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STANISŁAW LESZCZYCKI
INSTITUTE OF GEOGRAPHY AND SPATIAL ORGANIZATION
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EUROPA XXI

10

Society and Environment
Towns and Settlement in Europe

WARSZAWA 2003

EUROPA XXI

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EUROPA XXI jest wydawnictwem Instytutu Geografii i Przestrzennego Zagospodarowania im. *Stanisława Leszczyckiego* PAN, w którym od 1997 r. działa Centrum Studiów Europejskich (CSE). Zgodnie ze schematem organizacyjnym Instytutu, obowiązującym od 1 lipca 2001 r., CSE jest *międzyzakładowym zespołem studyjnym,* stanowiącym bezpośrednie zaplecze wydawnictwa EUROPA XXI. Pozycję wydawnictwa umacnia ogólnopolska Rada Redakcyjna, powołana z dniem 7 marca 2001 r.

Celem wydawnictwa i działalności zespołu CSE jest promowanie i upowszechnianie wyników badań oraz prac dotyczących geograficznych aspektów procesów, jakie obejmują kontynent europejski, w tym zwłaszcza Europę Środkowo-Wschodnią; przestrzennych przemian wynikających z uczestnictwa Polski w europejskich procesach integracyjnych oraz rozwoju wzajemnych powiązań Polski z krajami sąsiednimi.

* * *

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The goal of the bulletin is to promote and disseminate the results of research on: spatial aspects of socio-economic processes taking place in Europe, in particular in Central and Eastern Europe, spatial changes resulting from Poland's integration with the EU as well as Poland's interrelations with the neighbouring countries.

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Grzegorz Węcławowicz

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Society and environment in spatial studies. Examples of Polish and European experiences

Marek Degórski

A recognition of the spatial differentiation of natural elements of the geographical environment on the one hand, and the processes and phenomena ongoing in socioeconomic space on the other, represents one of the key thrusts in geography as a field of knowledge. The specific dichotomy in research is conditioned by the fundamental division of geography into two basic sub-disciplines of physical geography and socio-economic geography. Space itself is not the actual subject of research in geography. The attention is rather focused on the objects that fill the space, with their defined properties. The intention of many geographical studies is therefore to uncover the rules that govern the locations, functions and structures of these objects. A further attribute of this work is the oft-emphasised holistic approach to the analysis of geographical space (Haggett 1983; Walmsley, Lewis 1997; Domański 1998; Chojnicki 1971; 1999). In today's spatial geography, the treatment afforded concerns a system of elements mutually-interdependent across space (Chorley, Kennedy 1971; Harvey 1969, 1995).

The study of both natural and socioeconomic space separately, and the interlinkage between them, has a long tradition in both European and Polish geography. Since the foundation of the Stanisław Leszczycki Institute of Geography and Spatial Organisation, PAS in 1953, these kind of studies have always represented a main thrust. This is attested to by the fact that the first academic departments to be founded by the Institute in 1953 were the Department of Physical Geography and the Department of Economic Geography (Kozłowska-Szczęsna 1994). The general division between disciplines still prevails, more attention however is now being paid to the interrelations between the natural and socioeconomic spheres of the geographical environment.

Matters of spatial studies in their environmental and socioeconomic aspects were addressed by an international scientific conference entitled "Society and environment: spatial studies". This was organised jointly by the Institute of Geography and the Academic Branch of the Polish Geographical Society. The presentation of the latest trends and issues in "geographical research" as broadly conceived was put in the capable hands of invited specialists from across Europe and from the USA, with whom employees of the Institute of Geography and Spatial Organisation have been cooperating for many years, as they seek to resolve problems of importance from the geographical point of view. A total of 12 papers were given, including 10 prepared by scientists in centres abroad and 2 by the Institute's "home team". In its final shape, the programme of the Conference included the following papers:

- *Superfloods*, from R. Baker, University of Arizona, USA
- *Late Quaternary evolution of basins and river systems in Northern Brandenburg* from B. Nitz, the Humboldt University, Germany
- *Global warming and its regional environmental impact* from A. Wieliczko of the Russian Academy of Sciences
- *Landscape-level investigation of climate effects on carbon storage in forests* from D. Reed and G. Mroz of the Michigan Technological University, USA
- *Human activity transforming and designing river landscapes* from K. Gregory of the University of Southampton, UK

- *The importance of parallel studies on past and present environmental changes* from L. Starkel of the Polish Academy of Sciences
- *Moral Geographies* from D. Smith of London University, UK
- *Spatial mobility and new settlement models in Tuscany* from B. Cori and E. Lemmi of Pisa University, Italy
- *Small town as a specific settlement phenomenon* from A.Vaishar of the Czech Academy of Sciences
- *From productivity to sustainability: resolving the contemporary crisis in United Kingdom farming and food* from I. Bowler, University of Leicester, UK
- *Ecological and economic priorities of the concept of sustainable development* from V. M. Tregobchuk of the Ukrainian Academy of Sciences
- *Forecasting urban development* from P. Korcelli, Polish Academy of Sciences.

The programme was implemented virtually in full, with 11 of the papers being given, along with a very lively scientific discussion pointing to the mutually interactive links between the different components of the geographical environment. The Conference also showed how important these very links are to any understanding of the changes ongoing on the Earth's surface. On the other hand, it also pointed to the methodological differences of the work carried out, as strongly embedded in realism and empiricism in the case of physical geography, or narrowly specialised when it comes to the research within particular sub-disciplines.

The present volume of Europa XXI which we now convey into the hands of our readers reflects a partial gleaning from the aforementioned scientific conference on "Society and environment: spatial studies", and in part also a special preparation of articles for this volume. The results of research discussed in four of the articles link up with their authors' presentations at the Conference (in the cases of P. Korcelli, B. Cori and E. Lemmi, A. Vaishar and V. Tregobchuk), while the two others were written specially for this volume by workers at the Institute of Geography and Spatial Organization who are at the same time members of the Academic Branch of the Polish Geographical Society (B. Degórska and T. Komornicki). A separate publication of the Institute of Geography and Spatial Organization, PAS will also relate to the aspects of global climate change touched upon by the aforementioned Conference, as well as their influence on the functioning of the environment, notably the hydrosphere. The articles of this kind of content will thus appear in the scientific journal Geographia Polonica.

The key words in this volume of Europa XXI, as in the different articles it contains, relate to that direction of geographical research which concerns the economic and environmental conditioning of socioeconomic development, especially in urbanised areas. The articles offer forecasts of the development of urbanisation processes in selected countries, spatial mobility and new settlement models exemplified by Tuscany in Italy, small towns as a specific phenomenon of the settlement systems in the Moravia region and Polish towns and cities and their chances of competing in Europe after EU enlargement, as well as the impact of urban sprawl on environmental planning as contained in the experiences of the Warsaw agglomeration and set against those of Europe in general. A further article links up with both European integration and ecological and economic priorities.

The last part of the volume is a bibliographical compilation of the output of the Stanislaw Leszczycki Institute of Geography and Spatial Organisation PAS when it comes to "European studies" as most broadly conceived, i.e. work in which the results presented are associated with European geographical space.

It is our hope that this volume of Europa XXI will be of interest to its readers, and will serve to bring together selected subjects in the sphere of socio-economic geography, most particularly those connected with studies of urban space.

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Forecasting urban development: two tales

Piotr Korcelli

1. Introduction

As it is rightly claimed, a forecast, or a projection should be based upon some theoretical concept pertaining to the relevant process or phenomenon. This allows us to evaluate the forecast results, when these are examined ex post, within a broader framework, rather than just with the help of statistical goodness-of-fit measures, or, against alternative forecasts. When trying to match these standards with reality, however, one typically encounters a number of difficulties. Theories tend to be too general to enable the proper identification of the speed of change, even though they should allow us the appropriate indication of the direction of change. There may also be a discrepancy between the time horizon chosen for forecast purposes and the temporal dimension to which a given theoretical construct corresponds. Finally, with respect to new phenomena, a theory may simply be missing, while analogies are usually too distant or otherwise inapplicable.

These are some of the rules and dilemmas that have been encountered in the author's earlier work, some results of which can now be confronted with observed trends and data. Two such case studies are reported in the present paper. The first was an attempt to analyse the interdependence between patterns of urbanization and population development in South Korea, a less developed country at the time the study was undertaken. The base year for the projections was 1970. The second study dealt with urban systems change in East-Central Europe, as seen from the 1989 perspective, i.e. the outset of the political and socio-economic transformation.

2. Metropolitan growth and population development: the case of South Korea

The study (P. Korcelli and P. Just, 1983) was an attempt to substantiate the authors' critical evaluation of conventional disaggregation of population into rural and urban, as used in official UN population projections. On the basis of data for several countries, both highly developed, such as Sweden, and those at intermediate development level (example: Bulgaria) it was demonstrated that in terms of several important demographic parameters, such as population age composition, age specific fertility as well as migration patterns, differences between large-city regions and other urbanized areas, i.e. small and medium size towns, are comparable to, if not greater than, the rural – urban differentials.

Hence, it was argued in the study, the path of demographic change at a national level is not independent of the urbanization scenario selected, i.e. one emphasizing the growth of large cities, or alternatively, a balanced settlement hierarchy. This assumption was tested on data for South Korea which, at the time of work on the project, exhibited rapid population change coupled with rapid urbanization. Things have changed substantially since then, and it may now be of interest to see whether the actual course of events has been captured by any of the projections that resulted from the use of alternative assumptions.

Between 1955 and 1975 the total population of South Korea increased by 61.3 per cent, from 21.5 to 34.7 million, while the proportion of urban population, which grew by more than threefolds, expanded from 5.3 to 16.8 million, or from 24.8 to 48.5 percent of the total during the same period. This in fact was one of the fastest increases recorded in international population statistics for that particular twenty year interval. Even faster was the growth of the two largest cities of South Korea,

Seoul and Pusan. Their combined population expanded rapidly, from 2.6 to 9.3 million, and their share in the total population from 12.2 to 26.9 percent. The rapid urbanization was accompanied by a sharp decline of population fertility rates. This decline was particularly steep in the large cities. While in the country as a whole the total fertility rate decreased from 7.0 to 4.6 between 1960-1970, in the case of Seoul the corresponding change was from 5.4 to 3.0.

Interdependence between fertility decline and urbanization, and, in particular, metropolization, which provides a specific milieu for, and is one of notable manifestations of social modernization, constituted the basic assumption in an effort to build a series of population projections for South Korea, in which alternative urbanization scenarios were expressed, via varying assumptions concerning future fertility changes, in differential rates of total population change. Population projections were calculated for a series of five – year intervals, until 2030, using the multiregional demographic model developed by A. Rogers (1975) and presented in a fully operational form, with a set of computer programmes, in a study by F. Willekens and A. Rogers (1978). A "three region" system was identified, composed of rural, metropolitan and "other urban" areas. It was assumed that, in the course of projection, the metropolitan region which was initially defined as corresponding to the two cities of Seoul and Pusan, would also include several other large cities (Daegu, Incheon, Gwangju) which, at the base year of the projection (1970) were already in the size category of 0.5 – 1 million inhabitants.

When calculating the population projections, the observed fertility, mortality and internal migration rates, within the three region system, were modified over time in either a linear or non-linear form. Several theoretical concepts offer some guiding principles in this respect. These concepts include the theory of demographic transition, the concept of mobility transition (Zelinsky 1971), as well as a hierarchical migration rule applied to national urban systems evolution (Korcelli 1982). In some cases, numerical values for specific rates were "borrowed" from countries characterized by more advanced stages of demographic and mobility transition. With respect to fertility and mortality levels, the rates were adjusted so as to replicate the pattern of change actually observed in Japan two decades earlier.

As to internal migration rates, in one of the projection versions, the so-called metropolitan transition scenario, a pattern of change over time was assumed which is depicted in Figure 1. Its major feature is the evolution of rural out–migration towards metropolitan areas which increases sharply in the initial period of projection, stabilizes around the year 2000, and subsequently decreases. For better transparency of the results, most of the other rates were kept constant. This does not apply to absolute migration volumes, of course. In accordance with the mobility transition hypothesis, in an early transition phase a majority of rural migrants move to smaller and middle-size towns. Migration towards large cities increases from an initially low level, then gains ascendancy over other types of moves and decreases again in a mature stage of mobility transition, when intra-metropolitan mobility becomes the dominant form of movement.

Since twenty years have passed since this analysis was performed, its results can now be confronted with observed statistical data. Of particular interest here is not so much the comparison of total population figures, as of changing proportions of rural, metropolitan, and "other urban" population in the total, as well as the evolution of internal migration patterns. It seems appropriate, however, to start with the most general indicator, i.e. total population size for the subsequent projection and registration years.

In Table 1, population projections based upon the "metropolitan transition" scenario are confronted with several other population forecast for South Korea, both those available at the time the study was carried out, and more recent ones. These results are also compared with observed, statistical data for 1980-2000. As it can be seen, the "metropolitan transition" projection was much closer to observed data for 1980 and 1990 than other projections available before 1983. With respect to the year 2000, the comparison with observed data indicates a widening gap, although still considerably smaller than in the case of other projections.

Data in Table 2 allow us to conclude that the mechanism of the "metropolitan transition" scenario was able to project the actual development path reasonably well until the year 1990, i.e. over a twenty–year interval. Conversely, it failed to anticipate the rapid, in fact unprecedented contraction of the rural population during the last decade. A preliminary inspection of the data suggests that the model mainly undercounted migration from rural areas to smaller cities and towns. A recalculation of observed data to the effect that the Capital Region as a whole (rather than the city of Seoul only) is considered a part of the metropolitan component (see lower entries in the last column of Table 2) brings a different conclusion, i.e. an underestimation of the speed of metropolitan development which by the 1990s was effectively in its suburbanization stage. While the total population of the Capital Region expanded from 18,587 thousand to 21,346 thousand between 1990 and 2000, the population size of its core, i.e. the city of Seoul decreased from 10,613 to 9,891 thousand during the same period. This, however, still leaves the rapid decline of the rural population during the 1990s beyond the predictive capacity of the "metropolitan transition" scenario.

The source of this discrepancy must be sought in underestimation of rural outmigration and of fertility decline on the one hand, but also, and perhaps especially, in definitional problems concerning the extent of the "metropolitan component" on the other. At the outset of the projection period the Capital Region still contained a substantial proportion of rural population which has subsequently become urbanized at the same time when migrants from other provinces were pouring into the region. As H.W Richardson, C. C. Bae and M. Jun (2002) put it recently, "the story of interregional migration in South Korea is the way in which the Capital Region has continuously sucked-in migrant from the rest of the country". This process has gone hand in hand with a spectacular drop of fertility and mortality indicators. Its consequence is population ageing which in South Korea has assumed a particularly rapid pace (see: *United Nations Population Division*, 2000).

3. Transformation of urban systems in East-Central Europe

In a paper presented at the symposium on Urban Challenges, held in Stockholm in November, 1989 (Korcelli 1990), an attempt was made to outline future urban trends in East-Central Europe. Such a qualitative projection emphasized the following elements:

a) The socio-economic and political transformation has marked an end to a model of economic and urban development in which industry, in particular heavy industry, constituted the main city-building factor. The opening of the national economies to world trade and global competition would most likely mean a crisis, if not an end to some industries, while it could also bring success to others. The vulnerable branches were considered to be especially the heavily polluting industries which might not be able to adjust to internationally accepted emission standards. On the other hand, "relatively-modern" branches, such as electronics and optical engineering, as well as some more traditional, but export-oriented industries, for example shipbuilding, were believed to feature fairly good development prospects under the new conditions.

b) The shifts in the role and the range of various economic functions imply a restructuring of national urban systems. Among large urban centres, the capital cities and regions had the best chances not only to maintain the pre–1989 rates of development, but also to enter a phase of modernization and expansion.

The future of other cities would be differentiated. While major centres of historical, cultural and educational importance, as well as international trading centres seemed to be in a competitive position on a European scale, the mono-industrial cities and regions dominated by mining, or iron and steel industries, would have to undergo a deep restructuring. In an optimistic version such areas would experience a large inflow of foreign capital taking advantage of the local supply of skilled, though relatively low-cost labour. A pessimistic scenario would mean a continuation of the outdated industrial

structure – exploiting some niches in present demand patterns, with an inevitable decline in a more distant future.

c) The massive population migration from East to West in Europe, as observed in the late 1980s, and in fact continuing through early 1990s, would subside and become more selective.

d) An international hierarchy of cities in the region would emerge, with Vienna as the main external centre of gravity, and with an increasing North–South orientation related to the expected drift of the countries of East-Central Europe towards the EFTA association.

From the present – day perspective it becomes evident that some of the above expectations proved more or less accurate, while others have not withstood the test of time.

The decline of heavy, environmentally burdensome industries came more as an effect of dwindling domestic demand for coal, sulphur, iron and steel, heavy chemicals, building materials, armament, than of anti-pollution measures. Notable decrease of (particularly air) pollution has been a visible outcome in the region (in the Czech Republic less than elsewhere).

The "relatively-modern" industries turned out to be a false notion. The fate of consumer electronics and optical instruments industries, which almost disappeared following the opening of borders to international trade, and of currency reforms, in effect of massive imports from Western Europe and East Asia, is a case in point. As it was demonstrated most clearly in the case of the former GDR, the open market economy does not tolerate products that fail to meet, even by a narrow margin, the state-of-art technology or delivers goods of comparable quality but at non-competitive cost.

The case of shipbuilding industry which first flourished and subsequently declined, shows the vulnerability of production to international business cycles as well as industrial policies carried on at a national level. The reverse story of textile industries which dwindled initially to recover in different form several years later (the case of Łódź region) proves the lasting value of specialized work skills, of design talents and entrepreneurship. The partial success of pharmaceuticals, of some Polish, Hungarian, Slovenian and Croatian concerns, is a somewhat counterintuitive story, though price competiveness, and the emphasis on generics constitute its solid base. On the other hand, the observed growth and modernization of food processing industry is an easily predictable case under such conditions as the dominance of local and regional markets for perishable goods, high quality of domestic farm products, established consumer preferences, and rather stable, of low price elasticity consumer demand.

Therefore, the overall pattern of urban-industrial transition in East-Central Europe turns out to be much more complicated than it was initially expected. The observed change follows the rule according to which almost every industry can succeed or not, be profitable or not, independently whether it is of high- or low-tech category, or ever if it is privately or publicly owned.

As to the other forecasts, inter-urban competition (as well as collaboration) has indeed become a major factor of urban change. However, it has often taken antagonistic forms, such as a fierce rivalry between Polish seaports of Gdańsk and Szczecin which ultimately resulted in the transfer of a substantial portion of seaborne trade to the ports of Hamburg and Bremen.

The decrease of migration from East-Central Europe to Western Europe was correctly anticipated, but the evolution of its forms and functions – to a limited degree only. What happened namely was a replacement of permanent migration by temporal and seasonal labour migration with differing characteristics and composition, and changing areas of origin of the migrants.

An unexpected development concerning international population movement was a sudden reversal of the direction of shopping trips – from East-West to West-East. This should have been predicted, since, as the experience of other world regions shows, under open market economy and permeable boundaries, economic benefits tend to accumulate on the less-developed, i.e. lower costs side of the border.

Forecasts concerning the supranational role of Vienna were completely missed. Instead, specialized tertiary activities, such as financial and other high-threshold producer services of national and international range have settled and developed in the individual capital cities of the region, while

their upward hierarchical links point towards the real decision making, corporate centres of London, Frankfurt and New York.

Vienna as a transitional, East-Central European corporate headquarters has simply not emerged. The point about European Free Trade Association, an almost forgotten project, just illustrates the speed of change that has been taking place in Europe over the recent past.

4. Conclusions

What lessons can be derived from a retrospect evaluation of the urban and population development projections which are outlined in the present paper? One of these lessons may sound trivial. A solid theoretical construct, when used as a point of departure, gives a fair chance to identify basic development trends, even though there is little hope that observed numerical values can be correctly predicted. A positive experience in this respect is offered by the migration trajectory as applied in the metropolitan transition scenario for South Korea. A negative experience is exemplified by the failure to anticipate the collapse of "relatively advanced" industrial branches in East-Central Europe, as well as of the reversal of the direction of shopping trips across the former East-West border. These are notable consequences of the lack of a theory of socioeconomic transformation.

Secondly, when drawing future spatial configurations of social and economic phenomena, the time horizon should not exceed two decades. Beyond that limit the quality of projections seem to rapidly deteriorate.

Thirdly, an optimal definition of spatial units of analysis, a crucial problem in geographical studies per se, becomes even more difficult when the results refer to future periods, while the phenomena modelled are subject to spatial expansion, or when spatial mobility as such is analysed.

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Table 1. Selected population projections for the Republic of Korea

Author	Year of publication		Total projected population size		
			1980	1990	2000
T. H. Kwon et al.	1975		37,517	43,575	
ESCAP – UN	1975	High	38,735	48,348	59,670
		Medium	39,915	46,821	54,664
		Low	39,679	46,358	52,751
N. Keyfitz	1981		39,057	46,310	51,800
P. Korcelli and P. Just [1]	1983		37,972	44,861	50,298
HABITAT – UN	1986			44,828	50,981
HABITAT – UN	1996				47,149
STATISTICAL DATA[2]			37,436	43,411	46,125

[1] Metropolitan Transition Scenario

[2] Republic of Korea, National Statistical Office (according to: H.W. Richardson et. al., 2000)

Table 2. Metropolitan Transition Scenario vs. Observed Data: Regional Population and Regional Shares

Regions	1970		1980		1990		2000	
	Projection Base	Observed	Projection	Observed	Projection	Observed	Projection	Observed
Metropolitan	7,402 (23,5)	7,275 (23,5)	12,858 (33,9)	14,213 (38,0)	19,630 (43,8)	20,691 (47,7)	25,271 (50,3)	22,873 (49,6) 29,856 (64,7)
Other Urban	5,527 (17,6)	5,694 (18,4)	8,823 (23,3)	7,221 (19,2)	11,217 (25,0)	11,463 (26,4)	13,178 (24,3)	18,685 (40,5) 11,702 (25,3)
Rural	18,506 (58,9)	17,953 (58,1)	16,292 (42,9)	16,002 (42,7)	14,014 (31,2)	11,257 (25,9)	12,781 (25,4)	4,567 (9,9)
Total South Korea	31,435 (100,0)	30,882 (100,0)	37,972 (100,0)	37,436 (100,0)	44,861 (100,0)	43,411 (100,0)	50,238 (100,0)	46,125 (100,0)

Note: Observed data in the „metropolitan" category are summed up population figures for million-plus cities.
3 (Seoul, Pusan and Daegu) in 1970, 4 in 1980, 5 in 1990 and 6 (Seoul, Pusan, Daegu, Incheon, Gwangju and Taejon) in 2000.

The lower entry for the year 2000 includes population of the Capital Region containing Seoul, Incheon and ten other cities (suburbs of Seoul) each larger than 250 thousand inhabitants, plus Pusan, Daegu, Gwangju and Taejon.

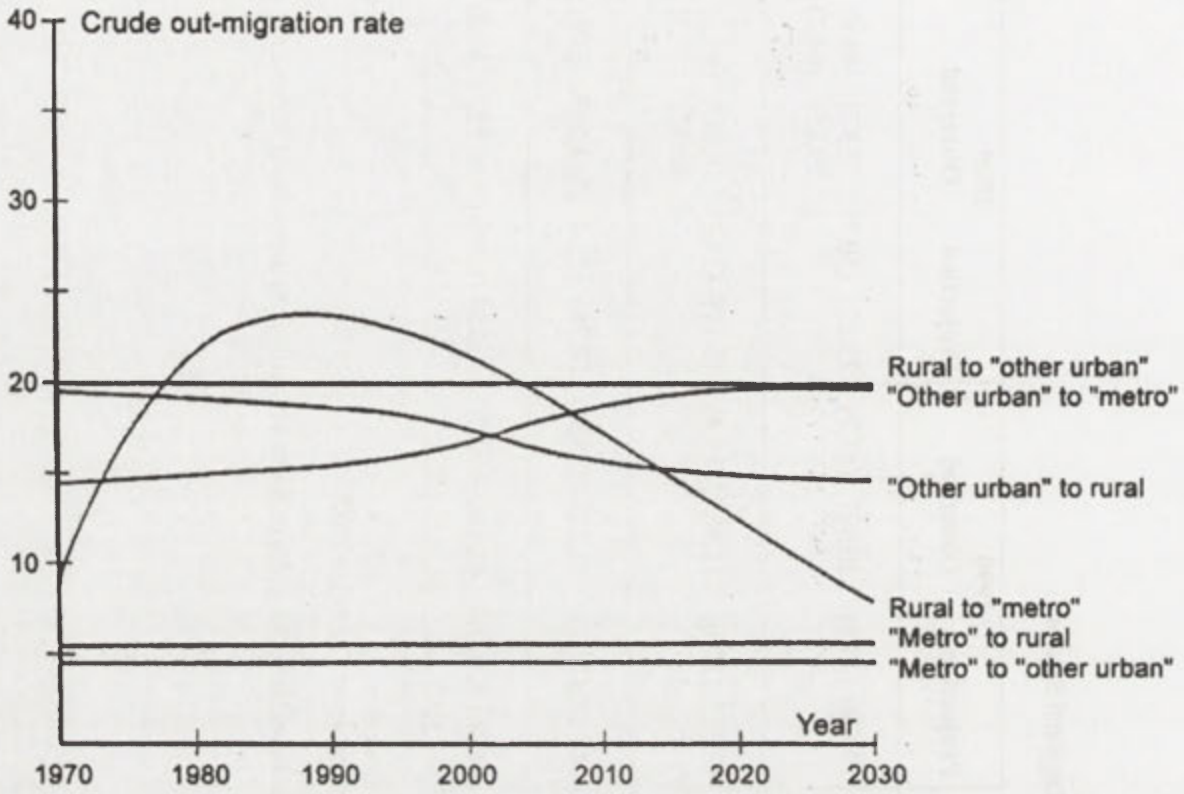

Fig. 1. Evolution of crude out-migration rate (Scenario IV)
Source: P. Korcelli and P. Just (1984)

Spatial mobility and new settlement models in Tuscany

*Berardo Cori, Enrica Lemmi**

1. The settlement model of the "two Tuscanies"

It is well-known that within Tuscany there is a clear distinction, created by the region's hydrography, between the generally densely populated, urbanised and industrialised "North" around the River Arno valley, and the "South", centred on the basin of the River Ombrone, with its mainly rural character and slower pace of life. There is, therefore, a clear latitudinal division, identifying the northern part on the one hand, characterised by a scattered urbanisation model and dominated by local systems of small businesses, and the southern part on the other, where a traditional urban structure with relations of dominance/dependence, typical of areas with a low population density, still prevails. In other words, there is a marked contrast between the northern reticular structure, where urban threshold values have fallen because of both the acceleration of processes concerning the banalisation of services, and the opportunity for most businesses to make use of external economies in spheres other than that of the city; and the south, still dominated by a centre-periphery dialectic which further penalises "slower" regional situations contributing only marginally to regional income. What we are observing, then, at least in northern Tuscany, is a general trend towards a new kind of spatial organisation (as in much of the country) based more on qualitative relations between towns than on the "old" hierarchical scales. In short, we have a situation of twofold regionalisation, echoing the more general situation in Italy as a whole. It is divided internally by the existence of a "T"-shaped spatial organisation model, better known as the Valdarno-Versilia "urbanised triangle", with its points in Florence, Carrara and Livorno: a conurbation in the region's north with the characteristics of a highly integrated spatial system from both a demographic and economic-functional viewpoint, and where relations between nearby centres are becoming more and more intense. This is the area characterised by the "peripheral industrial system" typical of so-called «Middle Italy» dominated by an extremely flexible reticular system of small and medium businesses interconnected by complex relations between the various units, and with the formation of mono-productive areas characterised mainly by artisanal manufacturing: this is also known as the "scattered factory", with highly differentiated divisions (textiles, clothing, leather, plant cultivation, etc.). In this context, apart from an increase in functional specialisation and the division of labour between the various "productive islands", there is also a growing number of industrial estates and a greater integration of these in wider extra-regional systems.

A closer examination shows that urban Tuscany is characterised by a tight network of medium-large settlements, among which Florence stands out with its substantial population (350,000 inhab.) and a functional status of international level. Next in the overall urban hierarchy, though some way behind, are the towns of Livorno and Prato (150,000 and 170,000 inhab.), followed by Pisa (90,000). Occupying an even lower position are the other provincial capitals and some other towns such as Viareggio, Empoli, Piombino and Pontedera which, being demographically smaller (25-60,000 inhab.), represent places of immediate and daily attraction; towns which in some cases are also capable of offering rare services and industrial facilities of particular importance. In recent studies (Lemmi 1994), the numeric entity of these "medium" towns has been reduced, while the number of "small" towns, mostly centres of modest dimensions (10-15,000 inhabitants or less) with a traditional "urban" tertiary sector and a capacity for polarisation at a local level, has been halved. All this seems

* The research was carried out jointly by the two authors. However, the final version of the study has been written as follows: B. Cori paragraphs 1 and 2, and E. Lemmi paragraphs 3 and 4.

to confirm a strengthening of the reticular development process under way in northern Tuscany and, in particular, in the Valdarno-Versilia area. Settlement behaviour inside this highly integrated system differs to that in the external zones, since it is closely interdependent on the process of scattered industrialisation. The latter, in its turn, requires phenomena of industrial decentralisation, the proliferation of businesses, productive flexibility, commuter flows and social mobility. We are dealing, to a certain extent, with the materialisation of the concept of "urbanised countryside", with the diffusion of housing and productive activities in rural areas on the one hand, and the changing role of the town, immersed in metropolitan-type relations on the other. Relations are changing; new balances are being reached, while integration between the various centres – generally situated 15-20 kms apart – is constantly increasing. In western Tuscany, or more specifically in the sublittoral area – corresponding to the base of the urbanised triangle – we are dealing with a polycentric type of urbanisation in the form of an "urban star", with Pisa at its centre and Viareggio, Lucca, Pontedera and Livorno at the four points (Caforio, Cori, Inglis 1992). This metropolitan area embraces around 500,000 inhabitants. There is a definite functional division between the various towns which indicates the potential for high level spatial complementarity: Pisa, a university and airport town; Livorno, specialised in maritime transport and printing centre for the daily newspaper "Il Tirreno"; Viareggio with its marked vocation for the tourist industry; Pontedera, transferred to town status by the presence of large industry; and Lucca, an outstanding commercial centre, with a long tradition of international trade and relationships.

2. Recent spatial population dynamics and the strengthening of the internal settlement axis

Spatial population dynamics in Tuscany and in much of Italy were particularly varied and intense in the latter half of the 20th century: following an initial phase of considerable depopulation of mountain and hill areas, of rural exodus, urbanisation, and flows towards the coast. The 1970s saw an attenuation (and in many cases a halt) to these movements with the establishment of new trends such as suburbanisation, the rediscovery of medium and small towns, and the re-evaluation of rural and inland areas. More recently, in numerical terms, population movements have been modest, although still complex in nature. Migration within the region varies according to province: some provinces (such as Florence, which has clearly reached the most advanced stage of the metropolitan process) are losing population from both the capital town and surrounding areas, some are going through a phase of suburbanisation (such as Pisa and to a lesser extent Pistoia), while others attract population to both the capital town and the countryside (Siena). International migration patterns are rather different, since all the provinces of Tuscany currently present positive balances, although standing out in terms of attraction capacity are those of Prato, Florence, Arezzo and Pistoia, areas well-known for possessing a high level of industrialisation and/or urbanisation.

Thus, within the densely populated zone described above (where density values range from 200 to over 1000 inhab./sqkm) there are areas where the number of inhabitants is practically stationary or at least slow-growing, while a rather rapid demographic increase is taking place in the coastal belt to the south of Livorno, still sparsely populated. Inland areas of southern Tuscany and parts of the Apennine zone are undergoing a further lowering of population density (already lower than 50 inhab./sqkm), although the rate at which this is happening is slower than it was in previous decades. There is a definite logic behind this varied range of population behaviour: in areas where high density values point to a situation of settlement congestion there is a tendency towards decentralisation, the halting of urbanisation, and the projection of settlements into suburban and rural areas; instead, in areas with low population density, unaffected by the induced diseconomies of demographic congestion, the traditional pull of the town and coast is still strongly felt.

However, recent studies on current population dynamics in Tuscany (Cori, Lazzeroni 1995) have shown a progressive attenuation of the "T" model in favour of a new spatial configuration. This

new configuration has widened to become a continuous internal belt corresponding with the corridor formed by the main infrastructural axes running north-south through the country (such as the Autostrada del Sole and the "Direttissima" railway line). This band of growth has been reinforced by the creation of new industrial zones – such as those in the province of Arezzo (Lemmi, Meini 2002) – and by the redevelopment of agriculture and tourism in inland hill areas. In other words, what is emerging is more of an "H" – shaped model, which should help both to redress the urban and spatial balance in the region as a whole, and to bring about a much hoped for attenuation of human pressure on the coastal area (Cori et al. 1998). In fact, this re-evaluation of marginal areas is confirmed by the presence of several communes which, formerly sparsely populated because of large-scale rural exodus, are now undergoing a marked recovery in demographic trends. These are areas affected by a process of counter-urbanisation, whereby the population of Tuscany is attracted to small towns in peripheral locations, with emphasis on a good quality of life. Other clear phenomena are that of retired people returning to their places of origin, and the diffusion of second homes belonging to both the local population and foreigners.

All things considered, although the distinction between a "strong" and "weak" Tuscany still remains, a number of new development processes and spatial dynamics have been taking place, leading to the emergence of differences within the two areas themselves: in the first, on the one hand, there has been a lateral expansion of the lower Valdarno in a north-south direction along the main transportation axis, so that it now embraces the Val di Chiana and some municipalities in the inland hill belt. On the other, there has been a slowing down in the growth of communes on the Tyrrhenian coast where demographic rates are negative. This is due to a crisis in the long-established big industrial plants, and because growth of the tourist industry has come to a halt in this saturated coastal area where signs of environmental pollution are all too evident. What we are seeing, in fact, is a redistribution of the population within the regional boundaries, resulting in the preservation of a cohesive regional identity and the development of new social and economic relations facilitated by these mobility flows. The structure of the settlement network is therefore undergoing a partial reorganisation: that is, linear-type agglomerations continue to develop for both residential and industrial settlements, through the expansion of centres along the valley floor on the one hand, and of those situated along the main transportation corridors on the other. Clearly, the centrality of the provincial capitals remains, as it does generally speaking for all those towns that have managed to preserve a definite role of spatial organisation for a surrounding area of varying range.

The analysis of demographic processes therefore highlights a slowing down in growth of traditional areas, especially the bigger towns, and a revival of smaller centres. This is accompanied by the spatial expansion of the functional networks due to an increase in flows and interdependent relations between the individual towns. This phenomenon of peri-urbanisation is also stimulated by policies for the diffusion of industrial and tertiary activities and by significant immigration which adds to already marked internal mobility. As we have already seen, figures concerning the migratory balance for the provinces of Tuscany reveal that the areas with a low population density and high environmental values, such as Arezzo and Siena, have a high power of attraction, as do those with an overall productive and employment stability, like Prato, where there are currently high numbers of foreign immigrants.

3. The spatial reorganisation process and regional transport policy

Over the past few decades, Tuscany has seen a considerable increase in mobility, for various reasons – commuter and commercial movements, and the circulation of tourists – and with specific modal choices (Capineri 2001); these movements have had important consequences, e.g. (causing the congestion of an inadequate infrastructural network, and environmental pressure because of the high incidence of private vehicle use in current transportation systems). Clearly, the creation of relations

between the various specific spatial features of an area requires an increase in accessibility levels of the individual nodes in the network; better accessibility leads to an increase in exchanges within the area, while at the same time facilitating new processes of interconnection and integration with external networks. These are long-term processes, centring on targeted projects at a local level, or contrarily, on interventions aimed at medium- and long-range relations on an international scale. Indeed, the latter are the cause of a further weakness within the relational systems and, in the end, within Tuscany's circulation model, since there is an increase in selective connections between the network's most important towns and nodes – a typical manifestation of urban implosion phenomena – leaving the lower ranking centres in a peripheral position.

Unfortunately, recent regional planning seems to be taking this direction, since it is connected with the wider national strategies concentrating on linking Italian peninsular traffic with the rest of Europe. Beside the expansion of the inner development corridor, centred on the doubling of the existing corridor (partly as a result of the introduction of the high-speed route on the Florence-Bologna railway line), there is a progressive marginalisation of the Tyrrhenian axis, posing a real risk of this advanced coastal system being transformed into a gradually more "backward" area, with high land use and consumption and heavy environmental degradation (Da Pozzo 2001, p.426). This axis could, instead, form an alternative inter-modal corridor, in view of the growing processes of congestion and saturation of the "central" transportation system. In other words, it could represent an important way of escaping and balancing regional disequilibria and, more generally, an opportunity for spatial re-equilibrium within Italy, at a time when new needs other than those related just to transport are being established: consider the greater attention, often aroused by local communities, paid to the ecological and landscape aspect of a project.

However, coastal Tuscany also lacks an efficient connection system linking the area's various nodes (the only plans, for now, concern the transformation of secondary railway lines into light metropolitan lines), and there is a lack of functional "service areas" in the main towns (the Pisa-Livorno interport has still not been built); in short, the present multi-modalities lack the necessary spatial integration. Besides, planned interventions often turn out to be nothing more than the renovation of existing structures rather than the construction of new infrastructure, a consequence of what is now seen as a "normal" lack of public funds. A genuine process of adaptation and modernisation of the communications network within the area-system of coastal Tuscany could really bring the Tyrrhenian seafront into the running in terms of regional growth, as an alternative to the dominant development scenarios tending towards congestion and heavy environmental impact.

From all this emerges a dual interpretative level (local and global) in regional development scenarios. This can be attributed, in short, to the realisation of "networks" of political synergies and – as we will see – to the application of innovative forms of strategic planning, in view of the development of the coastal area under examination and of the balancing function that it could have against the progressive strengthening of the inner Tuscan corridor. However, it is only by looking at planning on a wide scale, and not merely on a regional one that complex and hard-to-solve issues, such as transportation, can be dealt with; transportation is a central issue in such a scenario of coastal Tuscany. The area is still penalised by an inadequate transport network which is far from capable of setting off competitive dynamics with the outside, because for these to take place, complementary and inter-scale relations obviously have to be possible.

4. The coastal metropolitan area: a wasted opportunity?

Against the processes of re-spatialisation currently taking place on different scales in Tuscany, the process of urban diffusion in the coastal belt is still of particular interest. As already mentioned, thanks to a general lowering of location thresholds, the area has seen the establishment of increasingly strong links between the various poles of the settlement system, thus encouraging internal and

international cooperation: the idea of "centrality" is no longer a prerogative of the individual centre, but of the various networks in which the various functions are structured, and therefore, in the end, of the various places according to their individual types of specialisation and interaction. Extremely high densities of urban services and advanced tertiary functions are found within the coastal area (Da Pozzo, Pierotti 1992); both these services and functions are boosted, moreover, by the relative vicinity (less than an hour) of equally important towns such as Carrara, Massa, Pistoia and Empoli, and by a tight network of transport infrastructure (road, sea and air). These factors indicate a high degree of urbanisation, leading to the hypothesis that the region is being transformed into a metropolitan area.

Nevertheless, there are still many obstacles in the way of a similar situation developing in Tuscany's coastal belt. This is due to not only the figures regarding demographic threshold, which show that the overall population density is at the minimum levels fixed by legislation (see law 142/90), but also to the absence of a higher ranking pole at the top of the urban hierarchy or, at least, of an integrated system of advanced functions which would allow the implementation of the spatial synergies and relational spaces that characterise the metropolitan dimension. On the other hand, the non-realisation of a coastal technopolis in Tuscany, centred on the university and research centres of Pisa (Varaldo 1992), is closely linked to the lack of favourable circumstances which could only have been created by a greater flexibility of the facilities and services present, and by an infrastructural and organisational growth of internal relations.

The persistence of isolationist trends, fragmentary local policies, planning that pays little attention to the holistic management of the many, qualified resources – a decisive factor in the perception of the area as a system, even from the outside -, are among the main reasons for the gradual divergence in the spatial organisation of individual urban nodes which, on paths of autonomous and often conflicting growth, end by weakening each other. Benefiting from this are the external polarities which detract leading activities from the coastal area, activities which, in broader processes of globalisation and post-industrial reorganisation, are essential in terms of urban competivness and regional development. To sum up, it is clear that a precise strategy is needed for the spatial planning of the coastal area, in order to implement potential synergies and finally overcome the individualistic policies pursued by the municipalities of the provinces of Pisa, Livorno and Lucca. These sectoral interventions are far from sufficient to deal with the continuing phenomena of the physical expansion of individual towns – because of residential and productive vicinity – that goes well beyond the administrative areas to which they belong.

The three provinces, or rather, the spatial systems which define them locally, are characterised by complementary economies and certain homogeneity of spatial organisation processes. They could in fact become the object of a coordinated and combined planning action, leading to the application of concepts such as that of the "area vasta" (extended area), much discussed for some time now, and of which a real need for planning is now felt (Cecchini 1997). In this way, the local peculiarities (environmental and functional qualities) of the various towns would be stimulated, accentuated by the interaction of each place's various potentials, with the aim of strengthening both internal relations and those with the external global market. In other words, there is a growing awareness of the importance of going beyond the evaluation of the simple "self-contained" systems, despite their interactive nature, and of reaching a new definition of regional development which, by virtue of increasingly advanced forms of institutional integration, can actually be converted into planning.

Furthermore, it is now clear that provincial divisions often do not coincide at all with those determined by functional gravity, not only because of the presence of strong urban centralities, but also because of the natural tendency towards the formation of polarised axes of pairs of towns (Pisa-Livorno, Pisa-Lucca). This also confirms the need to reorganise a macro-area, albeit of a variegated character, with a view to greater integration between its various vocations and functional specialisations. All this in an attempt to slow down the current process involving the strengthening of Tuscany's inner development area, leading to the progressive slowing down of coastal dynamics and the consequent weakening of the economic and functional profile of the Tyrrhenian front. With these

aims in mind, the application of the new "bioregion" concept (Iacoponi 2001) could genuinely represent a useful planning tool in an area which is large enough in size (several thousand sqkm) and, historically speaking, characterised by intensive and growing flows. In actual fact, the overall physical and anthropic characteristics make the context a rather variegated and complex one. At the same time, however, it is given a homogeneous character by accentuated forms of widespread anthropisation. It is also the result and consequence of a capillary transportation network, allowing transit between higher ranking urban poles, which has favoured the same loose fabric of the residential structure.

In short, we are faced with a central area without the aspects of congestion and degradation typical of invasive development models with a heavy concentration of population and activities, as those experienced in other Italian regions dominated by the industrial logic of the Fordist city. The contained nature of environmental stress levels in itself makes it possible to identify alternative scenarios of eco-development, which leads us to consider the possibility of the progressive "dilution" of the intensity of the urban phenomenon in areas surrounding the main cities and towns. All things considered, what might take place is the reverse process to that hypothesised by Castells (1998): that is, a shift from a space characterised by intensive relational flows to a "space of places" in which cultural identity and the sense of belonging of the indigenous community is a determining factor. As a result, there is a direct involvement of local actors in the outlining of paths for sustainable development, in a region which foresees increasingly advanced forms of institutional integration and social cooperation. The decisive factor is therefore the capacity to transform the innovative force of the new large-scale planning models into policies: in particular, the Territorial Plans for provincial coordination, recently instituted, ought to allow for wider reaching planning capable of rising above anachronistic parochialisms and reorganising local administrative powers.

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Small towns as a specific phenomenon of the settlement system. Case study Moravia

Antonín Vaishar

1. Introduction and objectives

Small towns have been not paid too much attention in the geographical literature so far. Urban geographers consider them too small and hence insignificant while rural experts take them for being too large and too little related to agriculture to be worthwhile of dealing with them. The lack of interest results in a great deficiency of data and in a missing knowledge of the phenomenon of small towns.

The project, funded by the Grant Agency of the Czech Academy of Sciences (ASCR) and filed under No. IAA3086301 attempts at making the gap in the geographical knowledge of existing reality smaller. Partial goals are to learn existing developmental trends in small towns through a number of empirical studies, to find out their position in the settlement system including their significance for rural hinterlands, to capture the perception of small towns, to generalize lessons learnt, to define specific features as compared with the development of small towns in western Europe, to enrich the methodological apparatus of regional geography and to disseminate the research results into social practice.

The paper was written at a time when results of 22 case studies were made available, of which 20 concerned small towns situated in the historical territory of Moravia, one dealt with a small town in the Czech part of Silesia and the remaining one involved a small town in eastern Bohemia. The paper aims at an evaluation of results from the first of four years of the project and at a precision of the hypothesis for the future research. The below conclusions concern small Moravian towns as a whole. The group of small towns is however considerably differentiated and this is why the situation may considerably differ in individual cases.

2. Theory and methodology

Geography studies the small towns as a component of the national settlement systems. It is possible to say that the role of small towns in the Czech Republic is still significant. Municipalities with the population ranging from 2 to 20 thousand inhabitants recorded a total share of 29% of the Czech population in 2001, which is more than in any other size categories of municipalities. There is a hypothesis made on the basis of empirical experience that the small towns still play a very important role in the provision of job opportunities, services and social contacts for their rural hinterlands. This particularly applies to marginal mountain or borderland regions which cover a relatively considerable territory of the country. Furthermore, it shows that small towns which are more resistant to aggressive globalization tendencies may assume a role of the bearers of regional identity. Small towns definitely representative an alternative living environment for a relatively large part of population which is not bound to professional or cultural attractiveness of big and medium-sized towns.

The research made within the framework of the above project was focused on municipalities with the town status, whose populations are below 15 thousand inhabitants. There are a total of 109 municipalities like these in Moravia. Their total number of inhabitants in 2001 was 600 thousand. In

the intracensal period of 1991-2001, the number of inhabitants in these towns decreased by 2.54‰ while the country's population decreased by 7.00‰, this indicating that the proportion of inhabitants living in the small Moravian towns in the total Czech population slightly increased. The fact apparently fully justifies the attention paid to the small towns.

In contrast to most other studies, the research is not based on methods of urban geography but it rather dwells on the methodology of regional geography. This puts into the focus of attention the relation aspects of the situation in the small towns, especially the relation between natural and social factors of their development. The analytical stage of research includes the study of individual constituents of natural environment (relief, soils, climate, waters, biota), individual elements of the social and economic system (population and housing, manufacturing industries, tertiary, technical infrastructure, tourism), an analysis of geographical location and a historical survey.

A particular attention is paid to synthetic chapters which approach the issue from different viewpoints. Landscape typology includes the relation between the natural potential and its use. Another aspect of the relation is the list of so called natural risks which however become risks only in an interaction with improper land use. Evaluation of living environment is based on relations between the natural environment and small town inhabitants or visitors. Another variant of the synthetic approach is mapping the functional structure in the area of small towns, which enables to assess spatial bonds between individual functional town sections. A statement to the possibilities of prosperity of individual small towns on the basis of a complex estimation of their existing pre-requisites as related to possible scenarios of their future development is of partly prognostic character. Other aspects of the synthesis are expressed in a study of the perception of small towns by their inhabitants or visitors since –unlike scientists- non-professional people feel the reality in a complex way. We assume that the emphasis on the mentioned partial synthetic approaches not only facilitates a more qualitative methodology of the research into small towns, but it also helps to shift it – in contrast to urban geographical research- onto a more geographical level in a full sense of the word.

There is a range of methodological procedures used in the research. A more or less standard approach is the study of available literature and the processing of statistic data. A great emphasis is put on the return to field research, documentation and mapping. The focus on social phenomena, the rapid development of transformation and the lack of hard data called for a wide application of sociological methods, public inquiries and controlled interviews in particular. Internet has become a valuable source of information with its benefits and risks.

There are not a lot of complex papers, concerning the problem of small towns from the socialist period (Kiełczewska-Zaleska 1964; Konstantinov 1966). The research of small towns in Western Europe is concentrated in the Alps (Perlik-Batzing 1999; Borsdorf-Paal 2000). The issue of small towns is also topical in the southern half of France and in the inland of Spain (e.g. Laborie 1997; Rodriguez Gonzáles 1997), and in the post-socialist countries (Niedermayer 2000; Slavik 2000). A scientific symposium to small towns was held in Murau, Styria in 1998 (Munduch-Spiegler 1998; Žigrai 2000). It is also possible to mention some isolated works on small towns (Roth 1961; Jumppanen 1973; Hajasová 2003), works on small towns within a framework of larger units (Baran 1964; Meyer 2001) or works reminding of some selected aspects in the development of small towns (Slater 1977; Dovényi 1988; Taylor 2000; Thomas-Bromley 2002; Łoboda 2002). There are also some analyses of small towns in countries of the third world (Jackson 1974; Bajracharya 1995; Hinderink-Titus 2002; Chadli-Hadjiedj 2003), which however represent a considerably different problem with their genesis, functions and their entire substance.

The hitherto results of project's preparation and solution dwell on a number of empirical studies of which some were published (e.g. Vaishar et al. 2001; Vaishar, Kallabová, Zapletalová 2002; Mikulik, Vaishar 2003). There are also some partial generalizations (see also: Vaishar 2001; Vaishar, Kallabová 2001; Kallabová 2002; Vaishar, Kallabová, Trávníček 2002; Pokluda 2003). The presented paper is a follow up to the above mentioned and other publications.

3. Economic situation of small Moravian towns

The share of persons employed in the primary sector in small Moravian towns is 5.29% of working people, which is just a bit more than the national average. The share of agriculture in the economic prosperity of small towns is relatively low and it has been observed to further decrease due to the extinction of many farming enterprises. Also, the imagination of small towns as market places offering a surplus of farming products generated in their rural hinterlands has been considered an anachronism for more than fifty years due to the concentration and specialization of Czech agriculture. And this has not changed even after the year 1990.

Processing industries employ 36.12% of working people in the small Moravian towns, which is by 6.5% more than the national average. Small towns are the most industrial element of the Czech settlement structure with respect to employment. Many industrial enterprises in small Moravian towns were established during the wave of industrialization which started in the mid-19th century and which has had a tradition of more than a hundred years. Before World War II, a lot of towns in eastern Moravia were for strategic reasons localized arms making factories. Another conspicuous developmental impulse was the socialist industrialization in the second half of the 20th century. A great part of small towns gave rise to factories with thousands of employees, usually on the basis of the nationalization of pre-war corporations (more scarcely built on a green meadow). This induced a mass immigration of labour force from rural hinterlands to small towns which initiated an intensive construction of blocks of flats and the corresponding changes of social environment. The nationalized companies were usually recruiting from the progressive industries of that time such as mechanical engineering, electric engineering, chemistry etc.

The industrial employment in small towns fell by about 50% after the year 1990. The reason was either an extinction of ineffective or incorrectly managed industrial operations or in contrary their successful restructuring which resulted in increased labour productivity and hence in a decreased number of employees. The process had a range of scenarios. Most rapidly occurring was the transformation process in small towns whose industrial structure was based on a diversified pattern of medium-sized and small enterprises of light industries. In these cases, most of the original firms ceased to exist in a short time and the result was an increased rate of unemployment. However, there was a range of new small and medium-sized companies which came into existence on the ruins of the original enterprises within a very short time, capable of a much more flexible response to market fluctuations.

Somewhat more complicated was the extinction of a large corporation for instance in the timber-processing industry, which resulted in an extreme increase of unemployment and in a decreased purchasing power of the population. A partial compensation can be considered the fact that the skills of workers, their know-how and professional contacts gave rise to a number of smaller firms in the same line of industry, which to a certain extent could replace the role of the original enterprise.

Situation in towns with the former giants of metallurgy or armament industry is more serious. Since it would be politically unwise to let enterprises with thousands of employees to fall, the agony of these enterprises was –and at some places still has been- artificially prolonged, this resulting in a miserable existence of the small town's economy. A specific case are small towns affected by the downscaling of mining activities in coal or uranium extraction, where a number of above-standard income posts were disestablished, which cannot be substituted for neither in terms of their amount nor in terms of the income level of possible new jobs. To this must be added frequent environmental problems and an extremely immigrational character of these towns with all associated social consequences.

The industrial character of the small towns is corresponded to by the qualification structure and by the psychology of their inhabitants. Therefore, the industrial role of the small towns and even its relative strengthening can be expected even in the future, naturally at a generally lower level of employment rate. We can anticipate a development of classical consumer and food industrial branches

with no specific demands on production volumes or quality and a corresponding purchasing capacity of inhabitants in these small towns. Efforts aimed at a development of industries and specializations requiring higher skills are often hampered by a shortage of skilled workers in small towns. Foreign capital plays an important role in the industrial development of small towns. Efforts to attract the foreign capital succeeded in over a third of the studied small towns so far. The extent of this capital injection varied, though – ranging from tens up to thousands newly offered or preserved jobs. Important factors of success use to be in these cases a location favourable for transport connection, highly skilled labour power and also the existence of traditional enterprises the investment into which will pay back the foreign corporations.

Not all posts lost in the industries could be compensated for by the boom of services. The unemployment rate in small Moravian towns is as high as 20% in some extreme cases. It is worth mentioning at this place, however, that with respect to the existing social system a certain part of the population have adopted a model according to which it appears more advantageous to be on welfare combined with occasional work within the framework of grey or black economy rather than to take a low-pay job in light industry. This is why the labour market of small towns must often resolve a problem of missing labour force of suitable qualification in addition to the issue of unemployment.

4. Tertiary services in small Moravian towns

Tertiary is the sector of national economy, into which workers released from the manufacturing sphere pass. At the same time, it is a sector that could be a good groundwork for the specialization of some small towns. Tertiary activities are also expected to increasingly determine the central significance of small towns for their hinterlands. As compared with the Czech average, the tertiary sector of small towns is undersized. There are only 58.6% of working inhabitants employed in it, which is by 7% less than the national average. And the difference is even more conspicuous in the comparison with large and medium-sized towns.

The sector of services can be divided into two big groups with a certain overlapping: the services of social character and the services of commercial character. The services of social character (such as education and medical care systems, community care, some cultural events, etc.) are at full or at a part subsidized by the government, regions or municipalities. The subjects take part in the decision-making about the localization and way of the functioning of the individual facilities. Acquisition of as many services of social character as possible represents a positive impulse for small towns. It is not only the question of the facilities subsidized from public budgets being a relatively certain source of funds, thus increasing the employment rate and the purchasing power of the population in the small towns. Another benefit can be seen in the fact that the facilities attract and stabilize educated people (such as teachers, physicians, experts in culture) who can enhance the general cultural niveau of the small towns and their capacity to acquire further activities and to raise funds. There are small towns where the community care facilities have already become the biggest employer (e.g. the Albertinum sanatorium of respiration diseases in Žamberk).

During the socialist period, the services of social character were to a certain extent preferred. In market conditions, the functioning of some of them appears disputable with respect to their effectiveness. And the pressure is further augmented by the actual demographic development which changes requirements imposed on the structure of these services to the detriment of schools and to the benefit of facilities for seniors. In the first case, there are tendencies toward the fusion of schools and reduction of their employees, the fact becoming a subject of the political fighting. On the other hand, newly built old people's homes are very often ones whose buildings are the most model and modern in small towns with the rural environment creating suitable pre-requisites for the situation of some social facilities in this segment of the settlement structure.

The services of commercial character represent the sector of national economy that has experienced the fastest and the most successful transformation to market conditions. A greater part of changes in ownership were made by means of restitutions and partly through direct sales within the framework of the small privatization. Regarding the relatively low initial costs, there is a range of trading firms and services either using the existing facilities or located – as an entirely new phenomenon – sometimes in provisional conditions of family houses, garages or kiosks. The market was very efficient to clear the environment since unviable tradesmen as well as firms with no pre-requisites of functioning with respect to the purchasing power of the local market went soon bankrupt.

In the sphere of commercial services, and retail services in particular, the local market of small towns has met with external impacts, too. The first phenomenon was a massive expansion of Vietnamese tradesmen who made a good profit both from their willingness of working more and harder in harsh conditions than their Czech competitors and mainly from the sales of either smuggled or fake goods. A slow response of the government to this problem resulted in the liquidation of a greater part of the Czech textile and shoe-making industries. Nevertheless, the Vietnamese tradesmen in small towns offered their inhabitants enough goods at low prices. Originally, they operated kiosks and booths in open market places. Today, the Vietnamese have in their possessions a part of stone shops, employing the Czech personnel and having become a common constituent of the commercial life in the small towns.

Another external impact is the entry of foreign retail chains onto the Czech market. In relation with the increasing mobility of the population they cover the hinterlands of hypermarkets located in the surroundings of Brno, Olomouc and Ostrava in a larger part of the Moravian territory, competing with the tradesmen in the small towns. Other chains have specialized in supermarkets which are located in some larger small towns, too. The expansion of supermarkets is naturally also participated on by Czech store chains. The development leads to a considerable reduction of classical shops, especially those with the assortment of food and drugstore products.

Traditional retailers feel double crossed by the multiple competitions. It should be pointed out, however, that their position in the small towns is more advantageous than in large towns. Cores of small towns are relatively small and shopping outlets and services in them concentrated, i.e. readily available to local people. Relative benefits are also personal acquaintance and contacts with customers. On the other hand, the retailers have problems in adapting to the market and in finding their place in it.

Unlike the retail, most services to the population remain in Czech hands. This holds at nearly a hundred percent for crafts the sphere of which fully reflects the image of the "golden Czech hands", capable of manufacture or repair of practically anything even in makeshift conditions. Being unfortunately not a leading sector any more, the crafts cannot contribute to the economy of small towns in a decisive way. Services to motorists are a special chapter. The use of the passenger car becomes nearly a must in the rural area but far not all people can afford a new car or a brand-name garage. This is why a relatively large spectrum of versatile services and general repair workshops have grown for motorists in the small towns.

A common problem of geographical research into services is the shortage of quantitative data for analysis. Subjects of commercial services do not provide any information about their own situation, their structure is variable, and a number of officially registered firms do not run any activities or run their activities at a different place than the address registered. This is why the data presented in this work originate from the own field research, from an analysis of local yellow pages and advertisements in local newspapers.

Relatively more data can be gained on the social services. This was the reason for us to try at the first stage of our research to evaluate the localization of schools as a factor of small towns hierarchization (Kallabová 2002). The variety of educational facilities and the numbers of students, teachers and lodging capacities of student hostels and dormitories provide a relatively true picture about the central significance of small towns and their possible specialization in social services. The

search of a methodology for the analysis of commercial services, which would provide enough information about the hierarchization of small towns in the market environment, is an issue to be resolved in the near future. It seems that the research will have to use sociological methods at a larger scale than today.

5. Small Moravian towns and tourism

Tourism is a sector of national economy, which is usually recommended by foreign experts as an important factor of prosperity in small towns. In reality, the significance of the sector is somewhat overestimated. The fact is that practically all small towns have attractive localities suitable for the development of tourism, whose historical or natural values often equal those of attractive spots in important tourist centres of Western Europe. On the other hand, it appears that to make use of the existing potential appears rather problematic with an exception of some small towns whose specialization in tourism has a long tradition (such as the Luhačovice spa).

The first limitation is the condition and/or accessibility of some attractive spots. In the socialist period, a number of architectonic monuments of the type of church or nobility manors served to social, production, military or similar purposes and were to a greater or lesser extent devastated. New owners, be them individuals or municipalities, do not have enough money for their refurbishment or repair and the monuments continue to fall into disrepair. In many a case, the monuments have become victims of lengthy court proceedings to resolve ownership disputes when courts cannot find a proper solution in the matter of ownership for years.

Another barrier to the further development is the insufficiency of services for recreation and tourism. Their offer in small towns is as a rule incomplete. Individual architectonic, folklore, cultural, sports or natural attractiveness do not have a proper linkage with accommodation, leisure facilities, retail and other services. This is why the visitors to small Moravian towns arrive only for a short-time sightseeing-visit and spend their money rather in larger and better equipped towns. The peaceful environment of some small towns could be with advantages used for congress tourism but the missing facilities hamper even this possibility.

Yet another problem is advertising and offer. Foreign tourists know mainly the capital of Prague and some other destinations in Bohemia. Small Moravian towns are not sufficiently known to the foreign clientele and their promotion is poor with an exception of small towns with sightseeings included in the UNESCO cultural world heritage such as Valtice or Telč. These are reasons for the small towns to become primarily the target of recreational stays and holidays for Czech families and tourists, the inland tourism bringing not too much finance, though.

It follows from the above that the prosperity of small Moravian towns usually cannot be based on tourism so far. However, tourism can be an important side factor of the prosperity provided that at least some of the barriers mentioned above are removed.

6. Landscape, environment and natural hazards in small Moravian towns

One of basic features of the small towns' landscape as compared with the landscape of large towns is a fact that the open landscape in the surroundings can be seen practically from any place in the small town, or the entire small town can be seen from one or more particular viewpoints. The open landscape can be usually reached within a couple of minutes and without using a car even in cases where the intravillans of small towns consist to a greater part of the reinforced areas of manufacturing plants, technical infrastructure and panel blocks-of-flats. Another difference in contrast to big towns consists in the size of individual small towns' landscape constituents. Extensive monotonous areas of homogeneous functional use apparently cannot develop in the small towns' territories.

The built-up area of small towns intravillans contains districts of family and apartment houses and other premises with manufacturing plants and infrastructure. One of important characteristics is the proportion of apartment houses in the structure of housing resources. This indicator ranges from 4% (Klobouky u Brna) up to 92% (Adamov). High-rise panel houses of six, eight and even twelve stores originate from the 1970s and 1980s. Some places have view dominants of industrial premises for thousands employees. The objects sometimes screen the natural view dominants of small towns such as church towers, spires of chateaus and town halls, indenting to them an unnatural industrial character. In spite of all this, a greater part of small towns still have the typical silhouette with the dominant of historical buildings.

After 1990, the small Moravian towns hastily accomplished the building of their technical infrastructure. All of them are fully connected to the gas-line system and adopted a modern concept of solid communal waste disposal with controlled landfills or incinerators. A certain reserve still remains in several small towns to fill gaps in the newly built sewage and sewage water treatment systems and the situation must be given a final solution before the end of 2004 pursuant to the commitments of the Czech Republic to the European Union. Technical infrastructure of small towns is fully comparable with that of big cities, which positively reflects in the quality of environment.

Traffic has become the most burning environmental problem not only in small towns. Operation of vehicles in small towns interwoven with traffic veins is a matter of serious significance. Small towns like these form approximately a third of the set under study. In these cases, the transit communications represent an important barrier in the existing landscape of small towns, analogical to mountain ridges with a valley between them in the open landscape. Similarly as in that case, it is usually difficult and dangerous to cross the barrier.

Topical natural hazard for small towns in Moravian conditions is the risk of floods. Medieval architects built the cores of historical small towns with no exceptions at protected elevated placed. In the period of industrialization, housing areas began to descend into the inundation zones of water courses. At the same time, technical measures were adopted on streams to eliminate the danger of regular floods. As shown in 1997, the danger of floods still threatens. While the new industrial premises and housing areas in the affected small towns were flooded, a majority of the historical town cores remained intact.

7. Discussion and Conclusions: The future of small Moravian towns

The so far research suggests that the hitherto significance of at least a certain part of small towns located within the Moravian system of settlement will be conserved. Demographic research studies even indicate a slightly increasing share of the Moravian population in these towns. Nevertheless, there is a range of questions of which two are of essential importance, following out of these statements: Is the above demographic trend permanent or at least long-term envisaged? What are reasons and conditions of maintaining the position of small towns in the settlement system?

The above issues relate to the prognoses future of small Moravian towns. In our opinion, the future will differentiate according to the location of the small towns, their existing and prospective functions, local market size and according to the capacity of the town management to make proper use of the potentials. Hypothetically, there are the following four scenarios of development, with a range of possible mixed and transition options:

- Small towns in the hinterlands of Moravian cities, mainly Brno and Ostrava, which are going to become a part of suburbanized agglomerations. The towns will capitalize on advantages from the cooperation with big towns, for which they will have to pay with a risk of losing their own identity.

- Small towns in marginal (mountain or borderland) locations with a complicated accessibility of larger centres. These towns will become unambiguous and complex centres of job opportunities, services and social contacts for their rural hinterlands, remaining together with them relatively poor, though.
- Small towns in the Moravian lowlands, easily accessible and surrounded by large villages with infrastructures of their own. The future of these towns can be seen in their specialization in industrial, tertiary or infrastructural activities with the main risk consisting in the one-sided character of such a specialization.
- Small towns that will not succeed in finding or making use of their prosperity potentials. These towns will be ever more ruralized.

The outlined development gives a fascinating picture of the diverse dynamics of small towns at which a range of visions, efforts and reversals can be anticipated. This is why one of targets for the research of urban geography should be aimed at the issue of small towns and their position in the national system of settlement.

Let's add one more question for readers abroad, that should be at the same time a challenge and the end of this contribution: Is the situation specific in the Moravian conditions, or a similar development of small towns is observed in other countries, too?

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Export competitiveness of Polish poviats and big towns on the market of an enlarged European Union

Tomasz Komornicki

1. Introduction

In today's Europe, it is to an ever greater extent the regions, rather than the states, that are the subjects of international competitions. As a result, the issue of regional competitiveness has now found its place among the interests of geographical circles. However, the numerous analyses made in recent years of different Polish regions' readiness for EU membership have most often been confined to an assessment of economic development, the state of infrastructure and the resources of so-called "human capital". Meanwhile, in the initial post-accession period what may actually turn out to be of the greatest importance are the foreign economic linkages that had formerly been introduced into the local economy. One of the basic measures of the linkages of this kind concerns the level and structure of foreign trade. It is accepted that the present differences in the size of the trade in goods characteristic of different regions may in large measure determine their future reactions to accession (*Profil wrażliwości*..., 2003). In other words, regions with strong commercial linkages and a favourable export structure are going to do better out of Poland's joining the EU. At the same time, we may refer to "export competitiveness" as an element of regions' overall competitiveness and a reflection of the phenomenon referred to as *internationalisation of an economy* (Kuciński 1998).

There is a feedback process in operation between the level of exports and the level of export competitiveness. If a region wants to be competitive on a given international market (e.g. that of Europe), it must have functioned on it previously. At the same time, a region becoming competitive sees its share in international trade rise. That this happens is *inter alia* down to external investors, who – by locating in "competitive" areas exert an influence in raising the level of both imports (investments and components) and exports (exports on to foreign markets the investor already possessed). A confirmation of this thesis can be seen in the ongoing concentration of Polish trade that took place in the 1990s. This signifies that regions that had previously played a part in foreign trade during the period of transformation will witness a more marked intensification of turnover than will other areas (Komornicki, T., 2000).

International trade can be treated as the sphere exerting the greatest influence in advancing the globalisation process in Poland today (Wnorowski 2002). However, it needs to be recalled that foreign trade in the present globalising circumstances is not exactly what it used to be. The trade in goods undertaken by enterprises from different countries has become a manifold exchange of components and part-products within networks of enterprises functioning beyond state borders (Stryjakiewicz 2002).

The present study thus seeks to assess the export competitiveness of Poland's poviats (or "counties"), including those large towns or cities upon which poviat rights have been conferred, on the market of the enlarged European Union. The measures adopted where competitiveness is concerned are characteristics of exports available at poviat level. Use was in fact made of data from the Foreign Trade Information Centre in Warsaw, arranged by destination country and poviat of origin and expressed in USD. The analysis of exports on the basis of SAD printouts identified an aggregation in

line with the locations of exporters, rather than producers. The four basic characteristics utilised and discussed were:

- the value of exports in comparison with demographic potential (expressed per poviat inhabitant);
- the value of exports in comparison with productive potential (expressed as the percentage of sold industrial output in the poviat);
- the role of the enlarged European Union in export (percentage share taken by 24 present and would-be member states within the total value of exports from poviats);
- the level of processing of exported goods (mean value of one exported tonne).

In line with the availability of comparable data, the single year to be subjected to analysis was the year 2000. In the case of each of the characteristics mentioned, the poviats with the strongest and weakest positions on the European market were identified, and the breakdown by issue presented in a cartogram. A final assessment was made on the basis of a simple synthetic index calculated from the four characteristics following their standardisation (in the case of measures expressed in percentages also after log transformation). Equal weights were assigned to each of the measures.

Export competitiveness was studied earlier on the basis of 1997 data involving the former 49 voivodships (as opposed to today's 16) (Komornicki 2000). Competitive areas identified then were north-west Poland as broadly conceived (but excluding Middle Pomerania), as well as the former voivodships of Warsaw, Tarnów and Bielsko - Biała. Areas of much lower competitiveness were in turn those of the old "Eastern Wall" between Białystok and Krosno, as well as the voivodships of Kielce, Wałbrzych and Konin.

2. Export as set against demographic potential

The absolute value of Polish exports differs markedly from place to place across Poland. Export is first and foremost concentrated in Warsaw, Poznań and a few other large agglomerations, as well as in what may be roughly described as "Western Poland", plus areas from which raw materials are won or significant amounts of foreign investment allocated. If exports are expressed per inhabitant, as in Fig. 1, it becomes clear that regional disparities are still greater. A high index is characteristic of Wielkopolska, the Lubuskie region, Lower Silesia, Pomerania, the Warsaw agglomeration, single poviats which are at the same time cities in Upper Silesia and a belt stretching from Tarnów as far as Stalowa Wola (as part of the pre-War Central Industrial District). In the eastern borderland, northern Mazowsze and the Kielce and Radom areas, it is usual for the level of exports to be well below 250 USD per head. In a few poviats it is even below 50 USD (a level similar to that in the poorest African states). This situation in part reflects the taking up of goods produced in the area by Warsaw, which is treated as both a final market for output and an intermediary in foreign trade. In addition, the low values noted for the index close to the eastern border are very much a reflection of the high level of unregistered (non-SAD) "suitcase" trade with Belarus and Ukraine. Leaving this aside, though, eastern and central Poland can be said to be areas that hardly export any goods on to any foreign market.

The poviat with markedly the highest figure for export per inhabitant is that of Polkowice, in which copper ore is mined. Alongside it are leaders (Table 1) that include centres of coal companies (Katowice), steelmaking firms (Dąbrowa Górnicza) and chemical manufacturers (Police, Tarnobrzeg), large centres of the motor industry with foreign capital like Bielsko-Biała and Tychy for FIAT and Gliwice for General Motors, and poviats whose other manufacturing sectors have received major injections of foreign capital (examples here include Kwidzyn and the International Paper Corp., Piaseczno with Thomson, Piła with Philips and Gorzów Wielkopolski with Volkswagen). In southern Poland, the poviats with a high value for exports per person form a belt linked to the Berlin – Wroclaw – Kraków – Tarnów transport corridor. An analogous belt in central Poland only extends as far as Konin (Komornicki 2003). Where the large centres are concerned, the highest levels of export are

achieved by the Tri-City (Gdańsk-Sopot-Gdynia), Poznań, Warsaw and Szczecin, and the lowest by Łódź, Kraków and Białystok.

3. Export in relation to economic potential

The index setting the value of exports against sold industrial output helps to depict the nature of local industrial production, showing indirectly the extent to which it is export-orientated. Thanks to it, it is possible to identify the economies of western and north-western Poland as markedly export-orientated, and to a lesser extent also that of the south-east (Fig. 2). A comparison of the two cartograms (Figs. 1 and 2) on which export is related to numbers of people or sold industrial output reveals similarities in the spatial distributions. The only region to have a pro-export orientation "out of proportion" with per-capita export is south-east Poland, something that would confirm the thesis that commercial potential is there reduced by a distinctive demographic structure (higher proportion of individuals of pre-productive age). Lowest recorded values for the coefficient (below 20%, and at times even 10%) are no longer present throughout the eastern borderland, but are rather confined to its central part. Most of the units with such values are grouped in northern Mazowsze and Świętokrzyskie voivodship. A low level of export on the East may be assumed to be linked with a low level of output overall, though in some central regions it reflects production for the home market primarily.

The border poviat of Przemyśl is one of a kind in Poland, in that its figure for export are almost three times greater than the value of sold industrial output. This reflects the presence and activity of many exporters operating on the Ukrainian market. It may also be a manifestation of the workings of the grey economy, within which some output is "lost" statistically. The same is not true of exports, over which the controls are tighter and registration harder to avoid. Leaving aside Przemyśl, the highest coefficient (of nearly 88%) characterises Katowice, which exports coal worked from throughout the Upper Silesian Industrial District. The group of leaders (see Table 2) again includes poviats enjoying high levels of foreign investment, and some units in western Poland whose industrial potential – though low overall – is largely devoted to exporting to Germany (as in the cases of Pyrzyce, Świdwin and Strzelce-Drezdenko). Where large, multifunctional agglomerations are concerned, the values for this index were much lower (mostly of 28-35%), reflecting large internal markets. Exceptions here are of course port centres like Gdynia (a value of 74%) and Szczecin (48%). In turn, Kraków shows less of an export orientation than might be expected for its size, with a value of just 18%.

4. The EU as a destination for Polish exports

The greater part of Poland has countries among "the Fifteen" as major trading partners. Nevertheless, regions vary greatly in the share of all exports that go to the EU, though the pattern of the differences is in this case very clear-cut. The significance of the EU as regards exports declines steadily as one moves eastwards (falling below 50% east of the Vistula and below 25% in the eastern borderland). The trend is matched in poviats located further and further to the east by an ever increasing share for export to the former Soviet countries. The EU accessions of Lithuania and Slovakia will ensure that the relevant borderland areas in Poland also become centres with a significant orientation towards EU export. In turn, the enlarged EU will continue to figure little as an export destination in the areas of Poland bordering with Belarus and Ukraine. Enlargement will nevertheless alter the spatial distribution as regards the significance of the EU in Polish foreign trade (Fig. 3). The zone of close export linkages with the Union will extend several tens of kilometres eastwards, though the east-west zonation of increasing/decreasing significance of trade with the EU will remain in place. The contiguous area in which the significance of it will remain relatively lower

includes Gdańsk-Pomerania and the western part of Warmia-Mazury (in part because of the role played by trade with the adjacent Kaliningrad District of Russia).

The unit with the highest (99.8%) share of exports heading for the markets of the 24-state EU is again the copper-producing poviat of Polkowice. However, values over 99% are to be noted in as many as 8 poviats (Table 3), those over 90% in 144 and those over 80% in 255. Equally, as of 2000, only 21 poviats were in a situation with a minority of exports going to the EU market. An absolute one-off is the rural poviat of Chełm, for which the EU as conceived in its 24-state configuration would still account for only 0.8% of exports, since Ukraine takes almost all of what the area sells abroad.

The likelihood that export markets (within and/or beyond the EU) will be diverse is generally greater in the cases of the large urban centres (especially Warsaw, Upper Silesia and Gdańsk), though there is also a general upward trend for poviats located further to the east, as trade with partners from the former Soviet bloc "comes in". An interesting further element is the increased likelihood that centres further east – as in Podkarpacie – will also be servicing the United States. Almost all the poviats in which the enlarged EU would account for a minority of exports only are in the east. Equally, the poviats of the western borderland have come down to exporting to just a single EU partner, i.e. Germany.

Where the large cities are concerned, the greatest dominance of commercial links with the EU is shown by Poznań (92% of exports), Wrocław and Kraków (both around 80%). The figure for Warsaw is lower, at just 68%. A surprisingly high figure is the 74% noted for EU-headed exports from Białystok poviat, though this will in part reflect exports to Lithuania. More in line with expectations are the much lower values for Lublin (52%) and Rzeszów (just 16%).

The diversity of partners (more limited predominance of EU export markets) noted for the large agglomerations may be regarded as an economic advantage, in that it safeguards against crisis situations, in particular a problem with the German economy. At the same time, most other poviats have low shares of export to the Union, not because they have so many other recipients, but simply because they focus very greatly on particular markets beyond the EU in both its present and post-enlargement forms. Leaving aside the cases in which the US market is involved, the linkage is mostly with individual formerly-Soviet countries, and it cannot be said that it is favourable (especially since the unidirectional nature of exports is often associated with low-quality products).

5. The level of processing of exported goods

There is assumed to be a link between the level of processing of goods and the relationship between the value of export and its weight. When such a measure was taken into account, the regional differences were found to be quite distinct from those arising with the three aforementioned characteristics. Western and north-western Poland come out poorly in this case, especially where their rural poviats are concerned. Almost all of those bordering onto Germany (which – it may be recalled, export much of what they produce and direct it very largely at the EU market) have mean values for a tonne of exported goods equal to or below 500 USD. Values are also very low in Western Pomerania, and in nearly all of the Upper Silesian towns and cities. Elsewhere there is a rather mosaic-like situation. The Kielce region emerges with the expected low level of competitiveness, while Mazowsze and the eastern borderland look more attractive than in regard to the aforementioned measures. A high unit value of exported goods in an area where export is of low overall significance can usually be explained by some local dimension (i.e. the favourable positions of individual plants). Equally, the aforementioned low mean worth of a tonne of exported goods characterised regions for which export is certainly important, but the goods in question derive from extensive production. Trading conditions here are almost certainly ultra-dependent on the European market prices obtainable for raw materials and largely-unprocessed foods (e.g. timber). There is undoubtedly a high level of future threat inherent in such situations, as they attest to the limited export competitiveness of the areas in question.

At the other extreme are the high-value goods exported from Kolno poviat in Podlasie voivodship (10,700 USD per tonne). This state of affairs reflects the presence of the firm *Bison-Bial* – among the world's largest producers of precision-designed chucks, lathes and vices. In 2000 this was most likely the only exporter of any significance in the poviat in question. Other high values can likewise be linked with single major foreign investors. Apart from Bielsko-Biała and Tychy (as headquarters for Fiat operations), the poviats in this group are rarely larger cities, though centres of light industry (including Łódź) do relatively well. In general, the leaders here (Table 4) are poviats with a single dominant exporter producing higher-value goods and so few other firms of significance that there is little or no lowering of the average value of exported goods per tonne on the part of goods with little or no processing. A more uniform group comprises the poviats processing their exported goods to the most limited extent. These are centres of coal and cement production, areas with certain branches of the chemicals industry and regions exporting wood and agricultural produce.

The larger centres exporting goods of relatively the highest value include Poznań (2900 USD per tonne), Łódź and Białystok. At the other end of the spectrum are Lublin, Wrocław, Kraków and Warsaw (just 700 USD). The capital's poor position in part reflects the location here of the exporters of little-processed goods (including crops) actually originating in other regions.

6. A synthetic assessment of economic competitiveness on the European market

The synthetic index of export competitiveness is a product of the characterisations mentioned above. In general, it points to a steady decline in competitiveness as one considers poviats located further to the east. Western Poland has competitive rural, as well as urban, poviats, attesting to the strong commercial links in place in the smaller centres. In turn, in the east and south, the centres of competitiveness are largely confined to towns enjoying poviat rights.

Fourteen poviats have a value for the synthetic index exceeding 1 (Table 5), while 12 have values below –1. Most competitive in terms of export is the oft-mentioned Polkowice, though other leading centres include raw-material producers (Katowice) and centres of foreign investment (Kwidzyn, Bielsko-Biała, Piaseczno and Gorzów Wielkopolski). Clearly the lowest level of competitiveness characterises some of the eastern poviats, but not in particular the border regions (where trade with Belarus and Ukraine is sufficient to raise the values of the different indices). However, it needs to be noted that the picture of export competitiveness in the eastern half of Poland is very heterogeneous. While at the bottom of the ranking list hardly any western poviats are placed, on the contrary , some eastern poviats can be found among the leaders on the list (e.g. Kolno, Przemyśl and the town of Krosno). This mosaic reflects a lower overall level of industrialisation in this whole part of Poland allowing the level and structure of exports in a given area to at times reflect the role of a single industrial plant.

The relatively weaker position of the agglomerations (Warsaw included) may be explained by recalling the sizes of their internal markets. Many of the manufacturies located within them do not even seek external markets. Among the larger centres, by far the most competitive in export terms is Poznań (in 29th place in the overall ranking). Surprisingly high when set against those of other agglomerations are the positions taken by Łódź and Białystok. However, the markets for the goods these cities produce are very largely confined to the former Soviet Republics. An interesting situation is that concerning the Warsaw area, within which certain adjacent poviats are more competitive than the city itself. This reflects the siting of new industrial plants (including foreign-funded ones) in areas of lower population density. Upper Silesia also displays very large differences in the competitiveness of its different towns and cities. Indices are generally high in four of its centres, i.e. Katowice, as the seat of coal companies, and Tychy, Bielsko-Biała and Gliwice, as vehicle manufacturing towns. Within the Tri-City, Gdynia emerges as much more export-competitive than Gdańsk.

When the results obtained are set against the upcoming enlargement of the EU, it can be said with some conviction that the areas of demonstrably elevated export competitiveness to date are likely to draw on existing linkages to enjoy greater chances of economic success in the new circumstances. However, this group does include units with a basically negative branch structure as regards export, particularly in the cases of the borderland with Germany and the Western Pomerania region as a whole. Moreover, a lack of the necessary data made it difficult to analyse the profitability of production and export, and hence the current economic condition of exporting firms. These factors exert an undoubted influence on the prospects when it comes to competing on the Single Market. With this in mind, the apparently good position of poviats exporting hard coal and some steel products has to be viewed with particular caution. Much of this export would not be taking place now were it not for steady state support of the kind the EU frowns upon. On the other hand, the real competitive position of the large multifunctional agglomerations is without doubt better than the comparison of values for the synthetic index would suggest. As has just been noted, the diversity of partners and lower value of exported goods that characterises these areas need not necessarily be viewed negatively.

In contrast, the two groups of regions with a low level of competitiveness are:

- those in which export is of limited significance to the local economy;
- those in which export plays a major role, but is directed towards non-EU markets and/or has an unfavourable branch structure.

It is the economic situation of areas in the second group that may prove most difficult in the future.

A further major feature of the spatial breakdowns noted for export indices is the extent to which these are mosaic-like. This confirms suggestions that many of the studies on competitiveness (not only as regards exports) are of limited value if centred on the voivodship level. A key example here concerns the repeatedly favourable assessments received by Mazowsze (as, for example, in the 2003 analysis of the Market Economy Research Institute entitled *Profil wrażliwości...*). The superficially high level of competitiveness is very much determined by the Warsaw agglomeration alone, while other surrounding areas fare worse with their international economic relations than do poviats along the eastern border. Likewise the relatively favourable situation ascribed to the voivodship of Silesia is a product of the high competitiveness of just a few towns and cities. Other areas in fact look very poor. Indeed the only larger area in Poland with uniformly good indices is Wielkopolska.

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Table 1. Poviats showing the greatest value of export per capita in 2000

No	Poviat	Voivodship	Export per inhabitant in USD
1	Polkowicki	Dolnośląskie	12 965
2	Kwidzyński	Pomorskie	6 915
3	Lubiąski	Dolnośląskie	6 768
4	Bielsko-Biała	Śląskie	5 554
5	Piaseczyński	Mazowieckie	4 443
6	Tychy	Śląskie	3 332
7	Tarnobrzeski	Podkarpackie	3 273
8	Dąbrowa Górnicza	Śląskie	3 243
9	Gliwice	Śląskie	3 192
10	Policki	Zachodniopomorskie	3 155
11	Katowice	Śląskie	2 922
12	Gdynia	Pomorskie	2 456
13	Gorzów Wielkopolski	Lubuskie	2 398
14	Pilski	Wielkopolskie	2 323
15	Olsztyn	Warmińsko-Mazurskie	2 268
16	Pruszkowski	Mazowieckie	2 035

Source: author's own work based on materials from the Foreign Trade Information Centre

Table 2. Poviats with greatest role for export as compared with sold industrial output in 2000

No.	Poviats	Voivodship	Export as a % of sold industrial output
1	Przemyski	podkarpackie	260,6
2	Katowice	śląskie	87,9
3	Myśliborski	zachodniopomorskie	86,6
4	Krosno	podkarpackie	86,2
5	Strzeliński	dolnośląskie	80,5
6	Świebodziński	dolnośląskie	79,3
7	Pyrzycki	zachodniopomorskie	78,5
8	Śremski	wielkopolskie	78,1
9	Grodziski	wielkopolskie	74,0
10	Gdynia	pomorskie	73,9
11	Rzeszów	podkarpackie	72,7
12	Piaseczyński	mazowieckie	69,8
13	Świdwiński	zachodniopomorskie	69,5
14	Pruszkowski	mazowieckie	68,3
15	Kartuski	pomorskie	66,7

Source: author's own work based on materials from the Foreign Trade Information Centre

Table 3. Poviats with the highest and lowest shares of 2000 exports taken by the present and future member states of the EU

No.	Poviat	Voivodship	% share of export taken by the enlarged EU
1	Polkowicki	dolnośląskie	99,8
2	Głubczycki	opolskie	99,8
3	Tucholski	kujawsko-pomorskie	99,7
4	Słubicki	lubuskie	99,6
5	Moniecki	podlaskie	99,4
6	Miechowski	małopolskie	99,3
7	Strzelecko-Drezdenecki	lubuskie	99,1
8	Średzki	dolnośląskie	99,0
9	Drawski	zachodniopomorskie	98,9
10	Sępoleński	kujawsko-pomorskie	98,9
367	Lidzbarski	warmińsko-mazurskie	29,1
368	Rzeszowski	podkarpackie	27,1
369	Biłgorajski	lubelskie	20,9
370	Sokólski	podlaskie	20,8
371	Siedlecki	mazowieckie	16,0
372	Rzeszów	podkarpackie	15,7
373	Chełmski	lubelskie	0,8

Source: author's own work based on materials from the Foreign Trade Information Centre

Table 4. Poviats with the highest and lowest relative values of goods exported in 2000

No.	Poviat	Voivodship	Mean price of 1 tonne exported in USD
1	Kolneński	podlaskie	10 676
2	Nowodworski	pomorskie	9 354
3	Polkowicki	zachodniopomorskie	8 174
4	Piekary Śląskie	śląskie	7 303
5	Poddębicki	łódzkie	5 631
6	Mławski	mazowieckie	5 444
7	Gostyniński	mazowieckie	5 058
8	Łaski	łódzkie	4 810
9	Kamiennogórski	dolnośląskie	4 716
10	Pabianicki	łódzkie	4 568
11	Tychy	śląskie	4 277
12	Sierpecki	mazowieckie	4 064
13	Kętrzyński	warmińsko-mazurskie	3 891
14	Krosno	podkarpackie	3 685
15	Bielsko-Biała	śląskie	3 609
365	Gryfiński	zachodniopomorskie	98
366	Zielona Góra	lubuskie	92
367	Opolski	opolskie	91
368	Krapkowicki	opolskie	88
369	Rybnik	śląskie	86
370	Chełm	lubelskie	54
371	Pajęczański	łódzkie	54
372	Katowice	śląskie	53
373	Jastrzębie-Zdrój	śląskie	48

Source: author's own work based on materials from the Foreign Trade Information Centre

Table 5. Poviats with the highest and lowest levels of export competitiveness in the enlarged EU

No.	Poviat	Voivodship	Value of synthetic index
1	Polkowicki	Dolnośląskie	5,37
2	Kolneński	Podlaskie	2,23
3	Bielsko-Biała	Śląskie	2,19
4	Kwidzyński	Pomorskie	2,09
5	Lubiński	Dolnośląskie	1,97
6	Krosno	Podkarpackie	1,69
7	Tychy	Śląskie	1,66
8	Piaseczyński	Mazowieckie	1,61
9	Przemyski	Podkarpackie	1,48
10	Gorzów Wielkopolski	Lubuskie	1,48
11	Grodziski	Wielkopolskie	1,17
12	Katowice	Śląskie	1,11
13	Śremski	Wielkopolskie	1,10
14	Świebodziński	Lubuskie	1,00
29	Poznań	Wielkopolskie	0,78
109	Łódź	Łódzkie	0,22
116	Białystok	Podlaskie	0,20
139	Warszawa	Mazowieckie	0,10
190	Wrocław	Dolnośląskie	-0,07
200	Szczecin	Zachodniopomorskie	-0,10
237	Gdańsk	Pomorskie	-0,19
265	Kraków	Małopolskie	-0,31
362	Ropczycko-Sędziszowski	Podkarpackie	-1,00
363	Białobrzeski	Mazowieckie	-1,02
364	Pińczowski	Świętokrzyskie	-1,04
365	Skarżyski	Świętokrzyskie	-1,08
366	Sokołowski	Mazowieckie	-1,09
367	Ciechanowski	Mazowieckie	-1,14
368	Opoczyński	Łódzkie	-1,19
369	Kazimierski	Świętokrzyskie	-1,34
370	Hrubieszowski	Lubelskie	-1,40
371	Łomżyński	Podlaskie	-1,41
372	Łęczyński	Lubelskie	-1,49
373	Chełmski	Lubelskie	-1,55

Source: author's own work based on materials from the Foreign Trade Information Centre

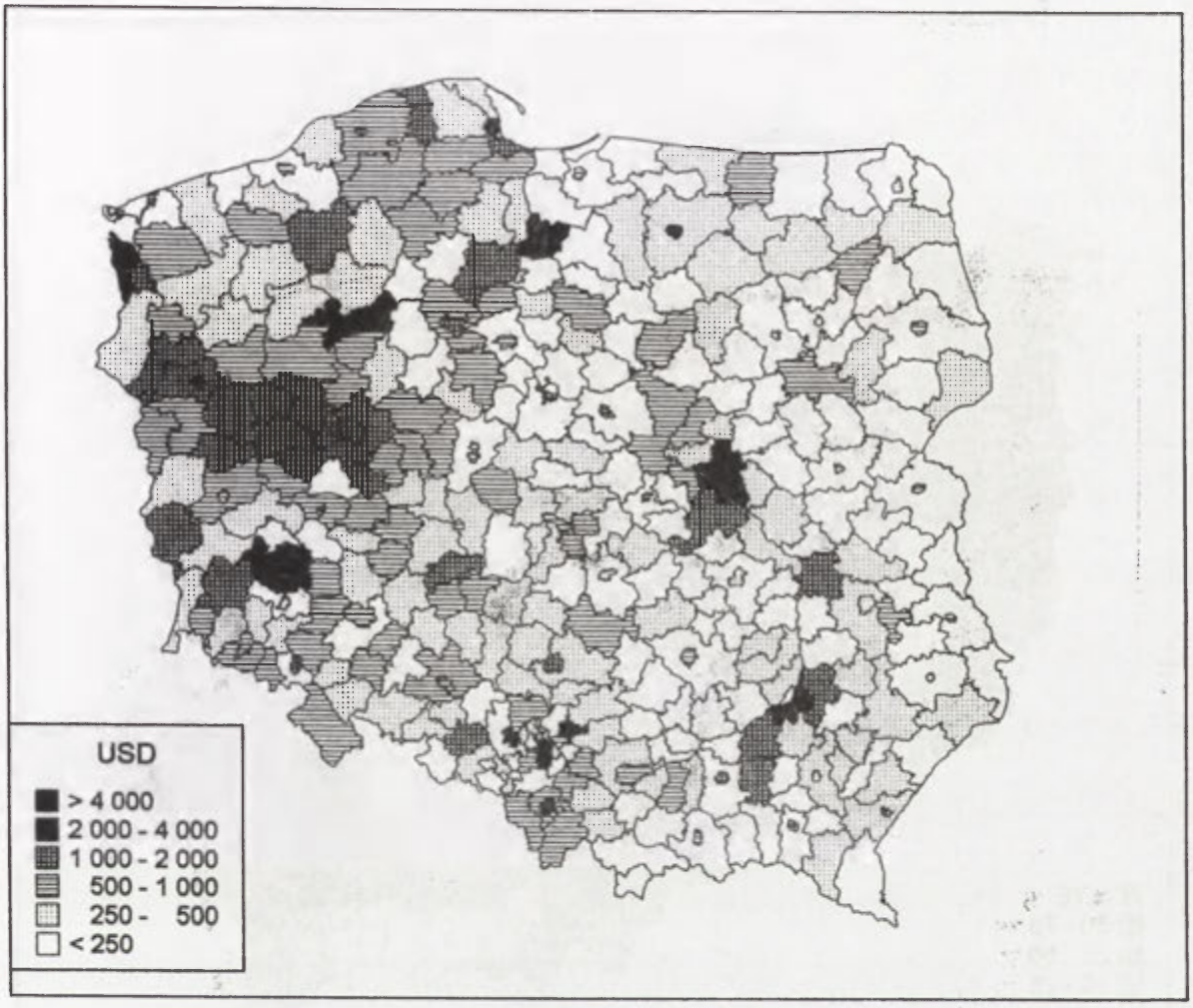

Fig. 1. Exports from Poland in 2001, as expressed per poviat inhabitant
Source: T. Komornicki (2003)

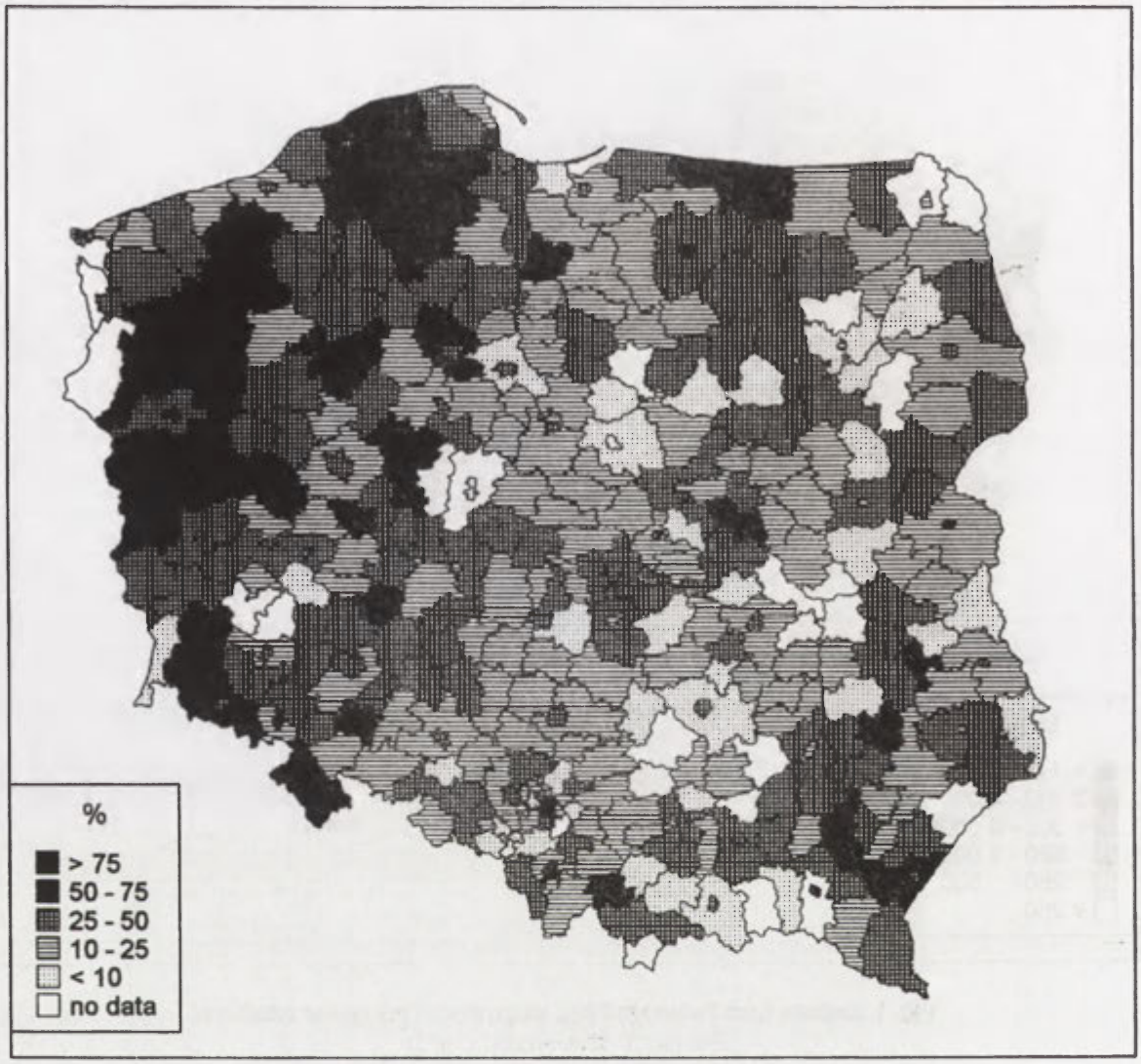

Fig. 2. Exports in 2000 as a fraction of sold industrial output by poviat
Source: T. Komornicki (2003)

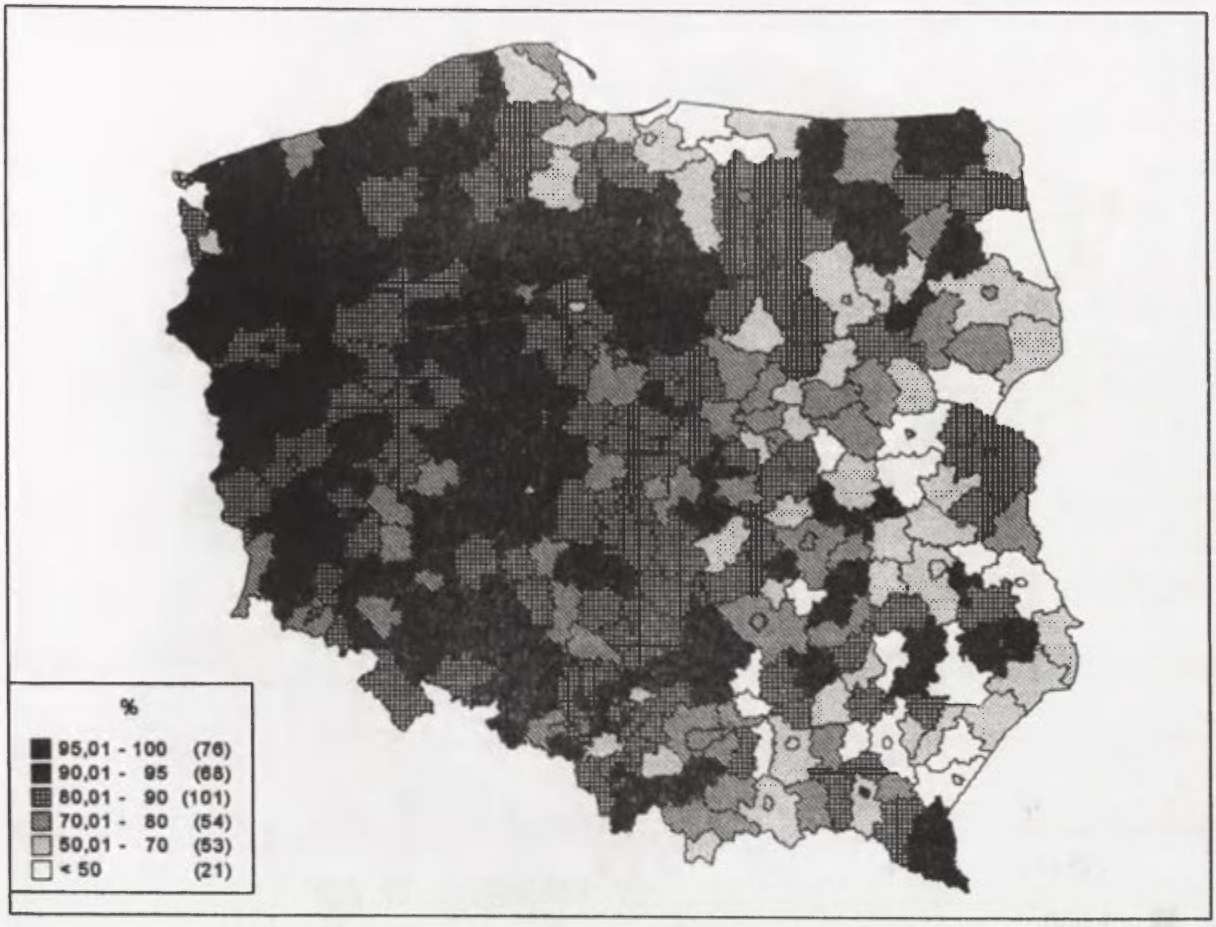

Fig. 3. Share taken by the enlarged (24-state) EU in exports from the poviats in 2000
Source: Author's own work based on material from the Foreign Trade Information Centre

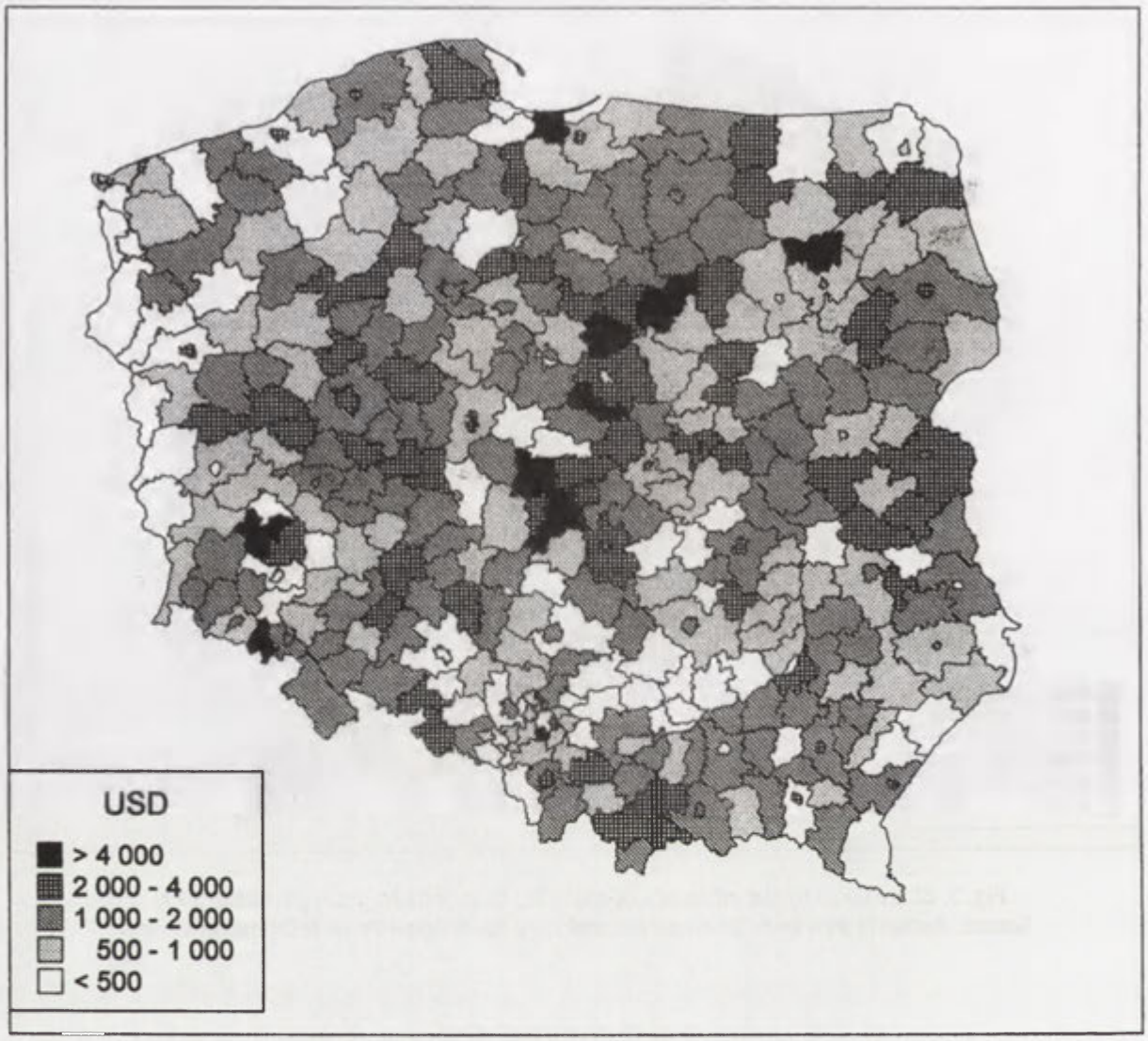

Fig. 4. Mean price per tonne exported from the different poviats in 2000
Source: Author's own work based on material from the Foreign Trade Information Centre

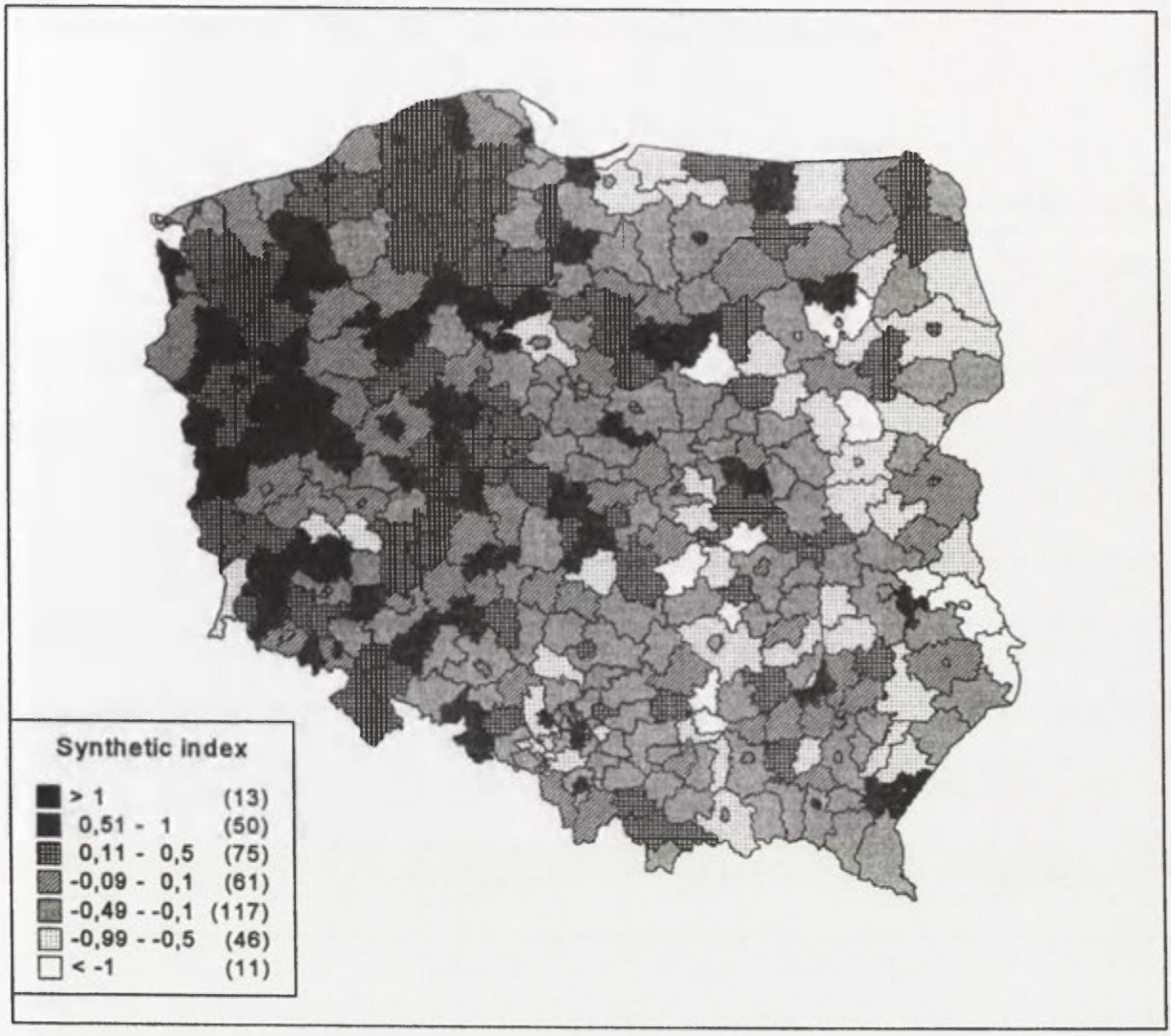

Fig. 5. Synthetic index of poviats' export competitiveness in 2000
Source: Author's own elaboration

Impact of urban sprawl on environmental planning. Warsaw Metropolitan Area in the context of European experiences

Bożena Degórska

1. Introduction

The period of socioeconomic transformation in the states of Central and Eastern Europe gave a start to a further phase of very intensive spatial development in towns and cities. The greatest of all the transformations of spatial structure are however in the metropolitan areas (Dutkowski, 2000); in the case of Poland the Warsaw Metropolitan Area (Furman 2001), which is taken to extend for some 30-40 km from the centre of the capital (Chmielewski 1996).

The increased dynamic of the urban sprawl, especially within existing and potential metropolitan areas of Poland (likewise in other ex-communist countries) is associated with the introduction of market economy principles, the increase in people's financial possibilities, the spread of the common use of passenger cars, as well as public needs with respect of the quality of life. There is no doubt that the ongoing spatial processes are also under the influence of contemporary global trends, above all globalisation and the attendant spread of ICT.

The reconciling of cities' spatial development with a proper shaping of the landscape and environment in their surroundings must be one of the most difficult contemporary planning problems. The aim must therefore also be perceived as a challenge for 21st-century planning, since the quality of the environment and attributes of the landscape are assuming ever greater significance as people select a place to live.

Taking place in Poland, just as in many other countries around Europe and the world, the dynamic process of urban sprawl is not only disturbing the natural balance, but also lowering the quality of life in many cases. "Aggressive" housing projects creating an often amorphous urban space combines with uncontrolled spatial development of building, especially around major cities to give a rapid loss of valuable natural features in the neighbourhood of places of residence, quite often producing discomfort and a lack of spatial order, as well as a lowering of the quality and ecological utility of the environment. This is then a process of urban sprawl meant to assure people greater contact with nature, but actually disturbing the natural balance and creating structures that are friendly to neither people nor the environment. Furthermore, it often fails to assure the economic bases upon which the environment is protected, on account of the costliness of installing associated technical infrastructure.

It is thus important that the planning process should ensure the rational management of natural space. Indeed, the combating of uncontrolled urban sprawl is one of the goals of EU planning policy (ESPD, 1999).

The research presented here was carried out with a view to determining the extent to which the spread of housing construction around Warsaw has been influencing the present system of open areas and possibilities for them to be shaped, in connection with the physical development policy pursued by the European Union and European experiences in general. The work has been done within the framework of research project 3 PO4E 049 22 entitled: "Contemporary changes in the landscape and the shaping of open space within the Warsaw Metropolitan Area".

2. Urban sprawl and system of open space. The case of Warsaw

The end of the 20th century brought the onset of a further phase of very intensive (at times uncontrolled) spatial development of Warsaw's settlement system. The 1990s saw the Warsaw agglomeration in what is known as the phase of absolute decentralisation (Korcelli et al. 1997; Gawryszewski et al. 1998). Attesting to this was the trend for Warsaw proper to decline in population (Fig. 1), while the numbers of people in the surrounding areas rose (Potrykowska 2002).

The spatial differentiation of net migration of the population in Warsaw and surrounding areas confirms what is a near-general rule for large Polish agglomerations, which is to say an inflow of people to the outer zones (the exception would be the Upper Silesian and Wałbrzych conurbations, in which outflow prevails – see Potrykowska 2001). It needs to be stressed that Piaseczno poviat just outside Warsaw had a total net migration per 1000 population of 21,5‰ in 2001, the highest to be noted anywhere in the country. Values were also high in other poviats around the capital. Unlike Poznań, Łódź, Gdańsk and Katowice (with their negative overall coefficients for the total net migrations), Warsaw has a positive value for the net migration (*Demographic Yearbook of Poland*, 2002). This is mainly linked with the metropolis's recording of Poland's highest level of attractiveness to investment (Domański, Guzik and Gwosdz 2000; Furman 2001).

The Central Statistical Office's demographic forecasts to the year 2030 anticipate a maintenance of the same trends as in the 1990s when it comes to population changes in the areas around Warsaw, which is to say a further increase in the number of people (Fig. 2). In line with the cited forecast, the years 2010-2020 will bring a reversal to the downward trend in population in place since 1991, with the effect that there will be a small population increase. However, the following decade should once again be characterised by a downward trend, only this time much more marked (Fig. 3).

The demographic forecast referred to allows it to be considered that the non built-up and the unforested areas around Warsaw will continue to be a place of intensive residential development and associated investment. The urban sprawl will thus lead to a further reduction in – or complete loss of – the value of natural features, especially when it comes to ecological and spatio-environmental linkages on the one hand, and the ensuring of a suitable retention of open land and human quality of life on the other.

The radial structure to the Warsaw Agglomeration present previously is now losing its integrity as residential construction increasingly adopts a concentric direction. Thus, alongside further increases in the density of built-up areas within the existing settlement fabric, the main areas in which new residential complexes are being located are those between existing settlement strips and on the fringes of the urbanised areas, along the main roads and existing rail lines (Fig. 4).

The greatest concentration of residential complexes developed in the years 1992-2002 were in Piaseczno, Nadarzyn, Chotomów, Jabłonna, Marki, Zagościniec, Hipolitów and Wiązowna (Fig. 4). In the south of Warsaw, the large belt of settlement now taking shape confers a new – transverse settlement network upon the area.

The new urban space is being established without any vision for the spatial development of the metropolitan area as a whole, or for the shaping of the region's areas of open land. A question therefore arises as to whether this process is to denote the beginning of the development of residential construction, wherein new urban space will be formed from extensive residential areas mainly of single-family housing arranged concentrically and filling in the free space around Warsaw. This question was highlighted by S. Gzell, who, in perceiving the American model to the development of a city with a growing suburban zone, said: "the American metropolis is to be found so close to us" (Gzell 2002).

In the zone of Warsaw's nearest surroundings – up to 20 or 25 km from the city centre, it is possible to discern four ways in which free space has been built up, in the last ten years. The first type entails the locating of new complexes of building on the edges of existing housing estates, the second

the locating of new construction at considerable distances from existing estates. In choosing where to locate, a preference is shown for the areas enjoining to the forest complexes, notably the Mazowiecki and Chojnowski Landscape Parks (Fig. 4). If the present trends to the urbanisation of Warsaw's suburban zone are maintained, the majority of the area's forests will become islands of green space within a built-up area. Forests themselves may also be places for building development, which does not even leave Mazowiecki Landscape Park alone. The third type involves infilling by built-up areas within the existing settlement areas. The fourth type involves the filling-in of free space along existing roads, usually those of local or sub-regional significance, thereby generating linear configurations of ever more continuous construction. Along the main entry-exit routes, there are usually service- or service-related/production buildings, as well as single houses. Only much more rarely are complexes of residential construction present.

Bearing in mind the need to preserve natural linkages between wedges of green space in Warsaw's immediate vicinity, a phenomenon posing a particular threat is the building up of free land separating different settlement units along exit routes and railway lines. This leads to the disappearance of the aforementioned linkages. To convey how important the latter are it is necessary to point out that the present spatial structure of the natural land within the zone around Warsaw up to 25 km out from the centre is characterised by a wedge configuration of natural land. The wedges penetrate from the periphery towards the centre of the metropolitan area. In contrast, the radial arrangement of main settlement strips represents an ever fuller barrier to ecological linkages between the different green wedges. Such a spatial structure harks back to the model from Fritsch of 1898 (Malisz 1981).

New settlement thrusts entailing a locating of residential complexes concentrically around Warsaw may lead to fragmentation within the wedges of greenery, and hence to the disappearance of linkages with the more distant natural surroundings. One of the examples of this threat is provided by the dynamic process of urbanisation ongoing in the Góra Kalwaria – Piaseczno – Pruszków strip.

It would seem that – in connection with the lack of a new concept for the shaping of open areas in Warsaw's Metropolitan Area – there is now a lost opportunity to protect many valuable natural areas and to preserve ecological corridors. This true both within the Warsaw city limits and in the vicinity (Degórska 2002). The continuous ring-like structure of natural land is present at a distance in excess of 20-30 km from the centre of Warsaw, so the configuration of open land existing in the Warsaw Metropolitan Area may be defined as both ring-shaped and wedge-shaped.

The demarcation of an urban region's natural system – and the recognition of it as an important structure-generating element in the spatial development plan for the metropolitan area as a whole – are thus very major challenges for regional planning. Areas falling within a system of the open space should be excluded from building development.

Alongside social acceptance of the new way of shaping space, a further important element will be the time factor, since the land presently being built on is usually excluded permanently from the natural system. It is worth making clear that, in spite of huge urbanisation pressure (in naturally valuable areas in particular, and both within and beyond the Warsaw limits); there is still a possibility for the system of open areas to be planned, in order that both internal continuity and external linkages are retained.

Natural open areas serve important functions when it comes to the shaping of urban space, especially that of large cities and their surroundings. They influence the physical and psychological state of human health as they are important places for active recreation and spiritual regeneration. In addition, a continuous structure allows cycle tracks and walks to be run along it. A climate-modifying and sanitary function is also served, since air is regenerated and exchanged, while the flows of masses of air may be directed. The aesthetic value of urban space is also raised as landscapes are created. The land in question is also often productive agriculturally, though this function is tending to disappear from large cities and their suburban zones. Nevertheless, it ought to be retained in countryside areas.

It is thus important that the spatial planning of urban areas and their surroundings should perceive open natural areas as a necessary element conferring structure. They should be introduced compulsorily into regional and local planning, especially in regard to existing and potential metropolitan areas. The system should only comprise land not built on and not designated for building. In specific cases, areas with dispersed rural settlement might also be included. The main feature of the configuration of open areas should (as mentioned) be their spatial continuity. Such a system must keep its internal linkages within the urban region in place, as well as external links with surrounding land. Areas of the greatest value from the environmental point of view as priority areas, must represent a cohesive system together with the network of ecological corridors will create an environmental system for the urban region. On account of the severe anthropopressure, a system of this kind needs proper shaping and protection in order that its ecological effectiveness might be retained or raised, along with human living conditions. The ecological capacity of open areas is influenced by such features as: appropriate size, the existence of priority areas, the retention of natural linkages, the natural resistance of biotopes, proper land use and land ownership. Although natural open areas serve an important function in urban space, the development of towns and cities mainly occurs at their expense.

3. European experiences and policies concerning the spatial development of countryside around towns and cities

The idea of shaping urban space in harmony with the natural environment, though not exactly new, regained its up-to-the-moment relevance through the sustainable development concept. The Europe 2000 report (1991) points to the need for European countries to cooperate over sustainable development, including as regards the spatial development aspect. Possibilities for the approximation of the planning systems in the different Member States, as well as a systemic approach to environmental protection in planning, were expounded in a later report entitled Europe 2000+(1994). It is worth emphasising that this paid attention to the conservation, strengthening and restoration of a system of ecological corridors, as well as the development of green space in cities and their immediate surroundings, in order that regenerative and recreational functions might be enhanced. The issue of the sustainable spatial development of the EU was presented in detail in the *EU Compendium...* (1996), the *European Spatial Development Perspective* (ESPD 1999) and many other documents. A considerable attainment of common EU policy oriented towards the sustainable development of towns and cities came with the Charter of European Cities and Towns Towards Sustainability (1994). Although this Charter still uses three dimensions of sustainability, i.e. society, economy and the environment, an emphasis is put on their specific functions and interlinkages: "We cities and towns, (...) seek to achieve social justice, sustainable economies, and environmental sustainability. Social justice will necessarily have to be based on economic sustainability and equity, which require environmental sustainability".

In the European Spatial Development Perspective (1999) the focus is on a strengthening of a polycentric and more balanced system of metropolitan regions, city clusters and networks, as well as a new urban-rural relationship. This policy is in particular concerned with regions peripheral to the core area of the EU which is formed by a pentagon with sides linking London, Paris, Milan, Munich and Hamburg, wherein strong global economic functions and services allow for a high level of income and a well-developed infrastructure. To ensure that the development of towns and cities is characterised by sustainability, the EU recognises the five following aspects as of particular importance (ESPD, 1999):

- control of the physical expansion of towns and cities;
- the mixing of functions and social groups;
- wise and resource-saving management of the urban ecosystem, particularly as regards water, energy and waste;

- better accessibility by different types of transport which are not only effective but also environmentally friendly;
- the conservation and development of the natural and cultural heritage.

The new policy for the development of countryside around towns and cities, and most especially their urban fringes, perceives the need for multifunctional development. The term multifunctional landscape refers to the plural and simultaneous use of an area for several purposes; an area that serves different functions and combines a variety of qualities (De Blust and Van Olman, 2000). J. Handley et al. (2002) argue that the final perspective relating to the countryside around towns is that of multi-functionality. S. P. Tjallingii (2000) shows that earlier views on the planning of land between urban areas and the countryside should give way to planning oriented towards sustainable management of landscape processes, ensuring that a new functional relationship is built between the city and the landscape. In this conception, the previously monofunctional agricultural landscape would develop into a multifunctional landscape. Sport and recreation can better coexist alongside agriculture and nature conservation (Handley et al. 2002).

The problem of the counteraction of uncontrolled urban sprawl was the subject of research as early as at the end of the 19th century. The concept of Sir Ebenezer Howard played a major role in the planning of urban structures and development of urban regions from this point of view.

Howard's concept from 1898 attached major importance to open areas as structural elements, which were to counteract the dramatically growing concentric configurations of settlement. What was involved was the preservation of open areas – mainly agricultural – between planned satellite towns (Howard 1898 – reprint 1985). With certain modifications, this model was applied in the plans for the development of Greater London, with some of its premises also employed in planning the development of Greater Warsaw. Similar purposes were to be served by the Fritsch model of 1896 (Malisz 1981), wherein wedges of green space separating residential areas were to extend from the periphery towards the city centres. These models are cited, not only on account of their precursory character, but also because they still have certain application in regard to the spatial structure of the Warsaw agglomeration.

Interesting examples of the ordering of spatial structure around large cities are provided by examples in England. There are 14 separate Green Belts in England, covering approximately 13% of the country (Green Belt Statistics). Green Belts were introduced originally around London, in the late 1940s. The fundamental aim of Green Belt policy has been to prevent urban sprawl by keeping land permanently open. Green Belts are broad areas around major towns and cities in which there is a presumption against inappropriate development (Elson, Steenberg, Mendham 1996). Current government policy in England as regards Green Belts sets out the principal aims thereof (Elson 1984):

- to check the unrestricted sprawl of large built-up areas;
- to prevent neighbouring towns from merging into one another;
- to protect the setting and special character of historic towns.

There is now a perceived need for the policy on urban green space in England to be updated, since today's conurbations are characterized by the merging of compact cities and towns into larger-city regions (Handley et al. 2002). These matters are associated inter alia with needs as regards housing, the presence of degraded land and abandoned land, the fragmentation of the green belts by motorways and other infrastructure and the new expectations of local communities. In the opinion of Joe Ravetz (2000): "the green belt boundaries may need a rethink in line with new problems and opportunities, such as:

- in degraded/derelict land where development would enhance and promote after-use;
- in rural areas where diversification for leisure or ecological development is needed;
- in smaller settlements where development would enhance viability of local services;
- in green wedges into urban areas which would benefit from green belt extensions.

A very good example of the integration of a city and city-region's spatial development with the natural environment is provided by German experience. The sustainable development principles formulated at the Rio Earth Summit and then set out in EU planning policy were applied much earlier in the German planning system.

As early as at the end of the 1970s, an important aim of development plan provisions for the German Länder and regions was the maintenance and restoration of the natural bases underpinning life. This objective is achieved by ensuring the ecological efficiency and regenerative capacity of the natural environment, the permanent possibility for natural resources to be utilised and the diversity, identity and beauty of the landscape (Jędraszko 1998). According to E. P. Odum (1982), the retention of the proper relations between built-up and non-built-up areas requires that the latter should occupy 1/3 of a city's area.

The principles underpinning the shaping of spatial structures in Germany differ in regard to the type of area. The Spatial Development Plan for Hessen draws a distinction between three types of area: areas of the highest density, areas for the ordering of space and rural areas. Areas around large towns and cities are among those needing to be ordered spatially as regards places of residence, places of work and the environment. The natural conditions underpinning life, like fresh water, air, open spaces and soil are what are ordered spatially within these areas, such that limits on urban development are set (Künkel 2001). When it comes to the process by which the spatial structures of large urban areas and their surroundings are shaped, the open areas are of particular importance. In the German plans, equal weight is attached to these areas, to areas that have been built upon and areas designated for building. Policy principles in regard to open areas concern the protection of ecological and spatio-natural linkages, as well as the safeguarding of the appropriate sizes thereof. An example of such an approach to planning is provided by the provisions in the 1991 Stuttgart Regional Plan. The spatial planning for Stuttgart puts the greatest emphasis on the renaturalisation of river valleys, as well as the delineation of a generally-accessible system of open areas that represent 28% of the region's area, as well as the permissible extent of built-up areas. The open areas are divided into three types (Jędraszko 1998):

- regional green strips – as spatially contiguous areas in which protection against building is in force, such that different ecological and recreational functions might develop, while uses incompatible with these functions are safeguarded against;
- green gaps – smaller areas separating different concentrations of settlement and serving natural (balancing and rest/recreational) functions;
- priority areas, in which natural or ecological utilisation must be assured (e.g. areas safeguarding biotopes, the climate, the regeneration of the air, nature conservation, soil conservation, etc.).

Bearing in mind the requirement that a spatial development plan be drawn up for the Warsaw Metropolitan Area and other such areas in Poland, it would be particularly useful to make use of tried and tested European experience, as well as the principles enshrined in EU policy as regards spatial planning.

4. Summary

The observed urban sprawl may in future lead to the establishment of a space that does not ensure a good quality of life. In these circumstances there will have been a disappearance of ecological functions over considerable areas.

The presented spatial development of town areas and city regions, are not characterised by the sustainability of the emergent structures. The land around Warsaw and other centres of regional or supra-regional important are usually being built on in a chaotic and uncontrolled way. The space arising is amorphous, such that within it all the land not built on already (and outside Nature Reserves,

National or Landscape Parks or designated protective forests) is treated as a potential building site. There is thus a threat to the persistence of the natural hinterland of large settled areas, as well as to the safeguarding against building of many naturally valuable areas not enjoying the above kinds of legal protection. In these circumstances there is a question as to whether the spatial continuity of natural systems and their ecological functions can be safeguarded.

On account of the tendency for configurations to petrify, the structures taking shape at present will exert an influence on development for years to come. A dynamic and at the same time spontaneous spatial development of urban areas represents a new challenge for planners. A need arises to devise compromise solutions that might allow for development as well as the retention of some ecological "services" via surviving natural areas of open space. However, action will need to be taken quickly if uncontrolled urban sprawl is to be prevented, especially in metropolitan areas or land around the other large cities.

Unlike with the planning systems of England and Germany, Polish legislation lacks provisions on the shaping of an optimal natural structure of urban areas, their surroundings and whole metropolitan areas, in spite of the fact that planning is an important instrument in environmental protection. Shortfalls as regards substantively well drawn up and effective planning instruments favour improper solutions. The entry into force of the Planning and Spatial Development Act of March 27th 2003 brings with it a certain dose of optimism as regards the stimulation of planned development in a metropolitan area since, in accordance with Article 39 (point 6) "a plan for the spatial development of a metropolitan area shall be adopted as part of the voivodship-level physical development plan".

The question then arises as to whether making the drawing up of a plan for a metropolitan area compulsory will lead to the real protection of open areas. There would seem to be such a possibility, providing that the system of the open spaces comes to be regarded as of equal importance to the settlement network as a structural element (Degórska 2003). Such an approach could represent an important step towards the sustainable development and shaping of Polish metropolitan areas, as well as other large cities and their surroundings. The system of open areas should be perceived as a very important element stabilising spatial structure, and at the same time raising the quality of life.

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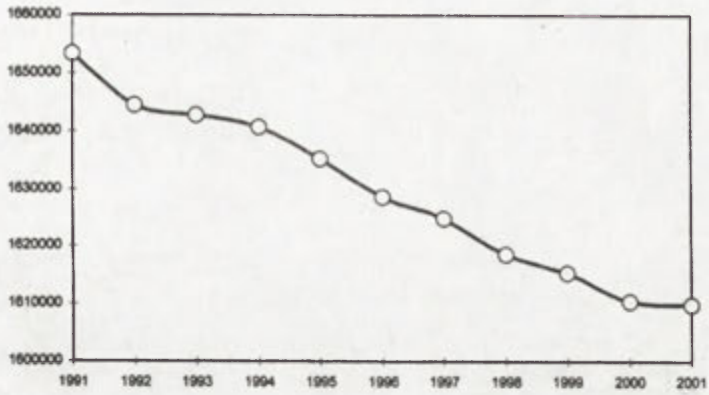


Fig. 1. Changes of the population in Warsaw (1991-2001)
Source: *Demographic Yearbook of Poland*, Central Statistical Office, Warsaw, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002

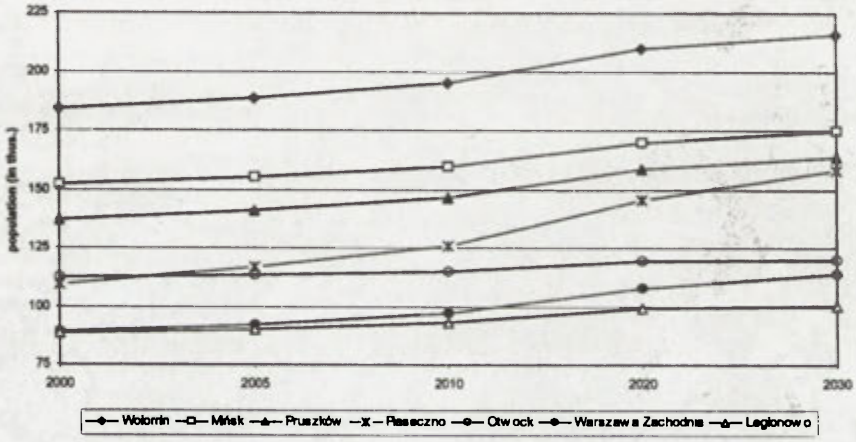


Fig. 2. Population projection of poviats in the immediate vicinity of Warsaw
According to the Central Statistical Office's demographic forecast to the year 2030
Source: *Demographic Yearbook of Poland*, Central Statistical Office, Warsaw, 2001; *Powiaty w Polsce*, Central Statistical Office, Warsaw, 2001.

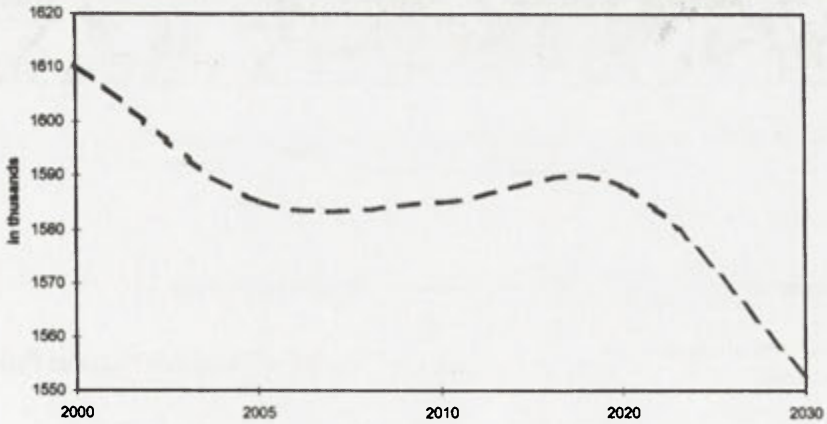
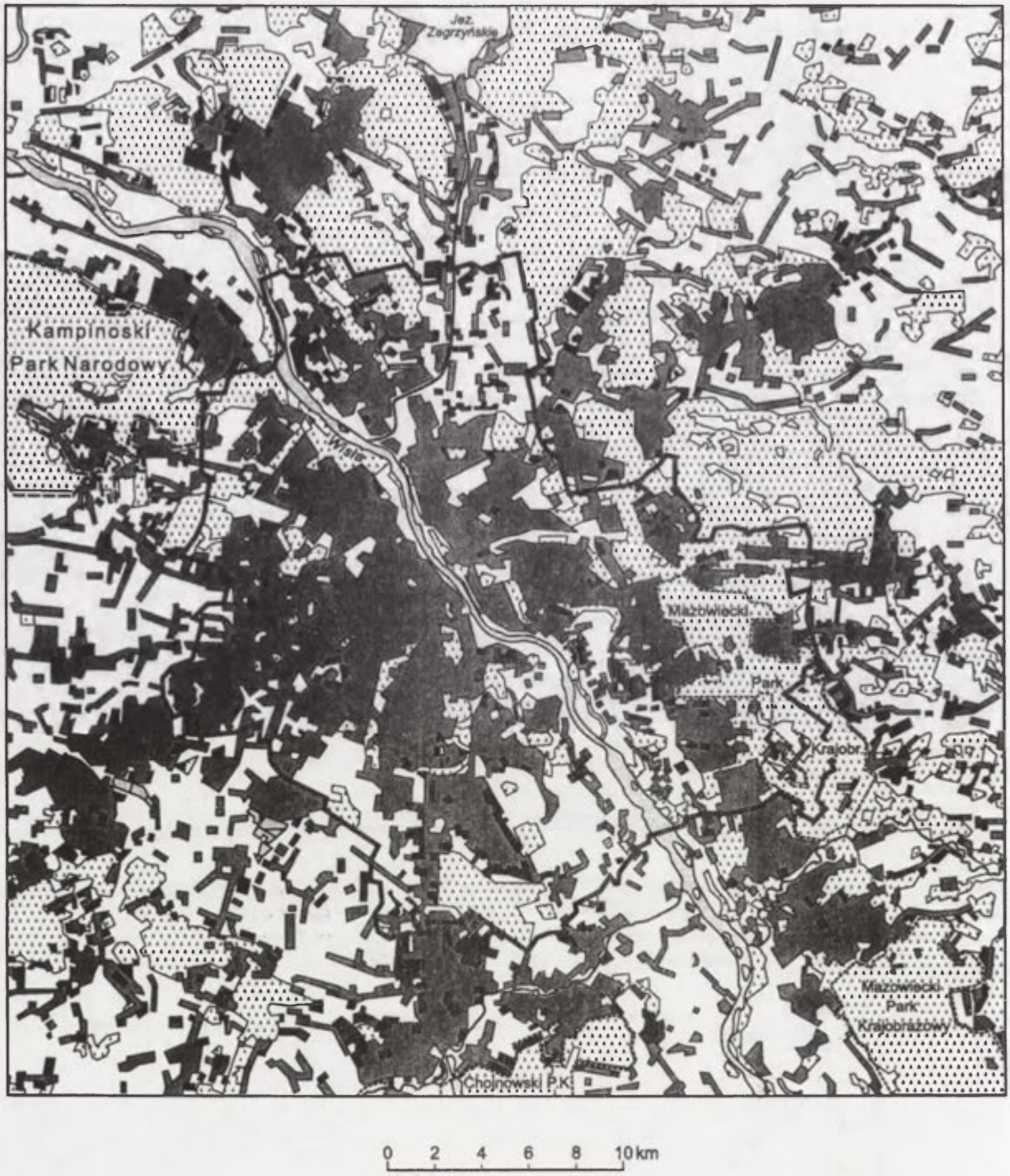


Fig. 3. Projection of the population of Warsaw
According to the Central Statistical Office's demographic forecast to the year 2030
Source: *Demographic Yearbook of Poland*, Central Statistical Office, Warsaw, 2001; *Powiaty w Polsce*, Central Statistical Office, Warsaw, 2001



Built-up areas

New residential complexes in 1992-2002

Forests and greenery

Waters

Border of Warsaw

Border of Kampinos National Park

Borders of landscape parks

Fig. 4. Development of the residential areas in the Warsaw Region

Accomplishment of the concept of sustainable development: ecological and economic priorities. Ukraine's experience in the perspective of European integration

Valentin M. Tregobchuk

1. Introduction

Due to the fact that society and environment should be considered in the broad sense as integrally interconnected and interdependent, the thorough research of different aspects of their interaction and interinfluence may be treated as the main task of all sciences, including geography and economics.

Environmental protection and ecologically safe use, effective reproduction of natural resources and maintenance on this basis of ecological safety of human activity are the most urgent up-to-date problems. Their strategic solution requires purposeful regulation of natural resources use, influence of production on the environment, functioning of complex natural, socio-economic system "society – environment – production", and also large-scale development of cooperation between all countries of the world in order to transform their national models of economy into a model of sustainable development.

The world ecological forums in Rio de Janeiro and Johannesburg unequivocally established a fact that economic growth aimed only at the development of economic complexes, without strict observance of ecological safety requirements, is capable to cause a complete destruction of both environment and natural and human capitals. For this reason the conception of sustainable and ecologically safe economic development is recognized to be a dominant ideology of survival of the earth's civilization, a strategic direction of maintenance of material, social and spiritual progress of mankind.

2. Brief estimation of ecological situation in Ukraine and of its environmental condition

Ukraine rather slowly goes out of a deep social and economic crisis. Destabilization processes and negative phenomena still take place in many spheres of its national economy and social life. At the same time almost all its territory, natural resources and ecological systems are covered by a deep ecological crisis. As a result of it, Ukraine continues to have big economic, social and ecological losses. Not having a sufficient number of its own sources of energy and some other important resources, first of all, mineral and water resources, Ukraine still maintains that deformed, antiquated and ecologically damaging structure of production which was formed during the years of the USSR, when cheap energy and raw mineral resources were transported here from other republics.

This structure is harmful and extremely irrational both from the ecological and socio-economic points of view. It consumes an enormous amount of natural resources with very low efficiency, it excessively pollutes and exhausts the environment. At the same time such economic structure does not solve social problems properly. On the contrary, it causes irretrievably damage to the health of the country's population and to its genetic fund. So the development of productive force of society without obligatory observance of ecological safety requirements eventually represents a serious threat to the existence of the human civilization. Its future will depend on the extent to which

each country takes care of environmental protection and reproduction of its resources, and also of maintenance of ecological safety of human life and activity.

At the same time it is necessary to say that the majority of the Ukrainian branches of industry work on the extremely outdated, physically and mentally worn out material and technical base, on the imperfect and ecologically unsafe technologies which cause damage to the environment. The industrial potential of Ukraine is still characterized by pre-industrial organizational and economic methods of management. Besides the existing organization forms of public production, methods and economic mechanisms of management often do not result in taking an efficient decision of ecological problems, problems of maintenance of high level of ecological safety in all spheres of social life and activity.

Taking into consideration the problem "society and environment" we should pay attention to one very important aspect. The solution of the problem of the ecological safety of social and economic development is very much complicated with the fact that Ukraine keeps away from the world innovation process. This process, which covers at a brisk pace more and more areas of production and non-production activity in many countries, is, in fact, the fundamental basis of sustainable, ecologically safe and socially directed development of their national economies. If to speak about Ukraine, the innovation sphere is in deep crisis and it is not regarded as a constant priority of the state socio-economic policy.

Besides there are no positive and stable changes in investment activities on radical modernization of out-of-date industrial potential and on creation of progressive branches and productions in Ukraine on essentially new technological and ecological basis. All said above is confirmed by the fact that nowadays the part of our state in the world volume of production and sale of new types of goods and production constitutes only 0,1%, which is 10 times less than in Poland and 100 times less than in Germany.

It should be mentioned that the connection between ecological conditions, the quality of natural resources in particular and of the environment in general, on one hand, and health of the population, on the other hand, is obvious and natural, because physical and mental development, ability to work, health and longevity of a person depend on the ecological condition of water, soil, forests and especially air. Taking into account the fact that any person cannot live without air, its chemical structure, physical properties and presence of polluting components in the atmospheric air undoubtedly have a significant influence on a human organism, its physiological functions, etc.

Unfortunately, despite the fact that during the period of 1991-2000 an important reduction of harmful elements emissions took place as a result of a sharp recession of production (from 15,5 mln tons in 1990 to 5,9 mln tons in 2000, or 2,6 times less), the level of ecological safety of the environment regarding air still remains to be low. First of all it concerns industrial regions (Donbass, Krivbass, Prydniprovya and others), big industrial centres and towns. The situation is complicated by the fact that since 2001 an increase of ecologically dangerous emissions in the air takes place both from stationary sources of pollution and from vehicles, the harmful emissions of which increased in 2000 by 11,6%, if to compare with the previous year.

Even despite a serious reduction of industrial output volume, the rate of reduction of environmental pollution index was considerably lower than the rate of industrial output reduction. So the anti-ecological potential of the latter changes inadequately with the reduction of industrial output volumes. Besides, the crisis state of economy significantly limits the possibility of nature protection measures realization, implementation of ecologically safe technologies etc. A sharp financial deficiency at overwhelming majority of the industrial enterprises makes them economize resources, mostly energy resources, by disconnecting from energy networks of purifying systems and equipment.

Air is polluted in the heaviest way by harmful industrial emissions and emissions from vehicles in the following cities and towns: Dniepropetrovsk, Dnieprodzerzhynsk, Krivy Rig, Mariupol, Donetsk, Debaltseve, Makiyivka, Burshtyn, Zaporizhzhya, Lugansk. Along with the towns and cities

mentioned, the highest level of general air pollution is also characteristic for Odessa, Lutsk, Cherkasy, Rivne, Slovyansk, Jenakiyevo, Kramatorsk, Lysychansk, Rubizhne etc. The aggravation of ecological situation and of maintenance of ecological safety in these towns and cities is connected directly with the functioning of gas and energy producing plants and also with the increase of mining output volumes (table 1, 2 and the diagram).

Another extremely negative tendency is the drop in level of the so-called territorial ecological safety, in particular, we should pay attention to the safety of urbanized and industrialized areas which occupy a considerable part of the general state territory, and this part continues to grow. High industrial concentration on such areas should be considered the reason of the aggravation of ecological situation, first of all, in big cities and industrial centres. This was caused by, on one hand, very high density of the population and concentration of industrial, communication, municipal and other enterprises on one area; and, on the other hand, by the fact that the industrial development on these areas has never been carried out with taking into consideration of the ecological factors, criteria, restrictions, and ecological safety requirements.

All this deteriorates considerably ecological life conditions for people living and working in big cities, industrial centres and complexes. Here a normal course of natural processes is broken, the quality of life in the environment is decreasing, all this has a negative impact on physical and mental health of the population, and therefore, on the labour potential of the society. All this constitutes a real threat of biological and genetic degradation of the Ukrainian population. So the present ecological situation on the territory of Ukraine and the state of its natural resources may be considered as critical and creating problems on the way of transformation into the model of sustainable development.

3. Ecological and economic priorities, basic principles and mechanisms of maintenance of sustainable development

The achievement of the proper ecological safety level of life of the present and future generations and the transformation of the Ukrainian economy into a model of sustainable development are possible only in case of development and realization of essentially new ecological strategy of socio-economic development of the country. This strategy should be based on precise definition of the principles of ecological reorganization of public production of national and regional ecological and economic priorities and mechanisms of their realization. Of course, one of the main principles of this new strategy should be observance of ecological safety requirements by all subjects of economic activity.

The main purposes of new ecological strategy of socio-economic development of Ukraine in long-term prospect should be the following:

- maintenance on a high level of ecological safety of human activity and insurance of favourable for people's health natural conditions;
- effective and rational use and reproduction of natural resources, in particular, of soil fertility, quality of water resources, productive potential of vegetative resources, as of fundamental basis of national security of the state;
- environmental protection and multiplication of its reproductive, renewing and assimilating functions with the purpose of maintenance of dynamic ecological balance in nature;
- comprehensive and complex improvement of the environment and population detoxication in industrial regions with deep ecological crisis, also revival of basins of the Azov and Black seas, of the Dnieper , Dniester and other rivers with the purpose of amelioration of the quality of water resources, renewal of their former fish productivity and recreation potential;
- ecological an economic restructuring of resource and production potentials of national and regional agro-industrial complexes and optimization of their development with taking into

consideration of ecological factors, criteria, restrictions and ecological safety requirements of management in the agrarian sphere.

Realization of sustainable development model and achievement of the proper ecological safety level of life and activity of the Ukrainian population are already impossible to be done with the help of those measures which are used nowadays, besides, their volume is insufficient. New ecological strategy of socio-economic development should result in the transition of society from separate and even complex environmental protection measures to the development and consecutive implementation of complex system "society – environment – production" into realization of sustainable development conception. It is the question of comprehensive ecologization of material production and any other kinds of human activity, large-scale restructuring and modernization of national economy according to ecological safety requirements.

Into the basis of the new strategy of sustainable and ecologically safe development of Ukraine the following principles should be put:

- privilege of ecology above economy;
- rational and balanced combination of state and market, administrative and economic mechanisms of regulation of ecological relations, natural resources use and environmental protection activity on the national, regional and local levels of government;
- integration of ecological and economic approaches to the development and accommodation of the productive forces, improvement of material and technical base of the national economic complex, criteria of efficiency estimation of these processes into a united system of ecological and economic approaches, criteria and estimation parameters;
- optimum integration and distribution of state, branch and territorial management of natural resources use, environmental protection and reproduction, ecological problems and ecological safety issues, provided that control and regulation functions remain within the competence of the central government;
- industrial impact on the environment, natural resources and objects should not exceed nature's ability of reproduction of its resources, self-cleaning and preservation of qualitative parameters;
- used technologies should be based on wasteless production principle and also on effective methods of neutralization and restoration of biological qualities of the used natural resources which get back into the environment;
- all kinds of economic activity, methods of natural resources use should necessarily take into consideration ecological criteria, restrictions and requirements and should not cause irreparable damage to nature. They should not undermine its productive, renewable and assimilative potentials and ecological balance of the environment; they should not predetermine negative irreversible changes capable to transfer the biosphere into another mode of functioning, which would be extremely dangerous for human health.

At the same time it is necessary to say that no matter how important would be socio-economic purposes of some production, enterprise or company, no matter how high costs are required for the environmental protection measures, ecological safety of human life and activity should be the main priority. Of course, this question should be decided simultaneously with the maintenance of productive, energetic and economic safety of the state. High economic criteria of functioning of any production or enterprise should be achieved without doing ecological harm to the nature and society.

One of the most important macroecological priorities is the large-scale expansion of ecological innovation activity. Taking into account the fact that in Ukraine ecologically "dirty" industries prevail, which use a lot of natural resources, prevail, in the process of innovation restructuring and technological modernization of material production branches primary attention should be paid to the formation of the developed ecological industry as an independent sector of the national economy. Its main purpose should be the maintenance of a high ecological safety level of

human life and ecological and socio-economic development of the country in future. A special attention should be paid to innovations in the field of ecological improvement and environmental protection potential etc.

New tasks of ecological safety improvement and transformation of the national economy into the model of sustainable development undoubtedly require expansion and intensification of scientific researches aimed at rationalization of natural resources use and environmental protection, amplification of economic, financial measures and means of solution of the problems mentioned. At the same time, it is necessary to speed up work on preparation of national and regional programs of protection of the environment in general and of some natural resources in particular (soil, water, forests etc); programs on working out of technical means and ecologically safe technologies, cleaning equipment; programs of ecological industry development in all regions of the country. Research works should be also focused on the development of the perfect and effective legal economic and ecological normative base in the field of natural resources use, environmental protection and ecologically safe management in each branch of the national economy.

In order to reach an optimum interconsistency of ecological and economic interests it is necessary to find good means and mechanisms. The main precondition of successful handling of existing disagreements between ecology and economy is the development and acceptance of state ecological and socio-economic policy as major constituent part of sustainable development strategy. This policy should contain the appropriate system of normative and legal documents, administrative, organization and economic means of regulation of ecological socio-economic and production relations and means of influence on all subjects of economic activity, which use natural resources and pollute the environment, and also on the consumers of goods and services.

Such priorities as maintenance of ecological safety level and transition to a sustainable development model, as well as ecological and macroecological priorities should be integrally implemented into financial and economic mechanisms so that they could actively stimulate every subject of the national economic complex to ecological and economic modernization and ecologically safe functioning of the indicated complex. If all kinds of natural resources losses, negative impact on the environment, the size of the damage caused to the environment, economy and society at all stages of production and consumption and other factors will be taken into account in macroeconomic parameters, there will be no more antagonistic relationship between ecology and economy.

* * *

In the speech of welcome addressed to the participants and guests of the 5th European Conference of the ministers of the environment, which took place in May 2003 in Kyiv and was devoted to the problem "Environment for Europe", the President of Ukraine Leonid Kuchma said that our state consistently conducts the policy of integration with the European Union, makes all efforts for observance of ecological safety norms and wants to make Europe as safe as possible for its inhabitants on the basis of harmonization of human life and activity in the natural environment.

Ukraine fully understands the necessity of transformation of its economy into a sustainable development model as the most important precondition of maintenance of ecological safety of its population's life and activity and of harmonization of relationship between society and environment. It resolves the problems mentioned simultaneously with the realization of socio-economic, political, democratic transformations of the state. Stabilization of the situation in the national economy and the increase of economic growth rates will undoubtedly be favourable for the intensification of processes aimed at the realization of the sustainable development conception.

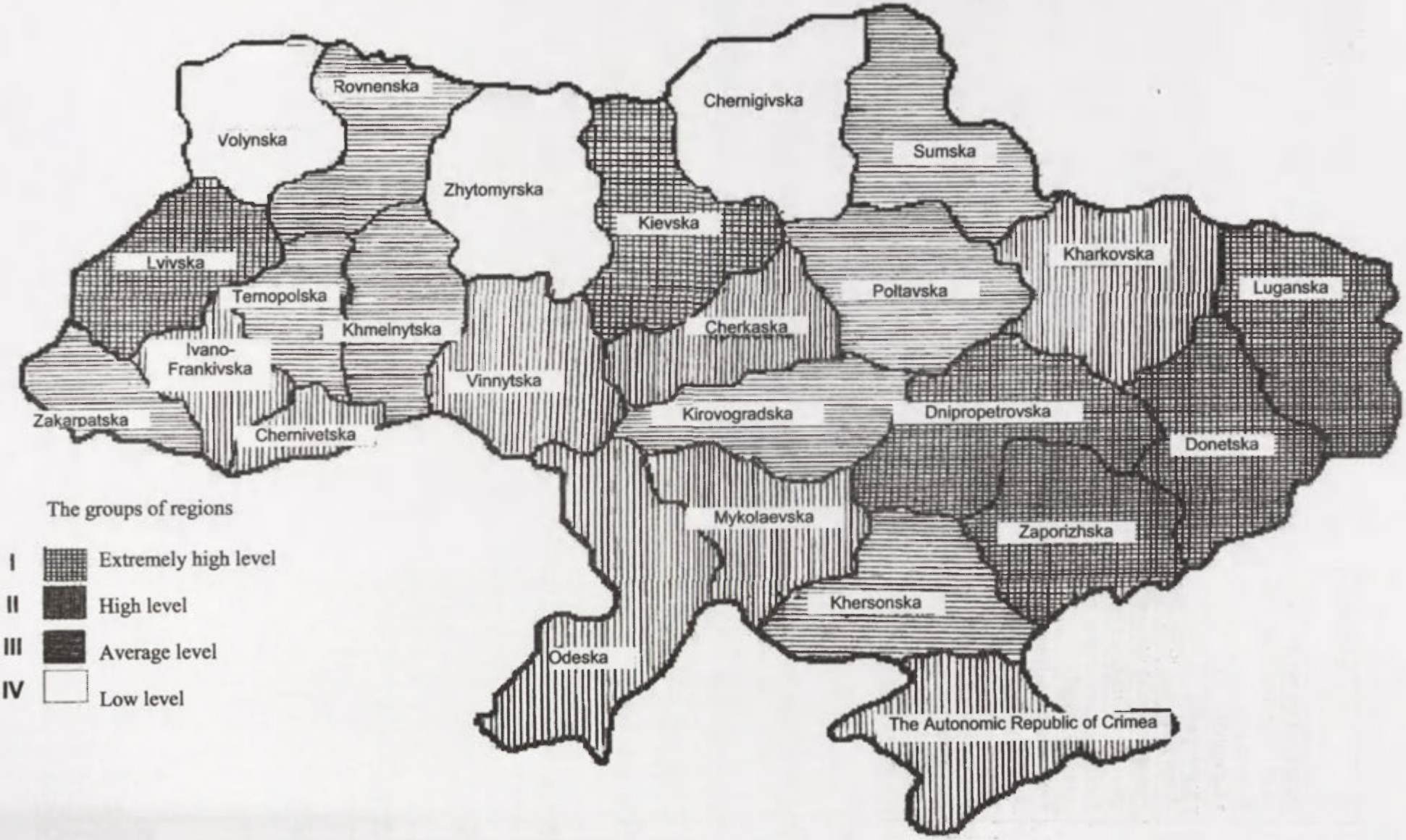
Table 1. The list of Ukrainian regions in accordance with the basic ecological parameters, 2000
(at a rate per 1 km^2 of the general territory)

Regions	Density of population	Place, occupied by a region	Quantity of the enterprises, (1000 km^2)	Place, occupied by a region	Emission of harmful substances into the atmosphere, tones	Place, occupied by a region	Consumption of water, (1000 m^3)	Place, occupied by a region	Spill of polluted and wasted water (1000 m^3)	Place, occupied by a region	Pile up of toxec wastes (tones)	Place occupied by a region	Part of the general territory, occupied by arable lands	Place, occupied by a region	Total sum of places occupied	Integral place occupied by an area
Ukraine	82		17,4		9,8		21,5		5,5		4919,6		0,53			
Donetska	185	1	31,4	2	67,7	1	66,1	1	35,6	1	22381,9	2	0,62	6	14	1
Dnipropetrovska	115	4	20,0	10	29,5	2	55,0	4	22,8	2	57886,2	1	0,65	4	27	2
Luganska	98	8	24,2	6	19,8	3	15,3	8	14,0	3	4139,4	4	0,51	15	47	3
Zaporizhska	73	13	12,4	19	12,3	5	62,6	3	11,0	4	4479,7	3	0,69	2	49	4
Kievska and Kiev	154	2	29,1	3	11,7	6	66,1	2	1,5	13	735,4	11	0,47	16	53	5
Lvivska	124	3	38,7	1	8,8	7	10,0	13	2,5	10	3676,4	5	0,37	20	59	6
Ivano-Frankivska	105	6	23,9	7	13,3	4	8,0	15	4,9	6	3229,7	6	0,29	24	68	7
Kharkivska	94	9	21,3	9	8,6	8	13,0	10	0,8	21	1027,0	9	0,61	9	75	8-9
AR of Crimea	92	10	15,7	13	5,3	10	42.6	5	3,4	8	374,5	12	0,44	17	75	8-9
Vinnytska	68	16	18,0	11	5,5	9	26,3	6	2,4	11	8,9	20	0,63	5	78	10
Odesska	75	12	13,9	15	3,4	15	14,4	9	7,1	5	38,5	16	0,62	7	79	11
Chernovtska	115	5	27,3	4	4,3	13	7,0	17	1,5	14	19,1	18	0,41	18	89	12
Cherkaska	69	15	15,9	12	4,5	12	10,2	12	1,1	15	31,1	17	0,61	10	93	13
Mykolayivska	52	20	9,4	22	2,2	22	11,3	11	4,0	7	105,0	14	0,68	3	99	14
Kirovogradska	47	23	12,3	20	3,3	17	3,5	25	2,6	9	2121,7	7	0,71	1	102	15
Poltavska	58	18	13,3	17	5,3	11	8,6	14	0,9	19	178,5	13	0,60	13	105	16
Ternopilska	83	11	22,2	8	3,1	19	4,7	22	0,4	23	2,6	21	0,62	8	112	17
Zakarpatska	100	7	25,6	5	3,2	18	5,5	20	1,1	17	0,4	22	0,15	25	114	18
Khmelnytska	70	14	12,7	18	3,4	14	7,6	16	0,4	24	0,3	23	0,60	12	121	19-20
Sumska	55	19	12,3	21	3,4	16	4,8	21	0,6	22	1168,9	8	0,53	14	121	19-20
Rivnenska	59	17	14,2	14	2,5	20	6,2	18	0,9	20	842,2	10	0,32	23	122	21
Khersonska	43	24	7,8	25	2,3	21	22,4	7	0,1	25	9,0	19	0,60	11	132	22
Zhytomyrska	48	22	13,5	16	2,1	23	3,6	24	1,1	16	0,1	24	0,36	21	146	23
Volynska	52	21	8,3	23	1,7	25	6,0	19	1,7	12	0,1	25	0,33	22	147	24
Chernigivska	40	25	8,1	24	2,0	24	3,8	23	1,0	18	60,8	15	0,41	19	148	25

Table 2. The basic ecological parameters of Ukraine and Poland, 2001

Parameters	Ukraine	Poland	Ukraine to Poland,%
Density of the population, inhabitants/1km^2	82	124	66,1
Land resources per one inhabitant (in hectares)	1,25	0,81	154,3
- farmlands	0,87	0,48	181,3
- arable lands	0,68	0,37	183,8
Water resources, 1000m^3/one inhabitant	1,1	1,8	61,1
Forest resources, hectare/ one inhabitant	0,20	0,24	83,3
Quantity of industrial enterprises on 1000km	17,4	29	60,0
Emissions of harmful substances in the air, 1000 tons/1km^2	9,8	1,1	8,9 times
Fresh water consumption, 1000m^3/1km^2	21,5	3,5	6,1 times
Spill of wasted polluted water into reservoirs 1000 m^3/1km^2	5,5	1,0	5,5 times
Pile up of toxic wastes, 1000tons/1km^2	5,0	0,4	12,5 times
Part of the general territory,%			
• of farm lands	70	60	116,7
• of arable lands	54,6	46	118,7

Fig. 1. The regions of Ukraine according to the density of population and its impact on the environment



European studies in the *Stanisław Leszczycki* Institute of Geography and Spatial Organization, PAS (1993-2002). A bibliography

Jan Peliwo

Initial remarks

European studies do occupy a special place among the research topics taken up at the Institute of Geography and Spatial Organisation of the Polish Academy of Sciences. Such a conclusion is justified by reference to the bibliography presented here which encompasses works of the last decade.

The definition of "European studies" embraces studies which concern Europe or particular parts (regions or countries) thereof, as well as questions connected with European integration and the linkages between Poland and other European countries. This bibliography is restricted to the work which presents research results from socioeconomic geography, but it needs to be recalled that the Institute's scientific staff members are also active on the field of physical geography.

The bibliography covers the years 1993-2002 inclusive, whose authors (co-authors) or editors (co-editors) are or have been employed by the Institute. Note has been taken of books, chapters in books, and articles or more comprehensive research notes in journals. Short notes have not been taken into account, and neither have abstracts, introductions, reviews, etc., nor work the purpose of which is documentary or related to the popularization of science. Publications have been arranged by year and in alphabetical order as regards their authors. A distinction has been drawn between works that were authored or under scientific editorship. The alphabetical ordering fallows a principal assigning priority to the name of the Institute's employee(s) involved. This means that, where the first name in a list was that of a non-employee, this name was bypassed considering the first name of an Institute's employee on the list. This way, the publications of different authors who work at the Institute find themselves in close proximity to one another.

In the different years that are the subject of the bibliography, the number of publications with a European theme ranged between 24 (in 1993) and 50 (in 1995 and 1998).

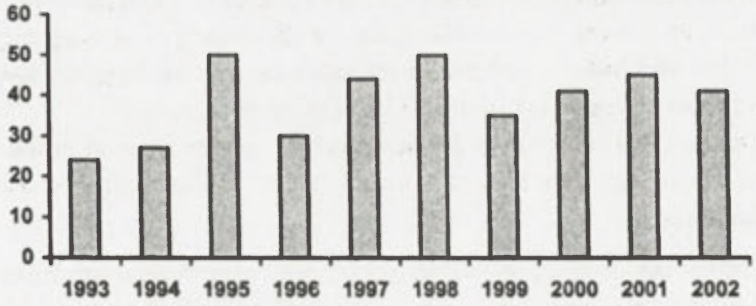


Fig. 1. Publications concerning European topics in the field of socio-economic geography as published by employees of the Institute of Geography and Spatial Organization, Polish Academy of Sciences in the years 1993-2002

Overall, there were some 387 publications in the above category over the 10-year period, giving an average of around 39 per year on the subject in question (or c. 17% of the publications within the group subject to formal limitation). 38 Institute employees were involved. It is hard to illustrate publishing activity with the aid of numerical indices related to the number of scientific employees, since certain authors are not within the group or had varying statuses through the period under analysis. Nevertheless, if it is accepted as a general rule of thumb that the Institute has had some 67 scientific staff members over the decade in question (actual range 59-75), then around 60% of them have been involved in European studies. The proportion rises markedly if we confine ourselves to the Institute staff members who specialize in socioeconomic geography, as opposed to other branches. Nevertheless, the number of works published is characterized by a range of 1-100 publications (wherein the latter figure refers to P. Eberhardt, who is followed on the list by T. Komornicki as the author of 54 works).

The analysis of the questions addressed in the presented publications allows to identify several subject groups presented below.

- Population issues. These are the subject of the greatest number of publications (c. 120), where two trends can be identified. On the one hand there are studies of migration processes, both between Poland and other European countries and among these countries and within them. Another group of studies focuses on demographic and ethnic issues arising in the markets emerging following the collapse of the Soviet Union, especially those bordering with Poland. Some of the studies (especially those of historical nature) have concerned formerly-Polish eastern lands. The most recent years of the period under analysis have also witnessed the appearance of work on such social issues as unemployment and election geography.
- Borderland areas. Publications encompass almost every socioeconomic sphere of human activity in these areas, though one might in particular mention studies on Euroregions, as well as on cross-border co-operation and trade.
- Political geography and geopolitical issues. The subject matter mainly extends to the geopolitical location of Poland and its near-border regions. Publications devoted to the issue of state borders have mainly concerned transformation of their shape and function through history, as well as European integration in perspective.
- Transport and tourism. Different studies mainly concerned international linkages and the permeability of borders. A separate group comprised the works dealing with the issue of border crossings.
- Towns, cities and urbanisation. Different studies of this group deal with transformation of European urban areas and the systems thereof, the processes involved in the transformation from the communist city to the post-communist one and the place of Warsaw in the system of European cities.
- Rural areas and agriculture. The dominant kind of work here is that concerning the agriculture of different countries, be these within the European Union already or seeking membership from their locations in Central and Eastern Europe. In the latter case, considerations have mainly addressed the situation of Polish agriculture with the EU accession in prospect.
- Environmental policy and sustainable development, as matters located in the borderland between the natural and social sciences and only listed in the bibliography here if in the context of European integration.

As so presented, the division of the subject matter encompassed by the bibliography is not of course exhaustive, especially since a great number of publications can be included within more than one category. Common, near-ubiquitous, elements – often placed beyond the above division - are the issues of systemic transformation and European integration.

In reviewing the listed publications from the point of view of geographical scope it becomes unambiguously clear that the focus of work has been Eastern and Central Europe. The ratio of the

number of works devoted to this part of the continent as against those concerning Western Europe is approximately 1:2.5. States that have accounted for the largest number of studies are Ukraine, Belarus, Slovakia and Germany (which is at the same time one of the better represented Western European countries). Other "Western" countries appear in the bibliography not more than 4 times each. In turn, the Eastern and Central European countries other than the above but figuring more than four times are Russia, the Czech Republic and Estonia.

Both the subject- and area-related conditioning of the compiled bibliography of course reflect the spheres within which the Institute's work is carried out. This is also reflected in the number of studies coming out in given years, though there is naturally a certain time delay reflecting the publication of research results once a project or topic within the framework of the research provided for in the Institute's statute is completed.

Among the topics addressed as part of the statutory activity of the Institute of Geography and Spatial Organization, PAS and bearing fruit in Europe-related publications are:

- The bases to the development of Poland's western and eastern near-border areas (as a topic elaborated upon in parallel with a research project of the same name funded by the State Committee for Scientific Research),
- The spatial interdependence of economic and social transformations in Europe,
- Spatial changes in the population structure and settlement system of Poland and Central Europe,
- Changes in urban areas and populations within the settlement systems of Poland and Central Europe,
- The shaping of the new European order and issues of the spatial integration of Poland and Central Europe with the European Union.

Publications with a Europe-related subject matter are also the result of work carried out as part of the following research projects funded by the State Committee for Scientific Research.

- The bases to the development of Poland's western and eastern near-border areas,
- 20th-century nationality changes in Lithuania,
- The geopolitical dimension to Polish socioeconomic space,
- Land management in a period of restructuring and entry into European structures,
- The population of Poland's former eastern borderland (origin, numbers and distribution),
- Flows of goods at border crossings and international transport linkages,
- The spatial dimension to cross-border trade in Poland in the years 1992-1998,
- Problem areas and conflicts in Polish agriculture in the conditions of the new economic system and European integration,
- Forecasting the dynamics of labour-force changes in East-Central Europe, and their consequences for European integration processes – a regional approach,
- The former Polish-nationality region in Ukraine in history and today,
- The regional diversification to Poland's foreign socioeconomic linkages,
- The analysis and assessment of the Russian Federation's demographic situation,
- The functions of Berlin and Warsaw in the years 1990-2000. Interdependence of positions in the urban system of Central Europe.

European studies have also been carried out within the framework of research projects financed by foreign aid, and as part of bilateral cooperation. To be found among the first are projects concerning:

- Urban Systems and Urban Networking in the Baltic Sea Region (under INTERREG II C),
- Internal migration and regional population dynamics in Europe (Council of Europe-funded),
- Globalization and transformation in Central and Eastern European Cities (as funded by The United Nations University w Tokyo),

- The North European Trade Axis - NETA (under an agreement with the Victoria University of Manchester),
- The Eastern Zone of Economic Activity (within the PHARE FIESTA II framework).
- In turn, the subjects of bilateral cooperation have included:
- Dynamics and trends to the socio-demographic, economic and spatial development of near-border areas of Poland and Belarus,
- Agricultural, economic, demographic and environmental issues of the development of near-border areas of Poland and Ukraine,
- The new social and economic dimension of the Polish-Ukrainian border area,
- Socioeconomic changes in the suburban zones of the large cities of Poland and Romania,
- Comparative regional studies in the era of European integration – spatial aspects of the socioeconomic transformation in Poland and Hungary,
- Cross-border cooperation and European integration along Poland's eastern border in the 1990s.

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Acta Fac. Rerum Natur. Univ. Comen. Geographica – Acta Facultatis Rerum Naturalium Universitatis Comenianae. Geographica

Acta Fac. Stud. Humanit. Natur. Univ. Presov. Prirodne Vedy. Folia Geogr. – Acta Facultatis Studiorum Humanitatis et Naturae Universitatis Presoviensis. Prirodne Vedy. Folia Geographica

Biul. Geogr. – Biuletyn Geograficzny

Czas. Geogr. – Czasopismo Geograficzne

East. Europ. Countryside – Eastern European Countryside

Ekon. Ukr. – Ekonomika Ukrainy

Europ. J. Popul. – European Journal of Population

Europ. Spatial Res. Policy – European Spatial Research and Policy

Geogr. Čas. – Geograficky Časopis

Geogr. Polon. – Geographia Polonica

Geogr. Sbornik ČGS – Geografie – Sbornik Česke Geograficke Společnosti

Geogr. w Szk. – Geografia w Szkole

Geopolit. Econ. Res. Centr. East. Eur. – Geopolitical & Economic Research on Central & Eastern Europe

J. Ethnic Migr. Stud. – Journal of Ethnic and Migration Studies

J. Official Statist. – Journal of Official Statistics

Kwart. Geogr. – Kwartalnik Geograficzny

Nowa Era w Szk. – Nowa Era w Szkole

Ochr. Środ. Zasob. Natur. – Ochrona Środowiska i Zasobów Naturalnych

Polityka Wsch. – Polityka Wschodnia

Prace Kom. Geogr. Komunik. PTG – Prace Komisji Geografii Komunikacji Polskiego Towarzystwa Geograficznego

Probl. na Geogr. – Problemy na Geografijata

Przegl. Geogr. – Przegląd Geograficzny

Przegl. Wsch. – Przegląd Wschodni

Revista Geogr. – Revista Geografica

Revista Rom. Geogr. Polit. – Revista Romana de Geografia Politica

Rocz. Pol.-Niem. – Rocznik Polsko-Niemiecki

Statist. J. United Nat. ECE – Statistical Journal of the United Nations ECE

Studia Reg. Lok. – Studia Regionalne i Lokalne

Studia z Dziejów Ros. Eur. Środk.-Wsch. – Studia z Dziejów Rosji i Europy Środkowo-Wschodniej

Transp. Rev. – Transport Reviews

Visnik Ternopil'skoi Akad. Narod. Gosp. – Visnik Ternopil'skoi Akademii Narodnogo Gospodarstva

Wiad. Kościelne Archid. Białost. – Wiadomości Kościelne Archidiecezji Białostockiej

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