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Main socio-economic and environmental trends in the Carpathian region

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Abstract

The authors aim at analysing major socio-economic and environmental processes in the Carpathian region which represents a unique macro-region in Central Europe. The Carpathian countries have experienced major political, economic, social and environmental changes during the past 20 years. Their economy, industry, agriculture and transport sectors were originally developed at accelerated rates, increasing pressures on the environment. Since early 1990s, the GDP, industrial production and agricultural output fell significantly; shrinking economic output contributed to significant reduction of air and water pollution and sudden fall of agricultural chemicals. The most spectacular signs of decoupling can be seen in the case of traditional air pollutants like sulphur dioxide and nitrogen oxides clearly showing effects of fuel mix change. High unemployment, increasing poverty, depopulation of the rural mountain areas are common features in the Carpathians.

Keywords: Carpathian region, socio-economic and structural changes, environment pressures, decoupling

Introduction

At the Fifth Ministerial Conference "Environment for Europe" (Kiev, May 2003), the Carpathian countries adopted the “Framework Convention on the Protection and Sustainable Development of the Carpathians” consequently signed by all seven countries. The Carpathian Convention is a framework type convention pursuing a comprehensive policy and cooperating in the protection and sustainable development of the Carpathians. Designed to be an innovative instrument to ensure protection and foster sustainable development of this outstanding region and living environment, the Convention is willing to improve the quality of life, to strengthen local economies and communities. It aims as well at providing conservation and restoration of unique, rare and

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typical natural complexes and objects of recreational and other importance situated in the heart of Europe, preventing them from negative anthropogenic influences through the promotion of joint policies for sustainable development among the seven countries of the region (Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovak Republic and Ukraine).

There are different approaches in the delimitation of the Carpathian region according to the purpose of the studies. One approach is traditional in physical geography such as Bulla, B. and Mendöl, T. (1947, 1999), who described the units of the Carpathian Basin in detail, as well as J. Kondracki's (1978) book on the Carpathian Mountains. World Wildlife Fund in the framework of the Carpathians Ecoregion Initiative followed an ecosystem approach (WWF 2001). European Academy (2006) published a comprehensive study about a broad range of the way of subdivision of the Carpathian Convention area. The Carpathian Project led by UNEP introduced the notion of Carpathian Space as a development area (Borsa, M. *et al.* 2009).

The socio-economic geographical approach should rely on solid statistical data and information which were not collected within natural borders but refer to multi-level administrative units. In this study the authors use three classes of EU territorial statistical units (NUTS1-2-3) for five EU member states. In the case of the remaining two countries (Serbia and Ukraine) the analysis bases on national statistical data which are not always comparable with the Eurostat standards and methodology.

General economic geographical overview

The Carpathian countries have experienced major political, economic, social and environmental changes during the past 20 years. Previously their economy, industry, agriculture and transport sectors were developed at accelerated rates, increasing pressures on the environment. In the late 1970s and during the 1980s, some economic contraction occurred, when the rate of economic growth declined and external debt reached high levels.

In the early 1990s, GDP, industrial production and agricultural output fell significantly, while diminishing economic output led to a significant reduction of air and water pollution. In most countries, the recent economic recovery did not lead to major increases in such pollution again. Decoupling of economic growth from environmental load is the result of economic and technological modernization and stricter enforcement of new environmental regulations.

The Carpathian economy today is based mainly on farming, forestry and mining, which remain predominant land uses. Over decades under command economy there was an intense and rapid conversion of farmland for the

sake of the expansion of human settlements, industrial and mining activities, and infrastructural development. During the last two decades agricultural output, including plant production and animal husbandry, has decreased in the Carpathians and sizeable areas have reverted to fallow land. In the beginning of the 1990s, a sharp decline of agricultural production was accompanied by a decrease in the use of pesticides and fertilisers. With the increase of production since 1994, fertiliser consumption resumed, but the use of pesticides remains very low.

Forestry is a major economic sector in the Carpathian countries. Under communist regimes forests were over-exploited, with the total harvest exceeding the annual increment. Forests are getting younger and thinner, while extensive clearcutting has resulted in accelerated runoff during heavy rainfall and floods. Currently, there is a general trend toward stabilization of forest extent in the Carpathians. The process of industrial decline in many areas of the Carpathians has had beneficial effects through recovery from former pollution levels. However, forests will remain extremely vulnerable, as spreading poverty leads to extensive illegal logging for heating purposes.

The Carpathian countries are highly dependent on imported oil and natural gas, mainly coming from Russia (Kocsis, K. and Tiner, T. 2009). Over the past decade the Carpathian countries have restructured and downsized their coal industries by closing down inefficient (deep) mines and reducing the coal mining labour force. The geostrategic importance of the Carpathian region lies in the oil and natural gas pipelines traversing most of the countries on their way to Western Europe. In general, power production in the Carpathian region relies mainly on fossil fuels, followed by nuclear- and hydropower and renewable energy sources.

Main macro-economic and structural policy trends

An overview of regional environmental and socio-economic trends is impossible without the analysis of major historical and political changes which have taken place during the last three decades.

The Carpathian countries were all members of COMECON (Council of the Mutual Economic Assistance) and the Warsaw Pact military alliance (except Yugoslavia). Ukraine was part of the Soviet Union until its independence in 1991. In most countries radical political changes happened in 1989–1990/1991 that variously resulted in free elections and establishment of plural democracy and separated branches of power. Following a referendum Czechoslovakia was split into two independent countries (Czech Republic and Slovak Republic) in 1993. After formerly federal Yugoslavia gradually lost its territorial integrity and its republics gained independence, a series of Yugoslav Wars followed during the 1990s.

Since the early 1990s four countries (Czech Republic, Hungary, Poland and Slovakia) began their integration process with the European Union that culminated in accession on May 1, 2004. Romania also joined the EU on January 1, 2007. After the separation of the State Union of Serbia and Montenegro in 2006, Republic of Serbia is participating in the stabilization and association process while Ukraine is a part of European Neighbourhood Policy initiated by the EU.

Economic growth: from the 1970s until 2009

In all Carpathian countries, the political changes were followed by around ten years of economic decline and increasing poverty, along with stagnating or slightly increasing life expectancy for both sexes. All countries now have to face population decline and population loss by migration abroad even though there is an unprecedented increase in the case of Czech Republic. Ukraine has sunk in a deep demographic crisis.

In most Carpathian countries the development of industry, agriculture and transport sectors originally involved a great deal of energy consumption and had led to emission of pollutants at accelerated rates and increasing pressures on the environment. At the end of the 1970s or during the 1980s, some economic contraction occurred, when the rate of economic growth declined and external debt reached extremely high levels, in particular in Hungary and Poland. After the collapse of the Soviet Union, traditional economic and external trade ties severed, and a transition from planned to market economies began.

The long-lasting economic recession was accompanied by a reduction in overall environmental pressures, and the improvement of the state of the environment, without even any strong policy measures. In the late 1990s, some countries reached the level of economic output of late 1980s; others were facing recovery and stabilization. Since 1990 there have been great differences in GDP growth between the Carpathian countries. The highest economic growth rate has been reached by Poland followed by other Visegrad countries (V4 countries) while Romania witnessed two subsequent economic depressions in the early and late 1990s. In Ukraine after the collapse of Soviet Union there has been an almost decade long and very deep economic decline. In 2005, Ukraine was the only country which has not even reached its level of economic output in 1990. The economic transition towards market economy has been accompanied by high inflation rate, especially in Romania and Ukraine.

Since autumn of 2008 these countries were hit by global financial and economic crisis which is now penetrating into the social sphere. All Carpathian countries but Poland show marked turn-down in GDP. In 2009 Ukraine repre-

sented the highest rate decline (-15.3%), followed by Romania (-8%), Hungary (-6.3%) and Slovakia (-5.8%) (*Figure 1*). The deepening economic crisis has contributed to rising unemployment, e.g. the latter almost doubled in Hungary since 2002 (from 5.6% to 10.7%). (*Figure 2*).

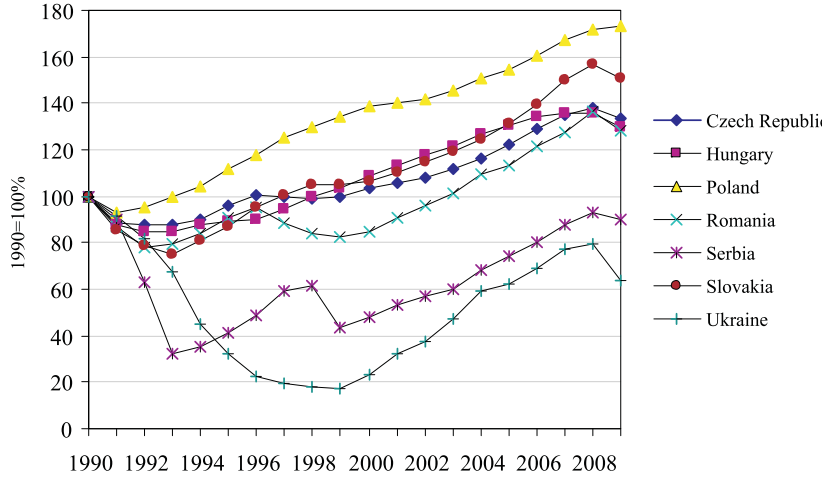


Fig. 1. GDP growth, 1990–2009. *Source:* World Bank (1980–2008), Eurostat (2009 preliminary data), Statistical Office of Serbia (2009 preliminary data), State Committee of Statistics of Ukraine (2009 preliminary data)

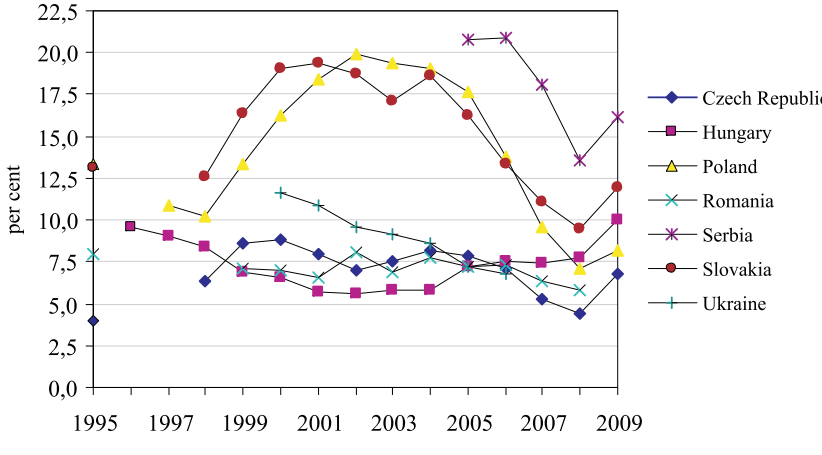


Fig. 2. Unemployment rate in the Carpathian countries, 1990–2008. *Source:* UNECE Statistical Division Database, compiled from official national and international (Eurostat and ILO) sources Data of 1998, 1999 and 2009 are from Eurostat database (2010)

Recent regional disparities

One can find two discernible axes of development in terms of GDP per capita across the Carpathian region (NUTS3 level). From higher to lower, the first goes from northwest to southeast, and the second from west to east. The most developed areas are located in the Moravian Carpathians and Bratislavský kraj, with over 10,000 EUR per capita, as well as in north Hungary with 4,600–8,900 EUR per capita. In most of the Romanian Carpathian counties, this figure is below 5,000 EUR per capita (*Figure 3*).

Employment

A certain duality has emerged in the recent development of employment and unemployment in the Carpathians. On the one hand, changes in employment, while being significantly different across countries, generally reflect the cyclical position and momentum of each economy, differences in the sectoral composition of economic growth, and the varying ability of markets to cope with the adjustments imposed by economic transformation. On the other hand, unemployment has been generally persistent, with most countries unable to achieve a significant reduction in their high rates of unemployment.

In 2008–2009, Serbia, Slovakia and Hungary had the highest unemployment rate (16.1%, 11.9% and 10.7%, respectively). In the case of the Czech Republic, Poland and Romania the national unemployment rates stood between 6–8% while Ukraine showed similar rate (6.8% in 2006). In all but one country (Romania) female unemployment rate exceeded males' one. According to data of 2008, the seven Carpathian countries could be divided into two main groups regarding the total unemployment: one is ranging from 4.5–8.1%, the other is over 9.5%. In most of the countries, the unemployment rate is more severe for both sexes among young people. In recent years, the unemployment rate for the age 15–24 has reached alarming levels in Poland, Romania, Slovakia and Hungary. For example, in 2008, in Hungary almost 20% of youth did not have jobs while in Poland, Romania and Slovakia this rate exceeded 2–3 times the national average of unemployment level (*Figure 2*).

Structural changes

Over the past decade, the national economies of the Carpathian countries have been significantly restructured. For example, the expansion of the service sector exceeded the growth rate of all the other sectors and in 2008 accounted for over 60% of the GDP in three countries. Hungary has the most robust service

sector followed by Poland, the Czech Republic and Romania. The share of GDP within the service sector in Slovakia, Serbia (together with Montenegro until 2006) and Ukraine, while still having been high, was lagging behind at slightly below 60%.

Agriculture still plays an important economic role in Romania, Serbia and Ukraine. For the Visegrad countries, the GDP share from agriculture was around 4% (in Czech Republic 2.3%) in 2008 (*Table 1*).

Table 1. Structural changes in the Carpathian countries, 1990 and 2008 (Value added, % of GDP)

Country	1990			2008		
	Agri-culture	Industry	Services	Agri-culture	Industry	Services
Czech Republic	6.24	48.75	45.01	2.33	37.56	60.11
Hungary	14.54	39.06	46.40	4.31	29.45	66.25
Poland	8.26	50.11	41.63	4.18	30.35	65.47
Romania	23.74	49.94	26.32	8.05	33.96	57.99
Serbia*	..	..	..	12.96	28.44	58.61
Slovakia	7.41	59.14	33.45	3.61	41.22	55.17
Ukraine	25.57	44.57	29.86	8.33	36.89	54.78

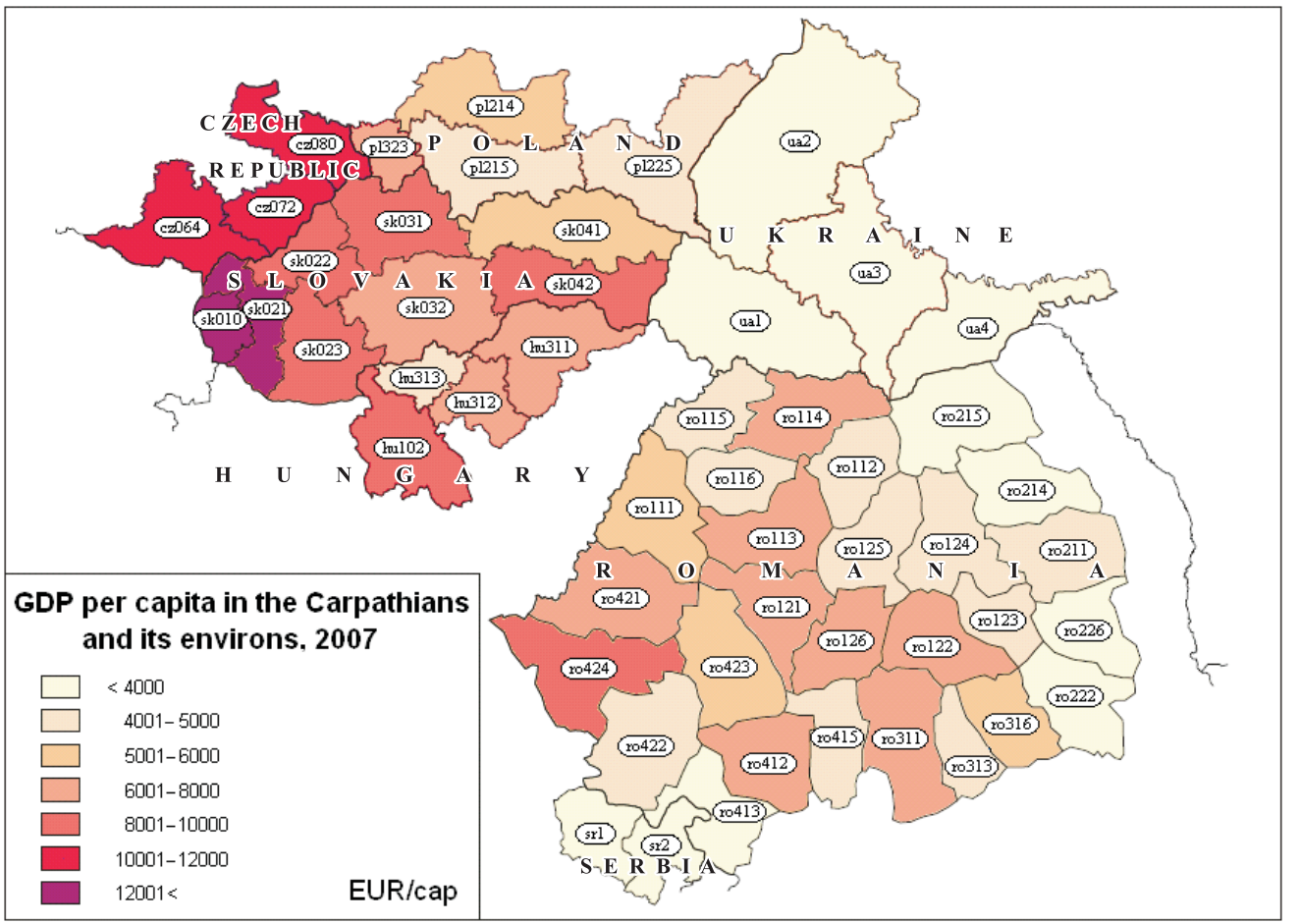
*Data for Serbia refer to 2007. ..= No data. Source: World Bank

Focusing on the Carpathian areas of the countries, economic activity in the last centuries was determined by the natural environment, folk customs, tribal relations and the economic policies of the governments that had control upon the region. As in the past, the economy and land use today is based on farming (closely associated with animal husbandry) and forestry. As compared to that of neighbouring lowlands, the economy of the Carpathians is far less developed. However, the situation varies considerably from country to country and region to region.

Decoupling impacts on the environment

Most probably, the existence of informal economy has a lot of negative environmental consequences such as illegal waste movement and disposal, illegal logging, illegal trade of endangered flora and fauna, not speaking about overall avoidance of environmental regulation and rules.

Pre-1989 approaches to the environment did not show adequate concern about the ecological aspects and potential negative consequences of human activities. The Carpathians are now confronted by a mix of challenges which require co-ordinated management. There are clear differences between northwest and southeast parts of the region. These differences are manifested in variations of state and foreign direct investments, unemployment rate,


GDP per capita in the Carpathians and its environs, 2007
< 4000
4001–5000
5001–6000
6001–8000
8001–10000
10001–12000
12001<
EUR/cap
CZECH REPUBLIC
POLAND
SLOVAKIA
HUNGARY
UKRAINE
ROMANIA
SERBIA
pl214
pl323
pl215
pl225
ua2
cz080
cz072
cz064
sk031
sk041
sk022
sk042
sk021
sk010
sk032
sk023
hu311
hu313
hu312
hu102
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poverty levels and some ethnic tensions. Development threats are therefore greater in the northwest, including hunting and tourism. Forests are expanding partly due to the lower farming pressure. Mass tourism only exists in some areas. Development pressures are much weaker in the southeast part of the Carpathians; yet the poorer regions with high unemployment generate further threat to the environment trough illegal cutting of restituted forest lands. For example, legislation passed in early 2000 in Romania could eventually increase private ownership and poverty could also result in high levels of forest clearance similarly to the experiences with the first round of privatization in early 1990s.

All the Carpathian countries with different pace of transition have undergone significant political, economic, social and environmental transformation in the past 20 years. In early 1990s, the GDP, industrial production and agricultural output fell significantly; shrinking economic output contributed to significant reduction of air and water pollution and sudden fall of agricultural chemicals (so-called environmental gratis effect). In most countries, the latest economic recovery did not entail similar extent of growth in traditional pollution. This decoupling process is the result of economic and technological modernization and stricter enforcement of new environmental regulations.

The most spectacular signs of de-coupling can be seen in the case of traditional air pollutants like sulphur dioxide and nitrogen oxides clearly showing effects of fuel mix change (switch from coal to natural gas). The biggest reduction of sulphur dioxide emissions occurred in Czech Republic, Hungary (90%) and Slovakia (85%), while it accounted for lower levels in Poland and Romania (nearly 60%). The figures show high fluctuations in Ukraine with down-turning trend reaching 50% in 2008 in comparison with 1990. In general, nitrogen oxides decreased to a lesser extent, within the range of 20–60% (*Figure 4A–E*).

←

Fig. 3. GDP per capita in the NUTS3 entities of the Carpathian Convention, 2007. Note: cz064 = Jihomoravský; cz072 = Zlínský; cz080 = Moravskoslezský; hu102 = Pest; hu311 = Borsod-Abaúj-Zemplén; hu312 = Heves; hu313 = Nógrád; pl214 = Krakowski; pl215 = Nowosądecki; pl225 = Bielsko-bialski; pl323 = Krośnieński; ro111 = Bihor; ro112 = Bistriţa-Năsăud; ro113 = Cluj; ro114 = Maramureş; ro115 = Satu Mare; ro116 = Sălaj; ro121 = Alba; ro122 = Braşov; ro123 = Covasna; ro124 = Harghita; ro125 = Mureş; ro126 = Sibiu; ro211 = Bacău; ro214 = Neamţ; ro215 = Suceava; ro222 = Buzău; ro226 = Vrancea; ro311 Argeş; ro313 = Dâmboviţa; ro316 = Prahova; ro412 = Gorj; ro413 = Mehedinţi; ro415 = Vâlcea; ro421 = Arad; ro422 = Caraş-Severin; ro423 = Hunedoara; ro424 = Timiş; sk010 = Bratislavský kraj; sk021 = Trnavský kraj; sk022 = Trenčianský kraj; sk023 = Nitrianský kraj; sk031 = Žilinský kraj; sk032 = Banskobystrický kraj; sk041 = Prešovský kraj; sk042 = Košický kraj; ua1 = Zakarpats'ka; ua2 = L'vivs'ka; ua3 = Ivano-Frankivs'ka; ua4 = Chernivets'ka; sr1 = Branicevski; sr2 = Borski. *Source:* Eurostat; State Committee of Statistics of Ukraine; Statistical Office of Serbia

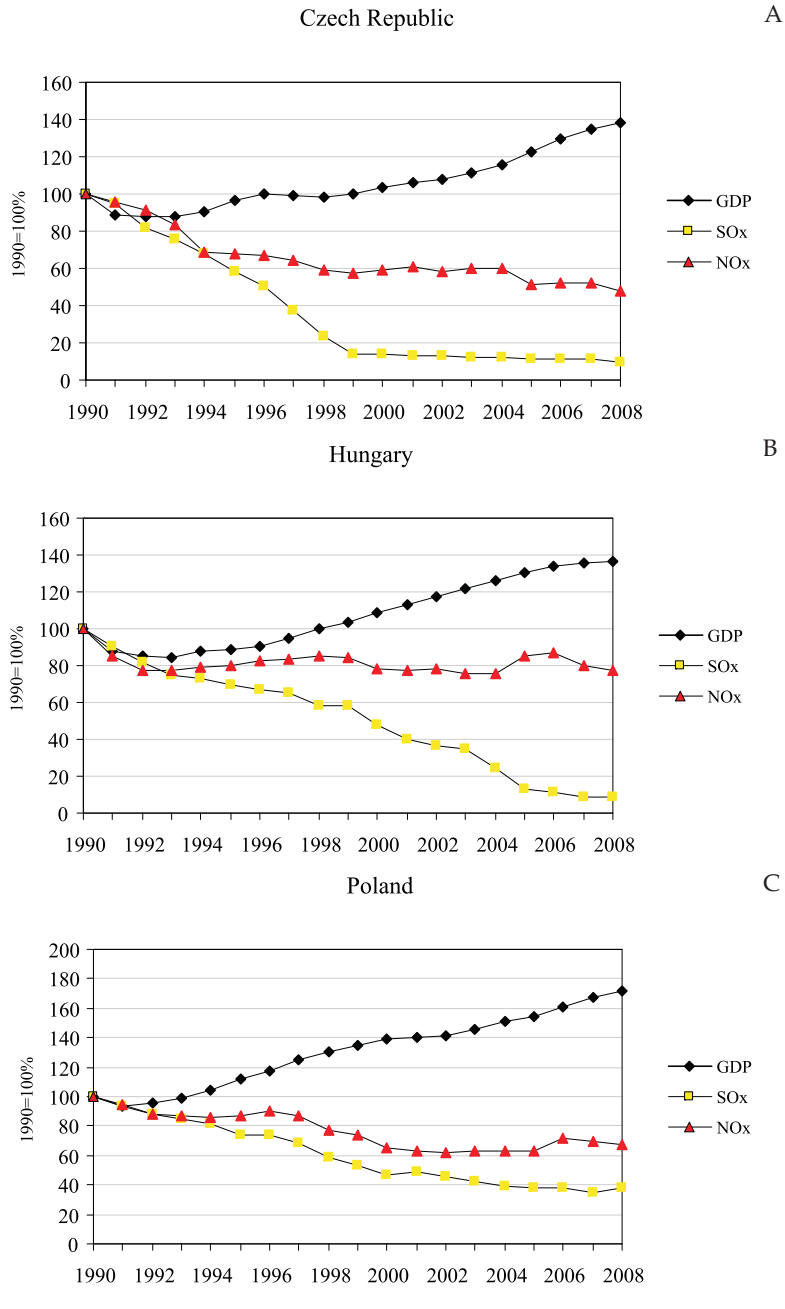

Fig. 4A,B,C. Decoupling of GDP from air emissions, 1990–2008. *Source:* GDP data are from World Bank, SO_x and NO_x data are from EMEP (European Monitoring and Evaluation Programme)

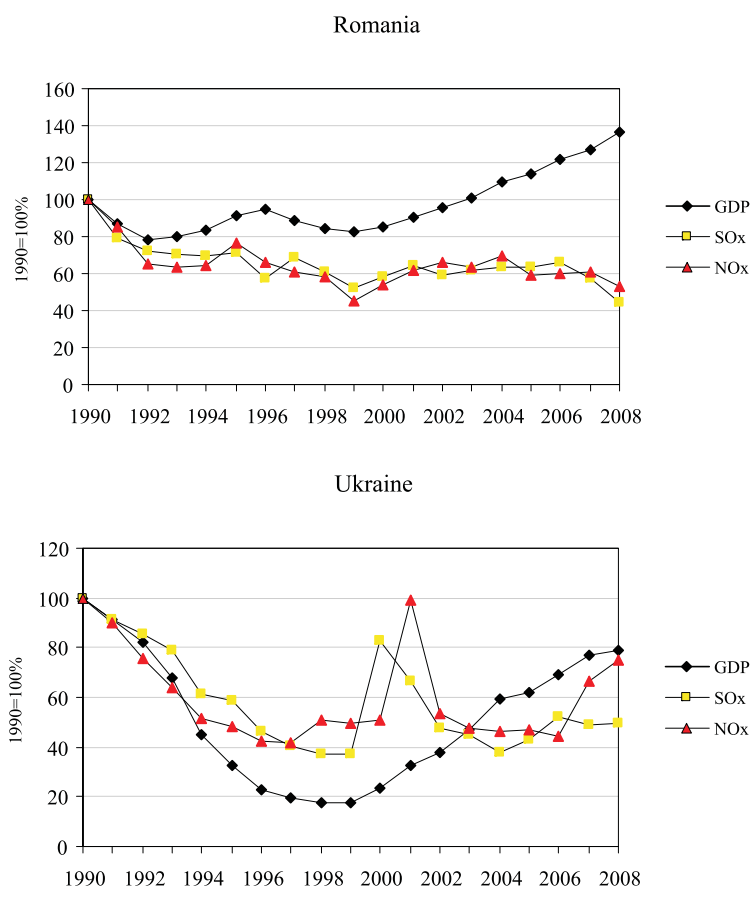

Fig. 4D,E. Decoupling of GDP from air emissions, 1990–2008. *Source:* GDP data are from World Bank, SO_x and NO_x data are from EMEP (European Monitoring and Evaluation Programme)

Decoupling of environmental pressures from economic growth requires integrated approach in the management of consumption and production patterns including more efficient use of natural resources. Resource productivity is a very important tool in measuring material consumption of the economy. In 2005, according to Eurostat calculation the resource productivity was 1.3 EUR/kg at EU27 level, at the same time it was around one eighth in Romania and one third in Visegrad countries. This means that resource efficiency in these countries four or eight times lower than EU27 level. This figure is much higher in comparison with EU15 average. Changes in the sectoral composition of the economy can be added to the growth of the productivity of

resources on sectoral level. They include shift towards knowledge-based and service-based economy, which may decrease demand for natural resources and promote waste minimization but also may have an impact on the environment. Policies aimed at direct integration of environmental impacts of consumption and production patterns during the whole life cycle (i.e. integrated product policies) are needed.

In the past decade, the sectors of the economy have been significantly restructured. The expansion of the service sector (except for the last two years) exceeded the growth rate of all the sectors, and currently accounts for over 60% of the GDP.

Societal driving forces and pressures

Population trends

Over the last 20 years, population trends in the Carpathian countries have generally been characterized by features such as high rates of population loss in Romania and Ukraine and slight decreases or stagnation in Hungary and Slovakia. This is seen as a negative pressure, as healthy populations are needed to preserve cultural and economic traditions all over the world, and especially in mountain areas.

Since 1990, Ukraine has lost roughly 12% of its total population, or some 5.7 million people leading to a serious demographic crisis. During the same time period, the Romanian population decreased by around 8%. In both countries, international migration was a key contributing factor (*Figure 5*).

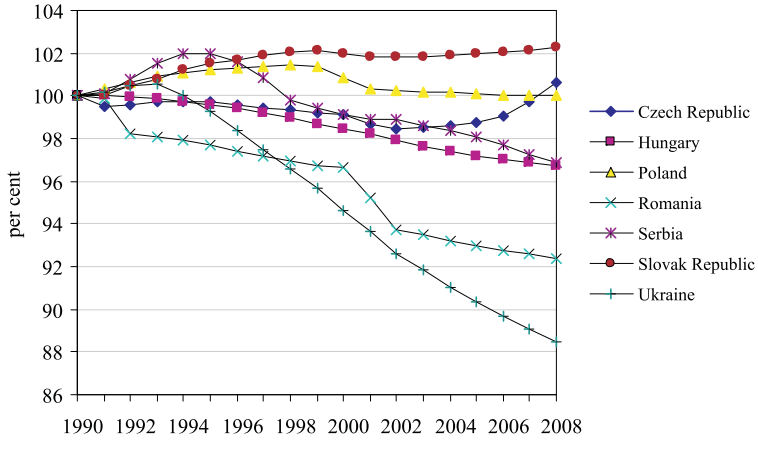

Fig. 5. Total population growth rate, 1990–2009. *Source:* World Bank

For example, between 1975 and 1999, nearly 700,000 people emigrated from Romania, most of them Romanians, Germans and Hungarians. Migration has increased in recent years due to the scarcity of work opportunities in the poorest areas of the Carpathian basin, and the proliferation of job offers in economically more developed areas, for example Romanians and Ukrainians crossing into Hungary or outside of the basin.

Population density varies significantly from region to region. Those with the highest population density are located in the Czech and Polish Carpathians, with over 175 inhabitants per sq km. The lowest densities occur mainly in the Romanian Carpathians, with less than 100 inhabitants per sq km (UNEP 2007).

There is a large Roma (otherwise known as "Gypsies") population, in the Carpathians, particularly in east Slovakia, northeast Hungary, west Ukraine and north Romania. These are some of the poorest regions of the respective countries and suffer from high unemployment and economic underdevelopment (Pomázi, I. *et al.* 2006). Communities are vulnerable, as residents are victims of poverty, social exclusion and discrimination. Addressing these concerns is becoming an increasingly important socio-political issue for national and sub-regional governments. Effectively integrated land and water management applied in a sustainable manner would be one of the tools that could be used to alleviate poverty in the region.

Roma are far fewer in number and less controversial in Poland. Estimates of their population in Poland range from 15,000 to 50,000. In contrast, Roma in the former Czechoslovakia numbered 500,000 in the 1980s when Poland became a transit point on the illegal migration route from Romania to Germany. The emigration of Polish Roma to Germany in the late 1980s reduced Poland's Roma population by as much as 75% (UNEP 2007).

Life expectancy

There is a mixed picture in the Carpathian countries concerning life expectancy at birth. In all countries the male population lives much less in comparison to both female population in the Carpathian countries and to EU-15 average. The situation is more than alarming in Ukraine where life expectancy of male population is 62 years, while in the Czech Republic it accounted 74 years in 2008. Concerning the female life expectancy there is a smaller gap between the above mentioned countries (80.5 vs. 74.0 years) (*Figure 6A*,*B*).

In early 2000s, the infant and child mortality rates were the highest in Romania, Serbia and Montenegro, and Ukraine among the Carpathian countries.

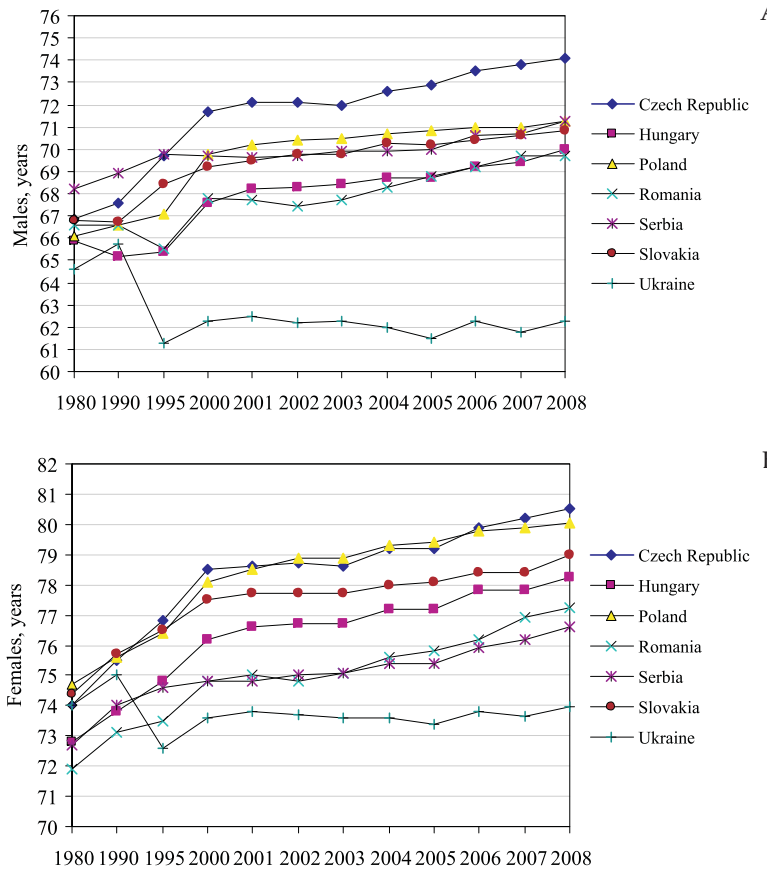

Fig. 6A,B. Life expectancy, 1980–2008. *Source:* UNECE

A general tendency in the Carpathian countries is the ageing of the population but there are some exceptions. For example, in Serbia and Montenegro the rate of young population is the highest among the Carpathian countries.

Poverty and environment

The interconnection between poverty and environment is an important and challenging topic of how human well-being is influenced by the natural environment and vice versa. It has become clear that ecosystems provide more than just goods for humans. They also secure critical life-supporting services and cultural and spiritual values for human societies.

Ecosystem services are the conditions and processes through which natural ecosystems, and the species constituting them, sustain and fulfil human life. They maintain biodiversity and the production of ecosystem goods, such as forage, timber, biomass fuels, natural fibres, and many pharmaceuticals, industrial products.

In addition to the production of goods, ecosystem services are the actual life-supporting functions, such as cleansing, recycling, and renewal, and they confer many intangible aesthetic and cultural benefits as well.

All people – rich and poor; living in developing or developed countries – depend on ecosystem services for their well-being. This is however only true in the long run. In the short run, the poor are more heavily dependent on these services than the rich.

For example, the rich can buy clean water or the technology to filter and purify water if it is contaminated. The poor, on the other hand, have limited resources to pursue these options and usually have no choice but to depend on natural water systems and/or public water supply systems, many of which do not meet the minimum standards for human consumption, especially in developing countries.

The same can also be said for extreme natural events like floods and storms. These tend to have a stronger impact on the poor because they do not have the resources to build adequate shelters or because their homes are built on land where the natural barriers to landslides and floods have been destroyed.

During the past decade an increasing number of flood events occurred which adversely affect the poor as well as the elderly people. The similar is true in the case of heat waves, and extremely cold winters. One of the most vulnerable social groups is the pauperized part of Roma population. Preliminary results of a research project clearly showed that there is a correlation between poverty and living environment (in terms of water supply, sanitation and waste disposal).

It has been documented that poor women and children suffer disproportionately in acquiring dwindling natural energy supplies for cooking and heating also amplified by the greater amount of time they spend in badly ventilated shelters when using highly polluting fuels like coal and firewood.

These examples point to a close relationship between the poor and ecosystems and demonstrate quite clearly the higher dependency of poor people on ecosystems for the improvement of their material situation.

The poverty and unemployment are interrelated social phenomena. Most of the Slovakian and Hungarian regions of the Carpathians are hit by unemployment with a rate over 13%. This figure is much less in Czech and Romanian Carpathians (under 8.5%) (*Figure 7*).

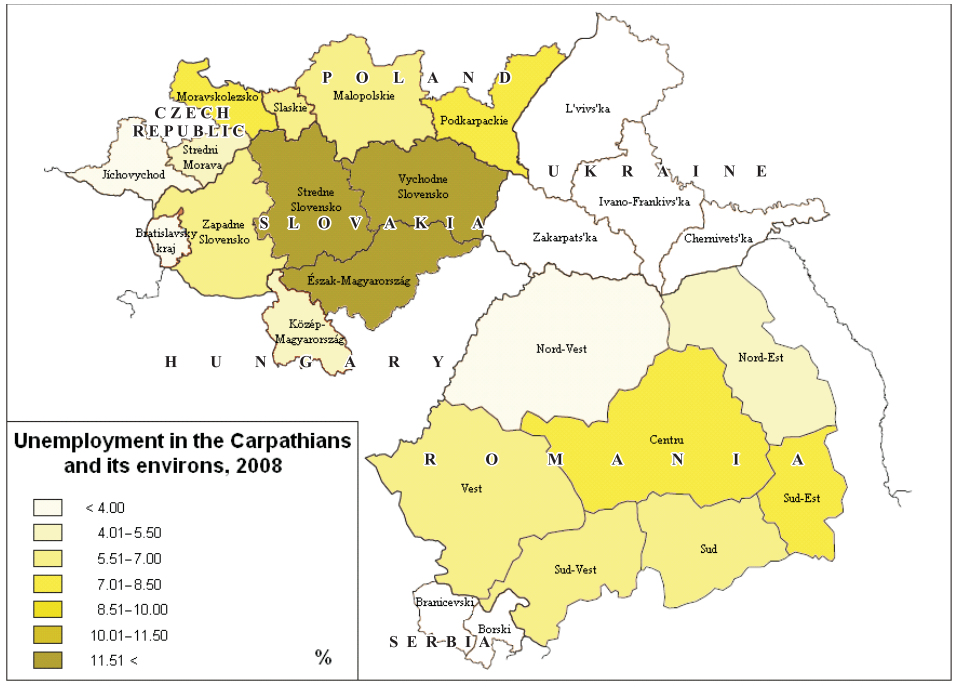

Fig. 7. Unemployment in the Carpathians and its environs, 2008. (County level data are not available for Ukraine and Serbia) *Source:* Eurostat

Rural depopulation and land abandonment

It's a well-known fact that typical *rural areas* are sparsely settled places away from the influence of large cities and towns. Such areas are distinct from more intensively settled urban and suburban areas, and also from unsettled lands such as outback or wilderness. People in rural areas live in villages, on farms and in other isolated houses, as in preindustrial societies. In modern usage, rural areas can have an agricultural character, though many rural areas are characterized by an economy based on logging, mining, petroleum and natural gas exploration, or tourism.

Lifestyles in rural areas are different from those in urban areas, mainly because availability of services is limited, especially that of public services. Some of the institutions such as the police stations, schools, fire stations, and libraries may be distant, limited in scope, or unavailable. Utilities like water, sewerage, street lighting, and public waste management might not be present. Public transport is absent or very limited, people use their own vehicles, walk, bicycle, or ride an animal, e.g., horse, donkey.

The urbanization rate represents the increase in the proportion of the urban population over the period. Urbanization has profound effects on the ecology of a region and on its economy. The rural areas contain most of the poverty and most of the low-cost sources of potential advance, whereas the urban areas represent most of the articulateness, organization and power.

There is a growing inequality between rural and urban areas in the Carpathians. This situation occurs for many reasons, and efforts to enhance the quality of rural life must include improvements in agricultural production, employment, infrastructure, environment and housing.

Rural conditions throughout the region have deteriorated during the transition period. There is a growing inequality between rural and urban areas, with most of the poor now living in rural areas. These areas are characterised by declining populations that are increasingly represented by women and the elderly. They have been affected by national population growth rates that have slowed down and even turned negative, as people have migrated to urban areas and other countries in search of employment. Migration has been a predominantly male phenomenon and women now make up a large percentage of the rural poor. Household members in rural areas are much older than those in urban areas and households are increasingly managed by the elderly and pensioners.

High unemployment is a common feature of rural areas. In most countries, the agriculture sector has accounted for the greatest decline in employment. Rural villages suffered, particularly those where agricultural concerns and heavy industries, now obsolete, were the main employers.

Rural infrastructure has often deteriorated considerably: many rural roads, irrigation systems are in poor condition, and erosion control measures fail to be taken. The roads, irrigation and drainage systems that were originally designed to serve the cultivation of large tracts of land as a rule have not been remodelled to suit the new smaller family farms. Power and water systems are prone to breakdown and other rural public and cultural facilities such as schools, libraries and community centres have also suffered from neglect.

Much of the environmental damage that occurred in rural areas during the socialist period has not been eliminated. Large-scale cultivation destroyed field roads, water courses, vegetation belts and other landscape features suitable for individual farming. Production centres with adverse ecological impacts were frequently placed in the very centre of villages. Environmental degradation has sometimes increased during the transition period, for example through the deforestation of valuable species, inappropriate tillage of soils and a failure to maintain a balance of nutrients in the topsoil (FAO 2003).

Perhaps the most critical threat in the mountain areas nowadays is the process of abandonment of agricultural land and of traditional farming

practices, a phenomenon reflecting a post-war trend of rural depopulation and marginalization of wide agricultural regions. In a sense marginalization is a process that extends over areas that were not marginal in the past. Marginalization actually means "becoming marginal", rather than "being marginal". Far from representing just a linguistic nuance this issue is of fundamental importance when analysing the phenomenon of land abandonment and its economic and environmental consequences. Neglect of previously cultivated or otherwise managed land implies, generally speaking, far-reaching consequences in terms of loss of stability and resilience of ecosystems, given that a system whose equilibrium has been artificially altered needs continuous energetic input in order to be maintained as such.

Abandonment of traditional farming activities results in a number of impacts in the mountains, which can be summarized as follows: increasing natural hazards; loss of productive lands; diminishing terrain value; loss of natural capital and environmental quality; depletion of environmental services; loss of open or otherwise accessible spaces suitable for various purposes such as tourist, recreation and sport activities; loss of local cultivar, typical products and traditional farming practices; diminishing habitat variety and biodiversity; decline of traditional lifestyles and knowledge; permanent loss of cultural landscape; loss of cultural and social heritage and identity; decline of the human presence, and of the consequent territorial care (Conti, G. and Fagarazzi, L. 2004).

Conclusions

Current development patterns in the Carpathian region are leading to a loss of traditional knowledge, livelihoods, practices and values. It is therefore critically important that culturally sustainable and coherent policies be formulated and implemented for the Carpathians, in order to halt and reverse this trend before it is too late. Rural depopulation jeopardizes the preservation of the traditional character of the Carpathian countryside. Policy measures must be implemented, and incentives developed, so that people remain in their villages as guardians of the landscape, traditional knowledge and lifestyle. Education, communication and public participation, together with environmental democracy, could represent a basis for a path of sustainable environment and development in the Carpathians.

The ageing of the population and growing inequality between rural and urban areas are major concerns in the Carpathian region. In addition, increasing poverty and high unemployment rates are the greatest social problems in most areas which have a worsening trend currently as a consequence of the global financial and economic crisis. This situation occurs for many

reasons, and efforts to improve the quality of rural life must include advancement in agricultural production, job creation, infrastructure development and in housing conditions.

One of the main current threats is the process of abandonment of agricultural land and traditional farming practices, a phenomenon reflecting a post-war trend of rural depopulation and marginalization of wide agricultural regions, especially hitting mountain areas.

In order for Carpathian regional development to become sustainable, more environment friendly practices and technologies will need to be implemented, along with appropriate policies to support the development of public transport, organic farming, renewable energy sources, sustainable forest management and tourism.

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Hungary in Maps

Edited by
Károly Kocsis and Ferenc Schweitzer

Geographical Research Institute Hungarian Academy of Sciences
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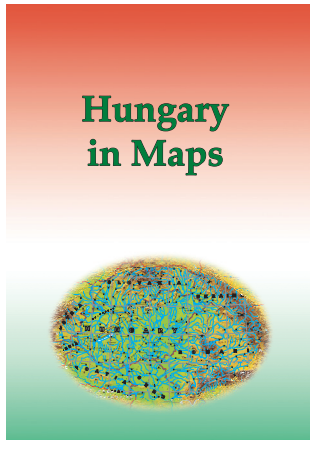
'Hungary in Maps' is the latest volume in a series of atlases published by the Geographical Research Institute of the Hungarian Academy of Sciences. A unique publication, it combines the best features of the books and atlases that have been published in Hungary during the last decades. This work provides a clear, masterly and comprehensive overview of present-day Hungary by a distinguished team of contributors, presenting the results of research in the fields of geography, demography, economics, history, geophysics, geology, hydrology, meteorology, pedology and other earth sciences. The 172 lavish, full-colour maps and diagrams, along with 52 tables are complemented by clear, authoritative explanatory notes, revealing a fresh perspective on the anatomy of modern day Hungary. Although the emphasis is largely placed on contemporary Hungary, important sections are devoted to the historical development of the natural and human environment as well.

In its concentration and focus, this atlas was intended to act as Hungary's 'business card', as the country's résumé, to serve as an information resource for the sophisticated general reader and to inform the international scientific community about the foremost challenges facing Hungary today, both in a European context and on a global scale. Examples of such intriguing topics are: stability and change in the ethnic and state territory, natural hazards, earthquakes, urgent flood control and water management tasks, land degradation, the state of nature conservation, international environmental conflicts, the general population decline, ageing, the increase in unemployment, the Roma population at home and the situation of Hungarian minorities abroad, new trends in urban development, controversial economic and social consequences as a result of the transition to a market economy, privatisation, the massive influx of foreign direct investment, perspectives on the exploitation of mineral resources, problems in the energy supply and electricity generation, increasing spatial concentration focused on Budapest in the field of services (e.g. in banking, retail, transport and telecommunications networks), and finally the shaping of an internationally competitive tourism industry, thus making Hungary more attractive to visit.



This project serves as a preliminary study for the new, 3rd edition of the National Atlas of Hungary, that is to be co-ordinated by the Geographical Research Institute of the Hungarian Academy of Sciences.

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