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... a good example of very high gains that can be achieved with development in a location with good local, regional, national and international transport connections. Another reason for the region's success is its location in border

THE SOCIO-ECONOMIC AND SPATIAL CONDITIONS FOR THE DEVELOPMENT OF LOWER SILESIA

The development of Lower Silesia is very important for the Far East may possess a high level of economic importance of the location. One of

Lower Silesia, one of the 16 administrative regions in Poland, possesses all the necessary conditions for a dynamic development. The region possesses good natural conditions, a rich economic structure, a well-developed transport network, an environment stimulating the development of a large diversity of economic activity and a well-educated labour force. Current and future initiatives will change the internal structure of the region and increase its economic potential. At present Lower Silesia belongs to the so-called triangle of accelerating economic growth, covering the area between Szczecin, Warsaw and Wrocław [Kołodziejewski, 1999], as well as the area in Europe where transformation processes are most intensive, the so-called boomerang – an area of relatively high development in Central Europe [Gorzela, 1995]. In this article strategic issues, as well as barriers and opportunities for economic development in Lower Silesia are discussed, based on an analysis of internal and external factors.

1. Factors of development

Geographical location. Location is a very important factor influencing the development of a region. Lower Silesia's location creates good opportunities. The region borders on Germany and the Czech Republic, and about 50% of the territory is a border area. There are 47 border crossings, which account for 23% of all border crossings in Poland. This is an indicator of the large "openness" and good accessibility of the area (Fig. 1).

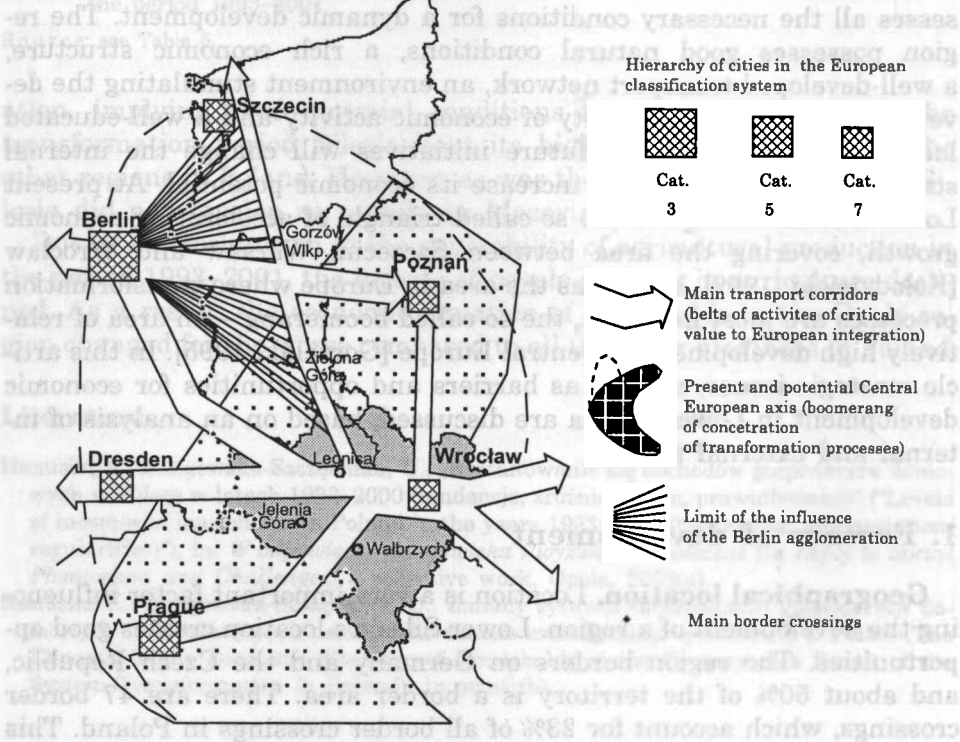
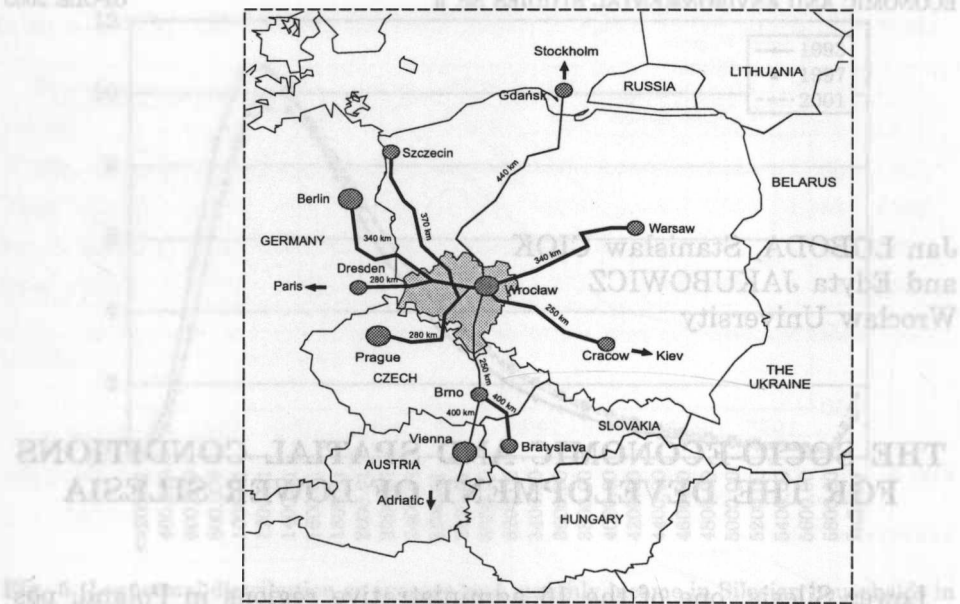


Fig. 1. Geographical attributes of the Lower Silesia Region

Source: Authors' own work.

The region possesses a well-developed transport network and is located on many important transport routes, such as the A4 connecting Western and Eastern Europe, and the planned A3 which should connect Scandinavia and Southern Europe.

Road infrastructure is important for regional development. The current system of local, regional and national roads, together with the European system of transit roads, leads both to internal integration of the region and the creation of strong links with other regions and countries. The so-called "Bielany junction" near Wrocław is a good example of very high gains that can be obtained when developing a business in a location with good local, regional, national and international transport connections. A similar concentration of economic activity may arise in border regions and other road junctions near cities such as Legnica, Jelenia Góra and Zgorzelec ["Strategiczne problemy rozwoju...", 1997].

The development of intercontinental railway corridors to the Far East may positively influence the economic importance of the location. One of these corridors, the so-called "Southern" corridor, should run from Western Europe *via* Wrocław, Cracow, the Ukraine, Russia, Kazakhstan and China to Vietnam [Winiarski, 1996].

In the Central European context, Lower Silesia is located equidistant from three important European capitals, which dynamically influence the surrounding area: Berlin, Prague and Warsaw.

Natural resources. Lower Silesia is characterised by a differentiation of landscapes. The north is characterised by a chain of hills with gentle slopes, the central part by wide low-lying plains, and the south by mountains and their foothills. This landscape has historically conditioned the internal differentiation of the region with respect to its functions, socio-economic development and spatial development. A significant area of the region possesses great natural beauty, *i.e.* national parks, nature reserves and protected landscapes (Fig. 2). The most valuable areas can be found in the southern and central-western border regions. This is due to the presence of mountain ranges and extensive forest areas along the western border. The virtues and localisation of the forests make them very suitable for performing recreational and tourist functions.

From the economic point of view the availability of mineral resources is important. The southern part is one of the largest domestic mining regions for copper ore, kaolin, barite, magnesite, oven resistant clays, etc. Other resources include deposits of various building materials in different locations. Lignite deposits mined in the neighbourhoods of Turossów

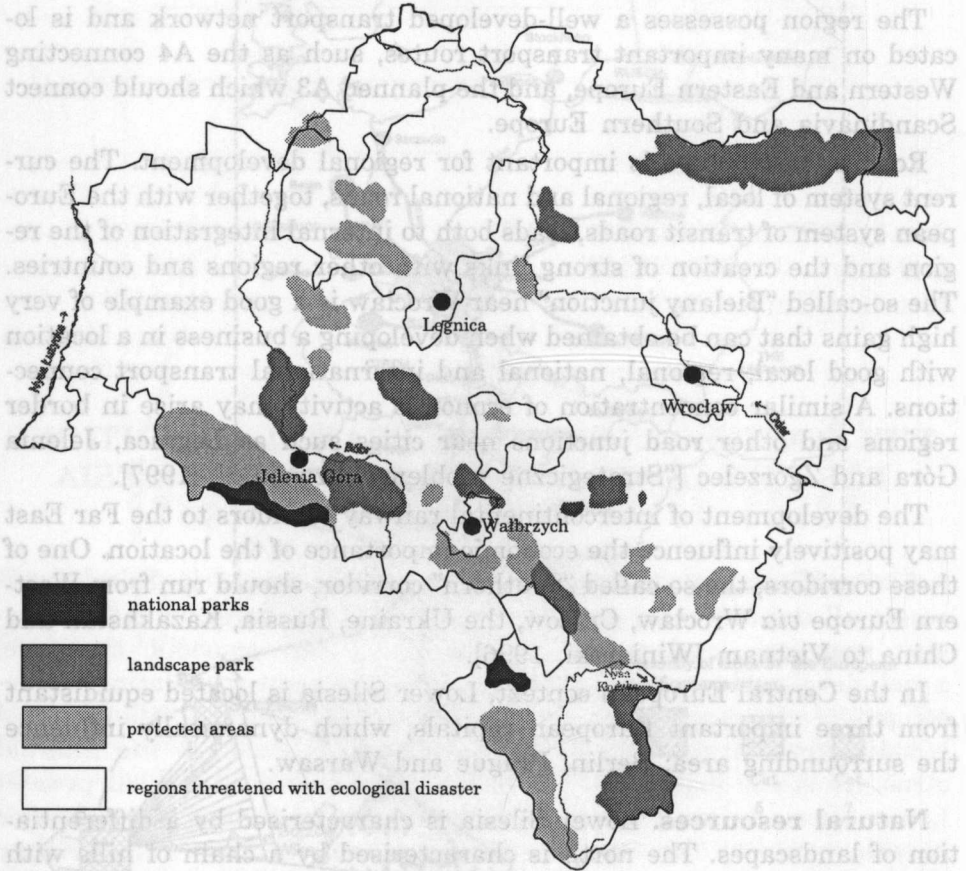


Fig. 2. Areas of ecological conflict

Source: *Strategic Problems in the the Development...*, (1997).

and Legnica are particularly important elements in fulfilling present and future energetic needs in Poland (Fig. 3).

The differentiated landscape and geological structure of the region are bases for the wide variety of soil found in Lower Silesia. In particular, there will be an intensive development of vegetable production in the central and eastern parts of the region (where there is black soil). In these parts of the region there are extensive areas with favourable natural conditions, *i.e.* high quality soil, a relatively clean environment and good climatic conditions. These are well-defined areas, which are amongst the most fertile regions of Poland and whose value as agricultural land is assessed as greater than 75 pt. (according to IUNG), without protected areas or ecologically threatened land.

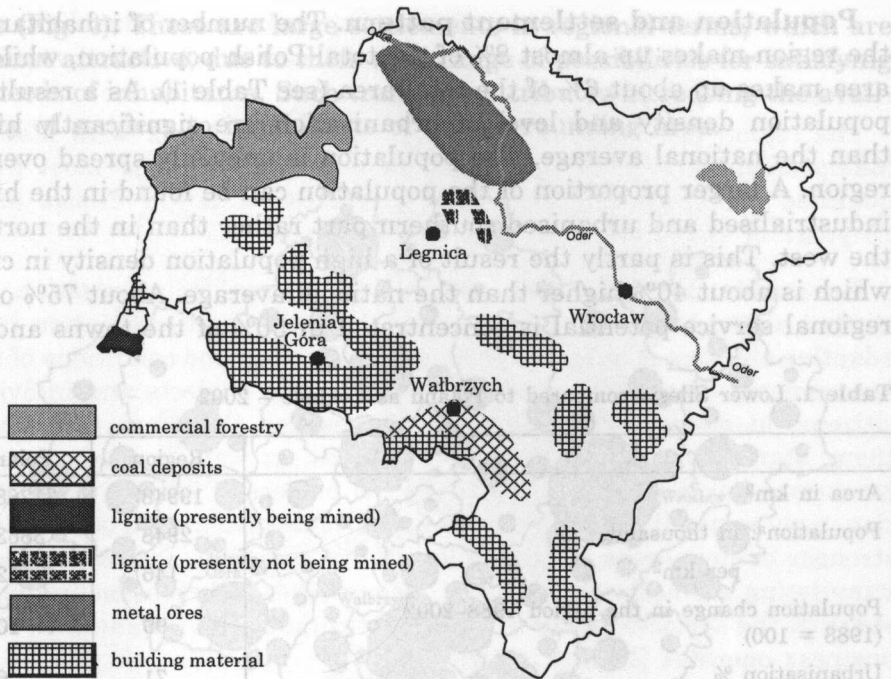


Fig. 3. Raw Material Deposits

Source: *Strategic Problems in the development...*, (1997).

Water reserves are an important factor of the natural environment for economic growth and satisfying human needs. The region is supplied with a wide range of surface waters, underground waters (including spa water) and water resource management. The surface waters in the region, concentrated mainly in the southern part, are more than sufficient to satisfy demand. The Odra River, which is the main artery of the hydrographic system, flows through the region, as do the majority of its rich water tributaries flowing towards its left bank. The following rivers also have economic significance: the Nysa Kłodzka, Bóbr and its tributary, the Kwisa, as well as the Nysa Łużycka. However, due to the high level of industrialisation and urbanisation of the areas around the sources of rivers, together with a high level of water consumption, water supplies are decreasing and above all they are highly polluted. The water reserves (both geological and exploitable) in the Sudeten mineral spas are the largest in the country (about 20% of the total). Despite constant exploitation, the supply is growing. This creates opportunities for the further development of spa treatment both at national and international level.

Population and settlement pattern. The number of inhabitants of the region makes up almost 8% of the total Polish population, while the area makes up about 6% of the total area (see Table 1). As a result, the population density and level of urbanisation are significantly higher than the national average. The population is unevenly spread over the region. A larger proportion of the population can be found in the highly industrialised and urbanised southern part rather than in the north or the west. This is partly the result of a high population density in cities, which is about 40% higher than the national average. About 75% of the regional service potential is concentrated in 50% of the towns and vil-

Table 1. Lower Silesia compared to Poland as a whole – 2002

	Region	Poland
Area in km ²	19948	312685
Population ^a : in thousands	2948	38633
per km ²	146	122
Population change in the period 1988–2002 (1988 = 100)	99	101
Urbanisation %	71	62
Percentage of the population with full secondary or higher education ^b	45	43
of which with higher education	10	10
Proportion of population of:		
pre-production age	22	23
production age	63	62
post-production age	15	15
Number of people of a non-productive age per 100 people of a productive age	58	64
Rate of population growth per 1000 inhabitants	-1	0
Registered unemployed ^c in thousands.	273	3123
Unemployment rate in %	22	18
Average monthly salary ^d in zł.	1973	2045
Post offices per 10 000 inhabitants	3	2
Stationary telephones per 1000 inhabitants ^e	332	295

^a According to the National Census

^b 15 years old and above – National Census

^c 31.7.2003

^d in the national economy; together with national insurance payments paid by an employee

^e data relates to the number of customers of the state telecommunications network

lages (Fig. 4). These are large settlements in regional terms, which are the most attractive, due to their wide range of possibilities for satisfying the needs of inhabitants. Such traits are attributes increasing the availability of services to inhabitants of the surrounding area.

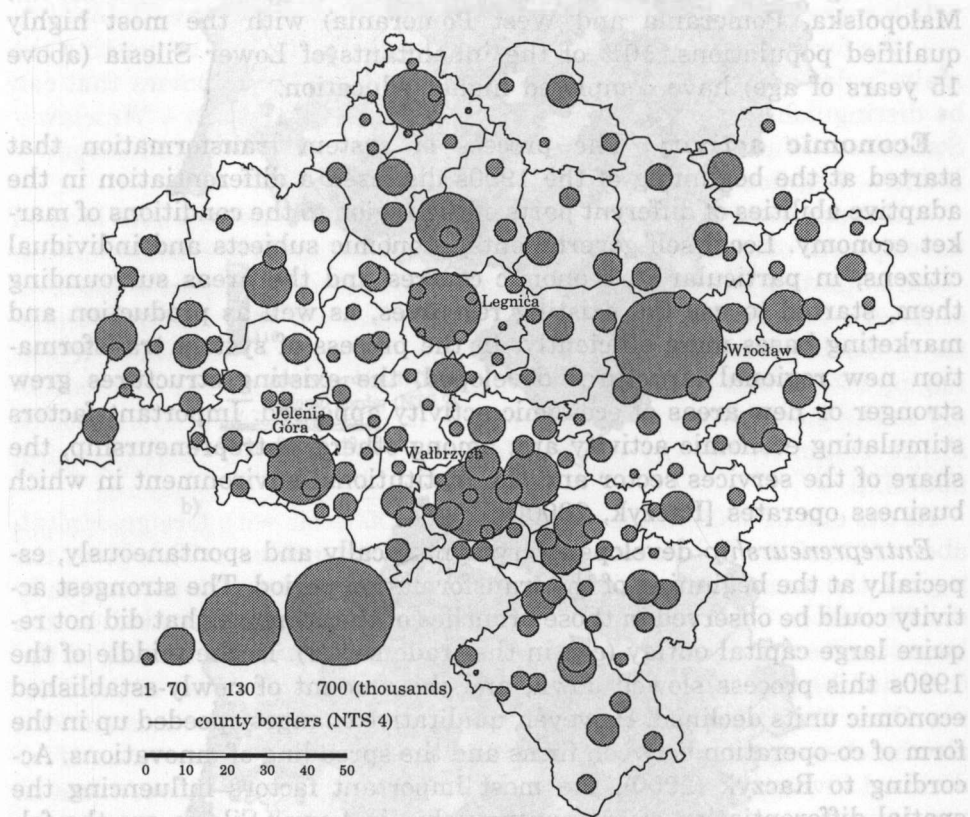


Fig. 4. The urban network in Lower Silesia

Source: Authors' own work.

One may highlight the following features of the urban network:

- a chain of towns lying on a north-south axis from Międzyzlesie through Kłodzko, the Wałbrzych agglomeration to a group of copper mining towns with a high concentration of medium-sized and large settlements. This network is the effect of the development of this copper mining region since 1960, in comparison to the relative stagnation in the development of towns in the western belt of settlements in the Sudeten mountains. As a result of this a form of spatial-functional barrier has formed, which lessens the economic impact of Wrocław on the western part of the region.

- The remaining structures to the east and west of the chain mentioned above with a lower concentration of medium-sized and small settlements.

The region belongs to a group of 5 regions (together with Mazovia, Małopolska, Pomerania and West Pomerania) with the most highly qualified populations. 10% of the inhabitants of Lower Silesia (above 15 years of age) have completed higher education.

Economic activity. The process of system transformation that started at the beginning of the 1990s disclosed a differentiation in the adaptive abilities of different parts of the region to the conditions of market economy. Local self-governments, economic subjects and individual citizens, in particular in economic centres and the areas surrounding them, started to use the existing resources, as well as production and marketing bases more efficiently. In the process of system transformation new regional structures developed, the existing structures grew stronger or new areas of economic activity appeared. Important factors stimulating economic activity are, among others, entrepreneurship, the share of the services sector and the institutional environment in which business operates [Raczyk, 2000].

Entrepreneurship developed very dynamically and spontaneously, especially at the beginning of the transformation period. The strongest activity could be observed in those branches of the economy that did not require large capital outlay (e.g. in the trade sector). In the middle of the 1990s this process slowed down, and the amount of newly-established economic units declined. However, qualitative changes speeded up in the form of co-operation between firms and the spreading of innovations. According to Raczyk (2000), the most important factors influencing the spatial differentiation of entrepreneurship in Lower Silesia are the following (Fig. 5):

- the high level of economic activity in the largest towns and their strong influence on the surrounding areas. The Wrocław agglomeration, where more than 1/3 of all Lower Silesian firms are located, is the most important. Other concentrations of the economic activity can be found in Legnica-Głogów area (a copper mining area) and Jelenia Góra,

- the development of the Polish-German border region, in particular those municipalities possessing a border crossing with a lot of traffic, while the Polish-Czech border has a significantly smaller influence,

- the dynamic development of tourism in areas with favourable environmental conditions (Karpacz, Szklarska Poręba, Szczawno Zdrój, Świeradów Zdrój, Polanica Zdrój),

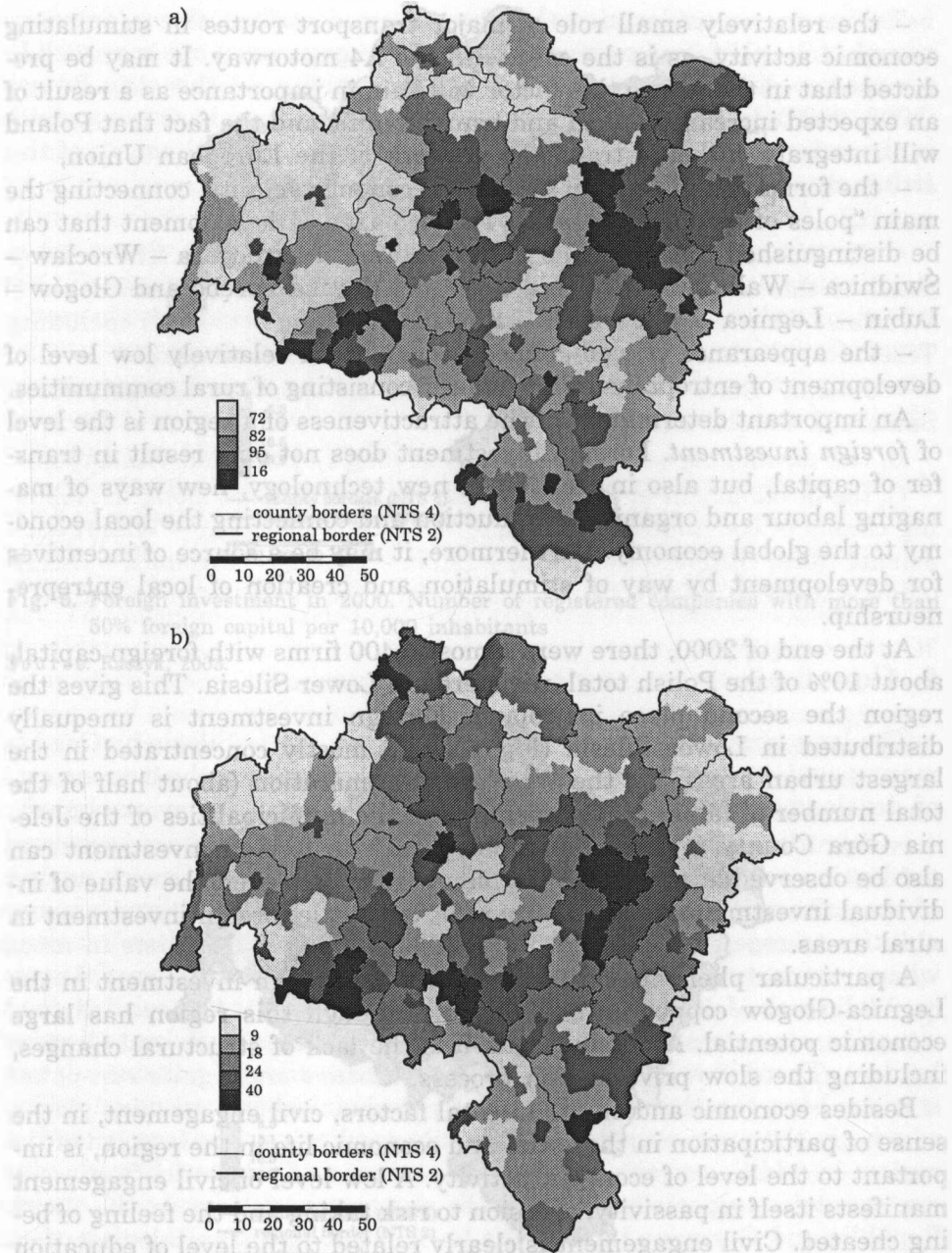


Fig. 5. Level of Entrepreneurship in 2000: a) Individual (number of individuals running their own business per 1000 inhabitants); b) "Large" (registered) companies with more than 50% Polish capital per 10,000 inhabitants)

Source: Raczyk, 2003

– the relatively small role of major transport routes in stimulating economic activity, as is the case with the A4 motorway. It may be predicted that in the future this factor will gain in importance as a result of an expected increase in local and transit traffic and the fact that Poland will integrate with the transport network of the European Union,

– the formation of areas of increased economic activity, connecting the main “poles of economic growth”. The two axes of development that can be distinguished consist of the municipalities: Twardogóra – Wrocław – Świdnica – Wałbrzych – Jelenia Góra – Szklarska Poręba and Głogów – Lubin – Legnica – Wałbrzych – Kłodzko,

– the appearance of well-defined areas with a relatively low level of development of entrepreneurship, mainly consisting of rural communities.

An important determinant of the attractiveness of a region is the level of *foreign investment*. Foreign investment does not only result in transfer of capital, but also in transfer of new technology, new ways of managing labour and organising production and connecting the local economy to the global economy. Furthermore, it may be a source of incentives for development by way of stimulation and creation of local entrepreneurship.

At the end of 2000, there were almost 4,400 firms with foreign capital, about 10% of the Polish total, registered in Lower Silesia. This gives the region the second place in Poland. Foreign investment is unequally distributed in Lower Silesia (Fig. 6), and mostly concentrated in the largest urban areas, *i.e.* the Wrocław agglomeration (about half of the total number of foreign investments) and the municipalities of the Jelenia Góra County (*powiat*¹). A rapid growth in foreign investment can also be observed at the Polish-German border. However, the value of individual investments is small. There is very little foreign investment in rural areas.

A particular phenomenon is the very little foreign investment in the Legnica-Głogów copper mining region, although this region has large economic potential. A possible reason is the lack of structural changes, including the slow privatisation process.

Besides economic and environmental factors, civil engagement, in the sense of participation in the social and economic life in the region, is important to the level of economic activity. A low level of civil engagement manifests itself in passivity, aversion to risk taking and the feeling of being cheated. Civil engagement is clearly related to the level of education and is strongest in the largest urban areas (Fig. 7).

¹ A *powiat* (county) is a Polish administrative unit, whose political centre is commonly a medium-sized or large town.

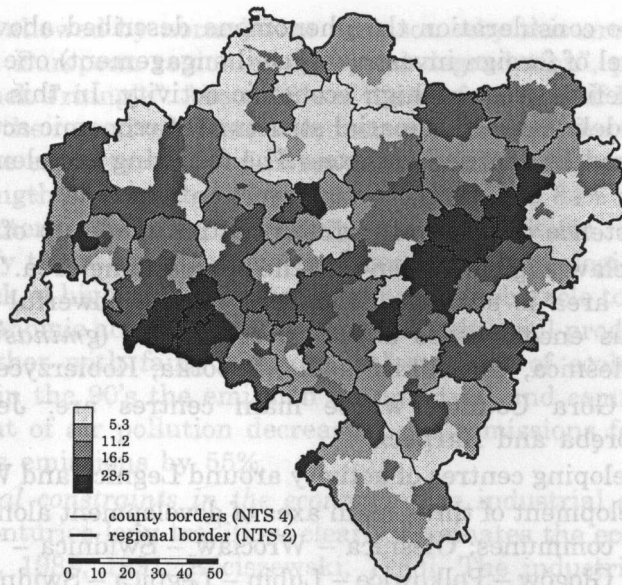


Fig. 6. Foreign investment in 2000. Number of registered companies with more than 50% foreign capital per 10,000 inhabitants

Source: Raczyk, 2003.

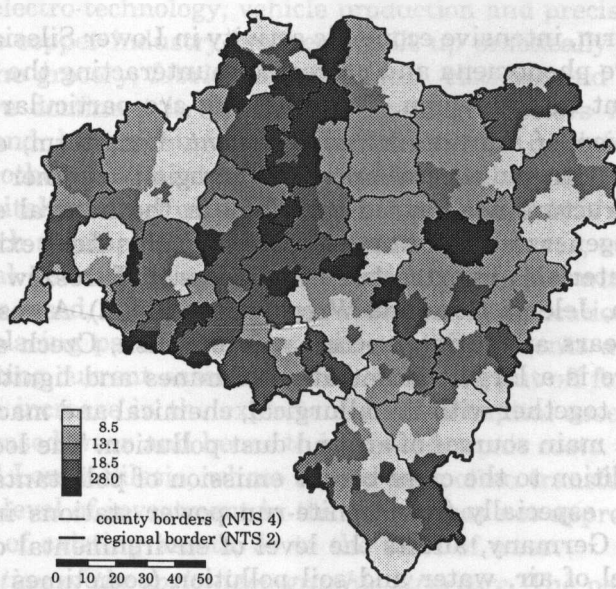


Fig. 7. Civil Activity in Local Communities in 2000 (foundations, societies and civil organisations per 10,000 inhabitants)

Source: Raczyk, 2003

Taking into consideration the phenomena described above (entrepreneurship, level of foreign investment, civil engagement) one may well be tempted to define areas of high economic activity. In this way Raczyk (2000, 2003) delineated the spatial structure of economic activity, which is characterised by centres and axes. The following are elements of this structure:

- A. the existence of two well-defined centres made up of:
 - the Wrocław agglomeration and the surrounding area. The development of this area is strongly dependent on the powerful influence of Wrocław. This encompasses about 20 communes (*gminas*²) including: Trzebnica, Oleśnica, Oborniki Śląskie, Sobótka, Kobierzyce,
 - Jelenia Góra County, whose main centres are: Jelenia Góra, Szklarska Poręba and Karpacz,
- B. two developing centres of activity around Legnica and Wałbrzych,
- C. the development of three main axes of development along the following chains of communes: Oleśnica – Wrocław – Świdnica – Wałbrzych – Jelenia Góra; Głogów – Polkowice – Lubin – Legnica – Świdnica² – Dzierżoniów – Kłodzko, as well as communes along the Polish-German border.

2. Constraints on regional development

The long-term, intensive economic activity in Lower Silesia has led to many negative phenomena and processes counteracting the current rate of development in the region. The following are particular examples:

- *degradation of the natural environment*. Long-term, concentrated production activities in several areas of the region, together with neglect of the infrastructure has caused a decline in the natural environment abilities to regenerate. The worst situation in this field exists in areas where raw materials are extracted and processed (Turoszów area, Legnica, Wałbrzych, Jelenia Góra and Wrocław, see Fig. 2). An especially bad situation appears at the intersection of the Polish, Czech and German borders. There is a large concentration of mines and lignite-run power stations here, together with metallurgical, chemical and machine plants, which are the main sources of air and dust pollution. The location of the region, in addition to the cross-border emission of pollutants from western countries, especially from lignite-run power stations in the Czech Republic and Germany, affects the level of environmental degradation. The high level of air, water and soil pollution (sometimes many times

²A *gmina* (commune) is a Polish administrative unit, whose political centre is commonly a large village or small town.

higher than allowed by norms) was a reason why this area was called "the Central European region of ecological degradation", popularly named "the Black Triangle". About 18% of the surface area of Lower Silesia is subject to the negative effects of economic activity of the natural environment. The sanitary state of rivers is especially bad, since less than 1% of the length of inspected rivers are 1st class and 84% are classified as unsatisfactory. According to physical-chemical criteria, 60% of rivers do not satisfy the relevant norms, and according to biological criteria – 98%. The lack of high quality water may pose an obstacle to virtually all sectors of economic activity. The decrease in industrial production in the region, together with fairly rigorous enforcement of ecological norms meant that in the 90's the emission of industrial and communal waste and also that of air pollution decreased: dust emissions fell by nearly 80% and gas emissions by 55%.

– *structural constraints in the economy.* The industrial sector, which has had a centuries long tradition, clearly dominates the economy of the region [Ciok, 1988, 1991; Kociszewski, 1983]. The industrial structure, which developed before the Second World War, is still to a large degree intact. The investment carried out after the war was mainly related to the rebuilding and modernisation of the industrial sectors already present. Of the modern sectors of industry being developed the most notable are electronics and electro-technology, vehicle production and precision engineering. Only the copper industry has been built up practically from scratch. At present the grocery, fabric, chemical, coal, clothing and raw material industries are dominant in the region. These are sectors which are not developing and labour-intensive. Apart from the outdated industrial structure, another constraint on the economic development is the high degree of decapitalisation of capital assets. This is a result of the large proportion of such assets which were inherited after the war, outdated, with poor technical and technological specifications, together with the investment policies used, which favoured widespread replication of existing technology, placing particular stress on new investments and not restoring the existing current assets. Investments were put off for many years leading to an increase in the exploitation life of capital assets, which led to their increased wear and hence to increased repair costs. This particularly affected Lower Silesia, whose assets were often transferred to other regions. The level of investment in the region was not appropriate either to the value of existing assets, or to the level of wear.

– *deformation of the socio-demographic structure.* The period between the 1988 and 2002 censuses is characterised by a levelling out of the population size, leading to a slow fall in population. This is true of both the urban and rural populations. The virtually zero growth rate of the popu-

lation has a significant influence on the population structure. In 1988 about 1/3 of the population were minors, whilst in 2002 only 1/5. This fall in the number of minors means that the value of economic burden indicator is slightly lower than in the country as a whole. However, the rapid ageing of the population means that it is possible that this value of this indicator will rise in the near future.

– *the high level of structural unemployment.* The high rate of unemployment (see Table and Fig. 8), one of the highest in the country, is a factor hampering the development of the region. It causes many economic and social problems. 9% of the total number of unemployed in Poland are inhabitants of Lower Silesia and the unemployment rate has been constantly high for some period of time.

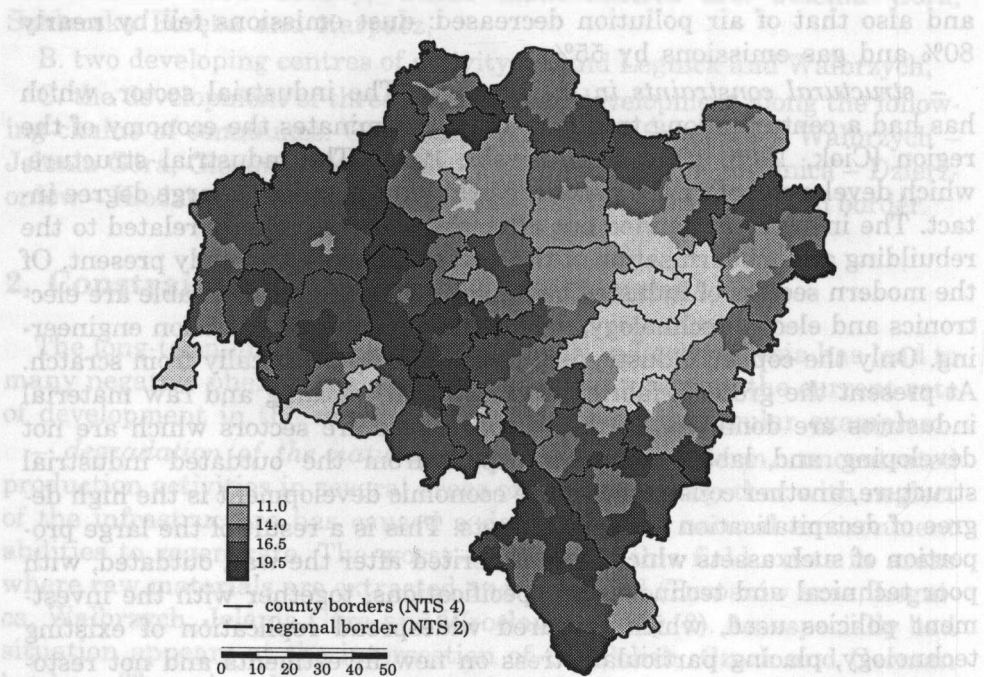


Fig. 8. Unemployment rate in 2000 (as a percentage of the number of people at working age)

Source: Raczyk, 2003

3. Strategic goals of development

The strategy for development of the region should be defined by a list of goals. These goals of development result from the identification of problems which need to be solved. Such goals are often of a hierarchical

nature. A fundamental strategic goal of the region is to create such conditions that "people may live with peace of heart, in agreement with others and with nature"³. This goal will be achieved, according to the authors of the Strategy for Development of the Region of Lower Silesia, through the realisation of five strategic goals:

1. integration of the region as a whole,
2. civilisational renaissance,
3. a citizen-based society,
4. economic innovation,
5. openness to the outside world.

The above-accepted goals are formulated in a very general way. Their achievement depends on undertaking and realisation of many activities. In this article we mainly consider goals and tasks within the spatial sphere.

As mentioned above, Lower Silesia possesses many attributes and natural resources, a relatively high level of development and spatial infrastructure, in relation to the other Polish regions, as well as a very favourable geopolitical location. These attributes, together with the fact that the region is presently a direct neighbour of the EU, provide great opportunities for accelerated development, modernisation and improvements in the spatial infrastructure (Fig. 9). Hence, one of the fundamental goals of development and spatial planning in the region should be *to make use of the opportunities resulting from the advantages of Lower Silesia's geographical position and its present socio-economic potential*.

Such a goal will be achieved through realisation of various "secondary" goals, such as:

- *adapting spatial-functional, production and service networks to European standards*. One of the means of achieving higher living standards for the inhabitants of the region is by improving the accessibility to various services and locations (homes, school, work, service and recreation centres etc.). From the point of view of spatial planning it is important that such objects should be accessible. If not, then inhabitants have fewer opportunities and a lower standard of living. The appropriate scale and location of such centres is important. The accessibility of services, especially in the so called Sector IV, providing services for enterprises, both at present and in the future, is as important as accessibility to raw materials, means of production and markets;

- *strengthening the spatial structure of settlements using inter- and intra-regional ties*. Each area, regardless of its resources, possesses lim-

³Taken from the *Strategy for the Development of the Region of Lower Silesia* passed by the regional parliament in Act no. XXVIII/511/2000 on 15th December, 2000.

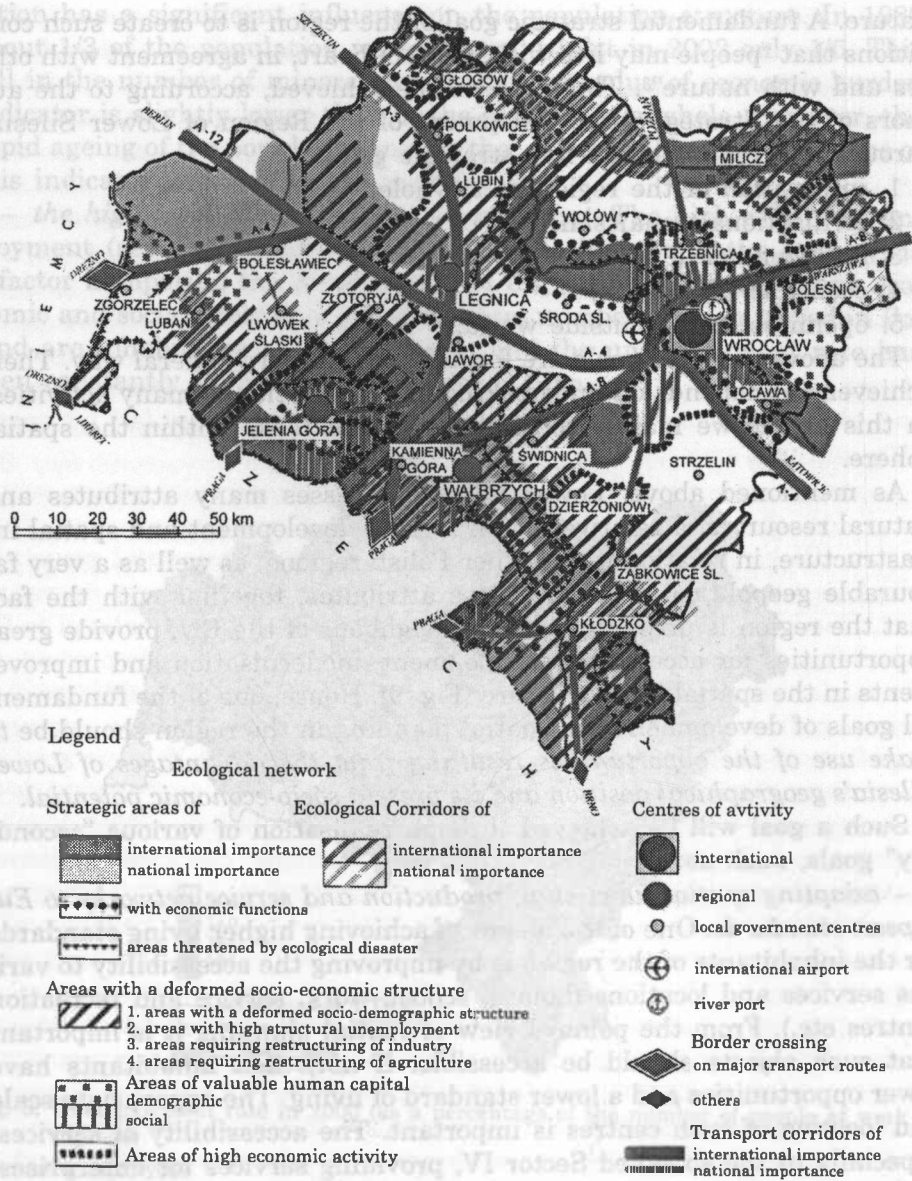


Fig. 9. Concept of the Spatial Development of Lower Silesia

Source: *Strategic problems in the development...*, 1997.

ited means for its development. Hence, one cannot satisfy everybody's needs at once. In order to achieve the best effects, investment must be made in appropriate locations. The majority of investments should be

concentrated in a relatively small number of appropriately chosen locations, *i.e.* in urban agglomerations, regional development centres, as well as the chains of settlements connecting these centres. Concentrating investment and activities in such places enables obtaining large gain, due to positive returns to scale. The Wrocław agglomeration plays a particular role in this framework, due to its position as international centre of activity, its geographical location and good transport links, as well as the high degree of economic transformation already achieved;

– *decreasing the economic and structural disproportions between border areas in Poland and its neighbouring countries.* The difference in the present level of spatial infrastructure on both sides of the western and southern borders is considerable. At the western border there is better infrastructure on the German side, but in the south the infrastructure in the Czech Republic is more or less at the same level. However, recently this situation has changed in Poland for the worse: a vast amount of investment has been made on the German side of the border from various sources, while the Polish side receives very little support from the state. This has increased the asymmetry between the two sides of the border in the field of economic development and spatial infrastructure over a short spell of time;

– *regenerating areas of natural beauty and protecting national heritage and culture.* The level of natural degradation is now so high that it is a threat to the health and life of the inhabitants, as well as to further socio-economic development in the region. The high level of air and water pollution, soil and forest degradation, the large area of zones threatened by ecological disaster, where environmental norms have been broken, together with the poor state of objects of national heritage, require action counteracting further environmental degradation.

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THE ECONOMY OF OPOLE PROVINCE

The tradition of industrial production in Opole Region dates back to the ancient times, and the preserved craftsmen's artefacts and objects found in numerous excavations can only too well testify to the truth of the statement. The oldest branches of production, which were developing in Opole Silesia in the remote past, included various crafts, extraction of ores and metallurgy. In the 18th century the economic activity outside agriculture, which was carried out by the local people, played a vitally significant role in the economy of the region [Strasiewicz, 1970]. The most important branches of production included textile industry, which was based on flax plantations, and sheep breeding, which developed mainly in the southern part of the region, in the foreland of the Sudetes.

As well as exploration of red ores, the possibility of making use of timber from the forests covering the northern part of the region for burning purposes, provided the basis of development of iron metallurgy, most of all in the Mabi Panew River Valley. The water resources in the rivers and their availability for energy producing purposes soon proved vital while founding metallurgy centres in this creek. Later, it was coal brought here from the mines of Upper Silesia that became the chief source of energy for the local metallurgy industry. Another traditional branch, which developed successfully in Opole Silesia, was production of lime, based on the local natural sources that are especially rich in the area of Strzelce Opolskie.

At the end of the 18th and the beginning of the 19th century, in the time of the industrial revolution and early capitalism, Opole Region witnessed a fast development of the existing branches of production and appearance of new types of industry. Apart from the above-mentioned metallurgy, lime production and textile industry, the following branches