function is dominant due to the construction of industrial sites that are still operating currently after some restructuring and reconversion processes; so that in the transition period after the 1990s, the function of the city is mixed, beginning also a tertiarization process; after the 2000s the dominant function is the tertiary one, of services. The city passes through different stages of economic development in close connection with historical events and characteristics, obviously not excluding also the national context, extrapolating from the macro-scale model (country) to the micro-scale (city), namely the shift from a centralized economy to a capitalist economy.

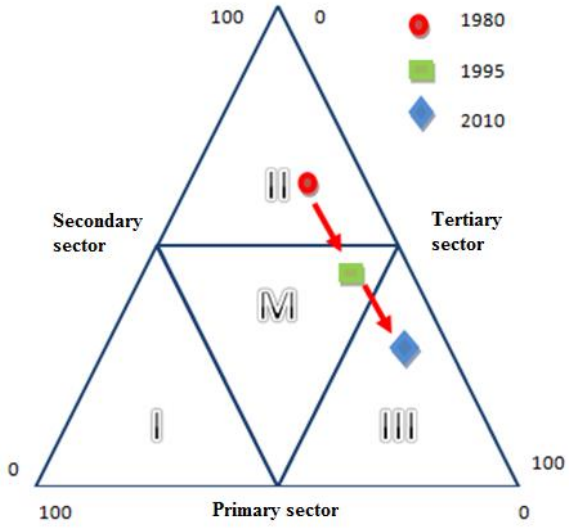

Figure 8: The functional profile nomogram of Craiova in 1980 (the communist period), 1995 (the transition period) and 2010 (current period)

Conclusion

The location of cities is not random, they are located in places that maximize their ability to generate a social surplus and to integrate social and economic activities within the rest of the society`s activities (Berger, 1978).

With a population of approx. 300,000 inhabitants and a tertiary and industrial economic profile, Craiova emerges at the local level as a centre of concentration of substances, energy and information flows.

The spatial configuration of the city is the result of the constraints imposed by a number of components, which resulted in a diagnosis analysis that presented the urban space dynamics of Craiova and some economic and social aspects that can be summarized as follows: the geographical location offers a high functionality due to its location between hills and plains, the city being a "central place" with a polarizing role at the regional level and a nodal space that allows the extensive use of the built-up area; the functional areas are grouped in a radial-concentric development model; the industrial activities are developed due to the presence of industrial platforms in the outskirts of the city, there is a lack of business centres and adequate infrastructure to attract investors; many of the socialist enterprises recorded losses and were restructured or were abandoned (it led to brownfield sites occurrence); the declining in the population number of the city reflects the low birth rate

(national tendency) and also the fact that the workforce can no longer meet the current labor market requirements, thus massive layoffs occurred determining many residents departures from the city, thus requiring in some cases a professional reconversion for the revitalization of the labour market. The city tends to tertiarization although it has not proved to be extremely viable till now.

The city imprints certain economic and social effects on the geographical space through rapid pace of development and extension. In addition to the positive influences of cities, their current problems refers to a growing concentration of the population, residential neighbourhoods, urban services, and industrial and commercial units movement towards the periphery, determining effects such as overcrowding, reduction of green spaces, traffic and pollution.

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Pécs, a possible gateway city

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Abstract

When Hungary's borders were fixed after the World War I, Szeged and Pécs became towns managing the relations of Hungary with the countries in the south. In our paper we examine the factors that make Pécs suitable for the Southern intermediate role, and whether the goals and achievements of Pécs2010 European Capital of Culture programme series reinforced this position.
Pécs has an outstanding status among the Hungarian towns of county rank and it is the most powerful regional centre. Its opening towards the south, its multicultural composition, its institutionalised system of foreign affairs, and its roles in various cooperations contribute to the city's success in fulfilling the "gateway" role towards the South-Western direction.

Keywords: *Sustainability, Transports, City, European Policies, Projects*

Rezumat. Pécs, un posibil oraş de tranzit

Când graniţele Ungariei au fost fixate după Primul Război Mondial, Szeged şi Pécs au devenit oraşe care gestionează relaţiile Ungariei cu ţările din sud. In lucrarea noastră vom examina factorii care fac ca oraşul Pécs să fie potrivit pentru rolul de oraş intermediar către sud, şi dacă obiectivele şi realizările programului Pécs2010 Capitală Europeană a Culturii i-a întărit această poziţie.
Pécs are un statut remarcabil printre oraşele maghiare de rang judeţean şi este cel mai puternic centru regional. Deschiderea spre sud, multiculturalitatea, sistemul său instituţionalizat al afacerilor externe, şi rolurile sale în diverse colaborări contribuie la succesul oraşului în îndeplinirea rolului de "poartă" spre direcţia sud-vest.

Cuvinte-cheie: *Pécs, Balcani, funcţia de oraş de tranzit, centru regional, Capitala Europeană a Culturii*

Introduction

Pécs, the possible gateway city of the Southern relation system

Within the borders of Hungary, created after the World War I, in geographical sense, the two leading towns managing the southern relationships are Szeged and Pécs. Their possible roles were recognized and their situation was examined early (Szabó, 1942). This paper studies Pécs.

Our hypothesis was that the town (as a settlement that has central administrative, service etc. functions) has certain capacity that allows it to fulfil an intermediary role towards the South or South-West direction. However, we suppose that there may be a lack of facilities and it is questionable to what extent the municipal government is aware of the actions needed in this respect. Moreover, it was thought to be essential to observe the role of the town in the reality of the region (South Transdanubia) and its position, which was achieved in the competition among the Hungarian cities and towns, supporting this international function.

From an European Union point of view, it is the political and cultural status of Pécs that raises interest: a city on the border of the present EU border, near the Balkans area. Pécs has functioning relationships with the Croatia that has recently joined EU and with some other countries that will not join the Union in the near future. As a Western-European town, getting in contact with those countries is easier for Pécs; therefore, its intermediary role can be easily fulfilled too.

Pécs among the Hungarian towns of county rank

What appears as an "external environment" for city leaders? City leaders are much more interested in the competition among the cities in Hungary than in the international dimension. Its tradition comes from the urban development system of the previous state socialist regime based on distribution principles. At that time, the financial resources of the settlements were provided by the state budget and today they are still significant because the redistribution systems – partly in other constructions – have remained.

Pécs is far away from the "Development Corridor", it is the centre of the economically underdeveloped South-Transdanubian region: The driving industries of the economy in the 1990s disappeared and no new ones have taken their place. Pécs is a regional centre that received less than 2% of the foreign capital invested in Hungary within 15 years after the political transformation in 1990.

Pécs is the county seat of Baranya, where the GDP per capita barely exceeds one-third of that of the persons living in Budapest, and is almost two times lower than in Győr-Moson-Sopron county. In 1994 the GDP per capita was 84% of the national average, in 2002 it dropped to 73% and this rate is still decreasing. A remarkable discrepancy must be noted, since in spite of this negative economic

process, the city's regional position has strengthened. In the recent years, the importance of regional functions has increased. The question today is to what extent the town is able to act as a leading settlement for its region, and to promote the development of that. The leadership means tasks, additionally partly international tasks.

It is practical to review the result of this particular competition to see to what extent Pécs has been able to fulfil and strengthen its position as a regional centre, suitable for serving an international role, too.

The significance of the cities of county rank in the Hungarian settlement town network is regularly measured. Studying the results of these surveys (Csapó, 2002, Pap, 2002) we can observe the situation, the strong points and the deficiencies of Pécs determining its chances and limits in the urban network competition.

The competition is taking place for a more powerful and complete role and regional functions (which means having certain functions over several counties!) in the recent processes of regionalisation, decentralisation and deconcentration.

The previously mentioned surveys, carried out towards the end of the millennium, demonstrated 80 regional functions. Their number grew fast in a ten-year period; from 1990 to 2000 (approximately 24 new regional institutions were established). The new functions, performed mainly on the fields of economy and service, have changed the map of regional functions (e.g. hypermarkets).

The surveys, conducted in 1992, 1995, 1998 and 2001, ranked Pécs on the highest level of a 1 to 5 point scale, together with Szeged and Debrecen. They are considered to be complete, developed or definite regional centres. The surveys clearly indicated Győr and Miskolc on the second level with some missing roles. Later some smaller differences occurred in the case of the other towns during the next surveys.

The most complete research was done by Csapó (Csapó, 2002) who studied the regional roles on plenty of fields such as the state, deconcentrated bodies, economy, infrastructure, education, culture, health care and the social field. Pécs had by far the highest scores among the towns of county rank, followed by Debrecen and Szeged. The standard deviations were extraordinary because the rest of the cities/towns stood between Hódmezővásárhely with 2 points and Pécs with 101 points.

Pécs also won the competition of new regional functions between 1990 and 2000 (it gained 27 new regional functions), followed by Szeged and Debrecen (23-23).

The result of the survey shows that a strong concentration of the regional functions has occurred in the network of towns of county rank since the end of the communism. The winners are the circle of towns conventionally accepted as regional centres (Pécs, Szeged, Debrecen, Győr, Miskolc), also in Tamás Csapó's research findings (Csapó, 2002).

Reanalysing the surveys we can say that the period between 1990 and 2000 was a successful one for Pécs (Table 1). If we think it over a bit more, we can see that the situation is rather contradictory.

The effect of development in regional functions spread not on the relations of the whole Hungarian city network but only influenced the result of the competition among cities for the function of a regional centre mainly. The results of the survey should not be taken as absolute because though the regional functions influence the life of the settlements, they cover only certain fields of livability. Thus, they partly determine the opinions about the city.

The city's economic structure, competitiveness, international integration, employment opportunities, mainly its expansion and the local income have as strong (or even stronger) effect on the city life as the previously listed regional functions (Pap, 2002, 2006).

All in all, we can state that the town's role as a regional centre is not questionable from the professional point of view. However, it does not mean that the second biggest town of the region, Kaposvár, did not compete for its political influence. Now the political debates of the past years seem to quiet down slowly.

According to our research, the evaluation reflected in the surveys mentioned above comes not from the city's excellent achievements, but rather from the functional and general underdevelopment of the surrounding area (the region) and its towns. *Indeed, none of the Hungarian regions are expressed, represented or reflected by a regional centre as significantly as South Transdanubia by Pécs*.

It means a new dimension that the town received the title of European Capital of Culture and by this it gained place in the new circle of (European) cities. Its consequences are very positive. Though, this increasing potential can be realized only by an active policy of foreign relations.

In the 1990s we carried out researches on the approach under what conditions a city can fulfil the role of a regional centre (Pap, 2002). We assumed an ideal condition, regarding it basic at that time, and studied to what extent it was present in the Hungarian city network. It is a completely different approach from that of Tamás Csapó. In the examined group of settlements of town rank, those towns whose size, legal and administrative functions were far behind the towns of county rank, had features that made them outstanding among the settlements. Such towns are, for example, Siófok, Keszthely or Esztergom. In our study below, we also used the results of the survey conducted between 1998 and 2001.

Table 1: The order of the Hungarian towns of county rank

Regional functions (institutions)				
No.	**Order by the number of the functions**		**By the weighted scores**	
1	Pécs	60	Pécs	101
2	Debrecen	58	Debrecen	95
3	Szeged	56	Szeged	94
4	Miskolc	44	Miskolc	71
5	Győr	40	Győr	60
6	Szombathely	30	Veszprém	42
7	Veszprém	29	Szombathely	39
8	Kecskemét	24	Sopron	32
9	Szolnok	23	Székesfehérvár	31
10	Székesfehérvár	21	Szolnok	31
11	Kaposvár	20	Kaposvár	30
12	Sopron	19	Kecskemét	29
13	Nyíregyháza	16	Eger	21
14	Zalaegerszeg	16	Zalaegerszeg	21
15	Eger	15	Nyíregyháza	20
16	Békéscsaba	14	Békéscsaba	18
17	Szekszárd	6	Tatabánya	7
18	Tatabánya	6	Szekszárd	6
19	Nagykanizsa	4	Nagykanizsa	5
20	Dunaújváros	3	Salgótarján	5
21	Salgótarján	3	Dunaújváros	4
22	Hódmezővásárhely	2	Hódmezővásárhely	2

Source: Tamás Csapó, 2002

The South Transdanubian Region and Pécs

In the whole of Hungary, in the south-west strategic direction, the area of relations is the geographically determined South Transdanubia. History strategic routes have been constantly passing through this area, laying down the basic features of spatial structure and the situation of Pécs.

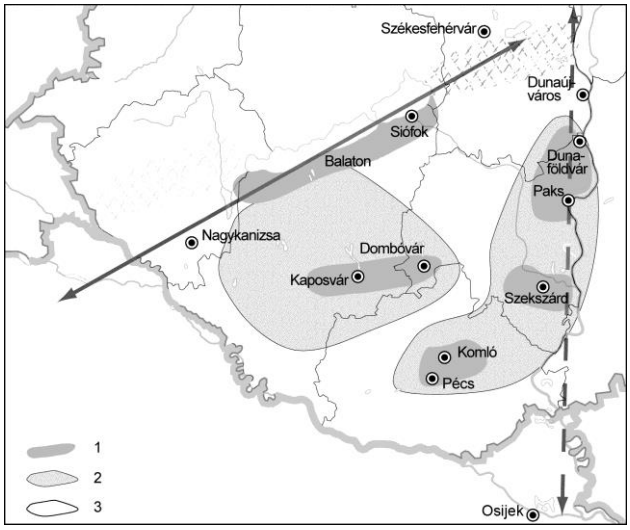

Figure 1: Structural problems of South-Transdanubia

Souce: Pap, 2006, p.15

Pécs – as the map above indicates – can be found in a transitional zone between the two main spatial structural lines. Due to its population, institutional, cultural and political weight, its function as a regional centre is evident, but recently it has been questioned from several aspects with the disappearance of mining and energy sector which encouraged development in the last decades.

The changing of function (from a mining-industrial centre to a modern service-industrial centre) took place by partly spontaneous and partly planned processes. However, the lost industrial workplaces and functions could not be completely replaced by the new jobs. It might be the main reason of the present crisis and the strong impacts of the crisis.

The city in the region is represented by its administrative, health-social, commercial and educational-cultural functions. The completed retailing capacity is quite essential and significant for the whole geographical region. The educational functions are decisively connected to the university and some of the town's secondary schools. The regional function in employment lags behind the previously mentioned ones.

Other urban areas of the region have also gone through some changes. Kaposvár underwent enormous changes in the last decade. There were considerable investments in the town's

infrastructure, although as for the economic functions, the results are more moderate. The motorway construction and the new bridge over the Danube River created additional chances for Szekszárd. At the same time, the processes that would have exerted positive effects on economy and livability have not started yet.

According to the survey mentioned earlier (Csapó, 2002), the competition for regional positions has resulted as following: the first place of Pécs in the country can hardly be disputed. Kaposvár finished in the middle of the list of cities of county rank, in position 11, Szekszárd occupied the position 17 with only one of the county towns (Salgótarján) behind it. Located in South Transdanubia, but integrated into West Transdanubia, Nagykanizsa ranks 19th on the list (Zalaegerszeg, the county town of Zala, is on position 14).

On the one hand the results of our survey between 1998 and 2001 partly overlap with the above mentioned ones, on the other hand, in international dimensions other settlements also appear on our "map", such as Siófok, Mohács and to some extent Szigetvár. These settlements possess features and functions (the international tourism of Siófok, the function of a port in Mohács and the cultural heritage of Szigetvár) that make them important factors when establishing international relationships.

The role of marketing in strengthening the "gateway city" function

During the years following the political transformation, the towns of Central Europe and also Hungary started using the system of way and means related to place marketing.

Nowadays, new elements have appeared besides motivating factors of place marketing activity, such as utilising constraints (being competitive rather than underdeveloped) and opportunities (numerous settlement development programmes, tender opportunities, EU supports etc.) and therefore the necessity of marketing, managed by local authorities, in regional policy has become evident.

Marketing strategy and practice have become determining tools of regional development, settlement organisation and planning.

An advantage of city marketing is that it does not only include but points out the traditional idea according to which the city should be treated as a potential or 'product', and we have to win the correspondent target group to 'consume' it. According to a modern interpretation, the city – similarly to business marketing – can (and has to) be shaped and developed in compliance with the needs of potential consumers. Consequently, regional policy is inseparably connected to the notion of city-marketing and market-oriented city-planning, mainly through country planning and city development plans, which bear key importance in defining the dimensions of city product and therefore increase the city's real market value in the competition of regions.

Ambitions for expanding the Southern, South-Western relation system of Pécs have already appeared in the practice of city-marketing. Besides the fact that the town is mainly a residential and working place, a target for investments, it is a touristic attraction too. This is the reason why visitors and tourist represent our main target group (according to touristic terminology, a tourist is the person who spends at least one night in a given destination).

In 2010, because of geographical proximity, it was planned to enhance inbound tourism from Yugoslav countries as single-day visitors or tourists to stay several nights. The Tourism Destination Management Organisation of Pécs, established by those participating in the sector of tourism, was responsible for the marketing. Besides them, numerous other participants took part in the marketing procedure (Pécs2010 Management Centre, Hungarian Tourism Plc., Regional Marketing Directorate etc.). We critically state, that maybe it was the multitude of participants, the lack of proper cooperation between them and the belated ECC communication public procurement that resulted in the city's miscarriage, namely, Pécs could not execute commendable the city-marketing and the tourism-marketing activities. As a result of the facts mentioned above, the number of visitors and nights spent at hotels in 2010 was not sustainable; a significant decrease was perceptible in 2011.

The geopolitical efforts of Pécs, however, were encouraged by the Hungarian Tourism Plc., and the South Transdanubian Regional Marketing Directorate was responsible for directing the marketing campaign of national tourism targeting the Southern countries. The preliminary data of 2011 – in spite of the overall perceptible negative tendency – show hopeful signs.

Hungary and South Europe – the role of Pécs

Today a town with such size and functions as Pécs needs to reconsider its place and role in the international dimensions in the world, dramatically changed by globalization processes. It is particularly important to find the right spatial scales and dimensions of cooperative relationships.

In this case we are talking about a rural town located in Hungary, a country intensely concentrated in the agglomeration of the capital city. Analysing the foreign relationships of Pécs we cannot avoid surveying the foreign and foreign economic relations at state level, too.

Responsibilities and tasks are assigned to Pécs considering its geographical location, traditional relationships and the National Regional Development Concept, the so called south- west strategic dimension. This region is spanning from Bosporus to Cape Roca, the western most point of Europe.

Below we are going to examine the town's international situation regarding two respects. One of them is that Pécs was awarded the title of European Capital of Culture (ECC) in 2010. It means that its features had been recognized among Europe's most significant cultural cities. As being the member of the elite club of ECC cities, listed in the table below, it had the possibility to be well-known in Europe (Table 2).

Table 2: Previous European Capitals of Culture according to Eurostat

Year	Name	Country	Population (in thousand)*	Administrative rank
1985	Athens	GR	3,188/746	Capital city
1986	Florence	IT	367	Regional centre
1987	Amsterdam	NL	1,021/743	Capital city
1988	Berlin	DE	3,395	Capital city
1989	Paris	FR	9,645/2,154	Capital city
1990	Glasgow	SC	632	Biggest city
1991	Dublin	IR	506	Capital city
1992	Madrid	ES	3,129	Capital city
1993	Antwerp	BE	461	County
1994	Lisbon	PO	565	Capital city
1995	Luxembourg	LU	76	Capital city
1996	Copenhagen	DK	1,085	Capital city
1997	Thessaloniki	GR	801/364	Regional centre
1998	Stockholm	SE	1,212/782	Capital city
1999	Weimar	DE	65	County seat
2000	Avignon	FR	91	County seat
2000	Bergen	NO	218	County seat
2000	Bologna	IT	374	Regional centre
2000	Brussels	BE	145	Capital city
2000	Helsinki	FI	561	Capital city
2000	Cracow	PL	757	Voivodina centre
2000	Reykjavik	IC	116	Capital city
2000	Prague	CZ	1182	Capital city
2000	Santiago	ES	93	Regional centre
2001	Porto	PO	263	Regional centre
2001	Rotterdam	NL	992/589	County seat
2002	Bruges	BE	117	Regional centre
2002	Salamanca	ES	353	County seat
2003	Graz	AT	245	Regional centre
2004	Geneva	IT	620	Regional centre
2004	Lille	FR	225	Regional centre
2005	Cork	IR	119	Regional centre
2006	Patras	GR	186	Regional centre
2007	Luxembourg	LU	76	Capital city
2007	Sibiu	RO	155	County seat
2008	Liverpool	EN	478	5th biggest city
2008	Stavanger	NO	177	County seat
2009	Linz	AT	188	Regional centre
2010	Pécs	HU	157	Regional centre
2010	Essen	DE	585	County seat
2010	Istanbul	TR	8,803	Biggest city

**in case of significant difference first the agglomeration then the population of administrative area*
Source: Norbert Pap – Péter Reményi (2007) 2008

In 2010 the honoured title-holders of ECC were Essen, Pécs and Istanbul. The chosen cities (the countries were given) could be related to the Danube region. The choice of cities also referred to the importance of the Balkans and Eurasian Turkey. Its symbolic message was clear; Pécs can accomplish an European mission if it acts as an intermediary between Europe and the quite different Balkans and Turkey. In addition, it is expressed by

the motto of ECC (Borderless City) and the title "Gateway to the Balkans".

The foundations of the ECC concept were determined in 5 pillars, 2 of which could serve as a basis for strengthening the South-Western intermediary role of Pécs:

- Pécs is a multicultural city. In the past Latin, Turkish, German, Croatian, and Hungarian cultures were layered; today Pécs is the most important location of German, Croatian and Gipsy cultures in Hungary.
- Pécs is a cultural gateway to the Balkan, a part of Europe that has not joined the Union yet (Borderless City 2005. p25. Pécs 2005 Európa Centrum KHT.).

The tender of Pécs highlighted specific cultural experiences of the European frontier. One of its main aims was to refer to the joint meaning of independence and interconnectivity within the scope of cultural development at the frontier, and to revaluate the standard notions of centre and periphery. Pécs reinforced the idea according to which we should not only think in terms of a nation-state but in terms of transnational regions too. The aims of developing the Southern cultural area and appointing Pécs as a dominant cultural centre were formulated in the spirit of previous ideas. This function may be established by new cultural institutions (Kodály Concert Hall and Conference Centre or the Zsolnay Cultural Quarter) built within the framework of ECC.

When consciously preparing for this role, three so-called messages for Europe were composed within the ECC concept:

- The Pécs2010 European Capital of Culture wanted to show the cultural experience of a European borderland – the Southern area reaching from Trieste through Tuzla to Timişoara – very distinct from the Western ones;
- Pécs is a gateway town to the Balkans: It may be the first European Capital of Culture that brings the colourful culture of the Balkans into its programme;
- The Pécs2010 ECC highly desires to deal with cultural heritages of East-Central European socialism.

The mentality of messages for Europe influenced the structure of cultural programmes in 2010 too. Pécs materialized intensive cooperation with the cities of Osijek, Zagreb, Samobor, Pula, Novi Sad, Kanjiža, Tuzla, Lendava, Arad and Istanbul.

Pécs became the first European Capital of Culture that opened towards the colourfulness of the Balkans, helped the country in expanding its South-West European cultural and administrative relation system.

The influence of the Danube-Drava-Sava Euro-region is moderate, it cannot be measured in the life of either the city or the wider area. The significance of Pécs has increased in value because it has better position as a town of an EU member state in the management of cooperation. However, tangible results and advantages – according to the interviews made during the survey – cannot be pointed out. Apart from this, the primary scope of international relations can be found in this dimension, though the topics, the methods and the purpose of cooperation are questionable.

In the period of 2007-2013, the current CADSES transnational cooperation area of the EU with the aim of territorial development was divided into a northern and a southern part. Hungary participates in both. The Managing Authority and secretariat for SEES (*South East European Space*) is located in Budapest. It offers Pécs certain advantages in the South East European Space. With the further development of the Danube-Drava-Sava cooperation, with the popularity and relationships gained as an ECC and with creating international institutions and functions it may have a chance to fulfil cultural (and educational) functions of the region.

The town's institutionalized system of foreign relations

In our study we have looked at the network of institutional relations in a wide range of international relationships. We have elaborated the relations in three institutional dimensions (*Pécs 1. as a town of county rank, 2. as the centre of Baranya County, 3. as the centre of the South Transdanubian region*).

First, we have studied the partner relationships of Pécs, as a town of county rank (TCR). The partners have assessed the importance of their relationships on a five-point scale in the strategy of external relations of the South Transdanubian region. In the survey the TCR gave 24 relations and assessed them. Six out of them – the French, the North American, the Israeli and the Turkish – located far away from Pécs – were assessed less "important" while the other 18 as "very important". Eight out of the eighteen are ECC.

The size and functional distribution of the cities are various; they do not reflect any particular strategies. The population of the largest city is nearly 10 million, two of them are capital cities and the rest are different in size and function. With such broad differences in size and functions, the question arises how long the relationships can last in the future.

In geographical distribution the biggest group is the South East European Space (with 10 partner relationships altogether). Central Europe has five relationships. One city indicates the significance of Northern Europe (the Finnish relation), while three mark the importance of Western Europe (the British, the Dutch and the French relations). There is one city from Southern Europe (the Italian relation) and

the others are outside Europe (two from the Middle East and two from North America).

The space efficiency principle seems to apply to the geographical distribution of partner relationships. The consideration of how important is a relationship is in inverse altogether proportion to the distance. Moreover, the number of the relations changes proportionally to the distance. The network of partner relationships is the densest in South East Europe and it corresponds to the perceived role of Pécs as a gateway town to this macro-region.

The town (as the obvious centre of Baranya County) is closely linked to the county's international relationships even if they are institutionally not connected to the municipality of Pécs. It has smaller significance.

The institutional centre of Baranya County in Pécs possesses 19 partner relationships. On a five-pointed scale there are partners at each level. The space efficiency principle also applies here, so the number of the partners falls proportionally to the distance. Analysing the geographical distribution, it turns out that the South East European relations of strategic importance are remarkably missing and the rate of mentioning them is rather low, too. The developed Central and Western European Spaces received special attention.

The role of Pécs as the central space in the South Transdanubian region is also relevant. Due to the underdevelopment of the institutional system and its relatively short history, the manifold relationships must be treated with reservations, because they basically belong to the regional development agency, a public company (called South Transdanubian Regional Development Council and Agency). Forty-four partner relationships can be found on the list, but the partners' status and the characteristics of the relationships are extremely varied. Besides the potentially high-profile relationships, several non-institutionalized relations with less significance are on the list, too. On the whole, the application of the principle of space efficiency can also be seen in this case. The relationships have been primarily established with Central and Western European partners according to the orientation of the agency motivated by the EU tender system for allocating funds.

The three institutional relationships only partly show orientation correspondence. The relationships of TCR are partly consistent with the macro-regional centre function. Furthermore, strategic consideration cannot be experienced except for the principle of space efficiency. The county and regional leadership does not carry out tasks defined by the macro-regional centre role in forming foreign relationships.

Cross-border relationships of settlements and regions

The ECC programme in 2010 helped to sell the "cultural economy" of the town and its region in a broader market. In this approach it is worth examining what these potential market areas were and what relations they had with Pécs. Six territorial dimensions, cooperation areas of special quality had been differentiated that we would like to introduce below (Pap, 2008).

"Romans in Hungary and the Christian Heritage" dimension

One of the prides of the region and Pécs is the World Heritage site of the Early Christian Cemetery (*first of all the Cella Septichora*). Its image-forming significance is quite apparent, although its role as a tourist attracting destination is not that remarkable. Besides the Hungarian ones, the Croatian, the North-Italian and the Austrian territories were potential cooperative market areas where the common cultural heritage and the similar (Catholic) roots with previous contacts could provide the base of cooperation. This is the region where the Mary cult shrines occur in large numbers. The region shows a considerable overlap between the regions and settlements of the so called *Southern Cultural Zone concept in ECC competition*.

The Danubian dimension

In this case the Danubian dimension means that for centuries the region has been connected to the cultural, transportation and innovative corridor of the region along the banks of the Danube River. The fact that a German city, Essen was chosen to be one of the other three European Capitals of Culture in 2010 is a peculiar circumstance. The Germans living in the Danubian region (see *Drang nach Osten, Donauschwaben, Schwäbische Türkei*) played a decisive role in the urban and economic development, the process of forming bourgeoisie and adapting to the European systems in this particular region, thus establishing strong links among the Balkans, Central Europe and the European Core Area. The effects of these results are still alive today; it is enough to mention for example the presence of the several German joint ventures in the region. The primary target areas of economic relations development - beside the Carpathian Basin – may be in Austria and in South Germany.

The Western Balkan dimension

In the past centuries the Danubian region witnessed not only the migration of German settlers making businesses and creating lasting cultural values, but from the south to north several other ethnic groups chased by the Turkish invasion or together with the Turks entered the region as well.

That is why it is possible to establish links to the Balkans dimension. Its cultural-social contents are present in different forms in Hungary (e.g. minority culture).

This dimension still exists today with cross-border cooperation, euro-regional organization and with commercial and tourism networks. The Croatian, Bosnian, Montenegrin, Bulgarian, Greek etc. relations also exist in the region, and there are still numerous possibilities to enhance them. For the economy of Pécs the dimension as a target market, business partnership and (for the cultural industry) content/topic can mean an access point. However, this chance is questioned by the fact that this spatial/cultural dimension has slowly disappeared from the ECC programme.

The Turkish-Islamic dimension

The only non-EU member of the ECC project for 2010 was Istanbul. The size of this immense city (population: 9 million – including the agglomeration: 19 million) and its economic and cultural potential are bigger than the same potentials of Hungary. The issues of security in connection with the Turkish, the Eastern (Romania, Bulgaria) and the Western Balkans process of accession draw the attention of the EU to the Turkish-Islamic dimension. The South Transdanubian region possesses Turkish-Islamic material (mainly architectural) and cultural heritage due to the Turkish occupation in Hungary. This fact provides possibilities for displaying this particular dimension by the means of the cultural industry of Pécs. Those countries waiting for the accession or those which stand on various stages of the accession process are on a lower "integration level" than Hungary. In regard to certain educational and cultural services Pécs has favourable possibilities for cooperation with the Western Balkans.

The Protestant dimension

The uniqueness of the South Transdanubian region is that many of its areas lagging behind and its inner peripheries are dominated by the Protestant tradition, in fact, Protestantism is the chief source of their material-cultural heritage. The Protestant communities of the Ormánság, Zselic and Sárköz micro-regions exist even today. By their in-migration to Pécs a considerable Protestant community has been established here as well.

The traditional architecture and culture of the South Transdanubian region is mainly of Protestant nature. In the region's cultural image the significance of this heritage exceeds by large the proportion of the present number of Protestants.

The Protestant dimension can be activated only if the Hungarians of Protestant tradition living outside the country (but still in the Carpathian Basin) and in East Hungary enter the market of the region's cultural industry. *(It is extremely important for us that the Hungarians living the closest to Hungary in Slavonia and Voivodina, and the greatest number of Hungarian ethnic minority living in Romania are mainly of Protestant tradition.*)

This dimension offers the possibility for cultural identities for those Swiss, Dutch and other northern Protestant communities that traditionally show interest in Hungary, thus forming a significant, solvent market segment for the cultural industry.

For Pécs and its region the increased awareness in this dimension may induce other market relations and investments.

The dimension of wine

From the three biggest southern peninsulas of Europe, the Iberian and the Italian Peninsula are the true centres of wine-production. The climatic and other production capabilities and the professional-cultural heritage provide the prosperity of this particular economic sector. The production circumstances in the Balkan Peninsula are at least as advantageous as the above mentioned endowments. However, in many aspects the Balkan Peninsula is lagging behind these regions. The most characteristic product of Pécs and the region is the wine and the related services of cultural content. On the one hand, the establishment of viticulture was connected to the Roman times, on the other hand, to the South Slavic groups escaping from the Turkish invasion. The issue to make relationships with other cities and regions of similar capabilities in this dimension also arises.

With more precise segmentations the target groups can be defined and the advantages can be realized by applying the proper means to it.

Potential Place of Pécs in Foreign Relations

The town of Pécs needs to pay attention to two main factors in its development strategy: one is geographical and the other is functional. In regard to its geographical location, historical traditions and macro regional tasks given after the national and the EU's relations strategy, Pécs has to develop its relationships and capabilities towards the Balkans and Southern Europe where it can use its comparative advantages. In other directions it has to face stronger competitors with better capabilities. However, in relations with the Balkans and Southern Europe it has no rivals. In addition, its Hungarian regional leadership is obvious, too.

Analysing the macro-regional interstate and inter society relationships we can specify certain deficiencies, gaps that the city can fill in. These deficiencies could have been defined according to the analysis introduced in this book. Several areas can be identified. The first of them is in the southern neighbourhood of Pécs.

In this case the town may fulfil the role of a cultural and educational development sub-centre in the period of 2007-2013 in the EU's territorial development (*where Hungary received leadership*) in the southern part of the former CADSES, now South East European Space. Besides the Managing Authority and secretariat in Budapest, Pécs might be entrusted with cultural tasks suitable for its profile.

The ECC programme had paramount importance accomplishing the above mentioned purposes but at the time of our study we could not see concrete results and evidences that the city was able to exploit the opportunities. The delay in the developments had already determined the opinions about it. The planned institutions and investments offer potentially enormous capabilities. However, it is certain that not the events and the year of 2010 but the structures also operating after 2010 will determine the place of Pécs in foreign relations.

Conclusion

Pécs, the fifth biggest town in Hungary has outstanding functions in the Hungarian urban network. Being the closest among the Hungarian large towns to the Balkans, it serves as a natural gateway town to the newly joint Croatia and to the other states of the Balkans Peninsula waiting for the accession to the European Union. It is also a well developed and multifunctional regional centre, whose role in the development of Hungarian regionalism is unquestionable. After Budapest, Pécs is the Hungarian town with the most varied and colourful cultural traditions, with the largest number of cultural assets from the ethnic minority traditions and religious heritage through industrial heritage right to the trends in contemporary arts. This diverse cultural heritage was recognised by the European Union when Pécs was awarded the European Capital of Culture of 2010 (more exactly, one of the capitals of culture, the other two cities being Essen in Germany and Istanbul in Turkey, a candidate country of the EU to which Pécs and the wider region of South Transdanubia serves as a natural gateway of the core areas of the European Union). The European Capital of Culture year was a powerful tool for Pécs to place itself on the cultural map of Europe and to gain a new image as a strong cultural town, opposed to the former industrial town image.

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A conceptual viewpoint on the urban periphery. Craiova, Romania as a case study

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Abstract.

The article target is to address real and timely issues concerning the edges of the postmodern city by providing an invitation for thought, insight and overriding action in what concerns the urban geography and urban planning in Romania.
The study addresses the scientific ingeneration to define and understand the concept of urban periphery and subsequently reflect on the characteristic elements that individuate it.
It initiates a microscalar analysis, an original element which gives an insight in the mechanisms of its genesis, then customizes its features and afterwards, by stating subcomponents, clearly delineates the periphery of Craiova, a development urban pole in Romania.

Keywords: *urban periphery (fringe), banlieue, urban sprawl, sustainable urban development, dynamics, suburbanization, Craiova*

Rezumat. Consideraţii privind conceptul de periferie urbană. Craiova, România - studiu de caz
Articolul subliniază câteva probleme de actualitate privind limitele oraşului postmodern, adresând şi constituindu-se într-o invitaţie la problematizare, reflecţie şi acţiune prioritară în domeniul geografiei urbane şi planningului urban din România.
Studiul pleacă de la provocarea de a defini conceptul de periferie urbană, pentru a reflecta ulterior asupra câtorva elemente caracteristice ale acesteia, care o individualizează.
Se vizează o analiză microscalară, ceea ce constituie un element de originalitate, pornind de la provocarea ştiinţifică de a cunoaşte mecanismele de geneză, de a individualiza mai apoi elementele caracteristice şi finalizând, prin identificarea câtorva subcomponente, cu delimitarea periferiei urbane a municipiului Craiova, pol urban de creştere în România.

Cuvinte-cheie: *periferie urbană, zona suburbană, extindere urbană necontrolată (dispersie spaţială), dezvoltare urbană durabilă, dinamică, suburbanizare, Craiova*

Introduction

The proliferation of Romanian cities' peripheries represents a present-day geographic phenomenon, a typical and challenging matter of nowadays urban development, though not very much analyzed in itself or just barely hinted at within Romanian geographical literature.

The previous scientific hiatus consists in not seeing the periphery as a distinct and clearly identifiable spatial component of the city but rather as a depositary of various geographical phenomena, usually tackled in the context of suburbanism and associated contradictions. In fact, the urban periphery should be seen as a consequence or more likely as a pattern of urban growth and ultimately, as a phenomenon itself. A self-contained entity, the urban periphery chiefly states a problem of location and geographical identity/identification and consists in an original microanalysis approach.

The American and West-European schools of urban geography, but also the few, yet significant Romanian studies provided the basis for this research and the opportunity to establish theoretical foundations for the subject. Most important, the metabolic process of understanding the concept of urban periphery imposed a permanent report to Romania's peculiarities.

What is the urban periphery? Boundaries and borders. Context. The other side of the periphery.

Firstly, there is usually a confusion made between several concepts such as area of influence, suburban area, urban fringe, banlieue and urban periphery and that is partly because both as term and phenomenon, they were transferred from a foreign context, which implied another social-economic conditioning and therefore, dissimilar emergent territorial realities.

While the American term of *suburbs* refers to the outward development and how counterurbanisation affects the village communities (Hill, 2005, 2003, Neamţu, 2012), the extended, monotonous areas enclosing the cities, lodging most part of the middle-class American society, the French *banlieue* designates a medieval judicial notion, an extra-muros territory, distinct from the *faubourg* (Derruau, 1996) and more recently, an urbanized belt depending on the center, obtained, in French statistics, by separating the city-center in the urban agglomeration. However, the term *periphery* hints at a geometrical and more mechanical definition of the city, designating the boundary of the urban agglomeration and implying the functional relations with the city-centre (Vieillard-Baron, 2006). Further, the *periurban* identifies with the areas surrounding

the urban agglomeration, facing a discontinuous urbanization, but still dependent from the centre.

The first, major confusion concerns the location of the urban periphery. Avram, 2009 points out the necessity to correctly use the terminology and distinguishes between urban outskirts (outskirts of the urban) and town outskirts by using the city's administrative limit to differentiate the inner urban from the space located out of the city.

Taken literally, we are dealing with a zone at the edge of the city centre, an area which is *not* the centre (Foot, 2000). As stated by Clark in Pacione, 1999, p. 301: "a precise definition and map are not possible, but generally, the urban fringe means those areas just beyond the built-up part of a city, although still close enough to the city to be subject to intense development pressures. The fringe is not a line on a map; it is a zone of radially diminishing urban-style activities. It is the existence of a fringe that prevents to distinguish the urban from the rural, since the fringe has features of both. Yet, it is more than an amalgam of the two; the fringe is a distinctive place with features of its own. It is, above all, a place of heightened land-use conflict, uncertainty and profit potential, hence its interest to geographers".

The amalgamating connotations of the periphery also derive from its frequent use into current language and its inoculation in the public mental representation as a marginal, pejorative spatial component of the city. Still, a city's periphery is not to be mistaken for the identity that sociologists invest it with, but, at the same time, the geographical reality does not impose a clear demarcation from it.

Though often associated with very delicate social phenomena ("Bronx/badlands/zona a rischio", Foot, 2000, Mionel, 2012, 2013) such as ghettos, social segregation, discrimination, gated communities, poverty, unemployment, the urban periphery should be mainly analyzed as part of the urban metabolism and in a broader, regional context, to render its importance and its valuable contribution in the urban domino.

In Romania, the essential question regarding the concept of *urban periphery* and its correct delineation is connected to either the appurtenance of the periphery to the urban seen as administrative entity or its inclusion into the rural area adjacent to the city. In this case, is the periphery a part or can it be identified with the settlements surrounding the city in the context of rapid metropolitan development? And if the periphery is seen as antonymous to the urban, which are the quantitative thresholds to delineate one territorial structure from another? It becomes therefore legitimate to ask: is the periphery urban or rural? And whatever the answer may be, how is the periphery placed within the administrative clipping?

According to the Romanian Dictionary of Human Geography, the urban periphery represents "that marginal part of the cities which expanded spontaneously and anarchically, by growing beyond the initial urban territory or the walled precincts. This genetical pattern is typical for circular cities or tentaculate ones, favoured by the road and railway infrastructure, with the public transport network converging towards the city. Another genetical pattern of the urban periphery may be represented by the extension of the city by enclosing its marginal villages, which become peripheral neighbourhoods once included in the urban territory" (Erdeli et al., 1999, p. 234).

The urban periphery is viewed as a territory organized by the centrifugal and centripetal forces, the flows structuring the city; the city's prosperity is in a great measure reflected in its support-territory […] both entry and exit for the flows of energy and matter, being interpreted as one of the city's subsystems and a subsystem of the territorial system, in which the city itself is integrated (Ianoş, 2004).

Thus, it is very important to state from the very beginning that, dynamic par excellence, vague and flexible, the periphery should not be hedged in an indisputable delimitation, but moreover seen as a phenomenon, as a conventional frontier, an interface between urban and rural (Stoica et al., 2010, Allen, 2003, Stan, 2006). Just as the terms "urban" and "rural" are vaguely and manifold defined (Hall, 2009), so the occurrence of the peripheries is impregnated with the national distinctiveness in which they emerged and developed.

Anyhow, the periphery clearly takes shape as a result of the influx of urban into the immediate rural, by the overflow of urban attributes towards the rural.

The triggers and participative factors in shaping and generating the character of the urban periphery.

The form, structure, dimensions, organization and extension of the urban peripheries experience various forms of territorial manifestation, being dictated by a series of factors. Just as the periphery in itself, the factors determining and influencing its genesis are, in turn, always dynamic and individuating, depending on the city under analysis.

While in more economically developed countries the proliferation of peripheries manifests in the context of a finalising urban transition and the enhancing of a reversed trend, of rururbanisation (Istrate, 2008), in Romania, the present peripheries of the cities are first of all due to the inflow of

allothigenes (rurals) and its immediate consequences, namely the need for space and housing.

The urban triggers (both endogenous and exogenous) which contribute to customizing the area surrounding the cities are:
a) *economic*: economic growth and increasing income, economic profile and economic importance of the settlement, the role of the city within the region, the agricultural or non-agricultural potential of the surrounding area, price of land;
b) *transportation*: large use of car transport and private car ownership;
c) *demographical* (the increasing size of the city, increasing mobility of the population at a regional level-both inward/centripetal and outward/centrifugal);
d) *social* (heterogeneous ethnical or religious structure of the city);
e) *inner city problems*: small apartments, lack of open space, high levels of taxation, damaged infrastructures;
f) *political-administrative and legislative* (post-communist free will of residential choice, Integrated Plan of Urban Development/PIDU-Craiova as a growth pole, Development Strategy of Craiova, National Development Plan, Leipzig Charta for Sustainable European Cities);
g) *contextual* (geographical location, local resources, density and age of the rural settlements surrounding the city, infrastructure density);
h) *other*: globalization.

Characteristics and aspect. In short: problematic, debatable, contested.

Varying from one city to another, from one country to another, however, the urban peripheries do share a number of underlying characteristics:
- an interface, a territory in transition between urban and rural, hybrid (Dumont&Hellier, 2010), subsidiary and always in metamorphosis; in other words, either a rural in an incipient stage of development or an urban still preserving significant rural impressions, which founded it primarily;
- a preurban/protourban territory (Hill, 2005, Majuru, 2003), the entity including a retroactive principle, which can be seen as a biunique belt: the periphery both reflects the past that has created it and expresses the germs of the city's future;
- movable, changing, unsteady, blurred, its outline being dynamic par excellence. It represents a social-spatial reality with remarkably protean forms of manifestation (Nicolae, 2002);
- vulnerable, given the exposal to both endogenous and exogenous driving forces shaping the city;
- fast paced, therefore ephemeral, as a result of its passing spatial limits determined by the permanent progression of the urban towards the rural;
- it may represent the result of the urban sprawl (extensive, uncontrolled urban growth);
- it lacks cohesion from several points of view: structural, functional, ecological, psychological, social, cultural, representing a territory subordinated to the city, as depositary for its labour force and new comers or rural origins;
- the dilution of the population density and buildings once the city overflows to the adjacent area;
- lacking the typical urban roots, the usual traditions, culture, landscape and monuments of the urban environment, without the symbolical urban buildings.

A methodology to locate the urban periphery – a point of view.

As a clearly identifiable piece of the urban puzzle and taking into consideration its characteristics, it is very interesting to establish a methodology which helps the delineation of the urban periphery.

First of all, it is important to emphasize the difficulty to precisely identify both the inner (towards the city) and the outer (towards the rural area) boundaries of the periphery as clear delineation of urban from rural is no longer necessarily antithetic in postmodern cities. The process of decentralization is mainly responsible for the post-industrial relevance of the conventional dichotomy center-periphery, not necessarily antagonical anymore.

Without claiming its indefeasible completeness or that these can be definitively applied on a global scale, a series of useful variables (criteria) have been itemized in order to distinguish the perspective of the urban periphery in an analytical context:
a. the concept of periphery firstly implies a sense of *distance* and *hierarchy*, as in horizontal perspective, the city usually defines by its centrality, therefore sets the periphery by opposition;
b. the *structural* component induces a spatial order, by imposing a triadic ssuccession of layers: center, pericenter, periphery;
c. *physiognomical variables*: large areas of greenfields, barrens; the rapid scale change in the sense that the built-up area reduces its upright dimensions, determining an unexpected saltation of the urban gradient; the increasing dilution degree of the built-up area reflected in the decreasing land use coefficient (CUT);
d. from the *functional* point of view, there is a clear tendency towards monospecialization from center to periphery and also, a clearer delineation between functions (mostly commercial and storage units, new residential areas);
e. the *attenuation of urban characteristics*: deficient urbanistic amenities and diminishing public spaces;
f. the *demographical* features point out changes in urban density and a typical economic structure, with

a higher occupancy degree within primary sector on the one hand or an increasing tertiary, on the other hand, when the case;
g. the *economic* development indicates greater discrepancies of the peripheral inhabitants' monthly incomes, which also reflects in the housing appearance and lower prices of the land, which constitutes an important determinant of outward flows;
h. regarding the *spatial morphology*, the dichotomic peripheries usually imply a greater distance between households, a diminished contiguity of the built-up area, a more ordered pattern of the street network;
i. nowadays peripheries highlight great *social* distances between the inhabitants of the old peripheries, traditionally living in the villages that have been absorbed in the process of urban growth and the inhabitants of the new peripheries, those citadins looking for larger spaces and less vitiated environment; moreover, the social contrasts also bring along a certain social isolation and an obvious ethnical segregation of gipsy communities.

Specific traits in the urban development of Craiova municipality.

Although at the level of the public conscience and real life experience Craiova's periphery identifies with an unquestionable mental border, usually associated with an important percent of the gipsy population or a lack of infrastructure, the analysis of Craiova's periphery is important and necessary as a consequence of the spatial events taking place in the peripheries of post-socialist cities. The case study comes to better understand the mechanisms and to singularize the general remarks regarding the notion of urban periphery.

Lying in the South-West Development Region, Craiova municipality represents one of the largest cities in Romania, a development urban pole whose frequent and intense relations with the adjacent area determined a unipolar urban agglomeration, with obvious perspectives of development along main transportation arteries. Taking this into consideration, a more interesting question emerges: how old is the periphery of Craiova and how early in the historical evolution of the city can we talk about its periphery?

Craiova reached its actual territorial extension by successively integrating rural settlements situated nearby and the transformation of interstitial spaces into urban ones. Moreover, the rapid growth of the population, together with an exponential increase in residential areas determined an intensification of the connections with the surrounding area and a spatial development of the city, which implied the ceaseless transformation of the urban peripheries.

The geographical location was determinant for Craiova's spatial configuration and the spatial tendencies of development for the city's peripheries, through the favorability induced by: a natural contact area, between the Romanian Plain and the Getic Piedmont, the complementary resources and the initial junction of commercial roads, perpetuated to current high accessibility.

The main initial obstacle in the city's territorial development was represented by the low meadow of the Jiu river, with the phreatical waters situated close to the surface, marshes and frequent floods (Mara (Şoşea), 2010). This unfavourable territory was thus preferred by the unintegrated, socially secluded gipsy population. The railway in the north of the city was the second spatial topophobic line, at least in the early period.

Moreover, the legislative, administrative context, the political regime changes demonstrate the role of ideologies in shaping the city. Craiova suffered an ample, controversial distorsion of the urban structure during the communist period, artificially inducing demographical, economic and spatial changes, thus influencing the urban fabric. The implications of different long-term development perspectives firstly implied the insertion of large industrial units, spontaneously urging for new residential. This is how the former neighbourhoods known as "mahalale" (Valea Roşie, Rovine, Brazda lui Novac) or villages (Craioviţa Nouă) gained a typical communist aspect, with blocks of apartments often improper as comfort is concerned (former peripheries within the internal urban ring or pericenter in Fig. 1). The years following the Romanian revolution, a chaotic, disharmonic development of the peripheries was mainly favored by the unclear legislation and the industrial collapse.

In 2002, several surrounding villages were administratively included in Craiova, becoming its current peripheries: Şimnicul de Jos, Izvorul Rece, Rovine 2, Cernele, Cernele de Sus, Mofleni, Popoveni, Făcăi. Lately, the economic changes and the tertiary development especially along main circulation arteries determined the radial growth or ribbon development of Craiova's territory until reaching a territorial conflict with the neighboring settlements (Marinescu, 2006, Habibi&Asadi, 2011).

Structurally decomposing the urban entity into a series of concentric rings around the center, the initial "raison d'étre" and faithfully following the diachronical pace of urban growth that Craiova has gone through, there was established a model of spatial internal organization of the city:

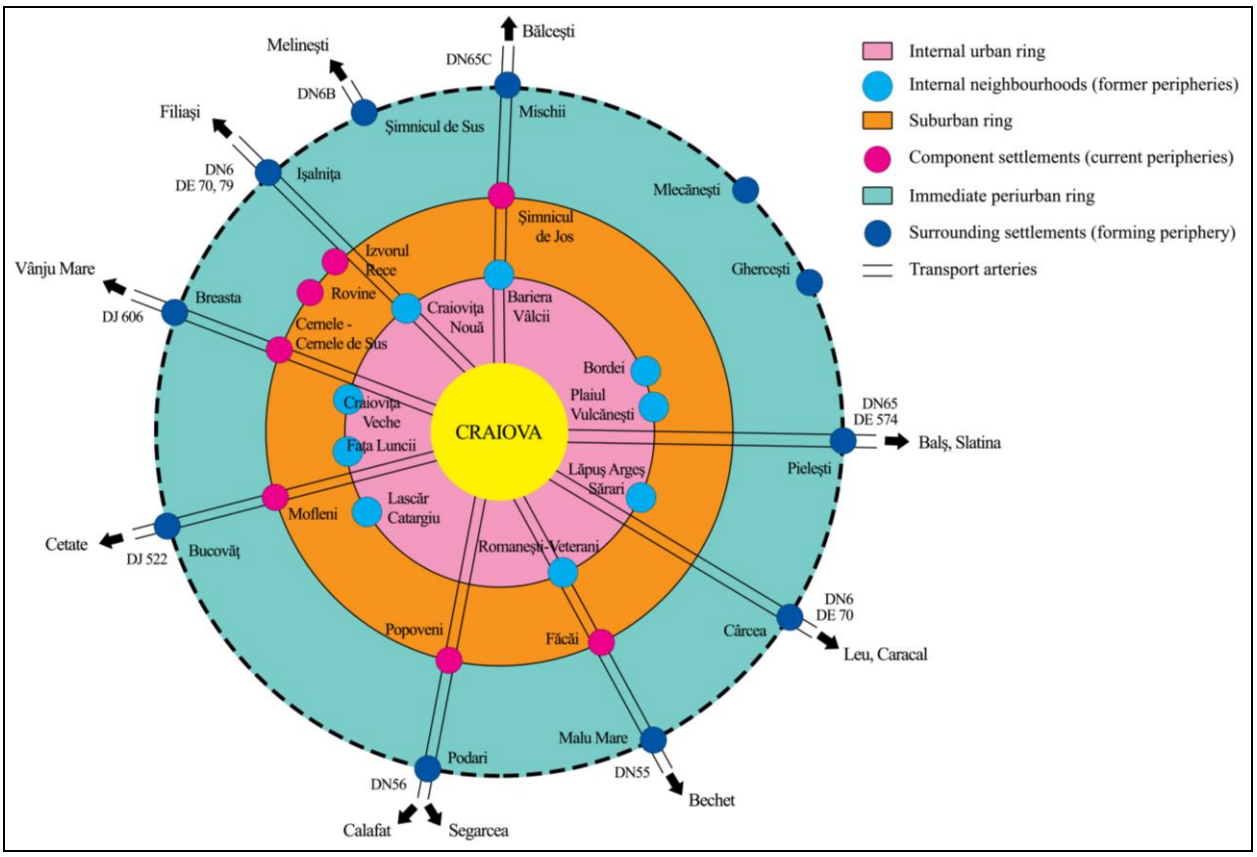

Figure 1: A model of spatial internal organization of Craiova municipality

The model also reflects a classical distinction (Foot, 2000) between former peripheries (Romanești-Veterani, Lascăr Catargiu, Bariera Vâlcii in the internal urban ring) and new peripheries (Izvoru Rece, Mofleni, Popoveni in the suburban ring).

Moreover, from a functional point of view, we can talk about: residential peripheries (Metro area in Pieleşti, Selgros areas in Cârcea - Fig. 2a), tertiary peripheries (radial extension of Calea Severinului, Calea Bucureşti – Fig. 2b). In contrast with the comfortable peripheries (Fig. 2c), a particular place is occupied by the peripheries characterized by social segregation (Fig. 2d), in which the gypsy communities form a compact spatial corner in the South-West and South of Craiova.

Conclusion

Urban peripheries are dynamic entities that are constantly changing and evolving. Although the urban periphery represents an easily recognizable area within the city, it cannot be easily identified using the classical criteria of a neighbourhood or a functional zone.

Much too often regarded as an intrinsical pejorative, unbecoming, marginal area, the article suggests a much more thourough understanding of the urban periphery, beyond the preconceptions that usually characterize the opinions or current language of the inhabitants. Moreover, the periphery is strongly individualized, being influenced by the historical past and the social-economic variables.

Correctly understanding and identifying the urban periphery seems the first useful step in developing the policies for controlling its problems. The solutions for the integration of the urban periphery and the future city's sustainable development will have to take into consideration Craiova's rhythm and particularities of urban growth together with its structural rural inheritance. As the youngest territory of the city, the article proposed an open interpretation of the urban periphery more as a resuscitate source for Craiova's development rather than a sinful area.

Figure 2: Typological distinctions in Craiova's peripheries: residential (a) vs. tertiary (b), comfortable - "la périphérie aisée" (c) vs. poor (d)

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Competitiveness and sustainable development of the small towns in Romania. Case study: Marghita

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Abstract

There is a common thought that the Romanian small towns need to assume the role of catalyst for regional development outside the influence of higher-ranking cities. In this context, a question arises whether small towns can be competitive in regional development challenges, and especially if they can induce sustainable development in the region through resources they hold.
Sustainable Development Indicators represent a conceptualization of sustainable urban planning, where land use and models of urban growth potential are based on town needs management depending on available resources, taking into account ecological limits.
Thus, they incorporate the principles of inclusion, multidisciplinary and completeness, in order to achieve a social, environmental, economic and territorial balance. As a result, the proposed sets of urban indicators create a framework for sustainable urban planning.
The model of sustainable development assessment of the town of Marghita contains a set of 16 indicators and four dimensions (or pillars of sustainable development: four indicators for the economic dimension, seven for the social dimension, two for the institutional and two for the environmental dimension), which lead to a composite indicator when aggregated.

Keywords: *small towns, sustainable development indicators, regional development, Marghita, local development, competitivity*

Rezumat. Competitivitate și dezvoltare durabilă în orașele mici din România. Studiu de caz: Marghita

În jurul orașelor mici din România s-a creat ideea unei necesități de a-și asuma rolul de catalizator al dezvoltării regionale în arealele aflate în afara arealelor de influență a orașelor situate ierarhic superior. În acest context se impun întrebările dacă orașele mici pot fi competitive în provocările date de procesul de dezvoltare regională? și în special dacă prin resursele de care dispun pot induce o dezvoltare durabilă în regiune?
Indicatorii de Dezvoltare Durabilă reprezintă o conceptualizare a urbanismului sustenabil, în care folosințele terenurilor și modelele de creștere urbană sunt bazate pe nevoile orașului raportat la resursele disponibile și ținând cont de limitele ecologice.
Acesta include principii de incluziune, multidisciplinaritate și complementaritate, în vederea atingerii unei dezvoltări sociale, environmentale, economice și teritoriale echilibrate. Ca urmare, setul de indicatori urbani propuși creează cadrul unei dezvoltări urbane sustenabile.
Modelul de analiză a dezvoltării durabile pentru orașul Marghita cuprinde un set de 16 indicatori și patru dimensiuni (cei patru piloni ai dezvoltării durabile: patru indicatori pentru dimensiunea economică, șapte pentru dimensiunea socială, două pentru dimensiunea instituțională și două pentru dimensiunea environmentală) care agregate determină un indicator complex.

Cuvinte-cheie: *orașe mici, indicatori de dezvoltare durabilă, dezvoltare durabilă, Marghita, dezvoltare locală, competitivitate*

Introduction

Many influences on urban competitiveness reflect national and international economic conditions that are beyond the direct influence of the individual city (Begg, 2004). Delicate balance between social cohesion and competitiveness has become a major challenge at sub-national level, authorities having difficulties to maintain an equilibrium between economic efficiency and social justice (Ache et.al, 2008). It is argued in this context that Europe's cities, towns and regions need to make themselves competitive in new global markets (OECD, 2006).

Determination of the current level of sustainable development for the town of Marghita requires an approach from multiple perspectives, whereas any research method or analysis model cannot exhaust all aspects characterizing a complex urban entity. Sustainable Development Indicators represent a conceptualization of sustainable urban planning, where land use and potential urban growth models are based on management of city needs depending on available resources, taking into account ecological limits.

Therefore, it incorporates inclusion, multidisciplinary and completeness principles in order to achieve a balance between social, environment, economic and territorial components.

The town of Marghita is located in north-eastern part of Bihor county, at a distance of 60 kilometers from the county seat, Oradea, at 30 km from the Hungarian border and near the limits of the county of Sălaj, respectively Satu Mare (fig. 1).

Social dimension and demographic trends

The promotion of social inclusion represents a priority for any locality, because there are various differences regarding the access to health and social services, education and labor market. This differentiation is emphasized more when are analyzed through gender discrepancies or between rural and urban areas. The difficulties to integrate rroma communities, people with disabilities, and other disadvantaged groups are not negligible. These groups

are still at risk of social marginalization, primarily due to the discrimination in access to economic and social life.

Figure 1: Marghita location in Bihor County

Source: processing after the map of Bihor County Council http://www.cjbihor.ro/)

Indirect indicators of poverty in recent years show a persistence of material deprivation phenomena even in conditions of economic growth and wellbeing increase between 2005 and 2008, and the accentuation of these social phenomena with the installation of the economic crisis.

Demographic analysis reveals an increase in population until 1992, followed by a downward trend until 2007, when the population number increased due to an intense regional migration flows from rural to town driven by increasing economic opportunities in Marghita and the appearance of local subsidiary unit of Vasile Goldis University.

Creation of workplaces in Marghita and the reorientation of school options of young people within area from traditional university centers as Oradea and Cluj-Napoca towards local branch of Vasile Goldis University, along with the closure of many workplaces in rural areas of the region determined a wave of domicile establishment in the locality.

Moreover, statistical data provided by the authorities show that between 2006 and 2007, the number of persons that registered their domicile in Marghita increased 7.5 times. From the 1101 applications for domicile settling recorded in the municipality of Marghita in 2008, 84% (934) were requests for Marghita and the remaining for the administrative units components localities (Cheț and Ghenetea). Perspectives of this flow are unclear under the economic crisis. Population structure by age, gender, education level and professional structure reveals a real human potential, needed in the process of urban development.

Public health

The access to health services in Marghita is medium compared to the situation in Bihor County. In Marghita the number of family physicians per 1000 inhabitants is (0.78), being above the average of towns in Bihor County (0.60) and significantly higher than the county average, which includes rural areas with an obvious lack of sanitary personal.

Due to the clinics and hospitals of the town, the average number of physicians per thousand inhabitants (2.71) is also close to the average value registered by the towns in the county (2.35), significantly higher numbers being recorded only in Oradea, Beiuș or Nucet where there are several medical institutions, comprising larger medical staff.

A similar situation occurs in the case of stomatologists, their number reported to the population is close to the average value of the urban areas in Bihor county.

Climate change and energy use

Climate change is a major priority on the EU agenda, despite the controversies surrounding this issue, there is a consensus about environmental degradation and the role of the human factor as vector in accelerating or, on the contrary, in slowing this process. Climate change as a global problem has solutions by acting locally corroborated higher hierarchical levels strategies. In this context, Marghita should assume a role in climate adaptation and mitigation through proactive position by subordinating preventive and reactive measures. Within a favorable natural milieu in which Marghita emerged and extended its limits, it is important to determine the current environment status quo emphasizing especially the risks induced by the presence of the rivers which cross the town perimeter (the Barcău, Inot, Eger) and those caused by current processes. A major problem is represented by the emission of greenhouse gas and energy consumption and losses and, not least, by the low share of renewable energy in the total energy consumption.

Environmental reports drawn by Environmental Agency and processed in Bihor County Development Plan show a minimum pollution degree in Marghita (PDJ Bihor, 2007, 27). Nevertheless, global warming is largely attributed to the greenhouse effect, additional emissions of greenhouse gases (GHG) produced by human activities, and primarily CO2. The quantity of greenhouse gases emissions per capita in Marghita is 1.45 t / capita, being 4 times lower than the national average of 6.03 t / capita greenhouse

gas emissions (TEMPO.INS,2009), this amount is produced both by the existing economic entities in the area and by the daily activities of the inhabitants. The presence of forests in the vicinity of built-up area plays an important role in defining the air quality. The existing green space area in Marghita provides opportunities to improve the environment statement, by increasing the green space surfaces.

Energy production, particularly through the use of fossil energy materials (coal, oil, natural gas, wood), is currently the largest source of air pollution. Because fossil fuels remain dominant, the problem of greenhouse gases (CO2) remains actual and worrying.

In Marghita, thermal plants are not functioning anymore, because the inhabitants renounced at centralized heat supply services, substituting with microcentrales using methane gas as an energy source.

A first step for local authorities to improve the situation was the adoption of local council decision No. 18 of 27 January 2011 approving participation of municipality of Marghita to the "Programme on installation of heating systems using renewable energy, including replacing or complementing traditional heating systems " within the project *"Replacement of heating systems and preparation of domestic hot water using geothermal water from the I-VIII General School and Dr. Pop Mircea hospital thermal points"* (HCL Marghita 18/2011).

Conservation and natural resource management

Natural resources identified on the current territory of the town of Marghita are: liquid and gaseous hydrocarbons, geothermal water, forest, flowing waters. Exploitation of liquid and gaseous hydrocarbons is carried out by SC Petrom SA in Marghita point and is realized based on the company's strategic plans; local authorities have limited influence on this unit's activity. Geothermal water is the most important resource for Marghita, it capitalization represents both an opportunity to produce energy and to increase the attractiveness through the spa park functioning. Geothermal water reserve may be affected through the irrational exploitation; so besides extraction wells, re-injection wells are necessary to maintain stable water flow and pressure.

Within Marghita administrative units limits, there are approximately 2,250 ha of wood surrounding the town, managed by Marghita Forest Range. Forest exploitation is performed within the limits of permits of Marghita Forest Range.

Water resources coming from the Barcau, the Eger and Inot hydrographic network is partly used in agriculture and fishery exploitation. Rational use of natural resources is one of the major leitmotif of sustainable development, Marghita being forced to make progress towards natural resource management.

Sustainable economic development

Marghita strengthens a modern economy which combines industrial activities with agriculture, trade and transport, classifying the town as the second economic power after Oradea in Bihor County. According to the Romanian Atlas (MDRLP, 2008), in terms of the dynamics of employees in the three fundamental sectors between 1966-2002, the economic structure of Marghita is gradually shifted towards the tertiary sector. From the total existing economic units in urban areas of Bihor County, Marghita has approximately 4% and as the turnover, 2%.

According to Bihor County Development Plan 2007-2013 (May 2007 revised version), Marghita is characterised by average development of the economic sectors.

In Marghita, in 2009, there were registered 804 economic units. Currently the main activity fields are industry, agriculture and trade. The economy of Marghita is based mostly on manufacturing, an economic domain that does not provide a stable environment; in the near future, profound changes are expected. For a reliable economic development, an increase of the activities in the tertiary sector and capitalization of existing resources especially for tourism are highly needed.

Method

The evaluation model of sustainable development for Marghita contains a set of 16 indicators and four dimensions (or pillars of development: four indicators for the economic dimension, seven for the social dimension, two for the environmental dimension and two for the institutional dimension) aggregated in a composite indicator.

The main model for determining the dimensions and the choice of indicators was based on sustainable development indicators developed by the United Nations Commission for Sustainable Development (Perdichi, 2009).

The sustainable development frame, according to the Commission on Sustainable Development is composed of four main dimensions (social, economic, environmental, and institutional) and multiple themes and sub-themes related to these dimensions. In order to determine the sustainability indicator for Marghita, only the indicators that can be quantified at locality level and which were recorded in the public evidence were used.

In the absence of sustainable development indicators for Romanian small towns, a calculation method adapted to the socio-economic, environmental and territorial realities is proposed. This non-exhaustive method allows the determination of durability degree, the approach to reality is directly proportional with the number of items counted.

The indicators value are situated between 1 and 5 according to Likert scale value, value 1 being the lowest value compared to the optimal index calculated at the national level and value 5 is the highest value which can be registered at Romanian level for different analyzed index.

It is determined according to the relations:

*Kx1 Marghita=Ix Marghita * 5/ Ix maximum Romania*

*Kx2 Marghita=Ix Marghita * 2,5/ Ix average Romania*

Kx Marghita = Kx1 Marghita + Kx2 Marghita /2

where,

-Ix Marghita - Sustainable development indicator taken into account for Marghita town;

-Ix maximum Romania - Sustainable development indicator taken into account with the highest value in Romania;

-Ix average Romania - Sustainable development indicator taken into account with the average value in Romania

-Kx – The coefficient of the indicator taken into account;

Sustainable Development Index for Marghita town will be determined based on the relation:

IDD Marghita =

$$\frac{\Sigma K_{Xsocial} / 7 + \Sigma K_{Xenvironment} / 2 + \Sigma K_{Xeconomy} / 5 + \Sigma K_{Xinstitutional} / 2}{4}$$

where,

IDD Marghita – Sustainable Development Index in Marghita,

- indicators coefficients sum calculated for the social dimension,
- indicators coefficients sum calculated for the environmental dimension,
- indicators coefficients sum calculated for the economic dimension,
- indicators coefficients sum calculated for the institutional dimension.

Results and discussion

Social dimension

Social dimension takes different forms, showing an increased interest at the European level, transmitted to local levels. In urban development, social dimensions is transposed into policies and measures that combat social exclusion appeared due to major changes in the labor market and changes in demographic structures.

In order to establish a Sustainable Development Indicator for Marghita, for the social dimension seven sub-indicators were calculated as follows:

Indicators and coefficient	Regional and national context
Infant mortality rate **2.25**	The infant mortality rate in Marghita in 2009 was 14.01 ‰ (Strategia DGASPC Bihor, 2009) lower than national average of 14.8 ‰ (BM-IDM , 2009), but higher than the infant mortality rate in Bihor County 13,39‰(TEMPO.INS, 2009) or the North West Development Region 11,35 (TEMPO.INS, 2009). The infant mortality rate was the lowest in Bucharest being 5,96 14,8‰ (TEMPO.INS, 2009).
Life expectancy at birth **3.68**	Life expectancy at birth in Marghita was determined at 73,63 years (Strategia DGASPC Bihor, 2009; PIDU Marghita, 2009) higher than national average 73.3 years (BM-IDM, 2009), North-West Development Region – 71,8 years (TEMPO.INS, 2009), 71,89 years in Bihor county (TEMPO.INS, 2009). Maximum value of life expectancy at birth in Romania in 2009 was determined for Ramnicu Valcea municipality being 75.8 years.
School abandon-ment rate **3.27**	Leave of educational system before obtaining a certificate of study, or school abandonment, is one of the most worrying phenomena (Mărginean, 2009) in judging overall capacity of the school (Hatos, 2008). School abandonment rate in Marghita in 2009 was 0.89% (ISJ Bihor , 2009, PIDU Bihor, 2009) from the total school population, with a low value compared with the national level where there is an average of 1.7% (Andrei et al., 2010) of pupils who leave the school before graduation or 1,3 % in the North-West Development Region (Andrei et al., 2010), but higher related to the percentage in Bihor county 0,76 % (ISJ Bihor, 2009). Lowest school abandonment rate in 2009 was recorded in Targu Jiu, being 0.5 % (CJRAE Gorj , 2009).
Proportion of population aged 15 and over without any formal education or only with primary school graduated **1.19**	Marghita the share of population aged 15 and over without any formal education or only with primary school absolved is 1,37%(ISJ Bihor, 2009) being higher than the national average of 0.65% (CPIS, 2009), nd much lower than the 2.59% average Bihor County (ISJ Bihor, 2009).
Poverty rate **2.94**	In Romania the relative poverty rate in 2009 had a value of 18.2% (MMFPS, 2009), 15.6% in the North-West Development Region (MMFPS, 2009). In Marghita the value of poverty rate is 16.5% high value compared with that of the region. Bucharest with the value of 4.6% has the lowest poverty rate.
Access to potable water **3.48**	In 2009, 83,7 % (TEMPO.INS, 2009) of Romanians had access to potable water, only 54,5 % (TEMPO.INS, 2009) from the Bihor county inhabitants, in Marghita the percentage being 87 % (PIDU, 2009), inhabitants of the Stei town from Bihor county almost all having access to potable water 99.6% (INS, 2002).
Access to the public sewerage **4.69**	In Romania, according to statistical data provided by the National Institute of Statistics, only 43.1% of households were connected to a public / private sewage system, 42.5% in the North-West Development Region, and 54.2% in Bihor County. In Marghita 86.6% of dwellings are connected to public sewers. For example Stei at this chapter also has a better percentage 99.6% of households having access to sewerage system.

Environmental dimension

Urban activities are sources of pollution for all environmental factors, so these should be controlled and directed in order to minimize the environmental impact. Environmental factors as air, water, soil, flora, fauna still undergo qualitative and quantitative changes under the impact of human activity.

Air is one of the the most important environmental factors in the relation between comfort and health state of a population on the one hand, and environmental quality in residential areas, on the other hand.

In order to establish the urban sustainable development indicator for the environmental dimension, two indicators were calculated namely:

Indicators and coefficient	Regional and national context
Total annual emissions of greenhouse gases per capita **4.4**	Marghita, in terms of air quality and environmental pollution according to the Bihor County Development Plan has a minimum level of pollution, which is supported by environmental reports of the Bihor Environment Agency. Thus, for the area of Marghita was determined a value of 1.45 t / capita emissions of greenhouse gases, a value lower than the national level 6.03 t / capita greenhouse gas emissions (TEMPO.INS,2009), 13.3 t / capita emissions of greenhouse gases (TEMPO.INS,2009) In North-West Development Region, respectively 9.68 t / capita emissions of greenhouse gases in the Bihor county (ANM Bihor , 2009).
Green spaces **3.21**	In the 319 urban settlements within the country, where 55.2% of the population lives due to constant tendency to expand the built space, especially in the last two decades, there has often, a decrease in green areas surface (Chiriac et al., 2009). According to the National Statistics Institute in 2009, in Romania, the green spaces surface per inhabitant was 9.79 m2, 8.98 m2/cap capita in the North-West region and of 6.75 m2/cap capita in Bihor County. Marghita owns a green surface of 12.58 m2/capita (PIDU, 2009), double compared to value recorded for the county to which it belongs and yet half the amount required by European standards (fig. 2).

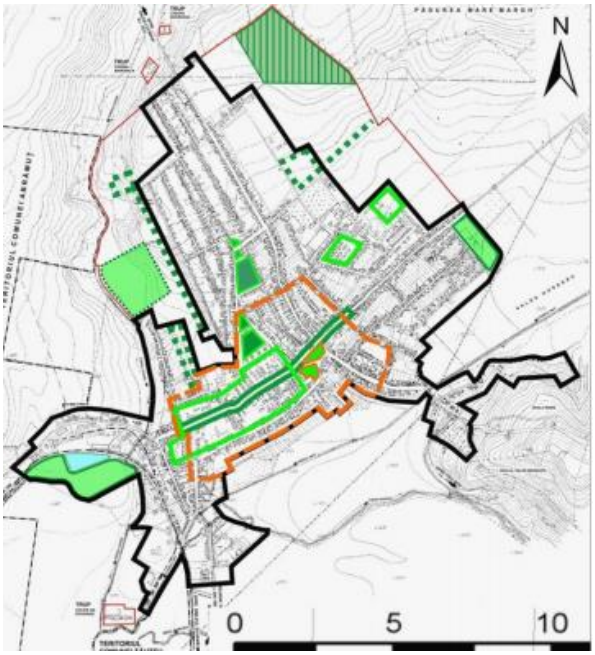

Figure 2: The state of green spaces in urban area of Marghita (Nemes et al., 2012)

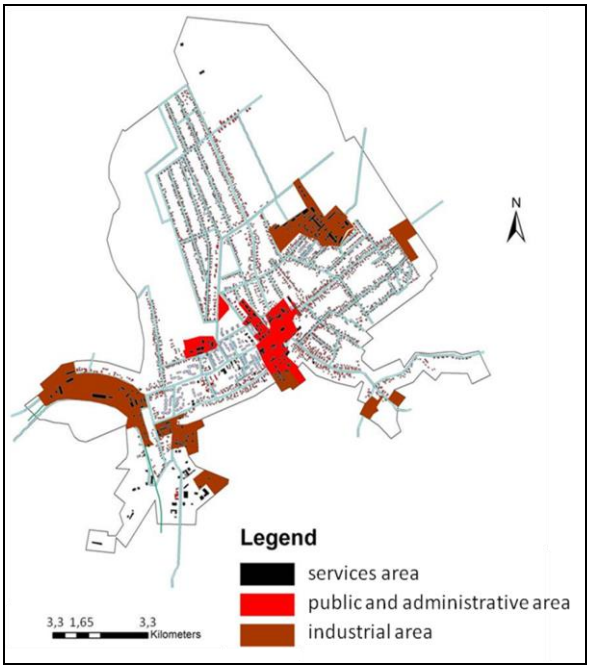

Figure 3: Spatial distribution of the economic zones in Marghita

Economic dimension

The economic component plays an important role in determining the directions of urban development, engaging growth mechanism in the hinterland over which it has influence. Economic activities generate attractiveness and hence a regional dynamics with an improved quality of life.

The existence of a development vision and strategies for local and regional economic development is a must for achieving these objectives of sustainable development (fig.3).

Within this component five indicators were determined as follows:

Indicators and coefficient	Regional and national context
Local Gross Domestic Product **1.74**	In 2009, Romania's GDP / capita was 3852€ (TEMPO.INS, 2009), 3500 € / capita (TEMPO.INS, 2009) in the North-West region, 5,354€ / head capita (TEMPO.INS, 2009) in Bihor County. In Marghita was 2,929€ / capita (PIDU Bihor, 2009), the most developed area in terms of GDP / capita is Bucharest with 9,767€.
Average nominal wage **2.07**	Average nominal salary value in Romania in 2009, was 1328 Ron (TEMPO.INS, 2009), showing differences at the local level, with higher values in areas with major urban poles, at the other end being the rural areas. Average nominal wage in the North-West region was 1162 Ron (TEMPO.INS, 2009), higher than that calculated for Bihor county, respectively 1025 Ron (TEMPO.INS, 2009). Marghita is a small town, with no major entrepreneurs and business units, represented especially by SMEs and services, the average nominal wage is 892 RON (PIDU Marghita, 2009). In Bucharest there is the highest value of this indicator, where the average nominal salary is 1820 Ron (TEMPO.INS, 2009).
Turnover **1.41**	In 2009, the turnover in Romania was 39.5 million Ron / capita (TEMPO.INS, 2009), in Bihor county the turnover being 33.02 million Ron / capita (TEMPO.INS, 2009), and in Marghita 24.57 million Ron / capita (PIDU Marghita, 2009). The highest value is in Bucharest with 96,9 million Ron / capita.
Unemployment rate **4.36**	In Romania, the unemployment rate in 2009 was 7.8% (TEMPO.INS, 2009), in the North-West Region and Bihor county unemployment rate being 5.8% (TEMPO.INS, 2009), and its percentage in Marghita is 2% (PIDU Marghita, 2009).
The share of people with an income in the total population **2.97**	Romania had in 2009, 4736000 employees, representing 21% of total population (TEMPO.INS, 2009), Bihor County had 151,256 employees, respectively 25% of the total population (TEMPO.INS, 2009). Marghita with 3948 employees, is above the national average, but below the Bihor county value, the share of employees from the total population being 23%. (PIDU Marghita, 2009, INS, 2009). The largest share of employees in the total population is Bucharest, respectively 39% (TEMPO.INS, 2009).

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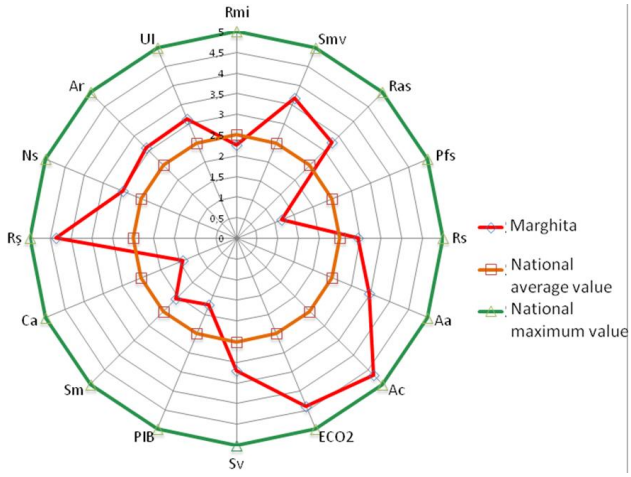
Institutional dimension

In principle, urban development follows the force lines given by the institutional structures that can efficiently solve specific social and economic problems. Within the institutional component, two factors relevant in terms of population's access to information were determined.

Indicators and coefficient	Regional and national context
The number of radio subscriptions per 1000 inhabitants **3.1**	In Marghita the number of radio subscriptions per 1000 inhabitants was 222.3 (Dodescu et al., 2006), above the national average of 181, 1 ‰ (TEMPO.INS, 2009), or North-West region with183.3 ‰ (TEMPO.INS, 2009), lower than the Bihor county average - 255.1 ‰ or Bucharest with 355.12 radio subscriptions per 1000 inhabitants (TEMPO.INS, 2009).
Internet users **3.12**	In Romania 42% of the population has regular access to the Internet (TEMPO.INS, 2009), 46.1% in the North-West region (TEMPO.INS, 2009), 47.3% in Bihor county (TEMPO.INS, 2009) and 48.1% in Marghita. In Bucharest 71% of the population has regular access to the Internet (TEMPO.INS, 2009).

By aggregating the coefficients described and calculated above, the General Complex Indicator concerning the degree of sustainability in urban development was determined. In 2009, this index was 3.12 for Marghita, reported to Likert scale (fig. 4).



Rmi- The infant mortality ratio,
Smv- Average life expectancy,
Ras-School abandonment rate,
Pfs-Proportion of people without any school graduated or only primary school graduated,
Rs-Poverty rate,
Aa-Access to potable water,
Ac-Access to sewerage,
ECO2-Emissions of greenhouse gases,
Sv-Green spaces,
PIB-Gross Domestic Product,
Sm-Average nominal wage,
Ca-Annual turnover,
Rș-The unemployment rate,
Ns-The share of people with an income in the total population,
Ar-Radio subscriptions per 1000 inhabitants,
UI-Internet use

Figure 4: Graphical representation of the calculated coefficients indicators

Nr. crt.	Indicator	Coef.-indicat. value	Dimens. Coef. value
1	The infant mortality rate	2,25	3,07
2	Average life expectancy	3,68	
3	School abandonment rate	3,27	
4	Proportion of people without any school graduated or only primary school graduated	1,19	
5	Poverty rate	2,94	
6	Access to potable water	3,48	
7	Access to sewerage	4,69	
8	Emissions of greenhouse gases	4,4	3,85
9	Green spaces	3,21	
10	Gross Domestic Product	1,74	2,51
11	Average nominal wage	2,07	
12	Annual turnover	1,41	
13	The unemployment rate	4,36	
14	The share of people with an income in the total population	2,97	
15	Radio subscriptions per 1000 inhabitants	3,1	3,11
16	Internet users	3,12	
Sustainable Development Index in Marghita			3,12

Legend

	Social Dimension		excellent
	Environmental Dimension		good
	Economic Dimension		average
	Institutional Dimension		poor
			critical

Conclusion

The 16 indicators calculated to determine the degree of sustainable development of the town of Marghita reveal its position above the national average. From environmental point of view Marghita through the calculated indicators reveals a low-polluted area. Related to the two calculated indicators, it can be concluded that the high quality of the environment components is the result of the low level of air pollution from economic activities and the low level of urbanization, both effects of the slow urban dynamics that generally characterizes the small towns.

Institutional dimension, analyzed through the degree of public access to information and ICT, positions Marghita slightly above the average of urban areas.

The social component, analyzed through seven indicators indicate that in health, education, poverty and access to utilities domains, Marghita compared to the national average values is situated on a better position, but the indicators on the proportion of the population without any formal education or only primary school graduated, infant mortality rate and poverty rate, classify the town below the national average. In terms of access to utilities analyzed through quantitative data places Marghita at the forefront of urban areas.

The economic component analyzed through five indicators reveal a delicate situation, hovering close to the national average, but much below on the regional or county average values. Details in this regard can be caused by resources and economic activities location in the region. Over the years, in the area an economic emptiness in the Marghita region was created, with lack of economic units with major potential; the most important were restructured and finally closed. Currently the SME sector and service business units are in a continuous development.

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Landfills – territorial issues of cities from North-East Region, Romania

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Abstract

Landfilling prevails in waste management options in Romania like others new EU members, being contrary to the concept of waste hierarchy promoted in recent years by EC. Waste disposal is done ussually in non-compliant landfills and Government established a program to close these sites. This paper aims to analyse the transition from traditional waste management systems to an integrated system at national, regional and local scale. Assessment of landfills location based on buffer analysis (using GIS techniques) is made according to the proximity of five critical factors (CF) such as: residential area, industry & comercial units, agricultural lands, rivers & lakes, forest and protected areas, all these factors being sensitive to pollution. Thus, most of these old sites are badly or improperly located related to surroundings and only few have an acceptable location in the study area! Therefore, the proposed method can be a necessary tool in EIA studies of these environmental threats at regional scale.

Keywords: *landfill, urban area, GIS, multi-scale analysis, waste management*

Rezumat. Depozite de deşeuri – probleme teritoriale ale oraşelor din Regiunea Nord-Est, Romania

Depozitarea predomină în opţiunile de management al deşeurilor în România asemeni altor state noi membre, fiind contrar conceptului de ierarhie a deşeurilor promovat în ultimi anii de CE. Eliminarea deşeurilor se realizează de obicei în depozite neconforme, iar Guvernul a stabilit un calendar de închidere a acestor amplasamente. Această lucrare îşi propune să analizeze tranziţia de la un sistem tradiţional de management al deşeurilor către un sistem integrat la nivel naţional, regional şi local. Evaluarea amplasamentelor acestor depozite bazată pe analiza buferelor (utilizând tehnici SIG) este realizată in funcţie de proximitatea a cinci factori critici, cum ar fi: zona rezidenţială, unităţile industriale şi comerciale, terenuri agricole, râuri şi lacuri, păduri şi arii protejate, toţi aceşti factori fiind sensibili la poluare. Astfel, majoritatea acestor amplasamente sunt rele sau necorespunzatoare faţă de imprejurimi şi numai câteva au o amplasare acceptabilă in zona de studiu! Prin urmare, metoda propusă poate deveni un instrument necesar în studiile EIM ale acestor ameninţări de mediu la scară regională.

Cuvinte-cheie: *depozite de deşeuri, zone urbane, SIG ,analiză multi-scalară, managemntul deşeurilor*

Introduction

Landfills are the main option in urban waste management systems from new EU members despite recent improvements of infrastructure in this sector (Mihai and Apostol, 2012). Furthermore, most of these sites didn't comply the Landfill Directive (1999/31/EC) being scheduled to be closed. The improper location of non-compliant landfills in the proximity of urban areas led to complex pollution of surroundings. Urban waste collection services from Romania still did not cover the full population (Mihai et al., 2012, Mihai, 2012a) and on the other hand, these services are poorly developed in small towns, favoring the illegal dumping (Mihai, 2013; Mihai et al., 2011).

This paper examines the territorial and environmental implications of old and new waste management facilities at different scales higlighting the current disparities. GIS techniques are currently used in literature for EIA studies or to determine more proper sites of future landfillls, combining with other methods such as multi-criteria analysis (Sener et al., 2010; Sauri-Riancho et al., 2011; Yashon et al., 2011; Moeinaddini et al., 2010; Sumathi et al., 2008;). In the case of the existing ones, the buffer analysis of non-compliant landfills from Neamţ County (North-East Region) reveals certain environmental issues on local landscape (Mihai et al., 2013a; Mihai et al., 2013b). Regional studies on waste mangement issue are necessary for a multi-scale assessment of EU targets and objectives related to geographical features at regional and local scale (D'Alisa et al., 2012, Passarini et al., 2011 ; Lin and Chen, 2009; Mazzanti et al., 2009). Also, spatial analysis of waste indicators are a necessary tool in assessment or monitoring of waste management sector (Keser et al., 2012; Pandey et al., 2012; Mihai, 2012b, Mihai and Lămăşanu, 2013).

Methods

In order to examine the current situation of non-compliant landfills at urban level and location of new waste management facilities, we consulted several reports of environmental authorities, regional and local waste management plans. Spatial analysis of indicators using thematic cartography reflects regional and local disparities (Fig. 1).

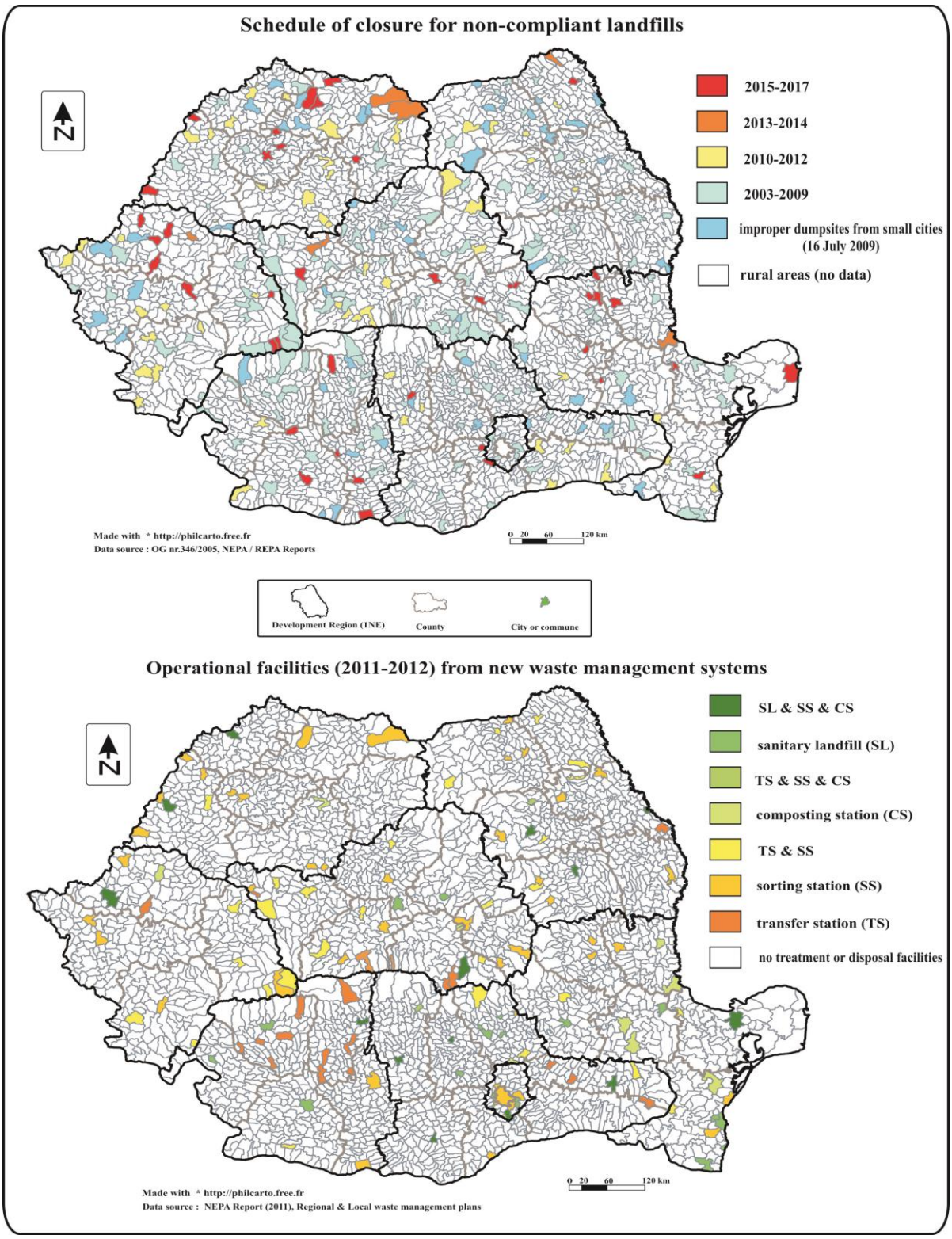

Figure 1: The transition to a modern waste management infrastructure

GIS techniques are used for mapping these old sites in the proximity of urban areas from North-East Region. This procedure was achieved using Google Earth images. The black polygons wast overlay on digital elevation model (DEM) on regional scale.

The DEM was performed based on digital datasets such as SRTM (Shuttle Radar Topography Mission). Others vector layers such as hydrographic network and roads (classified by rank in European, national and county roads) were performed based on 1:25000 topographic map of Romania in Gauss-Kruger projection using as GIS soft the TNTMips software 7.0. Built-up areas from ATU (Administrative-territorial units) of towns were

extracted from Corine Land Cover (CLC-2005). The aim of these maps is to analyze the territorial implicationas of dumpsites in a geographical context. Buffer area (2 km) shows the territorial implications of each site to surroundings (Fig. 2).

This analysis is more detalied at local sclale (town), using the land use for each site (inside the buffer area of 2 km) extracted from CLC at regional scale. In order to examine the distance from landfill site to surroundings and to highlight the improper distances to critical factors (CF) such as, residential area (CF1- continuous urban area), industry & comercial facilities (CF2), agricultural land (CF3) rivers & lakes (CF4), forest and protected areas (CF5) buffer areas of 1 km were also delimited.

These factors are critical because they are sensitive to any environmental pollution threatening the human health and the local biodiversity. Proximity of a non-compliant landfill to these critical factors increases the vulnerability to complex pollution. The location and establishment of sanitary protection area must be determined by EIA studies following the procedure of Order no. 757/2004, otherwise, national regulations stipulates that such sites must not be located in the proximity of residential areas, rivers, protected areas at least at 1 km distance (Order no.536/1997). Based on buffer analysis at local scale (0.5/ 1 /2 km) there was developed an assessment method of landfill location.

Thus, for each critical factor identified on local maps inside the buffer area of 0.5 / 1/ or 2 km, a specific number of points correspond as shown in table 1.

Table 1: Assessment of landfill location

BA(km)	0.5	1	2	>2
CF1	0	0	3	5
CF2	0	1	3	5
CF3	0	1	3	5
CF4	0	0	3	5
CF5	0	0	3	5
Points				Max.25

The best scenario (max. value of 25) is when all these critical factors are located outside the 2 km buffer area from landfill site, but this scenario is more ideal. Each site is ranked according to the total sum of points accumulated from assessment table. Location of these old landfills from North-East may be good (20-25 points), proper (15-20), acceptable (10-15) , improper (5-10) or bad (< 5) for urban environment.

This method may be complementary to current environmental impact assessments studies (EIA) that focus on in-situ analysis or to strategic environmental assessments studies (SEA). This approach is designed for regional scale including more than 10 sites from different counties in various geographical conditions. In the case of more detailed studies at local scale, these factors may be completed with other ones. Also, the assessment table can be modified according to local features of the county.

Discussion

Non-compliant landfills are scheduled to be closed in the period 2004-2017 (Fig. 1). This schedule is established following the G.Ono 349/2005 which transposed the Landfill Directive (1999/31/EC).

These sites are ordinarly located inside the administrative territorial units (ATU) of towns, increasing the impact on urban environment. Others are located on the range of periurban villages such as Albești (Mangalia town), Glina (serving Bucharest and other small towns from Ilfov County), Gălbinași (Buzău town), Tomești (Iași town) etc. Most of this old landfills excedeed the initial design capacity, increasing the toxic potential for local environment.

The closure of these sites does not solve the pollution issue. Lack of waterproofing systems will continue to favor the leacheate infiltration into phreatic or surface waters in the proximity. On the other hand, this pollution will be diminished across the time, because there will no be others inputs in the landfill site. In this context, post-monitoring process plays an important role to reduce the potential threats. Some industrialized towns have started earlier to replace these old sites with controlled ones.

The first sanitary landfill for municipal waste was operational since 1995 disposing the amounts of waste generated from Ovidiu, Constanța and Năvodari towns (South–East Region). This site is located on the range of Ovidiu town and has eight cells with a design capacity for 1.600 000 m3 (APM Constanța, 2003). Also, Brăila town has a sanitary landfill since 2002. In 2003, several urban landfills (Ploiești, Slănic, Băicoi, Sinaia) from Prahova County were closed being replaced by sanitary sites from following towns Boldești-Scăeni, Băicoi, Vălenii de Munte and Bănești village (near Câmpina town) and also by a transfer station in Bușteni (PJGD Prahova, 2008). In short time, these landfills have reached the storage capacity being closed earlier than the initial schedule.

The solution of some municipalities was the extension of these sites through the building of new cells. The majority of old sites were closed until 2012 in Nort-East Region and South Region, but several non-compliant landfills were scheduled to be closed after 2012 in other regions. In some counties, more than 3 non-compliant landfills will be operational until 2017 such as Sălaj, Maramureș, Arad, Vrancea, Olt due to lack of concrete

investments in this sector. Mixed waste collections have reduced the recycling capacity favoring landfilling and land consumption particularly for larger towns. These sites transformed important areas into degraded lands. Most of communes declared towns during the 2004-2006 period had no access to waste collection services, the household and similar waste generated being disposed in improper sites on surroundings.

This bad practice was widespread in these new urban areas, but these sites were closed and rehabilitated until 16 July 2009 using the same procedure as for rural dumpsites.

This environmental issue was not significant in some counties due to larger number of such tolwns (Suceava or Maramureș counties). In last years, on the one hand the old sites are replaced by sanitary landfills (serving a large town or as regional site at county level) and, on the other hand, by transfer stations equipped with sorting and/or composting facilities as shown in figure 1.

This new approach should stimulate the recycling programs and minimize the amounts of waste landfilled particularly for biodegradable fraction in accordance to EU targets. Also, sanitary landfills were built through ISPA projects in Piatra – Neamț and Bacău towns (North-East Region), Aninnosa, Titu (Dâmbovița County – South Region) Râmnicu-Vâlcea (South-West Region), Galați (South-East Region). Several regional landfills as part of county integrated waste management systems are located outside the ATU of towns, in rural areas which serve both urban and rural areas such as Mavrodin (Teleorman county) or Albota commune (Argeș county).

Transfer stations replace the improper sites from small towns through PHARE projects and several old urban landfills. New integrated urban waste management systems provide beside a sanitary landfill, separate collection, sorting and composting stations as in Piatra Neamț, Bacău, Arad or Brașov towns. Every region and county developed regional and local waste management plans which analyzed the waste management sector and establish the major targets regarding the future of waste management systems. Local authorities, particularly county councils, develop projects regarding the implementation of an integrated waste management system at county scale.

These projects are submitted to SOP ENV programme for financial support. North-East Region is on top of Romanian regions regarding the closure of non-compliant landfills and also for investments in new waste management facilities. At regional scale, these facilities are more developed in the weastern part of the region (Suceava, Neamț and Bacău) than in the eastern half. This fact is due to the ISPA and Phare projects which are already implemented in these counties. Since 2007, Piatra Neamt town is a model concerning the waste management infrastructure at regional and national scale and also, an integrated waste management system for whole county was approved through SOP ENV. Moreover, Government funds supported the development an integrated urban waste management system in Iași town. These new facilities are necessary to be implemented in urban waste management systems because the old landfills were operational over 30 years in large towns from North-East Region such as county capitals (Iași, Piatra Neamț, Suceava, Bacău) also occupied significant areas (>10ha).

Demographic features of the towns are reflected in the design capacity of landfills. Optimal life for a landfill site is minimum 15 years, but the lack of financial resources for building new sites have determined municipalities to extend the operational period of old landfills over even 45 years (Onești, Hârlău, Bicaz, Huși, Gura Humorului). Waste disposal in small towns (< 20,000 inhabitants) was done in unsuitable sites which threatened the local environment even these dumpsites covered insignificant areas (often < 1ha) compared to more suitable sites from well-populated towns (Mihai, 2013).

The poor waste management facilities in the 2004-2009 period led to illegal dumping of household waste. Closure of these dumpsites (16 July 2009) and the non-compliant landfills from larger towns require the development of waste collection services (Fig. 3). Separate collection need to be compulsory in towns for recyclables fractions such as paper/cardboard, plastics or biodegradable waste. Other fractions are also collected from the economic sector, such as glass, metal, wood. Furthermore, Piatra Neamt has two special centers în Mărăței and Dărmănești neighborhoods where bulky waste, WEEE and hazardous municipal waste can be collected. In the proximity of sanitary landfill is located a crushing plant for demolition and construction waste.

These new facilities are the basic elements to achieve the transition from a traditional to an integrated waste management systems which focuses on separate collection, recycling, treatment and less landfilling. North-East Region is included in Balkwaste projects financed by LIFE07/ENV/RO/686 as case study for Romania.

The aim of this project is to establish a waste network for sustainable solid waste management planning and promotion of integrated decision tools in the Balkan Region along with Slovenia, Bulgaria and Greece.

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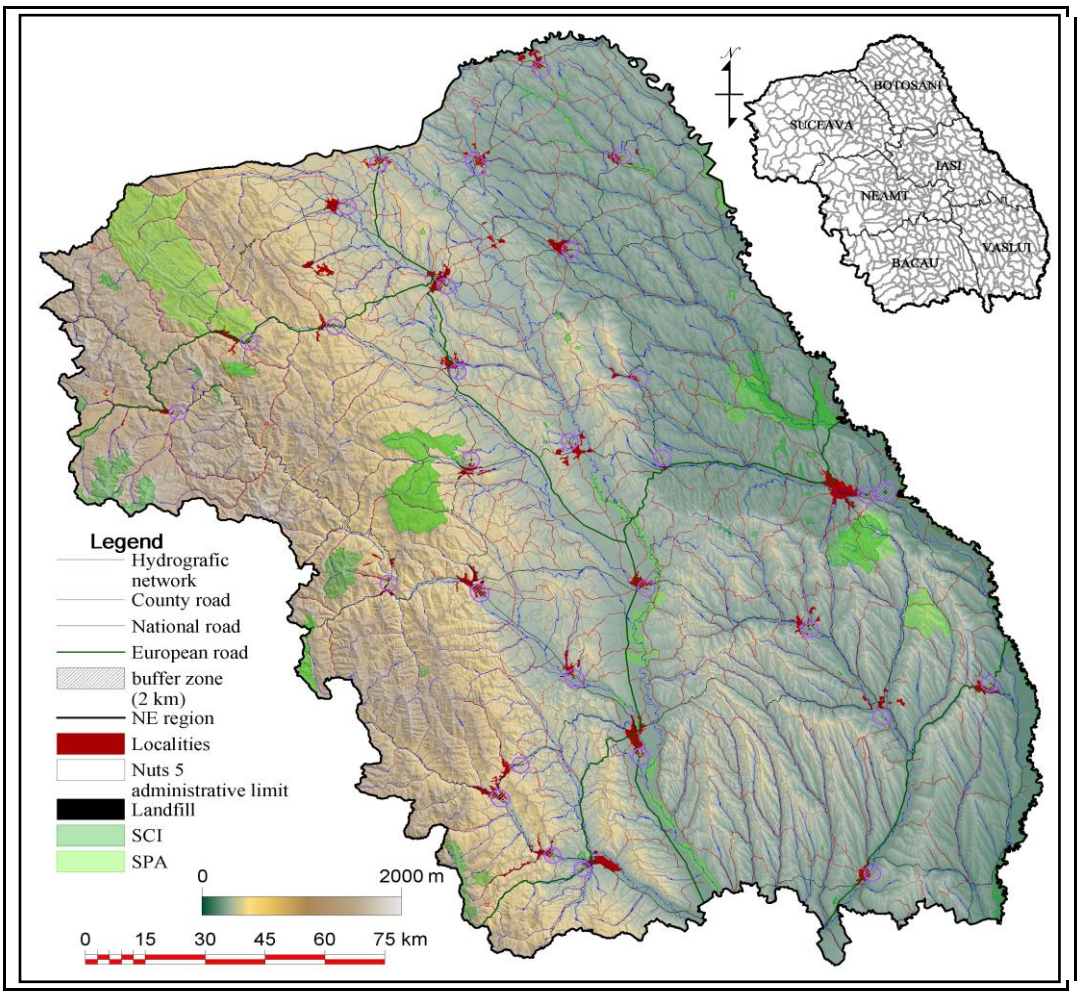

Figure 2: Landfills in the proximity of built-up areas of cities from North-East Region

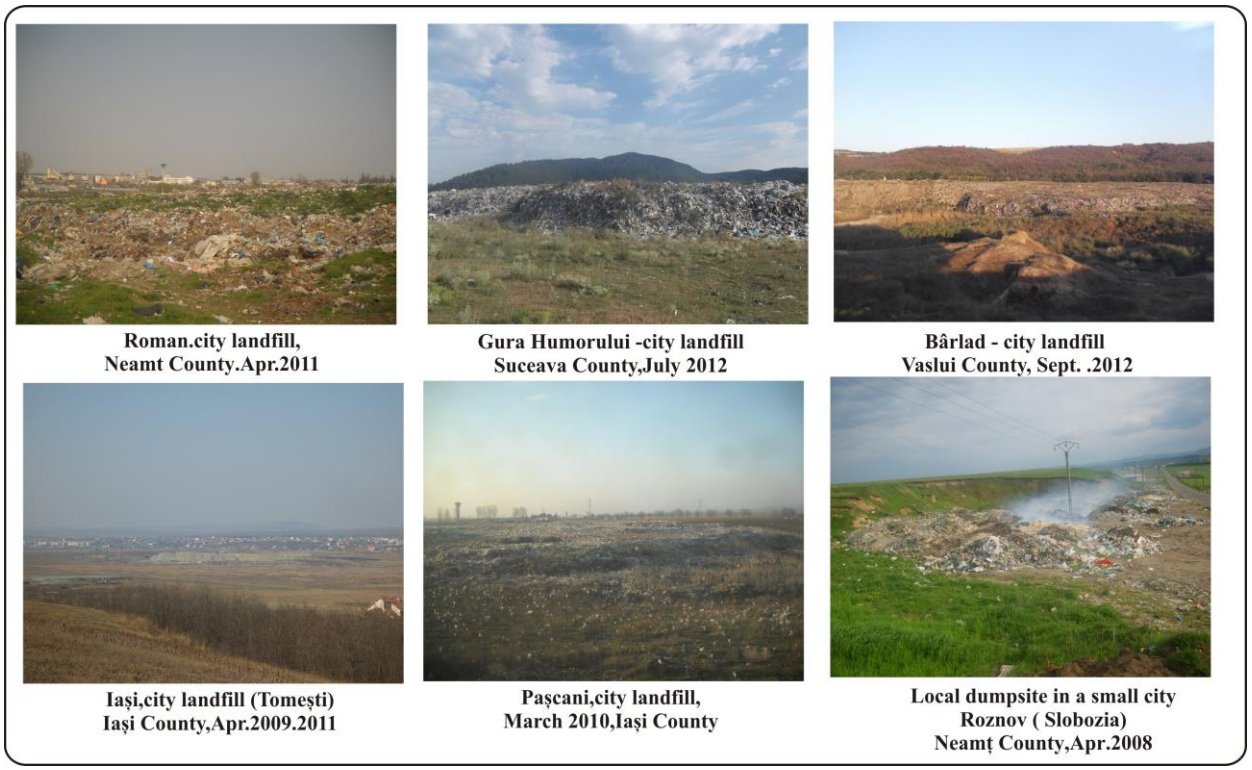

Figure 3: Non-compliant landfills from study area

This paper focuses on regional scale assessment of the location of old non-compliant sites in the proximity or urban areas. Such landfills are a source of complex pollution and this threat was facilitated by an improper location related to critical factors. Applying the assessment table for each landfill site from the study area (32 in total), it resulted that most of dumpsites are located in bad or improper sites (< 10 points), too close to the built –up areas of towns and on the other hand too close to the rivers, despite the national regulations that specify a distance at least 1 km to these critical factors. These old landfills were built during the communist period (1960-1990), disregardingthe environmental issue. In this context, their location in the proximity of towns led to various implications on urban environment. Geographical barriers especially in the mountain areas reflect the low scores for landfill sites from following towns: Vatra Dornei, Câmpulung Moldovenesc, Gura Humorului (Suceava county), Bicaz (Neamț county) Comănești, Moinești and Târgu Ocna (Bacău county) (Fig. 4). These towns have no suitable or acceptable options for these facilities. Old landfills will be replaced by new transfer stations equipped with sorting and composting plants. Furthermore, small towns from mountain region as Broșteni, Frasin, Slănic Moldova disposed the municipal waste in open dumps or on river banks, just as rural communities.

The vulnerability of mountain rivers to waste dumping is significant in the proximity of localities (Mihai et al., 2012). Carpathian region should be avoided in territorial planning of new landfills. Beside critical factors which are difficult to avoid in this region, such as residential areas, rivers, forest & protected areas, the slope, climatic features and geomorphological processes are additional restrictive factors. Different geographical and social economic conditions reflect various land use patterns in the proximity of landfills. In this context, critical factors vary from case to case, particularly for CF2, CF3 and CF5. The urban landfills are often located on terraces or floodplains of major rivers such as the Bistrita (5 sites), Moldova (4 sites), Suceava (1), Trotuș (3), Bârlad (3) and Bahlui (2). Other sites are located in the proximity of their tributaries or streams. In this regard, only 2 landfills are located outside the 2 km buffer area (Onești, Hârlău) from rivers and others 5 dumpsites respect the minimum distance of 1 km (Siret, Bacău, Botoșani, Dorohoi, Tg. Frumos). Furthermore, there are 23 non-compliant landfills polluting for several years the major rivers in the proximity. Also, the new sanitary landfills (Piatra Neamț, Iași) are located inside the buffer area of 1 km from rivers in the proximity.

The new landfill site (two cells) from Piatra Neamț is located next to the old facility due to economic reasons (Mihai et al., 2013b). This facility uses the existing infrastructure (road access, buildings etc) even this location is bad according to the assessment method. Also, all new facilities such as sorting & composting stations, crushing plant, leachate treatment, new administrative buildings are located in this perimeter to reduce the operational and transportation costs. On the other side, the new landfill complies with the EU regulations, reducing the potential threats to environment and recently the river sector in the proximity was dammed to protect the site in case of floods. Depending on other factors such as local landscape, infrastructure, economic and social features, the new sanitary landfills may be located near the urban areas, but detailed EIA or SEA studies are required. In another case, new sanitary landfill which serve the Iași town is located in Tutora commune.

This site is more proper than the old site from Tomești locality but acceptable according to assessment location. The urban residential area is outside the buffer area (2 km), but other critical factors are in close proximity (rivers, arable land). Frequently, residential areas of old sites are in the buffer area of 1 km threatening the human health and only 3 landfills (Rădăuți, Iași-sanitary) are outside the 2 km, another 6 dumpsites respecting the minimum distance of 1 km: Vatra Dornei, Târgu Neamț, Bacău, Botoșani, Hârlău and Huși.

Industrial & commercial facilities (CF2) are exposed to landfills pollution particularly in larger towns such as county seats (Suceava, Piatra Neamț, Bacău, Iași, Vaslui) and agriculture land (CF3) is more significant in the Moldavian Plateau in the proximity of dumpsites from middle and small towns (Siret, Dărăbani, Săveni, Tg. Frumos, Negrești, Huși etc) (Fig. 5). Forest and protected areas as CF5 are more exposed in the proximity of mountain towns (Bicaz, Vatra Dornei etc).

A general overview shows that some sites from Târgu Ocna and Bârlad have accumulated no points (0!), representing the worst scenario. Most of the landfill sites are bad (12!) related to critical factors, 10 are improper, 9 are acceptable and no site is proper (> 15 points). Vaslui county has not an acceptable location (0/4) and the towns from Suceava and Neamt counties are the most vulnerable to landfills pollution.

The maxim values (13 points) is attributed to landfills locations from Iași county (Iași town - sanitary landfill, Hârlău, Tg. Frumos) and for Rădăuți. By rank classification, using only the undesirable categories (acceptable/ improper / bad), Iași county ranks first (3/2/0) followed by Bacău (2/2/2), Botoșani (1/3/1), Suceava (2/1/4), Vaslui (0/2/2) and Neamț (0/1/3).

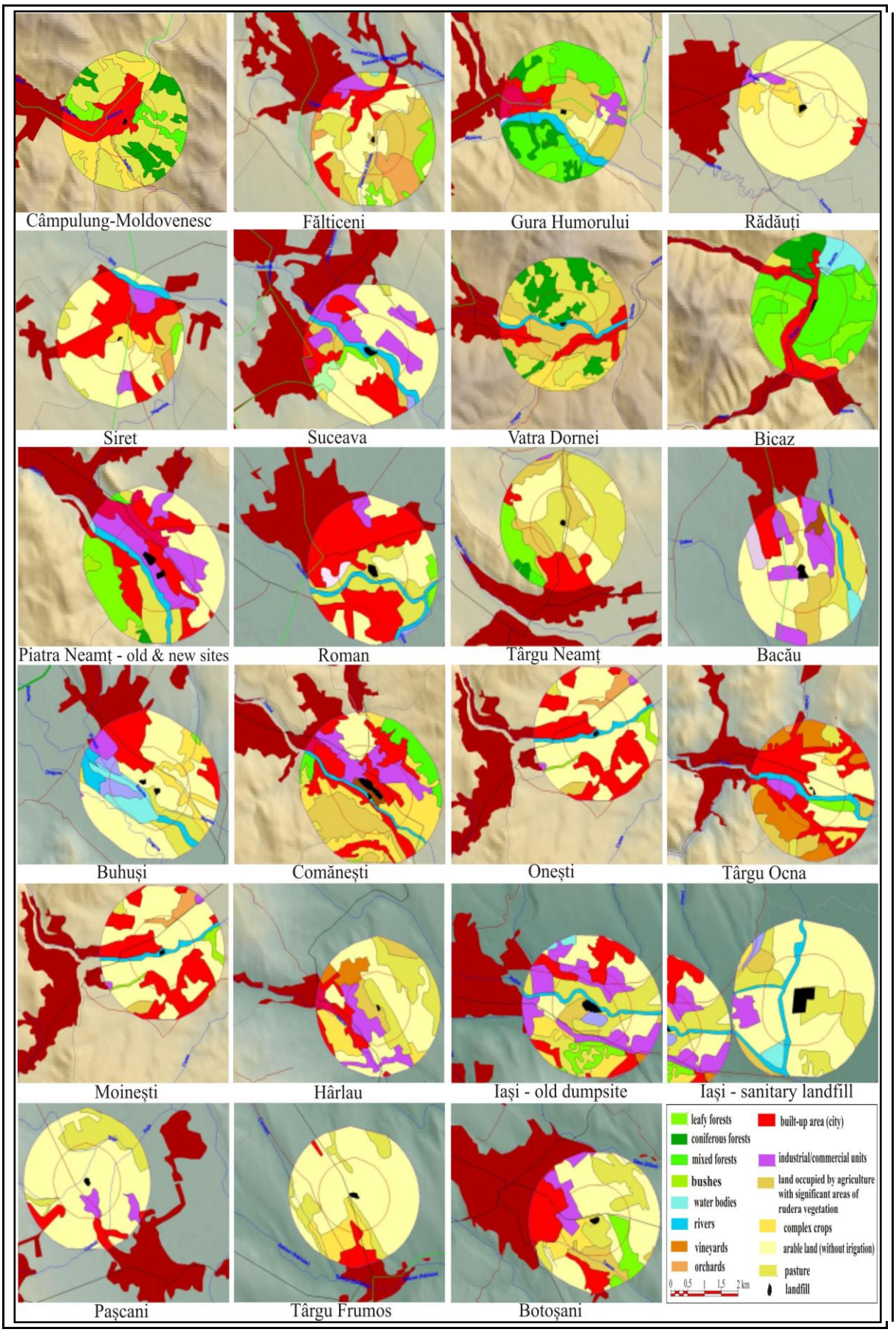

Figure 4: Urban landfills at local scale – buffer areas

Table 2: Assessment of urban landfills location in the study area

Landfill	CF1	CF2	CF3	CF4	CF5	Total	Rank
Vatra Dornei	3	3	1	0	0	4	bad
Campulung Mold.	0	1	0	0	0	1	bad
Gura Humorului	0	3	0	0	0	3	bad
Suceava	0	0	0	0	5	5	bad
Siret	0	3	0	3	5	11	**acceptable**
Radauti	5	3	0	0	5	13	**acceptable**
Falticeni	0	3	0	0	5	8	improper
Average (SV)	6.42					**45**	
Bicaz	0	0	3	0	0	3	bad
P.Neamt (old site)	0	0	1	0	3	4	bad
P.Neamt - sanitary	0	0	1	0	3	4	bad
Roman	0	3	0	0	3	6	improper
Tg Neamt	3	5	0	0	3	11	**acceptable**
Total county (NT)	5.6					**28**	
Bacau	3	0	0	3	5	12	**acceptable**
Buhusi	0	3	0	0	5	8	improper
Moinesti	0	3	0	0	3	6	improper
Tg. Ocna	0	0	0	0	0	0	bad
Comanesti	0	0	0	0	3	3	bad
Onesti	3	3	0	5	0	11	**acceptable**
Average (BC)	**6.6**					**40**	
Botosani	3	1	0	3	0	7	improper
Darabani	0	1	0	0	3	4	bad
Dorohoi – old (N)	0	3	0	0	5	8	improper
Dorohoi - new (S)	0	5	0	3	0	8	improper
Saveni	0	5	0	0	5	10	**acceptable**
Average (BT)	**7.4**					**37**	
Iasi – old site	0	1	1	0	5	7	improper
Iasi- sanitary	5	3	0	0	5	13	**acceptable**
Pascani	0	0	0	0	5	5	improper
Harlau	3	0	0	5	5	13	**acceptable**
Tg.Frumos	0	5	0	3	5	13	**acceptable**
Average (IS)	**10.2**					**51**	
Vaslui	5	0	0	0	0	5	bad
Barlad	0	0	0	0	0	0	bad
Negresti	0	3	0	0	5	8	improper
Husi	3	0	0	0	5	8	improper
Average (VS)	**5.25**					**21**	

By average (no. of points / no. of landfills per county) classification, Iași county still ranks first (10.2), followed by Botoșani (7.4), Bacău (6.6), Suceava (6.42), Neamț (5.6) and Vaslui (5.25). Homogenous landscape of eastern counties (Botoșani, Iași and Vaslui) offers more suitable options for landfill sites than the western region (Suceava, Bacău, Neamț).

It is noted that urban areas are facing various challenges for determining a proper location for a new landfill site according to the current legislation. Urban municipalities need to have several options for the location of waste management facilities.

Three critical factors (residential area, rivers & lakes, forest & protected ares) must be avoided in the 1 km buffer area. Furthermore, agricultural land (arable land, crops, vineyards) and industrial and commerce facilities should be avoided at least in 0.5 km perimeter. New landfills should be more proper located than these old sites due to EU regulations. Decision-makers, local community, NGOs, academic researchers should get imvolved in this process. Transparency for all waste management projects should also be provided. NIMBY policy is emerging among EU countries concerning the location of landfills or incineration plants (Wolsink, 2010; Davies, 2008).

The location of new sanitary landfills which will serve an entire county should take into consideration the NIMBY scenario. Often, these landfills are planned to be built in rural areas (eg. Girov commune – Neamț County) to avoid well-populated urban areas and to have a strategic position at county scale. But they should not be

placed in the proximity of built-up areas or agricultural land in order to be accepted by the local community. An improper site may have a significant impact on local economy. Urban and rural localities from region will be served in the future by transfer stations and regional landfills.

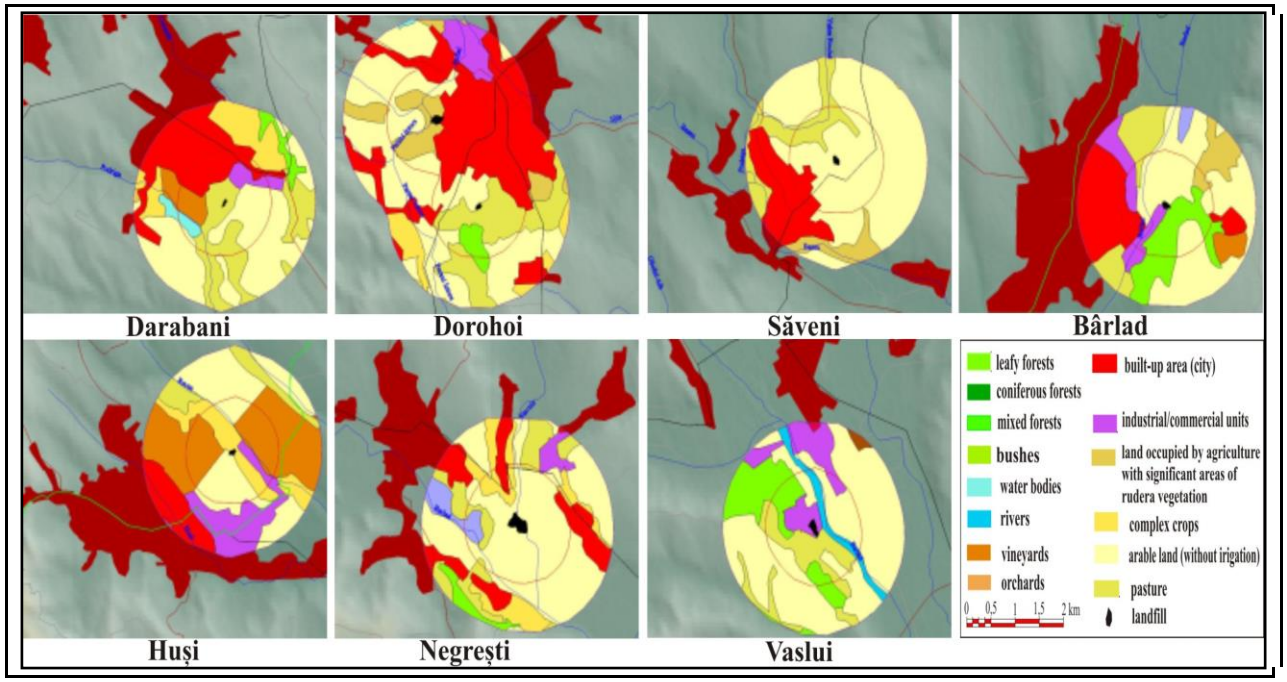

Figure 5: Urban landfills at local scale – buffer areas

These systems will be optimal in the context of full population access to separate waste collection services and high rates of recycling and composting.

Conclusion

The paper proposed a new assessment method of landfills locations at regional scale taking into account, on the one hand, the proximity of critical factors to such sites based on the buffer analisys through GIS techniques and, on the other hand, the score of landfill sites according to the assessment grid. The results revealed that improper location of old landfills is widespread at regional scale and only Iași county has an acceptable average within the study area. Critical factors are often found inside the buffer area of 1 km which determined the low scores of landfills (< 10 points). Buffer analysis outlined that rivers, agricultural lands and residential areas are most exposed to pollution, despite the fact that these areas must be avoided in the proximity of these sites. Cities have ignored this environmental issue and the new landfill sites should be more proper located under EU regulations. Romania is facing the transition period from a traditional waste management system where landfilling and mixed waste collection prevails to a sustainable system based on the 3R policy (reduce, reuse and recycle). This goal is still far to be achieved but new waste management facilities are already operational in some urban areas. New integrated urban waste management systems from Piatra Neamt, Bacău and Iași towns may be guidelines of good practices for North-East Region and Romania. These non-compliant landfills are the legacy of poor waste management facilities. Separate collection, sorting and composting stations, regional sanitary landfills are key elements for the future integrated solid waste management systems in Romania.

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Research possibilities in measuring allergic morbidity, using empirical data

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Abstract

There is lack of data about allergic morbidity on neighborhood; city district or micro regional levels, thus increasing focus have been put on morbidity of localities in epidemiological and health geographical studies. The aim of the study is to outline the best possible empirical research methods for allergic morbidity. Self-assessment based survey was made twice in Kecskemét, Hunyadiváros district of 8000 inhabitants, Hungary, to elucidate the allergic prevalence. The survey units were the households, but the analysis was made on the diseased people. Firstly 419 members of 148 households and secondly, during the repeated survey 401 members of 138 households were asked. Two-staged multistage sampling had been made, at first, one third of the district's streets had been chosen randomly. Secondly according to the size of the streets a probability proportionate to size sampling method was used. Almost 40% of the households and 20% of the researched group showed allergic morbidity. According to the results, it can be assert, that around 20% of the population of Hunyadiváros district suffers from some kind of allergic disease, which is overwhelmingly larger than official statistical data shows.

Keywords: *health inequality, neighborhood health, Kecskemét, morbidity, rhinitis allergic*

Rezumat. Posibilități de măsurare a morbidității alergice, folosind date empirice

Deși există puține date referitoare la morbiditatea alergică la nivel de cartiere, districte ale unui oraș sau la nivel microregional, tot mai multe studii epidemiologice și de geografie medicală se axează pe morbiditate la nivelul unor așezări. Scopul acestei lucrări este de a sublinia cele mai bune metode empirice de cercetare a morbidității alergice. Pentru aceasta am desfășurat două studii de evaluare în Kecskemét, districtul Hunyadiváros, cu 8000 loc, din Ungaria, în încercarea de a stabili prevalența alergiilor. Mai întâi, am intervievat 419 membri din 148 de gospodării, apoi 401 membri din 138 de gospodării. Selectarea s-a făcut în mai multe etape, la început alegând la întâmplare o treime din străzile din district. Apoi, în funcție de mărimea străzilor, și conform metodei de stabilire a eșantionului, am ales eșantionul. În aproape 40% din gospodării și 20% din populația intervievată prezintă cazuri de morbiditate alergică. Conform rezultatelor, putem afirma că aproape 20% din populația districtului Hunyadiváros suferă de un anumit tip de alergie, această proporție fiind mult mai mare decât cea figurată în statisticile oficiale.

Cuvinte-cheie: *inegalități de sănătate, sănătate a cartierului, Kecskemet, morbiditate, rinită alergică*

Introduction

Health inequality is a major topic of medical geography, which focuses on social aspects and spatial distribution on different scale (SMYTH, 2008).

Prevalence of allergy is increasing within the population, not only a major issue in Hungary, but a global health problem which is affecting people from all countries – from developing to more developed – ages and ethnic groups (BOUSQUET. ET.AL. 2008). The differences within prevalence can be measured on subnational levels as well, which show health inequalities within society (ZANOLIN ET AL 2004). More and more studies are examining the spread, the territorial structure and spatial differences of allergy; despite the growing significance of the topic, there is still lack of geographical data on smaller (neighborhood, district) scale. Moreover, statistics shows only recorded morbidity, which is lower than the actual prevalence. The main questions of the paper are linked with the mentioned facts. Why is it important to measure morbidity on smaller scale? How can we measure the actual morbidity, which includes the symptomatic, and the latent morbidity within the population? The definition, the cognition and the structure of morbidity will be introduced first; thereupon the results of the inquiries' will be reviewed, focusing on allergic morbidity in Hunyadiváros district, Kecskemét, Hungary (Fig. 1).

Health geography, scale and morbidity

In recent medical geography researches, the role of space and place had increased (KEARNS&JOSEPH, 1993, KEARNS, &MOON, 2002, PÁL V. 2005). These definitions are not only considered as concepts, but constantly renewing, changing products of the society. Space and place is produced by interactions of people and their environment (LEFEBVRE, H. 1991). Thus, understanding space requires understanding localities. To reveal the spatiality of health, a wider scale approach is needed.

The question of scale is crucial in every work. It is a highlighted debate among scholars, hence the problems which result in inequity are often derived from a higher scale, and thus, by far the perceived outcomes are local. The wrong choice of the scalar unit can drive to ecological fallacy and deflecting the facts. Up-scaling can hide the spatial patterns due to its generalising feature, downscaling can cause the

"single issue problem" which can never give decent tackle for a diverse phenomenon (WILLIAMS, 1999). A Growing number of researchers agree that neighborhood and individual (often referred as body) levels are applicable to measure inequality in health (CURTIS, 1990, FABULA, 2012).

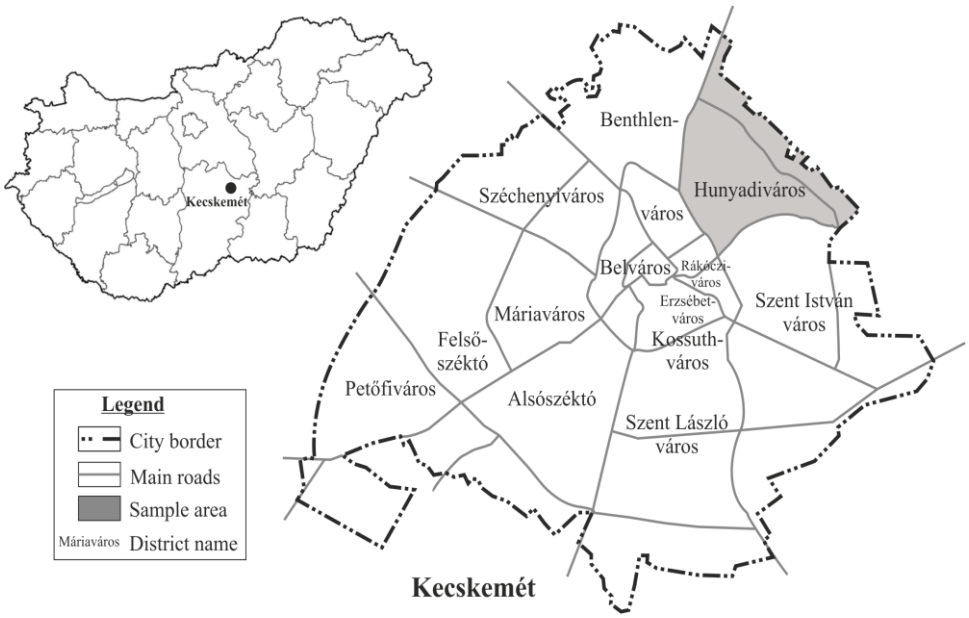

Figure 1: Kecskemét and the sample area. (Edited by authors)

Neighborhood is a level of scale on one hand, and in another it is unit of analysis, which is appropriate to examine local activities and processes (MEADE & EMCH, 2010). As it was mentioned earlier, more focus was put on the individual and neighborhood level while health status is highly influenced by local environmental factors and circumstances (KEARNS & JOSEPH, 1993). In several cases, the exposition to environmental threats and hazards can negatively affect health status and everyday life thus studying so called environmental and social injustices – appearing on local and mostly on neighborhood scale can be crucial research direction of geography, including medical geography (WALKER, 2006, HARVEY, 1996).

Individual level has also high role in medical geographical research since differences in lifestyle can entirely change possibility of evolution of an illness, the increase of risk or can worsen health state. Several individuals with the same lifestyle and exposition to environmental harms form pattern on a larger scale. In this sense, health inequalities depend both on small scale – local – and higher level processes, decisions and policies (MEADE& EMCH, 2010, SMYTH, 2008), thus a multiscale perspective is needed in these studies (MEADE & EMCH, 2010).

In case of allergic morbidity, the applicable unit of the analysis is the scale of individuals and small neighborhoods, so it gives guarantee of no data reduction.

Main concepts of morbidity

Basically, two indicators can be used for describing health status of the population. One is the morbidity with no punctual data; the other is mortality, which is comprehensively registered. (BALÁZS, 2004, DÉSI, 1998, NAGYMAJTÉNYI, 2006, 2010).

Actual morbidity cannot be fully recorded; therefore, researchers determine symptomatic and latent morbidity. Foregoing means registered and recognized patients of health care system, latter means those people who are not registered, whose illness is not accurately recorded, and those who were registered with different disease. Sometimes diseased people are not recorded, whilst they often do not recognize the symptoms, or they identify them as a side effect or a part of their everyday life (BOUSQUET, 2008). To present the differences between symptomatic and latent morbidity see Figure 2 about the iceberg-concept.

The overarm part represents the recognized morbidity; the underwater illustrates the latent morbidity, those people who are excluded from statistics (BALÁZS, 2004, DÉSI, 1998, NAGYMAJTÉNYI, 2006, 2010, PÁL, 2002a). In order to get data about symptomatic morbidity, researchers can use four sources in Hungary: statistics of National Health Insurance Fund Administration, statistics of obligatorily declared illnesses, different health registers, patient reporting of health institutes (BALÁZS, 2004, DÉSI, 1998, NAGYMAJTÉNYI, 2006, 2010). The latter represents only the usage of the health institutes, but not the actual number of diseased people (SZÉLES, 2005). There are some further limitations of using the mentioned health databases, like providing only larger territorial scale (county, region, micro region), but less data available

for settlement or district scale (NAGY & BÁN, 2012, PÁL, KISS & TIPEI 2006, PÁL & TÓTH, 2007).

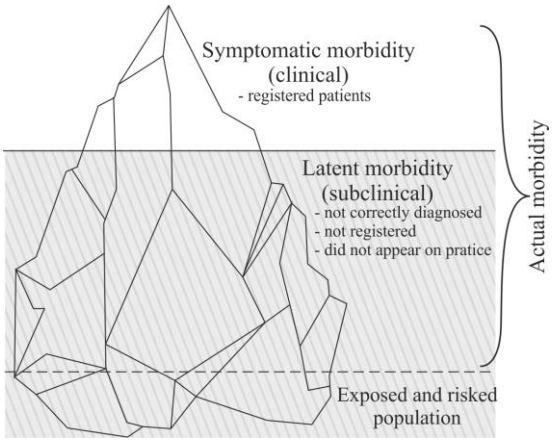

Figure 2: Iceberg-concept of morbidity

Source: DÉSI 1998 edited by authors

The latent morbidity can be observed via cross-sectional screening and longitudinal household researches (DÉSI, 1998, BALÁZS, 2004, DE ANDRADE et al. 2008, NAGYMAJTÉNYI, 2006, 2010). The advantage of the preceding method is the impartiality and reliability, however it is really expensive. The latter strategy is relatively cheap and easily feasible, still the self-assessment considerably depends on one's health literacy and knowledge of diseases. Not only can the cost-effectiveness be mentioned as a merit of these types of research strategies, but these provide information about the subjects' lifestyle and life circumstances. One of the most important self-assessment based health state inquiry is the National Population Health Survey. These kind of national surveys do not provide relevant geographical information, merely on national level (Pál, Kiss & Tipei, 2006, Pál & Tóth, 2007), at the same time some micro regional analysis had been made (Pál, 2002b).

Difficulties in recognizing and following up allergic morbidity

Numerous difficulties occur due to the above mentioned factors during examining allergic respiratory morbidity. The National Korányi Institute for Tuberculosis and Pulmonology is responsible for recording the morbidity of 'Rhinitis allergica' and 'Asthma bronchiale extrinsic' – according to patient numbers –. While the institute has punctual and available data about asthmatic morbidity on various levels from mezzo to macro level, the morbidity in rhinitis allergic is only available on national level, since in recording and treating the latter mentioned illness is competent. Therefore, the actual morbidity by no means, the symptomatic morbidity is partially presented.

Several diagnostic problems occur during the examinations, which also disfigures actual data. For example, until 2004 numerous patients with chronic obstructive airway disease were diagnosed and treated as asthmatic patients. The shift in medicine subsidy resulted in the turning point in this question (JÓNÁS et al. 2008). Besides, children with asthma are not recorded in pulmonary treatment centres, some patients are treated at GP's order. Moreover, the number of patients with rhinitis allergic has decreased in the last years, due to cessation of specialists' pharmaceutical support. Long term increasing stopped (KOVÁCS et al. 2012).

The number of recorded rhinitis allergic patients had increased since the transition until 2009. Initially the number of rhinitis allergic patients was below ten thousand, which had been growing 30 times more during 19 years. After the cut on the medicine support, only within two years the recorded number decreased by 6000, reaching 302 thousand (see Fig. 3).

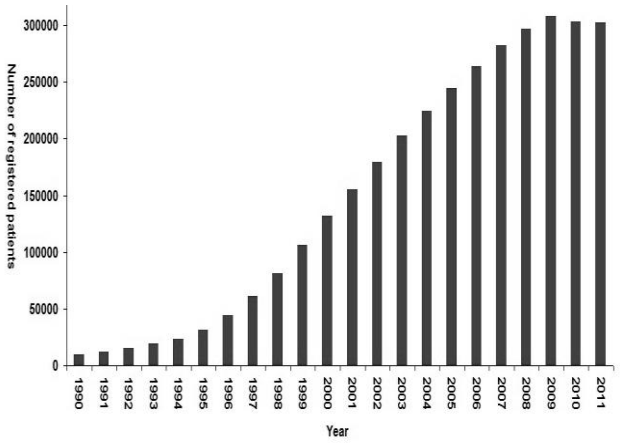

Figure 3: Prevalence of rhinitis allergic patients in Hungary (1990-2011)

Source: National Korányi Institute for Tuberculosis and Pulmonology, edited by authors

In 2011, less than ten thousand rhinitis allergic patient were newly recorded, providing the same value as it was in 1995 (see Fig. 4.).

Another difficulty keeping the register complete is the lack of public information about the age and gender of the recorded patients. Moreover, during the registration process patients are not registered according to residence, but the place of treatment, although the service area of the treatment centres is roughly the same as micro regions. General practitioners' registers also provide information, but allergic morbidity is only recorded if the illness is associated with serious illnesses, like asthma, or the patient was registered after a consultation by specialists. In addition, there are more problems due to incompatible practice area and geographical levels, while doctors provision for patients beyond their

practice area. This causes tremendous limitation of use for available data (Nagy & Bán, 2012).

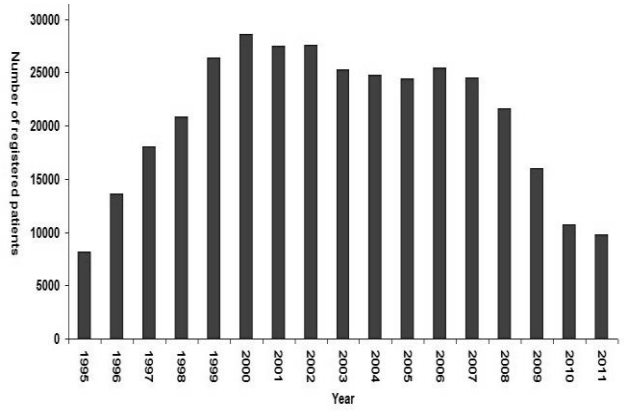

Figure 4: Newly recorded (incidence) rhinitis allergic patients in Hungary by years (1995-2011)

Source: National Korányi Institute for Tuberculosis and Pulmonology, edited by authors)

Method

The study area is situated in Kecskemét, Hunyadiváros district, and it was chosen due to several reasons. One fundamental determinant is the size of the study area. It is small enough to examine and identify process like allergy, but not too large to aggravate the survey. Besides, the district is more exposed to allergic morbidity while it is situated on sand and loess. The sample area is an outskirt of the city which eases the access of the subjects, additionally uncultivated, weedy lands also raises the exposition for allergy.

To reveal latent morbidity, longitudinal survey was made, which was easy and cost-effective; however, the results of a sufficient sample size for certain representativeness errors (age, gender) are capable to approximate actual morbidity allergies of inhabitants on district level. Two self-assessment based surveys were carried on from December 2009 to January 2010 and from October to November 2010. The survey units were household members who have suffered from some kind of allergic disease. Self-administrated, anonymous questionnaires were asked by survey interviewers.

During the research, multi-stage sampling method was used, streets from the district were chosen by systematic sampling after dividing the district into smaller parts. All of the districts' streets (approx. 75-80) were listed in alphabetic order and were given a unique number Fig. 5).

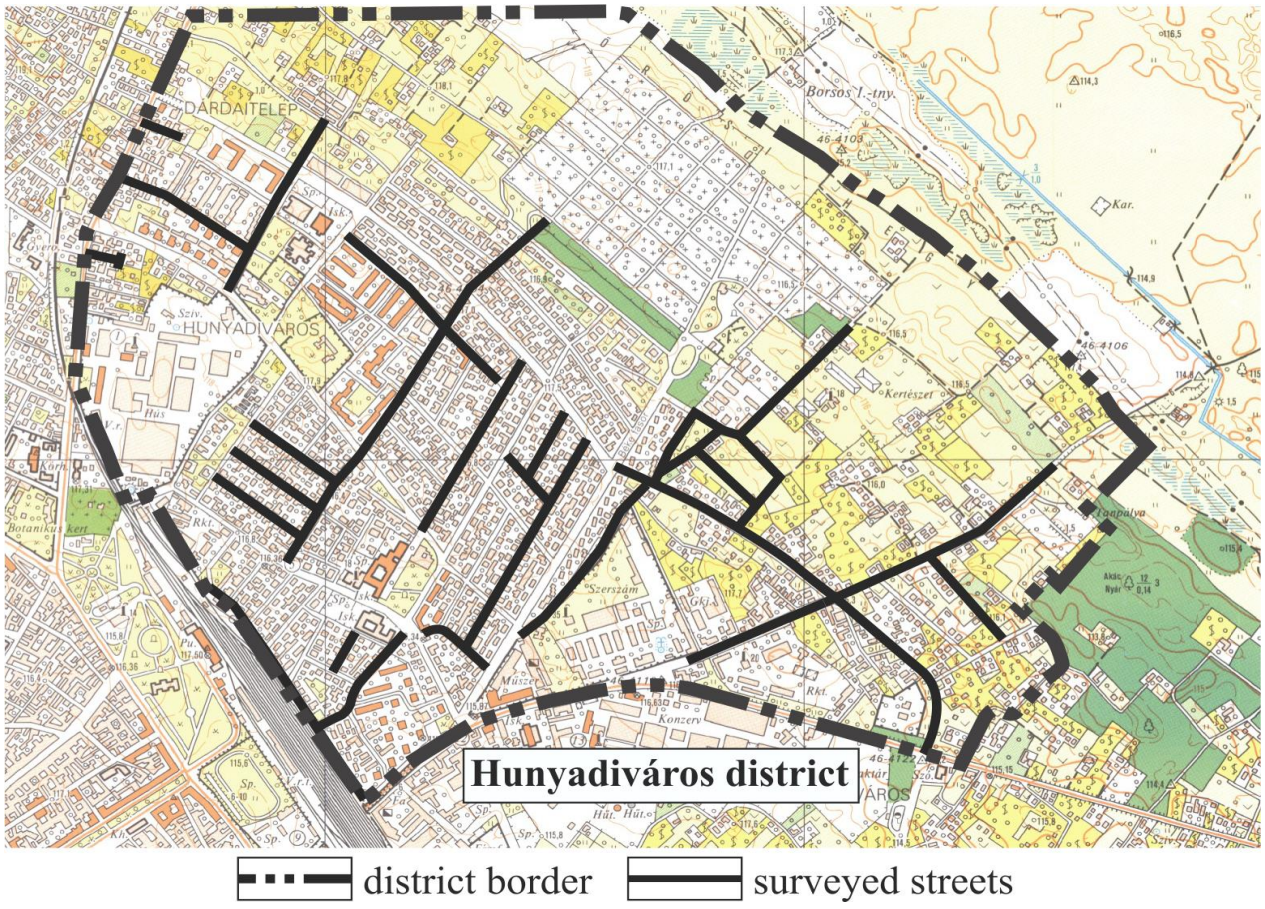

Figure 5: Sampling area. Edited by the authors

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The first street was chosen with random number generator and every third was taken into account. As a result, one third of the streets were chosen. Within the streets the households were randomly, but probability proportionately to size chosen (see Table 1).

Table 1: Street size definition and the method for proportionately size sampling

Size of the street (number of houses)	Questionnaires asked
1-4	1
5-8	2
9-12	3
13-16	4
17-20	5
21-24	6
25-28 etc.	7

Source: edited by authors

Preliminary field work had been made to define the sizes i.e. numbers of houses on the streets. In case of the apartment houses, one staircase was chosen, and from every floor a flat was surveyed.

Discussion

Researching the frequency of allergic morbidity in case of Hunyadiváros district

According to the City statistics of Kecskemét 2010, the population of Hunyadiváros district was 7771 citizens. The survey was asked in 286 households (with 21 refusals), approx. 800 people which means approximately 10% of the population. Allergic morbidity was found in 40% of the households, the affected population is 20% (Table 2).

Table 2: Allergic morbidity by households and persons

Survey	Households					
	allergic		non allergic		total	
	pcs	*%*	*pcs*	*%*	*pcs*	*%*
1.	58	39,19	90	60,81	148	100
2.	56	40,58	82	59,42	138	100
Survey	**Person**					
	allergic		**non allergic**		**total**	
	person	*%*	*person*	*%*	*person*	*%*
1.	82	19,57	337	80,43	419	100
2.	78	19,45	323	80,55	401	100

The table also confirms the fact that 15-22% of the Hungarian population is affected by rhinitis allergic diseases (Who, 2003, 2007, Nékám 2009).

Examining the gender of allergic morbidity shows adverse results. For the former survey, more male proved to be allergic, while during the latter female population were prevalent (Fig. 6).

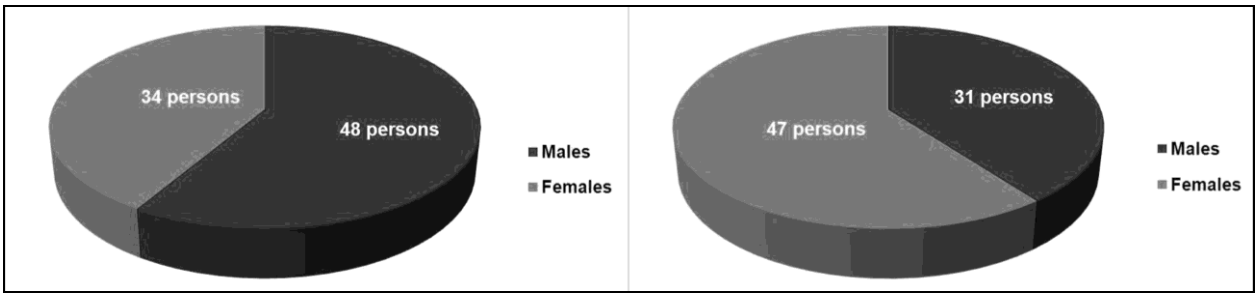

Figure 6: Sex ratio in the first (left) and second (right) survey. Source: survey

Observing the health statistics it seems that more female allergic morbidity is recorded, probably due to psychological factors, and male patients visit doctors more seldom than females. Actually sex does not influence the prevalence of allergies radically (Nékám, 2009). Differences might occur due to the differing numbers of the transponders during the two surveys.

The age distribution of the questioned diseased people is the same conversely to the sex ratio. Two major groups can be defined; a young adult and middle-aged group and an elderly group (Table 3). Usage of the data is limited due to small sample size and question of representativeness.

Allergic morbidity can be evolved from various causes. The most common allergens are pollens, dust, food, medicine components, feather and fur etc. Chemicals or metals can also be allergen. Questioned people marked several allergens responsible for allergic morbidity. The most indicated was pollen

followed by dust food and medicine components Table 4). Examining the results of the second survey there is no significant difference in indication of the latter mentioned three allergens conversely to the results of the first survey.

Table 3: Allergic morbidity by age

Age distribution – 1st survey											Total
Age	**0-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**n.r.**	**0-90**
Person	5	10	12	14	9	7	12	11	1	1	**82**
%	6,10	12,20	14,63	17,07	10,98	8,54	14,63	13,41	1,22	1,22	**100**
Age distribution – 2nd survey											**Total**
Age	**0-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**n.r.**	**0-90**
Person	7	10	12	14	6	10	7	11	1	0	**78**
%	8,97	12,82	15,38	17,95	7,69	12,82	8,97	14,10	1,28	0	**100**

Source: survey

Table 4: Mostly indicated allergens

Most often indicated allergens	1st survey		2nd survey	
	person	*%*	*person*	*%*
Pollen	60	73,17	58	74,36
Dust	16	19,51	8	10,26
Food	11	13,41	8	10,26
Medicine	10	12,20	8	10,26
Fur	7	8,54	3	3,85
Mildew	4	4,88	2	2,56

Source: survey

The second survey was extended with a question with crucial importance in the context of the allergic morbidity concerning the time of appearance of allergies. Their prevalence has increased since 1990, which originates from various causes. One of the most important causes is the neglect of recording allergic morbidity before transition; until 1985 rhinitis allergy was not registered as an illness (Fodré, Lajos & Ladányi, 1994). Additionally, allergy was not as widespread disease as nowadays, while more and more people is exposed to the „western type of life" which means higher exposure to urbanisation and its demerits, chemicals, overuse of medicines and so on (SZALAI 2005, BOUSQUET, 2008). The so-called hygiene theory, which explains the negative effect of over sterilized circumstances on human health approve the above discussed facts. Due to the overly sterile environment of our everyday life, the prevalence of allergic rhinitis is increasing in the developed countries (Meade& Emch, 2010, Reid, & Gamble, 2009).

The results should be accepted and used cautiously taking age into consideration as influencing factor. The survey showed that more than the 25% of allergic people is suffering from the disease from birth or childhood, raising the question of genetic influential factors (Bousquet, 2008) (Fig 7).

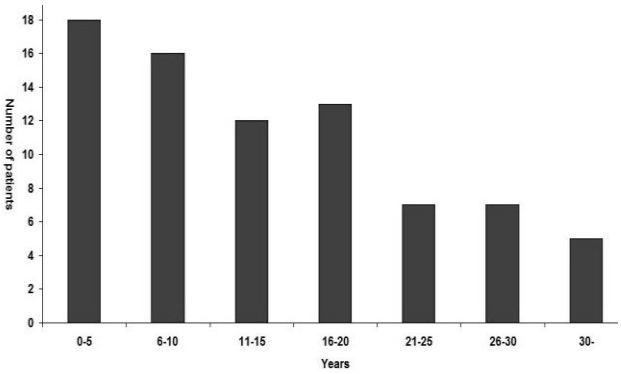

Figure 7: Recognized symptoms in years

Source: survey

We also examined the usage of the available health care services. According to the results of the first survey, 50% of the subjects already visited their general practitioner, this result being confirmed during the second survey, but with higher ratio (Table 5).

Table 5: Appearance at GP's order and SC's order within allergic people

Surveys	General Practice order					
	appeared		not appeared		unknown	
	person	*%*	*person*	*%*	*person*	*%*
1st survey	49	59,76	32	39,02	1	1,22
2nd survey	59	75,64	19	24,36	0	0
Surveys	**Specialist Consultation order**					
	appeared		**not appeared**		**unknown**	
	person	*%*	*person*	*%*	*person*	*%*
1st survey	48	58,54	33	40,24	1	1,22
2nd survey	53	67,95	25	32,05	0	0

Source: survey

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Less, but significant share of the affected people visited specialists' consultation (SC's) (pulmonology or dermatology); however, the rate of those who are not aware of their illness is really high. There is also a huge difference between specialists' consultation and general practices, whilst the latter not always treats, but it only records allergic illness.

There is a fact; those who have already appeared at Specialists' Consultation order never go back for control. After recording allergy, 50-75% of the patients do not return for follow-up, or supervision. Only 50% of the visitors visit SC's order merely once a year (Fig. 8).

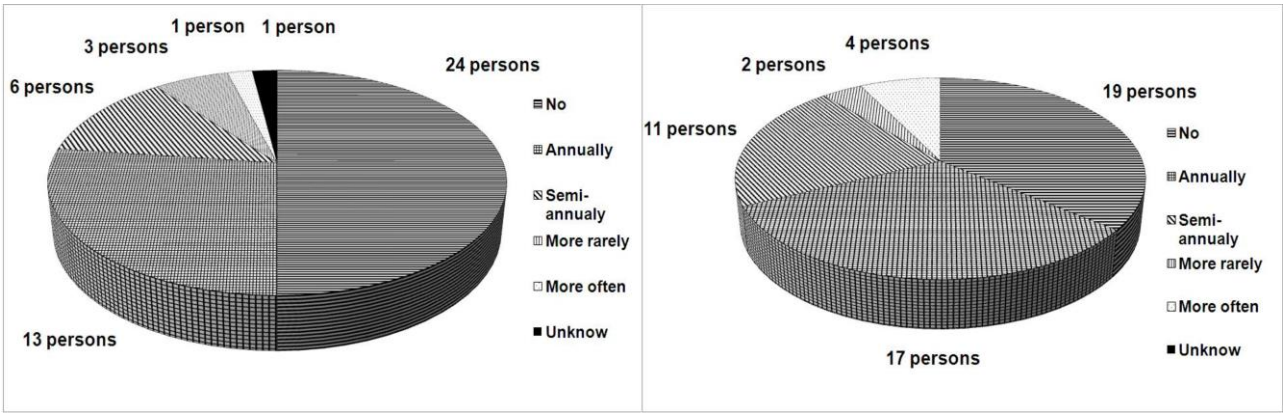

Figure 8: Visiting Specialists' Consultation according to the first (left) and the second (right) survey

Source: survey

In the last year, more than half of the respondents of the first survey, and two third of the second survey respondents were treated. Out of them 50% took medicine, but numerous alternative therapies, like herbal products, antioxidants, salt, light or air therapy were used to preserve their health.

During the research, we put focus on asthmatic morbidity since allergy and asthma are concomitant. Several surveys and papers verified co-morbidity of Asthma and Allergic Rhinitis (ESTELLE, & SIMONS, 1999, DE ANDRE. et al 2008, KO, et al 2010, IZQUIERDO-DOMÍNGUEZ et al. 2012). Not every allergic is asthmatic, but almost every asthmatic is allergic; that is why one third of the allergic persons are asthmatic and two third of the asthmatic are allergic (KOVÁCS G. et al. 2012), its result being verified by the surveys (Table 6).

Table 6: Asthmatic morbidity within allergic respondents

Surveys	Respondents							
	Asthmatic				Non Asthmatic		Total	
	Asthmatic and allergic		Only asthmatic					
	person	*%*	*person*	*%*	*person*	*%*	*person*	*%*
1st survey	15	3,58	4	0,95	400	95,47	419	100
2nd survey	19	4,74	4	1	378	94,26	401	100

Source: survey

Conclusion

The territorial differences in health state can be studied on various scale, however the latest medical geographical researches put more focus on the lower scale, such as individual and neighborhood level. In this paper allergic morbidity was studied on district level since no data was available on smaller scale and larger scale would veil the differences and connections.

There is significant difference between actual and symptomatic allergic morbidity, which is originated in the latent, unknown morbidity. Allergy is a widespread disease which latent part easily can be estimated by using self-assessment based surveys.

Two surveys were made as part of the research and same results have been presented which gives reliability to the research. Still we must be precautios when we use, because representativeness is not provided in several senses; on the another hand self-assessment based surveys considerably can disfigure results due to different health literacy and life circumstances. To reduce the disfiguring influence of the latter factor researchers should organise screening for the subjects, yet it is excessively expensive, and besides it should have been extended with surveys elaborating living circumstances.

As a consequence, health status examinations are time and cost consuming, at the same time surveys are feasible and can provide reliable information.

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Thematic routes in Szabolcs-Szatmár-Bereg county according to the visitors' opinion

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Abstract

Nowadays the role and importance of culture in tourism is increasing. One of the main manifestations of this process is the spreading of thematic routes. Since the routes are new "products" it is important to monitor their development. The paper analyses three thematic routes in Szabolcs-Szatmár-Bereg County (Hungary), using the results of an online survey and the content analysis of tourism web pages. According to the results the potential visitors do not have the sufficient information about the routes. The accessibility and available services were evaluated slightly better than average by those tourists who visited at least one of the routes. At the same time they were content with the attitude of service providers. Based on their experiences they would offer the routes to their friends – which can be a useful promotion tool. The surveyed visitors think that establishing these thematic routes was a good and important initiative. This shows the potential and importance of the routes but their further development and promotion is a must.

Keywords: *cultural tourism, internet, thematic tourism routes, cross-border cooperation, visitors' satisfaction survey*

Rezumat. Rute tematice în județul Szalbocs-Szatmár-Bereg conform opiniei vizitatorilor

În prezent, rolul și importanța culturii pentru turism este tot mai mare. Una din principalele manifestări ale acestui proces o reprezintă înmulțirea rutelor tematice. Întrucât aceste rute sunt „produse" noi, monitorizarea lor este foarte importantă. Lucrarea de față analizează trei rute tematice din județul Szalbocs-Szatmár-Bereg (Ungaria), folosind rezultatele unui studiu on-line și analiza conținutului paginilor web. Conform rezultatelor prezentei cercetări, vizitatorii potențiali nu au suficiente informații despre aceste rute. Accesibilitatea și serviciile disponibile au fost evaluate ca fiind puțin peste medie de către turiștii care parcurseseră cel puțin una din rute. În același timp erau satisfăcuți de atitudinea personalului. Pe baza experienței lor, ar recomanda aceste rute prietenilor, ceea ce poate fi un mijloc eficient de promovare. Turiștii chestionați apreciază pozitiv inițiativa pentru stabilirea acestor rute tematice, ceea ce indică potențialul și importanța rutelor, însă acestea trebuie dezvoltate mai mult și promovate.

Cuvinte-cheie: *turism cultural, internet, rute turistice tematice, cooperare transfrontalieră, chestionar pentru evaluarea satisfacției vizitatorilor*

Introduction

Nowadays the importance of cultural tourism is increasing. The appreciation of the role of culture in tourism is due to the simultaneous appearance of several factors (Michalkó – Rátz 2005; Michalkó 2007). Among them, we must mention the increase of the general education level, which broadens people's – as potential travelers – view and interest for the elements of culture (Michalkó 2007). In addition, the motivational role of '4S' (i.e. sun, sea, sand and sex) is relatively decreasing for the benefit of cultural tourism (Csapó – Matesz 2007). One of the most spreading tools used for the development of cultural tourism is the creation of the thematic routes, which organize the tourist attractions in a spatial structure, moreover guide and inform the visitors. Because of its increased role it is essential to gather information about the function and notoriety of thematic routes, or rather about the visitors' satisfaction. The aim of this article is to present what kind of thematic routes are functioning in Szabolcs-Szatmár-Bereg county – which is one of the most underdeveloped counties in Hungary –, and what are the visitors' opinions about these. The paper is based on online questionnaires, semi-structured interviews, and content analysis of tourism websites.

Culture and tourism

Cultural tourism is based on culture, which has various kinds therefore it is interpreted differently by different authors. Despite the variety of definitions it can be established that culture is not a static term, but it is changing continuously. The culture basically created embodied by the society which determines our everyday lives and influences our actions (Nagy – Boros 2010). Different cultures can have quite a large attraction. The European culture is a good example for this, its popularity proved by the globally prominent number of tourist arrivals (Rátz 2004; Boros – Pál 2010).

Just as the concept of culture, the relationship between culture and tourism has different approaches, too. Some authors argue that tourism can play a significant role in the wider spreading of culture (Hajdu 1999; Lengyel 2001), while according to others the holiday is what connects the two concepts the most (Lengyel 2001). The cultural tourism also has been associated with the Maslow pyramid by others. According to the pyramid the cultural tourism is able to satisfy the human needs

for knowledge and aesthetics or the search for identity (Michalkó 2007; Mundruczó 1996).

If cultural tourism is interpreted as a system, it is important to consider its elements. The cultural tourism is based on the cultural heritage, which can be determined in the tourism context as the totality of human creations and activities, and these can be involved in tourism. Its concrete elements are granted by people's intellectual and material heritage (Horváth 1999; Kirshenblatt-Gimblett 1998; Dávid – Jancsik – Rátz 2007). The material remains include the built heritage (residence), works of art (sculptures, paintings, costumes), while the customs, traditions and lifestyles of a people or nation are recognized as intellectual heritage. These elements are not static, but vary or may differ from country to country, which is favorable to tourism (Ashworth – Larkham 1994).

Apart from the existence of cultural heritage, for the sustainable development of tourism, it is essential to protect this heritage (Michalkó – Rátz 2005). To protect the cultural elements in tourism is not only the interest of tourism, but both economically and culturally very important. The above-mentioned elements appear in tourism as attractions and in economy as revenues from the visitors. In cultural context, the heritage largely contributes to the preservation of identity, which is closely related to the life of a nation or a smaller community (Pap 2010).

As in the tourism sector in general, in cultural tourism is also important to emphasize the concept of complexity (Bodnár 2000). Beyond the existence of attractions, a number of conditions must be met in the interest of maintaining/improving competitiveness. It is needed basically in all tourism products, but especially in thematic routes.

The concept and characteristics of thematic routes

The thematic products in the United States, Australia and in Western Europe already appeared in the early 1980s, while in Central-Eastern Europe evolved only in the second half of the decade (Csapó – Berki 2008). As a result, several thematic tourist routes have been created in which a particular natural or cultural topic interlace the attractions, which can be approached in different ways (Puczkó – Rátz 2002b). The thematic routes – although in the definition the term of natural also exists – are mostly related to culture. According to the diversity of cultural heritage several types of routes can be formed, for example routes related to industrial heritage (e.g. The Ruhr Tour), to religious memories (mainly as pilgrimages) or even related to a well-known artist's career (Goethe-route).

The creation of thematic routes can have several different aims. For example, these routes can draw attention to the region and its values. In this case, not only the traditional attractions can play a role, but also the lesser-known ones. Furthermore, the aim can be to make the area more recognizable by specific route-offers. This might be an advantage especially for those who arrive as strangers/guests at the site. Otherwise, the thematic routes deepen the relationship between the participants because without cooperation the product itself is not (or hardly) operable, as well as the collaboration results in a more integrated representation of interests. In addition, cooperation is also important in tourism marketing, because in this way it is easier to create a unified tourist image, and the visitors can more easily identify with it (Puczkó – Rátz 2002b).

A great advantage of thematic routes – of course depending on theme – is the cost-effectiveness. Since most of the routes are not tied closely to the established roads, but rather appear in an abstract sense, hence it is not necessary to build linear road system (which has been already given), but mainly the attractions have to be maintained. Moreover, this might be seen as essential marketing expenditure to attract visitors.

The thematic routes outside Hungary

Globally, and especially in Europe, thematic routes have a quite long tradition. Germany has one of the most colorful supplies, even if creating a route has a very strict set of criteria there (Juray 2002). These criteria include, among others, the following things (which are also typical in Hungary or might be in the future requirements) (Demhardt 2004):

- using symbols and slogans,
- establish a central information point,
- list of the attractions and services of the route,
- precise and individualized determination of responsibilities,
- existence of multilingual information package, etc.

In compliance with the strict regulation, these routes are very popular for domestic and also for foreign tourists. The most traditional German thematic routes are the 'Romantische Strasse' (http://www.goethe.de/ges/mol/del/tro/de2525157.htm) and the 'Alpen Strasse' (http://www.deutsche-alpenstrasse.de/), which have a history of several decades. The thematic diversity is supported by the fact that we can find even wine routes (which appear also in the Hungarian supply), roads connected with castles and routes presenting the memories of the Roman Limes in Germany (Limesstraße).

The thematic routes in Hungary

Regarding the tourist offer in Hungary, the number of thematic routes is increasing, most of

them lying within the border (for example, the 'Palóc-route'; the 'Stone-route' in Bükkalja or the historical routes in Veszprém County) (http://www.utikonyv.hu/_utikonyv/documentum.php?id=2471; http://www.nordtour.hu/info/temak/tematikus-utak/). However, an increasing proportion of younger routes have been carried out by cross-border cooperation. This trend, of course, affected mainly the border areas and counties. These areas are usually economically less developed than the national average, so this product of tourism or generally tourism appears as a potential development option.

The areas separated by border can choose between several options: may compete with each other; may cooperate with each other; may specialize in something, so the market is divided between them; or by broadening the existing supply they can obtain a competitive advantage (Boros 2002; Boros – Garamhegyi 2009; Bujdosó 2010). Considering that the number of thematic routes based on international cooperation is increasing, we can conclude that the participants chose to cooperate, even though in many cases this co-operation implies only the creation of routes.

In Hungary the best known routes are the wine roads, which are located at the most famous Hungarian wine regions, for example the Tokaj Wine Route and the Villány-Siklós Wine Route; but the castle tourism is relatively remarkable and more mature.

This shows that – although a relatively new product in the Hungarian tourism – researching and monitoring our thematic routes is important to maintain the long-term viability and demand.

Study area

The sample area of the research is Szabolcs-Szatmár-Bereg County, which is located in north-eastern Hungary. Among the reasons for the selection of this area, we must mention that the county is one of the most economically underdeveloped counties in Hungary (low economic activity, few workplaces, high rate of unemployment – in 2010 it was 18,4%, which means the last place in the ranking of counties) (based on the data from The Hungarian Central Statistical Office, 2010).

The choice of the area is also reasoned by own and other researches that the county is rich in natural and cultural attractions, which provides a sound basis for developing tourism (Hanusz 1998; Csordás 2002; Kovács – Martyin 2012). In addition, Szabolcs-Szatmár-Bereg County is bordered by three countries, which are favorable for the international cooperation and the development of cross-border thematic routes.

The analyzed thematic routes

The three analyzed thematic routes (Fig. 1) show the rich cultural heritage of the county, based on three types of themes. First, the 'Szatmár-Szatmár Plum Route' is the oldest route, where already in the mid-2000s there existed a kind of relationship between the Hungarian and Romanian participants. This was followed by the Hungary-Romania Cross-border Co-operation Program 2007-2013, which established the 'Plum Route'. Now 17 Hungarian and 10 Romanian towns belong to the route, but further expansions are planned. The 'Plum Route' primarily based on one of the traditional gastronomic value of the region, is the local plum. Along the way, the different towns with centuries-old traditions present what can be made out of plums, from the plum jam, and the prune to the typical plum brandy. Especially in the case of the 'Plum Route' the previously mentioned complexity can be observed, as Hanusz (2009 p. 157) argued: "(…) it provides a framework for a complex tourism presentation of a small region and connects the tourism products in the region which just alone do not represent a special tourist attraction".

The 'Plum Route' combines tourism, culture, traditions, and agriculture, thus creating an overall tourist product, which has been created by the Plum Road Association (Hanusz 2002; Hanusz 2009).

Another route is that of medieval churches ('Medieval churches route in Szabolcs-Szatmár-Bereg County and in Satu Mare County'). The 'Church Route' also developed following the Hungarian-Romanian cooperation, where the tourist product is based on the medieval churches, which all can be interpreted as heritage tourism attractions or religious historical attractions (the Reformation get a foothold in the region earlier, than around the Calvinistic Debrecen).

The main period of the tourism development program lasted from 2009 until 2011, and the present period aims to expand the route towards Ukraine. This is expected to end in 2012, so the 'Church Route' will be expanding with 30 new elements. Since its establishment, now it is in the fourth phase of development, which is certainly remarkable. Analyzing the strategy of the route, it can be stated that this is a deliberately structured thematic way, starting from the evaluation of tourism in the county, through identifying problems, drawing up an inventory of attractions, involving partners, up to external communication.

Unlike the other two routes, the 'Castle Route' was created by the Hungary-Slovakia Cross-Border Development Program 2009-2010, which combines the castles and mansions in Szabolcs-Szatmár-Bereg and Kosice counties. Some of the buildings had already been renovated (for example Vay-castle in

Vaja), but in some places the works are still ongoing (for example Andrássy-castle in Tiszadob).

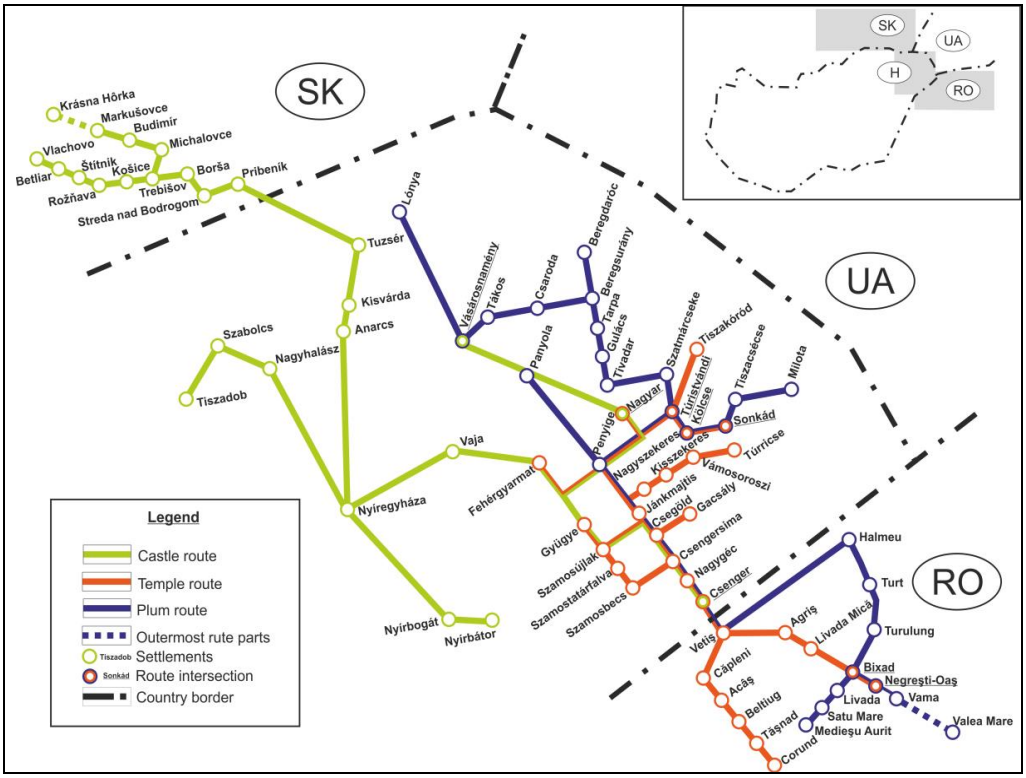

Figure 1: The three analyzed thematic routes

Source: edited by Gyula Nagy

The use of castles in the thematic route is different: sometimes they function as museums (the Beregi Museum located in Tomcsányi-castle in Vásárosnamény); sometimes as hotels (Szuhányi mansion in Csenger or Bogáthy-mansion in Nyírbogát); sometimes as conference site (Csuha-Kállay mansion in Nagyhalász) and sometimes as places for outdoor events (castle of Kisvárda). (http://www.castletour-husk.eu/index.php?option=com_content&view=category&layout=blog&id=35&Itemid=67&lang=hu)

Methodology

During the research, primary and secondary data collection methods were used. In the course of a research it is important to know the literature connected with the topic, how other researchers, experts deal with the subject matter, what results were achieved and what data are available. Since these data are derived from others – these are others' statements and results –, hence these are only secondary sources of information. During the primary data collection, the research is much more controlled and has an important advantage: new data and information can be gained from it.

In this research, as primary method, we made an online survey. Firstly the questionnaires were sent to our friends who were asked to forward also their own friends. As a result, we received back 150 fully completed questionnaires. The disadvantage of the online survey was that mainly we could send the questionnaires to our friends, therefore the age division of the respondents was somewhat distorted (55% of the respondents were in the 19-25 age range). In the second period of the survey we tried to correct this, so we sent the questionnaires rather to the middle-ages, but considering that in this way they were available with more difficulty, we only partially achieved our target.

The second pillar of the primary data collection was the preparation of structured interviews. The interviews were made with experts who participated in the creation of the routes. In the interviews the goal was to speak – in accordance with the international character of the routes – with the Hungarian, Romanian and Slovak participants, but it failed because the foreign partners did not respond even if we tried to contact them more times by email and also by telephone. Finally two interviews were made: one with an expert of the 'Plum Route' and one with a competent person from the Association which maintains the 'Castle Route' and the 'Church Route', too. So in the end we were able to talk to experts about all the three routes.

As secondary data we overviewed the scientific literature and online data were processed. The

content analysis of the web pages of the routes gave the most important information, which we later also analyzed with own indicators. We considered this as an important element of the study because – as it will be seen later –, the Internet is the main source of information in connection with the routes, which is considered to be a general trend these days.

The recognition of the routes and the visitors' opinion about it

It was quite difficult to measure the recognition and assessment of the analyzed routes in Szabolcs-Szatmár-Bereg County. On one hand, because of the problems described in the methodology and on the other hand because of these routes are relatively young.

The survey, as the title also suggests, built around two main topics: the recognition of the roads, and the opinions of the visitors. In terms of the recognition of the routes according to the responses it can be concluded that relatively few people know these roads: more than half of the respondents had not heard about any of the routes, yet. Another fact is that all three routes were rarely mentioned by the respondents; more typical was that only one of them was mentioned. According to the answers, the most familiar route is the 'Castle Route', followed by the 'Plum Route' and then the 'Church Route'.

The fact that the thematic routes of the county are not well known is not pleasing news, but a reason for optimism that those who have not heard about either one or more of the routes, most of them wish to be informed about it in the future. This certainly reflects that they have good imagination about the thematic routes, they are interested in.

To raise the recognition – beyond the fact that it has to pass some time until the thematic routes are better integrated into the public awareness – conscious communication is needed. As in case of any other product wanted to be sold, tourism products must be promoted after the creation. In this context, we examined how the respondents get information about the thematic paths. The Internet is the most dominant source, however, relatives and acquaintances play also an important role. The Internet proved role in this study well adapt to the general trend, however, the recommendation of close friends still plays an important role. This may be explained by the fact that an attraction is elusive in reality – compared to an average store product – only at a given time, in a given place it can become marketable (Mundruczó 1996).

Having seen the importance of the Internet, we checked the routes' web pages out and we made a content analysis of them (the aspects of the analysis: the availability of websites, the number of hits, the quality of hits, the wealth of information on websites, the cartographical representation, the existence of photo gallery, aesthetics of the website, how many languages are available on the website, contact possibilities, and information about foreign partners). According to the indicators the 'Church Route' has the best values, then the 'Plum Route' and finally the 'Castle Route'. It is an important deficiency that apart from the attractions there is no information about the cross-border partners on the websites which query the real partnership.

The 'Castle Route' website is available in four – languages (not counting the Hungarian), wich is the highest number. This is definitely a positive fact which significantly contributes to the attraction of foreign tourists. However, a negative fact that the 'Castle Route' website is not easily available, and it is the most incomplete in some parameter (e.g. contact possibilities, photo gallery). The research also showed that most of the visitors only visited one attraction, visiting the full route was not typical. Furthermore, based on the research it can be stated also, that primarily the already well-known towns and villages were visited (Table 1). These is also a negative aspect since one of the main targets of the thematic routes is to attract tourists to the smaller, less known/visited attractions; apparently, this has not succeeded yet.

Table 1: The most visited settlements of the analyzed thematic routes

'Plum Route'	'Church Route'	'Castle Route'
1. Panyola 2. Tarpa 3. Vásárosnamény Szatmárcseke	1. Túristvándi 2. Csenger Csengersima 3. Kölcse, Gacsály, Csaroda, Gyügye, Nagyszekeres, Máriapócs, Nagyar, Nagygéc, Túrricse	1. Tiszadob 2. Tuzsér Nyírbátor 3. Betlér (SK), Kassa (SK), Tiszadada, Vásárosn., Vaja

Source: own construction, based on the survey

The visitors' assessment of the roads were little better than average. To facilitate the assessment we identified 6 indicators: accessibility, the quantity and quality of services related to the route as well as other services, and the attitude of the population. We asked the respondents to grade all of the routes on a scale from one to five. On the average, the visitors were the most satisfied with the 'Plum Route', but even its average is below 4. Out of the indicators, population's attitude was mostly

appreciated, which was especially true in the case of 'Church Route'. According to Hanusz (2006), the hospitality is very important and it is a feature of the county. The local population attitude towards tourists/tourism is particularly important since, in most cases, a personal relationship is established between the two parties, and the negative attitude of either party in the future may cause serious problems (Puczkó – Rátz 2002a).

In addition to the average we also have examined the standard deviation of the values which reflects concurrent the visitors' opinion in certain indicators. The deviation between the values is relatively large (from 0 to 1.16, where: 0 – when the responses are fully consistent; 1.16 – the answers are very different in the sample), so the guest's opinion is not homogeneous. In the research, it means that the respondents' opinions were quite divided by the various indicators, which is unfavorable for the attractions.

According to the research, most of the respondents became aware of the existence of the thematic route just after their returning home, so they used the route/visited the settlements without aware of the wider tourism environment. The operator should be responsible for reversing this phenomenon in the future, and the tourists visiting the settlements be aware of these thematic routes.

Conclusion

The three analyzed thematic routes in Szabolcs-Szatmár-Bereg County are quite young. Perhaps this is one of the reasons why the routes are less known. A logical consequence is that these roads attract a small range of visitors. However, it is promising, that those who visited one of the thematic roads or at settlements included in the routes, would recommend it to their acquaintances. But here it is also important to note that most of the visitors became aware of the existence of the thematic route just after return home, which certainly testifies for the significant lack of information.

The increasing role of the Internet is supported by the fact that most of the respondents got information about the routes via internet. However, the analyzed websites were incomplete, particularly for reaching international tourists, since the sites are available in relatively few languages (excepting the website of 'Castle Route'). Apart from Internet, the relatives' and friends' recommendations had an important role, too, so this information might determine the future marketing directions.

The visitors were not fully satisfied with the availability and quality of the routes, but at least the results clearly show what needs to be improved. The assessment of the routes divided the visitors' opinions, because the answers were not consistent in the case of certain indicators. This may be an important fact, because getting information about the routes from friends plays an important role. If their opinions are divided in relation to the routes, it might happen that the visitors will recommend it differently to their acquaintances later.

The results show that the respondents keep the thematic routes basically a good initiative, and they are interested in it. We believe that this research could also help some awareness about the routes, because those who have not heard about the roads yet, but they heard about it in relation to the questionnaire, could become potential visitors.

If the problems could be solved in due time, the routes may actually contribute to improve the economic situation in the county due the tourism. In addition, conscious planning and continuous monitoring is needed.

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